

**Health allies in the prevention of obesity: the adoption
of the Sugar Tax and Front-of-Package food labelling
systems in Mexico**

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Abstract

How experts and evidence influence policy change is a point of debate in the literature. It is argued that the theorisation of experts' roles and knowledge utilisation has occurred in separate siloes failing to address experts' influence on policy change. Two policy process theories focused on policy networks, the Advocacy Coalition Framework (ACF) and Epistemic Communities (ECs), stress the importance of evidence and experts' role in policy change. They suggest that experts are influential in times of uncertainty (ECs) and can create networks (coalitions) with actors with similar beliefs to influence the adoption of policies that mirror their preferences (ACF). Yet, how networks are formed, how they influence policy change in contested policy areas, and whether networks are maintained post-policy adoption, remain unclear.

This research aims to study networks over time to address the identified theoretical gaps. This objective is addressed through an instrumental multiple-case study that analyses Mexico's Sugar Tax and Front-of-Package food labelling (FOPL) systems policy developments. It draws on 32 semi-structured stakeholder interviews and complementary documentary materials to explain the configuration and influence of networks of experts based on the ACF and ECs. It explores networks over time using qualitative Social Network Analysis.

My results suggest that health experts formed a network with a broader set of actors to influence the Sugar Tax adoption. However, in contrast to what theory indicates, the network's formation beyond shared values and beliefs was enabled by resources provided by an external donor. Networks were also identified in the FOPL systems case. Despite the high level of conflict in the policy area, the influence of experts and the uses of evidence varied between cases. Regarding networks over time, the study finds that at the organisational level, networks remain active in the policy process post-policy adoption.

List of Contents

Abstract	i
List of Contents	ii
List of Tables	vi
List of Figures	vii
Acknowledgements	viii
Declaration	x
Introduction	1
Background to the study: networks of experts and use of evidence for policy change	1
Objective, research questions, and concepts of study	4
Addressing the theoretical gaps through the obesity policy area.....	6
A multiple-case study of Mexico’s Sugar Tax and FOPL systems.....	9
Overview of nutrition and obesity prevention policies in Mexico.....	10
Thesis structure	13
Chapter 1: Policy change and theories of the policy process	16
1.0 Introduction to theories of the policy process	16
1.1 Policymaking dynamics.....	19
1.1.1 From rational choice to bounded rationality and incrementalism	19
1.1.2 Actors, interests, and ideas	22
1.1.3 Institutions and veto points	23
1.1.4 Policymaking and complex systems	25
1.2 The role of networks within policy process theories	28
1.3 Capturing policy change from the ACF and ECs.....	37
1.3.1 Epistemological comparison of change between ACF and ECs	42
1.4 Network emergence and temporality	44
1.5 Conclusion	47
Chapter 2: Experts and allies influencing the adoption of policies for the prevention of risky behaviours	49
2.0 Introduction	49
2.1 Experts and evidence uptake by policymakers in EBPM	51
2.2 Experts and evidence use by policymakers in ECs and ACF.....	53
2.3 Evidence use by policy advocates and opponents in adversarial subsystems	58

2.4 Health experts in the adoption of preventive measures: Lessons from the tobacco and alcohol policies	59
2.5 Experts in obesity prevention	61
2.6 Conclusion	65
Chapter 3: The global problem of obesity	67
3.0 Introduction	67
3.1 Evolution of obesity epidemiology	68
3.1.1 The obesity disease	69
3.2 Mapping excess weight and obesity	72
3.3 Latin America and the Caribbean	74
3.4 Obesity in Mexico	77
3.5 Regulation and policies	81
3.5.1 SSB taxes	84
3.5.2 FOPL systems	85
3.5.3 Mexico's response and policy actors	86
3.6 Conclusion	89
Chapter 4: Methods	91
4.0 Introduction	91
4.1 Research questions	91
4.2 Philosophical stance	92
4.3 Research design: Multiple-case study	94
4.3.1 Defining the cases	95
4.4 Evidence sources and analysis	98
4.4.1 Planning, conducting, and analysing interviews	100
4.4.2 Documentary materials	113
4.5 Social Network Analysis as an embedded method	117
4.5.1 Qualitative retrospective SNA	120
4.6 Use of analytical frameworks	129
4.7 Quality in qualitative research	130
4.8 Positionality	133
4.9 Conclusion	133
Chapter 5: The Sugar Tax Case	135
5.0 Introduction	135
5.1 Health experts: 'tripartite alliance' advocacy for the Sugar Tax	138
5.2 Health Experts' influence on the design and implementation of the Sugar Tax	143

5.3 Evidence for supporting the Sugar Tax and its dissemination channels ..	147
5.3.1 Civil Society dissemination of evidence to the public and decision-makers.....	149
5.3.2 Academic events	150
5.3.3 'We generate the demand'.....	151
5.4 Opponents to the tax within the food and beverage industry	151
5.5 A new government and the fiscal reform, a pathway for change.....	155
5.6 Concluding remarks	157
Chapter 6: Transition between FOPL systems	160
6.0 Introduction	160
6.1 'We were a group of allies', health experts within advocacy networks	164
6.2 Experts' influence in the Warning System process	166
6.2.1 Inform advocates and decision-makers: designing the Warning System.....	167
6.2.2 Defending and clarifying evidence.....	171
6.3 Evidence for the FOPL system's policymaking	174
6.4 A competing industry coalition	179
6.5 Pathways for change	181
6.5.1 Change in government and the 'authorities in favour of a group of allies'	181
6.5.2 Policy-oriented learning and reflection.....	184
6.5.3 Civil society campaigning	185
6.6 Concluding remarks	185
Chapter 7: Experts, networks, and collaboration ties over time	189
7.0 Introduction	189
7.1 Sugar Tax and FOPL systems collaboration networks	190
7.1.1 Sugar Tax collaboration networks	190
7.1.2 FOPL systems collaboration networks	200
7.1.3 Exploring changes from <i>t1</i> to <i>t2</i> in the two collaboration networks	208
7.2 Elicited ego-networks	210
7.2.1 Actors involved in the Sugar Tax	210
7.2.2 Actors involved in the FOPL systems development.....	216
7.3 Concluding remarks	221
Chapter 8: A cross-case discussion from the lens of the ACF and ECs	225
8.0 Introduction	225
8.1 How do networks of experts influence policy change?.....	226

8.1.1 SQ 1: How are networks of experts formed?	226
8.1.2 SQ 2: What information do experts possess and how is it disseminated?	233
8.1.3 SQ 3: How is expert-based information used in policymaking?	237
8.1.4 SQ 4: How is policy change attained in the Sugar Tax and FOPL cases?	241
8.2 Networks of experts post-policy adoption.....	246
8.3 Theoretical considerations and lessons	249
8.3.1 Advocacy Coalitions and epistemic communities	250
8.3.2 Expert influence in face of opposition	251
8.3.3 Evidence usage by policymakers	251
8.3.4 Influence on Mexico's politics	252
8.4 Summary.....	253
Chapter 9: Conclusion	255
9.1 Addressing the research questions.....	255
9.2 Theoretical and empirical contributions.....	257
9.3 Study limitations.....	260
9.4 Avenues for future research.....	261
Acronyms.....	264
Appendices	266
Appendix A. Scoping review.....	266
Appendix B. Interview guides	290
Appendix C. Ethics approval	294
Appendix D. Invitation template and information sheets.....	295
Appendix E. Consent form.....	303
Appendix F. Timelines.....	305
Appendix G. Transcription template	306
Appendix H. Documentary search Sugar Tax	307
Appendix I. Documentary search FOPL systems	325
Appendix J. UCINET outputs.....	342
References	348

List of Tables

TABLE 1.	Policy process theories and their core elements.....	36
TABLE 2.	Epistemological and theoretical choices in ACF and ECs	43
TABLE 3.	Characteristics of legislative and regulatory policies in Mexico.....	87
TABLE 4.	Main and subsidiary research questions.....	92
TABLE 5.	Methods to address the research questions	93
TABLE 6.	Boundaries of the multiple-case study	97
TABLE 7.	Selection criteria of purposive participants	103
TABLE 8.	Interview participants by organisation type and policy area	104
TABLE 9.	Procedures to address quality criteria.....	132
TABLE 10.	Sugar Tax themes	136
TABLE 11.	Themes from the transition between FOPL systems	161
TABLE 12.	Characteristics of collaboration networks in t1 and t2	208
TABLE 13.	Changes elicited in ego-nets for actors involved in the Sugar Tax.	214
TABLE 14.	Changes elicited in ego-nets for actors involved in FOPL systems	217
TABLE 15.	Elements on the formation of networks of experts	231
TABLE 16.	Coalitions' resources, strategies, and uses of information.....	235
TABLE 17.	Pathways and mechanisms of influence for policy change.....	242

List of Figures

FIGURE 1.	Foresight obesity system map with thematic clusters.....	62
FIGURE 2.	Mean BMI Transition Map	73
FIGURE 3.	Obesity prevalence rate among children and adolescents in Latin America and the Caribbean.....	75
FIGURE 4.	Obesity prevalence rate among adults by sex in Latin America and the Caribbean.....	75
FIGURE 5.	Major types of FOPL systems	85
FIGURE 6.	Sociogram for data collection divided into four quadrants	123
FIGURE 7.	Sociogram	125
FIGURE 8.	The health advocacy alliance for the adoption of the Mexican Sugar Tax	140
FIGURE 9.	Comparison of Mexico and Chile's warning stamps	169
FIGURE 10.	Warning labels and legends for sweeteners and caffeine	170
FIGURE 11.	Warning system stamps	173
FIGURE 12.	Warning system legends	174
FIGURE 13.	Network of actors that collaborated for the Sugar Tax adoption... ..	192
FIGURE 14.	Collaboration between organisations for the implementation of the Sugar Tax.....	194
FIGURE 15.	Community detection in the Sugar Tax collaboration network using the Girvan-Newman algorithm.....	195
FIGURE 16.	Collaboration network to influence the permanence and increase of the Sugar Tax.....	198
FIGURE 17.	Collaboration amongst organisations for defending and modifying the Sugar Tax.....	199
FIGURE 18.	Collaboration amongst actors to implement a FOPL system in t1	202
FIGURE 19.	FOPL system collaboration network in t1	203
FIGURE 20.	Community detection for the FOPL system case using the Girvan-Newman algorithm	204
FIGURE 21.	The Warning System collaboration network (individuals)	206
FIGURE 22.	The Warning System collaboration network (organisations).....	207
FIGURE 23.	Actor 29 network by the time GDA was implemented.....	219
FIGURE 24.	Actor 29 network for Warning System's implementation	220

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Declaration

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged as References.

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Introduction

Background to the study: networks of experts and use of evidence for policy change

How experts and evidence influence policy change is a point of debate in the literature. Christensen (2020) argues that the development of theories of experts and knowledge utilisation has occurred in separate siloes of literature, failing to address experts' influence on policy change (Christensen, 2020). While the literature on evidence-based policymaking (EBPM) can help to explore the different types of evidence that experts possess and disseminate, observing the policy system solely from the EBPM perspective may result in a bias towards overestimating the role of evidence and experts in policy change if contextual factors are omitted (Christensen, 2020; Cairney, 2016a; Cairney, 2014). Hence, understanding how experts participate and how evidence is used for policy change is better captured by policy process theories (Christensen, 2020; Clarke et al., 2016).

Sabatier and Jenkins-Smith's (1993) Advocacy Coalition Framework (ACF) and Haas' (1992a) Epistemic Communities (ECs) are a subset of theories that deal with "policy networks." Policy Networks are the links between social and government actors with a resource-dependence relationship that interact to influence the adoption of policies. These theories consider experts as part of a broad set of actors, and knowledge as an important resource to be used in the policy process to produce policy change (Brooks, 2018; Löblová, 2018a; Smith and Weishaar, 2018). These frameworks explain how individuals or organisations form collaborations around shared beliefs about the nature of public policies and their solutions. They also explain how these groups of actors influence the adoption of policies by, for example, gaining access to decision-making venues.

In the ACF, networks of actors are called "advocacy coalitions." These coalitions are formed by individual policy participants who collaborate to increase their influence when translating their preferred policy solution within the policy process by aggregating their resources and preferences (Weible et al., 2020). Within this framework, experts are individuals that produce information which is based on science and not on 'trial-and-error learning' (Weible 2008, p.616). They can be

'policy analysts, scientists, and researchers' inside and outside government (Weible 2008, p.616). Sabatier and Zafonte (2001) highlight that experts are not neutral actors; hence, they are 'likely to form an advocacy coalition together with government representatives, civil society, the media, and others to try to influence the resolution of a policy problem' (Funke et al., 2021, p.786).

Evidence possessed or produced by experts is a political resource of advocacy coalitions. However, it can also have learning, political, and instrumental uses exerted by policymakers (Weible, 2008). The learning mode occurs when the accumulation of science gradually alters policymakers' beliefs about how to address a public issue. The political use implies using evidence to legitimise 'previously made' policy decisions (Weible 2008, p.790), whereas the instrumental use refers to a rational use of expert-based information for policy decisions. In other words, this is when a problem exists and research is conducted to find and adopt the best solution (Weible et al., 2010). According to the ACF, evidence and experts' influence to produce a policy change varies according to the level of conflict within the policy subsystem. As such, when two or more advocacy coalitions compete, in what is known as "adversarial subsystems," the political use of evidence tends to be higher than its instrumental or learning functions (Funke et al., 2021; Weible, 2008).

Epistemic communities refer to knowledge-based networks of experts that share the same *episteme*, or vision of the world, reflected, similarly to the ACF, in the beliefs the networks possesses and the activities they carry out. The communities have in common normative beliefs that represent the rationale for 'the social action of community members' (Haas,1992a, p.3), as well shared causal beliefs (related policy and their solutions), shared notions of validity to weight and validate knowledge; and a policy enterprise, defined as 'a set of common practices associated with a set of problems to which their professional competence is directed, presumably out of the conviction that human welfare will be enhanced as a consequence' (Haas,1992a, p.3).

How these epistemic communities influence the adoption of policies was initially conceived as a function of uncertainty and technical complexity faced by governments. In cases in which policies were of high complexity, epistemic communities would help define policy preferences and solutions. However,

recent studies have suggested that epistemic communities can be influential in any policy area. Löblová (2018b) argues that knowledge demand is the scope condition of epistemic communities' influence, and not merely uncertainty.

According to Haas (1992a, p.4), the demand for information affects the emergence and proliferation of communities able to provide policy solutions. However, only one of these networks may prevail in the policy arena and gain strength as 'decision makers delegate responsibility to them.' This will result in the consolidation of bureaucratic power (members of an epistemic community holding public service positions) and ultimately in policy change through the institutionalisation of its influence in local or international policy areas.

On the one hand, while the ACF has proven to be a framework widely applied in diverse disciplines, including public health, to explain policy change (Ma et al., 2020; Pierce et al., 2017) and the role of experts and evidence in influencing policy changes (Funke et al., 2021), the continuous revision of its research program has demonstrated that more investigation is needed to understand how actors coordinate to influence the adoption of policies (Weible et al., 2020), and how evidence is used according to the level of conflict in the policy arena (Jenkins-Smith et al., 2018).

On the other hand, the ECs' literature seeks to understand whether epistemic communities remain involved in the policy arena beyond the adoption of policies (Löblová, 2018b; Dunlop, 2015). This is particularly important for understanding the long-term involvement of experts, as the policy process does not end once a policy has reached the government agenda, and expert input may be needed over time. For example, to undertake policy evaluation or to advocate for policy maintenance. In the stages-heuristic model, Harold Laswell (1956) illustrates that policies are implemented, and evaluated after the agenda-setting, formulation, and legitimation stages, producing positive or negative feedback that contributes to policy maintenance, modification, or termination. As an illustration, the introduction of tobacco restrictions regulations has shown that once policies have been implemented, opponents to regulations continue advocating to overturn policies implemented for public health concerns (Patanavanich and Glantz, 2021).

Objective, research questions, and concepts of study

This research aims to study networks of experts over time to address the theoretical gaps in the ACF and ECs literature defined in the previous section. Regarding the ACF, the thesis seeks to address how actors coordinate to influence the adoption of policies (Weible et al., 2020) and how their evidence influences policy change according to the level of conflict in the policy arena (Jenkins-Smith et al., 2018). Concerning the ECs literature, the objective is to explore whether relationships between network actors persist post-policy adoption (Löblová, 2018b; Dunlop, 2015). Hence the overarching aim of this research is to understand how networks of experts are formed, influence policy change and remain involved in the policy process.

To address this objective, I defined two main research questions and subsidiary questions:

1. How do networks of experts influence policy change?
 - How are networks of experts formed?
 - What information do they create or possess, and how is it disseminated?
 - How is the knowledge they possess used for policy change?
 - How is policy change achieved?
2. What happens to these networks of experts after the adoption of policies?

The first and subordinated questions relate to the ACF theoretical gaps. In contrast, the second question relates to theoretical developments that remain limited in the ECs' literature. It should be noted that the second research question focuses on "network temporality," a gap that pertains uniquely to the ECs' framework. In contrast to the ECs' framework, the ACF captures the development of policy in a period of ten or more years in which a policy cycle would be completed as defined in Lasswell's (1956) stages heuristics model, which captures the post-policy adoption time.

To further clarify and operationalise the research questions, I define the following concepts of study:

Experts

As introduced in the previous subsection, Weible (2008) suggests within the ACF that experts are actors that produce and possess scientific information. For the ECs experts are 'professionals with recogni[s]ed expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area' (Haas, 1992a, p.3).

Networks of experts

I use the term "networks of experts" to capture both experts within advocacy coalitions and epistemic communities. This is a concept borrowed from Radaelli (1998, p.21). According to the author, these networks are:

Communities of experts working within public administration (technocrats), government, parliament, universities, and think tanks. As for academics and think tanks personnel, attention is restricted to those who produce policy-oriented knowledge.

Policy-oriented knowledge, as mentioned in the quote above, refers to the information and evidence possessed by policy network members acquired through education or to experience in the policy sector in which actors operate and which is relevant for policy. Diverse studies highlight that networks of experts operate in areas such as fiscal policy (Radaelli, 1998) and public health (Löblová, 2018a; Smith and Weishaar, 2018). By defining experts as actors involved in policy networks, this research moves beyond the notion that experts, understood as individuals located in professions or in sciences that possess knowledge and skills and who provide impartial advice (Christensen, 2020; Grundmann, 2017), are independent actors in public policymaking.

Network temporality

The temporality refers to the stability or instability of the relationships between network actors to address the second research question. Zafonte and Sabatier (2004, p.78) concede that there may be short-term relationships when

organisations have limited power in a policy domain and individuals 'flit from organi[s]ation to organi[s]ation.' But long-term cooperation can also exist where the 'nature of the task' requires so (Zafonte and Sabatier, 2004, p.78). Other authors have pointed out that collaboration in networks of experts depends on knowledge demand by the government (Löblová, 2018b; Dunlop, 2017), or is due to the professional activities shared among the members of a system (Davis Cross, 2013).

Policy change

This research considers policy change as the introduction of completely new policies, and the alteration of policy attributes. In other words, policy change can occur abruptly with no precedent or as an evolutionary process.

Influence

This research understands influence as an 'an actor's ability to shape a decision in line with her preferences' (Dur, 2008, p.561). For the policy process literature there are diverse mechanisms through which influence can be observed, when the policy adopted mirrors the preferences of specific policy ideas of the actors who promote these, for example (Christensen, 2020).

Addressing the theoretical gaps through the obesity policy area

Obesity and being overweight are defined as the accumulation of excessive fat resulting from the imbalance between energy intake and energy consumed (WHO, 2021). According to the World Health Organisation (WHO), excess weight affects 39% of adults (13% are obese) and 18% of children and adolescents around the world (WHO, 2018). What was once considered a condition prevailing amongst developed nations as a sign of socioeconomic status (Warin, 2019; Caballero, 2007), has increasingly been affecting not only developed nations but low- and middle-income countries (LMICs) during the last four decades (WHO, 2021). In Mexico, obesity rates in adults increased by 42.2% over the previous three decades (Barquera and Rivera, 2020), and is the country with the highest

obesity prevalence in adults among the Organisation for Economic Co-operation and Development (OECD) countries (OECD, 2021). According to Shamah-Levy and colleagues (2022), in 2021, 72.4% of Mexican adults were overweight (35.7%) or obese (36.7%). Prevalence rates were higher in women than men, rural areas presented higher overweight levels than urban areas (37.1% vs 35.4%), but obesity was higher in urban areas by five percentage points. Children between 0 to 4 years were at risk of being overweight, whereas 37.4% of children between 5 and 11 years presented excess weight, and 42.9% of adolescents presented one of these two conditions.

The causes of obesity cannot be attributed to a sole risk factor. Accordingly, among public health scholars, obesity is studied as a complex problem (Rutter, 2011) resulting from various individual, social, and environmental factors. Furthermore, there is a consensus regarding the ties between globalisation and the prevalence of this non-communicable disease (NCD) where it has been argued that trade of goods and services, technological change, and urbanisation have created “obesogenic environments.” These environments led to the adoption of unhealthy lifestyles, which ultimately triggered the development of overweight and obesity (Popkin and Reardon, 2018; Costa-Font and Mas, 2016; Stuckler et al., 2012; Must and Evans, 2011; Popkin, 2008).

The increasing availability of unhealthy commodities has promoted a nutrition transition from healthy traditional diets towards the consumption of energy-dense foods. This is commonly referred as the “westernisation of diet” (Popkin, 2021; Stuckler et al., 2012; Drewnowski and Popkin, 1997). Evidence suggests that developing market liberal economies tend to be more susceptible to the trade and consumption of products of low nutritional values. Ultimately, this affects the population’s behaviour and consumption patterns (Stuckler et al., 2012), with a disproportionate effect on minorities and low-income populations (Templin et al., 2019; Cawley and Meyerhoefer, 2012).

Obesity is twofold in nature, both a disease itself and a risk factor for the development of other NCDs. For this reason, the individual and economic costs are both direct and indirect. The costs incurred by decreased labour market productivity and treatment of diseases such as type 2 diabetes and high blood pressure are some of the heavier burdens for governments (Hojjat and Hojjat,

2017). According to Swinburn et al. (2019) the cost of obesity amounts to US \$2 TN annually, representing the 2.8% of the world's Gross Domestic Product (GDP). In Latin American countries such as Ecuador, Mexico, and Chile, the average costs amount to 0.8% of their GDP (Fernández et al., 2017). This is the factor with the third-most significant impact on the global economy, just behind tobacco consumption and armed violence (Swinburn et al., 2019; Dobbs et al., 2014).

Because of its complex nature and its implications for public health in the long run, local governments are urged to implement policies and regulations tailored to its socio-economic needs and characteristics. Moreover, Rutter (2011) describes obesity as a “wicked problem” in the sense that there is no single effective solution. The policies for its prevention can be contradictory and both top-down and bottom-up approaches should be considered in a comprehensive strategy (Laverack, 2018; Swinburn, 2008).

Nonetheless, a shift to obesity prevention is apparent and policies that aim to influence healthier behaviours among the population can be seen in the form of regulations that affect the supply and demand for unhealthy products. The implementation of fiscal policies, the regulation of energy-dense food advertising, and the introduction of informative front-of-package nutrition labelling (FOPL) systems (Temple, 2019) are some of the most frequently used mechanisms affecting product demand.

On the one hand, taxes on unhealthy food and sugar-sweetened beverages (SSBs) are a mechanism that influences individual levels of consumption by increasing the price of a product. Given the budgetary restrictions of consumers, a price increase may impact the amount purchased of a product. On the other hand, FOPL systems are a tool to provide packaged foods' nutrition information to the consumer. They are a response to several objectives, such as providing nutritional content and helping consumers discern the relative healthfulness of a product, especially given the broad availability of ultra-processed foods in the market (Champagne et al., 2020).

FOPL systems exist in different formats. For example, the Guideline Daily Amounts (GDA) is a FOPL system that shows energy and the percentage of key

nutrients a product contains, expressed as a percentage of a guideline daily amount for adults. Other FOPL types include the warning labelling system (henceforth, warning system), which displays warning labels on the front of packaged food and beverages that contain unhealthy levels of energy and nutrients (Nieto et al., 2019).

Despite the increase in the number of countries adopting policies for obesity prevention, the question of how these regulations and policies have reached the political agenda remains of interest for public health scholars who seek to understand how health experts and evidence influence the politics of prevention and may produce policy change (Le Bodo and De Wals, 2018; Clarke et al., 2016). Scholars have previously argued that an analysis of policies from the perspective of political science may enlighten the ways in which health experts influence the adoption of policies, and this would in turn shed light on the tensions between the different stakeholders (Le Bodo and De Wals, 2018; Clarke et al., 2016; Mosier, 2013; Breton et al., 2008).

A multiple-case study of Mexico's Sugar Tax and FOPL systems

Considering the obesity area as one that could be used instrumentally to help to address the theoretical gaps in the ACF and ECs literature and needs to be further explored, as mentioned in the previous subsection, I undertook a multiple-case study. The multiple-case study focuses on the development of two policies under the umbrella of “the prevention of obesity in Mexico” between 2006 and 2020. It traces the formation of networks or “alliances” between health experts and allies around the policy development of the *Special Tax on flavoured beverages with added sugars and foods with high caloric density*¹ (henceforth, Sugar Tax), which is the first case, and compares it with the policy transition between FOPL systems. In other words, the second case studies how FOPL systems changed, from the industry-led GDA's implementation towards the Warning System's adoption in 2018-2020.

¹ In Spanish Impuesto especial a los alimentos con alta densidad calórica y bebidas azucaradas. Translation my own.

Mexico was a strong candidate for this study for several reasons, allowing me to shed light on the gaps in the ACF and ECs literature identified above. First, the Mexican context was considered instrumental in mapping the participation of networks of experts in the adoption of obesity policies over extended periods. Preceding studies demonstrated the active role of public health experts and organisations supporting the Sugar Tax and FOPL systems (Barquera and White, 2018; Carriedo, 2017; Donaldson, 2017; Barquera et al., 2013). Furthermore, by the time this study began in 2018, discussions on increasing the Sugar Tax and modifications of the GDA FOPL system continued to be debated in the Congress, showing the continuous participation of health experts and allies. Second, choosing Mexico was motivated by the call to apply the ACF in non-traditional settings (e.g., developing countries and nascent democracies). Furthermore, between 2006 and 2020 the elected governments alternated between right-central and leftist administrations, affecting the dynamics of the relationships between experts and decision-makers. Finally, in terms of research impact, the Mexican case is of importance for public health scholars and the global community of obesity-prevention experts. For instance, the Sugar Tax continues generating lessons for the adoption of policies in diverse jurisdictions.

Interviews with stakeholders and documents form the body of evidence for this study and capture the complexity of the policy process. They incorporate the views of academics, international organisations, civil society organisations, non-government organisations and government agencies involved in the adoption of the policies.

Overview of nutrition and obesity prevention policies in Mexico

The United Mexican States (henceforth, Mexico) is a democratic and constitutionalist federation. Its most recent Constitution was signed in 1917, and it is the longest in the history of Mexico and the oldest in Latin America. To date, it has been amended several times and continues to govern the social, economic, and political life of Mexico. The Constitution establishes the separation of government powers into three branches: executive, legislative, and judiciary, all of which exist at national and subnational levels.

At the national level, the executive power is represented by the president who is elected by the direct vote of citizens every six years. The president has the power of veto bills and appoint and dismiss cabinet and high-rank officials who execute and enforce the law. Despite the fact that division of powers is conceived as a mechanism of checks and balances, the executive branch has historically dominated the other two (Willey et al., 2022), offering the President and high-ranking officials considerable formal and informal policy-making powers (Peci et al., 2022). Formal decisional powers are those granted by the Constitution (for example the legislative veto authority). Informally as head of the governing political party, the president has enjoyed 'until recently, majority representation in the Congress' (Gómez, 2019, pp.521-522). In this context, policies and actions supported by the president via cabinet or the Congress would be likely adopted.

Metz and Brandenberger (2022) suggest that policymaking is closely linked to the characteristics of the political regime governing a country. That is, each government decides its agenda and has incentives for the institutions to align with its objectives (Cejudo, 2017). In the case of Mexico, policymaking has undergone a significant transformation from authoritarianism to democracy (Nacif, 2012) as a result of party alternations in power between 2000 and 2018.

For 71 years the Institutional Revolutionary Party (PRI, by its acronym in Spanish), a centre-right party governed the country, holding presidency and majority of Congress seats. During that time, policy design and implementation was controlled by a political elite (Cabrero, 2000), including health policy (Brachet-Márquez, 2010). However, from 2000- the year in which PRI lost its hegemony against the National Action Party (PAN, by its acronym in Spanish)- to 2018, Congress' majority had not been held by a single party and this has prompted increased participation from non-state actors in policy formulation (Mendez, 2017).

The social, political, and economic development agenda is planned at the beginning of each administration and its objectives set out in the National Development Plan, a multi-sectorial document that is elaborated on by the Ministries and the public through consultation forums. It is compiled by the Ministry of Finance (MoF) (Presidencia de la República, 2018) and actions

undertaken by the government agencies must align with it. This includes food and nutrition policies that according to Barquera et al. (2001) have historically being aligned with the development plan and reflected the various social, political, and economic crises faced by the country. For example, fortification programs with micronutrients in salt and fluorine were implemented to tackle undernutrition and malnutrition prevailing in the country mostly prior 2000.

The obesity prevention agenda began in Mexico in 2006 when academics and federal agencies coordinated activities to design a national policy for obesity prevention. Later in 2008, led by the Ministry of Health (MoH), health experts recommended beverage intake guidelines, and in 2010 MoH launched the National Agreement for Nutritional Health (NANH). NANH constituted the first effort to prevent obesity as a multiple strategy that involved the coordinated effort of diverse ministries (Barquera and White, 2018; Latnovic and Rodríguez-Cabrera, 2013; Barquera et al., 2013). NANH recommended initiatives such as banning junk food in schools, introducing a FOPL system, and implementing taxes on unhealthy foods.

Despite NANH being launched in 2010, it was not until 2013 that the National Development Plan included as a guideline the implementation of actions to prevent and control overweight, obesity and diabetes (PND, 2013). In the same year, coordinated by the MoH, the National Strategy Against Overweight, Obesity and Diabetes (NSAOOD) was launched as a set of guidelines incorporating the Sugar Tax and the FOPL system as one of the many strategies to be implemented to tackle these NCDs.

The NSAOOD provided the framework to adopt these two policies. However, because of their fiscal (Sugar Tax) and regulatory (FOPL systems) nature, the initiatives were led by different branches of government. The Sugar Tax was passed by the Congress as part of the Income Law (legislative branch). In contrast, the GDA, the FOPL system implemented at that time, was passed through the Ministry of Economy (MoE) and the Federal Commission for the Protection of Sanitary Risks (COFEPRIS, by its acronym in Spanish), two entities of the executive branch of government (Santos-Burgoa et al., 2018). As such, the

adoption processes differed: the first followed the legislative process and the second, the regulatory process.

After the Sugar Tax and GDA's implementation, the obesity policy arena has continued to be an area of debate where state and non-state actors have been involved in the discussion on modification to tax and FOPL systems policies. In 2016, the MoH declared an epidemiological emergency due to obesity and diabetes levels in the country, and in 2020 the government implemented a new FOPL system, the Mexican Warning System. By the time this thesis was completed, food regulation in schools, education campaigns, marketing regulation for products targeted to children, improvement of physical activity spaces, and breastfeeding promotion, alongside taxes for junk food and SSBs, are the main policies implemented to prevent the growing prevalence of excess weight and related diseases in the country. We will return to this when outlining the development of these policies in Chapter 3 and the results sections.

Thesis structure

Following this introduction, the thesis is organised within nine chapters.

Chapter 1 to Chapter 3 comprises the literature review. *Chapter 1* expands the arguments presented in this introduction by reviewing the broad debates of what policy is and the factors that shape policy in order to explain how policy networks capture the complexity surrounding policymaking. Exploring policy networks in more depth, this chapter addresses how networks have been incorporated within the mainstream policy process theories that seek to explain policy change. The chapter then turn its focus to the ACF and ECs, addressing how these include the role of experts in policy change and the temporality of networks.

Chapter 2 outlines how evidence has been studied by the policy sciences and tackles the limits of EBPM. Building upon the limits to EBPM, the chapter returns to the ACF and ECs to explain how the frameworks analyse the role of evidence in the policy process. In this chapter, we review the applications of these frameworks in the prevention of tobacco and alcohol consumption and introduce

what is known about the interplay of experts in obesity prevention and how it has been studied from the perspective of policy process theories.

Chapter 3 focuses on obesity and its association with globalisation and the nutrition transition. It presents the evolution of excess weight worldwide, narrowing it down to Latin America and Mexico, which is the cases' context. The chapter then elaborates on policy responses to reduce the consumption of unhealthy food and beverages to tackle the obesity epidemic and how Mexico has responded. Emphasis is given to its political and legal framework that delimits actors participating in the policy process.

Chapter 4 details the study's research methods. It overviews the research paradigm underpinning the investigation and explains the multiple-case study research design. It highlights the use of interviews and documentary materials as evidence sources for the cases. In terms of analysis, it presents the rationale for using thematic analysis to address the first research question and presents Social Network Analysis (SNA) techniques to address the second question. Further, it explains how the study addresses quality in qualitative research, concluding with a positionality statement.

Chapter 5 and *Chapter 6* present the findings of the case studies about the first research question on the participation of health experts for the adoption of the Sugar Tax (*Chapter 5*) and the transition between FOPL systems (*Chapter 6*). Each chapter is divided into subsections capturing the themes that emerged from the interviews—these range from the formation of networks or alliances to the factors that contributed to policy change.

Chapter 7 presents the case studies' findings regarding the second research question and the use of SNA. This chapter maps the collaboration network of health allies and actors involved in adopting the Sugar Tax and FOPL systems mentioned in the previous two chapters. It provides quantitative data about the structure of whole networks, but later it moves on to explore elicited collaboration networks and the reasons why actors may remain involved in the policy sphere.

Based on a cross-case comparison, *Chapter 8* discusses the findings by applying the analytical concepts of the ACF and ECs. Three results stand out. First,

resource dependence contributes to the formation of coalitions. The adoption of the Sugar Tax was boosted by the interest of an international donor in promoting the obesity agenda in Mexico. It gave funding to implement an influence strategy between health allies that persisted in the adoption of the Warning FOPL system. Second, the uses of expert-based information (exerted by policymakers) differ between the two cases despite similar conditions of conflict surrounding the policy area. In other words, despite the political use of evidence was expected due to industry opposition in the two cases, the adoption of the Warning System observed the instrumental use of evidence. This may suggest that factors such as the maturity of the subsystem have implications for the use of evidence. Third, structural factors determine the permanence of health allies in the networks between periods. The chapter also presents these key findings in relation to their theoretical implications and the broad debate on the involvement of experts in the prevention of obesity when health allies face opposition from the food and beverage industry.

Chapter 9 revisits this thesis' overarching aim and the research questions. Based on the findings, it draws theoretical and empirical contributions. Further, the chapter outlines the study's limitations and concludes by presenting avenues for future research.

Chapter 1: Policy change and theories of the policy process

1.0 Introduction to theories of the policy process

The study of the policy process involves diverse theories and approaches that help to illustrate how policies emerge, are adopted, and institutionalised in one or more jurisdictions. Theories and frameworks, as rational principles, provide a structure to guide the observation and explanation of the political and policy spheres (Cairney, 2012b). However, analysing the policy process is not a straightforward task. It requires us to consider power distribution, the capacity of actors as decision-makers, and diverse factors surrounding the policy environment. However, this has not always been the case. Early studies of the policy process assumed a unitary state in which the decision-making power was concentrated within a limited hierarchical structure (Silke and Kriesi, 2007). Under this structure, a precondition for policy formulation was the notion of the 'rational actor,' in which decision-makers had complete information regarding public issues, and how these could be solved, thus selecting the best choice of policy (Klijn, 1997, p.15). Power concentrated within a political elite would allow for an almost procedural process of policymaking. According to this principal, Klijn (1997) maintains that the policy process can be observed as a linear staged process divided into the phases of formulation, decision-making, and implementation.

This sequential, quasi-linear perspective was revised by Lasswell (1956), who introduced the classic policy cycle (also known as the stages heuristic), based on the notion that decision-making occurred in seven stages. Most recent studies merge some of these into five stages (Howlett and Giest, 2015): agenda-setting, formulation, decision-making, implementation, and evaluation and feedback. According to Cairney (2020, p.26), the policy cycle reflects 'a notional starting point at which policymakers begin to think about a policy problem to a notional endpoint at which a policy has been implemented, and policymakers think about how successful it has been before deciding what to do next.' Eventually, with complete information and rationality, the policy cycle would lead policymakers to maintain, improve, or terminate policies.

Although this approach has proven helpful as an organising principle for policy studies in locating these and other frameworks between one or more of these stages, the evidence on policy process research suggests that the policy environment is far more complex. For instance, one of the criticisms of the policy cycle is that politicians act under bounded rationality (Baumgartner et al., 2017; Etzioni, 1967; Lindblom, 1959; Simon, 1947). This means that policymakers act with incomplete information regarding what the problem is and how should be solved. But they also act with limited time and resources, which constrain optimal decision-making processes (John, 2012). Furthermore, academics such as Ronit and Porter (2016, p.59) argue that the policy context is not a 'value-free' environment. Many interests become social, economic, and political pressures that exercise power, ultimately determining if the issues rise to the political agenda.

The limits to studying the policy process from the perspective of the stages heuristic are also revealed by the recognition of modern political systems where the unitary state, as the centre of decision-making, seems scarcer than pluralists' structures (Klijn, 1997). For pluralist academics, multiple actors co-exist in the policy sphere. This means that not only decision-makers, but also private and public interest groups play a role in policymaking. Whether or not they are motivated by economic interest, many groups exist in democratic systems to represent the collective voice of societies' interests (Baumgartner and Leech, 1998). Heikkila and Cairney (2017) add that macro-, meso-, and micro-level issues and vertical and horizontal structures (multilevel governance) also interact within the policy environment. In this regard, the policy process is a complex mechanism where there is recognition that policy conditions, actors, choices, institutions, networks, ideas, and events are factors that contribute to a policy's emergence, persistence, or failure in a certain period (Heikkila and Cairney, 2017).

The policy context comprises economic, social, demographic, and technological conditions that surround the identification and framing of policy issues and policy responses, but it also includes the institutions that constrain the policy process. Institutions are colloquially defined as "the rules of the game" (Olivier and Schlager, 2022; Hudson and Lowe, 2009; North, 1990) and refer to the written

and unwritten rules of political and social behaviour (i.e., relations between branches of government, structure, and organisation of key economic or interest groups). Networks are the relationships between policy actors: the sphere where ideas and beliefs are shared and contested to influence public policy.

Despite how these factors shape the analytical context of theories of the policy process, there is no unifying theory (Cairney, 2012b). Theories and frameworks may focus on critical events such as agenda-setting, or elements within the policy environment such as individuals, institutions, or networks. This is not to say that public policy must be studied from a singular perspective. In fact, all theories coexist in the policy field, and combining theoretical understandings enriches policy analysis. The extent to which merging theoretical lenses and approaches is appropriate to study a policy domain will depend on the complexity of the issue, and to the coherence between 'ontological, epistemological, methodological, and practical issues' (Cairney, 2013, p.1) since otherwise 'eclecticism may well compromise theoretical accuracy' (Capano, 2009, p.26).

In essence, the policy process is far from being a linear process. Although the simplicity of a stages device helps to organise the policy analysis within categories such as "agenda-setting," or "evaluation," the reality is complex and requires a consideration of all factors involved in the policy process. In this regard, theories and frameworks of the policy process allow us to analyse concepts and processes that, as argued by Clarke et al. (2016), can shed light on the way that experts are involved in the adoption of obesity-prevention policies.

The remainder of this chapter is divided into five sections. Section 1.1 presents the broader debate of policymaking to lay the foundations for policy networks. In section 1.2 the chapter moves to a discussion of policy networks as part of the policy process theories that explain policy change, addressing policy networks' weaknesses and strengths. In section 1.3 the chapter focuses on two network theories, the Advocacy Coalition Framework (ACF) and Epistemic Communities (ECs), exploring how these incorporate the role of experts, in policy process. Section 1.4 explains how networks of experts are formed and what is known about their temporality. The final section concludes.

1.1 Policymaking dynamics

The previous section explained that policymaking develops within a complex environment within which decisions about how to solve a public issue are made. Decisions which ultimately take the form of policies are made by government officials (i.e., elected or appointed officials, judges, or bureaucrats) within one or multiple government agencies, which could be influenced by a larger set of non-state actors (Howlett and Cashore, 2014). For Dye (1972) the government possesses a special status in policymaking derived from the power of making authoritative decisions on behalf of citizens, suggesting that actors outside the government play no more than advisory roles to government officials. Dye's view has been challenged by evidence that indicates policymaking occurs in a structured interaction, where actors outside and inside government contend for decisionmakers' attention and resources to define policy priorities and solutions (Colebatch, 2006).

1.1.1 From rational choice to bounded rationality and incrementalism

At the core of questions about which policies reach the government agenda and how policy are made, choice constitutes a key theme. The concept of choice feeds into the debate about whether policy is made following principles of rational choice or whether actors act within bounded rationality. Rational choice principles were developed in the field of economics, with classical authors such as Adam Smith proposing that with complete information and clear preferences rational actors will make decisions maximising their utility. The understanding of rational choice in political and policy sciences maintains that in a policy decision-making process, decision-makers will consider all alternatives and consequences for each policy decision and in consequence, choosing options that maximise self-benefits (Jones et al., 2006). For instance, in the policy-cycle, the formulation of a policy solution would entail a cost-benefit analysis, and the policy option that represents the best solution to a public problem would be adopted.

Rational choice theory has been classified as a reductionist approach that has the advantage of narrowing down the interpretation of policy decision-making to self-interests, and provides generalisable concepts (Levi, 1997). However, field observations have shown that decision-makers' behaviours do not match with

that predicted by rational choice theory (Bendor, 2015; Jones et al., 2006; Jones, 2003). For this reason, rational choice remains as the ideal type of policy formulation and decision-making.

It has been proven that decision-makers act under bounded rationality (Simon, 1947) in contrast to comprehensive or full rationality as the ideal type of policymaking (Cairney and Weible, 2017; Jebin and Hasan, 2016; Jones, 2002). Bounded rationality means that although actors may intend to act rationally (such as a government trying to address public needs in order to maximise benefits *optimally*), actors' cognitive architecture and complex environments lead them to take decisions that only *satisfy* public needs. In other words, emotions, habits, memory, and selective attention to problems play a main role in prioritising policy options that are 'good enough' (Jones et al., 2006, p.69). Jones (1999) suggests that the "needs" that get identified as issues that deserve response even if it is sub-optimal, depend on various factors related to decision-makers' nature, for example if needs are framed in such a way that is appealing to them.

Following the notion that policy actors act under bounded rationality, it has been suggested that public policies are shaped by incrementalism (initially conceived as "muddling through"), bargaining, and "horse-trading" (Simon, 1999). Particularly, Lindblom (1959), who followed the work of Simon (1947), highlighted that we are likely to observe incremental changes to the policy *status quo* because policymaking is constrained by limited resources and bargaining costs in addition to the unpredictability of consequences of implementing a non-incremental (e.g., innovative) policy. For Lindblom, policies are the result of a process of mutual adjustment between the interests of diverse stakeholders, 'possessing different information, adhering to different values, and driven by different individual or group interests' (Hayes, 2013, p.288).

To minimise the impact of possible policy-making mistakes, decision-makers rely on a handful of possible solutions. Decisions are taken following 'a variety of shortcuts that include the use of rules of thumb, reliance on market forces, focusing on a few, select, policy options, and limiting the range of decision to the immediate future' (Migone and Howlett, 2016, p.83). For example, decision-makers may rely on immediate past policies to make new decisions. Incrementalism argues that 'policy is not made once and for all; it is made and

re-made endlessly. Policymaking is a process of successive approximation to some desired objectives in which what is desired itself continues to change under reconsideration' (Lindblom, 1959, p.86).

A strong incrementalist agenda can be seen in budgeting studies motivated by Wildavsky's (1964) research. They found that budgets in the United States (US) followed a path-dependent policy trajectory. In other words, decisions were made based on previous years' figures and arrangements, where the organisations involved in the process (the Office of Management and Budget and the Congress) set up a stable pattern of mutual expectations that ultimately ensured that agencies got a fair share of the budget. However, Wildavsky's observations were challenged in times of fiscal constraints which impeded the incremental budgeting process (Wehner, 2016).

Incrementalism faces several criticisms including that 'it is inherently conservative, couching a pro-elite bias in its structure' (Migone and Howlett, 2016, p.88). First, because 'it encourages policymakers to focus exclusively on small increments' (Hayes, 2013, p.294) and second, because 'it assumes an equal balance of power between policy actors to produce a widely supported policy' (Cairney, 2020, p.63). In addition, in unequal societies, incrementalism favours organised elites, as decision-makers are those who hold greater power. Another criticism is that the model only fits stable situations (non-crisis situations) (Hayes, 2013), and that distinguishing incremental from radical change is 'conceptually and methodologically challenging' (Ross, 2000, p.35).

Whether policies strictly follow an incremental path is also a point of contention. Jones et al. (2006, p.69) argue that incrementality is associated with the salience of policy issues, hence a high salience policy will require 'a broader solution search, greater generation of alternatives, and increase legislative activity' in contrast to low salience issues, which 'will generally follow an incremental path.' The political salience of an issue is associated with increasing public concerns that trigger the formation of interest groups with a particular interest in tackling the issue (Hayes, 2013) and putting pressure on governments looking for re-election (Green-Pedersen and Mortensen, 2013). Paradigmatic transformations that cause disruptions in the ideas and beliefs of policy actors and organisations contribute also to the salience of issues (Migone and Howlett, 2016). Jones and

Baumgartner (2012), have called “punctuations” to these periods of attention to highly salient issues, which promote policy changes that deviate from incrementalism (John and Bevan, 2012).

1.1.2 Actors, interests, and ideas

Literature on policymaking has also highlighted the role of actors, motivated by interest and ideas as a fundamental part of the policy process. It has been argued that actors compete in the policy arena to gain decision-makers’ attention in supporting a policy idea and to influence policy adoption. In the early 1990s ideas became matter of contention, although it was unclear what constitutes an idea (John, 2003). Depending on the author, ideas are beliefs ‘of varying levels of generality that define how policymakers should act’ (Mehta, 2011, p.25), or how they define policy solutions, problem definitions, and public philosophies. The power of ideas, as Campbell (1998, p.379) notes, ‘depends largely on how much support they receive from political parties, unions, the business community, and influential political and intellectual elites and how much institutional access these actors have to critical policy-making arenas.’

How ideas become accepted as problem definitions and solutions also depends on the power of individuals who champion ideas, how ideas are framed, the venues where problems are heard, whether there is a solution for a problem, and if these fit between the problem definition and the broader environment (Mehta, 2011). For instance, the role of policy entrepreneurs (Kingdon, 1984) has gained relevance in studies of policy change as these entrepreneurial actors or organisations act in and around government, displaying strategies of problem framing, social acuity (making good use of networks), working with advocacy coalitions, leading by example (Mintrom and Norman, 2009), and scaling up change processes to promote policy innovations (Mintrom, 2019).

A strand of the idealist approach of policy literature argues that ideas become appealing to specific venues, and impact policy design (i.e., by defining the types of policy solution that seem desirable) through “framing” (Béland, 2009). For example, framing ‘drug addiction as a health issue, as opposed to a law-and-order issue, shifts the policy debate towards medicali[s]ed solutions instead of those within the criminal justice system’ (Akin-Onitolo and Hawkins, 2022, p.24).

This can also be achieved by shifting the policy venues and actors involved in the discussion by granting competencies and power to different ministries, interest groups, and coalitions (Erikson, 2015). Holden and Hawkins (2013) highlight that in the contest for introducing the minimum unit pricing for alcoholic beverages in Scotland, industry framed the debate around individual responsibility, proposing the introduction of a tax-based approach to shift the discussion venues from Scotland to Westminster where it was more likely that government would decide not to intervene in the market mechanisms, and where key ministers, such as the Minister for Health, favoured partnerships with industry.

Framing enables the creation of coalitions by integrating actors with similar systems of beliefs that compete with actors who have different ideas and interests (Cairney, 2021; Sabatier and Weible, 2007). However, framing could also lead to unintended consequences that Erikson (2015, p.461) has denominated as “risk-taking” and “limitations.” The first is ‘when new aspects are added to a frame and new meaning is created,’ while the second is when an original frame is expanded to gain support of other actors, but it serves to downplay the original frame.

1.1.3 Institutions and veto points

The literature argues that the adoption of policies may depend not on the power of ideas and actors *per se*, but on political institutions that set the rules of how policy decisions are taken and the veto points that exist within them that must agree for a new policy initiative to be adopted. For instance, the bicameral composition of legislatures is designed as a mechanism that prevents radical political changes, as one chamber have the power to veto proposals made by the other chamber. However, other points in a political system may exist at which policy initiatives can potentially be blocked.

Ellen Immergut sought to address the question of what made a political system vulnerable to the influence of interest groups and developed the theory of *veto points*. Her seminal work *Institutions, veto points and policy results: A comparative analysis of health care*, examined lobbying strategies of professional associations in three European countries, finding that the diverse arrangements of the political system granted associations differing levels of access to the policy process. Immergut (1990) observes three political arenas, executive, legislative,

and electoral, and highlights different veto points. For example, if members of the legislature can overturn an executive decision, this constitutes a veto point, hence interest groups will benefit from having contacts with parliament members or veto players to influence policy outcome. In contrast, if decisions at the executive arena are taken with a single veto point, interest groups would benefit from access to the executive. In a later publication Immergut (1992, p.xii) claims that veto points can explain policy outcomes 'because they facilitate or impede the entry of different groups into the policy-making process.' This occurs because the procedures for making policy decisions imply different types of interest group engagement.

In another strand of the literature on constitutional constraints (Huber et al., 1993) or veto points (Immergut, 1990), the veto player theory is developed. Tsebelis (1995) claims that are individuals and collectives occupying key institutional positions who have the power to veto policies and preserve the *status quo*. A change in policy depends on the number of veto players and distance between actors' policy preferences. Furthermore, through time, the number of veto players in the political arena may vary, modifying opportunities for policy change (Ike, 2020).

It should be noted that veto players and veto points are different concepts. Tsebelis (2011, p.10) conceives veto points as 'veto players determined by the constitution alone,' the Congress, for example. However, he focuses on "partisan veto players," or those actors (individual or in coalition) whose agreement is needed to produce a change from the *status quo*. A veto point, such as the Congress, may be composed by multiple parties (veto players) whose agreement is needed for a law to be passed.

Veto point and veto player theories have explained policymaking dynamics and change in diverse areas, notably in the welfare state (Popic, 2021; Kühner, 2018; Kühner, 2010) and health policy. Hawkins and Holden (2016) note in the case of tobacco control that international agreements and investor-state dispute settlement mechanisms represent veto points that corporations with vested interest exploit against public health policies that may affect their interest. Legal disputes started by corporations are costly and may prevent governments pursuing policy change to avoid engaging in litigation and settling awards,

representing an avenue to perpetuate status quo. In a similar case of studying multi-level governance and alcohol policy, Hawkins and McCambridge (2021) find that veto points can be exploited to delay policy adoption, but also represent an opportunity for governmental and civil society action.

1.1.4 Policymaking and complex systems

The debate of how policy happens beyond incrementalism and institutions has shifted its focus to the concepts of chaos and complexity. Byrne (1998, p.14) points out that politics and policy follow the characteristics observed in natural systems, in other words, we are 'dealing with aspects of reality in which changes do not occur in a linear fashion' as a comprehensive rational approach to policymaking would suggest. Complexity is a characteristic of systems where the components are interacting interdependently and in an unpredictable way; small changes can produce great outcomes through a process of feedback. Moreover, changes are produced throughout the system as a whole, and not by a centre or at an elite level. Cairney (2012a, p.348) points out that complexity theory offers six elements that capture how the policy systems behave:

- 1) 'A complex system cannot be explained by studying individual components,' the system can only be understood as a whole.
- 2) The behaviour of complex systems is unpredictable and not linear.
- 3) Systems are sensitive to initial conditions that produce path-dependence.
- 4) Emergence in systems occurs from the interaction of local elements and not a centre.
- 5) 'They may contain "strange attractors"' or demonstrate regular behaviour that may change abruptly.
- 6) 'The various problems that complexity theory seeks to address (...) can only be solved by interdisciplinary scientific groups.'

Based on these six elements, the policy systems can be understood and studied. In this regard, following the rationale of complexity theory, Geyer and Rihani (2010, p.186) describe the policy process as follows:

Struggling to balance the orderly demands of political elites against the daily complexity of local actors and their situations, local policy actors are often

torn between the demands for order from above and by the requests for flexibility from below. Complexity appeals to them on two levels. First, as complexity thinking emphasises, the main actors in any large complex social system are not the elites but the multitude of common actors making innumerable complex micro-decisions on a daily basis. From this perspective, local policy actors are more than just cogs in a large bureaucratic machine. In fact, their complex decision making often saves the larger policy systems and is more likely to create fundamental policy change than a few stern initiatives from above. Second, local actors are often caught between the 'order' of policy elites (demanding responses, outcomes, and accountability) and the messy reality of dealing with normal complex people.

Clarke et al. (2021) and Waqa et al. (2017) have applied complexity thinking to understand the development of nutrition policy, and limits to evidence use. Clarke and colleagues (2021) analysed the development of a comprehensive obesity prevention strategy in Australia, finding positive and negative feedback loops to reinforce or hinder policy change. The authors highlight that some actors such as the policy entrepreneurs, that can frame narratives according to decision-makers' interests, are fundamental in reinforcing policy change. In contrast, negative feedback loops were associated with institutional rules such as the need to build consensus between diverse areas of government throughout a consultation process that was time-consuming and reduced support from decision-makers. For their part, Waqa et al. (2017, p.1) observed 'causes and consequences of [insufficient] evidence use in food-related policymaking' in Fiji.

Complexity theory is debated within policy sciences. On the one hand, it has been argued that it offers obvious and common-sense rationale (Geyer and Rihani, 2010, p.186). On the other, despite being thought as a unifying theory between natural sciences and social sciences, its conceptual meaning and use varies across sciences (Almeida and Corrêa, 2019; Cairney and Geyer, 2017). The theory itself remains unclear (Macintosh and Wilkinson, 2016) and is difficult to use in empirical studies (Haynes, 2018).

Authors such as Cairney and Geyer (2017, p.3) claim it is not a new way of thinking but 'the right way to think,' suggesting that complexity helps to 'consolidate existing concepts' from policy sciences. Hence, negative, and

positive feedback, strange attractors, sensitivity to initial conditions (path dependence), and emergence from the interaction between elements on a local level, have all been discussed in political science. For instance, path dependence is rooted in institutionalism (Pierson, 2000) and describes how a policy decision produces increasing returns as people adapt to it and build institutions around the initial decision. Later the policy becomes “sticky,” and it becomes difficult to choose a different path over time. Also, to echo Lindblom (1959), policy is repetitive, and decisions are based on current policy such as annual budgets.

For Hudson and Lowe (2009), complexity represents a better way to capture the macro-, meso-, and micro-level forces to understand public policy, whereas for Macintosh and Wilkinson (2016, p.85) the main contribution of complexity theory ‘is changing how policy systems are perceived and studied, particularly by emphasising the relevance of system interdependencies.’ These interdependencies are understood as the dynamic interaction of: first, policy systems and their environment, which constantly shift constraints for policy change (e.g., an economic change can balance the power of interested opposing actors and allow the implementation of a policy); second, interdependencies between policy subsystems² (e.g., what occurs in housing policy will have an impact in health policy). Third, there is a linkage between domestic and international policy systems and subsystems (e.g., public opinion can shift in response to international influences, triggering domestic policy reform).

As Cairney and Geyer (2017) point out, complexity theory can enlighten and merge with the current understanding of other approaches in policy sciences. Almeida and Corrêa (2019, p.16, translation my own) add that complexity is embedded in how the political science community understands policymaking, being the result of ‘arrangements, with varying degrees of scope, interdependence, and commitment, characterised by the interaction of different types of actors,’ as observed in the policy networks and cognate literature (i.e., governance, epistemic communities). This agrees with Hudson and Lowe (2009, p.161) who maintain that policy networks sit at the meso-level of policymaking

² Within the ACF policy subsystems are described ‘as semiautonomous decision-making networks of policy participants that focus on a particular policy issue usually within a geographic boundary’ (Weible, 2008, p.621).

‘occupying the space between broad macro-level issues such as globalisation or demographic change, and the micro-level issues of what occurs at the ground level, such as how particular individuals or groups bargain over specific issues (...).’ In summary, recent thought around complexity enhances the intricate nature of the policy process.

1.2 The role of networks within policy process theories

Theories of the policy process seek to explain how and why policy changes. Change may take many different forms. In general terms, ‘a given entity (society, human behaviour, policy, political party) “changes” when between time t and t_1 , there is empirical evidence that it has undergone changes to its properties (shape, state or quality)’ (Capano, 2009, p.9). In policy process literature, policy change can be regarded from an evolutionary perspective, as an incremental refinement of earlier policies such as discussed in Lindblom’s incrementalism in the previous section, or as emergent and revolutionary policies, new and innovative (Benett and Howlett, 1992). Within this spectrum, Capano (2009, p.14) adds that change can be analysed ‘in terms of the transformation of the definition of the issues in question, or as the structure and content of the policy agenda, or in terms of the content of the policy programme, or as the outcome of implementation of a policy.’ Whatever is the case, what distinguishes the different pathways undertaken in diverse theories of the policy process is the mechanism by which change is achieved and explained.

In illustrating policy change, for instance, the institutional tradition of policymaking would suggest that policies exist because of past policy decisions. Under this perspective, abrupt policy change is difficult to achieve; it tends to reflect policy continuity constrained by previous policy decisions, since the formal and informal institutions created by and for a specific policy are “sticky” ‘and actors protect the existing model’ (Cerna, 2013, p.4). Inertia over long periods portrays the development of policies. For instance, in an application of path-dependence theory for Universal Health Coverage in Egypt (Fouda and Paolucci, 2017), it was found that the institutionalised condition of ‘free health for all’ within the political institutions, in particular Egypt’s Constitution, impeded the adoption of financially viable alternatives in the delivery of health services. Despite financial insolvency

in the health system, changes to current policy in the form of privatisation, charging user fees or co-payment schemes, was out of reach.

Other cases in which path-dependence helps to illustrate the continuity of *status quo* policy is in the promotion of healthy environments, where car-based mobility has been favoured over public or active transport. Hensley and colleagues (2014) found in a scoping study of 22 cases, that factors such as the ways cities are built around car infrastructure and institutional arrangements have benefited the long-term cooperation between civil servants and the private sector (investors, and constructors), contributing to the permanence of car-based transportation in detriment of other transport forms with positive environmental and health impacts. Although both examples show constraints in implementing new policies or modifying the existing ones, Cerna (2013) suggests change may occur in times of critical juncture (for example a crisis) or within an exceptional window of opportunity.

Lessons learned from the path-dependence literature demonstrate that policy development takes place over long periods (Pierson, 2000, p.72) akin to a historical process. However, the approach is less useful when we seek to understand specific conditions that facilitate change (Cerna, 2013, p.5). When policies are adopted abruptly in light of new public issues or new government interest, it is appropriate to consider alternative approaches and explanans (Hogan, 2019, p.16). Several policy process theories point towards groups of individuals, ideas, and interests as the factors that attempt to produce change. For instance, John (2012, p.57) sustains that the change occurs:

[A]s a result of [the] pressure of influence from groups and associations, either from direct lobbying or behind-the-scenes negotiations, even if the formal authori[s]ation, in the end, comes from elected politicians. These groups may be collections of individuals or organi[s]ations, acting together, either in a formal lobby or a less formal arrangement. They may be professional associations, citizen groups, trade unions, businesses, or even public sector organi[s]ations operating within, or at other levels of government.

Groups are always present in the policymaking environment. John (2012) argues that these help to formulate policies and set the agenda and use diverse strategies to influence politicians. Moreover, these are not isolated from the public sphere. Typically, governments consider them as a repository of ideas and expertise that would help to formulate legitimate and effective policies (Klijn, 1997). How groups of individuals, groups, or institutions establish relationships with government and operate within the policy environment is explored by policy networks literature, which captures the role of interest intermediation, organisations, and governance structures in the policymaking process and the outcomes it generates. Metz and Brandenberger (2022, p.3) note that a key aspect of networks is the distribution of power, highlighting that ‘in the interest intermediation those powerful actors hold greater leverage in influencing policy according to their preferences.’

According to Rhodes (2009, pp.427-428), policy networks are ‘sets of formal institutional and informal linkages between governmental and other actors structured around shared (...) negotiated beliefs and interest in public policy making, and implementation.’ These groups of actors create interdependent relationships and policy emerges from the interaction between them. Varisco (2018, p.41) adds that ‘these relationships can be different, informal, and vary by policy sector. The relationships between group representatives and decision-makers matter and influence the policy process, rather than the mere presence of a group.’

The political context and institutions are factors that constrain the operation of the network and its impact on the policy process, and this in turn has an impact on how policy networks are studied. Many policy network scholars recognise at least two perspectives of policy network research, the American and the British approaches, both being of importance in studying the power of the government (or its fragmentation) and the power of actors within the networks. For instance, the American tradition has focused on analysing how pressure groups and government agencies influence agenda-setting and policy formulation (Klijn, 1997, p.23), separated into two structures. First, a strong policy network image named “the iron triangle” where policy emerges from interactions between an elite group conformed by selected committees within the bureaucracy, the Congress,

and interest groups (Jordan, 1981). Second, a more fragmented structure, named “issue network” (Hecklo, 1993) formed by numerous actors that interact in the policy environment and influence intricate policies, affecting, for instance, the centralised decision-making process of the iron triangle.

The notion underpinning the iron triangle is that federal, democratic governments face diverse groups keen to influence policy formulation and implementation; however, decisions take place among an elite group and not all interest groups have access to it. In the words of Rhodes (2009, p.427), outsider groups are those ‘deemed extreme in behaviour and unrealistic in their demands, so are kept at arm’s length. Others are insiders, acceptable to the government, responsible in their expectations and willing to work with and through government.’ Interests mediated between the three spheres (Congress, bureaucracy, and interest groups), in the end, institutionalises and becomes a policy network.

Hecklo (1993), considers that this is an exception rather than the rule, and the existence of the iron triangle depends on the complexity and the interests surrounding the policy proposed. For instance, Paalberg et al. (2018, p.316) found that agricultural policymaking in the US has more the structure of an iron triangle than an issue network. Despite policies on nutrition having gained relevance in the US during the last two decades, efforts at banning the use of Supplemental Nutrition Assistance Program (SNAP) stamps for the consumption of SSBs have been constrained by an institutionalised iron triangle. The agricultural committees of Congress form this triangle together with the Department of Agriculture and civil society groups that support the unrestricted use of the SNAP programme.

Similarly to the US, in Europe, and particularly in the United Kingdom (UK), scholars theorising policy networks emphasise that the political process is no longer closed. Policy networks are useful for providing information to the government and may mediate interests between policy subsystems. Moreover, British scholars have contributed to the research in the field to improve notions regarding the exogenous and endogenous dynamics of the networks (resources,

value systems, and strategies used by networks to achieve policy objectives) as well as a more precise typology.³

In early 1980s Roderick Rhodes developed the “power-dependence” model of governmental relations (Rhodes, 1981), also known as “the Rhodes Model” (Rhodes, 1990), aiming to explain how policymaking is shaped by diverse organisations interrelated as policy communities within British government. This model characterises policymaking as a process of resource-dependence (i.e., when a central government requires the local authority to implement a program), in which resource exchange (legal, hierarchical, financial, political, and informational) is needed to achieve a policy goal. In the model, it is argued that organisations’ relative power to influence decision-making is based on the institutional context, their resources, and the process of exchange. This latter is influenced by participants, strategies, and the number of actors involved in the policy arena.

Refinements to the “Rhodes model” followed throughout the 1980s, aiming to differentiate the level of analysis of policy networks in macro-, meso-, and micro levels, considering external constraints that condition the operation of networks (e.g., a country’s economic system). This defined a typology of networks (Rhodes, 1990), which consisted of policy communities, and professional-, intergovernmental-, producer-, and issue networks (Rhodes, 1988). In the early 1990s David Marsh and Roderick Rhodes (1992, p.250) determined that policy communities and issue networks could be observed as the ‘end-points of a continuum’ and presented more detailed characteristics of these systems. Under this view, policy communities share the same interest, beliefs, and resources to get an issue solved, as well as having more frequent interaction with policymakers (Varisco, 2018, p.45). Issue networks are more likely to exist at the periphery of the policy agenda, motivated by a range of affected interests, lacking regular access to policymakers. In between this spectrum, different types of

³ Richardson and Jordan (1979) introduced the concept of Policy Communities, later revisited by Marsh and Rhodes (1992).

networks such as professional, intragovernmental and producer networks exist, as well as homogenous networks such as epistemic communities⁴ (Börzel, 1997).

Marsh and Rhodes' typology is the most recognised approach to the study of policy networks (Skogstad, c2007, p.209), and its scope is not limited to the study of traditional policy areas. In empirical studies, it is used to map the power and influence of particular groups within the policy process and has become relevant for studying how evidence is used by the different actors within the policy subsystem. Smith and Weishaar's (2018) research identifies through network analysis an active collaborative relationship between researchers, health professionals, advocates, and policymakers to develop tobacco control policies in the European Union (EU), but a diffuse, almost non-existent, network around the revision of health inequalities in England.

The relationship between networks and policy change has been the target of criticism (Silke and Kriesi, 2007; Richardson, 2000). There is a fierce debate whether policy networks constitute a metaphor or a theory, with authors such as Oliver and Acuto (2015) and Dowding (2001) claiming that policy networks are a metaphor that needs further refinement to become a theory, and that this could occur by incorporating elements of formal network analysis. For Dowding (2001), formal network analysis helps to demonstrate the structure of networks and map structures of power, leading to an understanding of whether structure impacts policy outcomes. In his view, and as a criticism of the "Rhodes model" (Marsh and Rhodes, 1992; Rhodes and Marsh, 1992), Dowding states (2001, p.95):

The way this model should be used (...), is to generate further questions about the relationships between the characteristics so classified and to examine the underlying causal mechanisms that lead to the different types of outcomes the model hypothesi[s]es are associated with different forms of network.

Similarly, Oliver and Acuto (2015) highlight that the network literature as a metaphor has failed to specify the type of relationships that exist between actors (e.g., evidence provision, advice), 'undermining any analytical conclusions.' In

⁴ Börzel (1997) highlights that epistemic communities differ from other networks in the level of homogeneity these present in terms of interest, power and resources among members.

addition, it has failed to account for the role of agency in network formation and maintenance. These authors conclude that a proper network-based explanation of the policy process does not yet exist. In response to Dowding (2001), Marsh and Smith (2001, p.535) claim that metaphors are 'widely, and usefully, used in social science,' furthermore the term "network" is used to illustrate that 'small groups of actors (...) are more or less closely linked' to influence policy outcomes as suggested by Richardson and Jordan (1979) who coined the term "policy networks."

Criticism also exists with regard to the various meanings and uses of the network concept in policy studies (Husna et al., 2019). Börzel (1998) notes the use of policy networks as a metaphor to talk about a typology or interest intermediation, or as a specific form of governance. Furthermore, the concept can also be applied as an analytical tool for mapping and describing actors. From this Babylonian concept further research is needed to demonstrate not only its existence but its importance in policymaking.

As noted by Oliver and Acuto (2015) and Galey and Youngs (2014), to date there is still no unified theory of policy networks and policy change, and authors such as Galey and Youngs (2014, p.14) claim that 'Dowdings's criticism remain valid.' However, the lack of theoretical agreement has not impeded the applications of network approaches in diverse policy fields. Policy networks allow us to observe 'the specific types of interest intermediation entailing different forms of institutionalized exchange relations between the state, business and society' (Börzel, 2011, p.49), becoming a way to study power dependency relationships and how actors formulate their interest and strategies. This has been accompanied by using SNA to formalise the analysis, 'examining structural relations among actors and for explaining the consequences of those connections' (Wu and Knoke, 2012, p.153).

de Bruin and colleagues' (2018) study illustrates the argument above, analysing policy networks around obesity and nutrition policies in New Zealand. Focusing on the existence of key individuals influencing public opinion, policy development, and its implementation, these authors find that the food and beverage industry has greater access to decision-makers than other interest groups. In addition, the authors were able to identify six policy brokers that controlled information flows

within the network. Other applications include Cullerton et al.'s (2016) research on policy brokers in nutrition policy in Australia, and Weishaar et al.'s (2015) study on networks behind the EU smoke-free policy development.

Policy networks also allow us to understand new forms of governance 'within and beyond the nation state' (Börzel, 2011, p.49) in cases where the interest is in observing institutional actors that collaborate in service delivery or policy implementation when facing complex issues. As an illustration, Ugyel (2019) analysed formal and informal governance networks in diabetes care provision in Australia and India. By identifying the actors involved in service provision between the two countries, he found important differences in care standards. Differences were explained by level of development but also by the number of health professionals integrated within the formal governance network (institutions involved formally in care provision, such as hospitals or clinics). For example, formal networks of professionals provide higher diabetes care in Australia than in India. In this latter country lack of institutions overseeing diabetes care, and shortages in physicians and nurses limit optimal care provision, however, India's informal networks (such as families) contribute to diabetes' management.

Marsh and Rhodes (1992) claim that the explanatory power of policy networks on policy change was limited to understanding it as a factor that has an influence on policy change but cannot explain it, as epistemologically the authors are positioned within an interpretive approach that aim to 'explain actions and practices in narratives that point to the beliefs and desires that cause the actions' (Bevir and Rhodes, 2005, p.177). Other authors suggest network approaches are intended to be used as building blocks, or to complement theories of the policy process, especially when exploring how ideas are disseminated and incorporated into government politics, and how they influence policy change. For instance, networks are at the core of Baumgartner and Jones' (1993) Punctuated Equilibrium Theory (PET), which sees policymaking in a complex system that is stable and dynamic. It observes stable relationships between policymakers and interest groups that produce policy continuity but can also be disrupted by short periods of instability and change. These periods of instability promote a competition between actors to frame and understand a policy problem and its solutions (Cairney, 2021).

The existence of networks can be observed in the ACF, and the formation of coalitions within subsystems, as well as in the Multiple Streams Theory (MST) (Kingdon, 1984). In this latter, solutions to problems emerge from policy communities and are pushed to the forefront of the government agenda by key actors who advocate for the policy proposal ‘in the hope of a future return’ (Kingdon, 2011, p.122) that could range from personal benefits to the satisfaction of sharing the interests of the policy community. Table 1 illustrates the elements of the policy process that the theories above emphasise, including networks, ideas and beliefs, and events that allow policy change.

TABLE 1. Policy process theories and their core elements

Elements of the Policy Environment	MST	PET	ACF
Actors making choices	Policy entrepreneurs and policymakers	Policymakers, interest groups, and other organisations	Policy actors who form coalitions, act strategically, learn, etc.
Institutions	Informal rules and formal venues, recognised but institutions not emphasised	Institutional venues, and their rules, which cause more or less friction	Types of policy venues and rules in the broader context, but less directly
Networks	A broad policy community of actors, with relatively little focus on insulated subsystems	Subsystems as sources of stability and power	Subsystems and coalitions
Ideas or Beliefs	Policy solutions proposed and amended over time to become acceptable to a policy community	The monopoly of understanding in established subsystem; and new solutions or ideas that break through	Belief systems that drive policy actor’s behaviour
Context	National mood, policy conditions, pressure groups, admin turnover, etc.	Endogenous subsystem context; wider policy environment	Stable parameters- social, cultural, economic, physical, and institutions structuring the subsystem
Events	Focusing events draw attention to problems “windows of opportunity.”	Events shift the macro-political agenda.	External events and internal events (e.g., shocks, change to the governing coalition),

Source: Adapted from Heikkila and Cairney (2017, p.315, Table 8.3)

These policy theories (MST, PET, ACF) reflect the expected impact of networks, individuals, and groups on the policy process. These offer both advantages and disadvantages when exploring the complexity of policymaking. For instance, the PET can explain long periods of policy stability and rapid change, whereas the MST can deal with policymaking in short periods focusing mainly on agenda-setting. However, except for the ACF, in identifying the influence and

configuration of policy networks during extended periods, these theories subsume policy networks to the policy environment.

Other disciplines have incorporated similar visions of networks as direct agents of influence in the adoption of policies. That is the case International Relations and the ECs approach (Haas, 1992a; Adler and Haas, 1992) used to study policy coordination in technical or complex areas. By adopting this framework in the analysis of the policy process, the most significant emphasis is given to the influence of networks of knowledge-based professionals and experts, promoting the use of knowledge in policymaking.

Smith and Weishaar (2018, p.404) point out that both the ACF and ECs are a subset of 'clear' network theories with an active research programme, adding that research using these frameworks sheds light on how networks produce change through endogenous and exogenous forces. The following section explains the ACF and ECs.

To sum up, studying the policy process, and particularly how and why policies change, involves the recognition of several factors within the policy environment. Policy networks are core elements of analysis within theories of the policy process, as these illustrate the governance of policymaking and its ability for interest intermediation in political systems (Rhodes, 2009, p.428).

1.3 Capturing policy change from the ACF and ECs

Analysing policy change from the perspective of policy network theories and observing its influence on policy outcomes involves the identification of 'relation patterns between actors, their interdependencies, and the way these patterns and interdependencies influence the policy process' (Klijn, 1997, p.30). Furthermore, Marsh and Smith (2000) add that policy networks must be observed from an interactive perspective. This means that three relationships explain influences on policy change. First, 'the structure of the network and the agents operating within them; [second], the network and the context within which it operates; and [third] the network and the policy outcome' (Marsh and Smith, 2000, p.4). Sabatier and Jenkins-Smith (1993) and Haas (1992a) theorising the ACF and ECs respectively, have focused analysis to capture these dialectical relationships.

On the one hand, the ACF is a frequently-used approach for policy process analysis focused on understanding 'policy change and stability' (Jenkins-Smith et al., 2017, p. 144) through an evolutionary process of ten more years within a policy subsystem.⁵ The framework, as authors such as Nykiforuk et al. (2019) and Pierce et al. (2017) note, illustrates the role and interaction of networks and ideas within the policy process. The bedrock of ACF are advocacy coalitions, a type of network formed by individual policy participants who collaborate to increase their influence when translating their preference policy solution within the policy process by aggregating their resources and preferences (Weible et al., 2020).

Actors are held together by belief systems. These are structured by deep beliefs, policy beliefs and secondary beliefs, distinguished by their scope and susceptibility to change by internal and external perturbations, or as a learning process (Sabatier, 1993). Policy beliefs and secondary beliefs relate to the policy causes, solutions and 'instrumental preferences for achieving policy aims, [and are the] most readily adjusted by new experiences and evidence' (Nykiforuk et al., 2019, p.32). According to Weible et al. (2020) policy core beliefs are the glue that form coalitions, more so than deep or secondary beliefs. Gómez-Lee (2012) notes that policy change parallels the belief system. As such, minor policy changes are associated with changes in secondary beliefs, whereas major changes are associated with changes in policy core beliefs (Jenkins-Smith et al., 2017).

Essentially, what the ACF maintains is that policy changes over time because advocacy coalitions who promote their beliefs within policy subsystems influence the adoption of policies. Policy change may follow four primary pathways for change that enable coalitions to see their beliefs materialised. The pathways can variously be: external or internal perturbations to the subsystem, the result of policy-oriented learning, negotiation, or caused by changes imposed by a superior jurisdiction (Jenkins-Smith et al., 2017). Primary pathways for change are enabled by secondary components (Pierce et al., 2020; Jenkins-Smith et al., 2017) that may include change in the distribution of resources between coalitions,

⁵ It involves 'a policy topic, territorial scope, and the actors directly or indirectly influencing policy subsystem affairs' (Jenkins-Smith, et al., 2017, p.139)

the opening or closing of venues, belief change or confirmation, and strategy change (Pierce et al., 2020). For example, the election of a new government (i.e., external event) with different policy ideas may shift the resources between coalitions, creating an opportunity that coalitions may exploit (Cairney, 2019).

The last theoretical assumption of the ACF that involves the mechanism by which beliefs (and consequently, policies) change refers to policy-oriented learning. According to Sabatier and Jenkins-Smith (1993, p.42), learning consists of 'relatively enduring alterations of thought or behavio[u]ral intentions that result from experience and which are concerned with the attainment or revision of the precepts of the belief systems of individuals or collectivities.' In particular, Nykiforuk et al. (2019) and Pierce et al. (2017) point out that the type of information revised by policy actors consists of scientific, technical, natural and social data that is obtained by learning across coalitions and participating in professional forums.

The ECs' framework (Haas, 1992a; Adler and Haas, 1992; Haas, 1992b) shares some general similarities with the ACF. Both approaches consider belief systems as factors that hold a community together⁶ and maintain that policy networks are formed by 'a broad range of interests and organi[s]ations' (Brooks, 2018, p.12). When compared to the ACF, ECs is less theoretically developed (Dunlop, 2015, p.236). However, the latter offers stronger theoretical assumptions regarding the use of scientific and technical knowledge for policy change (Haas, 2001b) as the framework is based on a constructivist approach that focuses on understanding 'the actors associated with the formulation of ideas, and the circumstances, resources, and mechanisms by which new ideas or policy doctrines get developed and are introduced to the political process' (Haas, 2001b, p.11578).

Epistemic communities refer to knowledge-based experts that share the same *episteme*, or vision of the world, reflected, similarly to the ACF, in the system of beliefs the network possess and the activities it carries out. Haas (1992a, p.3) points out, the communities have in common:

⁶ This is also a characteristic of the policy networks literature.

- 1) Normative and principled beliefs 'which provide a value-based rationale for the social action of community members.'
- 2) Shared causal beliefs (related policy and their solutions).
- 3) Shared notions of validity to weight and validate knowledge; and
- 4) a policy enterprise, defined as 'a set of common practices associated with a set of problems to which their professional competence is directed, presumably out of the conviction that human welfare will be enhanced as a consequence.'

Although most recent evidence suggests that epistemic communities may be influential in all types of policies (Löblová, 2018b), it has long been argued that the way in which these communities are involved in policymaking is a function of the uncertainty and technical complexity faced by governments. In the view of Adler and Haas (1992) uncertainty exists in cases where a nation's policy is likely to affect interrelated countries, or where the consequences of a problem are partially predicted. In these circumstances, policymakers may not have a full comprehension of the course of action to undertake: thus it increases governments' demand for knowledge regarding technical or complex solutions. Löblová (2018b) suggests that knowledge demand is the scope condition of epistemic communities' influence, and not merely uncertainty. The type of information policymakers seek involves 'the product of human interpretations of social and physical phenomena' (Haas, 1992a, p.4) which resembles epistemic knowledge, or the "truth" that science gives, and not merely collection of data.

According to Haas (1992a, p.4), the demand for information affects the emergence and proliferation of communities able to provide policy solutions. However, only one of these networks may prevail in the policy arena and gain strength as 'decision makers delegate responsibility to them.' This will result in the consolidation of bureaucratic power (members of an epistemic community holding public service positions) and ultimately in policy change through the institutionalisation of its influence in domestic and international politics.⁷

⁷ As Löblová (2018b) suggests, policy change, and in particularly the influence of the community is measured if politicians adopt the policy solutions that emerged from the network.

It is important to mention that the mechanism by which epistemic communities influence policy and institutionalise their ideas may derive from policymakers' learning (Dunlop, 2015; Adler and Haas, 1992). The transmission of knowledge as conceived by Haas (1992a, p.15), can take four routes. First, as a result of consulting, the epistemic community can inform the cause-effect relationship of a given issue and provide advice regarding 'the results of various courses of action.' When epistemic communities are consulted in the face of crisis or shock, policymakers may use the information to understand the gravity of a situation, or justify differing actions and responsibility for the future, 'when other actors may be held responsible.' Second, the community can inform about the nature and interlinkage of complex issues and shed light on the effects that can be developed either from inertia or by implementing a particular policy. Third, as the result of cause-effect consultations, epistemic communities can help define state interests. This may result in the 'redefinition of preconceived interest or to the identification of new interests.'

Finally, the community can help to formulate *ad libitum* policies. This occurs when policymakers look for the advice of epistemic communities as a justification or legitimisation of policy ends. Actions that are undertaken from this perspective imply the involvement of the epistemic communities in details of the policy or the anticipation of conflicts of interest that require building policies' supporting coalitions. Dunlop (2010, p.212) illustrates an example of these 'governmental' epistemic communities in her research regarding hormone growth promoters in the EU. The author notes that in 1990 the European Commission created an advisory group⁸ in charge of finding evidence regarding the consequences that adding growth hormones to livestock have in humans. This was done to claim as necessary and legal the prohibition of both the use of hormones and imports of hormone-treated beef in the World Trade Organisation (WTO). It was noted that the result was 'an almost tailor-made knowledge product' (Dunlop, 2010, pp. 211-213) whose findings supported the EU's claims and regulations towards imports, that had been the subject of a WTO dispute started by the US and Canada.

⁸ The Scientific Committee on Veterinary Measures Related to Public Health growth promoters' sub-group.

As noted by authors such as Dunlop (2015), Himick and Brivot (2018), and Löblová (2018b), the involvement between epistemic communities and policymakers reflects a propensity to demand knowledge in early stages (pre agenda-setting, or agenda-setting) of the policy process, and particularly for complex issues. However, these knowledge-based communities may exist in non-politically contested areas where its relevance may take place in the later stages of the policy process such as design and implementation. For instance, Haas (1992a) notes that in later stages epistemic communities have the capacity to limit the number of policy proposals that are under scrutiny, influencing the way the decision-makers choose.

1.3.1 Epistemological comparison of change between ACF and ECs

So far, this chapter has developed the basic concepts regarding two approaches to studying the policy process that emphasise the role of knowledge and experts in the policy environment; frameworks were compared by defining the elements of the policy environment, as suggested by Heikkila and Cairney (2017). To contrast how the ACF and ECs interpret policy change we may analyse their epistemological and theoretical choices. Building upon (Capano, 2009), Table 2 (Epistemic and theoretical choices in ACF and ECs) compares how the ACF and ECs theorise the process of policy change and their causal mechanisms. In the words of Capano (2009, p.11, emphasis in original) the epistemological choices refer to deciding '*the viewpoint taken when consider reality,*' whereas the theoretical decisions reflect '*how to develop the epistemological premises*' (Capano, 2009, p.11, emphasis in original) of analysing change.

Three aspects define how perspective change is observed within these policy theories, and observed in Table 2: the way that change occurs, its dynamics, and the forces that generate it (Capano, 2009). Hence, although both theories have been employed to analyse the influence of experts and knowledge in the adoption of policies (for example in Brooks (2018); Smith and Weishaar (2018); Francesch-Huidobro and Mai (2012)), these differ substantially in the way that policy change is interpreted. In the words of Capano (2009, p.14) 'change is clearly incremental when it represents a marginal shift from the status quo, while radical change is any profound shift from the present situation.' In other words, these illustrate incrementalism and punctuations discussed earlier in section 1.1.1.

TABLE 2. Epistemological and theoretical choices in ACF and ECs

Epistemological Choices	ACF	Epistemic Communities
The way of event progression	Linearity (partially predictable)	Non-linearity (depending on complex issues)
Motors of Change	External factors, partisan change, confrontation, learning	External factors, control over knowledge, learning
<i>Theoretical Choices</i>		
Definition of policy development and change	Covering the entire process. Tripartition of the content of changes (based on a tripartition of policy beliefs)	Mainly focused on agenda-setting. How ideas are developed and introduced to the political process.
Type of Change (incremental or radical)	Both	Mainly radical
Level of Abstraction	Linking macro, meso, micro levels	Linking macro (crisis, economic conditions, etc) and micro levels (epistemic communities and knowledge generation).
The structure-agency dilemma	Linking constantly structure and agency	Agency prevalence. Knowledge gives power to the epistemic community
Causal Mechanisms	Combinative causality- the composition of which depends on the type of change. Major changes are exogenously determined.	Combinatory causality with the prevalence of exogenous variables.
Explanatory variables	Critical events, ideas, and beliefs competition, learning. Policy outcomes reflect the collusion of interested parties.	Critical external events (crisis, uncertainty, complexity), plus the role of production of knowledge and learning. Policy adopted reflects EC-induced changes in state/national/local interest.

Source: Adapted from Capano (2009, pp. 20-21, Table 2), with information from (Dunlop, 2015) and Haas (2001b; 1992a).

In the ACF, it is stated that policies change according to alterations in the configurations of the belief systems during long periods that occur in either a radical (major policy change) or incremental way (minor policy change), whereas the original assumptions of ECs suggest a radical policy change. For instance, in

the case of ECs, change occurs to solve complex problems whose solution is more likely to be informed by experts' resources, this could be because of 'failed policies, crises, or in face of unanticipated events' (Haas, 1992a, p.29). This was the case of the environmental crises triggered by the degradation of the ozone layer in the 1980s, that brought to the forefront of the international political arena the need to ban chlorofluorocarbons (Haas, 1992b). Moreover, to operationalise change both theories offer different theoretical decisions. For instance, the ACF is mainly interested in covering how policies are developed during one cycle of the policy process, showing why these frameworks are interested in ten or more years of analysis (Sabatier, 1993).

In contrast, ECs indicate a propensity for agenda-setting stages derived from understanding 'the actors associated with the formulation of ideas, and the circumstances, resources and mechanisms by which new ideas or policy doctrines get developed and are introduced to the political process' (Haas, 2001a, p.11578). The explanatory variables for policy change differ accordingly based on both the definition of change and the rest of theoretical choices such as the emphasis given to macro- (socio, economic, political constraints) and micro- (individuals) level conditions for change. Both frameworks, for instance, consider critical events as factors that produce an alteration in policy subsystems. However, in the ACF the way that ideas and beliefs compete between advocacy coalitions and outcomes reflects the consensual interests of coalitions, whereas in the ECs' initial proposition the scope condition for both change and experts' influence is given by external constraints. Löblová (2018b) challenges the mechanism of influence of experts' networks by suggesting that knowledge demand is the condition that, more so than crisis and uncertainty, allows networks of experts to take part in policy change.

1.4 Network emergence and temporality

Policy network literature helps us to understand how change occurs within a policy system that must tackle a diversity of public issues, and how policy networks influence the adoption of these policies. However, how actors form

coalitions (network emergence), and the composition and temporality⁹ of networks in the policy environment to influence policy change, are also of importance for analysing the long-term impact of knowledge and evidence in public policies.

Although the applications of ACFs have shown that coalitions may remain stable over time, little is known about the factors that bring actors together in the first instance (Weible et al., 2020). The opposite occurs with the ECs' literature (Löblová, 2018b; Dunlop, 2017; Dunlop, 2011; Eyles et al., 2009), where despite Peter Haas highlighting the strength of ECs to explain how actors coordinate, the framework is limited in explaining whether actors remain involved in the policy sphere after a rapid change. In this regard, Löblová (2018b, p.177), argues that complexity and uncertainty are not the only scope conditions of epistemic communities' influence, highlighting that demand for expert knowledge is equally important to determine what happens with epistemic communities' after policy decisions are taken.

Beyond ACF and ECs, policy network literature illustrates how interest groups, issue networks, advocacy coalitions, and equivalent systems remain influential in the political arena once a determined policy change has occurred or failed to happen. It depends on exogenous and endogenous factors. Policy network literature points toward the policy environment as a factor contributing to changes in the system, ranging from its existence to its power to influence.

Changes in networks are predominantly linked to political, economic, and knowledge-related factors, which may affect the resources and interests of policy network actors (Rhodes, 2009; Marsh and Smith, 2000). It is commonly argued that the political environment is what exerts higher pressure on policy networks maintenance. For instance, Marsh and Smith (2000) present a national level case in which health policy community beliefs and structure was challenged according to political priorities in the UK during Margaret Thatcher's government. Similarly, Hoe et al. (2019) find that unequal political prioritisation for issues such as tobacco control and road safety regulations derive from unbalanced policy

⁹ For social theorists, temporality is an interpretation of the multidimensionality and complexity of time. It 'denotes the time in things, events, and processes which is unidirectional and irreversible' (Adam, 2000, p.136).

networks. Nevertheless, situations such as changes in government administrations may also affect the influence of networks because these types of systems depend on close relationships with decision-makers and losing access to them may undermine its ability to influence policy.

For instance, Löblová (2018b, p.175) analyses two cases in which epistemic communities were involved in the policymaking process of establishing a Health Technology Assessment (HTA) agency in Poland and the Czech Republic. The Czech case is treated as “deviant” as the community was unable to see their policy proposal adopted by the government. The reason, as the author advances, is a break in the causal mechanisms of influence derived from a change in government. In contrast to Poland, where the HTA epistemic community had continuous access to policymakers, a change in government in the Czech Republic made the community lose their access to decision-makers, and with this, the policy was relegated from its priority position.

Although compelling evidence suggests that networks are not isolated from the political sphere, and changes in politics affect their position within the policy arena, considering it as the only aspect that limits the influence of networks would be a mistake (Weible et al., 2009). Endogenous factors, such as the composition of the network or collaboration among interested groups may be determinants of network subsistence. Cairney (2012b) highlights that resources (money, expertise, and legal authority), learning, bargaining, and coalition building (Cairney, 2016b) secure the permanence of networks beyond policy adoption. Davis-Cross (2013) claims that professionalism¹⁰ within communities is what gives social acceptance and legitimacy to the practices carried out by the community, and ensures endurance and continuous participation in the policy subsystem.

Studies using the MST and EBPM as additional frameworks to the policy network analysis have come to ascertain some of these hypotheses (Oliver and Cairney, 2019). Examples include Smith and Weishaar’s (2018) research where the authors found continuous advocacy efforts between experts and advocates for

¹⁰ Professionalism is pursued through four elements: 1) selection and training 2) meeting frequency and quality 3) shared professional norms 4) common culture (Davis Cross, 2013, p.150).

the implementation of tobacco control policies in the UK. Advocacy strategies allowed the participation of experts within the policy process not only at early stages when evidence is commonly required to frame issues,¹¹ but it also continued to the extent that experts were needed to set policy goals. Similarly, Smith and Stewart (2017) found that to continue to be active in the policy sphere, experts have built long-term relationships with policymakers, whereas Macdonald (2015) notes that experts that have a particular leadership position within a knowledge-based community can act in an entrepreneurial way, by finding new venues to disseminate their interests and exploit multiple windows of opportunity.

1.5 Conclusion

Throughout this chapter we revisited concepts and theories of the policy process to explain policy change, beginning with the initial discussion of choice and how decisions are made, moving towards one of the most recent debates in policymaking: the complexity theory. Policy networks were presented as an approach that has attempted to capture the complexity of decision-making. Policy networks are not given structures within the political sphere; these are better observed as relationships among actors who share similar beliefs, ranging from a similar vision of the world to the specific means to tackle public issues. To account for policy change, the ACF and ECs are two approaches that allow for the observation of how policy networks can influence policy outcomes. Moreover, the network literature emphasises that there is a dialectical relationship between the policy environment and the network. Thus changes in the environment may change the composition of the network and vice versa.

How networks are formed and how these may remain involved in the policy sphere continue to be gaps in the applications of the ACF and ECs literature. Despite the existence of arguments maintaining that after a policy has been adopted policy networks may disintegrate or become dormant (Löblová, 2018b; Drake and Nicolaidis, 1992), the ACF maintains that networks (advocacy coalitions) tend to remain in the policy subsystem adapting to changes in the policy environment and changes within the network. For the ECs' approach, the

¹¹ Consider for example Dunlop (2016, pp.289-290) who identifies epistemic communities as 'special framers' participating temporarily in the policy process.

evidence is in the early stages. For instance, Löblová (2018b), Dunlop (2016; 2017), and Davis Cross (2013) have argued that the permanence of epistemic communities may depend on the community professionalisation, which grants them an active programme. However, their direct influence depends on knowledge demand from government (Löblová, 2018b). The next chapter deepens understanding of how the influence of experts has been covered in studies of the policy process, with a special emphasis on the prevention of risky behaviours.

Chapter 2: Experts and allies influencing the adoption of policies for the prevention of risky behaviours

2.0 Introduction

In the previous chapter we discussed that policy networks are an essential piece of the policy environment and per se can constitute a framework for the analysis of policy change. The use of a framework such as those introduced by the ACF and ECs have been particularly helpful for understanding the role that experts, knowledge, learning, and ideas play within politics among diverse policies and disciplines (Dunlop, 2015; Weible et al., 2009), including public health (Pierce et al., 2017), in light of the ‘deeply fragmented’ literature that analyses the role of experts in policymaking (Christensen, 2020, p.1). Regarding public health, recent research has focused on investigating the role that health experts and scientific information have in the policy process to shape policy content, an area that was considered underdeveloped at the beginning of the last decade (Montpetit, 2011).

Moreover, the emergence and increased prevalence of complex health issues, like those related to the “New Public Health” (NPH) stream and the prevention of unhealthy behaviours (Bell et al., 2011), has attracted the interest of health and social scientists when investigating change and inertia through the lens of policy process theories. This includes the prevention of obesity (Clarke et al., 2016). The NPH studies how individuals and their environment (social, economic, psychological) interact, recognising that the environment may have an impact on an individual’s health. However, although individuals do not have control of their surroundings, they are responsible for self-control and maintaining a healthy lifestyle.

From this conception of public health, Bell et al. (2011) point out that policies that prevent harmful behaviours, such as the consumption of tobacco, alcohol, and energy-dense food and beverages, have gained a place in the political agenda. This has in turn increased the participation of health professionals in the policymaking. Their expertise in areas such as epidemiology has been fundamental to ‘suggest ways to “manage” people behaviour’ (Annas, 1997, p.528, emphasis in original), and to frame the consumption of these commodities as a significant public health concern based on evidence. In this regard, NPH

strongly supports the application of evidence-informed policies and lesson-drawing to make sound decisions for health policy and promotion (Tulchinsky and Varavikova, 2010).

Public health literature and evidence-based approaches claim that policy should be informed by evidence (Wilson and Sheldon, 2019; Buse and Mays, 2012), however, in practice, political science literature highlights that evidence is not always used to inform the design of policies (Boswell, 2009; Boswell, 2008). When Charles Lindblom (1959, p.87) defined policymaking as the science of 'muddling through,' he explained that the use of theory and evidence by policymakers was constrained by bounded rationality (discussed in section 1.1.1). Hence, if policymakers aimed to make decisions, they would prefer 'modest incremental comparisons.' This is not to say that evidence, and experts as producers and carriers of evidence, do not have access and influence in the policymaking arena. Rather, theories of the policy process indicate, on the one hand, that experts can act as to define policymakers' interests in times of uncertainty, or when the issue to solve is complex (ECs).

On the other hand, when complexity or uncertainty is not prevailing in the policy environment, experts as producers and carriers of evidence could become policy advocates' allies, as suggested by the ACF. Acting as policy advocates within a broader coalition, they and their allies could use their evidence politically to bolster support for preferred policy decisions (Ingold and Gschwend, 2014; Weible, 2008), or 'ignored by their opponents based on ideology and previously existing beliefs (Weible et al., 2010, p.523) if the policy area involves conflicting issues and faces opposition. When policy areas are not conflictive, experts would provide evidence that exerts a policy-oriented learning function in the long term, which alters decision-makers' beliefs about issues and solutions or could contribute to policy design if collaboration between coalitions occurs.

This chapter is structured around six sections. Section 2.1 outlines the role of evidence in policy and the limits of EBPM. Building upon the limits to EBPM, section 2.2 explains ECs and ACF's concepts with regards to experts' role in the policy process, and evidence (expert-based information) uses by policymakers. Section 2.3 explains how evidence is used by policy advocates. Section 2.4 reviews the applications of ACF and ECs in the study of policy changes in the

prevention of risky behaviours (tobacco and alcohol consumption). This section highlights how those studies have observed the influence of experts from the networks perspective, but have not yet addressed the gaps found in Chapter 1 with regards to the emergence of coalitions or the long-term relationships between actors. Section 2.5 presents what is known about the role of experts in obesity prevention policies using theories of the policy process. A final section concludes with a summary of the content reviewed in this chapter.

2.1 Experts and evidence uptake by policymakers in EBPM

How evidence is used in policy is subject to longstanding dispute. According to Boaz et al. (2019) how science made its way into society began with the seminal contribution of Thomas Kuhn's (1962) *The structure of scientific revolutions*, and Bruno Latour and Steve Woolgar's (1979) *Laboratory life: The social construction of scientific facts*. These publications 'have challenged [the] understanding of how research or science create knowledge and have had an impact way beyond their primary fields' (Boaz et al., 2019, p.6). Contributions made by Everett Rogers (1962) and Carol Weiss (1979) added to Kuhn and Latour's work with the application of evidence in society and public policy. Particularly, Weiss' (1979) publication of *The many meanings of research utilization*, offered a better understanding of the uses of evidence by in public policy and continues to be one of the most cited publications in the area.

Weiss (1979) defined seven models of evidence use by policymakers, including a knowledge-driven model in which expert-based information help to formulate policies and a problem-solving model (i.e., research providing empirical evidence and conclusions that help to solve a policy problem). Other uses include the political, tactical, and enlightenment models. With regards to the political model, Weiss (1979, p.429) argues that evidence is used as a decision-maker resource to 'neutralise opponents, convince waverers, and bolster supporters' with regards to a predetermined policy position. Weible and colleagues (2010, p.526) argue, that in this mode, evidence produced by experts, is used to legitimise 'prior beliefs or interests, previously made policy decisions, or both.' In addition, it may entail a misuse of information, for example, by offering a distortive interpretation or using it selectively.

The tactical use refers to situations when decision-makers use research to demonstrate they are responding to public problems, but also to delay action. Lastly, the enlightenment model consists of shaping beliefs and orientation towards how people think about social issues. Many studies have followed Weiss' publications to understand how research and evidence enters the policy process and is used by policymakers (Weible (2008), Landry et al. (2003), Oh and Rich (1996), Radaelli (1995), Sabatier (1987)).

A strand of the literature that also looks to understand how evidence influences policy is EBPM (Head, 2016), which is inspired by evidence-based medicine (Oliver and Pearce, 2017; Boaz et al., 2002). EBPM is 'centrally concerned with understanding the use or "uptake" of evidence in policy design, with evidence usually referring to results of some sort of formal and systematic investigation' (Christensen, 2020, p.5, emphasis in original). This approach highlights several determinants of evidence utilisation including the clarity, relevance, and quality of research, the characteristics, and abilities of researchers to use and promote evidence, and the existence of communication channels with policymakers (Oliver et al., 2014a).

EBPM has been criticised because it is based on rational policymaking (Cairney, 2022; Parkhurst, 2017), implying that experts (Sabatier and Zafonte, 2001) and research evidence is 'neutral and apolitical' (Christensen, 2020, p.5), following a rationale that mechanically connects evidence utilisation as product of researchers' supply of evidence, policymakers' demand for evidence, and straightforward transmission between researchers and policymakers, in which evidence is used in a problem-solving, or instrumental mode. Mesko (2018) highlights that it is precisely the notion of bounded rationality in real-world decision-making that limits the scope of EBPM. Sabatier and Zafonte (2001, p.11564) argue that experts are not neutral participants in a policy process because they operate within specific paradigms that contain important normative assumptions. In addition, the involvement in the policy process requires a commitment to 'defending a particular point of view' over an extended period.

It has also been argued that EBPM needs to follow a theoretical approach to analyse evidence uptake, allowing scholars to make generalisable recommendations for further research and to policy advocates. For example,

Oliver and colleagues (2014b) note that conclusions on evidence uptake are drawn based on policymakers' beliefs and attitudes or on Weiss' (1979) instrumental use of evidence. Other authors argue that EBPM presents lists of factors that may facilitate or impede evidence use but do not consider the complexity of policy environment and policy process theories (Cairney, 2022; Oliver and Cairney, 2019; Oliver et al., 2014a). Recent work has attempted to reconcile EBPM with policy process theories, in the work of Cairney (2022), Parkhurst (2017), and Cairney and Oliver (2016). Yet criticism remains, in that theoretical arguments used in this recent work, 'offer only a rudimentary notion of the politics of expertise compared to other literature' (Christensen, 2020, p.7), and do not consider that bureaucracies can decide the fate of evidence use in policymaking.

2.2 Experts and evidence use by policymakers in ECs and ACF

In a separate silo of literature of experts and evidence use by policymakers in the policy process, the ECs framework developed to explain the role of experts in international policy coordination (see Chapter 1). However, recent studies have suggested that communities of experts can be found at any level of government. ECs concurs with the broader argument in the literature that decision-makers needs experts and evidence to define policy positions and to design solutions to public policy (Donadelli, 2020; Radaelli, 1995), but it adds to the literature the notion that decision-makers define their interest through knowledge and ideas carried by experts (Haas, 1992a) under the conditions of uncertainty and complexity. In other words, 'epistemic communities' entry into the policy arena is a function of decision-makers' technical uncertainty' (Dunlop, 2015, p.326).

ECs also recognises that the influence of experts may depend on holding a bureaucratic position or their 'political acumen' (Dunlop, 2015, p.230). This offers a superior understanding of how experts influence policy adoption (i.e., in contrast to EBPM) by considering the political mechanism that shapes public policy (Radaelli, 1995). For instance, Sebenius (1992) argues that bargaining with other actors increases epistemic communities' influence, and what started as a natural coalition could become a winning coalition that sees their policy project implemented. This is not to say that this approach stands out across literature on

expert influence in the policy process, as criticisms to ECs maintain that epistemic communities are difficult to operationalise (Christensen, 2020) and do not pay attention to the organisation of the community of experts themselves as a condition that influences expert involvement (Dunlop, 2015; Davis Cross, 2013).

Since its origins thirty years ago, the ECs framework proposed that the way evidence and experts influence the policy process would potentially occur through learning. Despite the approach not being theoretically advanced to the same extent as the policy networks and ACF literature (Dunlop, 2015), authors, including Claire Dunlop and Claudio Radaelli, have developed a series of studies to differentiate the types of learning occurring in the interplay of experts and decision-makers. Dunlop (2009) named the “deficit model” of learning to the initial proposition of the framework as an ideal type in which experts influence decision-maker’s uncertainty by providing authoritative policy-relevant information required to update beliefs on how to address a highly complex issue. In “the deficit model,” learning occurs as an instrumental mode in which experts’ role is more technical than political.

Other modes include learning as persuasion and socialisation, as a calculation, as legitimacy, and as an unreflective mode. For example, learning as a persuasion and socialisation implies experts’ attempts to persuade decision-makers to adopt a particular policy or a shared understanding of a problem. Learning as calculation means that decision-makers can source experts and information to gain ‘control in a policy domain or gain political advantage’ (Dunlop, 2015, p.239); however, experts can also act strategically and deliver ‘pre-determined policy choices in an efficient and credible manner’ (Dunlop, 2015, p.239). The legitimacy mode concedes that decision-makers engage with experts to gain legitimacy in policy decisions. In contrast, the unreflective mode highlights that once experts’ role is institutionalised in bureaucracies, policymakers routinely follow experts’ advice.

Dunlop and Radaelli (2013) write about a typology of epistemic learning that indicates the modes in which experts interact with decision-makers to contribute to policy-oriented learning. The authors argue that learning depends on a learner’s (decision-maker) control over learning contents and objectives. Hence, in an ideal type when decision-makers have low control over content and low

control over policy objectives, experts act as teachers. In the opposite case when decision-makers have high control over learning content and objectives, epistemic actors act as contributors, or competitors and their ideas may be ignored.

Dunlop (2014) highlights that epistemic learning conduces to the instrumental use of evidence. However, it is rarely found in empirical studies, as public issues may be of low complexity. Rather reflexive learning or learning through bargaining may occur. Reflexive learning is linked to a conceptual use of knowledge defined as those cases in which many actors, including experts, contribute to clarify and reframe thinking and understanding of issues over a long period, which does not immediately impact on decision-makers. Learning through bargaining resembles those cases where many actors intervene in public policy where there is low uncertainty associated with public issues. When learning through bargaining occurs, a policy emerges from coalition confrontations or mutual agreements. In this case, experts and evidence could be 'cherry-picked' to back a political compromise (Dunlop, 2014, p. 214), resembling the political use of evidence highlighted by Weiss (1979).

Regarding the ACF, evidence is implicit within the framework as it shapes advocacy coalitions' belief system through policy-oriented learning. Expanding the ACF considering the literature on research-utilisation (e.g., Carol Weiss' work), Weible (2008, p.616) explains that the uses of information can be summarised into three categories: learning, political, and instrumental. The learning function refers to the alterations of policymakers' belief system regarding policy preferences and solutions based on the gradual accumulation of evidence. The political occurs when decision-makers rely on evidence to legitimise 'previously made policy decisions' (Weible, 2008, p.620) and can take many forms, such as creating frames for a preferred policy solution, or to counter arguments of opponents. The instrumental use of evidence, as explained also by Dunlop (2014) will occur when evidence directly affects policymaking. Weible (2008, p.621) also highlights that all three uses happen in a policy process, but the importance should be in understanding in what context a specific use of evidence dominates.

Weible (2008, p.619) highlights that evidence and expert influence on policymakers' decisions depends 'on both the level of conflict among coalitions and the availability of institutional forums enabling discourse among coalitions.' He classifies subsystems as unitary (dominated by a single coalition, similar to an iron triangle), adversarial (competitive advocacy coalitions with incompatible beliefs and coordination), and collaborative (coalitions that disagree but can negotiate and collaborate).

Weible (2008) points out that in adversarial subsystems where policy solutions are contested between competing coalitions and experts within coalitions hold different perceptions of the analytical approaches to problem-solving, evidence plays a political role, and experts become key allies within a coalition of policy actors. The instrumental use of evidence is also likely to be ignored in adversarial subsystems because actors will be reinforcing their positions and counter-attacking opponents. He argues that the learning mode will occur 'within coalitions or among experts with similar analytical approaches in all subsystems and will most likely occur across coalitions or across experts with dissimilar analytical approaches in collaborative subsystems' (Weible, 2008, p.629). In later studies, Weible and Sabatier (2009) find that collaborative subsystems provide a context where the instrumental use of evidence by policymakers outweighs political use.

Weible and colleagues (2010) expand Weible's (2008) arguments and suggest that most policy subsystems require scientific information to understand the complexity of issues policy participants will face. As such, advocacy coalitions 'rely on scientific and technical information throughout the policy process, from shaping problem definition to advocating for a policy proposal.' The authors stated five propositions on the use of expert-based information in policy subsystems and the role of experts in subsystems. As written by Weible and colleagues (2010, p.528) these are:

1. *The political function will be highest in adversarial subsystems.* The high value conflicts in adversarial subsystems, makes expert-based information appealing as a political weapon to argue against opponents.
2. *The instrumental use of science will vary from the highest in collaborative, to an intermediate level in unitary, and to the lowest in adversarial policy*

subsystems. Expert-based information will least likely be used instrumentally in adversarial policy subsystems because actors will primarily be set on defeating opponents and reinforcing their policy positions and not on following the suggestions from expert-based information. The instrumental function will most likely be found in collaborative policy subsystems because of the potential for iterative and joint-fact finding to get the right science and to get the science right for decision-making actors (...). The instrumental function will be found in unitary, as long as the science reinforces the status quo, but will be ignored otherwise because of the homogeneity of beliefs among members of the dominant coalition.

3. *The learning function will occur within coalitions in all subsystems and across coalitions in collaborative subsystems.* In adversarial and unitary subsystems, learning will mostly reinforce existing beliefs or analytical methods. Low conflict and presence of consensus-based institutions make collaborative policy subsystems the best for learning across coalitions.
4. *Scientists will more likely be perceived as allies and opponents in adversarial policy subsystems than in collaborative policy subsystems.* Because expert-based information is most likely used politically in adversarial policy subsystems, scientists too will most likely be viewed as allies or opponents in these systems. We expect to find high citations to scientists as allies and opponents in adversarial systems compared to collaborative or unitary policy subsystems.
5. *Coalition members will more likely coordinate with scientists when the scientists' analytical approach corroborates the coalitions' policy core beliefs.* We expect a symbiotic coupling between analytical approaches of scientists and coalition belief systems and to find correlations between certain degrees or speciali[s]ations with a coalition's policy positions, especially in unitary and adversarial policy subsystems.

Funke and colleagues (2021, p.804) apply Weible's (2008) 'framework' in a case-study in South Africa and find that awareness-raising is a function where evidence is also incorporated to shape public perception of uncertainty and risk in policy subsystems. In addition, the authors comment on Weible's conceptualisation of

experts as coalition “puppets,” suggesting that greater attention needs to be paid to experts as politically independent actors, especially when research such as in Ingold and Gschwend (2014) show that experts act strategically.

2.3 Evidence use by policy advocates and opponents in adversarial subsystems

Both the ACF and ECs explained in the previous subsection concede that when there is low uncertainty or where there are competing coalitions in adversarial subsystems there is a political use of evidence exerted by policy advocates. The ACF considers expert-based information a technical resource deployed by coalition members during intense conflicts (Mosley and Gibson, 2017; Sabatier, 1987). It is also argued that experts join coalitions because their information bolsters a coalition’s arguments and provides legitimacy in making and implementing decisions (Weible and Sabatier, 2005).

Weible (2008) adds that policy advocates can use expert-based information to highlight uncertainty and risk in a policy area to raise anxiety, fear, or support for a policy, for example, by highlighting a cause-effect relationship in a policy area. Policy advocates seek to influence government decisions in diverse decision-making venues, such as congressional and executive venues or public consultations.

An illustration of how policy advocates and opponents use evidence is found in McCambridge and colleagues (2013, 2014), who analysed the submissions of the 2008’s consultation held by the Scottish government for the introduction of whole-population approaches to alcohol restriction policy in contrast to individual-responsibility actions. The authors highlight that health advocates promoted comprehensive policies on alcohol restrictions based on the most-recent authoritative evidence on the effectiveness of alcohol policy measures. However, the alcohol industry attempted to undermine policy adoption by ‘misinterpreting the international evidence’ (McCambridge et al., 2013, p.2) used by the government to design the policy. For example, the industry claimed that advertising did not impact consumption despite available evidence suggesting the opposite. Furthermore, the industry relied on low-quality evidence to sustain its arguments. Sources of “evidence” presented by industrial actors included

opinion polls to highlight public support, and market research, none of these representing expert-based information linking alcohol consumption and health risks. Industry commentaries about the adverse consequence of policies, and policy alternatives, were also found to be unfounded (McCambridge et al., 2014). The industry's objective was to minimise the severity of alcohol consumption in the UK by emphasising that alcohol has positive effects on 'society, the economy and on the lives of individuals who enjoy their products' (Hawkins and Holden, 2013, p.60).

2.4 Health experts in the adoption of preventive measures: Lessons from the tobacco and alcohol policies

Literature on ACF and ECs has shown the capacity of analytical concepts to judge whether experts become involved in the policy sphere and shape policy decisions within health-related areas. For instance, Brooks (2018) investigated the influence of evidence and public health advocates in the debate of the direct-to-consumer advertising of prescription drugs in the EU, finding that evidence played a key role in the debate, but this was initially used by the coalition in favour of the direct-to-consumer advertising (with links to the industry).

Despite the important role that experts play in informing policies, authors such as Dunlop (2015) and Mamudu et al. (2011) note that policy scholars commonly assume the existence of knowledge-based networks, as well as health allies as actors in the policy process. However, little is known about the characteristics of these networks, the development of knowledge, and the power gained in the political sphere. It is more noticeable, for example, when compared with the studies of industry actors' influence in policy processes (Lesch and McCambridge, 2021).

Among health prevention policies, case studies concerning tobacco are the ones that, to date, have analysed most the participation of experts in policymaking (Studlar and Cairney, 2019). Diverse studies analyse advocacy coalitions, interest groups, and issue networks where professionals, scientists and experts interact. However, considering the importance given to knowledge generation regarding issues associated to tobacco consumption, Mamudu and colleagues

(2011) were the first scholars to identify the epistemic community behind the Framework Convention on Tobacco Control (FCTC).

The authors find, for instance, that the community integrates four categories of tobacco control professionals who carry out different knowledge-generation activities, ranging from pure scientists to pure advocates. As the propositions from Haas' (1992a) framework indicate, they share a set of core beliefs around social justice and the right of people to be informed about the consequences of tobacco use. Moreover, as the complexity of NCDs related to tobacco use suggests, the policy enterprise promoted by the community supports various interventions such as taxation, health warnings and bans on sales to and by minors. The community's power to influence was strengthened by the scientific knowledge they possessed regarding consequences of tobacco use, and it was exerted through both complexity and also the government's demand for information as scope-conditions of influence.

Research on a regional level has also highlighted the influence of networks of experts in campaigns for the protection from second-hand smoke in the EU. In particular, by subsuming the ECs to the ACF, Smith and Weishaar (2018) analysed community membership and activities related to the promotion of evidence to reach the adoption of 'comprehensive smoke-free policies (without exemption) to effectively protect citizens from the health harms caused by exposure to second-hand smoke' (p. 406). Findings, as presented in Chapter 1, suggest that to influence policies, health experts have engaged in collaboration networks with other advocates. The network has shown a high degree of scientific consensus, promoted an active dissemination agenda of research-informed policy proposals and encouraged communication and engagement with actors with diverse expertise to influence the adoption of health-informed policies.

In a recent analysis of increasing tobacco taxes in the Philippines and Ukraine, Hoe and colleagues (2021) highlight that an unanticipated finding was that the involvement of economics and health experts within pro-tax advocacy groups become essential to the passage of taxes. Economic expertise facilitated technical conversations with the ministries of finance in charge of developing fiscal policy, and key health experts were able to monitor and analyse data regularly, providing timely evidence to counter industry frames.

Although the case presented by Smith and Weishaar (2018) is useful to understand the mechanism that promotes the use of evidence in policymaking, its time scope does not allow us to determine in more detail the dynamics of the networks of experts such as its emergence and dynamics. For instance, as Dunlop (2016) proposes, it may be the case that a network of experts emerged as decision-makers' teachers. In this case, they may have helped to define policy priorities, but then after making these priorities clear, experts may no longer be influential, and thus move to a bargaining position in which they join other political actors.

The existence of advocacy groups integrated with health experts, non-government organisations (NGOs), and public health officials was also observed at the national level for the alcohol policy development in the UK (Hawkins and Holden, 2013; McCambridge et al., 2013) and Ireland (Lesch and McCambridge, 2021). Lesch and McCambridge (2021) argue that health advocates have been influential for the attainment of policy change by forming coalitions of health experts, NGOs, and public health officials. Coalition-building increased the resources but also credibility of the coalition who, through issue-framing, shifted the discussion of the debate to alcohol-related harms, based on evidence.

2.5 Experts in obesity prevention

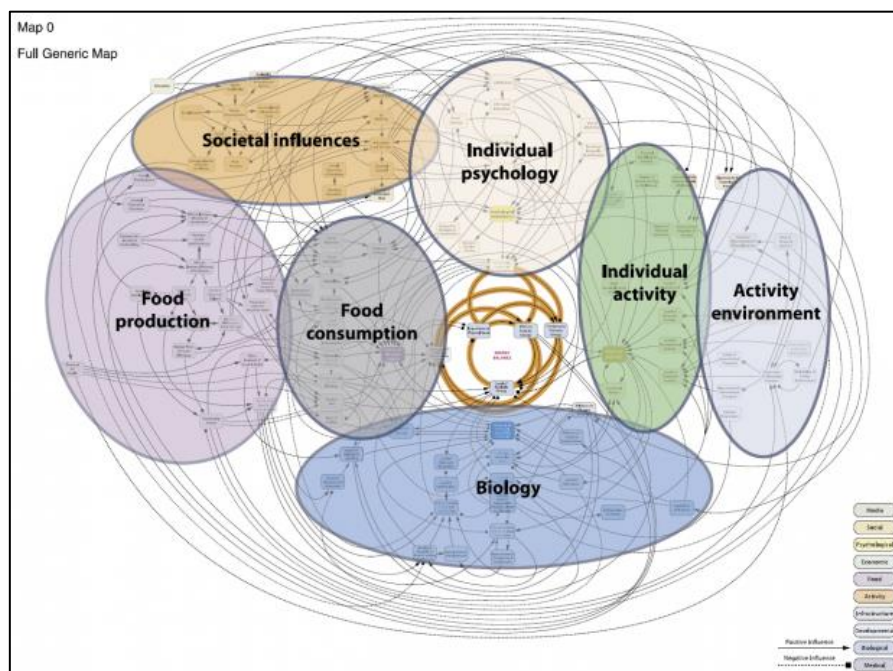
In comparison with tobacco policies, obesity, and food regulation present greater complexity for observing expert influence in a global coordinated policy. In a recent study, Studlar and Cairney (2019) compared the governance of tobacco and food regulations, highlighting that the multifactorial nature of obesity and conflicting findings in its determinants are some of the factors, that alongside strong competing industrial interests, make it challenging to support a shift in nutrition policy, as well as the creation of a policy framework at the aggregate level.

Studlar and Cairney (2019) assume the existence of a global obesity epistemic community that has reached neither institutionalisation nor consensus. However,

although in the next decades a regulation similar to the FCTC may develop¹² for food and beverages, to date, supportive policy environments and scientific evidence informing policy at national and local jurisdictions are ‘more likely to produce a series of policy changes’ (Studlar and Cairney, 2019, p.161) during multiple windows of opportunity than a global effort. This is likely derived from the politics of preventative policies. Cairney and St Denny (2015) suggest that not only one, but many strategies emerge from the prevention umbrella. This is due to the complex way in which weight issues develop and the fact that these NCDs are produced by many factors including genetic, environmental, and socio-political.

As an illustration, Figure 1 presents the Foresight obesity system map, one of the multiple conceptual models that explain the variables that directly or indirectly influence energy balance, leading to excess weight in individuals (Allender et al., 2015). As observed, determinants range from medical and biological (intrinsically individual) to environmental including, for example, the access to food, and societal influence through media channels.

FIGURE 1. Foresight obesity system map with thematic clusters



Source: The full obesity system map with thematic clusters (Butland et al., 2007, p.121, fig. 8.1)

¹² For example, Swinburn and colleagues (2019) propose a Framework Convention on Food System to strengthen the food system’s public health purposes against the current commercial interest.

At the local level, the adoption of obesity policies as a policy package or as individual strategies has gained the attention of health and public policy scholars who use policy process theories to identify how policies are adopted. It is also debatable how the main actors are involved and to what extent professional communities influence the process (Wassef et al., 2021). For instance, Clarke et al. (2016) published a meta-synthesis identifying that among 17 studies, MST is most prevalent to explain policy change, followed by the ACF, or hybrid of both of these. MST has been applied to study the policy process of childhood obesity policies in Arkansas (Craig et al., 2010), finding that experts in public health played a secondary role as policy entrepreneurs. In particular, the authors noted that:

[They coupled] the problem with viable alternatives from the policy stream. Several of those individuals had been involved in the events noted in the political and problem streams and were ready with practical, achievable policy options generated at the Arkansas Preventive Nutrition and Physical Activity Summit and other venues. The timely coupling of streams by policy entrepreneurs led to the passage of Arkansas Act 1220 of 2003. (Craig et al., 2010, p.2051)

Similarly, Milton and Grix (2015), James and colleagues (2020) and Carriedo (2017) undertake analysis from the perspective of two specific obesity policies: physical activity promoters in England and the Sugar Tax in Mexico, respectively. In the first case, the employed policy framework proved to be useful in organising the agenda-setting stage of the program "Walking in England." However, it did not deepen in the policy network configuration. In contrast, Carriedo (2017) and James et al. (2020), in the application of MST to Mexico's tax on SSBs, find that policy entrepreneurs (in particular the community of nutritionists and medical associations) were essential to bring ideas to the agenda-setting stage but not to bring ideas or technical expertise in implementation stages, despite holding recurrent meetings with decision-makers in charge of implementation.

Payán and colleagues (2017) explored the characteristics, resources, and strategies of coalitions involved in the development of menu labelling policy in California using the ACF. These authors find that health experts (represented by

medical and public health associations) and advocates promoted a message around consumers' informed decision-making by providing point-of-purchase calorie information. This was in opposition to the industry-led coalition against the labelling policy based on cost and implementation arguments. In a later publication, Payán and Lewis (2019) expand on the evidence-use and expertise deployed to influence the adoption of the labelling policy, finding that health advocates are perceived as experts by other actors in the policy process, providing evidence on the magnitude and severity of obesity to justify policy implementation. Similar findings on the role of evidence (e.g., obesity prevalence) as an element contributing to the definition of the severity of the obesity problem is found by Clarke and colleagues (2019) for the menu kilojoule labelling policy adoption in Victoria, Australia.

Focused on understanding the role of the nutrition profession in the development of the six-year governmental plan on obesity prevention in Quebec Canada, Wassef et al. (2021) observe that nutritionists played a key central position within the dominant coalition in a subsystem composed of four coalitions. Members of this profession were key advocates that sought to reinforce alliances with broader actors, conducting research and developing evidence, creating communication materials, participating in forums and workgroups, and bargaining.

The application of theories of the policy process to study prevention policies in the obesity domain, as it has been discussed in the introductory section and throughout this chapter, are important to analyse the role of networks, advocates, and ideas in influencing policy change. However, in Chapter 1 it was observed that recent research on networks and ECs suggests the need to analyse also cases in which sets of professional actors fail in their efforts to influence policy (i.e., Löblová, 2018b; Shiffman et al., 2016). In this regard, among the literature reviewed, only Baker et al. (2017) focused on analysing the lack of political priority to adopt preventative policies for childhood obesity in Australia.

Using Shiffman and Smith's (2007) framework for explaining the political preference for health issues, Baker and colleagues (2017) noted that under the term "obesity prevention," evidence generated from experts pointed towards multiple lines of action. This made it difficult for experts to prioritise policies, impeding coalition formation with policy advocates to influence the adoption of

policies. Despite the obesity issue gaining political attention, the policy environment was not conducive to carrying out a policy change, as private economic interest competed with public health claims (Baker et al., 2017).

This last case is useful for highlighting that experts' ideas do not always have a place on the political agenda, and that the policy process literature acknowledges this. For example, the MST argues that ideas about how to solve issues emerge from a "primeval soup" and some of these may gain relevance under political pressure, others once discarded by elected politicians may 'keep alive in the hope that the larger political climate will change' (Kingdon, 2011, p.139). However, it is also known that these ideas emerge from dynamic networks that react to the environment, and these, as the literature on ECs note, have control over the knowledge needed to frame or design policy solutions mainly in conditions of uncertainty and complexity (Haas, 1992a), as well as in 'quite *certain*' areas (Davis Cross, 2013, p.152, emphasis in original). In this regard, policy scholars have encouraged the development of empirical research focusing on how knowledge-based networks remain influential in the political arena (Davis Cross, 2013) and what happens once they succeed or fail to see its ideas adopted by the government (Löblová, 2018b).

2.6 Conclusion

This chapter offered a review of how EBPM, ECs, and the ACF analyse the role of evidence and experts in policy processes, spotlighting a selection of the diverse literature that aims to address this issue (Christensen, 2020; Boswell and Smith, 2017). It outlined how experts have influenced the adoption of policies to prevent the consumption of tobacco-, alcohol-, and obesity-related policies from the perspective of policy process theories. Despite the role of experts being less documented than the role of industry actors, lessons learned from the tobacco field have enabled scholars to identify the existence of epistemic communities in the international sphere behind the adoption of the FCTC. At the national level, health experts have engaged in coalition-building to influence the adoption of policies, where issue-framing has been one of the key strategies to present the regulation of unhealthy commodities as a public health concern. In the case of

obesity policies, studies have begun to analyse the role of health experts in attaining policy change with the latest studies addressing the participation of specific professions in the policy arena.

The next section presents how obesity has become a problem of global concern and how it affects Mexico. In addition, it discusses the most common policies implemented to prevent the consumption of products associated to its development.

Chapter 3: The global problem of obesity

3.0 Introduction

Excess body weight is a NCD affecting 39% of adults and 18% of children and adolescents around the world (WHO, 2018). What was once considered as a condition prevailing amongst high-income nations as a sign of socioeconomic status (Caballero, 2007) has increasingly been affecting not only high-income nations but LMICs during the last four decades. By 2015, it was estimated that two billion people were affected worldwide (Swinburn et al., 2019). In 2016, the US, Chile, Mexico, New Zealand, and Hungary presented the highest rate of obesity prevalence in the adult population amongst the OECD countries (OECD, 2018).

As discussed in the introduction, researchers suggest that urbanisation, globalisation, and technological change have created obesogenic environments that lead to the adoption of unhealthy lifestyles, and which ultimately trigger the development of overweight and obesity. This in turn generates costs to affected individuals and to governments. Because of its implications for public health in the long-run, the creation of policy agendas on obesity concerns both international governance institutions and countries who are expected to implement the specific policies and regulations according to their political structure and social requirements (Jiwani et al., 2019; Mozaffarian et al., 2018; Baker et al., 2017).

This chapter explores the literature regarding the economic and social determinants of obesity and statistics of obesity prevalence to determine the extent to which obesity is a macro-level problem for policy analysis. It argues that although it is a multifactorial disease, its growing prevalence (i.e., the proportion of population affected by a medical condition) is associated with a nutrition transition driven by globalisation that affects all socioeconomic groups worldwide. It also explores trends in Latin-America and Mexico, as well as policy responses.

The remainder of this chapter is structured around six sections. Section 3.1 describes the concept and evolution of excess body weight around the world. Sections 3.2 to 3.4 explores obesity trends at the global, Latin-American and

Mexican level. Section 3.5 outlines policy regulations and most common approaches to obesity prevention and presents Mexico's response to obesity and the actors involved. The final section concludes with a summary of the content covered in this chapter.

3.1 Evolution of obesity epidemiology

Epidemiologists define excess body weight (overweight and obesity) as the accumulation of excessive fat resulting from the imbalance between energy intake and energy consumed. The Body Mass Index (BMI), a formula that includes the weight in kilograms and height in meters squared to define if an individual is overweight or obese, is the common measure for population surveillance of obesity. In the case of adults, being overweight or pre-obesity occurs when the BMI is equal to or higher than 25kg/m^2 , and obesity is defined as a BMI of 30kg/m^2 or higher. For children and adolescents, weight classifications differ 'because body composition varies greatly as a child develops, and further varies between boys and girls' (Hruby and Hu, 2015, p.2). For children from birth to five years old, the WHO's Child Growth Standards are the most used classification system, whereas for individuals aged five to nineteen years, the WHO published BMI-for-age references. In the US, the Centers for Disease Control and Prevention (CDC) use their own growth references to determine BMI-for-age for children and teenagers (Hruby and Hu, 2015).

During the first half of the twentieth century, obesity was considered a condition associated with high income countries and specifically populations with high socioeconomic status, predominantly inhabitants of the US and Europe, where weight gain was synonymous with power. Despite obesity not gaining public attention until recent decades, its prevalence increased progressively. According to Caballero (2007), by 1930 insurance companies in the US started to analyse the relationship of body mass and mortality rate to set premiums for health insurance, and by 1950 first studies linking excess weight to the existence of related diseases were published.

Popkin (2010) highlights that it was not until the 1980s that obesity incidence (or the number of new cases) started to increase rapidly among high income

countries, and by 1990 low- and middle-income economies presented high growth rates of obesity. From then on, questions about the accelerated growth of obesity rates have been the subject of study and have become a global matter, rather than solely domestic ones. For instance, Caballero (2007, p.3) outlines that ‘the global nature of the obesity epidemic was formally recogni[s]ed by a World Health Organi[s]ation (WHO) consultation in 1997’. By that time, the WHO (2000, pp.1-2) highlighted that obesity had replaced ‘traditional public health concerns, including undernutrition,’ and published the first series of recommendations to tackle obesity.

WHO has gradually integrated recommendations for action on obesity and diseases associated with it into reports, action plans, and targets. For example, the World Health Assembly endorsed in 2004 and echoed in 2011 the *WHO Global Strategy on Diet, Physical Activity and Health*, and in 2017 they welcomed the report and recommendations of the Commission on Ending Childhood Obesity to address the obesogenic environment (WHO, 2021). Furthermore, experts in multiple areas are promoting a global response to the pandemic of obesity, and co-occurring pandemics such as undernutrition and climate change, through the implementation of an UN Framework Convention on Food Systems (Swinburn et al., 2019).

3.1.1 The obesity disease

Epidemiologists point out that obesity is a multifactorial disease that should be studied in a twofold way: as an outcome (disease itself) or as an exposure (risk factor) for the development of diverse NCDs (De Lorenzo et al., 2019; Hruby and Hu, 2015; Must and Evans, 2011). As an illness itself, the academic community across various disciplines agree that genetic, metabolic, lifestyle, diet, environment, and psychosocial factors determine obesity and may occur in parallel. This opened up the possibility of exploring the causes of obesity from multiple disciplinary vantage points.

For authors such as Must and Evans (2011) and Popkin (2008), the causes of the rapid growth of obesity are economic liberalisation, technological change and urbanisation as variables that created “obesogenic environments” and promoted

a nutrition transition from healthy diets toward the consumption of energy-dense foods, what is commonly referred as the “westernised diet.”¹³ By the same token, Costa-Font and Mas (2016) highlight that economic and social globalisation are two dimensions that influence greater caloric intake, what leads to weight gain.

Although choices of food and decisions around physical activity are taken individually, choices are constrained by multiple factors (Mozaffarian et al., 2018) including globalisation, which has made certain types of food more attractive, accessible, and affordable. Pearce and Witten (2014) and Cawley (2011) point out that trade agreements lead to the fall in food prices for agricultural products and increased access to high-calorie processed foods. For example, Foreign Direct Investment (FDI) has allowed multinational companies to expand food distribution and raise the number of fast-food chains globally.

Despite large-scale empirical studies on the direct association between globalisation and weight increase being in early stages, the early evidence suggests that this link is valid. Costa-Font and Mass’ study (2016) found that an increase in the level of globalisation, measured by the KOF index,¹⁴ increases by 23.8% the prevalence of obesity and by 4.3% calorie intake, among a sample of 26 OECD countries. The study also reveals that the social aspect of globalisation has a higher impact on the dependent variable, as it increases by 13.7% the number of people with obesity. The results are in line with those obtained by Goryakin et al. (2015) with a sample of 887,000 women in 56 low- and middle-income countries.

Nevertheless, excess body weight is not the result of higher calories consumed but also reflects an imbalance of energy spent in physical activity. For this reason, it is argued that technological change and urbanisation are factors that promote a sedentary lifestyle.¹⁵ Popkin (2006) highlights at least three behaviour shifts.

¹³ Mozaffarian and colleagues (2018) argue that energy-dense food consumption is a historical by-product of how governments sought to combat malnutrition (calorie and micronutrient deficiency) for decades.

¹⁴ The index measures three dimensions: 1) Economic globalisation concerning trade and financial flows; 2) Social globalisation referring to the spread of ideas, information, images, and people, and 3) Political globalisation that considers the diffusion of government policies (Savina, et al., 2018).

¹⁵ Technological change also affects the price of products, as it makes more efficient its production (from agriculture to food processing).

First, related to activity levels at work since 1990, derived mainly from the increasing number of employees in the service sector and the reduction of physical efforts required to perform strenuous tasks. Second, a shift in means of transportation, where automotive transport has replaced walking or cycling; and third, leisure activities that involve more time spent seated in front of a television or computer than carrying out activities that require more physical effort.

Other studied factors that contribute to weight gain include marketing as a way to induce the consumption of sugary and fatty food, mainly among children, and the entrance of women to the workforce, meaning that parents and caregivers spend less time at home preparing a balanced diet. In both cases, the impact of obesity level is higher for children than among adults.

The effects of obesity as a threat to public health are widely documented given its prevalence, incidence, and economic burden. At the individual level, this NCD increases the risk of developing type 2 diabetes, some cancers, stroke, and mental health conditions including depression. Its treatment, besides imposing a cost for the individual, include costs for the private sector and society. According to Dobbs and colleagues (2014), by 2012 the economic cost of obesity-related illnesses amounted to US \$2 TN, equivalent to the 2.8% of the Global GDP, which ranks this disease as the third with most significant impact on the economy, behind tobacco consumption and armed violence.¹⁶

Although there is a global trend of increasing obesity rates, the way in which obesity impacts countries varies according to economic development (and even welfare regime), socioeconomic groups, gender, and age. Nevertheless, most policies' ideas are shared worldwide; it may suggest that a global health issue has affected the way in which policies are formulated and implemented. The following section explores how obesity prevalence differs according to each nations' degree of development and the key pressures they face in tackling obesity.

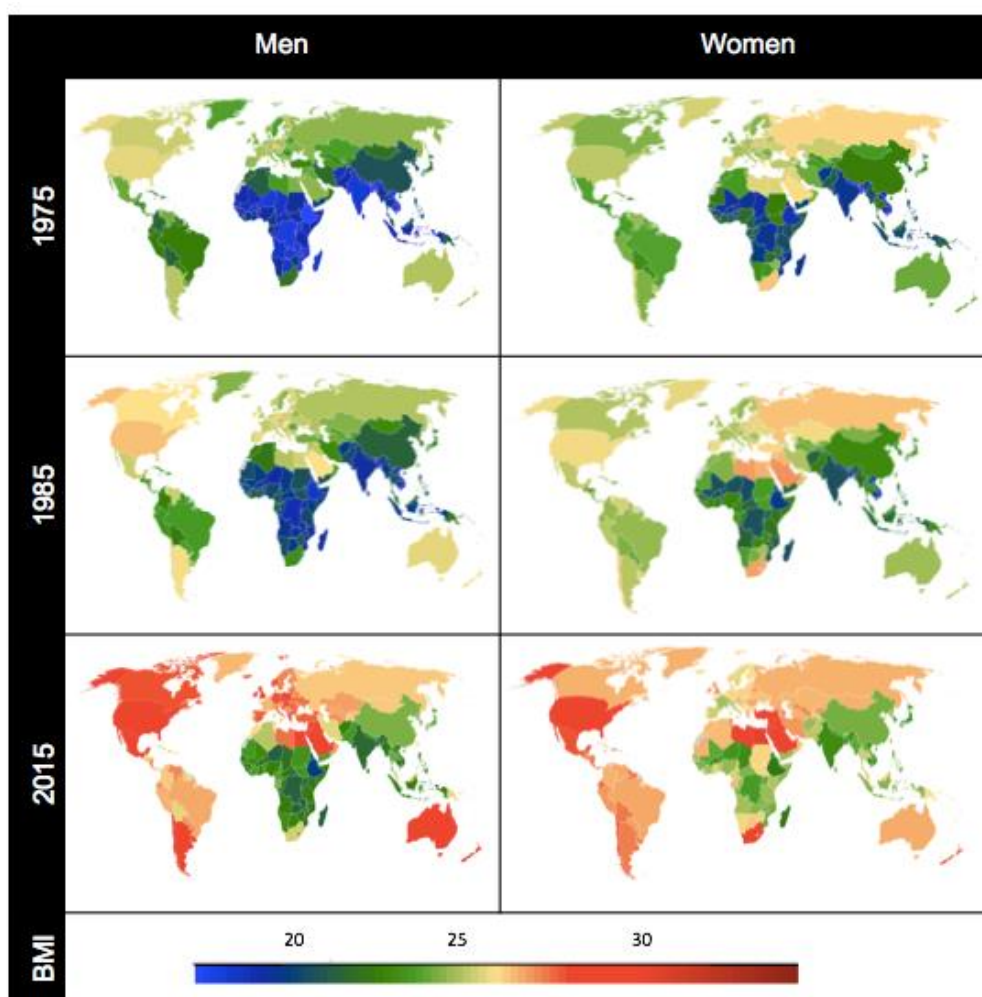
¹⁶The economic cost also measures the loss of productivity and economic growth contraction as a result of lost work days, lower productivity at work, mortality and permanent disability.

3.2 Mapping excess weight and obesity

The hypothesis that obesity is the result of modernisation rests on several assumptions, including the idea that the prevalence rate is associated with the political economy of a country. As such, under market liberalism, the relative price of food products may decrease as trade increases, the number of westernised food chains may alter the food environment within a country, and patterns of wealth and inequality would determine consumption patterns (people on low incomes being more sensitive to changes in food prices).

Figure 2 illustrates mean BMI index evolution worldwide. As observed, BMI has increased across all continents in parallel with contemporary globalisation over four decades. Moreover, Latin America, the Middle East, and North Africa are the three most obese low-income and middle-income regions. For some areas in the global south, particularly Africa, the increase in body weight has had positive impact insofar as it replaces underweight with a healthy weight (blue towards green in Figure 2). This is not to say that low- and middle-income countries have overcome the double burden of malnutrition; in fact, obesity coexists with undernutrition mostly in northern and southern African countries. Nevertheless, regarding prevention policies, researchers from the Africa Working Group to the NCD Risk Factor Collaboration (2017) highlight that African health systems have difficulty tackling diseases related to obesity, as it is not currently as high-priority as HIV/AIDs and malaria.

FIGURE 2. Mean BMI Transition Map



Source: Evolution of BMI over time. Adapted from NCD-RisC (2017).

The rest of the regions have observed a similar BMI growth trend. For countries which in 1975 presented normal weight, the evolution of weight growth rates has resulted in excess weight and obesity. In 2016, 39% of the global adult population (39% of men and 40% of women) were overweight, and about 13% (11% of men and 15% of women) were obese (WHO, 2021). According to Jaacks et al. (2019, p.1) the transition over time in obesity prevalence within countries follows a four-stage process captured in an 'obesity transition framework,' the authors explain;

Stage 1 of the obesity transition is characterised by a higher prevalence in women compared to men, in those with higher compared to lower socioeconomic status, and adults compared to children. Many countries in South Asia and sub-Saharan Africa are at this stage. In Stage 2, there is a large increase in the prevalence among adults, a smaller increase

among children, and a narrowing of the gender gap and socioeconomic differences among women. Many Latin American and Middle Eastern countries are at this stage (...). Stage 3 occurs when the prevalence of obesity among those with lower socioeconomic status surpasses that among those with higher socioeconomic status and plateaus in obesity may be observed among women with high socioeconomic status and children. Most European countries [and the US] are currently at this stage. There are too few signs of countries entering into the proposed final stage of declining obesity prevalence to determine demographic patterns.

In an attempt to measure a possible link between obesity and welfare regimes, Offer et al. (2010) showed that market-liberal economies¹⁷ (US, UK, Australia, Canada, New Zealand, and Ireland) stimulated competition in consumer markets. As a result, the relative price of food impacted the population's food intake, in line with the nutrition transition hypothesis. Additionally, the authors argued that market liberal reforms promote less economic security in the labour market,¹⁸ which generates stress, a proxy variable of higher energy intake. From the analysis, the authors point out that 'the more intensive the competitive and market orientation of welfare regimes, the higher level of body weight, at both aggregate and personal levels' (Offer et al., 2010, p.298). Furthermore, that study suggests that 'the prevalence of obesity is inversely related to socio-economic status' (Offer et al., 2010, p.305).

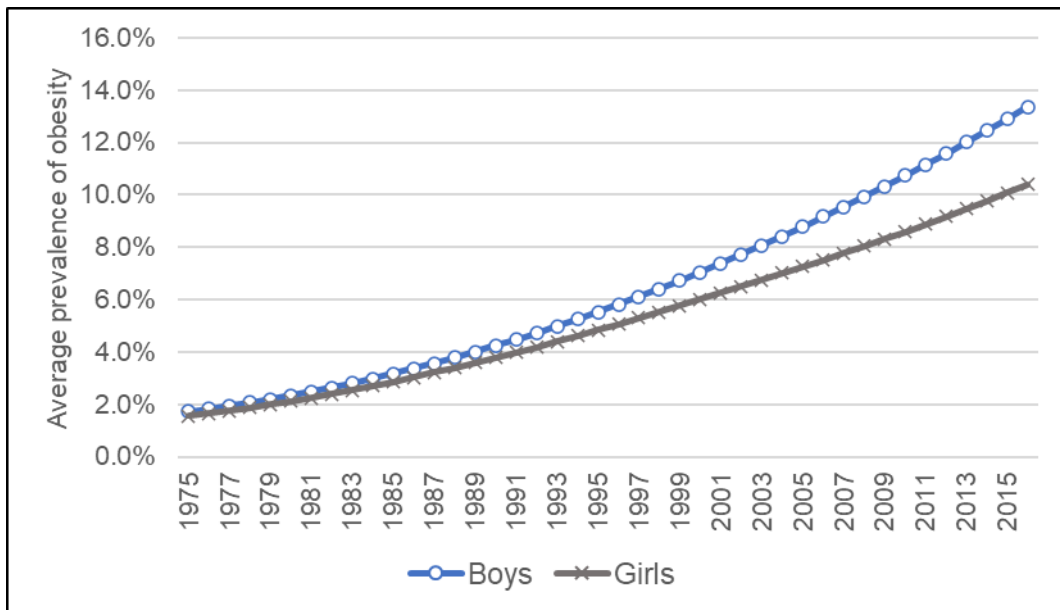
3.3 Latin America and the Caribbean

According to Popkin and Reardon (2018) Latin-American countries were amongst the first of low- and middle-income nations experiencing the nutrition transition and, to date, present high levels of obesity prevalence. For example, Chile and Mexico are ranked first and second amongst OECD countries with higher overweight and obesity prevalence (OECD, 2021). Figure 3 present obesity prevalence rates among children and adolescents, and Figure 4 prevalence in adults.

¹⁷Results were not consistent with Esping-Andersen's three welfare regimes but are consistent with Hall and Soskice's approach to market liberalism.

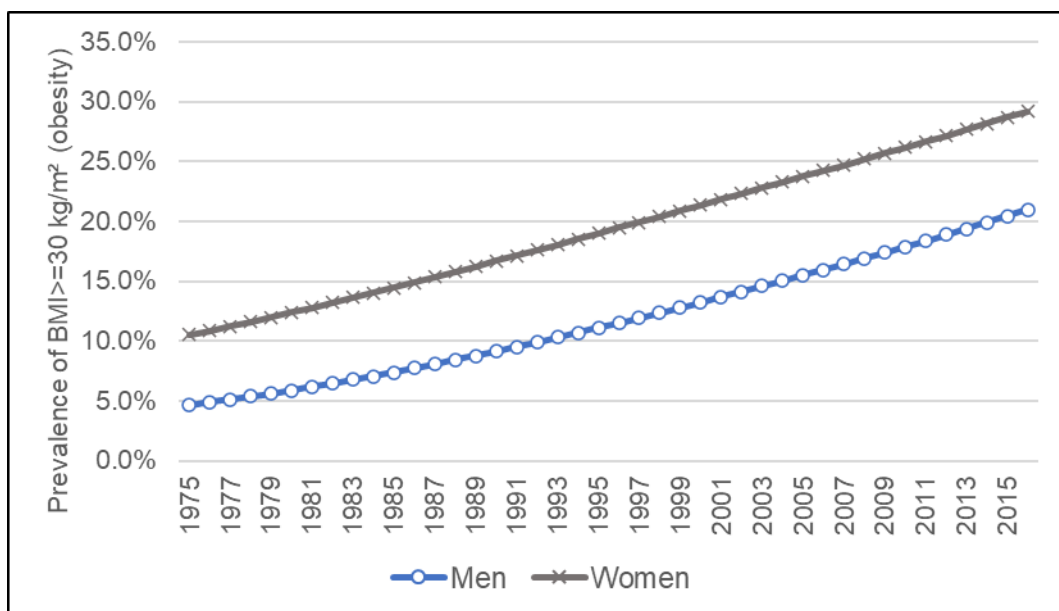
¹⁸Lowest level of protection from unemployment, illness, poverty, and poverty in old age.

FIGURE 3. Obesity prevalence rate among children and adolescents in Latin America and the Caribbean



Source: Own elaboration based on NCD-RisC (2020). Child & adolescent Body-Mass Index per region statistics. The figure shows the average of obesity prevalence in children and adolescents between 5 and 19 years old.

FIGURE 4. Obesity prevalence rate among adults by sex in Latin America and the Caribbean



Source: Own elaboration based on NCD-RisC (2020). National adult Body Mass Index. Region specific data.

Both figures show a gradual increase in obesity prevalence, following the global trend described above. Child obesity levels have lagged behind those shown by adult population, although recently their growth has been more accelerated. In Figure 3 (Obesity prevalence rate among children and adolescents in Latin America and the Caribbean), it can be observed that despite the proportion of boys and girls with obesity being similar between 1975 and 1982 (prevalence around 2.5%), obesity began to affect more boys than girls. By 2016, the average obesity prevalence rate was 13.4% for boys and 10.4 % for girls.

By the same token, Figure 4 (Obesity prevalence rate among adults by sex in Latin America and the Caribbean) illustrates the obesity pattern among adults. In this case, by 1975, the proportion of women with BMI \geq 30 in the region was higher than in the male population, a position that has remained over the years. Nevertheless, from 1975 to now, the male obesity prevalence rate has quadrupled, whereas for women rates have doubled. Regardless of gender, urban populations in Latin-American countries 'have a higher obesity prevalence compared with their rural counterparts' (Jiwani et al., 2019, p.e1652), although the obesity growth rate is higher for rural populations. In addition, its prevalence is skewed to towards the lower socio-economic status groups (Jiwani et al., 2019).

According to Popkin and Reardon (2018) Latin America, like most of the regions in the world, was exposed to modernisation, economic globalisation, and FDI between 1980 and 2000, that impacted in the consumption of non-nutritious food. FDI in particular had two main effects on the region. First, it promoted urbanisation, which increased the region's income and changed employment patterns (e.g., women entered the labour market). Second, it introduced a high number of processed crops, raw meats, and food with high caloric content (or less healthy than the traditional food consumed in the region) at lower prices than local products.

Among the nutrients considered contributors to higher caloric intake are fat, sugars, sodium, and refined carbohydrates. Most of these are ingredients of ultra-processed food (also known as "junk food"), and this is the reason why countries are targeting junk food purchase and consumption. According to Euromonitor

(2015), Mexico is the country that purchases and consumes the most calories per capita from junk food and SSBs on a daily basis in Latin-America, followed by Chile and Brazil.

3.4 Obesity in Mexico

Mexico's latest National Survey on Health and Nutrition has shown that obesity prevalence has increased over the last three decades (Barquera and Rivera, 2020). In 2021, 72.4% of adults were overweight (35.7%) or obese (36.7%). Prevalence rates are higher in women than men, rural areas present higher overweight levels than urban areas (37.1% vs 35.4%), but obesity is higher in urban areas by five percentage points. Children between 0 to 4 years are at risk of being overweight, whereas 37.4% of children between 5 and 11 years present excess weight, and 42.9% of adolescents present one of these two conditions (Shamah-Levy et al., 2022).

The development of obesity in Mexico has also been associated with the nutrition transition and, to a significant extent, with trade liberalisation. Mexico's trade intensity increased from 1994, when the US, Canada, and Mexico signed the North American Free Trade Agreement¹⁹ (NAFTA). This treaty allowed the commercialisation of key products associated with shifting diet patterns from the US to Mexico and attracted foreign investment in the agribusiness and the full spectrum of food supply chain (from production to retail).

Clarke and colleagues (2012) analysed the trade patterns of corn, soybeans, sugar, sweeteners, ready-to-eat products, and livestock products from the US to Mexico. The authors find that under NAFTA, Mexico's food environment has mirrored that of its neighbour country. This treaty promoted the incorporation of ingredients such as yellow corn, soybeans, poultry products, and high fructose corn syrup (HFCS) that are used in the production of processed foods to the Mexican diet, which before NAFTA were rarely used. Furthermore, by easing FDI into the food and beverage sector, processed food and SSBs availability to the final consumer increased.

¹⁹ In 2018, NAFTA was replaced by the United States-Mexico-Canada Agreement, also known as USMCA.

Torres and Rojas (2018) also argue that globalisation modified the supply-demand model for industrialised products, affecting the food consumed in both high and low socioeconomic status populations. While high-income households can consume better quality and higher cost food, low-income populations restrict their consumption to low-quality food. In the case of Mexico, these authors argue that, on the one hand, despite high-income level population consuming better quality food, consumption habits have shifted to eating out of home more often, where less control can be paid to the quality of ingredients. On the other hand, there are those consumers in the lower income deciles who have reduced both quantity and quality of food consumed.

Advancing Clark and colleagues' (2012) arguments, Unar-Munguía et al. (2019) find that the consumption of sweeteners (e.g., fructose, glucose, HFCS) increased significantly by 10.4 kilocalories per day after NAFTA fully came into force. Sweeteners represent 20% of sugar consumption per capita and are a key ingredient in SSBs and processed food, which is associated with having contributed to the obesity and diabetes epidemic in the country. For a decade, Mexico has ranked among the countries with the highest consumption of SSBs. Popkin and Hawkes (2016) highlight that SSBs consumption is the second largest after Chile. The Beverage Digest (2020) and Vandevijvere et al. (2019b) position Mexico's consumption first or second in relation to the US.

The consumption of SSBs is associated with the expansion and consolidation of the transnational company *Fomento Económico Mexicano* or FEMSA, which since 1979 has operated the Coca-Cola franchise and currently is the world's largest beverage bottler and seller by volume of Coca-Cola's products (Théodore et al., 2019; Gómez, 2019), and to the concentration of 85% of the Mexican SSBs market between Coca-Cola (70%) and Pepsi-Co (15%) (Carriedo, 2017). Gómez (2019) highlights that market concentration has given political and economic power to these industries, whereas Théodore and colleagues (2019) argue that these companies have shaped consumer preferences through product availability and marketing, making SSBs part of the Mexican life and culture. Carriedo (2017) highlights that carbonated and sugary drinks consumption is associated with lack of drinking water availability, a problem unique to the Mexican context.

Regarding ultra-processed food, United Nations (UN) agencies highlight that Mexico's consumption is the highest amongst Latin-American countries, as it represents approximately 30% of caloric intake (FAO, 2019) and is ranked fourth across the globe (PAHO, 2015).²⁰ Marrón-Ponce et al. (2019) analysed changes in consumption of food of distinct processing levels from 1982 to 2016, finding that ultra-processed foods (e.g., salty snacks, industrialised tortillas and bread) purchases doubled in that period, compensating for a gradual decrease in unprocessed or minimally processed foods. These authors note that changes in households' socioeconomic conditions (i.e., high education, women working outside home, very high income, living in urban areas in the north region) partially explain these trends, claiming that macroeconomic, environmental, and sociocultural factors are important drivers of dietary change.

Distribution and availability of SSBs and ultra-processed food is also associated with the presence of chain convenience stores and supermarkets (Théodore et al., 2019; Torres and Rojas, 2018), which alongside traditional food retailers (*tienda de abarrotes*), and fruit and vegetables stores, are part of the retail food environment.²¹ Hawkes (2006) highlights that NAFTA stimulated the growth of multi-national retailers observing that the number of supermarkets went from 700 prior to NAFTA to 5,729 in 2004, with US-based Walmart the market leader in the early 2000. Hawkes (2006) also observed the growth of chain convenience stores, predominantly OXXO (owned by Coca-Cola subsidiary FEMSA) and 7-eleven, who tripled and doubled their stores, respectively. In 2020, two supermarkets controlled 50% of market (Walmart, 37.3% and Soriana 12.7%) (Hernández, 2020), whereas at the chain convenience store level, OXXO continues expanding its market in Mexico and Latin America (Hilaire and Madry, 2022). Pérez-Ferrer et al. (2020) find that in proportion to supermarkets and

²⁰ Vandevijvere et al. (2019) observe at the global level that the highest increase in ultra-processed food sales/consumption is in South and Southeast Asia. For specific countries, in 2016 Netherlands, Germany, and the UK ranked first, second, and third in the consumption of processed food per capita. PAHO's (2015) report does not differentiate between ultra-processed food and ultra-processed beverages.

²¹ Pedraza et al. (2018) highlight that SSBs are predominantly bought in traditional convenience stores. Food purchases occur at supermarkets for middle and high-socioeconomic status populations, whereas low-income segments visit traditional retailers.

convenience stores, healthy foods sellers such as fruit and vegetable stores, have decreased.

Hernández-F and colleagues' (2021) study shows that density of convenience stores (measured by number of convenience stores per number of inhabitants) is significantly associated to the consumption of ultra-processed food and beverages, an effect not found in the same magnitude in supermarkets. According to the authors, an increase of a standardised unit in the density of convenience stores (14 convenience stores per 100,000 inhabitants) is associated with a consumption of 0.80 grams of ultra-processed food daily per capita and associated to 16.11 more grams of SSBs. The authors also highlight that consumption of ultra-processed food is higher in urban than rural areas.

The impact of ultra-processed food on BMI and health outcomes has also been documented in the country. In an analysis of the association between the retail food environment (measured by food outlet density in neighbourhoods) and adult BMI in urban areas in Mexico, Pineda et al. (2021) found that convenience store density is higher than other types of food outlets, such as restaurants, fruit and vegetables stores, and supermarkets. Their presence is associated with a 1kg increase in weight for an adult 1.60 meters tall. Furthermore, in the second-lowest income segments of the population convenience store density is higher than other socioeconomic strata, contributing to 0.07kg weight gain. In contrast, high-income areas with higher access to supermarkets had lower BMI levels.

In a study in a municipality in Queretaro, Mexico, Zavala et al. (2021) also find that a high density and low proximity to convenience stores is associated with higher BMI in school-aged children. Pérez-Ferrer et al. (2020) analyse the odds of having diabetes, reporting that adults living in neighbourhoods that saw a decrease in fruit and vegetable store density and a simultaneous increase in chain convenience stores were more likely to be diagnosed with high blood sugar compared to adults living in areas where these healthy food retailers remained stable. However, the authors point out that the increase density of 'chain convenience stores and supermarkets was not associated with the prevalence of diabetes' (Pérez-Ferrer et al., 2020, p.4).

On the other side of the balance between energy consumed and energy spent, the levels of physical inactivity and sedentarism in Mexico have increased. According to Medina et al. (2021), in 2018 16% of adults reported being physically inactive, and 11.3% presented sedentary behaviours, such as high sitting time. Physical inactivity increased by 43.5% between 2006 and 2018, whereas the time spent sitting increased by 49% in the same period. Furthermore, men and younger adults living in urban areas, and from high socioeconomic statuses, are more likely to be less physically active and sedentary. Compared to other nations, physical inactivity is at the same level of Latin-American and Caribbean countries, and reported sedentarism is lower than in the US (25.7%) and the EU (18.5%). Medina et al. (2017) also find that people with excess weight and high glucose levels are more likely to have a sedentary lifestyle.

3.5 Regulation and policies

Corinna Hawkes suggests that dietary changes and physical activity patterns are rooted in the process of globalisation, which has altered the nature of agri-food systems and the 'quantity, type, cost and desirability of foods available for consumption' (Hawkes, 2006, p.2). From the economic and political perspective, globalisation is observed as a process that promotes the free flow of goods and services without borders, increases communications, and expands technology across nations. It is a macro-level force that alters social, economic, and institutional structures, which promotes market liberalism over state interventionism. This results in limited government influence in private matters, and instead, their responsibility is establishing the institutions that overlook the proper functioning of the market (Cerny and Evans, 2004). Globalisation also transformed the nature of policymaking (Evans and Davies, 1999) as interest and ideas on solving public concerns transcend national actors (Hawkins et al., 2020; Stone, 2004; Dolowitz and Marsh, 2000).

Since the 1990s obesity is no longer a problem of a limited number of regions. It has become of concern for not only individuals but also governments, international agencies, the private sector, and civil society. Each of these actors play a crucial role in tackling obesity. For example, the government role is to protect citizens and promote public good. Hence government is considered the

primary influencer of healthier behaviour, given its proximity to the community and its power to implement policies and regulations to protect health and shape the food environment. At the same time, the international agencies are the ones who lead the global policy standard setting and create 'collective agreements of national governments' (Gortmaker et al., 2011, p.344). This is not to say that a single coordinated obesity policy has been adopted. In fact, opposition and lobbying from the private sector, uncoordinated efforts from interest groups, the unwillingness of governments, and framing of obesity as a personal responsibility have constrained the adoption of comprehensive obesity prevention policies (Kwon et al., 2022; Hojjat and Hojjat, 2017; Roberto et al., 2015).

Academics highlight that food policy interventions at both international and local levels are necessary to expand affordable and accessible healthy food to populations (Mozaffarian et al., 2018; Hawkes et al., 2015; Roberto et al., 2015). In this regard, policies are formulated under two approaches of availability, those that control the demand side of unhealthy products and those aimed to modify the supply side. On the demand side, provision of information, education, nutrition food labelling, taxes, and advertising restrictions are policies implemented to aid populations in adopting healthy behaviours (Hojjat and Hojjat, 2017).

The policies most amenable to the industry are information and education campaigns, as these attempt to create awareness from an early age of the importance and personal responsibility for healthy nutrition, with the long-term objective of preventing weight gain in the adulthood (Mozaffarian et al., 2018). Nevertheless, commentators indicate that if implemented individually, or not as part of a comprehensive strategy, these policies are not as effective as labelling or fiscal policies. For instance, nutrition food labellings, particularly interpretative FOPL systems, are useful to illustrate the nutrient quality of a product, supporting the population in making healthier food choices (Farrand, 2021).

On the demand side, taxes are a common policy to discourage the consumption of SSBs and junk food (Cawley and Wen, 2018). Taxes increase the cost of a product, and given individuals' budgetary restrictions, the quantity consumed decreases (Hojjat and Hojjat, 2017). Evidence on the impact and feasibility of this approach to tackle obesity is mixed. It has been found that changes in

consumption are minimal for middle and high-income sectors, who are still consuming the same amount of products. In contrast, lower socioeconomic population groups find income restrictions and that non-nutritious food is cheaper than more nutritious counterparts (Bogart, 2013). However, a positive aspect is that tax income increases government revenue and it can be used for extended purposes to tackle obesity (Mozaffarian et al., 2018). Taxes have been also 'described as a triple win for governments, because they 1) improve population health, 2) generate revenue, and 3) have the potential to reduce long-term associated healthcare costs and productivity losses' (PAHO, 2020c, p.2).

On the supply side, the application of subsidies concerns the government role and the agricultural sector. In the US, the government has historically subsidised crop-farming. However, during the last two decades, crops such as corn, soybeans, wheat, rice, sorghum, dairy, and livestock, have been the most favoured, despite these being commonly used to produce ultra-processed food and SSBs (Popkin and Reardon, 2018). Imposing a subsidy implies that the final consumer would benefit from a lower price, as the government has paid some of the production cost. These lower production costs also affect trade prices, making more competitive US crops than international crops. Advocates highlight that the US government must be able to reorient the subsidy towards nutritious products, so as to make them affordable (Hojjat and Hojjat, 2017). However, for authors such as Popkin and Reardon (2018, p.1053) the 'control of the food system is moving away from governments towards a small number of large, powerful domestic and international companies,' also known as "Big Food," (Stuckler and Nestle, 2012; Brownell and Warner, 2009) including corporations such as Coca-Cola, PepsiCo, and Nestlé.

The public health community highlights that policies to prevent obesity in the form of taxes, regulations, or, for example, physical activity promotion must be considered as part of a comprehensive strategy that acknowledges the complexity of this health issue (Barquera and Rivera, 2020; Mozaffarian et al., 2018; Hawkes et al., 2015). Although countries have recognised the necessity of implementing a multiple level approach to obesity prevention, to date, no country has succeeded in implementing all internationally recommended policies. Priority

has given to adopting taxes on unhealthy foods and FOPL systems (Vandevijvere et al., 2019a).

3.5.1 SSB taxes

According to the Pan American Health Organisation (PAHO), taxes on SSBs have been adopted in more than 73 countries globally (PAHO, 2020c). In the Americas, 21 PAHO's member states have national-level SSBs taxes, whereas in the US state-level taxes are applied in seven jurisdictions. The objective, as defined above, is to modify the consumption of SSBs as are products associated with obesity and the development of other NCDs, such as type 2 diabetes.

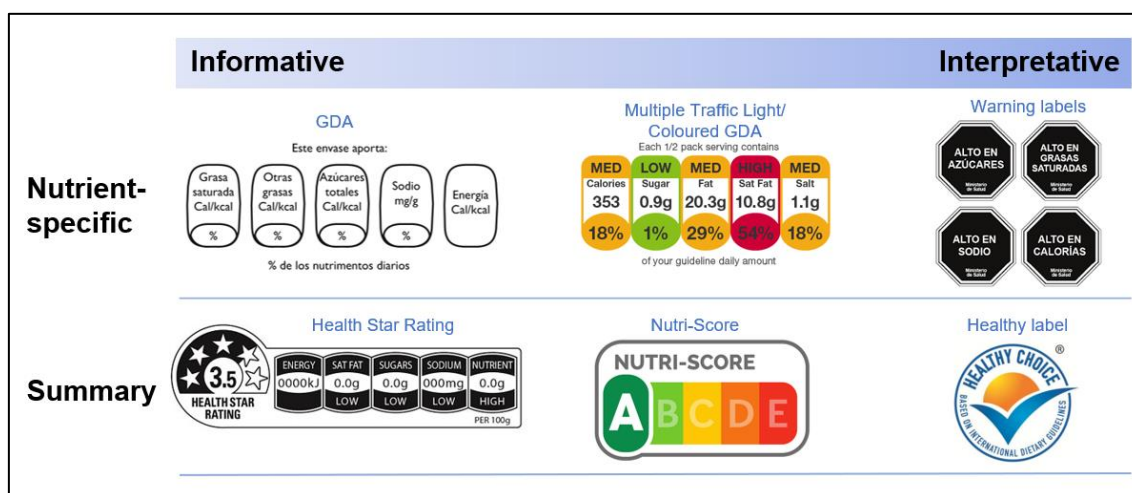
Taxes that influence individual levels of consumption are diverse, such as excise, value added, general sales, and trade tariffs and duties. Excise taxes are recommended for health promotion as these are applied to specific products rather than general sales. This contrasts with value added taxes, which are applied broadly. Excise taxes can also be subdivided into specific taxes that are based on quantity (e.g., percentage of sugar content or volume) and ad-valorem, which are calculated as a percentage of the retail price. Furthermore, excise taxes can be applied uniformly or as a tiered system. For example, the UK implemented a tiered system that taxes with a 24 pence per litre of SSBs if it contains 8 grams of sugar per 100 millilitres, and 18p if drinks contain between 5 and 8 grams of sugar per 100 millilitres (HM Treasury, 2018).

In the Americas, the taxes applied vary in terms of tax applied, bases, and rates. PAHO (2021) highlight that within the region 15 jurisdictions have specific excise taxes (including Mexico) and 11 are ad-valorem excise taxes. The tax base commonly excludes unsweetened dairy beverages, 100% fruit juices, and infant formulas. The use of specific excise taxes has been recommended by the international health community as one of the policies to implement as part of a broad strategy, suggesting that an increase of 20% or more on SSBs' final price will have important effects in curbing consumption levels (PAHO, 2020c; WHO, 2016;).

3.5.2 FOPL systems

FOPL systems are a tool to provide packaged foods' nutrition information to the consumer. They are a response to several objectives, such as providing nutritional contents and helping consumers to discern the relative healthfulness of a product, especially given the broad availability of ultra-processed foods in the market (Champagne et al., 2020). Thereof, FOPL systems identify the content of critical nutrients (i.e., sugars, fats, and sodium) which are associated with the burden of NCDs or the nutrition quality of a product. Hence, these are categorised as informative or interpretative, presenting summarised or nutrient-specific information (WHO, 2020). Figure 5 shows the most common FOPL systems adopted in different countries.

FIGURE 5. Major types of FOPL systems



Source: Adapted from WHO (2020, p.6, fig.1).

Informative formats reproduce information available in the nutrition declaration of a product commonly placed on the back of the packaging, while other schemes of this type vary in the extent they allow food quality assessment. Nutrient-specific formats can adopt coloured schemes or warning labels, and summary systems can operate with a grade indicator (e.g., health star rating) or a single stamp placed on products with high nutritional quality (e.g., choices healthy logo). Interpretative FOPL systems (e.g., warning systems) provide simplified information in the form of symbols or words and are aimed to 'make healthier food choices at the point of purchase' (WHO, 2020, p.5).

Summary systems such as the Nutri-Score and the Health Star rating system have proven to be beneficial in correctly ranking products from less to more healthful, but warning labels are also effective in making quicker informed choices on the content of critical nutrients. In contrast, the traffic-light system and the GDA perform worse than summary systems and warning labelling in helping consumers to understand information and, in turn, in informing purchasing choices (Champagne et al., 2020; PAHO, 2020b).

According to the WHO (2020), the use of FOPL systems can be traced back to 1989 when Sweden introduced the Keyhole logo, an interpretive and summary symbol later adopted by three Nordic countries. Other European countries adopted systems such as the Multiple Traffic Light and the Nutri-Score. Since 2006, the industry voluntarily introduced the GDA across regions, including the Americas (INSP, 2016), where this system has been gradually replaced by alternative formats endorsed by the government, such as in the case of Chile, which introduced a warning system in 2016.

Since 2015, the WHO has been creating and updating guiding principles for FOPL. In 2017, it acknowledged FOPL systems as a “best buy” to tackle NCDs (WHO, 2017), and in 2019 it published the guiding principles and framework manual to develop, implement, and monitor FOPL systems (WHO, 2019). This latest publication recognises that countries may tailor their FOPL system according to their population needs (Champagne et al., 2020).

3.5.3 Mexico’s response and policy actors

The obesity prevention agenda began in Mexico since 2006 when academics and federal agencies coordinated activities to design a national policy for obesity prevention. Later in 2008, led by the MoH, health experts recommended beverage intake guidelines, and in 2010 MoH launched the National Agreement for Healthy Nutrition (NANH). NANH recommended initiatives such as banning junk food in schools, introducing a FOPL system, and implementing taxes on unhealthy foods. Still, it was not until 2013 and the establishment of the National Strategy Against Overweight, Obesity, and Diabetes (NSAOOD) as the

framework to develop specific policies, that the Sugar Tax and the GDA FOPL system was implemented.

TABLE 3. Characteristics of legislative and regulatory policies in Mexico

	Sugar Tax	FOPL system*
Instrument	Law of special taxes (LIEPS)	Official Mexican Standard NOM-051
Process	Legislative <ol style="list-style-type: none"> 1. MoF on behalf of presidency designs economic policy. It modifies the LIEPS by including the Sugar Tax (Sugar Tax bill) 2. Presidency presents the Sugar Tax bill to the Congress. 3. Deputies examine, discusses, modifies and approves changes to the Sugar Tax bill 4. Senate examines, discusses, modifies and approves changes to the Sugar Tax bill 5. The President signs the Sugar Tax bill 6. Publication in the Official Mexican Gazette 	Regulatory <ol style="list-style-type: none"> 1. NOM initial proposal elaborated by the standardisation authority (MoE and the Federal Commission for the Protection of Sanitary Risks (COFEPRIS by its acronym in Spanish) for NOM-051) 2. NOM initial proposal presented to the National Advisory committees for Standardisation of the MoE and MoH 3. National Advisory committees for Standardisation create (if needed) working groups to analyse and discuss NOM initial proposal. 4. If NOM initial proposal is accepted by the National Advisory committees for Standardisation, it must be published for public consultation 5. Public consultation is enabled by the National Commission for Regulatory Improvement 6. After a public consultation working groups meet again to analyse and discuss commentaries and adjust if needed the project to modify the NOM 7. After discussions and agreements National Advisory committees for Standardisation's decide whether to approve or 8. Publication in the official Mexican Gazette
Formal actors	<ul style="list-style-type: none"> • Presidency • MoF • Deputies • Senate 	<ul style="list-style-type: none"> • MoH through COFEPRIS • MoE (General directorate of standards) • Diverse ministries that integrate national standardisation committees Non-state actors affected by the regulation invited to the working groups (i.e., industry)
Informal actors	<ul style="list-style-type: none"> • Non-state actors (meeting in public hearings, lobbying, advocacy) 	<ul style="list-style-type: none"> • Non-state actors involved in the design of the initial NOM draft, or in submitting commentaries to public consultations
Veto points	<ul style="list-style-type: none"> • Presidency • Congress (laws passed by agreement of chambers) 	<ul style="list-style-type: none"> • National Advisory committees for Standardisation from the MoE and MoH

Sources: Own elaboration based on the Mexican Constitution and the Law of Quality Infrastructure. *In the most recent change in the FOPL system, a legislative change occurred in parallel to the modification of NOM-051. Congress approved the modification of the General Law of Health mandating the implementation of a clear and easy to understand FOPL system. Changes to the General Law of Health followed the legislative process.

Although the MoH oversees nutrition policies in Mexico, obesity policies are multisectoral depending on their design and implementation across different ministries. On the one hand, tax policy concerns the MoF following the legislative process, as the Sugar Tax modified the Law on Special Taxes. On the other hand, FOPL regulation depends on the MoH and the Ministry of Economy (MoE) following the regulatory process, as FOPL systems are constituted as an Official Mexican Standard (NOM, by its acronym in Spanish). Table 3 presents the characteristics of legislative and regulatory policies in Mexico for the Sugar Tax and FOPL systems context, highlighting the formal stages and actors within the process and the veto points.

Actors highlighted in the legal framework represent the formal networks in Mexico's policy process. Historically, the president in the Mexico has held great power to enact policy priorities despite three political alternation periods. These occurred during the single-party regime that governed Mexico for seven decades prior to 2000 (Cabreró, 2000), when alliances were created with political actors when facing a divided Congress between 2000 and 2018 (Kerevel and Bárcena Juárez, 2022; Aranda, 2018; Knight, 2018), and recently in the shift to a populist government for the 2018-2024 period (Dussauge-Laguna, 2022). Policies determined mainly by the presidential agenda are thus pursued at the ministerial level, where these are designed and implemented by actors identified in legal ordinances. Canto (2012) highlights that in the case of fiscal policy, taxes result exclusively from the negotiation of state actors (i.e., MoF, Congress), whereas for the elaboration of official standards, all interested parties must be involved (i.e., industry, academia, consumers).

Non-state actors have become key players in agenda-setting on the way to a democratic and pluralistic Mexico (Aranda, 2018; Méndez and Dussauge-Laguna, 2017; Vázquez, 2014), although actors' powers to influence depend on resources and access to formal networks (i.e., actors and structures considered within the limits of regulations). For instance, in the nutrition and obesity policy arena, academics highlight that the food and beverage industry had a prominent role in shaping government priorities (Barquera and Rivera, 2020; Barquera et al., 2013) by funding physical activity campaigns for government agencies, participating with the government in the design of the obesity prevention

strategies, and providing formal and informal contributions to congress representatives (Gómez, 2021). Its influence extended to the Sugar Tax (Carriedo et al., 2021) and FOPL systems arena (Carriedo et al., 2018). Against commercial interest and in support of public health, academics, international organisations, and think-tanks/civil society organisations have also been involved the policy process (Carriedo et al., 2020; Rivera et al., 2019b).

In 2016, the MoH declared an epidemiological emergency due to obesity and diabetes levels in the country. To date, the Sugar Tax, the FOPL Warning System, food regulation in schools, education campaigns, marketing regulation for products targeted to children, improvement of physical activity spaces, and breastfeeding promotion are the main policies implemented to prevent the growing prevalence of excess weight and related diseases.

3.6 Conclusion

Globalisation, technological change, and urbanisation are macro-level forces that modify the way countries formulate and adopt policies. These forces also generate unintended consequences for social development and health. Notably, the way that excess weight has increased globally is linked to the level of market openness and its mechanisms, such as the trade of commodities used in the production of low-nutrient food or the presence of transnational companies producing and selling energy-dense food. Economic changes have modified the food and physical environment, which interacting with other conditions, including socioeconomic level and genetic factors have changed the population lifestyle patterns from those observed before the 1980s. Academics call this shift “the nutrition transition.” This chapter revisited the global trends of obesity, focusing on Latin America and further on Mexico, a country that presents high prevalence of excess weight in the region. The chapter defined how obesity in Mexico has been linked to trade openness, discussed the types of policies implemented to expand affordable and accessible healthy food, and Mexico’s response.

This chapter and the previous two comprise the literature review, addressing policy process theories, the role of experts in adopting policies, and the global problem of obesity and its impact in Mexico. The following chapter presents the

research methods to address the objective of this thesis which is to expand knowledge on networks' formation, influence, and temporality

Chapter 4: Methods

4.0 Introduction

The previous chapters presented the rationale for undertaking this study and reviewed the literature on the policy process and the role of experts in policy change. It was highlighted that the specific theories that study the interplay between knowledge and politics to attain policy change from the policy networks perspective present opportunities to refine theory concerning network formation, influence, and temporality, particularly because the policy process does not end once a policy has been implemented. In addition, the obesity prevention policy area was presented as the one that could shed light on these theoretical gaps. This chapter, divided into nine sections, presents the methods deployed to address these gaps.

The first section details the research questions, followed by a section setting out the research paradigm. The third section defines a multiple-case study as the broad design of the research, outlining the cases of the development of the Sugar Tax and FOPL systems in Mexico (from the GDA towards the adoption of the Warning System) as policy areas where health experts and allies have contributed to shape policies over time. Sections 4.4 and 4.5 further describe the collection and analysis of interviews and documentary materials as sources of evidence for these cases, and examine how the issues associated with the formation and temporality of networks are analysed through Social Network Analysis (SNA).

Section 4.6 discusses the use of the ACF and ECs as analytical frameworks. Section 4.7 and 4.8 address general best practices in qualitative studies. The final section concludes by synthesising the main ideas presented in this chapter.

4.1 Research questions

By identifying the research objective, which is to study networks of experts over time, to analyse how networks of experts are formed, influence policy change, and remain involved in the policy process, it was possible to formulate two general research questions to guide the investigative process. These are:

- 1) How do networks of experts influence policy change?
- 2) What happens to these networks of experts after the adoption of policies?

To increase the manageability of the first research question and guide the empirical procedures, this research incorporated four subsidiary research questions, as observed in Table 4.

TABLE 4. Main and subsidiary research questions

General Questions	Subsidiary questions
1) How do networks of experts influence policy change?	<ul style="list-style-type: none"> • How are networks of experts formed? • What information do they create or possess, and how is it disseminated? • How is the knowledge used for policy change? • How is policy change achieved?
2) What happens to these networks of experts after the adoption of policies?	

Considering the questions above, I presented in the introductory section the explanation of each concept of study to narrow down the scope of the research questions and create a shared understanding of what this research studies and, by process of elimination, what this study does not attempt to analyse (Kumar, 2019). However, is relevant to mention that each term is aligned with the literature reviewed in Chapters 1 and 2.

4.2 Philosophical stance

In terms of ontology, realism is the position that social reality exists beyond experience, however, for realists there are hidden structures and mechanisms that constrain social reality and the entities within the social reality (Blaikie, 2007). It means that what is known about the observable social world depends on underlying hidden mechanisms that cannot themselves be observed, so the researcher must seek an understanding of how those mechanisms work (Matthews and Ross, 2010), based on empirically observable phenomena (Archer, et al., 1998).

Epistemologically, this study is located within the frame of critical realism. As Matthews and Ross (2010) note, critical realists attempt to understand how

hidden structures shape and organise the social world through theoretically informed observations of the social world.

This philosophical stance guides the research towards a qualitative methodology, furthermore, critical realism highlights that in understanding events, structures, mechanisms, and experiences to shed light on reality, theory and concepts embedded in the research questions should inform the selection of methods (Fletcher, 2017) . Table 5 shows the design of the research methodology and the research methods applied according to the research questions. Here we can see that this thesis is built as a multiple-case study. This approach has been considered appropriate when studies investigate “How” questions (Yin, 2009; Baxter and Jack, 2008) and is of relevance regardless of the research paradigm adopted (VanWynsberghe and Khan, 2007).

Nevertheless, the questions related to network formation and temporality are best captured with alternative techniques. As will be explained in section 4.5, the inclusion of SNA within the main research framework enables an examination of the structure of the networks of experts at different points in time, as well as an exploration of the meaning of ties (the relationships between actors) in the network.

TABLE 5. Methods to address the research questions

Main research framework: Multiple-case study		
Research question	Research tool (Evidence sources)	Analytical approach
How do networks of experts participate in policy change? <ul style="list-style-type: none"> • How are networks of experts formed? • What information do they create or possess, and how is it disseminated? • How is the knowledge used for policy change? • How is policy change achieved? 	In-depth Interviews and documents	Thematic analysis
What happen with the networks of experts after the adoption of policies?	Sociogram completed during interviews	Qualitative Social Network Analysis (SNA)

Finally, committed to the rigour and objectivity of the qualitative approach, I make use of reflexivity to signal potential bias and experiences occurred through investigation, which is documented in sections 4.4.1 and 4.9. Although Atkinson (1990) argues that reflexivity may give the impression that research is ‘too self-referential’ (cited in Bloor and Wood, 2006, p.147), being reflective is a ‘helpful resource to readers in their evaluation of the text’ (Bloor and Wood, 2006, p.147).

4.3 Research design: Multiple-case study

This study analyses the formation, influence, and temporality of networks of experts involved in the policy process of two obesity prevention policies: the Sugar Tax and FOPL systems in Mexico. The decision to explore this Latin American country as the general context of a multiple-case study follows three theoretical and pragmatic reasons. First, the continuous participation of experts can be seen in the passage and adoption of the Sugar Tax and FOPL systems. Cairney and St Denny (2016) suggest that the attempt at solving issues through preventative agendas and strategies, in contrast to reactive approaches, may involve an increase in knowledge demand from the government for evidence and expertise over extended periods.²² As such, the Mexican case sheds light on how and why experts are involved in the policy arena.

A preliminary document review conducted in 2018 at this project’s planning stage, revealed that although in 2013 the Mexican government engaged in the prevention of obesity through the NSAOOD (see section 3.5.1), core policies included in this initiative such as the Sugar Tax and modifications to the GDA FOPL system introduced in 2014 were still being discussed in congressional debates in 2018. In addition, key public health experts and other health supporters mentioned in various research documents on country-level policies (i.e., Carriedo, 2017; Donaldson, 2017) were involved in advocating for these changes.

²² In public health strategies, the use of preventive approaches is common. In this area, prevention refers to intervening early in a medical condition or health problem that may require treatment before it occurs among the population. The adoption of “preventive” approaches analyzed from the political science perspective differs in the fact that it analyses the reasons why politicians adopt a preventive agenda and how it differs from traditional areas of policy in terms of governance, resources, and long-term commitment to a “wicked problem.”

Second, the call to broaden the application of theories of the policy process that are structured around policy networks in non-traditional settings (e.g., developing countries and nascent democracies) (Jenkins-Smith et al., 2018) was considered. In addition, the Mexican economic and political context has markedly changed in line with the alternation of political administrations.²³ The latter was thought of as a condition that could allow us to observe whether shifts in political ideology and economic models impact the involvement of experts in the policy process through the pathways of change and mechanisms of influence highlighted in Chapter 1 and Chapter 2.

Third, in terms of social relevance and research impact, the case of Mexico is of importance for public health scholars and the obesity-prevention global community. For instance, the case of the Sugar Tax continues to illustrate good practices in obesity prevention in international organisations as observed in publications of the WHO (2016) and the OECD (2019), and has also contributed to the debate for similar taxation in Germany (Moerschel et al., 2022). This research could provide lessons regarding the use of knowledge and evidence to promote healthier lifestyles and inform policy debates in other settings.

4.3.1 Defining the cases

In methodological terms, this research adopts a multiple-case study design composed by two instrumental case-studies. A case study is an in-depth exploration of a case (i.e., an individual, group, policy) from multiple perspectives and using different sources of evidence that generate an in-depth understanding of the case in a real-life context (Simons, 2009; Gillham, 2000). Case studies can be used for diverse purposes. For example, Stake (1995) classifies them as intrinsic, instrumental, or collective. Instrumental cases are those that help to gain insight of an issue determined in some other ground, and not in gaining insight of the case itself as in the intrinsic type. In other words, 'the case itself is secondary to understanding a particular phenomenon' (Grandy, 2010, p.474). A collective or multiple-case study design is when two or more cases are analysed within a single study for comparison, providing a more extensive explanation of the issue

²³ Right-of-centre federal government from 2000-2012 (National Action Party or PAN by its acronym in Spanish), centre 2012-2018 (Institutional Revolutionary Party or PRI), left-wing nationalist party from 2018 until 2024 (National Regeneration Movement or MORENA).

under analysis (Creswell and Poth, 2018; Chmiliar, 2010). Other authors such as Dul and Hak (2008) term these “comparative cases.”

In this thesis the first case sets as the unit of analysis the network of experts behind the development of the Sugar Tax in Mexico, and the second case is the network of experts behind the adoption of FOPL system policies (the GDA in the period 2013-2014, and the Warning System in the period 2018-2019). As Yin (2009, p.4) points out, case studies allow us to ‘understand complex social phenomena’ and enable the researcher ‘to retain the holistic and meaningful characteristics of real-life events- such as individual life cycles, small group behaviour, organisational and managerial processes (...).’ Moreover, when the study deals with contemporary events, it is appropriate that the collection of data be carried out with the contributions of the actors involved in the phenomenon through direct observations and interviews (Yin, 2018). Under these terms, a case-study is a valuable method for analysing the grouping of actors operating within the context of these policy areas.

In line with the recommendations outlined by Yin (2018), the decision to explore the networks of experts surrounding the two prevention policies using a multiple-case study was based on the similarity of the units of analysis and critical insights that emerged from the literature reviewed. Specifically, while preliminary screening of the cases revealed that networks of expertise could be very similar, at least for an elite group of health experts at the core of both networks, the adoption of the policies differ.

On the one hand, the Sugar Tax is considered a policy successfully advocated for and backed by health experts (Carriedo, 2017; Donaldson, 2017), whereas it is claimed that the GDA (the FOPL system implemented in Mexico in 2014) is not supported by the health community nor international best practices (Barquera et al., 2018; Carriedo et al., 2018). This situation was reversed between 2019 and 2020 when the government adopted the Warning System by modifying the General Law of Health and the Mexican Official Standard NOM-051, a process that took place while this research was ongoing.

By observing these policies with an awareness of these similar units of analysis (networks of experts), the comparison of case studies could shed light on two

network aspects: first, the structure of the networks and their influence in the policy process; and second, the factors that contribute to its existence post policy adoption. Although the approach is less common than using different, deviant, or extreme cases - for instance to analyse ECs as observed in Löblová (2018b) - it offers the advantage of highlighting factors that may have generated differences in the involvement of experts in the policies processes (Bryman, 2016).

Specific decisions were made about the boundaries of the case studies to facilitate the manageability of the research (Yin, 2018; Merriam and Tisdell, 2016; Elger, 2010; Simons, 2009; Baxter and Jack, 2008). Table 6, titled “Boundaries of the multiple-case study” presents the relevant elements for each of the cases. Both case studies replicate the unit of analysis and analytic periods to make cross-case comparisons of research findings, enhancing the scope of the investigation (Merriam and Tisdell, 2016).

TABLE 6. Boundaries of the multiple-case study

Context	Sugar Tax development	FOPL systems development
Timespan	2006 to 2020	2006 to 2020
Unit of Analysis	Networks of experts	Networks of experts
Attributes of the Network	<p><u>-Emergence:</u> How actors got together</p> <p><u>-Influence</u> on policy changes (Implementation of the Sugar Tax in 2014 and further attempts to increase the tax rate)</p> <p><u>-Relationships between actors over time (temporality)</u> The relationship among members of the networks identified in the Sugar Tax passage and in the 2018-2020 period</p>	<p><u>-Emergence:</u> How actors got together</p> <p><u>-Influence</u> on policy changes (Implementation of the GDA in 2014, implementation of the warning system in 2019-2020).</p> <p><u>-Relationships between actors over time (temporality)</u> The relationship among members of the networks identified in GDA passage and in the adoption of the Warning System</p>
Participants in the Network	Stakeholders who support the use or production of health-related evidence to influence the adoption of the Sugar Tax	Stakeholders who support the use or production of health-related evidence to influence the adoption of the GDA or Warning System
Specific events to observe/of inquiry	<p>-2014 Implementation of the Sugar Tax</p> <p>-2018-2020 Proposal to increase the Sugar Tax rate</p>	<p>-2014-2015 Implementation of a mandatory GDA FOPL system</p> <p>-2018-2020 Approval of modifications to the General Law of Health and changes to the NOM-051 for implementing the Warning System</p>

While literature suggests that generalisability in a positivistic sense cannot be achieved through case-study research (Donmoyer, 2009; Gomm et al., 2009; Gillham, 2000)- for example, this thesis cannot argue that experts in the Mexican case illustrate the behaviours of groups of experts worldwide - case studies may produce 'tentative generalisations' (VanWynsberghe and Khan, 2007, p.85). Gerring (2016) and Simons (2009) show that case-studies' features (i.e., concepts, processes, situations) may be extrapolated to the wider contexts. Other authors argue that results may shed light on theoretical concepts that may be corroborated, modified, rejected, or advanced (Yin, 2018; Eckstein, 2009).

4.4 Evidence sources and analysis

To gather information regarding the most used methods and techniques to analyse networks of experts, a scoping study was carried out in the summer of 2019 (included in Appendix A). Among the 19 articles included in the study, 16 used qualitative methods based on case studies and informed by the combination of interviews, documentary analysis, and observation, although there was space as well for ethnography. The review suggested two implications. The first is that using case studies has proven to be useful for similar units of analysis (networks) as the ones proposed here. The second is that one must consider multiple sources of data to inform the case study as a way to triangulate information, considerations also highlighted by Yin (2009) and Creswell (2013). Consequently, this research uses semi-structured interviews as primary sources of information and policy-relevant documents to triangulate the information provided in the interviews.

Collecting interviews was considered essential for two reasons. First, to understand the characteristics of networks of expertise and their role in the prevention of obesity. This source of evidence has the advantage of being focused directly on case-study topics (Yin, 2018) and is relevant for gathering insightful explanations, personal views, and experts' experiences in the adoption of the Sugar Tax and FOPL systems. This tool also aligns with the philosophical position of the research, looking to understand reality through the views of the actors involved in the phenomenon of study, and the interpretation of the researcher (Fletcher, 2017).

Second, academic publications and grey literature available by the time this study began, regarding the potential role of experts in the obesity policy process, had been written by self-reported health experts and advocates who were involved in policymaking activities. This means that, with some exceptions, these sources are anecdotal accounts of the role of knowledge and experts in the policy process but lack theoretical depth and critique. To this it can be added that there is a potential insider bias. Although it is known that interviews may present some weaknesses such as ‘bias due to poorly articulated questions, response bias, inaccuracies due to poor recall and reflexivity’ (Yin, 2018, p.114), procedures to minimise these risks were implemented during the interviewing process (see section 4.4.1).

An alternative method suggested for exploring the configuration of the cases corresponds to Fenno’s (1986) “soaking and poking” or direct observation. Nevertheless, the decision to explore the cases through interviews has methodological and logistical justifications. Methodologically, observational research brings with it concerns that include the researcher’s potential impact on the participants’ behaviour, influencing the objectivity of the study. Logistically this method requires spending a substantial amount of time in the field (McKechnie, 2008), which in this study was constrained by the length of the project, by the location of the participants, and later to challenges imposed by COVID-19 lockdown measures.

Furthermore, interviewing members of a policy network is a method frequently used by researchers undertaking policy-process studies. For instance, in giving meaning to the assumptions behind the ECs and the ACF, interviewing proves useful. For example, the study of Mamudu and colleagues (2011) employs semi-structured interviews to collect data regarding the values and beliefs that hold together a global community of experts behind tobacco control. Interviews are also used in studies that analyse policy networks and health experts in local jurisdictions as in the study of Eyles et al. (2009) regarding the experience of health promotion in Canada.

Regarding documentary materials, some strengths of this type of evidence include the stability of information, which can be reviewed continuously. Authors have variously suggested that documents can be unobtrusive, specific, or broad

in the sense that these were created for a purpose distinct of the case study and capture different points in time, and diverse perspectives on events and their contexts (Bowen, 2009). Moreover, documents contain names and details of the activities of interest, which is a strength for identifying key actors and sequence of events.

Finally, the use of audio-visual materials such as videos available on social media platforms such as Twitter and YouTube was also considered. These videos capture the participation of health experts in policy discussion events. However, this source of information was ruled out because analysing professional activities in forums or discourses relating to this is not one of the objectives of this project. These sources also bring ethical and legal challenges associated with the use of public information (Patterson, 2018). These include how to get informed consent from the informants that appear in videos and how to retain and reuse data created by third parties.

4.4.1 Planning, conducting, and analysing interviews

Having decided that interviews were appropriate for data collection alongside documentary sources, this research faced the quandary of selecting the sample of respondents. Literature on social networks recognises that delimiting the boundaries of a policy network is no straightforward task. However, based on the theories underpinning this study and following previous researchers' techniques for the empirical research of networks of experts in the policy process (e.g., Li and Wong, 2019 and Karuppusamy, 2012) and social networks (Contandriopoulos et al., 2019) it was determined that interviewees were to be sampled using two strategies: purposive and snowballing.

Purposive sampling refers to a non-probability approach for data collection that aims to gather information from individuals that are more able to provide information to address the research question (Battaglia, 2008). Snowballing sampling consists of building upon a purposive or "seed" sample to gather the names of further prospective interview participants (Parker et al., 2019). The objective of using these was to reach the maximum number of people that could belong to a knowledge-based network in the Mexican setting, identified by me according to the theoretical framework and the aims of the study (Emmel, 2014)

and also by the participants themselves. Ultimately, identification by other participants brings the benefit of including difficult-to-reach interlocutors (Mosley, 2013) who are also members of the network.

Sampling

The purposive sample corresponded to a list of respondents who were identified as stakeholders²⁴ in the development of the Sugar Tax and FOPL systems in the periods covered by the cases. The selection is in line with theories and definitions of actors in networks of experts that, as defined in the introductory chapter and in section 4.1, incorporate experts working within the government, parliament, universities, and think-tanks that are involved in the policy process and produce or use evidence for policy change.

Furthermore, to capture the views of other actors on the use of information and the involvement of health experts in the policy process, the sample included public servants and private sector actors. The rationale was that they were also involved in the policy process of the case studies by the position they hold or held in their organisation, inferred from the policy network depicted by Carriedo (2017).

The decision to capture a broad sample has both benefits and drawbacks. On the one hand, it ensures that the positionality of health experts is observed from different angles, which could increase the validity of this research instrument. In this regard, Arksey and Knight (1999, p.11) highlight that '[i]f the aim is to make claims about a group or to give a rounded account of an event, sampling needs to ensure that all points of view are appreciated.' Theoretically, it also addressed one of the recommendations of the ECs' literature, which suggests the framework should consider a broad view of the actors in the policy process (Brooks, 2018; Löblová, 2018a), not just health experts. On the other hand, having a broad sample could be time-consuming for both data collection and analysis.

²⁴ Knai and colleagues (2018, p.2) note that stakeholders are 'actors within a system (...) who have a stake in the success of this [policy], defined in terms of meeting public health aims, increasing professional prestige, relieving funding pressures, etc., and also therefore in how it is designed (e.g., evidence-based, measurable, reproducible). They will also, crucially, define the components of the [policy]'.

The selection of purposive participants was carried out through the review of authors and names mentioned in documentary sources following the decisional, reputational, and relational criteria for identifying policy players developed by Knoke (1993). Decisional actors are those involved in public hearings of obesity prevention at the Congress in the year before the implementation of the Sugar Tax and FOPL systems. Reputational actors are those considered by the researcher based on the number of times a participant name is mentioned in diverse publications or if they have stated explicitly their participation in the policy process of the Sugar Tax or FOPL systems in various documents or media channels (i.e., newspaper articles). It was also confirmed by the participants in the snowballing procedure.

The data reviewed for gathering these names included publicly-available official government publications such as the NSAOOD, bills, and stenographic versions of public hearings published by the Lower Chamber on its official website: www.diputados.gob.mx. Additionally, to map experts and health professionals, given the research interest is the production and use of evidence, I identified journal articles mentioning the impact of the Sugar Tax and FOPL systems on Mexican diets and disease prevention. This was done by observing names and authors of grey literature publications, including industry position documents and those written by or on behalf of health-related professional associations, advocacy organisations, and scientific institutions, following the approach undertaken by Weishaar et al. (2015) to identify tobacco networks in the EU.

Table 7 (Selection criteria of purposive participants) lists the specific selection criteria for purposive sampling. To be included as an informant, a person had to fulfil at least one of the requirements. Having applied these criteria, 35 stakeholders were listed as the initial group of potential participants after the initial purposive sample exercise.

Snowballing was the second sampling technique adopted, in an attempt to capture the highest number of direct participants in the adoption of the policies. This method is particularly useful in the study of policy networks, where some of the actors are elite members within their organisations. Being in a privileged position of influence is not always inferred from public data or publicly known (Tansey, 2007). This technique is also useful for shedding light on the reputation

of certain actors and its power within a policy or issue arena (Tansey, 2007; Knoke, 1993). Moreover, for the Sugar Tax and FOPL system cases, this is a strategy that allow us observing members that hold similar values or beliefs, approaching this means a natural boundary for a network of experts (Karuppusamy, 2012; Ansell, 2008). The snowballing effect occurred when participants selected in the purposive sampling were asked to suggest who else should be interviewed at the end of the interviews.

TABLE 7. Selection criteria of purposive participants

1	The prospective informant participated in a public hearing, working group, or floor speech at the Congress (Senate or Chamber of Deputies) discussing the Sugar Tax or FOPL systems.
2	The prospective informant has written academic papers and documents about the policy process of the Sugar Tax or FOPL systems. These documents are available in academic journal repositories or easily accessed through a rapid internet search using keywords "obesity," "prevention," "Mexico," and "Sugar Tax" or "Food labelling" in English and Spanish. ²⁵
3	The prospective participant is a decision-maker identified by their position in the government and public or private sector. Moreover, these organisations are directly involved in the policy network of Obesity Prevention Policies in Mexico.
4	The prospective participant has a position in a public or private organisation (by hierarchy) and has taken a public stance in favour or against at least one of the two policies referring to knowledge and evidence to support their arguments (as suggested by electronic newspaper articles).

Participants

The final purposive list gathered through the two approaches consisted of 59 participants, of whom 32 attended to the interview, meaning an effective response rate of 54%. On two occasions prospective participants did not show up despite arranging a date for the interview. Two prospective participants answered the invitation, but no date could be arranged despite a follow up e-mail being sent on the same day that the interview should have taken place. In addition, one prospective participant asked for the interview guide and replied with written responses, and that written answer is not included as part of the 32 interviewees. None of the industry actors replied to the invitations, and only one journalist did

²⁵ In Spanish: Obesidad, Prevención, México, Impuesto a Bebidas Azucaradas/Impuesto al Chesco, Etiquetado de Alimentos/GDA/Etiquetado de Advertencia/Etiquetado Claro.

so, but declined to be interviewed on the grounds of not being an expert in the field.

Academics and researchers were the most represented with 41% of participants, followed by civil society organisations and government technical areas with a 19% of the participants within each of these groups. Other participants included Congress (9%), international organisations (6%) and think-tanks (6%). As observed in Table 8, interviewees had experience in the Sugar Tax, FOPL systems, or both policies, with a greater number of participants having experience with the FOPL systems case.

TABLE 8. Interview participants by organisation type and policy area

Participant ID	Organisation type	Sugar Tax	FOPL systems
P-011	Congress (Government)	✓	✓
P-012	Government/Technical Areas		✓
P-013	Government/Technical Areas		✓
P-014	Congress (Government)	✓	
P-015	Government/Technical Areas	✓	
P-016	Academic/Research Institution		✓
P-2-01	Civil Society Organisation	✓	
P-2-04	Academic/Research Institution	✓	
P-2-06	Think-tank		✓
P-2-07	Think-tank	✓	
P-2-09	Academic/Research Institution		✓
P-2-10	Academic/Research Institution		✓
P-2-11	Academic/Research Institution		✓
P-2-13	International Organisation		✓
P-2-15	Civil Society Organisation	✓	✓
P-2-17	Academic/Research Institution	✓	
P-2-18	Academic/Research Institution	✓	✓
P-2-20	Government/Technical Areas		✓
P-2-21	Academic/Research Institution	✓	✓
P-2-22	Academic/Research Institution		✓
P-2-23	Academic/Research Institution	✓	
P-2-24	Academic/Research Institution		✓
P-2-25	Government/Technical Areas	✓	✓
P-2-26	Government/Technical Areas	✓	✓
P-2-27	Civil Society Organisation	✓	✓

TABLE 8. (Cont.) Interview participants by organisation type and policy area

Participant ID	Organisation type	Sugar Tax	FOPL systems
P-2-28	Congress (Government)		✓
P-2-33	International Organisation	✓	✓
P-2-35	Academic/Research Institution		✓
P-2-36	Academic/Research Institution		✓
P-2-37	Civil Society Organisation		✓
P-2-38	Civil Society Organisation		✓
P-2-39	Civil Society Organisation	✓	✓
Total count		16	26

Although sample size may represent a potential drawback for the Sugar Tax case, as it could be perceived as small compared to the second case, interviews included key actors (recognised by the purposive and snowballing strategies) that provided rich accounts on how the events unfolded, accounting for adequacy and appropriateness in sampling (Morse, 2015; Morse, 2000). This also contributed to achieving a saturation point in which no new information was discussed during the interviews, portraying “information redundancy” (Lincoln and Guba, 1985) and “information power” (Malterud et al., 2016) from an early stage in the interviewing and analytical process which informed the case study. In this regard, Emmel (2013, p.4) notes that ‘reporting that 1 or 200 cases were collected is not as important as the ways in which insights into events and experiences are used for interpretation, explanation, and claims from research.’

Gaining access

Gaining access to a wide sample of stakeholders that includes policy actors and experts has been deemed difficult in the literature. These actors although are easily identifiable and contactable, may not have time available to participate in an interview, or may be protective of privacy. For this reason, gaining access requires to a mixture of skills that allow the researcher to take advantage of the limited opportunities of interviewing influential policy actors (Petintseva et al., 2020).

Hence, this study considered diverse means of accessing participants. Most of the prospective participants were contacted through e-mails identified by online searches on professional platforms (i.e., Twitter or LinkedIn) and institutional virtual directories prior to the initial round of interviews. For those actors who nominated future participants through the snowballing techniques, they were asked, if possible, to provide nominees' contact details such as telephone numbers or e-mail addresses and were asked to confirm whether the potential participant could know who had nominated her.

In addition, reliance on personal networks and contacting researchers who have studied similar populations from an insider position were also means to contact prospective participants. On approximately five occasions I relied on personal networks to establish contact with actors or gatekeepers from the MoF and MoE. Reliance on personal contacts has been recommended to ensure cooperation in interviewing with hard-to-reach population (Welch et al., 2002). Gaining access to the health research community was also possible by establishing contact with a health researcher who identified herself as an insider, but also has studied obesity policies in the country. Petintseva et al. (2020, p.69) notes that contacting researchers who have studied similar populations is useful to 'identify key participants or gatekeepers and even introduce you into the settings.'

Once actors' contact details were collected through these various formats, access was sought mostly through e-mail. A template invitation was developed (Appendix D) defining the purpose of the study, how the interviewee was selected, what was expected of her participation, with mention made about how valuable her participation was (Richards, 1996). To this invitation, the full information sheet was attached (Appendix D). The e-mail was sent from my University of York email address (which is, anette.bonifant@york.ac.uk), stressing my institutional affiliation, and highlighting that the project had received approval from the ethics committee from the Department of Social Policy and Social Work as a means to show the research was associated with a reputedly strong institution, increasing legitimisation and trust (Petintseva et al., 2020; Beizsley, 2019).

Each invitation was customised according to each participant, depending on the policy in which the actor participated, highlighting also how she was selected as

prospective participant (e.g., if someone had nominated her, or was identified through documentary search). In a first round of interviews participants were invited to face-to-face interviews at their time and place of convenience, to show flexibility (Mikecz, 2012) but also to ensure that participants feel comfortable and safe in the location of their choice (Herzog, 2012). They were also told about the challenges of selecting a public space in terms of confidentiality.

For the second round of interviews undertaken during the COVID-19 lockdown, participants were invited to online interviews, selecting the most appropriate time and date as well, although the place of interview was the interviewee's (and interviewer's) home. From an ethics point of view, and as noted by Dodds and Hess (2021, p.207), no difference was perceived between face-to-face interviewing and the online format as 'both required the usual ethical procedures', which were also considered in fieldwork planning.

Once the invitation was sent to the participant, a period of approximately two weeks was left for a response. If no response was given by the end of this period, a follow up e-mail was sent. Once the participant agreed to be interviewed (usually providing the date and time), a reply thanking the interviewee for their contribution to the research was sent. The informed consent form, supplementary material on data management, and the privacy notice were attached to the reply email. It also asked the participant to read the information in full before the interview. Interviews were then scheduled face-to-face, or virtually by sending log-in details and calendar invites.

The interview

A first round of interviews took place face-to-face in January 2020 with six participants, lasting on average 45 minutes (Max 1h 09m, Min 20m). Between February-March 2020, the COVID-19 outbreak began, resulting in postponing the fieldwork for a couple of months. When it was apparent that conducting face-to-face interviews was not possible, a decision was made to carry out the remaining interviews virtually. Online interviewing took place between May 2020 and early 2021, using mainly the Zoom platform. Virtual meetings lasted on average 1h 05

m (Max 01h 51m, Min 39m). Despite the potential drawbacks suggested in the literature on online interviewing (Roberts et al., 2021), including issues such as poor connectivity, ethical concerns regarding how to obtain informed consent, or that online interviews lack the context to interpret data (Mosley, 2013) the experience was in line with Tremblay et al. (2021) who suggest that online interviews also allow for satisfactory in-depth interactions.

Interviews began with a discussion surrounding the consent form (Appendix E). Participants for in-person interviews were given a copy of this format to complete and sign. In contrast, for online participants, the consent form was audio recorded and was read in full, asking the participant to mention “Sí” (yes) or “No” to each of the statements included. In the end, the participants and I said our full names and the interview’s date. All interviewees consented to participate in the interviews at their commencement.

One participant requested the transcript from her interview; one declared that she did not want to be identified by further participants she nominated. Five respondents asked for a copy of the dissertation, which will be shared as soon as it is uploaded to the White Rose eTheses Online repository. Providing a copy of the transcript and the dissertation (upon request) was done to increase credibility in research through respondent validation (Silverman, 2020; Noble and Smith, 2015).

The substantive interview commenced once the informed consent to participate had been obtained. To reduce recall bias, as may occur with studies that try to resemble past events, diverse authors recommend mentioning contextual informative prompts during the interview such as names of politicians or other local references that help participants to situate their thought in the period discussed (Korn et al., 2018; McGlashan et al., 2018). After discussing beliefs about what obesity is and how it could be prevented, participants were shown a timeline showing critical events in the adoption of each of the policies of interest (Appendix F). Participants were asked to narrate how their participation occurred chronologically according to these key periods. Handwritten notes were taken throughout the interviewing process. In the last part of the interviews, participants were asked to draw their collaboration network using a sociogram (see section 4.5).

This project adopted a semi-structured interview design as it sought to capture the experiences of experts in the policy process and their relationships with other policy actors. Morris (2015, p.14) notes that this interview format is appropriate when the research question requires ‘accessing an individual’s personal experience, understandings and perceptions.’ Furthermore, these ‘are used when the researcher knows enough about the topic or phenomenon to identify the domain (...) but does not know and cannot anticipate all of the answers’ (Morse, 2012, p.197). In this regard, although exploratory research had shed light on some of the ways experts are involved in policymaking, it is the interaction with different actors that shows the experiences and meanings behind the participation of experts in the policy process.

Semi-structured interviews implied that the themes covered during the interviews were planned in advance. Hence, the theoretical insights emerging from network of expertise and policy process literature included three main themes: network emergence, influence, and temporality. The interview guide can be found in Appendix B. The first theme (emergence) explored the elements that hold together network actors. It contains the values and beliefs, notions of data validity, and the policy enterprise. It also explored the participation of the interviewee in the Sugar Tax and FOPL systems process and under what conditions.

The second aspect addressed influence. This included when and how experts provided information to influence the adoption of the policies, what type of information was provided by experts to policymakers, and what the activities experts engaged in for disseminating their knowledge during policy discussion were. The third aspect, related to temporality, explored the ties that participants kept and the activities they carry out (with their alters, if any) to influence policy or re-gain access to decision-makers in the policy process over time.²⁶

The semi-structured format of interviews allowed me to tailor the questions according to the affiliations of participants, the years they have been collaborating in the health, regulatory, or fiscal sectors, and their area of expertise, as most of

²⁶ The interview guide was piloted on January 18th, 2020, with a non-participant who had knowledge on the Mexican legislative process, before beginning fieldwork activities. In addition, the study was planned as a two-round process that helped to gather the information of prospective participants by using the snowballing technique but also to ‘become aware of any shortcomings’ (Arksey and Knight 1999, p.95) to refine the interview guide and gain skills for interviewing.

the questions were created for the medical and nutritionist professions. For example, in cases where lawyers, chemists, or economists were interviewed, participants explained what contributions they made to introduce their policies from these professional settings. Towards the end of the interview, participants were allowed to discuss any points they believed were relevant to the study and were thanked again for their participation in the study. The discussion concluded by reminding the interviewee about contact details if any questions emerged post-interview.

Pre-fieldwork planning and reflection

The original research plan proposed a series of one-hour face-to-face interviews in Mexico and some remaining virtual interviews for participants that for logistical reasons could not be interviewed in person. Initially, virtual interviewing was not encouraged because, according to Mosley (2013, p.7), this approach 'lack[s] much of the contextual information that can be important to interpreting interview data.' However, due to lockdown restrictions most of the interviews were conducted online. In preparation for the fieldwork, the study's ethical treatment of human subjects was approved by the Ethics Committee at the Department of Social Policy and Social Work at the University of York in January 2020 (Appendix C).

In addition, as this study involved research activities abroad, preparatory work entailed investigating the laws governing research in a different nation (Brooks, 2013; Arksey and Knight, 1999). To comply with Mexican legislation, a consultation with a Mexican lawyer was held to know my duties as the researcher. It was advised that participants need to be given a privacy notice regarding personal data use and management to comply with the Federal Law on the Protection of Personal Data Held by Private Parties (*Ley Federal para la Protección de Datos Personales en Posesión de los Particulares*), which was included as a document alongside the informed consent form (available in Appendix D).

Finally, time was taken to reflect on my positionality before the fieldwork. Reflexivity, as Johnson and Rowlands (2012, p.104) note, represents good practice for qualitative research and particularly for interviewing, because the interviewer needs to know herself and ‘make an effort to observe [herself] in interaction with others’ (Johnson and Rowlands, 2012, p.104). Initially, I considered myself an outsider to the groups under study, although as the investigative process unfolded, positions interchanged (see section 4.8).

Transcription, translation, and thematic analysis

A total of 33 hours of interview material were processed after the interviews. It took on average 8 hours to transcribe 1 hour of the interview in a template that included space to write notes taken during and after the interview (Appendix G). Once transcriptions were done, these were anonymised. If the participant had collaborated in the Sugar Tax and FOPL systems, the transcript was split into two sections and analysed separately. Transcripts were kept and analysed in Spanish, although selected quotations presented in the results chapters were translated into English. Speaking the same language as research participants helped to minimise the challenge of misinterpretations often faced when researchers are not familiar with the language and cultural context of interviewees (Rodriguez-de la Vega, 2018; Temple and Young, 2004).

The analysis of the FOPL systems case was carried out first during spring 2021 as results were presented in academic events, whereas the Sugar Tax was analysed in Autumn 2021. The analysis was undertaken using QSR Nvivo 12 computer software that allows researchers to organise, manage, and analyse qualitative and mixed-methods data. It is widely used, predominately in health and social sciences, with data collected through interviews, focus groups, documents, and observational field notes (Woods et al., 2015).

The analysis followed Braun and Clarke’s (2006; 2019) thematic analysis approach, which consists of six phases:

1. Familiarising yourself with the data
2. Generating initial codes

3. Searching for themes (Constructing themes)
4. Reviewing the themes
5. Defining and naming themes
6. Producing the report

The first phase of data familiarisation began when transcribing the interviews, as listening to the interview and transcribing the data provides awareness of what was said by the participants (Braun and Clarke, 2006), contributing to the identification of potential codes and ideas which were annotated in the transcript template or in an analysis log kept for each of the case studies as casual notes (Braun et al., 2019). The second phase consisted of the initial coding of interviews, giving full and equal attention to each data item. Coding was influenced by the theoretical assumptions of the frameworks adopted to discuss the results. For example, some initial codes included short phrases such as “alliance with institutes of health” closely related to coalition building- one of the aspects highlighted in the literature review chapters. Other codes emerged from the data such as “demand generation.” From this point onward, the deductive approach was used predominantly, although I kept a reflexive position for codes created from the data.

The third phase of searching for themes began when all the data was coded. Working with the initial set of codes and based on the theoretical concepts underpinning the study, the revision of codes started (keeping, merging, or discarding them) to identify potential or “candidate” themes. As I was working within the boundaries of the ACF and ECs, I created an initial thematic map for possible themes, which included key concepts from the two frameworks, such as “values, beliefs, and the policy enterprise” and “external events.” Braun and Clarke (2006, p.82) point out that a theme ‘captures something important about the data concerning the research question and represents some level of patterned response or meaning within the data set.’ Furthermore, it does not necessarily depend on quantifiable measures but the relevance to the research question. At this stage, codes and potential themes that seemed unrelated to the main research questions were kept in a miscellaneous theme and reviewed again in the subsequent phases.

The fourth and fifth stages were taken in parallel as by adopting the lens of the ACF and ECs themes emerged from theory; as such at this stage, I reviewed codes and sub-themes, reflecting on whether these belong to the potential themes or could be reassigned to other themes, and whether the themes reflected the meanings of the data as a whole. For example, at this stage for the Sugar Tax case, a sub-theme called “external events” was transformed to “pathways for change” and later refined as “A new government and the fiscal reform, a pathway for change” and reported in the results section of Chapter 5, to better capture the “essence” of what the theme is about.

The final phase consisted of writing up the results as presented in Chapters 5 for the Sugar Tax and Chapter 6 for the FOPL systems case. However, it is considered an analytical stage because it involves observing whether initial notes are reflected in the themes presented, whether themes address the research questions or if the quotes selected clearly capture the themes (Braun et al., 2019).

4.4.2 Documentary materials

A total of 359 documentary sources were considered for data triangulation. Triangulation refers to ‘the observation of the research issue from (at least) two different points’ (Flick, 2004, p.178) such as data, methods, theories, or investigators to increase credibility (Denzin, 2015), or to corroborate findings (Saukko, 2003). Guidelines for case study research state that multiple data sources must be used to support arguments made in the foundational data (e.g., interviews), or to offer additional interpretations of the claims made in the research (Smith, 2018; Stake, 1995).

There is no consensus on a single definition of what constitutes a document (Tight, 2019), and a growing number of virtual text and online sources have been included in the categories of documentary materials and locations (Bassot, 2022; Fitzgerald, 2012). Tight (2019, p.10) states that documents are ‘texts or data sets, printed or hand-written, qualitative and/or quantitative, physical or online, personal or official, closed or open, visual or representational.’ Documents exist independently of the researcher’s intervention (Bowen, 2009), and are valued for their potential to be accessed by other researchers, increasing the confirmability of results made through their use (Mosley, 2013) and by the timespan these can

cover (Bowen, 2009). Yet, disadvantages of using text-based sources include subjectivity, the difficulties locating and accessing them, and the time-consuming nature of analysis (Fitzgerald, 2012). Ahmed (2010) adds that document selection and interpretation are biased by the social context and identity of the researcher.

Documentary materials are characterised as primary or secondary sources according to the authorship. Fitzgerald (2012) highlights as primary sources those that contain raw data, for example, parliamentary debates or government reports, produced by a witness to a particular event, while secondary sources will present an interpretation or analysis of certain events and primary sources, for example, newspaper articles.

This study considered primary sources mainly. Their selection followed a process of data quality identification that relies on four attributes: authenticity, credibility, representativeness, and meaning (Mogalakwe, 2009). Accordingly, documentary materials should only be included in research if these originate from a good, reliable, and dependable source (authenticity). Also, these should be prepared independently and before the research (credibility), and should reflect the views of the typical actor of the category studied (representativeness). Finally, the meaning of the sources identified refers to the purpose, content, and interpretation that can be deduced from a source.

To operationalise a search that would allow for replication, increasing the confirmability of results as mentioned before (Mosley, 2013) a search and analysis strategy was implemented by dividing the documentary component into three stages; data collection, followed by data collation and selection, concluding with data analysis. The following sections summarise the process, although the detailed procedure for data collection and selection is included in Appendix H for the Sugar Tax, and in Appendix I for the FOPL systems case.

Data collection

The first stage of documentary collection was undertaken between March and November of 2020. To locate data, Carriedo's approach (2017) was followed, identifying the organisations that were involved in the policy process of the Sugar Tax and FOPL systems as repositories and sources of information. Background searches helped to identify such actors. Following the identification of organisations and their websites, a search string was created. The search string consisted of selecting keywords of interest (i.e., "expert", "sugar tax", "warning system", "GDA") and related synonyms that could help to find as much relevant data as possible.

Early on in the search process I found that, in most of the websites of interest, carrying out an advanced search with multiple keywords was inoperable. For this reason, it was decided to run the search query using the main engine on Google. This decision was taken in consultation with the academic librarian of the Department of Social Policy and Social Work, who agreed that by applying the appropriate advanced search this search engine would find relevant documents.

It is important to acknowledge that, while in terms of academic literature, it is not recommended to use a general search engine such as Google, policy relevant documents come in diverse formats and are not subject to academic scrutiny, hence the reason these are not always found in academic search engines such as Google Scholar, Scopus, and similar. However, by undertaking an advance search delimited by the "site" feature and Boolean and proximity operators (OR, AND, AROUND), there is a higher likelihood that the engine will return relevant pages and documents than in cases where restrictions are not applied (Lewandowski and Höchstötter, 2008).

Data collation and selection

The search query was run on a site-by-site basis. Without any exclusion criteria, the search yielded 1,429 results for the Sugar Tax case and 974 for the FOPL

systems case. Links of pages were saved in a Microsoft Excel archive manually, because, in contrast to academic searches, there is no automatic function for saving the results.

All sites identified as relevant by the search engine were subjected to an iterative review process that consisted first of an examination of titles and content to determine its relevance for the research, followed by a thorough examination to ensure that pieces of information meet the quality criteria of authenticity, credibility, representativeness, and meaning. An exclusion/inclusion criterion was developed in an iterative process.

The second approach to data collection involved searching by hand and snowballing for texts that were cited in documents identified in the electronic search or mentioned by the interview participants. After applying the selection criteria specified in appendices H and I, 180 sources were included as the documentary material for the Sugar Tax and 179 for the FOPL systems case. The objective was data triangulation through capturing how events unfolded and how experts were involved in the discussion of these policies, resembling what Tight (2019) refers as “policy analysis.” Policy-relevant documents mainly consisted of:

- Legislative documents (Bills, proceedings, notes).
- Blog posts sustaining the positionality and activities of civil society organisations and academics.
- Press releases.
- Academic publications discussing the Sugar Tax or FOPL systems.

In the Sugar Tax case, most of the documents were published in the periods 2012-2013 and 2015-2016 (66% of the documents gathered), reflecting key points in the debate for the Sugar Tax implementation in the first period mentioned, and the industry attempt to decrease the tax rate in the second period. For the FOPL system case, around 53% of the documents focused on the 2018-2019 period in which the Warning System labelling was discussed.

Data analysis

A Nvivo12 project was created for each case study to undertake thematic analysis. However, due to the high number of sources which varied considerably in length, the thematic analysis procedure as described in section 4.5.1 for interviews stopped at the theme creation stage. In other words, data was coded, but themes were not fully developed. This was not observed as a drawback but instead, as Yin (2018, p.200) describes, a preliminary 'play with the data,' which allows us to develop a systematic sense of how to approach data analysis.

Considering the above, data analysis followed the chronological sequences depicted by Yin (2018) in which documentary materials were organised chronologically to understand the sequence of events. A synthesis of each documentary material was extracted, capturing key elements such as the type of document, author, the policy supported, and the sources of the evidence. Later these materials were used to triangulate the interview data (i.e., if processes narrated in the interview followed the sequence of documents), and also to complement it. The latter was relevant, for example, in cases where participants had narrated the positionality of the industry in the development of the FOPL systems or the Sugar Tax, but the lack of participation of industry actors did not allow me to analyse their perspective through interviews.

4.5 Social Network Analysis as an embedded method

One criticism among the ECs literature is that often its analysis assumes the existence of the relationships among actors in the policy process based on values and beliefs, even though the structure and meanings of these networks is not directly examined (Dunlop, 2015; Mamudu et al., 2011). It may be due to the focus of those studies that networks' structure is not deemed essential. The decision to make claims about temporality in this research led to methodological choices that allowed for the study and observation of the role of time in organisational structures and social relations.

SNA is a method used with increasing frequency in social science and policy studies. It incorporates network analysis understood as the 'application of graph

theory²⁷ to the study of relations among a set of items' (Bellotti, 2015, p.5), and social networks that are 'the empirical phenomena of interconnected patterns of relations among living organisms' (Bellotti, 2015, p.5). SNA explores the configuration of networks, structures formed by actors (called nodes), and the relationship between them (ties), offering tools to study how parts of a network may affect each other even if they seem not closely related (Shin, 2021; Borgatti et al., 2018; Scott, 2013). For example, if an actor holds a position within a network, that will allow her to control the flow of information.

Borgatti et al. (2013) maintain that SNA makes it possible to determine a series of metrics that describe the structure of the network as well as actors' positions within the system. It also defines variables that describe outcomes and generate network theories based on stochastic models. On this latter point, Bellotti (2015) disagrees, arguing that meanings, qualitative analysis, and descriptive statistics are explanatory tools for understanding social networks that are more powerful than inferential statistics.

In policy studies, the use of SNA as a method to explain the policy process and policy change has been criticised by Silke and Kriesi (2007), who argue that it is common to find studies incorrectly claiming to use network analysis, as the application of formal techniques is dismissed. In the broader literature, SNA has faced enduring criticism (Kirschbaum, 2019). According to Borgatti et al. (2014) it has been argued that SNA is a set of analytic tools that provide a description but are not based on theory. Instead, it is argued, SNA is focused on structure and not on actors' agency, or on structure but not on the content and meaning of the ties analysed.

It has also been suggested that SNA observes static networks but not change, and that context surrounding networks has been omitted in SNA as a condition that may influence systems' structures. In response to these arguments Borgatti and colleagues (2014) point out that research has advanced SNA throughout the years, and the structure-agency and context-related criticisms to date are scantily explored. For instance, more research is needed to understand whether actors

²⁷ Graph theory is a branch of mathematics that studies graphs, understood as a collection of objects that are interconnected. The basic elements of graphs are vertices (nodes) and edges or the links between nodes (Gross et al., 2019).

can shape networks, or if certain contexts favour certain network structures. Kirschbaum (2019) argues that the meaning of social ties and the study of temporality requires also further attention.

Using SNA as an embedded method for this multiple-case study fulfils two purposes. First, it addresses the visualisation or mapping of the networks of expertise formed around the Sugar Tax and FOPL systems. Second, it explores the temporality or the permanence of the networks, applying qualitative techniques. Section 4.1 presented the interpretation of temporality in terms of exploring the existence of ties among experts to influence policy change and the explanation of how, if it occurs, these ties are sustained post policy adoption.

For social theorists, temporality is an interpretation of the multidimensionality and complexity of time. It 'denotes the time in things, events, and processes which is unidirectional and irreversible' (Adam, 2000, p.136). Exploring this concept related to how it is embedded and affects social groups represents theoretical and methodological challenges. For instance, Ballard (2008, p.346) suggests that theory must inform the 'timescale within which the process [of change] unfolds,' whereas Adam (2000) and Ryan and D'Angelo (2018), argue that temporality must be captured by analysing timescapes. It means that this may incorporate the macro-, meso-, and micro-contextual levels that affect individuals and groups. In this sense, the study of temporality relies not on what time is but what social actors do with it (Adam, 2000).

Despite temporality bringing about conceptual and analytical challenges, Bellotti (2015, p.2) defends the idea that that space-time is one of the core characteristics of social networks. In the words of the author:

Defining associations and dependencies entail taking into account that elements are interlocked in a spatial way, which means that they form networks of relationships by virtue of being connected with each other. However, they are also interlocked in a temporal way: what happens in the present is dependent on what happened in the past and influences what will happen in the future.

Moreover, 'network science engages with the description and explanation of the conditions that favour the emergence and sustainment of a relation, identified by

Kadushin (2012) in the effects of propinquity and homophily' (Bellotti, 2015, p. 51). These relate to physical or psychological proximity and similarity among actors.

Capturing change in social networks can be done using both qualitative and quantitative tools. In particular, the last decade has seen an increase in the study of the network dynamics from a positivistic perspective, where computational models based on stochastic processes allow to observe and measure networks' attributes over time (Scott, 2017; Borgatti et al., 2014; Scott, 2013). Arguments in favour of quantitative SNA stress that qualitative SNA produces static snapshots of the existence of ties among actors in a determined time in a topographic space (Ansell, 2008) and that often qualitative network research relies 'on descriptions and narratives (Crossley and Edwards, 2016), overlooking the wider structural dimensions of social relationships' (Ryan and D'Angelo, 2018, p.150).

However, authors such as Crossley and colleagues (2015, p.151), maintain that the quantitative models used to capture network temporality 'are not well developed' and qualitative techniques are still an appropriate method for this purpose. Kirschbaum (2019, p.544) suggests deploying qualitative methods to 'capture the process of formation and evolution of social ties,' whereas Lubbers and colleagues (2010, p.93) argue that these methods allow us not only to observe the existence of ties over time but also their content. Ryan and D'Angelo (2018, p.150) agree with this last point, commenting that social networks encompass 'a world of feelings, relationships, attractions, dependencies, which cannot be simply reduced to mathematical equations.' For this research, as presented in Chapter 1, understanding the permanence of networks of experts is important to understand their influence post-policy adoption, considering that the policy process do not end once a policy has been implemented. Rather policies may be challenged or improved following experts' input.

4.5.1 Qualitative retrospective SNA

Adopting quantitative SNA techniques for temporality purposes could be enriching in the political and social sciences. For this study, quantitative methods would imply different objectives for research. For instance, it would have to shift from descriptive to explanatory concerns and aim for generalisability instead of a

deep understanding of the networks of expertise and ways networks influence the adoption of policies from the perspective of ACF and ECs, also implying the adoption of a different philosophical stance.

The underlying epistemology and ontology of this study, as mentioned in section 4.2, concedes that the reality is interpreted and accessed through the interpretations of the actors involved in a social world, an aspect that is better captured by qualitative techniques. For instance, Lubbers and colleagues' (2010, p.103) longitudinal study about the changes in migrants' personal networks in Argentina and Spain used interviews alongside quantitative tools to explore interpretations regarding how networks had transformed. The authors point out that qualitative tools are 'especially valuable in areas in which relatively little research has been done' (Lubbers et al., 2010, p.103), which suggests that in the case of the temporality of networks of expertise, it could represent a valid technique.

Talking about qualitative SNA involves narratives or "network stories" that help to gather information on how ties among actors emerge and are sustained, as well the meaning of these relationships. In this regard, 'narratives provide us with a way to explore the *content* as well as the *form* of social ties' (Crossley et al., 2015, p.106, emphasis in original), which are two elements that allow to map the policy networks defined in Chapter 1, the relationships they form, and the activities they undertake to influence a policy change. It also sheds light on how relationships among network members are reproduced or reconfigured gradually. Hence, it allows us to explore what happens with the networks of experts over time, in other words, whether they continue collaborating post-policy adoption.

The analysis of networks can be done at the individual (ego-centric), dyadic, or whole-network level, taking a cross-sectional or longitudinal perspective. As such, the SNA presented in this thesis builds upon the whole-network and individual levels, as the interest lies in observing how the structure of the network influences the adoption of the two policies and how individual actors build their own collaboration network. It adopts a longitudinal perspective based on elicitation to observe the meaning of changes in the networks between two time periods, denoted as t_1 and t_2 . This allows us to explore further how networks are

transformed over time to address the objectives and questions regarding temporality. In other words, from a retrospective stance participants reflect on the actors with whom they had communication when they got involved in the policy process and how relationships may have persisted to date. Crossley et al. (2015) indicate that a retrospective design is potentially useful for capturing change over time.

In both the Sugar Tax and FOPL system cases, t_1 represents the 2012-2014 period and t_2 the 2018-2020 period, which were marked by policy changes and attempts to further modify the two policies, defined in section 4.3 as the specific events of inquiry. For the Sugar Tax, the 1-peso-per-litre excise tax adoption occurred between 2012-2014, followed by attempts to modify the tax. For the FOPL system policy, the GDA as a mandatory system was enacted in 2014, later modified to the Warning System in 2020.

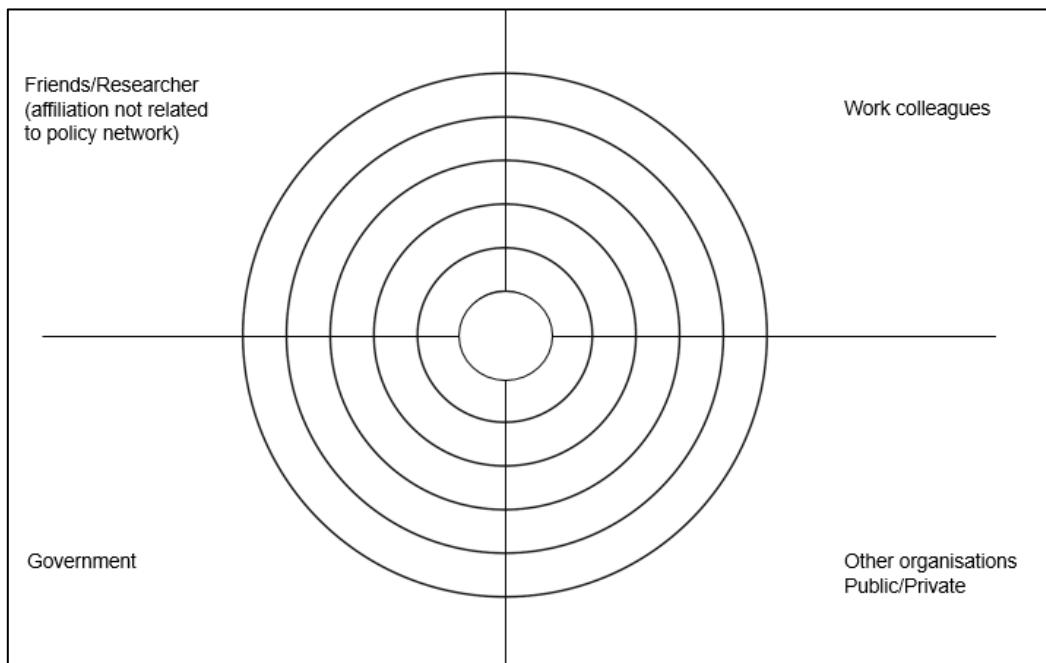
Visualisation tools to collect network data

Social networks are recreated by collecting relational data (i.e., who collaborates with whom to influence the adoption of a policy). For this study, relational data was collected using target sociograms at the last step in the interview with the participants that had been involved in the passage of the Sugar Tax or further attempts to increase the tax rate, and the FOPL systems changes either for the GDA or the Warning System.²⁸ According to Hollander (1978, p.1), a sociogram is 'a sociometric instrument which diagrammatically indicates the formation and changes of a group. It is a map of interpersonal relationships and interpersonal lines of communication.' This study planned to use a target-shaped concentric circle sectioned in four quadrants during the first phase of in person interviewing. Figure 6 (Sociogram for data collection divided into four quadrants) illustrates the model.

²⁸ Of the 32 participants for the overall project, only one failed to provide names to complete the sociogram, as such the effective count for the SNA was 31 participants.

In Figure 6, the centre represents the participant in interviews (ego), and each of concentric circles (six as a popular choice following the small-world properties) alters or people with whom the participant collaborated for policy purposes in the past. The closer the alter is to the centre (ego), the stronger the relationship between the ego-alter. Participants were asked to complete the sociogram and to nominate their closest collaborators for activities that helped to influence a policy change in t_1 , t_2 , or in both periods if applicable.²⁹

FIGURE 6. Sociogram for data collection divided into four quadrants



Note: Sociogram used at the first round of interviews.

No prior definition of “collaboration tie” was given to participants, yet instrumental relationships were deemed implicit by asking about links for influencing the adoption of any of the policies. Participants were asked: Could you please draw or mention who your closest collaborators were in attempting to implement the policy? If interviewees had been involved in the policy area in t_1 , once completing the first sociogram the next questions were: “do you continue to keep ties with the people you mentioned before, or are you collaborating with new actors, and what type of relationship do you keep with them?” If interviewees participated

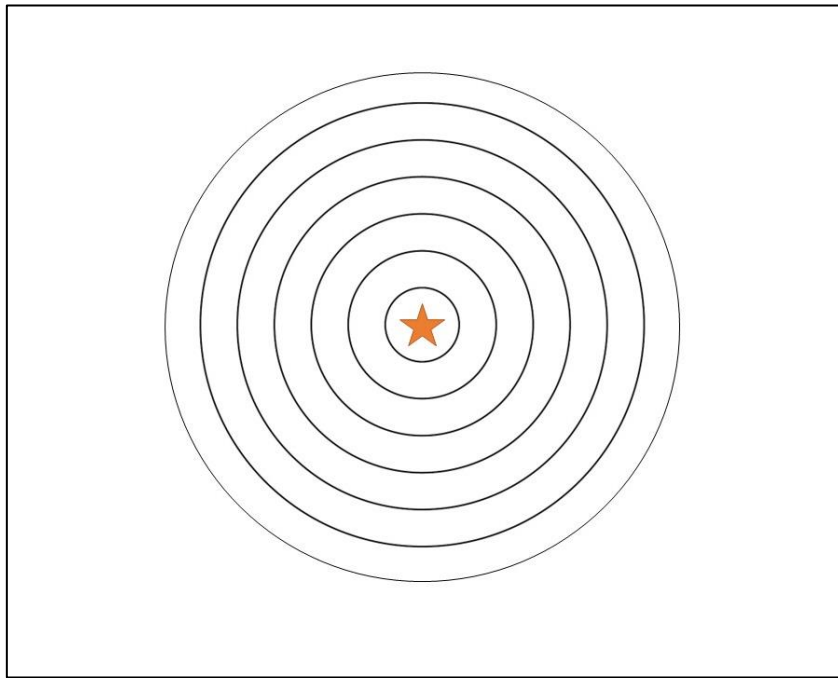
²⁹ Participants were informed that they could nominate people from their organisation or from other sectors that they consider appropriate.

only in t_2 , the names and relationships provided were used to map the whole network structure changes but not the temporality of ego-networks.

Figure 6 (Sociogram for data collection divided into four quadrants) was used during the first round of face-to-face interviews to understand whether actors collaborate with people from different settings, nevertheless, it was noted that divisions generated confusion because an alter's name could be placed in more than one section. For example, a participant asked where to write the name of a person who is a work colleague, but that the participant considered a friend. This may reflect that different types of ties overlap as suggested by Borgatti et al. (2014) based on Coleman's (1990) concept of appropriability, in which one type of tie is appropriated for other use.

For the online interviews, a sociogram with no divisions was introduced. This is observed in Figure 7 (Sociogram). I assisted the respondent in typing the names with the shared screen function in Zoom. In most cases, conversations were rich and deep, with detailed descriptions of the actors' involvement in adopting the policies and their closest collaborations. Only one participant mentioned that because of confidentiality agreements signed with the government during the discussion of the Warning System, she was not allowed to mention specific names of her collaborators or who specifically said what. Still, she could provide the name of prospective participants, and provide names of organisations. In that case, the participant was assured that she could continue in the interview without providing such a level of detail.

FIGURE 7. Sociogram



Note: Sociogram used at the second round of interviews.

The use of diagrams (i.e., sociograms) is mostly used in SNA for data analysis but is less common for data collection. For example, researchers rely on lists as name-generation tools to get relational data (Eagle and Proeschold-Bell, 2015; Bidart and Charbonneau, 2011). The sociogram rather than a list has been adopted in sociology and migration studies, where authors have captured network dynamism (i.e., Ryan and D’Angelo 2018; Lubbers et al., 2010) by asking participants to draw their sociograms. The sociogram is then revisited, and participants reflect (in the interview) on any changes that have occurred to the ties. Although it cannot be done with a visualisation of the whole network (because it is created after completing all interviews), analysing ego-nets qualitatively produces the subjective narrative accounts of the meanings (i.e., type of ties, such as collaboration relationships) and changes to the ties. For instance, for Ryan and D’Angelo (2018, p.153) ‘[e]mbedding the sociogram in in-depth interviews enabled participants and researchers to discuss network composition; exploring why and how relations changed over time.’

In the studies conducted by Emmel and Clark (2009), Lubbers and colleagues (2010), and Ryan and D’Angelo (2018), sociograms were created collaboratively.

It means that participants wrote themselves alters' names. This procedure was adopted in this project for the completion of in-person sociograms. For online interviewing, as mentioned before, I facilitated this by typing names on a computer.

Even though egocentric data has strengths, such as the detail to which the meaning and evolving of ties may unfold, it may still show weaknesses. Ansell (1998) indicates that it is selective and only reflects the ego perspective. Another deficiency of using sociograms to gather information about networks, is that visualisations and explanations of the networks are always interpreted according to the instruments and questions asked for the researcher (Ryan and D'Angelo, 2018). It means that the networks' mapping is biased from the outset. However, we must bear in mind that networks are always artificial (Bellotti, 2015), and this does not imply that a time-space delimited model cannot be based on theoretical propositions.

Data analysis

Relational data obtained from the interviews was anonymised (by giving each participants a numerical ID) following standard ethical procedures in SNA (Tubaro et al., 2021; Breiger, 2005). Relationships between actors were coded into one-mode full matrices (equal number of rows and columns representing the names generated) for t_1 and t_2 , for each of the case studies.³⁰ Numerical attribute matrices were created to identify actors' type of organisation in which they participate (i.e., academia, civil society organisation, etc.) and the policy they support. Matrices were held in a Microsoft Excel file, alongside a codebook that explains the labels associated with the attributes' numeric values. This was done because most of the SNA programs require the transformation of text labels to values (Borgatti et al., 2018). For example, the organisation attribute with the number 4 corresponds to the National Institute of Public Health.

³⁰ For the participant who mentioned organisations and not individuals, data was coded to the participant that was most frequently mentioned within that organisation or keep it as organisational name if no specific actor was mentioned before.

To perform the analysis of whole networks data was transformed from valued data that measured how close the participant felt to the actors they nominated as alters to a dichotomised format, which uses values of 1 or 0 to identify the presence (1) or absence (0) of ties between actors. For example, if person 1 was collaborator of person 2 but not of person 3, a number 1 was applied to the matrix intersection of person 1 and person 2, and a 0 in the matrix intersection of person 1 and person 3. No assumptions were made regarding the reciprocity of ties. Hence, the network presents directed ties in which a participant mentioned the connection to an alter but the alter was not necessarily interviewed or, if the alter was interviewed, they may not mention the collaboration tie to the person who nominated them.

Data was analysed using UCInet version 6 (Borgatti et al., 2002) and graphically depicted using NetDraw (Borgatti, 2002). This procedure allowed for the graphical mapping of actors, the analysis of network structure and the identification of key actors by calculating centrality measures for each of the actors within the network. This was done to observe the position of those actors and institutions that were key players in mobilising the Sugar Tax and FOPL systems agenda and influencing policy change. Regarding the structure of the networks, I applied the Girvan-Newman algorithm, a procedure included in UCInet for identifying subgroups. This algorithm calculates the edges' (links between nodes) betweenness score to detect those edges that connect closely related nodes (communities). The algorithm removes the edges with the highest betweenness until no edges remain, revealing communities (Girvan and Newman, 2002).

Centrality measures (i.e., in-degree centrality and betweenness) indicate the position of an actor in a network. An actor with high centrality scores can be perceived as powerful, influential, or prestigious, and may provide 'opportunities to influence others and receive flows' (Borgatti, et al., 2018, p.190) in different ways. For example, in-degree centrality measures the popularity of an actor by capturing the number of times the actor was mentioned as a collaborator. Betweenness centrality indicates brokerage roles, as it measures the shortest paths between actors, which otherwise would be disconnected (Howlett et al., 2017). In qualitative policy process studies, centrality measures, along with

participants' narratives, identify knowledge brokers and policy entrepreneurs (McIntyre et al., 2018; Cvitanovic et al., 2017). For example, interviewees may identify a knowledge broker by mentioning those actors that acted as intermediaries of information flows from those who produced the evidence (such as experts) and those who used it (policymakers).

Once the analysis of whole networks was completed, the ego-network analysis was carried out for those actors who participated in the policy arena in t_1 to observe whether ties remain, increase, or are lost. Changes in ties were accompanied by interview narratives that allowed us to explore the meaning and reasons for change. Ultimately, networks can be explored through narratives as 'active, dynamic, and ongoing processes of interaction' (Crossley et al., 2015, pp. 111-112).

Alternative methods to study temporality

Temporality can be observed from diverse angles and perspectives. Time can affect individuals and organisations directly, but it also represents the context (time-space) in which social processes are carried out. Institutional accounts widely capture the development of policies and the interaction between actors, interests and ideas in the policy process and issues of temporality. Time represents a condition through which we can understand and explain the causal mechanisms by which policies are or are not implemented (Campbell, 1998). This is a process in which policy networks and powerful actors intervene, accumulating strategies, knowledge, and experiences in the policy environment that may determine the continuity or change of existent actions (Lockwoodk et al., 2017; Orihuela, 2013).

Methods widely used in institutionalist studies include case studies and process-tracing documentary analysis. For this study, it was necessary to consider if process-tracing would be optimal for answering the temporality inquiries alongside the formation and influence of networks. For instance, in an investigation of the influence of experts in health technology assessment in Poland and the Czech Republic based on the ECs framework, Löblová (2018b)

applies process-tracing to uncover the scope conditions of why some experts seem to influence the policy process in two different jurisdictions.

For this research project, I considered that documents available may not give a rich account of the events of interest with regards to temporality. As discussed previously, documentary sources are not created for this express purpose, and these are likely to represent the 'tip of the iceberg that hides the multi-layered and dynamic nature' (Bellotti, 2015, p.73) behind policy documents creation and intentions of those in the authorship positions. As a last point regarding the temporality of networks, the events discussed are relatively recent and the policy actors are still active, so this represents an opportunity to obtain the information specific to a case directly.

4.6 Use of analytical frameworks

Section 4.2 detailed critical realism as the philosophical stance on which this research project was undertaken. This philosophical stance maintains that reality exists, but it is not directly accessible to the research and so can only be explained through theoretically informed accounts of observable empirical phenomena (Fletcher, 2017). Recognising the epistemological position is essential for determining whether an analytical framework could be applied to the analysis and interpretation of data regarding the main and subsidiary research questions presented in section 4.1. Hence as defined previously, the theory is compatible in critical realism to interpret reality. In this regard, the ECs and the ACF can be used to study how networks of experts are formed and how they influence policy change.

As discussed in Chapters 1 and 2 ECs is interested in what is the knowledge possessed by experts and the mechanism of how it enters the political sphere. Authors maintain that the scope condition of influence is uncertainty, although as most recently it has been reformulated as knowledge demand. However, the ECs' framework mainly focuses on cases where knowledge promotes policy change, leaving aside studies that analyse the reasons why knowledge is not reflected in public policy. In contrast, the ACF supposes a fluid policy process in which information translates to actors' beliefs, and alteration of these produces policy

change. The modification of belief systems derives from internal and external shocks and may facilitate that some ideas prevail in the policy process and become implemented.

Finally, an analytical framework for networks' temporality was not selected *a priori*, given the exploratory nature of the question about the relationships among experts over time (second research question). In other words, it was thought that a framework could limit the potential to uncover how experts explain how and why networks could remain active in the policy process. However, in section 1.4, some avenues for understanding expert involvement over time were presented, for example, "professionalisation" (Davis-Cross, 2013) as a condition for permanence of relationship among ties.

4.7 Quality in qualitative research

Quality of research has been commonly associated with "validity" and "reliability." Literature on research methods argues that validity 'in the broader sense refers to the ability of a research instrument to demonstrate that it is finding out what you designed it to' (Kumar, 2019, p.276) or the 'extent to which an account accurately represents the social phenomena to which it refers' (Hammersley, 1990, p.57). Reliability refers to 'consistency in its findings when used repeatedly' (Kumar, 2019, p.276). Both terms are associated with positivist philosophy and quantitative research methods and as a consequence, the debate on whether qualitative research could be subject to this criterion shows that it is impossible to standardise qualitative tools and procedures, as research from this tradition observes the social world using 'multiple methods and procedures that are both flexible and evolving' (Kumar, 2019, p.276).

Theorists of qualitative methods argue that the parallel criteria to validity and reliability in qualitative research are trustworthiness and authenticity (Guba and Lincoln, 1994). Authenticity refers to ensuring that the research process and evaluation are genuine and credible 'not only in terms of the participants but also with respect to the broader political and social implications of the investigation' (James, 2008, p.45). In other words, a qualitative investigation is authentic if it is worthwhile and brings benefits to society.

The criterion of trustworthiness is concerned with whether the findings of the research can be trusted according to four criteria: credibility, transferability, dependability, and confirmability. Each of these has different effects and implications. For instance, 'credibility involves establishing that the results of qualitative research are credible or believable from the perspective of the participant in the research' (Trochim, c2006, not defined.). Diverse authors suggest that this condition is fulfilled if research participants validate the research and agree that the beliefs and opinions are congruent with what they wanted to express. It means, as Kumar (2019, p.276) notes, that '[t]he higher the agreement of the respondents with the findings, the higher the validity of the study.'

Transferability involves the generalisability of results to other contexts or settings. In contrast to quantitative methods, where studies of entire populations can be carried out by using random sampling that allows researchers to ascertain generalisable results, qualitative methods are used in small samples representative of the phenomenon of study in specific contexts. Consequently, it is not possible to draw general conclusions as these are delimited by the context in which the investigation develops. However, giving a full description of the procedures undertaken to carry out the research and ensuring a purposive sampling of participants are conditions that allow research readers to conclude if the findings could be transferrable to their contexts (Jensen, 2008). Finally, trustworthiness incorporates dependability and confirmability. These aspects involve the extent to which an investigation can be replicated, opening the possibility to contrast results and determine if these are similar.

Table 9, presents the procedures undertaken to account for quality in this research and the sections where the information can be found. With regards to credibility, participants of this study were given the opportunity to review the transcripts and to have a copy of the dissertation upon request. Although this does not imply that all respondents exercised their right to review the personal interview transcript as well as the investigation, the possibility of doing this was offered. Also, the selection of a sample representative of the diverse stakeholders was done to capture and contrast the views of the different types of actors in the development of both policy areas. Views in how the events unfolded were also

confirmed by using documents as triangulation sources, described in section 4.5.2.

With regards to transferability and dependability, the study has included in different sections, and outlined in Table 9 how the cases were selected, the sample strategy, how interviews were conducted, and the tools used. Descriptions can be found within the document or in the form of appendices. Confirmability, linked to the corroboration of results, is addressed by recognising potential bias, shortcomings, and decisions in the form of reflective commentaries (Shenton, 2004) in various sections of the document.

TABLE 9. Procedures to address quality criteria

Quality Criteria	Procedure
Credibility	<ul style="list-style-type: none"> • Granting participants access to interview transcript and final piece of research (asked in the informed consent process, section 4.4.1). • Observing networks of expertise from their perspective and other policy stakeholders (participants from diverse sectors, section 4.4.1). • Triangulation of data for confirmation (section 4.4.2).
Transferability and Dependability	<ul style="list-style-type: none"> • Selection of Case Study (section 4.3). • Sampling strategy (section 4.4.1). • Interview data analysis procedures (section 4.4.1) • Documentary sources search strategy (section 4.4.2 and appendices H and I). • Social Network Analysis tools (section 4.5).
Confirmability	<ul style="list-style-type: none"> • Positionality (section 4.8). • Reflective commentaries on the investigative process (throughout the document).

Finally, with regards to quality in case studies, this study planned to adopt the principles outlined by Yin (2018, pp.244-247), namely: attending to all the evidence related to the research questions, creating plausible rival interpretations of the way that experts influence policy adoption, and addressing the most significant aspect of the case study, which in these cases is the influence of networks of experts over time. With regards to rival explanations, these were not developed. An additional standard is linked to the ability of the researcher to demonstrate familiarity with the topic surrounding the case study. As such, the reader, based on the literature review sections and to the reflections of the investigative process, may determine if this condition is fulfilled.

4.8 Positionality

The interest on the obesity policies grew from my previous academic experiences in global social policy and policy transfer courses where I started to study the effects of trade on obesity growth in Mexico and the possibility of implementing the traffic light FOPL system from the UK. Obesity development is a topic that requires greater attention from policy scholars. This was also motivated by personal and work experience. Being raised in Mexico, I was affected by what now I know is an “obesogenic environment.” Also, before joining the University of York, I was a public finance analyst in the Ministry of Finance in my home country, for this reason, my selection of the Sugar Tax was influenced at an early stage by my interest in capturing the views of both economists and health experts in the policy development, being an outsider of the latter group, as it was stated on the reflection before fieldwork on section 4.4.1. However, as the research progressed, I became more familiar with health experts and advocates, which sometimes positioned me as an insider. All in all, as Mercer (2007, p.1) points out ‘the insider/outsider dichotomy is, in reality, a continuum with multiple dimensions and that all researchers constantly move back and forth along a number of axes, depending upon time, location, participants, and topic.’

4.9 Conclusion

This chapter has outlined the research design underpinning this study, beginning with specifying the research questions and setting the ontological and epistemological position. The selection of case studies with evidence sources of interviews and documents was presented as well as the use of SNA to address the inquiry on network temporality. The chapter also explained how the data collection and analysis was carried out, highlighting the decisions made throughout the investigative process. It was noted that despite plans for in-person interviews in Mexico were made, only six of the interviews could be done in this format. The remaining interviews were virtually conducted using Zoom or the participant’s preferred video-call platform. In total, evidence sources included 32 interviews and 359 documentary materials. Interviews were thematically analysed, whereas documents were used to situate chronologically and triangulate interview data. Relational data was collected in interviews and

analysed according to SNA techniques. Building upon themes created through the thematic analysis approach, the next two chapters explain the results of the Sugar Tax and FOPL systems case-studies, while Chapter 7 presents the results of SNA for both cases.

Chapter 5: The Sugar Tax Case

*When you have this type of controversial policy, you strongly need academia for evidence generation and civil society organisations to mobilise public opinion to demand the policy (...)
[P2-04, Health researcher]*

5.0 Introduction

In 2013, the Mexican congress approved the introduction of an excise tax of 1 peso per litre on SSBs as a component of the Fiscal Reform promoted by the 2012-2018 administration. The tax was focussed on the high consumption of soda, which was a major contributor to the prevalence of overweight, obesity, and diabetes. Its implementation would have a dual purpose. On the one hand, it would discourage the consumption of soft drinks, which would impact population health. On the other hand, it would increase non-oil government revenues (Presidencia de la República, 2013; Secretaría de Hacienda, 2013).

Previous research has found that health advocates contributed to framing the tax as a health measure and shaping population preferences (Carriedo et al., 2020; James et al., 2020). As discussed in Chapter 1, framing has represented one of the avenues by which stakeholders make appealing certain policy issues and solutions and, in the Mexican Sugar Tax case, it resulted in an effective strategy to raise the issue to the government agenda. However, the tax as it was implemented deviates from health advocates' initial proposal: a 20% value-added tax would be levied, and resources would then be earmarked for other health reforms, such as increasing the access to potable water (Iniciativa que Reforma la Ley del IEPS, 2012). Given this gap, the role of health experts in adopting this fiscal policy was presented as an area that required further investigation in Chapter 4.

The theories of the policy process and its interplay with experts highlighted in Chapters 1 and 2 point out that experts may influence the adoption of policies by providing evidence to decision-makers. Evidence plays an instrumental function in the formulation of policies, especially if there is uncertainty. The ACF highlights that experts can become members of advocacy coalitions and as such, evidence is a resource that may be used strategically. According to Weible (2008),

knowledge use depends on the level of conflict in the policy area, for example, when conflict surrounds policy areas, its political use for counteracting opponents may exceed its instrumental use.

This chapter presents the results of the study into how health experts participated in the adoption of the Sugar Tax case in Mexico. Table 10 presents the themes (text in bold) codes (text in black) and nested codes (text in grey) that shape the five themes that emerged from the thematic analysis approach described in Chapter 4. The rest of the chapter is structured in six subsections, in which the first five correspond to each theme.

TABLE 10. Sugar Tax themes

Theme 1 Health experts: 'tripartite alliance' advocacy for the Sugar Tax
<p>Not only medical but other areas of expertise were involved</p> <p>Civil society organisations</p> <ul style="list-style-type: none"> Advocacy and campaigns Broad alliance of civil society organisations Looking and supporting the policy champion Influence strategy and access to decisionmakers Civil Society dissemination of evidence to the public and decision-makers Creation of non-academic studies <p>Frame the problem according to economic impact</p> <p>Think-tank activities, from mapping actors to lobbying and advocacy</p> <p>Proposal of Sugar Tax created by health experts</p> <p>Robust evidence from the institutes of health (INSP) to sustain arguments</p> <p>Raise public awareness of the problem of obesity</p> <p>Funded by Bloomberg Philanthropies</p> <p>Venue shopping</p>
Theme 2 Health Experts' influence on the design and implementation of the Sugar Tax
<p>Health experts involved in policy actions that give rise to the Sugar Tax</p> <p>Accessing the MoF to discuss the evidence</p> <p>Defining the rate and type of tax</p> <p>Health experts as advocates</p> <p>Academic events</p> <p>Sugar tax and fiscal reform an internal decision of MoF</p>

TABLE 10. (Cont.) Sugar Tax themes

<p>Theme 3 Evidence for supporting the Sugar Tax and its dissemination channels</p>
<p>Evidence available</p> <ul style="list-style-type: none"> Price-elasticity of demand White book of obesity Modelling studies on the impact of the Sugar Tax on obesity Studies on diabetes incidence Sugar Tax impact on diabetes and heart disease <p>Civil Society dissemination of evidence to the public and decision-makers* (*code repeated from theme 1)</p> <p>Academic events* (*code repeated from theme 2)</p> <p>'We generate the demand'</p> <ul style="list-style-type: none"> Health experts as advocates* (*code repeated from theme 2) Accessing the MoF to discuss the evidence* (*code repeated from theme 2)
<p>Theme 4 Opponents to the tax within the food and beverage industry</p>
<p>Beliefs</p> <ul style="list-style-type: none"> The tax will not solve the obesity problem An obstacle to market competition Modifying individual behaviour through education and physical activity <p>Activities</p> <ul style="list-style-type: none"> Power and opposition, enhancing the economic impact Industry response, price modification and new products Alleged experts and conflict of interest Junk food taxation <p>Opposition from legislators</p> <p>Limited or no support from the MoH</p> <p>Previous government closest to the industry</p>
<p>Theme 5 A new government and the fiscal reform, a pathway for change</p>
<p>Not passed at the Senate</p> <p>New government and MoF interested in the tax</p> <p>Fiscal reform and revenue growth</p> <p>Civil support for the tax</p>

Section 5.1 presents the first theme, which highlights the participation of health experts as evidence providers within a “tripartite alliance” of health advocates aiming to influence the adoption of the Sugar Tax throughout 2012 and 2013. Second, results suggest that although health experts designed the first sugar tax

bill and shared evidence on the rationale for adopting an *ad valorem* tax with the MoF based on health arguments, the 10% *excise tax* was defined by technocrats within the Undersecretariat of Revenues based on their own estimates. The third theme examines the information possessed by the health experts and its use in the policy process. Notably, estimates for the expected impact of the Sugar Tax on soda consumption levels and likely health impacts were the main sources of evidence disseminated.

The fourth theme discusses opposition to the Sugar Tax. The food and beverage sector led opposition on the grounds that the tax would have a negative social and economic impact. Strategies to counteract the health advocates include dismissing their evidence and counter-lobbying decision-makers. The fifth theme presents the pathways for change that allowed the implementation of the Tax. Participants highlighted that the change in government, the Fiscal Reform, and the demand for change led by the health advocates generated opportunities to push forward the Sugar Tax policy. The final section concludes with a summary of themes and their link to the literature review chapters.

5.1 Health experts: ‘tripartite alliance’ advocacy for the Sugar Tax

A Sugar Tax proposal was first discussed in 2012 at the Senate when a group of legislators led by a member of the PAN party presented an initiative to introduce a tax on SSBs, based on the need to guarantee the Right to Health.³¹ The tax would contribute to this aim by preventing and mitigating the effects of diabetes and obesity in the country in two ways. First by decreasing the consumption of soda and sugary beverages, but also by earmarking the resources gained for easing the financial cost that the treatment of obesity and related diseases represents to the public health sector. The bill, presented as a modification to the General Law of Special Taxes on Products and Services argues:

Through this Initiative, it is fundamentally proposed: i) to establish a tax on soft drinks and sugar-sweetened beverages, and ii) to establish that the tax

³¹ Previously in 2011 the civil society organisation Consumer Power had published a blogpost demanding a sugar tax (Document HS008). However, by that time it had not been formally discussed at the Congress.

resources collected for this concept can be used for satisfying the expenses caused by the diseases associated with its consumption [Document HS009].

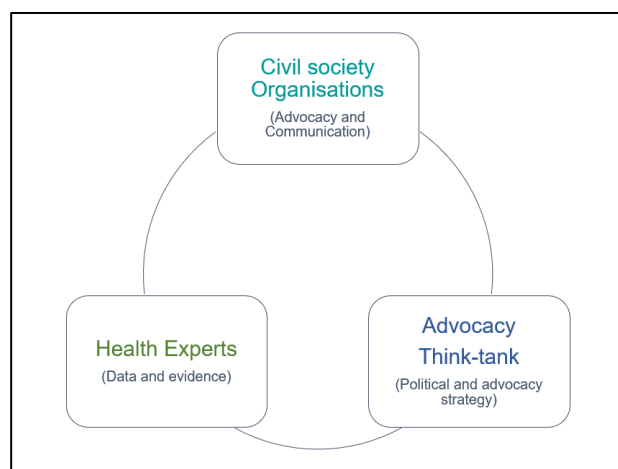
The idea of implementing a fiscal policy, according to health experts, had been discussed in international academic settings a decade before and with the Mexican health and finance officials in the 2006-2012 administration. However, momentum picked up when Bloomberg Philanthropies made a grant to launch a strategy to tackle obesity and to promote healthy food choices, with funding granted to civil society organisations and one academic institution.

The obesity-prevention strategy, first discussed in 2012, enabled the configuration of a tripartite alliance (Figure 8, The health advocacy alliance for the adoption of the Mexican Sugar Tax) formed by health experts from the Mexican National Institute of Public Health (INSP, by its acronym in Spanish),³² non-governmental civil society organisations “ContraPESO” and “El Poder del Consumidor” (henceforth “Consumer Power”) and the advocacy and political strategist think-tank “Polithink”. The alliance carried out activities of research and data generation, political strategising, and communication to launch an obesity prevention plan. This would start with the sugar tax, based on the prominence of sugary products and the links between the high level of obesity and soda consumption in the country. In the words of one political strategist:

We began to discuss the idea that the first public policy that we were going to implement was a tax on sugar-sweetened beverages. First, because in reality- and this associated with the fact that we are the country with the highest consumption of soft drinks, and we are the number one country with the higher childhood obesity rates. Obviously, there is a correlation between that data, right? Then, we take the decision to start with this [the Sugar Tax] because it was a direct public policy and very striking for beginning to raise the discussion [P2-07, advocacy think-tank].

³² Academic institution that is part of the Health Institutes dependent on the federal Ministry of Health.

FIGURE 8. The health advocacy alliance for the adoption of the Mexican Sugar Tax



Source: own elaboration based on interview data.

Once the policy was decided, an influence strategy occurred in two stages. The first phase during 2012, when the Sugar Tax Bill was initially presented at the senate by the PAN policy champion, and a second phase throughout 2013 in response to the Bill having been blocked at the Senate. The second phase was characterised by the federal government's interest in implementing the Sugar Tax amidst the inauguration of the 2012-2018 administration with a socio-political plan that included tax reform. At both stages, the strategy was well defined for each alliance member. A former member commented:

The collaboration model was founded on three main parts. The first part was research, which was generated by robust academic research developed by the INSP [...] the second pillar of this kind of..., let's say "tripartite alliance" was advocacy that was led by ContraPESO coalition supported by an agency, an advocacy firm, that works with civil society organisations that is called Polithink who helped us to design the advocacy strategy directly with the federal government and Congress actors [...] and the third pillar was that of communication led by Consumer Power [P2-01, Civil Society Organisation].

Polithink, alongside the civil society platform ContraPESO,³³ designed the influence strategy. For the first phase, the plan consisted of mapping recently

³³ ContraPESO is a coalition formed mostly by civil society associations that helped patients with a chronic disease. It was launched in 2012 by Fundación Mídete, to increase its influence in the policy process.

appointed congress actors that could potentially champion the Sugar Tax Bill. Once a member of the PAN party was committed to leading the initiative, the group of allies provided the Bill to the policy champion and initiated advocacy activities and campaigns to gain support at the Senate. However, the Bill was opposed, leading the policy champion and health advocates to look for access to the executive branch of the government. For the second phase, health allies continued supporting the policy champion throughout the discussion period during Autumn 2013. The following excerpt illustrates this:

[Health allies] sheltered me when all the attacks began, with data I was able to refute all the arguments of the economists who were against the tax, of the industry who was against it. They were fundamental, they were my primary support [P-011, Government legislative branch].

At the Senate, health advocates installed photographic exhibitions showing the effects of soda on obesity and organised events to disseminate the most recent international evidence on the importance of fiscal measures to reduce demand for SSBs. For example, the forum “Tax on sugary beverages: a healthy fiscal policy,” which took place in September 2013 [Document SB007], acted as a convergence space for legislators, academics, and international organisations to discuss the high consumption of soda in Mexico, the epidemic of obesity, and the impact of fiscal policies on the consumption of SSBs.

Participants also mentioned that an essential component of the tripartite alliance’s strategy was to raise awareness of the need for the sugar tax at the population level. In doing so, by the end of 2012, the civil society organisation Consumer Power created alliances with smaller civil society organisations and independent health experts, forming the “Food Health Alliance.”³⁴ This alliance created novel mass public campaigns informing about the problem of excess weight, obesity, and diabetes and the consequences of drinking sugar-sweetened beverages. For example, the campaign “Would you eat 12 tablespoons of sugar? Why do you drink it in a soda?” evidenced the harm of

³⁴ In Spanish *Alianza por la Salud Alimentaria*, is a network of more than 30 civil society organisations created in October 2012 to coordinate actions to demand the executive and legislative power to develop and implement comprehensive obesity and undernutrition policy.

drinking soda, using billboards and advertisements in various metro stations and buses in Mexico City. An interviewee commented:

We had never seen that type of billboard informing exactly all the amount of sugar contained- I think that it impacted a lot of people [P2-15, Civil Society Organisation, emphasis underlined].

The formulation of the campaigns promoted by civil society organisations and dissemination of documents used by Polithink and ContraPESO at the legislative level was grounded in health evidence, which was provided mainly by experts from the INSP. An interviewee mentioned:

All political communication was done with the data that the National Institute of Public Health gave us [P2-07, Advocacy think-tank].

Health experts also participated in elaborating the Sugar Tax Bill, collaborating with experts in law and economics, acknowledging that although the Sugar Tax was motivated by a health cause, it affected economic interests. A health researcher commented:

The first bill presented to the Senate with the 20% tax on soda was elaborated on by a group of academics from the INSP and other persons from ITAM and CIDE who were experts on taxation and had worked on tobacco too [...] we worked in 2012 to make this draft for the [policy champion], and we also gave all the evidence to sustain why a tax was needed [P2-21, Health researcher].

In the second phase of the strategy, health experts participated directly in evidence dissemination to the public and advocacy, joining civil society organisations' activities. One health expert, when asked how researchers participated with civil society organisations, commented:

Usually, my role has been a knowledge disseminator but also supporting actions to correct structural problems. For example, we had to explain why we needed a tax, [and] what we aimed [to achieve] by implementing a tax. Also, we had to counteract or neutralise arguments that were not scientifically proven, such as that soda has no impact on health [...] we could show that the economic cost of this damage exceeded the health care capacity [P2-18, Health researcher].

Participants reflected how health experts disseminated studies on the impact of the sugar tax on consumption to the MoF, the government agency in charge of

designing tax policies. However, the MoF stated that the tax type and rate were decided internally, a point that is elaborated on in the next section.

5.2 Health Experts' influence on the design and implementation of the Sugar Tax

Introducing a sugar tax in Mexico was not a novel idea, as acknowledged by participants who were at the forefront of the tax design at the INSP and the MoF. For health experts, the idea of a health tax had been first presented in 2005 at the Institute of Medicine in the US as one of the multiple recommendations to prevent obesity in Latin-American and Mexican children. Locally, the idea had been also recommended in 2008 and 2010 during the NANH design (see section 3.5.3), where health experts suggested to the MoH and the MoF that they introduce a sugar tax and a tax on junk food.

During this earlier period, health experts were invited to meet with international philanthropic organisations to discuss funding for obesity prevention programs. One of these institutions, Bloomberg Philanthropies, was interested in the Mexican developments and provided grant funding to the INSP and to civil society organisations to design and evaluate public policies.

Bloomberg did not give us like a lot, a lot of money, but the advantage was- and see how beautiful it is- they gave us a grant for the design and evaluation of public policies. Other institutes and organisations do not provide you with money for that' [P2-04, Health researcher].

Under these new circumstances, the INSP collaborated as part of the tripartite alliance to design the initial draft of the sugar tax presented in December 2012. The INSP contributed to tax design and rate, using modelling studies of elasticity-price and cross-elasticity of demand of SSBs formulated by health economists from that institution, and also considering the information provided by international experts analysing similar initiatives in other jurisdictions. A participant, when asked why experts had proposed a 20% tax rate, commented:

Through that [economic modelling] and by comparing the information with many other people who were trying to do the same in the United States, such as [Frank] Chaloupka and other people, we determined that this was the minimum

amount to see a significant change in population's weight in the medium term.

[P2-21, Health researcher]

Elasticity estimations and additional health-related evidence were presented to the MoH and the MoF. However, the MoH did not actively support the tax, arguing that fiscal policies were designed by another ministry. Yet, prior to the submission of the Fiscal Reform and the Economic package to Congress in September 2013³⁵ the MoF welcomed health advocates to private meetings:

There were private meetings with the Ministry of Finance where we showed them the evidence. There was a group of very high-level technicians in the ministry, top-level economists, who understood the models very well, made excellent comments to us, they obtained that information and sometimes even asked us for more information [P2-04, Health researcher].

As a result of the interaction between health advocates and the MoF, the tax health rationale was included in the Fiscal Reform. This is illustrated in the following excerpt:

The Reform proposes to create taxes that discourage the consumption of goods that are harmful to health. The preceding in order to reduce the prevalence of overweight and obesity in the population, reduce the health costs associated with these conditions and simultaneously raise tax collection [Document MOF003].

However, it proposed the introduction of a 1-peso-per-litre excise tax, which was approximately 10% the price of soda, a deviation from the proposal of health advocates. The adoption of the Sugar Tax as part of the Reform was surprising for political strategists and civil society organisations:

We were not sure that the tax would be included. To our surprise- well, we had the idea that there was a good chance that it may be included. Ultimately it was included. As I told you before, it is not the proposal we were pushing forward at the Congress. It is a one peso per litre tax, that if you analyse it as a percentage, it was the half of what we were proposing [...] [P2-01, Civil society organisation].

³⁵ Document DIP021 for the Fiscal Reform containing changes to the Law on Special Tax on Production and Services. Document MOF003 contains the economic policy's criteria as part of the economic package, which also is formed by the federal budget and changes to the federal income law.

According to an interviewee from the technical area in charge of tax policies within the MoF, the Sugar Tax was designed internally. They considered as the precedents a short-lived tax on soda applied to beverages sweetened with ingredients other than sugar cane,³⁶ and the international discussion that ‘a sugar tax was a good idea’ [Interviewee P-015]. Selecting a *specific excise tax* instead of an *ad valorem* tax was decided by observing that, in the Mexican market, soda prices did not increase according to the volume.³⁷ Hence, applying a value-added tax would not discourage the consumption of large volumes. The respondent elaborated:

If you put a percentage tax on it, you do not punish these high-volume presentations to the same extent as those of lower volume. In fact, you even make it more attractive to buy a three-litre coke, and it is something we wanted to avoid. That is why it was decided that it was a non-percentage but fixed quota tax, right? And the peso per litre roughly equalled ten percent of the average price per litre in the market [P-015, Government technical areas].

Although divergent views existed between the health and economic stakeholders on how the idea emerged and how the tax was designed, a point of agreement was the vital role health advocates played in increasing public support. Once the federal government had adopted the idea of a tax, health researchers continued to welcome international experts and policymakers to discuss global efforts for the prevention of obesity, to disseminate their evidence, and shape the design and implementation of the tax in Mexico:

When the federal government adopted this policy, we were carrying out many forums, not only with politicians but academics and with the press to propose the tax. We brought a lot of international experts. We brought them to two forums at the ITAM. People from Latin America-. An extensive network in favour of obesity policy was created, actors from the Ministry of Education and Ministry of Health from other countries came to present what has happened in other countries, what they are doing. And there was a call to the government to implement policies [P2-21, Health researcher].

³⁶ In 2007, the tax was eliminated from the federal income law as it favoured national industry in contravention of the General Agreement on Tariffs and Trade (WTO, c2007).

³⁷ In other words, per litre, it was cheaper to buy a 2-litre soft drink bottle, than a 600-millilitre bottle.

Between May and November 2013, the civil society organisations campaigned to make visible the content of sugar included in soft drinks and the harms of drinking soda, including the campaigns “Would you eat 12 tablespoons of sugar?” and “Don’t harm yourself by drinking sugary drinks.” They also exposed the interference of the soda industry in the policy process, challenging industry to discuss their arguments with reference to evidence. A public servant commented that it was surprising that civil society actors supported a tax. As such, having them to uphold the initiative was fundamental:

Almost nobody supports a tax, but there was an NGO called Food Health Alliance and Consumer Power, those two bought spaces, newspaper advertisements, they also went to the Congress, they also reached out to us, and I think that it was very relevant that there was a voice that was not ours [P0-15, Government technical area].

The discussion of the Fiscal Reform in the Congress took place during September and October 2013. Health allies adopted three tactics for defending the tax within the Congress during that period. First, civil society asked for an increase of the tax to 2-pesos-per-litre as a strategy to ensure the introduction of some tax measures, as opponents would accept a negotiated settlement of 1-peso-per-litre as the “lesser evil.” Second, the policy champion and Congress allies pushed forward the proposal of earmarking funds that had been left aside in the budget. Third, experts participated in Congress events to which they were invited by health allies disseminating evidence in what was seen by a health expert as ‘lobbying based on evidence’ [Interviewee P2-04].

By the end of October 2013, Congress approved the Fiscal Reform. The Sugar Tax was passed as proposed by the executive branch, with rates to be updated when accumulated inflation exceeded 10%.³⁸ Additionally, a transitory article was included in the Federal Revenue Law for 2014 to fund health-related programs. It mandated that an equivalent amount of the Sugar Tax’s estimated revenue should be assigned in the budget to programs of combat malnutrition and the treatment and prevention of obesity, as well as to improve access to drinking water in rural areas, schools, and public spaces. However, this action did not

³⁸ According to the last time the rate was updated.

represent *per se* the earmarking of funds, as in the view of the MoF, if the tax worked as expected (to decrease consumption), the amount collected would decrease over time, which would reduce funding for those programs financed by the tax.

5.3 Evidence for supporting the Sugar Tax and its dissemination channels

Presenting the Sugar Tax as a health tax with effects on obesity was possible by using local and international evidence at an early stage in the policy process. During the past two decades, health researchers had been involved in the study of obesity growth and factors contributing to its development, which gave the grounds for justifying the Sugar Tax. In 2008, an expert panel suggested that soft drinks and flavoured water were the least recommended hydrating options for the Mexican population.³⁹ Hence, experts recommended the discouragement of the consumption of SSBs by taxing them. A health expert with more than 30 years of experience in nutrition highlighted:

The idea of taxes comes from there, [the expert panel recommendation] [P2-04, Health researcher].

Together with the high level of soda consumption and tax recommendations, it was necessary to estimate the elasticity-price of sugary sweetened beverages and cross elasticities.⁴⁰ In 2012, health economists from the INSP began to model the impact of price changes of SSBs and other food products on consumption, obesity prevalence, and tax revenue, using data from the National Households Surveys produced by the National Institute of Statistics.

Researchers found that price changes were associated with a decrease in soda consumption. For a 10% tax, the litres of soda consumed per person would decrease between 10%-13%, and for a 20% tax between 20% and 26% [Document INSP001]. One participant outlined how the elasticity study using the

³⁹ Rivera et al. (2008).

⁴⁰ Elasticity and cross-elasticity are two microeconomics concepts that measure the impact of a price change on the demand of a good or service. Cross elasticity measures in the change on price in a good have an effect on the demand for substitute goods. For example, if an increase in the price of soda will increase the consumption of water. In 2008, researchers had estimated income elasticities and own-price elasticities for soda, available in Barquera et al (2008).

Mexican National Income and House Expenditure Surveys helped to show demand was elastic:

That document is published and was the basis to show that a drop in consumption was expected if the price of sugary beverages and different groups of sugary drinks increased [P2-17, Health researcher].

The study also showed that if the soda price increased, households would increase their consumption of water and milk too. It was also observed that soda demand in lower-income households and marginalised areas was more elastic. As such, they would experience a higher consumption reduction related to a price increase [Document INSP005].

A second group of researchers measured the effects of the price increase on health, using mathematical modelling and elasticity estimations to predict the impact on excess weight, obesity, and diabetes,⁴¹ and on diabetes and cardiovascular disease. A health researcher explained:

I was working afterward on models to predict the impact of public policy measures in terms of cases. Because one of the problems we had was that there were estimates of elasticity, right? About the changes in the consumption of beverages for each peso that the tax is increased. But saying that it decreases by 20 millilitres per every 10% is not necessarily easy to explain in population terms and for decision-makers, and we thought that it was very important to give a translation of the public policy to the number of cases and later to the savings in terms of health treatment [P2-23, Health researcher]

Estimations observed a reduction of 1% on excess weight and obesity prevalence in a 10-year period for a 10% tax, and a 2% reduction for the 20% tax. It would be associated with a saving of up to 13,000 million Mexican Pesos in direct treatment costs for this disease. For diabetes, a 20% tax will prevent between 800,000 and 1,275,000 new cases by 2030, with treatment savings accounting of between 6 and 51 million Mexican Pesos. Finally, in terms of tax collection, health researchers concluded that a 20% tax would contribute to a maximum

⁴¹ Preliminary results were presented in 2013 as observed in Documents INSP001 and INSP005. The informant P2-23 mentioned these studies were elaborated between 2014-2015.

fiscal revenue of 24,000 million pesos, in contrast to the 16,000 million that would be collected with a tax rate of 10% [Document INSP001].

Aside from tax-effects research, the INSP, in collaboration with researchers from the University of Michigan, also calculated diabetes incidence. On this point, only prevalence had been estimated:

We knew the prevalence of diabetes, in other words, we knew how many people were sick at [that] moment in time, but we did not have incidence data [...] [P2-23, Health researcher]

Another source of evidence relevant for adoption of the Sugar Tax was a book edited by members of the Mexican Academy of Medicine (Rivera et al., 2012), which stated their position on obesity and its prevention, issuing a series of public policy recommendations. For the preparation of the document, a health expert from the INSP coordinated a multidisciplinary team of 41 specialists from 15 institutions, who recommended multiple areas of intervention, including taxes on soda [Document SB013]. The book was publicly called the “White Book” of obesity.

And in this book, something that was key was that it detailed all the public policy recommendations that had to be implemented to address obesity, and within them, it highlighted the implementation of special taxes on sugary drinks, so I think that this was also a great source [P2-15, Civil society organisation].

5.3.1 Civil Society dissemination of evidence to the public and decision-makers

When civil society organisations were asked about the sources of evidence used, participants commented on journal access, and due to collaboration with the national institutes of health,⁴² they directly received the information of studies authored by local experts. The information available from national and international sources was then included in the documents handed to

⁴² The National Institute of Public Health and The National Institute of Health Sciences and Nutrition Salvador Zubirán.

policymakers but also made available to the public in the campaigns, social media, and mass media.

We [the civil society organisation] were there [at the Congress]. It was a matter of disseminating information to the public, let's say- positioning the issue on the agenda; we gave a lot of messages, conferences, and interviews. We gave infographics, campaigns to the public [...] first to raise awareness about overweight, obesity, and diabetes, and then about consumption [P2-27, Civil society organisation].

On the same collaborative approach to evidence dissemination, a health researcher commented:

That is the scheme that has worked, and there in the Sugar Tax [case] it was clear [...] we generated the evidence, they disseminated it [P2-04, Health researcher].

5.3.2 Academic events

Although health experts participated in events organised by the civil society organisations and allies at the legislative arena as part of the communication strategy defined in section 5.1, experts also participated in academic events. The INSP organised forums highlighting evidence for the introduction of the Sugar Tax in Mexico and inviting international experts to discuss the effects of consuming sugary beverages. Events included the symposium “Sugary beverages: effects on health and policies for their regulation” and the seminar “Generation of Evidence for the Formulation of Obesity Policies: The Soda Tax Case,” taking place in March and June 2013, respectively.⁴³ An interviewee commented:

I presented at the institute; there was a forum where evidence about what was being carried out related to the tax was presented. [It occurred] a year before its implementation [P2-17, Health researcher].

Academic events also took place outside public health institutes. For example, health researchers participated in events at the Autonomous Technological Institute of Mexico (ITAM, by its acronym in Spanish) and the Centre for Research

⁴³ Content documented in source INSP030 and INSP002.

and Teaching in Economics (CIDE, by its acronym in Spanish), two institutions publicly recognised by teaching and research in economics.

5.3.3 'We generate the demand'

Demand generation was the third channel of evidence dissemination identified in the interviews. One interviewee with more than two decades of experience in nutrition policies introduced the above phrase, explaining that demand generation referred health researchers themselves accessing decision-making arenas in order to gain policymakers' interest, a pathway that had worked for undernutrition policies. However, in the Sugar Tax case, direct demand generation (health experts in direct communication with decisionmakers) was not feasible because the Sugar Tax was a controversial issue.

Hence, in cases where decisionmakers seemed not to support the policy, such as the Sugar Tax case was, looking for access to the MoF and MoH occurred, but through the intermediation of health allies:

On the side of rapprochements with regulators, we, the political strategist, so to say, we open the door to civil society and the National Institute of Public Health, so that they are the ones who, in a certain way, bring the information and the data [P2-07, political strategist].

Health experts participated in disseminating evidence in alliance with civil society organisations and political strategists.

When we were trying to promote the tax, we did not only go with [the policy champion] we also went with the Ministry of Finance, with [public servant] and we presented the idea, we also went to the Ministry of Health [...] to show the White Book about why the tax was necessary, right? The think-tank group was there [...] [P2-21, Health researcher].

5.4 Opponents to the tax within the food and beverage industry

Health experts commented that the prevention of obesity had been a controversial topic within the government, whose priority until before the launch of the NANH had been to alleviate undernutrition. Part of the controversy derived from the access industry had to the decision-making sphere. Economic interests

(as perceived by participants) shaped the decisions of government. A health researcher commented:

Decision-making was not made technically; decisions were made according to industry interest. That was part of the problem; all the efforts and policies ended up in futile actions and grand failures [P2-18, Health researcher].

Hence, primary opposition to the Sugar Tax was from within the business sector, either represented by industry itself, by government actors with ties to the food and beverage industry, or by civil associations benefiting from agreements with industry. For example, regarding the support of the MoH for the tax, a civil society actor explained:

You usually think that because this is a health-related topic, the Ministry of Health should be on your side. Actually, it was not the case; by that time, there were declarations from the former Secretary of Health who had direct [links] to FUNSALUD, Nestlé, etcetera, and diverse businesses saying that the sugar tax did not work, that it was not needed [...] [P2-01].

Opponents of the Sugar Tax claimed that the tax will not solve the obesity problem, as its prevention was not attributable to a single policy. Furthermore, intervention needed an education component to help individuals make healthy food choices. An interviewee from a civil society organisation that disclosed links to the industry commented:

What we suggested was that people needed it to be explained why a tax was being placed on a drink that had more sugar than another [...] if you do not tell him what is happening and you just want to force him to do something that he does not understand why he must do it, it does not work. And if it works only because of an economic factor, there is no lifestyle change. He is not buying because he cannot afford it; it is not because he decided not to buy it to be in better health [...] [P2-39, civil society organisation].

Arguments on negative economic implications of the tax were also made by the sugar cane and food and beverage industries. Claims included that the tax was regressive - it would affect low-income households-, but also that the stigma associated with the tax could decrease the sugar demand, leading to a deterioration of the industry and job losses:

The application of this tax system is inequitable, since it will affect more the population with lower incomes, which is the one that consumes the most of soft drinks. Due to lower consumption, it will have a recessive effect on the sugar cane agribusiness. We estimate that the consumption of sugar by the soft drink industry, which currently reaches around 1.2 million tons, could be reduced by between 300 and 500 thousand tons, because this industry, when this tax is applied, could prefer to substitute sugar for fructose imported or focus more on beverages with non-caloric sweeteners. [Document DIP048, National Union of Sugar Cane Growers]

Industry attempts to lobby and encourage decision-makers' to reject the Sugar Tax were visible in public discussion spaces, including the public hearings convened by the Finance Commission at the Chamber of Deputies in September and October 2013. They were also active in mobilising a lobbying strategy in mass media, within Congress, and with the Ministry of Finance. An interviewee commented:

Once the [Fiscal Reform] was made public, the industry launched a very strong lobbying offensive in all spaces, buying newspaper advertising, going to the Congress, going to see us, bringing in so-called specialists, bringing in doctors or so-called doctors [P-0-15, Government technical area].

In the legislative arena, it was highlighted that the soda industry lobbied legislators by creating alliances with grocery retailers' representatives. They sought to convince the policy champion about the damage that the tax would have on sales and permanent detriment on their business.

A clear strategy from the soda industry was that they send us the retailer associations [...] in this case it was the association of retailers and the representative. Let us say, the president of that association had lost an eye because of diabetes, and he told the [policy champion] that sales were going to decline, that eighty percent of their profits came from soda [...] [P0-14, Legislative branch of government]

Health researchers also identified that industry used evidence contrary to that of national health experts, purporting that there was no relationship between the consumption of soft drinks and health risks. They also financed academic studies

with recognised local institutions to measure the economic impact on the job market and to obtain different demand elasticities.

Although the interviews did not further elaborate on examples of industry opposition to health evidence, documentary data showed that members of the tripartite alliance wrote dissemination blogs on their websites at the early stages of the Sugar Tax passage to counter claims made by the industry. Specifically, opposition maintained soda was a safe option for hydration and energy intake by the end of 2012 [Documents INSP038, AHN162].

Later, during the discussion of the Fiscal Reform in October 2013, the National Association of Producers of Soft Drinks and Carbonated Waters (ANPRAC) quoted selected paragraphs from the “White Book” of obesity, and cited lack of international evidence on the effect of a sugar tax on health, including absence of PAHO’s studies of the effectiveness of taxes in Latin America, to conclude that *‘there is no evidence that supports the effectiveness of a measure of this type, related to health’* [Document DIP061].

Opposition continued during the implementation and evaluation of the Sugar Tax. In 2014, the ANPRAC used the studies published by the INSP, ITAM, Colegio de Mexico, and the Autonomous University of Nuevo Leon to evidence a lack of impact on soda consumption linked to the tax. They argued also that the levy impacted the poorest households, and it was impossible to affirm that prices’ increase affected obesity levels [Document ANPRAC002].

In 2015, the industry lobbied to reduce the tax by 50% for those sugary beverages that contained less than five grams per 100 millilitres [Documents SEN178 and EPC181]. However, a series of activities, such as advocating for a tax increase and the earmarking of funds, was undertaken by the tripartite alliance members favouring the permanence of the tax as it had been implemented in 2014. A former government employee commented:

A few years later, a tax reduction was discussed in Congress as part of the negotiation for one of the [economic] packages, and I think that it was again very important for the NGOs to come out and make noise. In the end, under pressure, [the opposition] backed away [P-015, Government technical areas].

Increasing the Sugar Tax and the earmarking of revenue was on the political agenda annually from its implementation in 2014. No such increase had yet been approved when the case study was completed in December 2021. The following section presents the driving factors for adopting the tax during 2013-2014.

5.5 A new government and the fiscal reform, a pathway for change

The introduction of a tax on SSBs as a health tax had been discussed by Mexican health experts since early 2000 in international settings and proposed as part of the NANH in the 2006-2012 administration (also commented in section 5.2). Yet, the political conditions were not favourable for its adoption. By mid-2012, a new Federal Government and Congress took office, representing an opportunity for health advocates to mobilise the obesity prevention agenda and increase public interest. One political strategist commented:

We took the decision to start talking about the sugar tax exactly in a moment when the Mexican government was changing, right? precisely with the aim that in this new agenda, in the new government's agenda they looked at obesity [P2-07, Advocacy think-tank].

The tripartite alliance gained the support of a policy champion during the beginning of the new legislature in September 2012. However, within the Senate, opposition to Sugar Tax Bill began immediately, initially from inside the policy champion's own party. Interviewees from the legislative branch commented that the food and beverage industry had direct links with Congress representatives:

Even in my party there was a person that represented the interest of the soda industry directly; she was the owner of a bottling company in one state, I am not telling you who, but she was personally the owner [P-011, Government legislative branch].

Despite Senate's opposition another policy discussion venue opened at the executive branch. The then recently elected President Enrique Peña Nieto from the PRI political party led the Pact for Mexico, which was a political, economic, and social agreement with the three main political parties to boost social and economic development amongst other action areas. The Pact laid the foundations for the Fiscal Reform, which consisted of a series of changes to the tax laws to increase revenue and reduce the dependence on oil revenues

(Senado de la República, 2014). As such, the Sugar Tax found a place in the Presidential agenda, an interviewee commented:

The administration starts in December of 2012, and it was established that the fiscal reform was going to be one of the reforms to carry out, and the main objective was to increase revenues [...] as part of this process all tax bases were reviewed, right? The possible tax bases, and which characteristics and effects these had. One that was very rapid and natural was the sugary beverages [P-015, Government technical areas]

The health advocates also noted the interest of the MoF for the Sugar Tax:

I continued with the bill, and that moment coincided with President Peña Nieto's inauguration, he made the Pact for Mexico, and among the reform, he will have to do, there was the Fiscal Reform. Then, Secretary [Luis] Videgaray looked for me and told me: We are interested in your tax [P-011, Government legislative branch].

However, health advocates observed that the interest of the MoF was motivated by higher tax revenues:

In the case of the Sugar Tax, [the Ministry of] Finance was the best of allies. Why? Because their eyes shone because there would be more economic income [P2-04, Health researcher].

The change in government also allowed the discussion of the Sugar Tax with the MoH, which incorporated the tax as a policy within the NSAOOD, the action plan that will give continuity to the NANH (see Chapter 3 for the context of obesity policy in Mexico). Yet, the MoH did not participate in advocacy, nor implementation of the tax, as was mentioned by the tripartite alliance members. Nonetheless, the MoH agreed with the health impact of the tax in discussions of the Fiscal Reform. The following excerpt captures the position of this ministry when asked how they participated in the tax's implementation:

When we were asked from the Lower Chamber, [...] how the Bill will impact if approved, we made a positive technical opinion [...] a percentage on caloric beverages will have a positive effect on health. Then let's say that the merit from this measure is to the legislative branch because it is the one that oversees the Federal Budget's approval [P2-25, Government technical areas]

The Fiscal Reform pre-condition for the tax to be passed was frequently mentioned during the interviews. However, participants also recognised that to achieve policy change, the need for public support for the tax was essential. Public support implies that in the case of failing to adopt the Sugar Tax, the government's public image would be damaged because the government did not support a public health measure. For the Sugar Tax case, public support was boosted through the tripartite alliance's advocacy and campaigns to raise awareness on the problem of obesity, soda consumption effects, and the need of the tax as a public health measure.

Arguments about the cost of damage to health that government had to pay converged with the evidence and activism of interest groups. So, there is a vision, let's say, a vision of the Neoliberal state that assumed that it could and should implement the tax [P-2-18, Health researcher].

5.6 Concluding remarks

This chapter explained the process of adopting the Mexican Sugar Tax and the role played by health experts and allies, identifying five themes that emerged from interview analysis and its triangulation with documentary data. The objective was to answer the research question: how do networks of experts participate in policy change for the prevention of obesity?

The first theme revealed that health experts participated in a tripartite alliance of health advocacy that designed an influential strategy to position the Sugar Tax on the political agenda 2012-2013. Within this alliance with well-defined roles, experts provided the evidence on the need and benefits of the Sugar Tax, whereas other collaborators created a political and communication strategy to gain support in the Congress and the mass public.

The second theme explored the influence of health experts in the design and implementation of the tax. It found that the first sugar tax bill of December 2012, aiming to increase prices by 20%, was created by health specialists aided by those in other areas of expertise. By 2013, the executive branch of the government adopted the health rationale of the Sugar Tax. However, technical areas within the MoF defined the rate and type of tax. As a result, the Fiscal

Reform passed at the Congress in autumn 2013, introduced a fixed quota tax of 1-peso-per-litre on SSBs.

Third, evidence to support the tax and dissemination channels shows that the national health community created a series of studies on the tax impact on SSBs' consumption, and on health. Evidence produced by experts was "translated" and disseminated by the civil society organisations to decision-makers and the public. Although other ways of dissemination, such as engagement in academic forums and accessing to the MoF and MoH also occurred.

Fourth, the food and beverage sector was the principal tax opponent. Its influence and power was noted at both the legislative and executive government branches. Industry representatives argued that there was no evidence of the effects of soda consumption on health, whereas, imposing a tax will damage the industry, the economy, and the poorest households. Fifth, despite the opposition, the Sugar Tax was approved by October 2013. The election of a new government and the pursuit of tax reform to decrease the dependence on oil revenues was suggested by interviewees as an enabler of change. An underlying pathway of public support was gained through the actions of the tripartite alliance.

Overall, results suggest that the adoption of the Sugar Tax was influenced by the participation of experts in diverse areas, forming a coalition of health advocates. Health experts participated as evidence providers of analysis using nationally representative data, measuring the impact of the Sugar Tax on consumption, uptake, and on health outcomes and revenues. Evidence was used by civil society organisations to raise awareness among the public, and by health experts and the MoF to present the tax as a "health tax." However, the MoF decided the type and rate of the levy considering soda market prices and prices per volume.

Bringing together pieces of the literature review and this chapter, the Sugar Tax case illustrates a policy area that did not follow an incremental path. Despite the precedent of a levy applied on sweeteners distinct to sugar cane (i.e., HFCS) in the period 2002-2007 to protect the Mexican sugar-cane market against sweeteners' imports enabled through the NAFTA (WTO, c2007; USTR, 2006), the discussion surrounding the Sugar Tax case as a health measure only began in 2012. Sharing the argument of Funke et al. (2021), the case illustrates that

experts are key players within coalitions, who act strategically to influence policy adoption.

In terms of evidence and experts' influence, the case illustrates that despite the fact that the health coalition were able to frame the Sugar Tax in the political agenda by accessing the legislative and executive settings and by producing a clear influence strategy, the tax type and level implemented is the result of other actors influencing policy design. Furthermore, in face of an opposing food and beverage industry, the use of evidence generated by health advocates was of political support for the MoF. Media campaigns for example, illustrate ways to affect the opposing coalition by creating public awareness and acceptance to a tax. For the framing perspective, this means that actions undertaken by health advocates contributed to give a meaning to a tax as a measure for health concern (Moerschel et al., 2022; Koon et al., 2016), an effect analysed by Carriedo (2017) in this policy area.

The broad context indicates also that the Sugar Tax discussion occurred in a period in which the president party held majority in Congress (which constitutes one of the two veto points in Mexican fiscal policy seen in Chapter 3) and had built broader support by creating alliances with the opposing political parties under the Pact for Mexico, which facilitated the Sugar Tax adoption. As the years passed, further attempts to approve a Sugar Tax increase (further examined in Chapter 7) have stalled, and the political agenda for the administration 2018-2024 does not include a Sugar Tax increase (López-Obrador, 2022).

The fight against obesity continues, as does the involvement of the health community, in attempts to promote evidence-based policies. The following chapter analyses the transition between FOPL systems, and particularly the adoption of the Warning System, implemented in 2019-2020 as a measure to promote better food choices. Chapter 7 will present a cross-case comparison of the involvement of health experts and allies in the Sugar Tax and FOPL systems policy changes drawing on the theoretical frameworks underpinning this study.

Chapter 6: Transition between FOPL systems

The labelling case is an important change, there is a whole combination of scientific evidence- there is very structured and very well organised participation [P2-18, Health researcher].

6.0 Introduction

In 2020, the Mexican government adopted a new FOPL system called the “Warning System” which displays on the front of the package of processed foods a series of warning symbols that alert consumers about the excess content of sugar, saturated fats, trans fats, sodium, and calories contained in food and beverages. This FOPL system also includes warning legends for products with added caffeine and artificial sweeteners to discourage their consumption among children.

The transition from the previous labelling system, the GDA, took almost a decade. Intentions to implement an easy-to-understand FOPL system were included in the two initial strategies targeting overweight and obesity: the National Agreement for Nutritional Health - NANH - (Secretaría de Salud, 2010) and National Strategy Against Overweight, Obesity and Diabetes -NSAOOD - (Secretaría de Salud, 2013), presented in Chapter 3. By 2011, the food industry had implemented the GDA as a self-regulatory measure. Three years later, it became the mandatory system without the academic community’s inputs, raising concerns among health advocates about the industry’s influence on shaping government policies.

Unlike the fiscal policy area presented in the previous chapter, the transition to the Warning System follows the incremental path noted by theorists of the policy process in late 1950s (see Chapter 1), as the change represented a modification from the GDA system. Furthermore, the health community has supported the adoption of this FOPL system, which would suggest a greater influence from experts and evidence on policy design.

This chapter present the results of the study into how health experts participated in the transition of FOPL systems, from the GDA to the Warning System. It is built

upon the five main themes that emerged from the thematic analysis approach described in Chapter 4 and are summarised in Table 11.

TABLE 11. Themes from the transition between FOPL systems

Theme 1 'We were a group of allies', health experts within advocacy networks
<p>Importance of Civil Society Organisations</p> <ul style="list-style-type: none"> Support and coalition building with and within the Congress Advocacy, campaigns and making visible the problem of the need of a new labelling Advocacy in Congress and events in parallel to the WS design <p>Presence of international organisations</p> <p>Creation of the law initiative</p> <p>Close collaboration of different actors</p>
Theme 2 Experts' influence in the Warning System process
<p>Inform advocates and decision-makers: designing the Warning System</p> <ul style="list-style-type: none"> Designing the Warning System Creation of the project draft with the regulatory authority Modelling to create the best nutrition profile Strategic grouping of experts Knowledge transfer, experience of other countries as relevant Experience in design and implementation in other countries Inspired in Chile but correcting some flaws <p>Defending and clarifying evidence</p> <ul style="list-style-type: none"> Experts as advocates
Theme 3 Evidence for the FOPL system's policymaking
<p>Evidence used</p> <ul style="list-style-type: none"> Evaluations of the GDA Studies on understanding and acceptability of different FOPL systems Studies on nutrition profiles for different FOPL systems Experts position document <p>Dissemination channels</p> <ul style="list-style-type: none"> Civil society as translators and disseminators of evidence and own studies Dissemination in events organised by CSOs and Congress Looking for access to the MoH and technical areas

TABLE 11. (Cont.) Themes from the transition between FOPL systems

Theme 4 A competing industry coalition	
Beliefs	<ul style="list-style-type: none"> Education, not banning foods Individual level interventions Violations to trade Economic cost associated to labelling No consensus in labelling design and different cut-off points Against sweeteners restrictions
Activities	<ul style="list-style-type: none"> Misinterpreting evidence Coalition between industries for representativeness in working groups Attempts to influence legislators during the law passage Campaigning Use of evidence on sweeteners and caffeine toxicity
Resources	<ul style="list-style-type: none"> Economic power and access to the political elite Access to evidence but of low quality and with conflict of interest
Theme 5 Pathways for change	
Change in government and the 'authorities in favour of a group of allies'	<ul style="list-style-type: none"> Government change and political will Access and knowledge demand
Policy-oriented learning and reflection	<ul style="list-style-type: none"> International and Chile's experience lesson-drawing Learning from other policy processes and evidence
Civil society campaigning	

The first theme described in section 6.1 stems from the idea that local health experts are part of a coalition of actors with a common interest in protecting human-, consumer-, and information rights. The data shows that a health advocacy group was formed by civil society organisations, a think-tank specialising in advocacy and political strategy, members of the Congress, international organisations, and local health experts. These actors participated in two interrelated processes that supported the implementation of the Warning System: the modification to the General Law of Health that occurred in the Mexican Congress from mid-2018 to the end of 2019 (henceforth, legislative

stage); and the amendment to the Official Mexican Standard NOM-051, that took place between August 2019 to January 2020 (henceforth, regulatory stage).

Section 6.2 examines the role of health experts in designing and supporting the Warning System. Findings suggest that the initial proposal for the FOPL system was developed by the INSP, based on the locally produced research on understanding and acceptability of FOPL systems, and the nutrition profile created by the PAHO. The Warning System's elaboration and defence required experts to produce evidence, including looking to the experience of other Latin-American countries and working alongside health advocates to combat the opposition of the food industry.

The third theme presented in section 6.3 explores the local production of evidence and its dissemination channels for policymaking. Different types of evidence were described, ranging from scientific evidence produced by the national institutes of health⁴⁴ to non-academic studies produced by civil society organisations. Data for this thesis suggest diverse dissemination channels according to the policy discussion arena. At the legislative stage, the main dissemination channels consisted of documents, campaigns, and activities produced by civil society organisations. At the regulatory stage, evidence was gathered or generated and used directly by the researchers.

The fourth theme outlines the strategies, resources, and beliefs of a competing group principally formed by the industry (section 6.4). Actors opposed to the measure favoured policy inertia on the grounds of costs associated with warning system restrictions, technical obstacles to trade, and violations to the CODEX Alimentarius. The Mexican case illustrates standard practices related to industry involvement in policymaking, such as elite-level lobbying and misinterpreting the evidence.

In section 6.5, the last theme discusses the pathways for change. Despite industry opposition, the transition to the Warning System is observed as one

⁴⁴ Participants did not rank the evidence such as in Evidence-Based Medicine "Hierarchies of evidence". Rather, as Parkhurst and Abesinghe (2016) suggest, diverse types of studies, including surveys and observations, can be relevant sources of evidence for the policy objectives. Although these studies do not necessarily fit the hierarchies of the evidence spectrum, the quality derives from the relevant research tradition.

where government positionality shifted towards evidence-informed policymaking. The establishment of the 2018-2024 administration and the appointment of new civil servants was perceived as the primary condition that allowed experts to become actively involved in policymaking. However, the implementation of warning systems in some Latin-American countries, and the evidence emerging around their use, provided lessons for policy design in Mexico, shaping the preferences of health advocates and the government for a similar FOPL system.

The chapter concludes with a discussion of the main findings, and links to previous chapters.

6.1 ‘We were a group of allies’, health experts within advocacy networks

Analysis of interview data categorised actors into two groups of advocates, those that supported the implementation of the warning system and those who preferred a different FOPL system. In respondents that supported the Warning System, its implementation was framed as a matter of human, childhood, and consumer rights. Participants mentioned collaborations among diverse actors involved in policymaking for two parallel processes: changes in the General Law of Health that gave rise to the mandatory implementation of a labelling system that was easy to understand; and the modifications to the Official Mexican Standard NOM-051 for the display of the Warning System.

For the changes in the General Law of Health, the establishment of the LXIV legislature in 2018 represented an opportunity to put an easy-to-understand labelling system on the agenda. As such, a think-tank specialised in advocacy “Polithink” and a group of 10 civil society organisations called “ContraPESO” started to identify the legislators who could be willing to present a bill to modify the GDA, identifying a congressional representative from the Lower Chamber, who accepted to lead the initiative. These three actors formed the legislative advocacy group that designed the initiative with contributions from local health and nutrition experts, as it is mentioned in the excerpt below, and who carried out diverse activities to gain support from the Senate and the MoH and MoE.

[...] in conjunction with organised civil society with the support of independent experts, we elaborate this initiative that gathers the experience, the work, and the struggle that has been had for more than ten years. The initiative also includes

research recommendations such as the “Shadow report of civil society for Mexico”, which provides information so as not to make the same mistakes of the past; and the study “Front labelling system for food and beverages for Mexico: a strategy for making healthy decisions” prepared by a committee of independent national academic experts in which it is recommended to change the current labelling system, among others [Document DIP090, emphasis in original].

A member of the legislative advocacy group mentioned that it was essential to raise awareness among decision-makers and the public of the need for a warning system and the feasibility of implementing one. As such, the legislator who acted as policy champion facilitated two forums for evidence dissemination⁴⁵ within the Congress, where local and international health experts presented their positions, evidence, and experiences implementing the warning system, while civil society organisations’ campaigns made the importance of changing the FOPL system for a broader audience more visible.

We made a massive public campaign of clear labelling when the discussion of the theme was taking-off to make it recognised by the population, in general to make it more visible. It was about the labelling proposal, to start talking about this new proposal [...] [P2-36, Civil society organisation]

Although not directly leading the activities at the legislative stage, international organisations were also considered relevant players for supporting the initiative and the activities of the legislative advocacy group. For instance, it was mentioned that UN agencies addressed letters to parliamentary groups’ leaders and members of the commissions of health supporting the Warning System. At a later stage, for the modification of the NOM-051, the PAHO would define its role as for ‘*defending the scientific-technical validity of the profile*’ [Interviewee P2-13], used to design the Mexican labelling.

Local health experts from the national institutes of health participated in Congress forums and in the “open parliament” public hearings held at the Senate in August 2019. In contrast to civil society organisations who were observed active players at this stage, health researchers played supporting roles. For instance,

⁴⁵ Two forums were mentioned by members of the legislative advocacy group, ‘Policies against obesity in Chile: the best example to the Mexican Congress’ in October 2018 and ‘Obesity in Mexico- A solid Policy to Combat the Epidemic’ in February 2019.

researchers provided evidence at the request of the legislative advocacy group, but the leader of the investigators was the one who shared it. At the regulatory stage, researchers played significant roles in designing the regulatory instrument and presenting and defending evidence during the discussions of the NOM-051.

6.2 Experts' influence in the Warning System process

A clear legislative-versus-regulatory divide emerged when participants were asked about the stages in which they participated. At the legislative stage, the role of health experts was to inform advocates and decision-makers. This was done by providing evidence and technical advice to clarify key terms for the first Bill to modify the General Law of Health and, later, to support the Bill at Congress level events. Participation was mostly indirect, with evidence of health researchers mobilised through the links with civil society actors, and by the involvement of key academics at that stage.

A participant whose work was only within the legislative arena was asked about experts' participation in the initiative:

They had all the scientific and technical background, right? For example, when we needed to explain the labelling, the warning aspect, they had all the definitions about what it means, because initially the initiative that we presented- that we proposed, had a series of technical definitions, right? Also, with the sugar, they said: "well, do you know what? There is current confusion about sugars, then you have to add all types of sugars with their definition", those type of aspects they helped us with [...] [P2-28, Government legislative branch]

Amendments to the General Law of Health related to excess weight, obesity, and labelling on food and non-alcoholic beverages, resulted from negotiations between the legislative advocacy group and congress representatives who had previously presented initiatives to modify the FOPL system. Eight initiatives were considered the basis for the decree, including the one backed by the health advocates and the policy champion.

The decree was accepted unanimously on October 1st, 2019 [Document DIP015] and then published in the Mexican Official Gazette a month after. Changes to the law affected the regulatory instrument NOM-051 compliance with the mandate that the FOPL system '*must warn truthfully, clearly, quickly and simply about the*

content that exceeds the maximum levels of energy, added sugars, saturated fats, fats, sodium, and critical nutrients, ingredients and other determined by the Ministry [of Health] [Document DIP007].

6.2.1 Inform advocates and decision-makers: designing the Warning System

The participation of health experts was observed to have a greater influence at the regulatory stage because of the technical nature of the regulatory instruments.⁴⁶ Health experts, the civil society organisation Consumer Power, PAHO, the United Nations Children's Fund (UNICEF), and civil servants from the Health Promotion office from the MoH helped design the Warning System. This began, first, with the COFEPRIS creating a working document that served as the basis of the NOM-051⁴⁷, and later at the formal regulatory process that was led by the MoE from August 2019 to January 2020.

The group of experts, particularly researchers from the INSP, was fundamental for labelling design because of their technical expertise and long involvement in generating evidence. A participant from the regulatory authority mentioned:

I suppose that the group of experts had spent a lot of time preparing it [the initial proposal], because they have an exhaustive study of this. They have many studies, all the technical support that was needed to modify the standard [P2-20, Government technical area].

Designing the FOPL system included not only the selection of the octagonal-shape symbols, but the work behind it. This includes defining the threshold for critical nutrients contained in products, which would determine whether a product must display the warning stamps; the creation of the specific nutrient profile; and carrying out analysis of the Mexican population. A working group was formed at the INSP to undertake detailed work on NOM-051's attributes.

Different areas of expertise within the health community were represented in this working group. For example, there were those assessing the nutrient profile,

⁴⁶ NOM-051 specifies the characteristics of the information to be displayed in packaging.

⁴⁷ Internal working document not publicly available.

advertising regulations, and demographic characteristics that could impact the labelling use.

What we did here in the Institute was to create like a working group, a group that would influence in the part of evidence generation [...] [P2-11, Health researcher].

The work undertaken around the design of the Mexican Warning System consisted of modelling studies that assessed different profiles and cut-off points on food products and beverages available in the local market. The studies observed the number of products that could bear the warning system according to their critical nutrient content, allowing the researchers to determine which model *'was more or less restrictive, and which was more accurate in identifying healthy and unhealthy products'* [Interviewee P2-11, Health researcher]. Not only local evidence was used to determine the Mexican profile, but the best evidence available that, according to the researchers and international organisations, was PAHO's nutrient profile model, which is based on the WHO nutrition guidelines on sugar and other nutrients.⁴⁸

Experts also engaged in knowledge transfer to strengthen the Mexican Warning System. It was noted that the selection of a warning stamp, adding claims on caffeine and sweeteners, and modifying the warning words, resulted from the engagement with international experts. Although local health researchers have continuous access to international peers, for the policy debate there were also specific forums that enabled personal engagement with international academics. As the following excerpt illustrates:

ABC: To elaborate the nutrition profile, how was the work carried out? Was it only work carried out within the institute, or it required international experts' contributions? You mentioned PAHO's profile... but is there evidence from other countries?

P2-10 [Health researcher]: Yes, in 2019... I think it was in April, that there was a meeting with Latin American people [...] to know about the experience in other countries. Then first, we talked about the warning system design. For example,

⁴⁸ The profile was elaborated by an expert consultation group commissioned by PAHO, following the approved the Plan of Action for the Prevention of Obesity in Children and Adolescents in 2014. Mexico's health researchers participated in the expert group.

the advantages of using “High” or “Excess”, the advantages of including numbers, octagons... also there was a discussion about the nutrient profile. For example, the modifications for Mexico for some thresholds such as calories in beverages [...] and every change made was by recommendation of other countries, or by PAHO.

The case of Chile was relevant to discussions on the octagon shape warning stamp and when adopting the word “Excess of” instead of “High in.” Participants mentioned that evidence suggested that “Excess” communicates better the intention that consumers should avoid the product (see Figure 9, Comparison of Mexico and Chile’s warning stamps, for reference).

Yes, it is inspired by Chile. We made modifications on the word “excess” because after- well obviously evidence emerged, for example in Uruguay, they have all the evidence about why “excess” communicates better the message than “high”, because high, also can be interpreted as positive, right? Such as related to high in proteins or energy [...] [P016, health researcher].

FIGURE 9. Comparison of Mexico and Chile’s warning stamps



Note: In Mexico, from left to right, it reads: ‘Excess calories, Excess sugars, Excess saturated fats, Excess trans fats, Excess sodium’. The caption below endorses ‘Ministry of Health’. For Chile, ‘High in sugar, High in saturated fat, High in sodium, High in calories’.

Source: Secretaría de Economía (2019). PROYECTO de Modificación de la Norma Oficial Mexicana NOM-051-SCFI/SSA1-2010 (DOF 11/10/2019) and Ministerio de Salud de Chile (2019). Manual de etiquetado nutricional de alimentos. Segunda edición 2019.

Other changes considered were the adoption of warning captions for caffeine and sweeteners, further enhancing that product bearing the labels must be avoided for consumption by children (Figure 10, Warning labels and legends for sweeteners and caffeine). Experts recognised the use of international evidence

regarding caffeine and sweeteners to incorporate these warnings. One participant from a civil society organisation commented that the sweetener labelling was also based on Chilean policy feedback, where the industry reformulated the products towards the use of non-caloric sweeteners.

What we saw was like some distortions, right? Which allowed loopholes. For example, Coca-Cola without stamps, why? Because they had reformulated their product to only sweeteners and then these did not have a stamp, however, this did not mean that these were products that should not contain a stamp and that these were recommended for health [...] and now standardised, a product without stamps, is a healthy product [P2-37, civil society organisation].

FIGURE 10. Warning labels and legends for sweeteners and caffeine



Note: Upper stamp “Contains sweeteners- avoid in children” endorsed with “Ministry of Health”. The lower label reads: “Contains caffeine- avoid in children.”
Source: Secretaría de Economía (2019). PROYECTO de Modificación de la Norma Oficial Mexicana NOM-051-SCFI/SSA1-2010 (DOF 11/10/2019)

International experiences also provided insight into how industry blocked implementation. This allowed local experts to prepare to face such opposition at the working group’s meetings. A lead member of the research team mentioned:

My work also included preparing the team. We had a very important meeting with people that were involved in the implementation, in the design in other countries. Because, well ... we know that for example, the industry had a great interference in the GDA, actually they created the GDA, right? So, we had to be prepared for what we were going to face [P016, Health researcher].

Beyond the design of the system, the regulatory process consists of a series of steps that must be followed for a Mexican Official Standard to be published in the

official gazette, as presented in section 3.5.3. The standard's proposal for creation requires the formation of working groups to discuss the proposal and a public consultation stage. Comments are reviewed by the working group, and in cases that add to the standard, these are included at the final stage of publication. The following theme explains the participation of experts defending and clarifying evidence during the working group meetings hosted by the regulatory authority.

6.2.2 Defending and clarifying evidence

On August 14, 2019, the National Advisory Committees for Standardisation of the MoE and that of Regulation and Health Promotion of COFEPRIS initiated the working groups for the elaboration of the NOM-051 (Secretaría de Economía, 2020a). Unlike other official standards, the NOM-051 is a joint standard issued by the MoH and MoE. However, because of its commercial effects, it is led by MoE, which forms the working groups of various actors that may be affected by the regulation. For NOM-051's changes, the authorities listed the participation of 50 organisations, with a majority representation of industry, and a minority of academic, civil society, and international organisations.

In the working groups, actors proposed changes to the NOM-051's work document elaborated by COFEPRIS and the expert group but had to then negotiate the desired change. During the discussion, the roles of civil society organisations, health experts, academics, and international organisations were presenting, assessing, and defending evidence regarding the adoption of the warning system. Especially in cases when industry and its allies were fiercely opposed.

A UN agency participant mentioned that by the time the working groups started, civil society, international organisations, and researchers from the national institutes of health consolidated their roles in the regulatory process as a coalition. Academics who were not affiliated to the national institutes of health did not act as members of the coalition but were also in favour of the warning systems for the protection of rights.

Civil society organisations reviewed the evidence presented by academics and industrials and defended the Warning System using rights-based arguments and drawing on the recommendations of international organisations. They were also engaged in understanding and defining the rights to be protected with the new regulation, aiming to show fundamental rights are not granted with the GDA format.

UN agencies' position was that of supporting the validity of PAHO's profile, providing international evidence on the effectiveness of this labelling system, and supporting the need for regulation that protected infants and children. For example, UNICEF supported the permanence of the warning legend on caffeine and non-caloric sweeteners, as well as the restriction on using cartoons, figures, or gifts that attract children's attention.

Researchers from the institutes of health presented their studies and were active in assessing and countering the evidence presented by opponents, which they argued was of low quality and with clear conflicts of interest. One researcher mentioned that it was particularly difficult to defend the sweeteners stamp and the caffeine legend because of the contradictory evidence between the industry and academia. This latter point was also observed by a civil society member that was against the introduction of the sweeteners stamp.

They [the industry] had evidence on toxicology security, and we were focused on the lack of metabolic security, and that with more frequency there is more evidence that for example, sweeteners are not metabolically inert, right? Because obviously we found that those [studies] funded by Splenda obviously give favourable results. In addition, there is evidence that the studies funded by the industry or because the author has some relation with the industry show favourable results [P-016, Health researcher].

Something that we argued a lot at that table was: the use of non-caloric sweeteners has negative metabolic effects, but we said that according to the evidence also reviewed by other Mexican institutions, non-caloric sweeteners are safe, they are not carcinogenic [P2-39, Civil society organisation].

Public consultation allowed more time for commentaries by participants of the working groups and the public. The consultation took place between October 11th, to December 10th, 2019. In total, 5,200 commentaries were received, the most

comments received for any official standard (Secretaría de Economía, 2020a). Commentaries were sorted and grouped by the regulatory authorities and reviewed by the working group in a second round of meetings.

Participants highlighted that all changes to NOM-051's proposal either discussed directly by the working group participants or coming from the public consultation were accepted by the technical authorities only if there was "a consensus based on evidence."⁴⁹ However, for the health researchers reaching a consensus in the working groups was very important because elements with no consensus were then voted by government-appointed regulatory committees, who may not have technical expertise on the contents of the NOM-051. According to a participant from the regulatory authority the caffeine and the sweeteners' inclusion in the warning system were the two key aspects that did not reach consensus and were voted on by the committees.

The Modification to the NOM-051 was approved on January 24, 2020 (Secretaría de Economía, 2020a), and published in the Official Mexican Gazette on March 27th, 2020. In contrast to the Project of NOM-051, the number of warning stamps went from six to five (Figure 11, Warning system stamps), and the stamp on sweeteners became a warning legend (Figure 12, Warning system legends). In general terms, the publication of the NOM-051 was seen as a triumph of the scientific evidence. Participants identified that the MoE played a pivotal role in mediating the discussions to ensure health advocates and industry voices were heard equally.

FIGURE 11. Warning system stamps

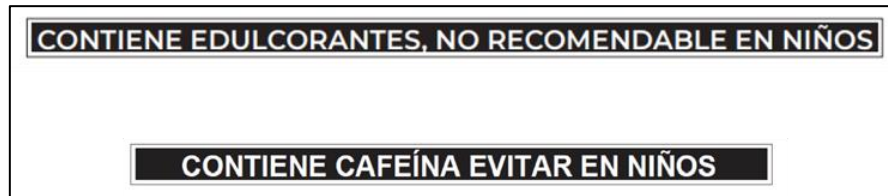


Note: From left to right, "Excess calories, Excess sodium, Excess trans fats, Excess sugar, Excess saturated fats". The caption below endorses "Ministry of Health."

Source: Secretaría de Economía (2020b). MODIFICACIÓN a la Norma Oficial Mexicana NOM-051-SCFI/SSA1-2010.

⁴⁹ According to the participants, the definition of consensus for the MoE meant to sustain the argument on evidence. A participant could disagree on any element, but if that element is not sustained by the evidence, it cannot be considered for discussion.

FIGURE 12. Warning system legends



Note: Upper legend reads, “Contains sweeteners- not recommended in children” endorsed with “Ministry of Health”. The lower label reads: “Contains caffeine- avoid in children.”
Source: Secretaría de Economía (2020b). MODIFICACIÓN a la Norma Oficial Mexicana NOM-051-SCFI/SSA1-2010.

6.3 Evidence for the FOPL system’s policymaking

The third theme reflects the use in the policy process of pieces of local evidence mentioned by participants to support a policy change. Arguments for the GDA’s modification include criticism that as a FOPL system it is difficult to understand, was created by the industry rather than on recommendations of the WHO and PAHO,⁵⁰ and that it was later made mandatory by the government without including the health experts’ advice [Documents SB010, DIP090]. In contrast, supporters of the Warning System emphasised that this labelling is easy to understand.

Participants spoke of the use of academic and non-academic sources of evidence to support an alternative to the GDA. In particular, the health and nutrition community mentioned qualitative and quantitative studies produced nationally.⁵¹ Whereas civil society organisations highlighted as evidence, not only studies produced by local experts, but research synthesis, reports, and analysis of food products either written or commissioned by them. UN agencies emphasised local studies as the basis for the modification of the GDA in the country.

GDA’s evaluations were frequently mentioned amongst the participants. Researchers had embarked on producing scientific evidence for obesity-related purposes since early 2000, but evaluations of the GDA format increased once the

⁵⁰ Specifically for sugar the GDA system implemented in Mexico considered an allotment of 90g, whereas the WHO recommends 50g.

⁵¹ Interviews did not explore the characteristics of evidence or what constitutes good evidence.

GDA was implemented as a self-regulatory measure. A participant studying labelling for over a decade commented:

From that time [GDA implementation by the industry] we started to generate information to evidence that the labelling that was displayed in the products is difficult to understand and does not give information to the consumers [P2-09, health researcher].

One study published in 2011, titled '*Revisión del etiquetado frontal: análisis de las Guías Diarias de Alimentación (GDA) y su comprensión por estudiantes de nutrición en México*' [Document MoH001], was frequently mentioned by participants and highlighted in documents. This study concluded that even nutrition students could not understand the GDA. A second source of evidence are the 2016 results of the National Survey on Health and Nutrition (Nutrition Survey) produced by the INSP for the MoH. In 2016, researchers included in the Nutrition Survey a series of questions to assess whether GDA and nutrition information displayed in the packaging of processed food was understood at a population level. Results from this survey wave found that the GDA system did not help the population make healthier food choices. Its publication in scientific journals provided further evidence to suggest the implementation of a FOPL system adjusted to Mexico's sociodemographic characteristics.

Experts also mentioned continuous work on alternative FOPL systems. This included the INSP- UNICEF report comparing the diverse labelling formats in four Latin-American countries and use among children [Document INS046], which incorporated the evaluation of a warning system. Also, there were studies applied to distinct populations and income groups in Mexico showing a better understanding of the Chilean warning system. Commenting on the production of studies based on the Mexican population, one interviewee said:

It was not until 2019 that three studies were published, uh- one literally, is about understanding, and two more qualitative, that are about focus groups, also about acceptability and understanding [...] to recognise that the warning labelling- let's say, there is a better understanding [of it] in Mexican population compared with other systems [P-016, health researcher].

In addition to the studies on measuring the understanding of different types of FOPL systems, research was conducted on the application of nutrient profiles to products available in the Mexican market. Nutrient profiling studies allowed researchers to identify which FOPL systems were more permissive and better identified unhealthy products. Other studies observed that products presenting health and nutrition claims such as “low calories,” “light,” “healthy,” had lower nutrient quality than the one associated with the claim, a fact that is ‘*not observable with the GDA*’ [Interviewee P2-24].

Experts’ documents constituted resources to support policy change. Participants mentioned two resources: one, a book edited by the INSP with collaborations of the National Autonomous University of Mexico and the Mexican National Academy of Medicine, regarding the status of obesity in the country and recommendations for prevention [Document INSP015]. Second, an expert-position document [Document EPC069] recommending the adoption of an easy-to-understand FOPL system:

The academic expert group recommends the implementation of a FOP that provides an easy way to quickly assess the quality of a product. It is essential that this FOP provides direct, simple, visible, and easily understandable information. (Kaufer-Horwitz, M. et al., 2018, pp. 479-480).

Results of studies were presented in academic publications and academic forums to disseminate to the national and international scientific community. However, for policymaking, four active channels of dissemination were identified. First, attending events at the Congress, either organised by the legislative advocacy group, or during the legislative process in the open parliament events. A health researcher explained:

ABC: For example, you mentioned that you (the research group) generate data about the quality of industrial- well... processed food, and labelling understanding, thus, is this information shown to the regulatory authorities, or-? Is it if the regulatory authority requests it? Or the Deputies chamber if they want to have this evidence?

P2-09: We participated in events at both the lower and upper chambers when we presented the results of investigations, uh- well... of course we presented all the information in various congresses, the idea is trying to generate the evidence but

also showing it, right? To show what type of labelling is easier to understand, then yes, it was done in diverse spaces.

The second channel involved sharing evidence with civil society organisations, who would translate it into non-technical language, thus making results available to the public and decision-makers who lacked technical expertise. One participant from a civil society organisation reflected on the long-term relationship between the Mexican Institutes of health, INSP and the National Institute of Nutrition (INCMNSZ, by its acronym in Spanish), and the civil society organisation regarding such evidence flows:

Basically, since I started to collaborate in [the civil society organisation], they had this close relationship principally with the National Institute of Public Health, with the National Institute of Nutrition, see? There are key actors there, researchers who are publishing and they share the publications with us. Or if we suddenly want to make a forum or a press release about a particular topic, we look for their advice and they tell us who [could participate] [P2-27, Civil society organisation].

This relationship between experts and civil society was also crucial for sharing evidence, advocating for change, and eliminating the conflict of interest in policymaking after the implementation of the GDA during 2012-2018 government administration (industry had greater influence on decision-making). A participant mentioned that civil society organisations were ‘*the voice of the academia*’ [Interviewee P2-15] at the National Observatory of Non-communicable Diseases (OMENT), a multi-stakeholder platform launched for monitoring the National Strategy on Obesity, and where discussions about an alternative FOPL system took place.

There is literature to support the possibility that the INSP and the INCMNSZ did not have permanent access to the OMENT, unlike the industry (Carriedo et al., 2021; Barquera et al., 2018; Carriedo et al., 2018). During my own study a participant explained:

We asked them [the researchers] for information, because they did not have permanent access to the discussions, we were like the voice of the academia trying to say: ‘this is published’, but in reality they [OMENT’s advisory board] never recognised the validity of the studies; only a few times were academics invited [P2-15, civil society organisation].

A third channel was the drafting of documents commissioned by the health and regulatory authorities. Participants mentioned two events where experts were asked to prepare documents. First in 2018, when the MoH requested the INSP form an expert group to issue a FOPL position paper, which was considered as an important basis of policy change, as observed in the legislative documents surrounding the modification of the General Law of Health. Second, in 2019, when the MoH and MoE mandated the creation of “the best FOPL system,” for which authorities welcomed health experts’ participation in the elaboration of NOM-051’s modifications. Two participants commented:

[Mexico’s] President’s and COFEPRIS’s mandate was: “We want Mexico to have the best labelling in the world and that it protects boys, girls, and adolescents.” With that idea, the researchers from [institution] started to evaluate what could be better for Mexico, also according to the evidence available to the Mexican population [...] [P2-24, Health researcher]

I think it wasn’t until 2019, let us say, that the mandate of the Ministry of Economy was: we have to make the best labelling system [...] and it was when we really started to do everything, see?’ [P2-16, Health researcher]

A fourth albeit less utilised channel was the mobilisation of the research community to gain access to decision-makers. One public servant when asked whether experts had been proactive in seeking access to COFEPRIS,⁵² or whether the Commission had sought input on proposals, commented:

I think it was the expert team who reached out to the [regulatory authority], they made their proposal and presented it. We reviewed and analysed it, and obviously there was an interest on the side of [the regulatory authority] to modify that official standard, right? Hence, from that moment ... everything started, we started to work on it [P2-20, Government technical areas]

For evidence mobilisation for authorities at the regulatory stages, the strategies of key actors were important. Specifically, health participants recognised the role of a knowledge broker who was the closest link to key stakeholders and formed a group of health researchers within one of the national institutes of health to provide the evidence for the regulatory process.

⁵² COFEPRIS is the Mexican equivalent to the US’ Food and Drug Administration.

6.4 A competing industry coalition

For the discussion and implementation stages, interviewees highlighted that industry, civil society groups with links to the industry, and some members of the legislative, formed an opposing coalition. At the legislative stage industry was perceived as a powerful actor attempting to shape the policy agenda by using strategies including direct lobbying with the political elite. A participant involved in the entire legislative process recounted that industry undertook activity to convince legislators to vote against the modifications to the General Law of Health. For example, the Coca-Cola Company invited the policy champion to a personalised meeting to talk about the company's plans for the Champions' constituency. Instructed by Mexico's president, the Ministry of Interior called a meeting with the members of the Health Commission from the Lower Chamber to hear the industry position.

Some congress representatives from the Lower Chamber (Deputies), and a larger number of senators, were also mentioned as opposing actors. One interviewee from the legislative branch highlighted that deputies boycotted the initial FOPL bill's first discussion, and by the instruction of a congress representative close to Mexico's president, a transitory article was promoted '*to stop the [warning system] labelling*' [Interviewee P2-28]. This transitory article proposed the creation of a multidisciplinary team formed by deputies, industry, and academics to design the FOPL system, thus exceeding the scope of legislative powers and guaranteeing the participation of the industry in policymaking.

Also, participants noted increased industry access in the Senate. For instance, Senate Health Commission's president invited the industry to the open parliament forum, where some senators asked Senate '*not to undermine industry*' [Document SEN003] and to better promote a comprehensive strategy for the promotion of public health.

At the regulatory stage, the private sector was invited into discussions around modification of NOM-051, acting as individual companies or as members of industry associations. Participants noted that there was a lack of consensus about alternatives to the warning system and cut-off points. Some industry

members wanted to replicate the Chilean labelling, whereas others argued for the traffic light system or a Canadian format.

The private sector maintained that modifying the labelling would have economic impact. These costs would be associated with job losses and in-stock product re-labelling, affecting also small and medium enterprises. In addition, some of the new restrictions, such as eliminating cartoons on packaging that contain nutrition stamps, violated intellectual property, industrial property and would represent technical obstacles to trade.

A participant from a civil society organisation with links to the industry, commented that education campaigns and interventions at an individual level were necessary for any FOPL system to work, otherwise banning foods through the warning system would not lead to a healthier lifestyle, and would even confuse the population.

It is true that the other labelling was confusing; we agree on that. However, even that labelling could be used with education campaigns that ultimately force you to see the back labelling and to say: this is the content of the product, these are the ingredients, these are the nutrients. But we are facing a population that does not understand what nutrients are, that does not understand what calories are, neither total fat, trans fats, carbohydrates, and sodium [...] It is not helpful to warn them [population], you must warn them about what, why and how [P2-39, Civil society organisation].

The private sector presented evidence at the working group meetings as requested by the MoE. Information included commissioned studies and evidence produced locally and internationally. However, Warning System's advocates noted the misuse of evidence and misinterpretation, including misquoting, selective quoting, or distortion of evidence. A researcher gave an example of how industry distorted studies produced by the INSP which finds that the GDA is difficult to understand:

For example, there is a study here in Mexico that resulted from the 2016 National Survey on Health and Nutrition; this survey was used to assess the national strategy of obesity that included the GDA [...] but well... they [the industry] modified the data, they changed the numerator to obtain a different proportion,

something like the seventy percent of the population uses it [P2-10, health researcher].

Another participant, when asked what evidence presented the industry against the use of PAHO's profile commented:

I would say that practically everything that was presented as evidence to go against that [PAHO's nutrition profile model], were studies that could not be said to rule out a conflict of interest and were paid by the industry. Obviously, the results did not coincide with other sources' results, for example from the Institute of Public Health or others that we had [P2-13, International organisation].

A participant from the regulatory agencies noted that industry was also very active and provided some comments that added further details to the NOM-051 modification. For example, references to the CODEX Alimentarius, nutritional declaration's font size, and adjustments in allergen declaration's format.

6.5 Pathways for change

The change from the GDA towards the Warning System has been described as a long process in which health allies, namely health experts and organised civil society, have engaged in diverse and continuous strategies. First, to implement a FOPL system different from the GDA and, second, to show that the GDA is not an appropriate system for the Mexican population. This final theme builds on participants' responses when asked what factors contributed to implementing the Warning System. Participants identified three pathways for policy change: government change, learning and evidence generation, and the continuous campaigning of civil society organisations.

6.5.1 Change in government and the 'authorities in favour of a group of allies'

The establishment of a new government was observed as a factor enabling policy change given that the previous government allowed industry participation in the obesity policy arena. Participants from health research and the governmental-technical and administrative areas mentioned that in the previous obesity prevention strategies, the industry was invited to discussion groups formed around the themes covered by the obesity strategies. Something similar occurred in 2014 for the establishment of the OMENT, the advisory body created to support

the evaluation and impact measurement of the policies associated with the national strategy against obesity and diabetes.

The implementation of the GDA, a labelling supported by the industry since middle 2000, as a NOM without the formal regulatory process was also mentioned. Interviewees involved in regulatory matters during the GDA integration into the NOM-051, saw that the decision to implement the GDA as mandatory regulation was taken by a small group of policy actors without following the formal regulatory process times and procedures. This FOPL system (the GDA) was implemented first in a Guideline [Document SB020], a legal instrument that later facilitated the transition to the NOM-051.

However, the 2018 Mexico's presidential and Congress elections were won by of the centre-left MORENA party, a political party that campaigned to fight corruption and to establish a new relationship between the government and the industry.⁵³ For an interviewee that proposed the traffic light system as part of the comprehensive obesity strategy between 2013 and 2014, the new party ideology was an enabling factor for the Warning System to be passed at the Congress, previously industry had significant influence. This view was also shared by a Congress interviewee who had participated in the recent policy passage.

Civil service appointments mirror the change of administration in this regard. Appointments to powerful positions at the MoH and COFEPRIS were identified as relevant in the support of the implementation of the Warning System. Civil servants were recognised to be more conscious and aware of the obesity-related issues, and in favour of the labelling change.

With the change of government- with the arrival to the Ministry of Health of [public servant] it was very clear that this was going to change in Mexico. [The public servant] was not going to allow public health policy to have conflict of interest or allow the industry to participate in decision-making. As such, that is when the whole panorama changed [P2-27, Civil society organisation]

⁵³ According to party's Principles Declaration and Statute, available at its website Morena.si. Green-Pedersen and Mortensen (2013, p.168) sustain that 'the color of the government has surprisingly little effect on the policy agenda of modern governments.'

In addition, ministries that were not aware of the health problems in previous administrations now embraced the Warning System. For instance, participants commented on the support from the MoE and the Ministry of Agriculture:

[Government's] Interests have changed. Unfortunately, in the past, the industry had a lot of power. It was very difficult to make a modification [to the labelling system], sincerely. This costs a lot, because even the Ministry of Economy itself... I mean, it is the first time that we work with the Ministry of Economy towards the same interests [P2-20, Government technical area]

[Public servant from the Ministry of Agriculture] was an actor that although not so involved, when knew about what we were promoting, made statements in our favour [P2-28, Government legislative branch]

The role of the MoE was identified as very important by the academic and civil society actors. They suggested that despite its mediator role, the MoE had a strong health agenda. MoE's request that changes of the NOM-051 be based on high-quality evidence sources, focused working groups on a technical level, and enabled health researchers and advocates to be more influential

Something that was done exceptionally well [by the Ministry of Economy] was asking that all the arguments should be based on evidence. That was key because, for example, that was not seen at the OMENT [...] That allowed us to move forward because there is a lot of evidence about all the things approved in the [NOM], whereas industry's arguments were focused on technical obstacles to trade, to commerce- not scientific arguments, but legal ones [...] then I think that the moderation was a factor that allowed academics to be heard [P2-15, Civil society organisation].

The change in government also enabled health advocates to access the political arena. On the one hand, a civil society actor and a member of the Congress highlighted that the legislative champion welcomed comments and advice from the health advocates for the proposal and enabled the participation of academics in the forums held at the Congress. On the other hand, health advocates participated in the working groups created by COFEPRIS and the MoE at the regulatory stage.

6.5.2 Policy-oriented learning and reflection

In Mexico, the aim of implementing a FOP labelling system to modify consumption of ultra-processed food is longstanding. However, early attempts to modify the GDA were not supported by a unified coalition. Rather, some participants supported a single stamp labelling, others the traffic light system, and some others implementing a labelling following WHO's recommendations on nutrient intake. The transition to the Warning System is supported by the local evidence production, which found that the GDA is difficult to understand in contrast to alternative formats but was also informed by the implementation and effectiveness experience of other Latin American countries.

Documentary evidence suggests that after the implementation of warning labelling in Chile in 2016, organised civil society advocated for the application of a similar system in Mexico. Whereas UNICEF and INSP (INSP, 2016, p.24) suggested the application of FOPL systems in the Latin-American region, supported by 'scientific authorities and health institutions, following the example of in Ecuador and Chile'. As one respondent from the organised civil society commented, the idea of advocating for the Warning System derived from evidence concerning its effectiveness:

In 2012 we did not think about the warning system; we talked about the traffic-light system, because it was promoted at Consumers' International, and we did not know the warning system... but then studies were carried out and evidence emerged that mentioned that the warning system was the best one, then we changed it [the strategy] [P2-27, Civil society organisation].

The Latin-American experience also helped health advocates and academics to draw lessons when creating the Mexican system and was relevant for shaping the preferences of the regulatory authorities. Two health researchers outlined that the mandate of the MoE and COFEPRIS was to design the best FOPL system and that '*it had to be better than the Chilean*' [Interviewee P016].

The experience accumulated by both civil society and academics throughout the years in advocating for GDA's modification and work in other obesity policy areas allowed actors to counteract industry opposition. One participant from a civil society organisation commented that advocacy groups learned about the industry

strategies from their participation in the Sugar Tax passage and the involvement in the OMENT, which prepared them for the opposition faced at the legislative and regulatory stages. One researcher also commented that previous experiences in the implementation of the guidelines that prohibit the sales of processed foods in schools, familiarised academics with the regulatory process.

6.5.3 Civil society campaigning

Civil society campaigns were also crucial for attaining policy change. Researchers, technicians in government, and members of non-government organisations mentioned that throughout the years, social campaigns helped to raise awareness of the problems with the labelling design among the decision-makers and with the broader public. Since 2012, civil society organisations have denounced labelling irregularities, industry intervention in the obesity prevention policies, and have presented legal suits against the GDA.

In July 2019, the civil society group's umbrella organisation Food Health Alliance launched the campaign "We demand clear labelling to protect the health of our children"⁵⁴ with the objective of showing why the GDA does not work and how a warning labelling contributes to making healthy decisions. The campaign included radio, billboard, and social networks advertisements, as well as the launch of a website that was still active by the time the analysis was conducted in July 2021. The website contains sections explaining Mexican labelling's elements, nutrients included in the warning stamps and their interpretation, industry myths regarding this FOPL system, and the evidence behind the system.

6.6 Concluding remarks

This chapter presented the case study findings on the involvement of health experts in the policy change of FOPL systems in Mexico. The 2019-2020 FOPL system change is a two-staged process that included the modifications to the General Law of Health and the modification of the Official Mexican Standard NOM-051 that include the use of warning symbols in processed and packaged food and beverages.

⁵⁴ In Spanish, '*Exijamos etiquetados claros para cuidar la salud de nuestros hijos.*'

Results for the first theme highlighted that health experts took part in a group of allies advocating the implementation of the Warning System. This alliance or network of experts, which resembles an advocacy coalition, was formed principally by researchers from the national institutes of health (INSP and INCMNSZ), civil society organisations, key members of the Congress upper and lower chambers, the ministries of health and economy, and UN agencies, demanding the protection of human-, information-, and consumer rights. These actors participated in the legislative (changes to the General Law of Health) and regulatory (modifications to the NOM-051) stages. However, civil society organisations and the policy champion had higher involvement at the legislative stage than health experts and UN agencies.

Evidence sources were used directly by the health researchers, UN agencies, and civil society organisations at the regulatory stage (second theme). The actors participated in working group meetings convened by the regulatory authorities for designing the Mexican Warning System. Hence, the adoption of this FOPL system is perceived as an event in which authorities were in favour of the health allies, and where evidence guided the decision-making process, despite the opposition of the food and beverages industry. According to findings in the fourth theme, the industry sector and its allies attempted to shape decision-makers' preferences, arguing that there would be economic impact, violations to trade, while also misusing scientific evidence.

The third theme explained the evidence generated for the Mexican case, its use, and diffusion channels. It was highlighted that the most significant body of evidence to advocate for the FOPL system change was produced locally by the national institutes of health. Its use varied at the legislative and regulatory stages. At the legislative stage, information from health researchers was translated by civil society organisations and shared with congress representatives and the public to raise awareness of the need for a different FOPL system. At the regulatory stage, PAHO's nutrient profile and the body of locally-produced qualitative and quantitative studies for Mexico's characteristics were used to elaborate on the national nutrient profile and NOM-051's modification draft.

The change of local administration in 2018 was perceived as a factor that contributed to the policy change and gave academics and civil society access to

the decision-making arena. However, the adoption of a similar system in Chile and the work carried out by civil society organisations in raising awareness of the need for an easy-to-understand FOPL system are conditions also highlighted by the interviewees.

Overall, findings from this case study demonstrates that experts are active players in the policymaking arena, as occurred also in the Sugar Tax case. They participated in disseminating information indirectly through the channels of evidence “translators,” and directly by engaging in technical meetings. For the latter, it was observed that government interest in adopting an evidence-based policy is a condition that facilitated experts’ access to the Warning System design, and ultimately to adopting a policy that mirrors the proposals of health advocates. The interviews also supported that government interests were shaped through policy-oriented learning and the continuous efforts of advocates to promote a policy change, which represents a virtuous circle for experts’ involvement.

From the theoretical propositions reviewed in Chapters 1 and 2, it can be observed that the FOPL systems case also represents an adversarial subsystem in which health advocates competed against the food and beverage industry. However, in contrast to the Sugar Tax case, the FOPL systems case, for the adoption of the Warning System deployed the instrumental- and learning-uses of evidence, implying the adoption of a policy aligned to health experts’ preferences. Weible (2008) point out that in adversarial subsystems, the instrumental use of evidence will be lower than in unitary and collaborative subsystems. In this regard, the case sheds light on the importance of contextual factors (i.e., shift in government administrations) and not only the level of conflict as the conditions of evidence uses.

The case also illustrates that when experts are invited to the discussion arena or, in the words of Löblová (2018a), when demand for expert input is enabled, the instrumental use of evidence and expert influence may follow. In this case, expert involvement is associated with a change in government, as an external factor that aligned the interest of government officials to those of health advocates.

Both in this and in the previous chapter it was found that health experts collaborated to influence the adoption of the two obesity policies by creating

alliances and deploying strategies to leverage allies' technical and strategic resources (e.g., evidence) and to set access to decisionmakers. The policy networks literature purports that policy is no longer made at the elite level but by the interaction of stakeholders looking to influence policy adoption. As such, in policy networks an important element is observing the types of interactions and resources flowing between network actors (Rhodes, 1990).

The following section formalises the analysis of networks of experts influencing the adoption of each policy. It does so by using SNA tools to map network members, identifying key actors, and explaining the strategies undertaken by the actors to influence policy adoption. A main contribution is also to explore whether networks collaborating to influence policy change have transformed over time by looking at organisation and individual level network interactions.

Chapter 7: Experts, networks, and collaboration ties over time

7.0 Introduction

Chapter 1 presented policy networks as those systems in which actors with an interest in shaping policy interact throughout the policy process. A key aspect of policy networks is the argument that actors within a network are in a constant exchange of resources, and their power to influence a policy outcome may vary according to the institutional context, types of resources possessed, and the strategies used to exert power (Marsh and Rhodes, 1992). For example, actors collaborate to increase pooled resources and gain power within the policy arena (Calanni et al., 2014).

In sections 5.1 and 6.1 in the previous two chapters, the results highlighted that to influence policy adoption health experts formed strategic alliances with other interest groups to capitalise expertise and look for access institutional venues (veto points) where decision-making occurs. In the Sugar Tax case (Chapter 5), participants identified attempts to access the legislative arena by building alliances with members of the legislative branch of government, who has been referred as the policy champion, and later by looking for access to the MoF, the entity overseeing fiscal policy. Similarly, in the transition from the GDA to the Warning FOPL system (Chapter 6), actors were active in cooperating to influence the adoption of the latter by acting at the legislative and regulatory venues. At the legislative level, civil society organisations are perceived as key actors influencing the process, whereas at the regulatory level health experts took a leading role.

Findings from the previous two chapters are indicative of the relationships between actors in the policy process. These relationships were further formally explored through SNA, as discussed in Chapter 4. By applying SNA, we can use the positions of actors (nodes) within a network to reveal those that play prominent roles for gaining access to discussion venues and influence policy adoption (Varone et al., 2017). It was also important to observe the configuration of actors in two periods to understand whether ties endured post-policy adoption. In other words, the analysis shows whether ties remain once actors have influenced or tried to influence the adoption of policies in an initial period. These

periods have been labelled t_1 in which the Sugar Tax and the GDA FOPL system were adopted, and t_2 , in which the Sugar Tax increase had not been approved but the Warning System was adopted.

This chapter is structured around three sections. Section 7.1 presents the whole networks identified in the two cases for t_1 and t_2 , their characteristics including the identification of the health-based alliances, actors, and institutions and whether ties remained between periods. The main finding suggests that organisations but not all individuals remain involved in the network between periods, also relevant ties for influence in policy adoption were absent in the periods when health influence was less perceived, or when policy changes aligned to health advocates' preferences did not occur. Section 7.2 explores changes in ego-networks, where the data appears to support the claim that if an individual remains affiliated to an organisation involved in the governance structure of the Sugar Tax or FOPL system, the ties between actors will be of a collaborative or co-working nature, becoming friendship ties if the actor left the organisation. A final section concludes with the summary and interpretation of key findings for this chapter, and their relationship to the previous two chapters, as well as with the research gaps.

7.1 Sugar Tax and FOPL systems collaboration networks

The results are divided into two subsections, with the first and second subsection presenting the whole network analysis of Sugar Tax and FOPL systems in the two periods. The third section contrast the changes to the networks between cases.

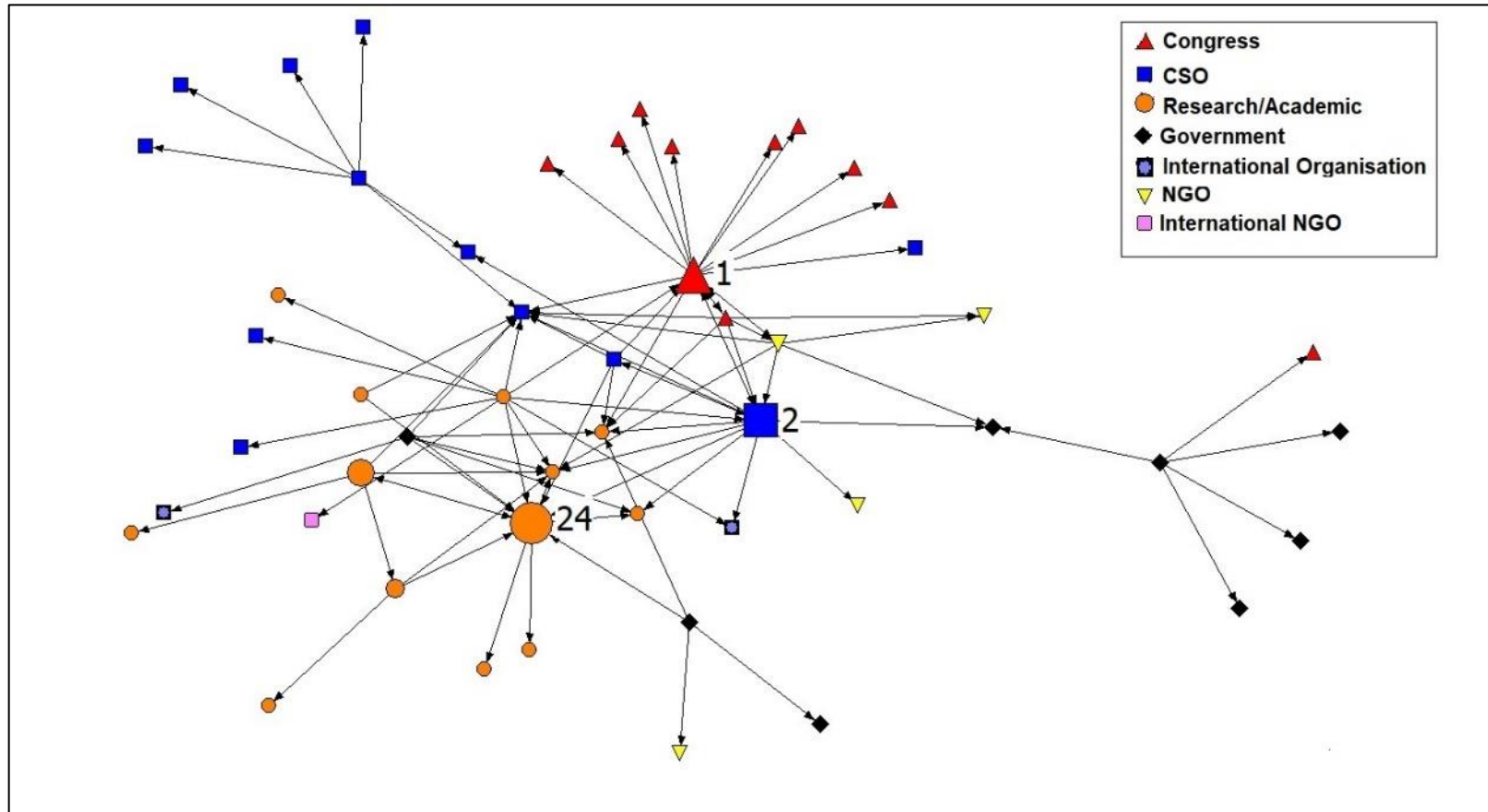
7.1.1 Sugar Tax collaboration networks

The network observed in Figure 13 (Network of actors that collaborated for the Sugar Tax adoption) represents the actors that collaborated for adopting the sugar tax in Mexico in the period 2012-2014. The network is formed of 51 actors from 7 types of organisations, integrated into a single component with 88 directed ties, and a low density of 0.035, which is 'the probability that a tie exists between any pair of randomly chosen nodes' (Borgatti et al., 2018, pp.174-175). This indicates that not all actors in the network collaborate or interact with each other

(Li and Huang, 2021) and, rather, resources such as information pass through key actors.

Nodes marked with the numbers 1, 2, and 24 in Figure 13 (Network of actors that collaborated for the Sugar Tax adoption), represented those actors with the higher betweenness scores. It can be observed that these actors belong to three distinct types of organisations: academia, civil society organisations, and the Congress, having different roles. For example, node 24 coordinated research activities in the areas of nutrition and tax impact but also had links to technical areas of government (black diamonds) and civil society organisations (blue squares). Node 2, held ties with researchers (orange circles), congressional actors (red triangle), and to the technical areas in charge of designing fiscal policies, which are the nodes on the right-hand side of the figure. This would suggest that node 2 played the role of knowledge broker as it connects scientists and decision-makers (Cvitanovic et al., 2017). Node 1 took the role of policy champion in Congress.

FIGURE 13. Network of actors that collaborated for the Sugar Tax adoption



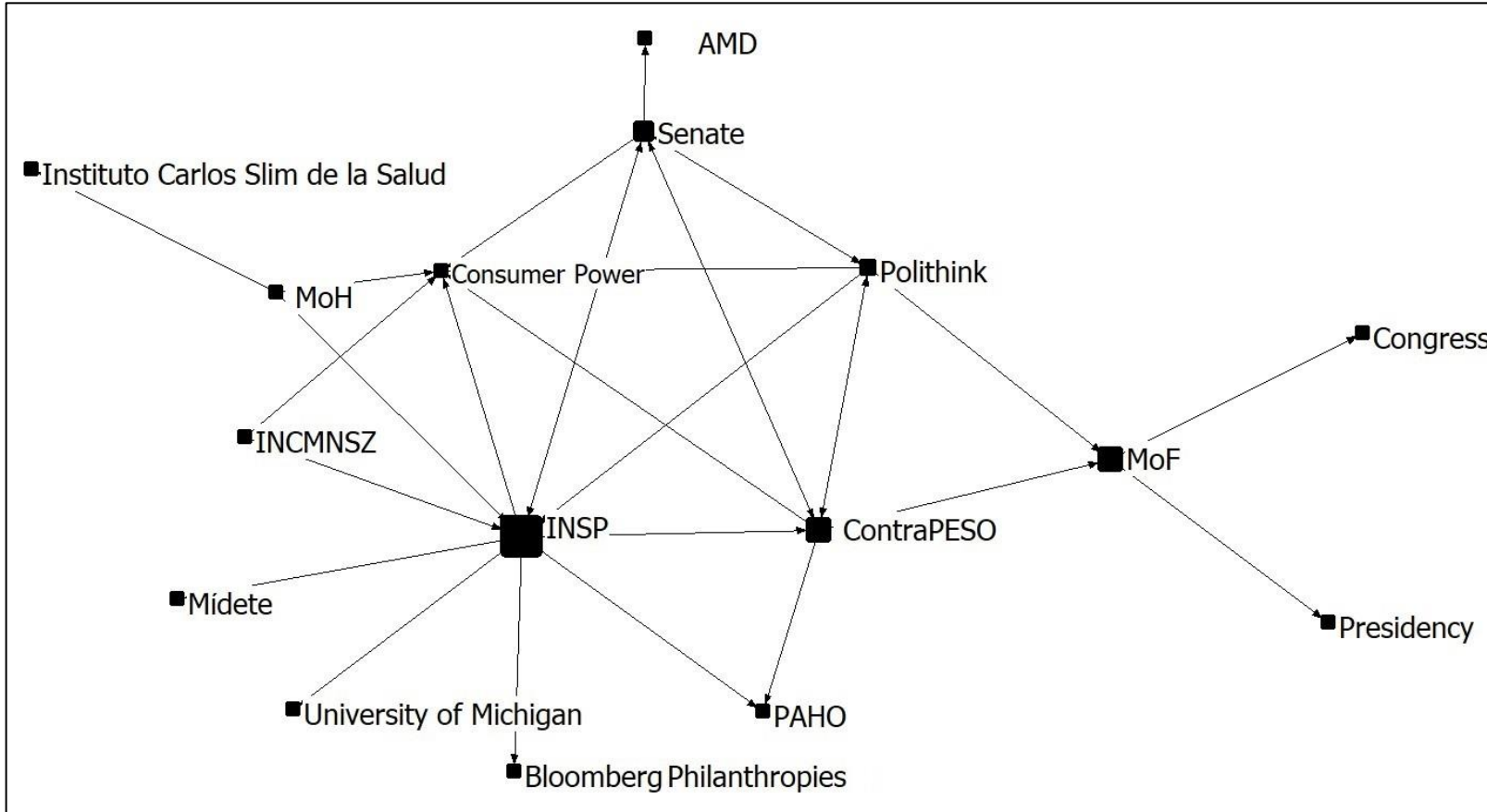
Note: Shape and colour represent actor category of affiliation; node sizes are weighted by betweenness scores (directed ties). Each node represents an individual who collaborated to influence the adoption of the sugar tax between 2012 and 2014. The direction of the arrows shows that these are directed ties.

When collapsing the nodes according to workplace, ties between organisations can be observed more clearly, as well as the importance of the organisations with regards to “collaborations to influence the adoption of the Sugar Tax.” In Figure 14 (Collaboration between organisations for the implementation of the Sugar Tax), a star-shape of nodes in the centre of the network represents the “tripartite alliance” presented in Chapter 5. As a network of actors, it based its influence strategy on the pillars of evidence, communication, and political strategy. In terms of brokerage, the INSP possessed the higher betweenness score, having links with most of the organisations involved in the adoption of the tax. However, ContraPESO was also in a privileged position for evidence flows as it was the link between health experts from the INSP and technicians from the MoF.

One important characteristic of the nodes on the right-hand side of the figure is the preference of a 1-peso-per-litre excise sugar tax, over the 20% ad-valorem tax that was proposed initially by the tripartite alliance members. In fact, the application of the Girvan-Newman procedure for community detection (or actors that are closely linked), explained in section 4.5.1, found that if key nodes were removed, the network would be divided into three communities (Figure 15, Community detection in the Sugar Tax collaboration network using the Girvan-Newman algorithm), which mirrors accounts given by the interview participants regarding policy preferences.

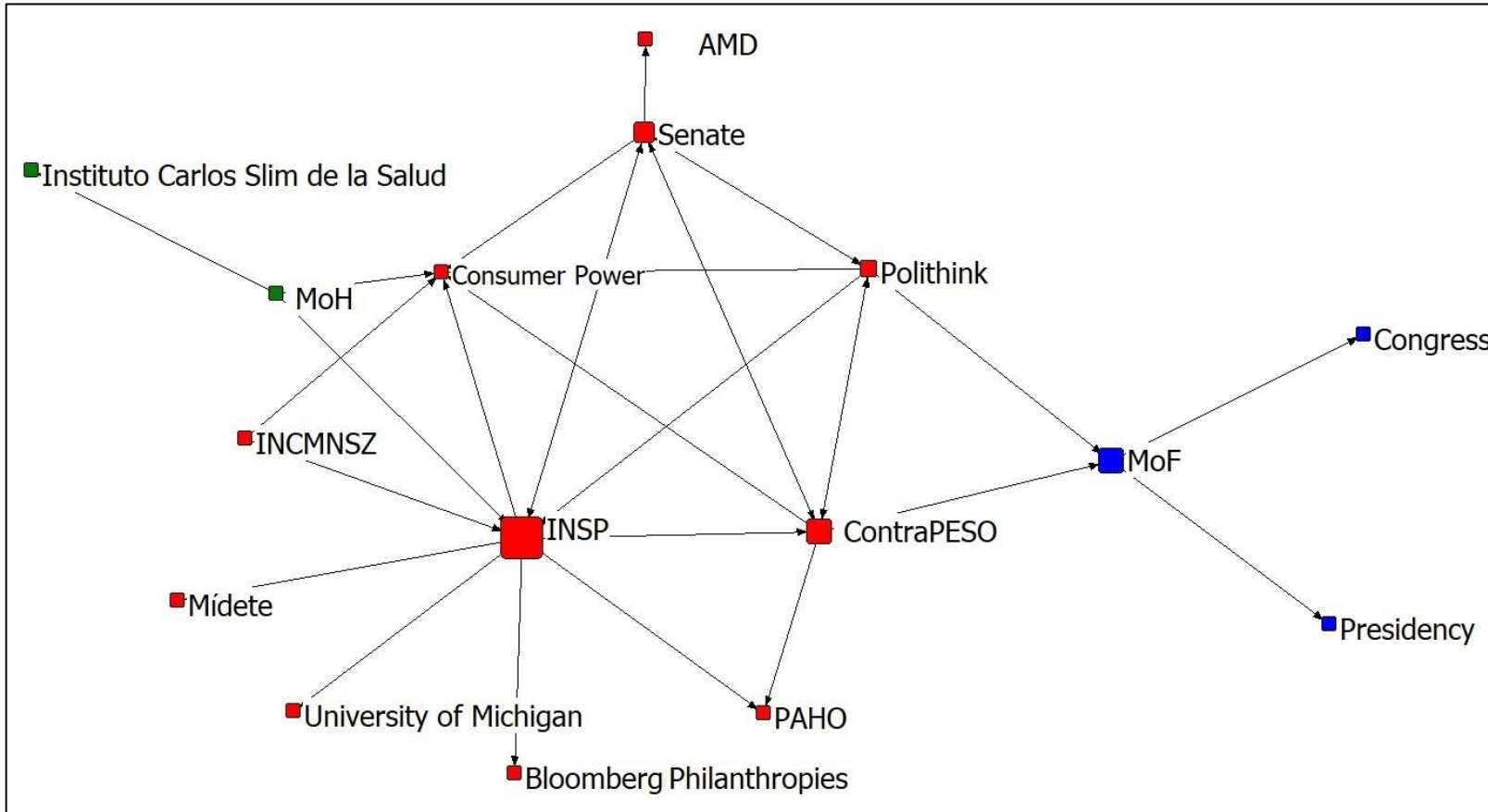
According to the interview data, and identified by the algorithm red nodes represent those actors that advocated for the 20% sugar tax, blue nodes those in favour of the 1-peso-per-litre tax, and nodes in green represent actors from the MoH and allies that considered the introduction of a sugar tax as a part of an overall obesity prevention strategy but who did not take an active part in supporting the tax. In terms of formal power (i.e., given by the Constitution), blue nodes have a greater power than the rest of actors, constituting veto points for policy adoption.

FIGURE 14. Collaboration between organisations for the implementation of the Sugar Tax



Note: Nodes weighted according to the betweenness score. Individual nodes were collapsed by organisation ($n=16$) according to the presence/absence of ties. The direction of the arrows shows that these are directed ties.

FIGURE 15. Community detection in the Sugar Tax collaboration network using the Girvan-Newman algorithm



Note: Colour represents the community to which the nodes belong. Partition with 3 clusters had the highest modularity score ($Q=0.214$). Self-loops removed. The direction of the arrows shows that these are directed ties.

It was noted by interview participants that the Sugar Tax's proposal and the evidence of its impacts on health and economy transited from the health-based community to the finance community, through the intermediation of ContraPESO:

ContraPESO opened a space and a direct communication channel with [the Tax Policy Unit from the MoF], who design and were the ones designing the content, or possible content of the fiscal reform [P2-01, Civil society organisation].

In the flow of information and collaboration to influence the adoption of the tax, the direction of ties is important (observed by the direction of the arrows in the figures). Whereas ContraPESO and Polithink named collaboration ties with the MoF in the sense that this Ministry showed openness to discuss the Sugar Tax, links were not reciprocal. MoF recognised that civil society organisations' activities were important for supporting the tax initiative, but the work to design the policy was internal. Collaboration ties were then mentioned with the Presidency and the Congress. No clear definition of collaboration was expressed between these actors, the MoF recognised the Presidency as an actor of power who, if they had not been in favour, may have impeded the passage of the Sugar Tax:

it had to be passed by the President, because he may have thought that we were crazy [P-015, Government technical areas].

The Sugar Tax collaboration network in t_2

Despite the Sugar Tax having been observed as an effective policy for obesity prevention by health experts and advocates, it continued to be contested. In 2015, it faced opposition from the industry, which attempted to cut the tax. Also, between 2014-2020, intentions to increase the tax at least to a 20% rate continued to be presented as initiatives in Congress. However, the transition to a higher or different type of tax has not occurred.

Figure 16 (Collaboration network to influence the permanence and increase of the Sugar Tax) presents the collaboration network for the Sugar Tax "towards" t_2 , as it was not possible to identify a coordinated strategy for a particular year.

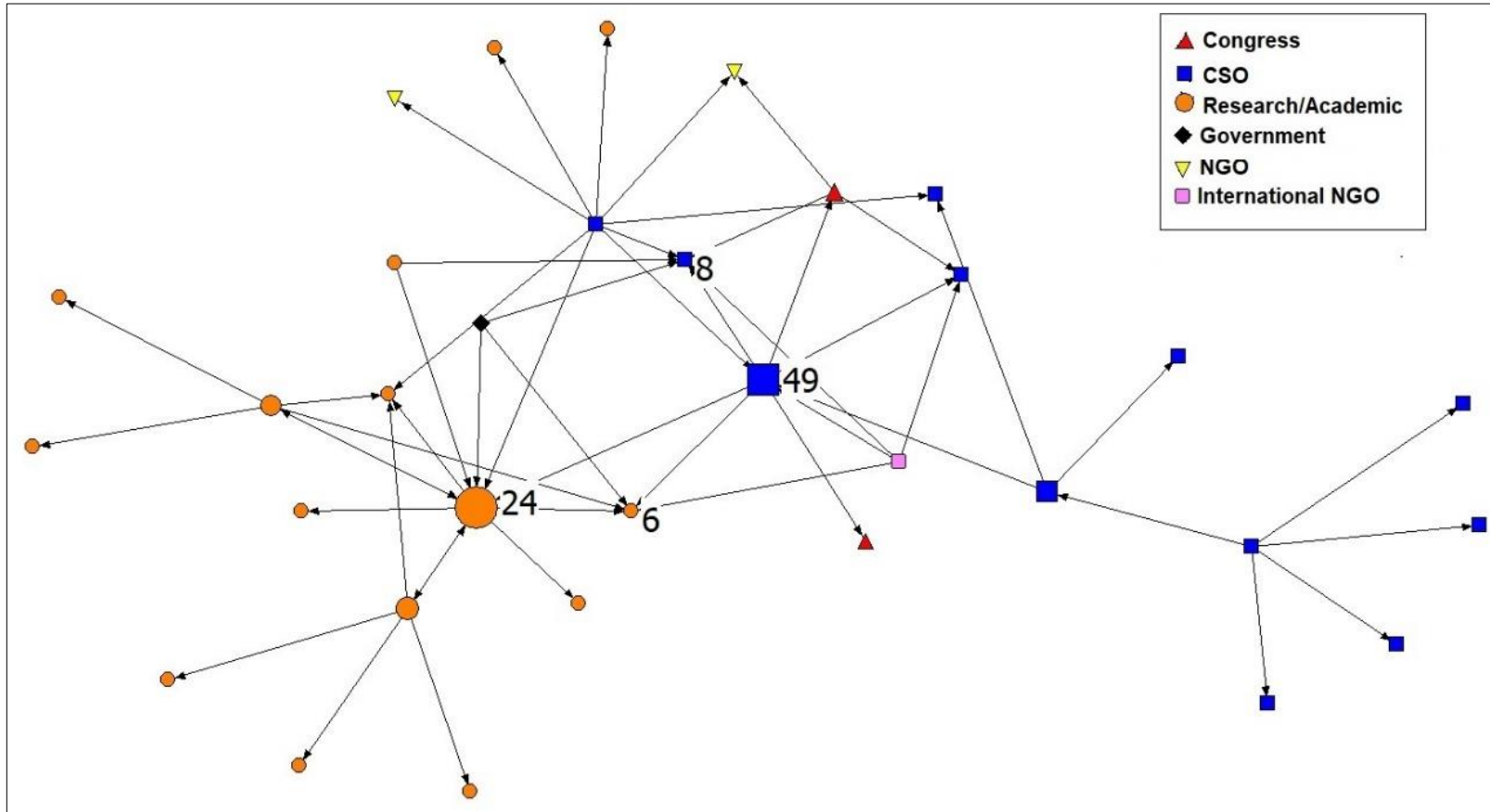
Rather, interviewees referred to the years that followed the implementation of the Sugar Tax in 2014 as a time for defending it from industry opposition, evidence generation (academia), evaluation (MoH), and campaigning (civil society organisations). For example, a participant from a think-tank explained:

Once the sugar tax was approved, we worked with the Institute to follow up the results to continue building arguments for the fight-, let's say that this fight is not over. In reality, we fight each year because every year the beverage industry looks to decrease the tax [P2-07].

The network is formed by 33 actors from 6 types of organisations, integrated into a single component with 51 directed ties, and a density of 0.048, higher than the network in t_1 . Node 24 remains in a brokerage position from within academia (orange circle), like node 49 from within civil society (blue square). In-degree centrality measures also highlights as popular in the collaboration network nodes 8 and 6 from civil society and academic sectors, respectively.

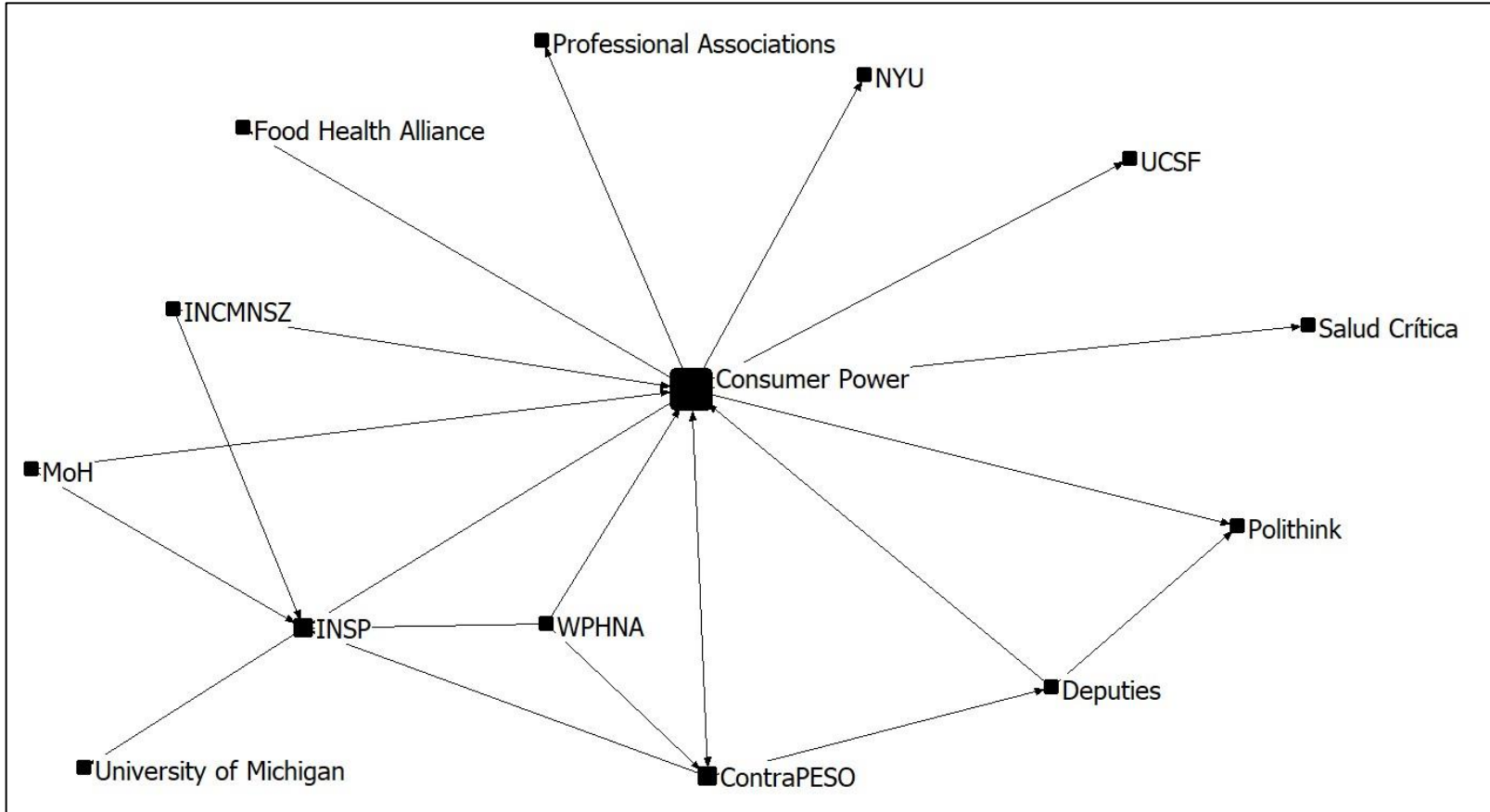
When collapsed by organisation, as it is shown in Figure 17 (Collaboration amongst organisations for defending and modifying the Sugar Tax.), Consumer Power becomes the central node, having direct links with all the nodes forming a star-shaped network. Members of the “tripartite alliance” remain in the network, but some ties are lost, such as the INSP Polithink found in t_1 . Also, no links were mentioned to the MoF and Presidency, which suggests this is a different type of network than the one observed in t_1 , as it is disconnected from relevant ties needed for progressing with the tax increase.

FIGURE 16. Collaboration network to influence the permanence and increase of the Sugar Tax



Note: Shape and colour represent actor category of affiliation; node sizes are ranked by betweenness measures (directed ties). Each node represents an individual who collaborated to influence the permanence or attempts to increase the Sugar Tax. The direction of the arrows shows that these are directed ties.

FIGURE 17. Collaboration amongst organisations for defending and modifying the Sugar Tax.



Note: Node sizes are weighted by betweenness measures (directed ties). Each node represents an organisation that collaborated to influence the permanence or attempts to increase the Sugaax. Individual nodes were collapsed by organisation ($n=15$) and the presence/absence of ties. The application of the Girvan-Newman routine found low partition measures ($Q < 0.1$), suggesting no split of the network according to Borgatti et al (2018).

Figure 17 of collaboration amongst organisations for defending and modifying the Sugar Tax, may indicate the importance of the civil-society organisation Consumer Power in keeping the Sugar Tax on the political agenda, as suggested by participants with regards to the role each organisation played in between the periods of interest. For instance, a civil society actor mentioned that throughout the years they have been involved in advocating for a tax increase:

We kept our eyes on the ball. In other words, since the tax was implemented, all we have been saying is that yes, it is a great success that we have this in Mexico, that we are the first country that has a tax of this type at the country level, I don't know- but we always say that it is needed to make it 20% to have better effects [P2-27, Civil society organisation]

Whereas health researchers have continued generating and updating evidence within their organisation, maintaining alliances with civil society organisations:

We [the health experts] have very clear our role, right? And our role is to continue generating evidence, being aware of the studies that now show a causal relationship between sugary drinks and ultra-processed food, and different diseases (...) the Institute's objective is to protect population health and is the only thing that matters for us (...) in the process we have been finding allies from civil society that have been very important to keep this issue on the agenda, and allies from Congress (...) [P2-23, Health Researcher].

7.1.2 FOPL systems collaboration networks

In the food labelling case, elicited relational data allowed us to recreate the collaboration networks for the implementation of a mandatory FOPL system. Figure 18 (Collaboration amongst actors to implement a FOPL system in t_1) presents the collaboration network in t_1 , which consists of 56 actors, with 80 directed ties. It is integrated into two components, with a density of 0.026. The largest component is formed by actors from six types of organisations and the second component is integrated solely by actors from government areas and industry actors. In the largest component, three actors received higher betweenness and centrality scores which identify them as key players. These actors from the Congress (node 1), academia (node 5), and civil society organisations (node 6) attempted to promote an alternative to the GDA system

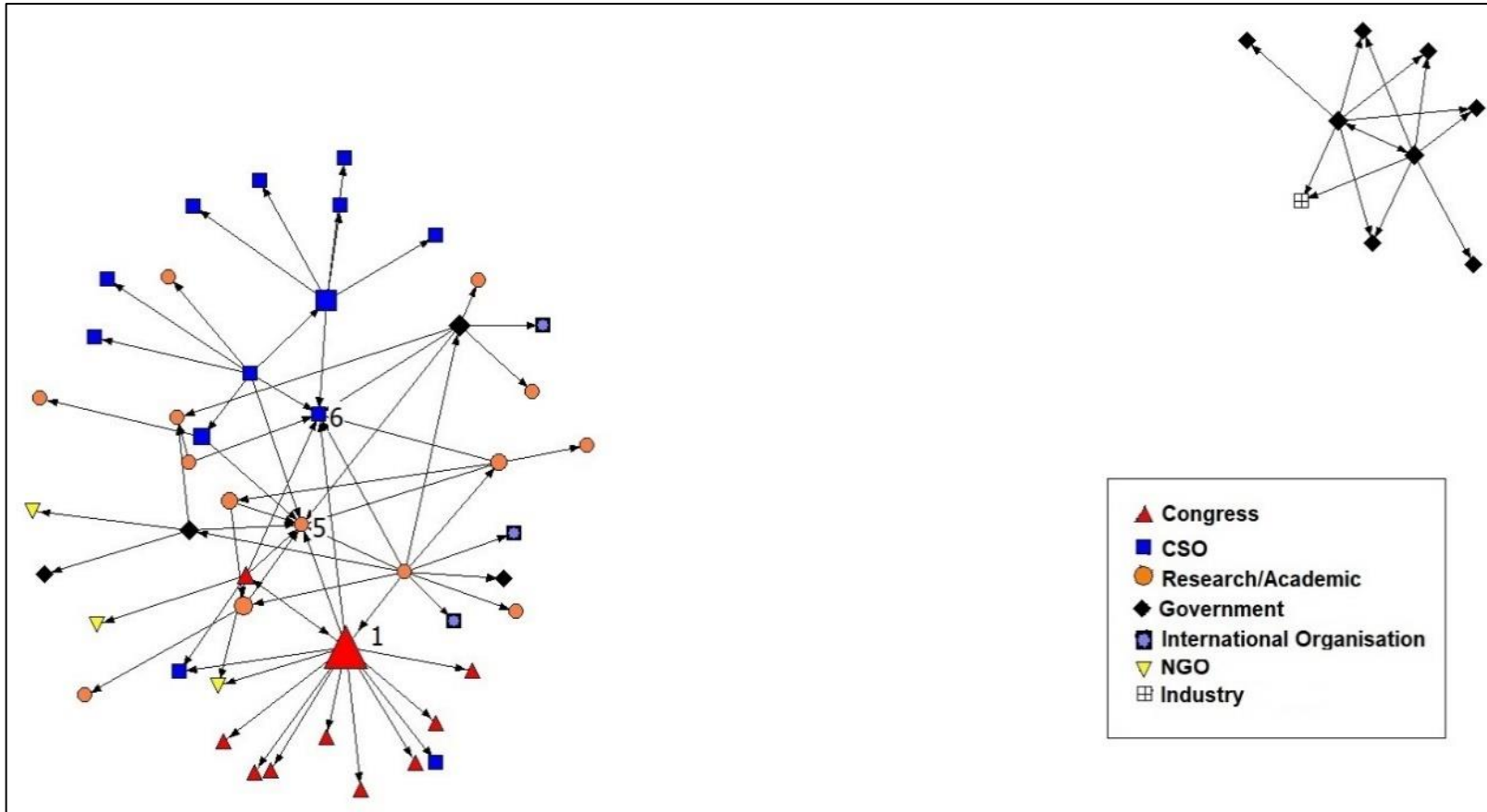
that was adopted as an industry self-regulatory measure in 2011 (White and Barquera, 2020). The smallest component maps actors who participated in the regulatory process that introduced the GDA as a mandatory measure.

When individual nodes are collapsed by affiliation, the presence of 15 organisations forming a single component can be observed (Figure 19, FOPL system collaboration network in t_1). Betweenness centrality measures indicate that the INSP is the better positioned organisation influence the adoption of a FOPL system. However, interviews suggested that preferences for advocating for a specific FOPL system were not shared by all actors in the network. The fact that there is a tie between the INSP and COFEPRIS shows that one or more participants from INSP may have nominated individuals from COFEPRIS as collaborators, however, it does not imply that INSP was involved in the GDA design or implementation.

The application of the Girvan-Newman algorithm found three communities (Figure 20, Community detection for the FOPL system case using the Girvan-Newman algorithm) within the network: that of academics, MoH, and Civil society organisations (green nodes); regulatory bodies and industry (blue nodes); and Senate, Mexican Association of Diabetes, and Polithink (red nodes). According to the qualitative data, researchers from the INSP supported the implementation of a single-stamp FOPL system, whereas civil society actors and Congress' members, the traffic-light system.

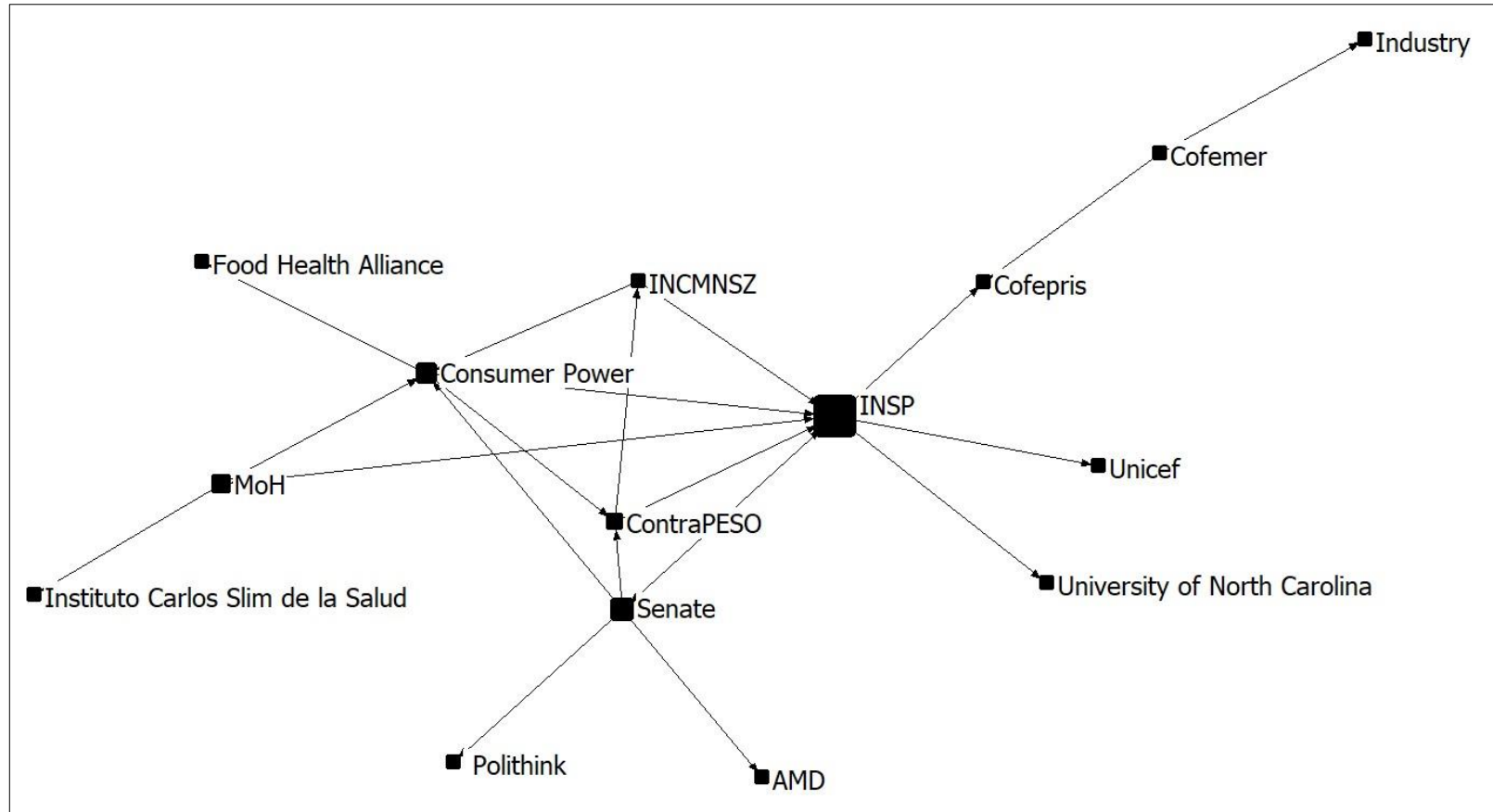
Actors marked in blue participated in the implementation of the GDA in the instrument titled "Guidelines related to article 25 of the Regulation of Sanitary Control of Products and Services" (Secretaría de Salud, 2014). Interviewees from COFEMER commented on the existence of collaboration ties with industry actors through official channels (i.e., public consultation) that allowed them to receive comments on the impact of introducing the GDA as a mandatory measure, and with COFEPRIS who '*was in charge of preparing the regulatory proposal*' [Interviewee P-012].

FIGURE 18. Collaboration amongst actors to implement a FOPL system in t_1



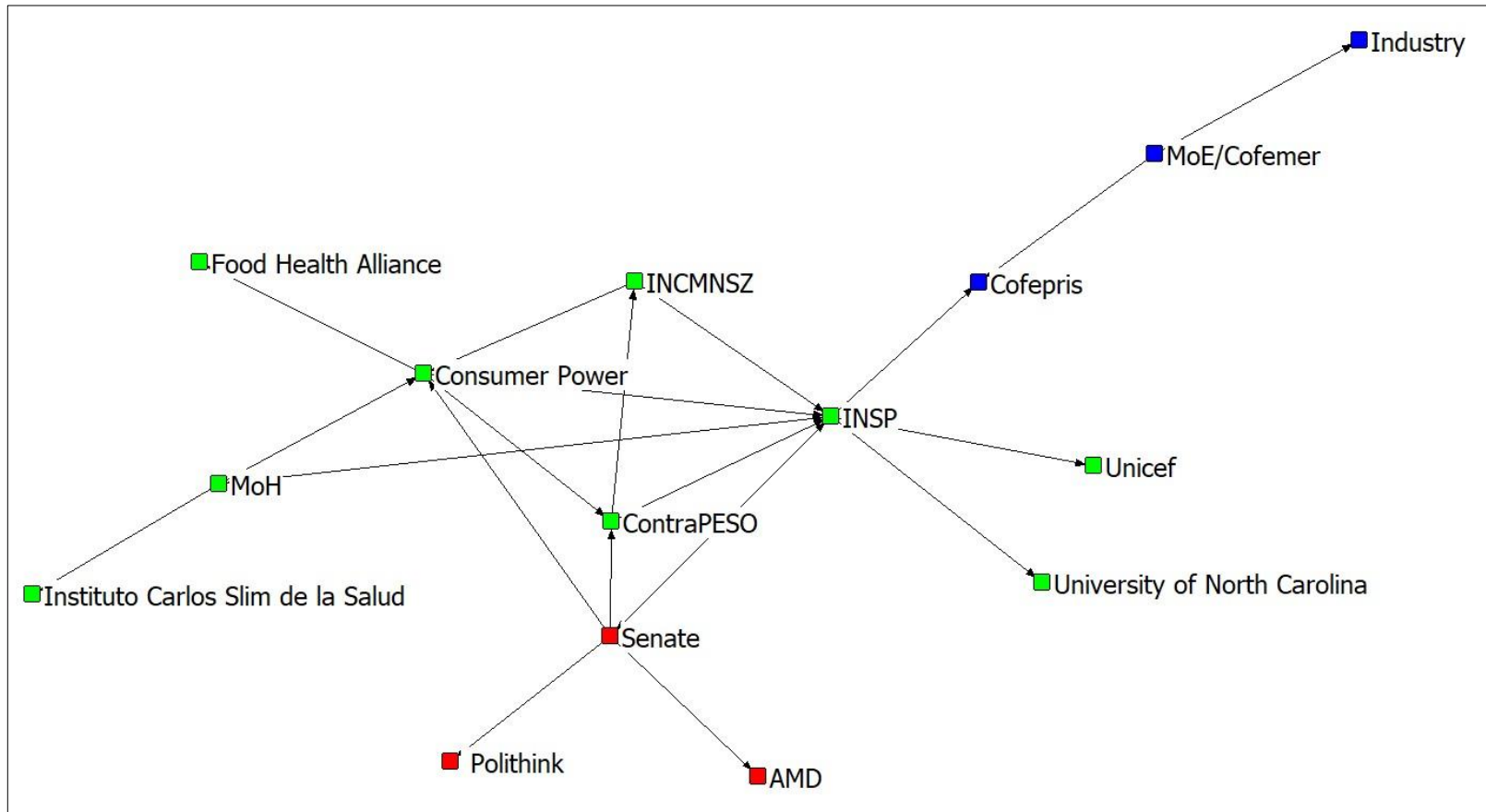
Note: Node sizes are weighted by betweenness measures (directed ties). Each node represents an individual that participated in the policy network of FOPL systems implementation. The direction of the arrows shows that these are directed ties.

FIGURE 19. FOPL system collaboration network in t_1



Note: Nodes weighted according to the betweenness score. Individual nodes were collapsed by organisation ($n=15$) and the presence/absence of ties. The direction of the arrows shows that these are directed ties

FIGURE 20. Community detection for the FOPL system case using the Girvan-Newman algorithm



Note: Colour represents the community to which the nodes belong. Partition with 3 clusters had the highest modularity score ($Q=0.298$). Self-loops removed. The direction of the arrows shows that these are directed ties

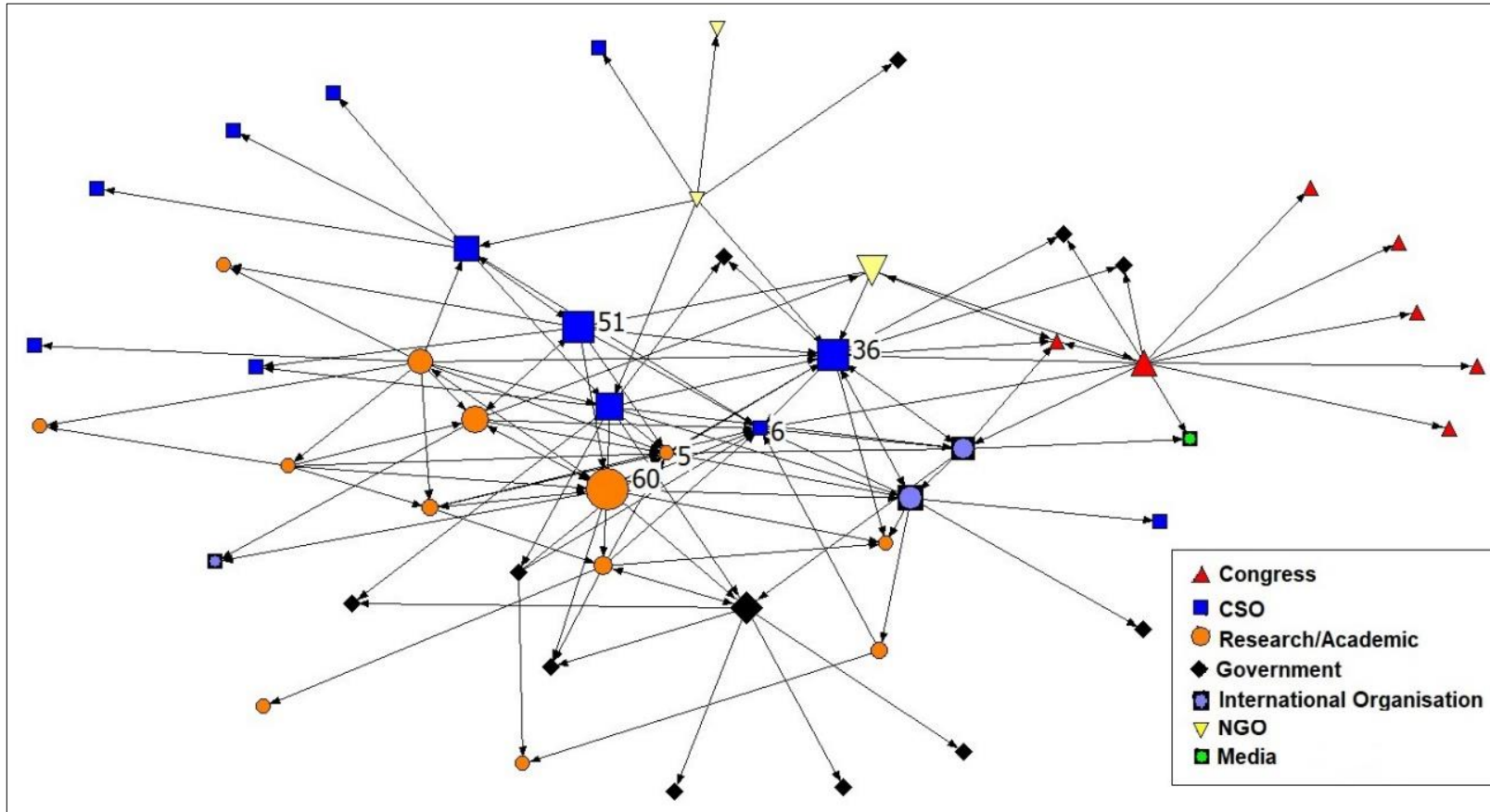
The Warning System collaboration network in t_2

In t_2 , the collaboration network was integrated by 51 individuals, with 124 ties and a density of 0.049 (Figure 21, The Warning System collaboration network (individuals)) in a single component. Unlike t_1 where the network actors preferred distinct FOPL systems, the Warning System was the supported policy solution to replace the GDA in the regulatory instrument NOM-051. Centrality scores identified two popular actors for the mobilisation of the Warning System agenda, one from the academia (node 6) and one from civil society (node 5), who remained involved in the policy sphere from t_1 . In addition, three actors (nodes 60, 36, 51) from the sectors of academia and civil society organisations were mediators of information and strategic actions within the network.

Interviewees highlighted that node 6 led the civil society organisations' actions (campaigning and advocacy), whereas actor 5 formed a group of researchers that participated in the regulatory stage presenting and defending evidence. Node 60 was part of the research team and took the coordination role for designing the NOM-051 initial proposal and organising discussions with international experts regarding the experiences of implementing labelling systems in Latin America. Node 36 from a civil society organisation had a main role at the legislative stage organising the influence strategy for the modification of the General Law of Health although he also participated in the discussion groups in the regulatory stage.

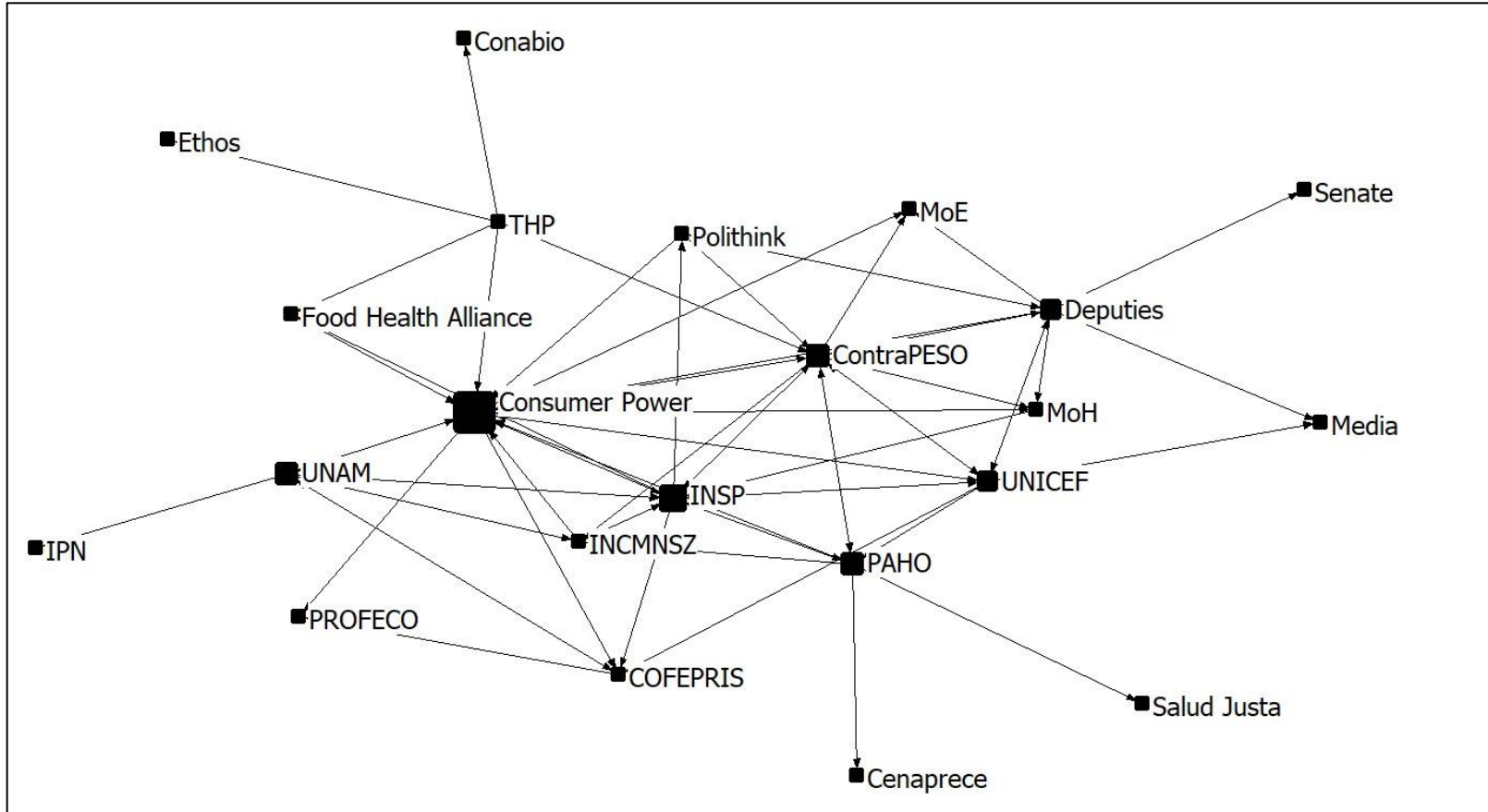
By collapsing actors according to their affiliation, Figure 22 (The Warning System collaboration network (organisations)) notes the presence of 22 organisations with 72 ties. The organisation Consumer Power has been nominated as a key collaborator by other 11 institutions, also obtaining the highest centrality scores in the network (In-degree 11, betweenness 79.86), followed by the INSP (In-degree 7, betweenness 37.88). According to the interviewees, Consumer Power was involved actively at the legislative and regulatory stages for evidence translation, dissemination, and campaigning, whereas the INSP played a supporting role to the advocates at the legislative stage, but was directly involved at the regulatory stage in evidence production and defence.

FIGURE 21. The Warning System collaboration network (individuals)



Note: Node sizes are weighted according to their betweenness score. The direction of the arrows shows that these are directed ties

FIGURE 22. The Warning System collaboration network (organisations)



Note: Nodes weighted according to the betweenness score. Individual nodes were collapsed by organisation ($n=22$). The application of the Girvan-Newman routine found low partition measures ($Q < 0.1$), suggesting no split of the network according to Borgatti et al (2018). The direction of the arrows shows that these are directed ties

7.1.3 Exploring changes from t_1 to t_2 in the two collaboration networks

In contrast to the networks presented in the previous subsections, we can see that collaboration networks changed between t_1 and t_2 (Table 12), in terms of density, size, ties, and actors involved. A higher density score suggest that members of networks are better organised to mobilise a policy change, or in general to collaborate (Sandström and Carlsson, 2008). A higher density is observed in the two cases for t_2 .

TABLE 12. Characteristics of collaboration networks in t_1 and t_2

Network characteristic	Sugar tax		FOPL System	
	t_1	t_2	t_1	t_2
Components	1	1	2	1
Density	0.0345	0.0483	0.0226	0.049
Size (Number of individual nodes)	51	33	56	51
Ties	88	51	80	124
Organisations	16	14	15	22
Actors that remain	-	27	-	21
Organisations that remain	-	7	-	11
Organisations not mentioned (lost ties)	-	9	-	5
New organisations	-	7	-	12

Note: UCINET outputs available in Appendix J

Despite no policy change achieved for the Sugar Tax in t_1 to t_2 to increase the tax rate, we can see that in Table 12 (Characteristics of collaboration networks in t_1 and t_2) that of the 51 actors involved in the Sugar Tax passage 27 remain involved in the network, as well as half of the organisations mentioned in the first period. This includes the tripartite alliance members, albeit the structure of the network has changed and relevant ties for the modification of the tax are lost. In particular, the links with the MoF and its alters (Congress, Presidency) suggest that this is a community with no access to decision-making venues. This may be due to the lack of support for policy change, considering that members of the tripartite alliance have noted that the political environment in t_2 is not conducive to move forward the agenda for a tax increase:

ABC: *Despite the sugar tax being implemented, the generation of evidence, evaluation, as you mentioned is a task that takes time and will continue, is that right?*

P-2-04, health researcher: *It does not stop, and, well we continue in this administration. [The Government] has asked us our opinion about increasing the Sugar Tax, tobacco taxes, alcohol taxes. We keep working on that, but currently, political conditions are averse to a tax increase (...)*

For the FOPL system change, we observed in figures 21 (The Warning System collaboration network (individuals)) and 22 (The Warning System collaboration network (organisations)) the transition to a single component network in which all the actors agreed on modifying the Mexican FOPL system by adopting the Warning System. According to Table 12, a quantity of 21 actors who were involved in supporting the implementation of a FOPL system in the initial period remained active, representing 11 organisations. In the transition to the Warning System, the appearance of additional organisations, including key actors from the Lower Chamber, UNICEF and PAHO, formed the “group of allies” (see section 6.1) advocating for the adoption of an easy-to-understand labelling system.

Furthermore, it is also noted that links to the regulatory authorities COFEPRIS and MoE increased or emerged in between periods. Qualitative data suggests that collaboration between the group of allies and the regulators allowed them to influence the adoption of the Warning System based on evidence, as the MoE took a stance that favoured the use of health evidence in decision-making, in contrast to t_1 where regulatory authorities’ actors observed that decisions were taken in private:

When the GDA was implemented in 2014, we, the area in charge of working all related to official standards, did not participate. It was directly elaborated on by the General Commissioner at that time (...) it was a very small team [P-2-20, government technical areas].

Hence, it could be argued that the network observed in t_1 depicted an issue network with different interests (for example, different types of FOPL systems), while in the second period the transition to a policy community occurred, by gaining access to decision-making venues.

Despite observing network structures and change and relating these graphs and measures to the qualitative data regarding how organisations participated in the adoption of the Sugar Tax and FOPL systems, networks are formed by individuals who have had different experiences and who have created different meanings about their collaborative relationships and how they have evolved over time. Aided by the sociograms and interviews, the next section explores the temporality of ego-networks.

7.2 Elicited ego-networks

At the end of the interviews participants were asked whether they continued having ties with the actors nominated in t_1 independent of continued participation in activities related to the modification of the Sugar Tax or the adoption of a FOPL system, and for what purposes. Tables 13 (Changes elicited in ego-nets for actors involved in the Sugar Tax) and 14 (Changes elicited in ego-nets for actors involved in FOPL systems) summarise the changes observed in the networks of individuals involved in the Sugar Tax and FOPL system policies.

7.2.1 Actors involved in the Sugar Tax

This section describes Table 13. In the table it can be observe that members that collaborate in the Congress who were once involved in submitting the initial proposal of the Sugar Tax commented on the permanence of ties during the policy passage and in subsequent years towards t_2 , for the propose of earmarking tax funds and maintaining transparency in the use of tax resources. Whereas actor 1 commented that he kept ties with civil society organisations to that end, actor 4 mentioned keeping only a co-working tie with his superior to promote other policies within the Congress. However, his ties to actors from other organisations, including civil society organisations, were lost because his alters have moved to '*support other causes.*'

Participants from government technical areas commented on different changes in their collaboration network depending on whether the actor continued working in the same job position. Actor 37, who remained in the same organisation from t_1 to t_2 , was involved in designing strategies against overweight and diabetes in t_1 , whereas in t_2 they were '*finding out the use of resources from the sugar tax,*'

having ties with members of the research institutes and civil society organisations who also continued advocating and studying the tax's outcomes, mentioning that were lost ties with co-workers who left the organisation.

Actor 46 was also involved in the strategies against excess weight and obesity, naming actors that helped to shape this strategy in terms of evidence and technical advice as collaborators in t_1 . In t_2 , despite leaving the organisation, the participant kept friendship ties with all the actors mentioned previously, who he has known for at least two decades working in the public health area.

Finally, actor 17 from the MoF mentioned collaboration ties from the same organisation and from other branches of government for the design and passage of the Sugar Tax in t_1 . However, upon leaving the Ministry in t_2 , the actor only kept friendship ties with those mentioned as closest collaborators from his technical area.

Researchers were involved in providing evidence to sustain the need for the Sugar Tax and to assess its impact on consumption and health, as well as the impact on tax collection as discussed in the two precedent chapters. Actor 22, mentioned persons from his own organisation, and from other areas who were key to influencing the adoption of the tax in t_1 . Towards t_2 the participant had left the organisation but continued in contact with two of the people mentioned in t_1 , and even generated two new ties for collaborating on their own research projects, advocating for the permanence of the tax, and supporting the development of other policies in the country.

Actors 34 and 32's collaboration networks only included researchers. In t_2 , actors continued conducting research in the same organisation on the Sugar Tax policy area but also embarked on new policy developments, creating new collaboration ties. For example, actor 32 analyses the potential changes in consumption if sugar taxes were linked to the amount of sugars contained in beverages, such as the UK's tiered system, but also is interested in breastfeeding. In comparison, actor 34 commented on the interest in estimating the impact of the FOPL system on Mexican population, and in general on elements of a comprehensive obesity strategy. In the words of actor 34:

We are convinced that this is an issue that we must continue promoting, this tax is of course something that we are not going to forget, and we are going to continue working with it, but well... we also want to understand other things, right? I mean, for example, now we have been working hard to forecast the impact of front labelling using data from an experiment in Canada, but transferred to the Mexican population, we are very interested in seeing what would happen to the tax if it were done at different levels rather than only in one how it is currently, we are also very interested in the impact of product reformulation, and subsidies, right?

Actors 24 and 36 have been involved in the development of nutrition policies for more than three decades. For actor 24 the sociogram in t_1 was composed of alters that helped shape the obesity prevention strategies including the Sugar Tax. In t_2 , she lost two ties with actors who left their job position. However, in place of those lost ties, two others have gained relevance for collaborating in evidence production for the Sugar Tax and other nutrition areas, which include food-based dietary guidelines.

Actor 36, from a government Institute of Health, nominated two actors for t_1 , one researcher from an institute of health and one person from a civil society organisation, who have been involved in the development of obesity policies in Mexico, and they continued being his alters in t_2 . Notwithstanding, actor 36 believes that the adoption of the Sugar Tax and other obesity policies has been a process that involves many actors, and it was unfair to nominate just a few alters.

Civil society actors commented on the continuous efforts to defend the Sugar Tax from industry opposition between periods observed, and on the continued advocacy for its increase. Participants nominated co-workers or actors from other institutions as collaborators. Actor 39 mentioned only co-workers when discussing the advocacy and campaigning task, whereas actors 49 and 2 nominated actors from the diverse sectors involved in the sugar tax policy sphere such as academics or Congress representatives.

For t_2 , actor 39 maintained ties with most of his t_1 alters, although a tie was lost with a person who left the organisation, and one new tie was gained relevance in their collaboration circle. For actor 49, ties remained between periods, even

increasing her network by one tie with a Congress actor that in t_2 could support the obesity prevention agenda given the new composition of the Congress. Actor 2 kept eight of his 11 ties between periods, mentioning that from 2014 to 2017 their activities consisted of defending the tax and advocating for a tax increase. They kept ties with the actors that were involved in Bloomberg Philanthropies' project, but were also interested in supporting other policies.

Finally, actor 15 from a think-tank mentioned a network with 6 actors for t_1 , including persons from diverse organisations. However, as the participant left the think tank involved in the Sugar Tax passage mentioned that for t_2 he kept only three ties that became friendship ties. Thus, their ties have no implications for collaboration in the policy process.

TABLE 13. Changes elicited in ego-nets for actors involved in the Sugar Tax

ID	Sector	t_1 Size	t_2 Size	New Ties	Kept Ties	Absent Ties	Ego in same organisation t_2	ST t_2	With co- workers	From another organisation	Meaning of ties in t_2
1	Congress	14	3	0	3	11	✓	Yes	No	Yes	Working collaboratively with CSOs to increase the sugar tax, present initiative to earmark funds and promote transparency of resources.
4	Congress	6	1	0	1	5	✓	No	Yes	No	Co-working for other obesity-related policies.
37	Government	6	3	0	3	2	✓	Yes	No	Yes	Collaboration to follow up sugar tax outcomes. Lost ties with actors who left the workplace.
17	Government	5	2	0	2	3	×	No	Yes	No	Friendship ties. No longer collaborating in work settings. Lost ties are with actors involved in the passage of taxes.
46	Government	4	4	0	4	0	×	No	No	Yes	Friendship ties. The participant left the organisation
22	Research	10	4	2	2	8	×	Yes	Yes	Yes	Research collaboration to study the ST passage. Support to defend the Sugar Tax permanence and other policies.
34	Research	3	5	2	3	0	✓	Yes	Yes	Yes	Co-working for evidence generation and research collaborations, following international and local developments. Continue participating in evidence dissemination and analysing other policy options.

Note: ST= Sugar tax

TABLE 13. (Cont.) Changes elicited in ego-nets for actors involved in the Sugar Tax

ID	Sector	t_1 Size	t_2 Size	New Ties	Kept Ties	Absent Ties	Ego in same organisation t_2	ST t_2	With coworkers	From other organisation	Meaning of ties in t_2
32	Research	5	5	3	2	3	✓	No	Yes	No	Co-working for evidence generation on taxes impact on health but not for policy influence, now has moved to support other policies.
24	Research	6	6	2	3	2	✓	Yes	Yes	No	Co-working for evidence generation, developing other policies. Continue participating in evidence dissemination. Lost ties are with persons who left their workplace.
36	Research	2	2	0	2	0	✓	Yes	No	Yes	Peripheral support to CSOs activities based on evidence. Long knowledge of obesity prevention initiatives.
49	CSO	5	6	1	5	0	✓	Yes	Yes	Yes	Collaboration to increase the Sugar Tax rate and other policies. New ties relate to a new supporter of the obesity prevention agenda.
2	CSO	11	11	2	9	2	×	No	Yes	Yes	Defending the tax, until the participant left the organisation. However, their alters remained active in ST and other initiatives.
39	CSO	6	6	1	5	1	✓	Yes	Yes	No	Co-working. Lost ties with actors who left the CSO.
15	Think-tank	6	3	0	3	3	×	No	Yes	Yes	Friendship ties. The participant left the organisation related to sugar tax policy but kept friendship ties.

Note: ST= Sugar tax.

7.2.2 Actors involved in the FOPL systems development

This subsection describes Table 14 (Changes elicited in ego-nets for actors involved in FOPL systems), where it can be observed that members of the Congress who were involved in proposing the traffic light system as part of obesity-prevention multiple strategies observed that once the Sugar Tax was implemented, they continued to work supporting the implementation of the traffic light system. However, for the recent change in the Warning System (in t_2) they did not play a main role in the policy network. Actor 1 kept ties with civil society organisations for other policy purposes, and Actor 8 only kept a tie with his superior.

'I presented [the traffic-light initiative] twice during the last administration and it never made even a little progress. Later, now that [the 2018-2024 President] comes in, we presented it again, but we saw that it was impossible for the traffic-light to be approved, then the Warning System was approved' [Actor 1, Government legislative branch].

For those participants that collaborated in the Government regulatory areas of the MoE (Actors 17 and 24), participation in the implementation of the GDA was circumstantial to their job position. As such, as soon as they left the government agency, they lost their ties with people external to their workplace (the industry or the health regulatory agency, for example). In t_2 they maintain ties with co-workers that have become friends and collaborators in other enterprises unrelated to the FOPL systems regulation.

Two interviewees that had been affiliated with two of the national institutes of health by the time the GDA was implemented mentioned that they were no longer part of the policy network for the changes in the Warning System. Throughout the years they have collaborated with ex co-workers to produce research studies. However, Actor 25, believes that he has lost virtually all ties, whereas Actor 28 still collaborates with people that are involved in the policy network and has even increased ties in t_2 because of his own studies, although not because of his attempts to influence the policy process.

TABLE 14. Changes elicited in ego-nets for actors involved in FOPL systems

ID	Sector	t_1 Size	t_2 Size	New Ties	Kept Ties	Absent Ties	Ego in same organisation t_2	WS	With co- workers	From another organisation	Meaning of ties in t_2
1	Congress	14	3	0	3	11	✓	No	No	Yes	Collaboration for other policy purposes. Not the WS but the traffic-light system.
8	Congress	6	1	0	1	5	✓	No	Yes	No	Co-working for other policy purposes, not FOPL.
32	Government	ND	6	6	ND	ND	✓	Yes	Yes	Yes	Co-working and collaboration for proposal and modification of the NOM-051.
34	Government	6	3	0	3	3	✓	Yes	No	Yes	Collaboration for evidence generation for changes in NOM-051. Ties are lost with persons who left the organisation.
17	Government	7	4	0	4	3	×	No	Yes	No	Co-working and friendship ties. Other work-related issues, not FOPL.
24	Government	7	5	0	5	2	×	No	Yes	No	Co-working and friendship ties. Other work-related issues, not FOPL.
33	Government	4	4	0	4	0	×	No	Yes	Yes	Friendship ties.
27	Research	2	4	3	1	1	✓	Yes	Yes	Yes	Co-working for evidence preparation, collaboration with other organisations for the modification to the NOM-051.
29	Research	2	5	3	2	0	✓	Yes	Yes	No	Co-working for evidence preparation. Modification to the NOM-051.

Note: WS= Warning System labelling.

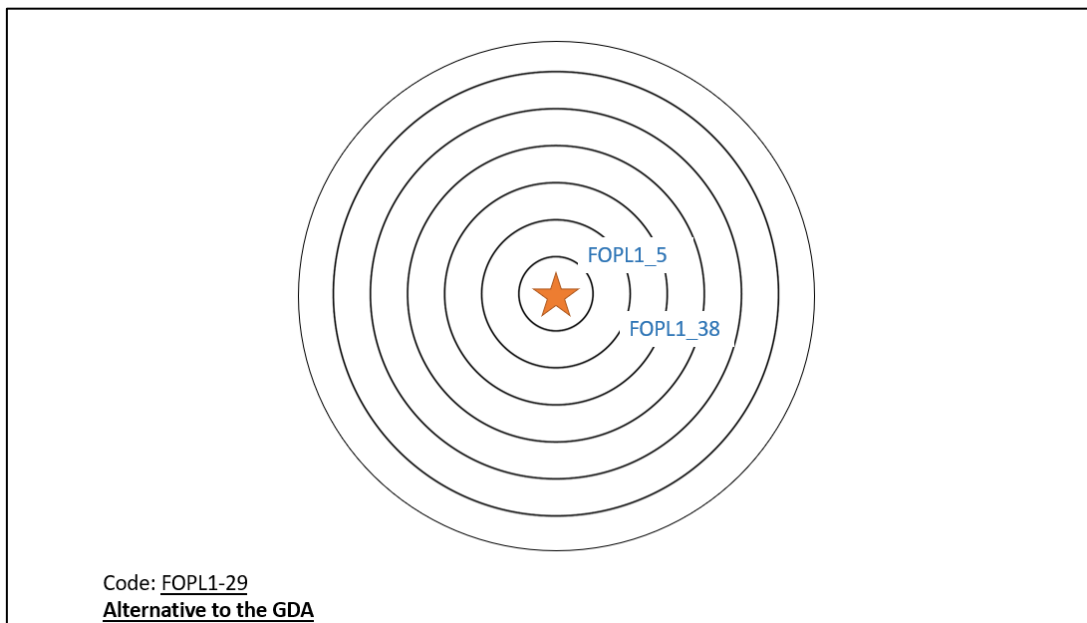
Table 14. (Cont.) Changes elicited in ego-nets for actors involved in FOPL systems

ID	Sector	t_1 Size	t_2 Size	New Ties	Kept Ties	Absent Ties	Ego in same organisation t_2	WS	With co- workers	From another organisation	Meaning of ties in t_2
50	Research	2	2	0	2	0	✓	Yes	No	Yes	Peripheral support to the WS. Long knowledge of obesity prevention initiatives.
25	Research	4	2	0	2	2	×	No	Yes	No	Research collaboration and friendship ties.
28	Research	11	6	1	5	6	×	No	Yes	Yes	Research collaboration and friendship ties.
48	International Organisation	ND	6	6	ND	ND	×	Yes	Yes	Yes	Collaboration for the modification of the General Law of Health and NOM-051.
36	CSO	2	9	7	2	0	✓	Yes	Yes	Yes	Collaboration for changes in the General Law of Health and NOM-051.
39	CSO	6	6	2	4	2	✓	Yes	Yes	No	Co-working ties for modification of the General Law of Health and NOM-051.
51	CSO	7	8	2	6	1	✓	Yes	Yes	Yes	Support to the WS. Ties are lost with persons who left the organisation.

Note: WS= Warning System labelling. Actor 32 did not complete the sociogram for t_1 , mentioning that although involved in the regulatory agency, there were no collaboration ties between the actor and those actors that implemented the GDA. In the case of actor 48, drawing t_1 sociogram was omitted because of a perceived recall difficulty.

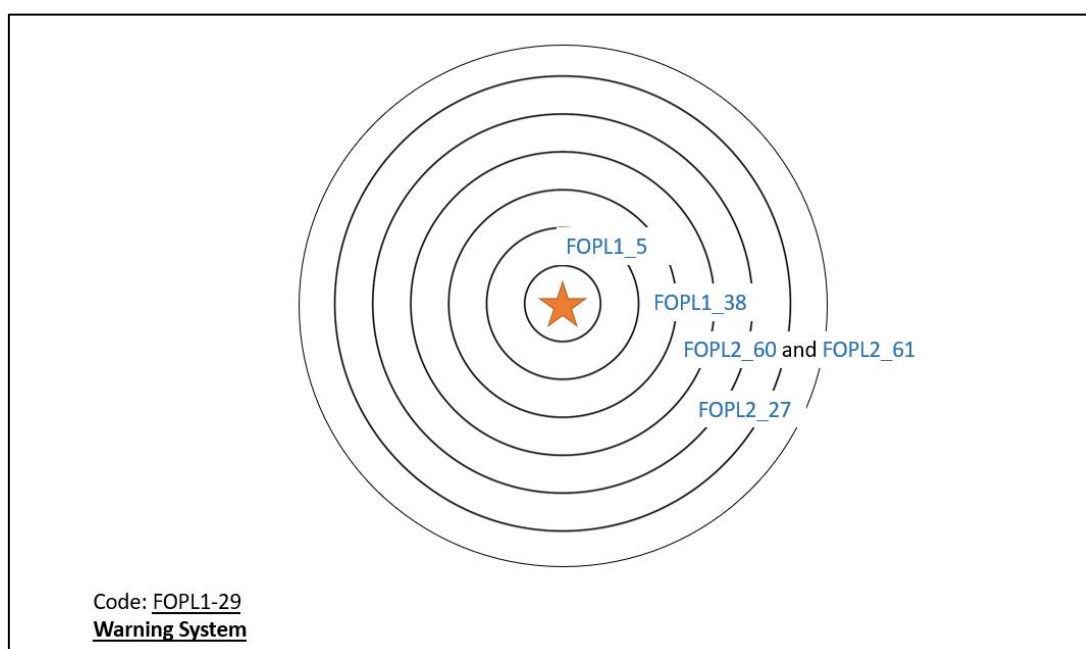
Of the research participants who mentioned having collaborated for a previous policy change and are still involved in the policy network, they nominated fewer people in t_1 than in t_2 , as seen in Table 14. They lost one tie on average but increased their ties for t_2 . Actor 29 decided not to nominate people that ‘*have already left the institute*’ for t_1 ’s sociogram but mentioned having collaborated with distinct co-workers in diverse research projects throughout the years to produce the evidence that supports the implementation of the Warning System. To recreate the sociogram for the recent policy passage, the participant mentioned as his new collaborators (alters), members of a research group that was involved in elaborating on and presenting evidence in the regulatory process. Figures 23 and 24 show Actor 29’s sociograms for t_1 and t_2 .

FIGURE 23. Actor 29 network by the time GDA was implemented



Note: The participant completed the sociogram during an online interview. Names have been anonymised. Blue colour indicates alters affiliated to universities or research institutions.

FIGURE 24. Actor 29 network for Warning System's implementation



Note: The participant completed the sociogram during an online interview. Names have been anonymised. Blue colour indicates alters affiliated to universities or research institutions.

Although outside of their sociogram, actor 29 also considered relevant the relationships with civil society organisations who are key actors in translating evidence to a simple language and who have been involved in campaigning for an alternative to the GDA. Actor 27, also a health researcher, agreed with this view and nominated alters from his organisation as well as alters from universities and civil society organisations as collaborators in t_2 .

Following from Table 14 (Changes elicited in ego-nets for actors involved in FOPL systems) presented previously, civil society actors reflected on the activities undertaken to advocate for the change in the FOPL system policy. For Actor 39, who plays a peripheral support role in the policy network, his nominated alters were actors from his same organisation. In contrast, for Actors 51 and 36 collaboration networks consisted of alters from different affiliations. For the Warning System passage, actor 51 lost one tie with a person that left his organisation, but increased ties with researchers for the defence of the Warning System. Actor 36 mentioned that ties increased considerably, including collaboration ties with members of other civil society organisations, international organisations, the Congress, and the Ministries of Health and Economy.

Finally, actor 34, who collaborated in government administrative areas, retained permanent ties with actors affiliated to civil society organisations and the national institutes of health. Lost ties were her co-workers who had left the organisation but were key to initiating the early attempts to implement a labelling system based on WHO's recommendations as told by the participant. The actor did not mention new ties for the Warning System policy passage in t_2 .

7.3 Concluding remarks

This chapter presented an analysis of the structure of networks of actors that collaborated for influencing policy changes in the Sugar Tax and FOPL system policy areas in two periods marked by policy changes. The objective was to explore how and why networks change, because, as it has been mentioned in the first chapters, the policy process is an ongoing process that continues beyond policy adoption. The adoption of the whole-network approach identified key structures and actors such as the "tripartite alliance" and "the group of allies" that were presented as the first theme in Chapters 5 and 6. The ego-centric approach allowed exploration of how individual networks may change, albeit by the nature of ego-net analysis results are subjective (Bellotti, 2016).

To answer how network change, it was observed that between periods t_1 and t_2 the Sugar Tax network decreased in size and increased in density suggesting a closer collaboration between actors, key organisations such as INSP, ContraPESO and Consumer Power remained in the network undertaking research, campaigning, and advocacy activities. However, network's graphical depiction for t_2 suggest that Consumer Power was the central actor, having ties with most of the organisations involved in advocating for a tax increase, which according to Sandström and Carlsson (2008) equate to a coordination role. Furthermore, there were no ties to the MoF, the government entity in charge of designing fiscal policies.

For the FOPL system, it was possible to observe the two components of the network for the GDA implementation, with a lack of connecting ties between the individuals collaborating for the GDA implementation and people advocating for different systems. Initial opponents to the GDA included health experts from the national institutes of health and civil society organisations. However, these actors

were not operating a coordinated strategy to support a specific FOPL system in t_1 . For t_2 , the number of organisations collaborating increased. The presence of two key actors, one from the civil society organisation and one from academia, is of importance for advocating for the modification of the GDA towards the Warning System. The transition to a more integrated figure in which health allies collaborate with government agencies through official channels, suggests that interactions occur in a community-type network. This is a network in which the number of participants in the network is limited, there is a balance of power among actors, and the policy outcome is perceived as legitimate (Marsh and Rhodes, 1992). For instance, although industry is a powerful actor, the requisite of backing arguments on evidence, increased the power of health allies, and the legitimacy that the FOPL system adopted reflects the best available evidence.

Data suggests that actors' collaboration ties for attaining a common policy objective are related to a job position. In other words, collaboration ties envisaged for attaining a policy goal remain if egos and alters continue working in the same organisation or in another one that takes part in the broad policy network (i.e., the institutes of health, the Ministries of Health and Finance, leading civil society organisations). Hence, once egos (or alters) leave their workplace, relationships with ex co-workers may remain for professional purposes (i.e., they undertake research projects together) that are not necessarily related to the adoption of the Sugar Tax or the FOPL system, or these become friendship ties. If the actors remain active in the policy sphere, the pursuit of a policy change may require the emergence of new ties. In other words, to answer the why networks change, data suggest that the structure (organisation) in which actors work may be a factor that determine network change.

Qualitative data suggested that throughout the years actors have undertaken activities related to their institutional position. Hence, civil society actors have been involved in advocacy and campaigning, health researchers in evidence production and dissemination, and government technical and legislative workers in the development of the regulatory instruments or other policies. For health researchers, these results could indicate structure determining their involvement in the policy sphere, although they may exercise agency through independent research. Experts interviewed and nominated as alters were mainly affiliated to

two Mexican institutes of health (INSP and INCMNSZ), which are decentralised organisms from the MoH. INSP was created to produce research to inform health policy (Presidencia de la República, 1987), and the INCMNSZ to provide specialised treatment to patients, undertaking also research and teaching activities (INCMNSZ, not defined).

Results presented in this chapter must be approached with some caution given the saturation point with regards to the names collected to build the whole networks was not reached. Participants named their collaborators according to their understanding of that term, regardless of what they meant by it, although an effort was made to keep the network bounded by asking the participants to nominate those alters influencing the adoption of the policies. Participant recall may also be an impediment to accurately capturing the network in t_1 .

Together with the previous two chapters, this chapter builds a body of results. At the beginning of this thesis two main research questions were set to address the research objective. Referring to the two main research questions, data from this and the previous two chapters suggests two primary findings:

1. For the first research question, it was observed in Chapters 5 and 6 that health experts participated within a broader alliance of organisations to influence policy change. However, for change to occur, the political environment must favour the adoption of the policies.
2. For the second research question, it was observed in this chapter (Chapter 7) that actors involved in attempting to influence a policy change are more prone to remain involved in future attempts to modify policies if they remain working in the same institution. For the Sugar Tax case it was observed that lack of ties to decision-makers from the MoF may be a factor that constrains the Sugar Tax increase, whereas for the FOPL system case, a well organised network influenced the adoption of the Warning System.

Results from chapters 5 and 6 elucidate how actors build alliances between them to pool their resources (i.e., political strategy, health evidence) and influence in the policy change, whereas this chapter allowed us to observe with SNA the positions of key actors that helped to mobilise the strategy and enable the communication channels with the government. Moreover, by observing networks

in periods t_1 and t_2 we were able to note missing ties between health allies and government actors in the periods when health allies had limited access to decision-making venues, or when policy changes aligned to health advocates' preferences did not occur.

The second claim rests on this chapter's findings. The ego-centric approach suggests that the structure of the policy network influences actors' involvement. In other words, we may see that the same organisations continue collaborating between periods in advocating for a policy change, however, actors working in these organisations may terminate their activities in that institution, and if that occurs, they may not continue upholding a policy change.

The next chapter discusses previously presented findings with regards to the analytical frameworks of the ACF and the ECs, as well as their connection to recent development in the public health and public policy literature.

Chapter 8: A cross-case discussion from the lens of the ACF and ECs

8.0 Introduction

This study has as main objective to analyse how networks of experts are formed, influence policy change, and remain involved in the policy process, in other words, it sought to study networks of experts over time. For this objective two main and four subsidiary research questions were defined:

- 1) How do networks of experts influence policy change?
 - a. How are networks of experts formed?
 - b. What information do they possess and how it is disseminated?
 - c. How is the knowledge they possess used in policymaking?
 - d. How is policy change attained?
- 2) What happens to these networks of experts after the adoption of policies?

For addressing the first research question, this chapter revisits the empirical contributions of the study according to the results of Chapter 5 and Chapter 6, analysing their similarities and differences between the two case studies and linking the findings of the study to two theories of the policy process that deal with the use of information, evidence, and expertise in policymaking, and to the most recent scholarly literature dealing with the role that health experts play in the adoption of tobacco, alcohol, and nutrition policies. To address the second research question, we can draw on Chapter 7's findings.

This Chapter is structured around three sections. Section 8.1 elaborates on the first research question and subsidiary questions illustrating how experts participated in the adoption of the Sugar Tax and Warning System from the lens of the Advocacy Coalition Framework (ACF) and Epistemic Communities (ECs) literature. Key findings point out that a grant provided by the external donor Bloomberg Philanthropies generated a condition (resource dependence) that enabled the formation of an advocacy coalition in which health experts are full members. Information possessed by health experts was translated by civil society organisations but also disseminated directly by health experts to the technical

areas of government. Political use of evidence was displayed in the Sugar Tax process, whereas the Warning System benefitted from the instrumental use of evidence. Government change represented the main pathway for policy change.

Section 8.2 explores temporality in networks of experts which, as defined in Chapter 4, aims to shed light on whether health allies remain involved in attempts to influence policy changes. The main finding suggests that structure in policy networks matters and may be the condition that allows expert involvement in the long run. Section 8.3 highlights the theoretical insights and lessons for the broad debate of experts influence in the prevention of non-communicable diseases (NCDs) that this study yields. Section 8.4 summarises key findings and implications.

8.1 How do networks of experts influence policy change?

The following subsections address the subsidiary research question in the form of cross-case comparisons drawing on theories of the policy process. Chapter 1 presented the theoretical rationale underpinning this study, arguing that the ACF (Sabatier and Jenkins-Smith, 1993) and Haas' (Haas, 1992a) ECs are two frameworks that allow us to unpack the role that experts and evidence play in policy change in face of the fragmented literature that analyses this phenomenon (Christensen, 2020), as discussed in Chapter 2.

8.1.1 SQ 1: How are networks of experts formed?

Table 15 Elements on the formation of networks of experts, summarise the findings to answer this subsidiary research question. Results suggest that health and nutrition researchers from the government-funded national institutes of health - the INSP and the INCMNSZ - had been involved in planning actions to tackle overweight and obesity in documents of intent led by the MoH, specifically the NANH in 2010. However, it was not until 2012 that actors from civil society, academia, and a think-tank specialised in advocacy and political strategy got together as a group of allies with the objective to implement an obesity-prevention strategy. This alliance of policy actors is observed in both case studies, named by interviewees as a "tripartite alliance" (Sugar Tax, Chapter 5) or a "group of allies" (FOPL case, Chapter 6).

The ACF and the ECs literature argue that a belief system determines whether actors collaborate. As such, behind the implementation of the Sugar Tax, the network of health allies formed by the INSP, ContraPESO, Consumer Power, and Polithink recognised (in retrospect) the need to grant basic rights (such as health and information) to the Mexican population, who were facing high levels of obesity and diabetes. The Sugar Tax was part of a comprehensive obesity-prevention strategy, one of the policy core beliefs that informed the way that government must act in relation to a public problem (Weible et al., 2020). A 20% value-added tax would help curb the SSBs' intake, having a positive effect on health.

Although actors and policy core beliefs are the basic conditions to observe the existence of advocacy coalitions (Weible et al., 2020), findings in this research suggest that their formation does not occur in a vacuum, nor spontaneously and may require an enabling mechanism for collaboration. The Mexican Sugar Tax case illustrates that country-level obesity prevention's scientific and policy developments were shared by health experts in international settings. In one of these events the international philanthropic organisation Bloomberg Philanthropies, interested in the Mexican context, provided a grant to launch an obesity-prevention program.

Ultimately, Bloomberg Philanthropies' grant financed INSP research and civil society organisations' advocacy activities, facilitating the formation of the then nascent health-based coalition for the Sugar Tax, with a clearly defined influence-strategy based on the pillars of evidence, communication, and political strategy. This latter point concurs with James and colleagues (2020, p.3) who argue that the grant 'provided a major boost to the proponents of the tax, allowing them to hire a political strategy and lobbying firm, and to design and implement advocacy efforts inside the national government and to the Mexican public.'

The broad literature suggests that external donors (e.g., multilateral agencies) help to create networks (Webb, 2016) and to steer health agendas (Khan et al., 2018) by providing financial capital. However, the role of philanthropic donors, such as Bloomberg Philanthropies and Bill & Melinda Gates Foundation has been noted as important to provide technical and financial support to face industry's political activity against health interests. A notable case is tobacco's industry

opposition to the FCTC's implementation in LMICs (Crosbie et al., 2017), where philanthropic donors have specially granted support for legal challenges and trade disputes, as these activities represent financial burden for developing countries (Bloomberg Philanthropies, 2015). For instance, in Uruguay, tobacco corporation Philip Morris International attempted to overturn strong cigarette package health warnings through domestic and international legal threats. These actions imposed significant financial pressure on government, which were about to accept to lessen the severity of regulations. However, through Bloomberg Foundation and the US-based Campaign for Tobacco Free Kids, Uruguay's government was able to access legal defence and gain suit against Philip Morris (Crosbie et al., 2018).

Members of the tripartite alliance for the Sugar Tax in Mexico proceeded from various affiliations, which confirms that coalitions are integrated by a diversity of actors which provide political expertise to influence the adoption of policies, unlike the mass public (Heikkila et al., 2020). Furthermore, as the Sugar Tax passage unfolded in legislative and executive arenas, more actors became advocates. These included a legislative level policy champion, allies at the Congress, PAHO, academics from institutions related to economics teaching, global experts, and international decision-makers.

In contrast, results suggest the FOPL subsystem is mature. First, recommendations to implement an informative FOPL from the health community can be traced back to the NANH in 2010, a time at which taxing junk food and beverages was also recommended. However, it took around a decade to implement a labelling system designed according to the evidence and recommendations of health experts. Data suggests that the formation of networks of experts mirrors the actors of the "tripartite alliance" behind the Sugar Tax, a theory outlined by Webb (2016), who argues that donors help to form networks first based on financial capital. Later, alliances are retained through social capital (i.e., actors know each other, and it is easier to collaborate). The absence of Bloomberg Philanthropies in the FOPL alliance (and mapped in section 7.2.2) does not mean that it was a factor that contributed to the slow emergence of an easy-to-understand FOPL system. Rather, strategic decisions and contextual factors explain its development.

The alliance members decided in 2012 to first support the Sugar Tax, knowing that the prevention of obesity would require the adoption of various policies, and the taxation was a higher-salience policy. Hence, for the transition to the Warning System, cooperation between the INSP, ContraPESO, ConsumerPower, and Polithink already existed. Yet, the INCMNSZ, PAHO, UNICEF, and a policy champion at the legislative stage, were additional actors within the “group of allies” who developed a dominant coalition.

Allies’ values and beliefs for the adoption of the Warning System consisted of granting to the population the basic rights of health, information, consumer, and childhood. In contrast, the position on general policy solutions and policy instruments (i.e., policy core beliefs) was that multiple strategies had to be implemented to combat the multifactorial nature of obesity. Modifying the FOPL system was one of the multi-strategic policy options, where a Warning System was an easier-to-understand format that allowed the population to make informed food choices when compared to the GDA.

Data also suggest that academics from the National Autonomous University of Mexico and the National Polytechnic Institute and members of government technical areas (COFEPRIS and the Undersecretariat for Prevention and Health Promotion, policy formal actors defined in in section 3.5.3) also shared the belief that the GDA was a FOPL system that was difficult to interpret. However, government actors did not engage in strategic collaborations with the main allies, becoming auxiliary members of “the group of allies.”

Both case studies support Weible et al.’s (2010) proposition sustaining that health experts can become part of an advocacy coalition (a proposition that according to these authors, needed to be empirically studied). This occurs because experts are not neutral actors, and alliances with civil society organisations, government, media, and other actors allow them to design policy solutions, legitimise policy arguments based on evidence, and influence policy adoption (Funke et al., 2021; Ingold and Gschwend, 2014; Weible et al., 2010). However, these findings also suggest that networks of experts are not integrated solely by actors sharing a profession or professional qualification. Although the alliances were formed around the need to prevent obesity through certain policy preferences, to

effectively influence the process according to their knowledge, civil society organisations and the advocacy think-tank were also allies. They acted as experts in campaigning and evidence dissemination, but also as political strategists. Similar interactions have been found by Smith and Weishaar (2018) in the integration of a health coalition for the EU smoke-free policymaking.

Compatibility in belief systems and the degree of coordination of political activities across coalitions indicate whether subsystems are unitary, collaborative, or adversarial (Weible et al., 2020; Weible, 2008) as presented in Chapter 2. Researchers that had long been involved in nutrition policies from the institutes of health (INSP and INCMNSZ) acknowledged that industry had been a powerful opposing actor to experts' recommendations. Hence, in both cases, data highlights that coalitions operate within an adversarial policy subsystem, where the food and beverage industry and other actors with links to this sector have led the opposition based on economic interests.

In Table 15 (Elements on the formation of networks of experts) discussed throughout this section, opponents have been defined as “prospective adversarial coalition” to reflect that with the interview and documentary data it was not possible to identify coordination strategies in-depth (Weible et al., 2020). However, common strategies and power exerted by the industry in influencing policymaking, such as lobbying at the elite level (Hatchard et al., 2016) and the misuse of evidence (Fooks et al., 2019) emerged from the data. For the Mexican context, previous studies about the Sugar Tax passage (Carriedo et al., 2021; Carriedo et al., 2020; James et al., 2020), the development of the GDA (Carriedo et al., 2018), and obesity strategies (Barquera et al., 2018) have elaborated on the role of industry in the subsystem of obesity prevention, which reinforce my findings that the Sugar Tax and FOPL labelling are adversarial subsystems.

In the Sugar Tax case, the adversarial coalition opposed the Sugar Tax by arguing that it will not solve the obesity epidemic, rather, it will have negative economic effects, such as increasing unemployment. Other arguments included the ideas that it would damage the Mexican sugar industry by creating a stigma around sugar consumption and that SSBs were a healthy hydration option. Industry had access to the venues where health allies attempted to mobilise the

Sugar Tax agenda. For example, industry's interests were represented at the Congress, where a legislator had direct links to the industry and opposed the initial sugar tax draft.

TABLE 15. Elements on the formation of networks of experts

Research question and link to ACF or ECs' concepts		Sugar Tax		Transition between FOPL systems	
		Nascent Coalition for Health	Prospective adversarial coalition for no tax	Dominant Advocacy Coalition for the Warning System	Prospective adversarial coalition
SQ1: Formation	Actors (ACF, ECs)	Tripartite alliance -Health Experts from INSP -Civil society organisations (ContraPESO, Consumer Power, Alliance for Health Nutrition) -Advocacy Think-tank (Polithink) ----- - -Policy champion from PAN party -Academics with law and economic expertise (ITAM, COLMEX) -Health experts from the INCMNSZ	-Food and beverage industry (Pepsi, Coca-Cola) -Food and beverage organisations (Conmexico, ANPRAC) -Retailer organisations -Civil society organisations with links to the industry	-Health Experts from the National Institutes of Health (INSP, INCMNSZ) -Civil society organisations (ContraPESO, Consumer Power, Alliance for Health Nutrition) -Advocacy Think-tank (Polithink) -UN agencies (PAHO and UNICEF) ----- - -Policy champion from MORENA party -Academics (UNAM, IPN)	-Food and beverage industry -Food and beverage industry organisations -Civil society with links to the industry, deputies, senators
	Values and beliefs (ACF, ECs)	Rights-based arguments High level of obesity and diabetes. Effects of soda consumption on health.	Economic impact of the Sugar Tax, Stigma associated to sugar. Sugary-sweetened beverages a healthy hydrating option.	Rights-based arguments (human, consumer, information). GDA is difficult to understand to make informed choices. High levels of obesity	Treatment of obesity through nutrition education. Economic impact of re-labelling, intellectual property effects, violations to trade.
	Policy core beliefs (ACF, ECs)	Obesity tackled with a multiple strategy. A 20% ad valorem tax on sugar-sweetened beverages	Obesity based largely on individual behaviours No tax on sugar-sweetened beverages	Obesity tackled with a multiple strategy Warning system	No consensus (different FOPL systems)

Source: Own elaboration based on results chapters.

For the FOPL system's transition, members of the opposition argued that the treatment of obesity should be adopted from an education perspective. In addition, they presented economic arguments such the claims that re-labelling would impose a cost to these industries and that the implementation of the Warning System would contravene international treaties. Furthermore, participants highlighted that there was no consensus in the labelling format

supported by the industry. Industry influence was also noted at the legislative and regulatory stages, by attempting to access the political elite and offering the policy champion economic gains for her constituency. At the regulatory stage, opposition engaged in technical debates, although the evidence provided was noted as low-quality by the health allies.

Historically, businessmen and business associations have influenced politics and economic policy in Mexico, having direct access to the President and power to influence through lobbying at the Congress. Since the late 1980s actors with links to the industry have taken public office. In early 2000s, the cabinet of President Vicente Fox, a former Coca-Cola employee, was formed of actors that had formerly had positions in the industrial sector (Alba Vega, 2006), including the food and beverage industry. After Vicente Fox's administration which took place between 2000 and 2006, the food and beverage industry, particularly Coca-Cola, continued having ties with government officials, successfully opposing to the introduction of NCDs' prevention policies (Gómez, 2019).

Furthermore, at the Congress level, industry is perceived to have higher economic and technical resources to shape decision-makers' opinions than other interest groups, partially due to lack of capacity within the Congress to undertake policy analysis (Velázquez López Valverde, 2017; Alba Vega, 2006). Other avenues for industry power have been found in partnering with the 2012-2018 government administration to fund the anti-hunger campaign and funding research (Gómez, 2019) used to question tax effectiveness (Gómez, 2021) which was the case for the Sugar Tax.

At the global level, trends suggest that tobacco, alcohol, and food and beverage industries have been expanding market to LMICs as sales in developed countries have decreased or stagnated (Hoe et al., 2022; Moodie et al., 2021). Hoe et al. (2022, p.2) argue that through the global expansion of these unhealthy commodities' industries, they are gaining corporate autonomy, or 'the freedom to prioritise their interest at the expense of public interest, including public health.' The power of corporations (predominantly transnationals) is attributed to the capacity they have for shifting physical and capital investments, generating employment, and using local inputs in their manufacturing processes (Mialon et

al., 2015). This creates government interest in attracting and maintaining investments, and they subsequently provide incentives to industries to remain within a country (Moodie et al., 2021).

8.1.2 SQ 2: What information do experts possess and how is it disseminated?

Table 16 (Coalitions' resources, strategies, and uses of information) summarise the findings to answer this subsidiary research question. According to the ACF, 'empirical evidence is a technical resource deployed by coalition members' (Mosley and Gibson, 2017, p.701) to influence policymaking. Health experts were the main providers and carriers of empirical evidence in both case studies. In forming the alliances between academics, civil society organisations, and political strategists, participants recognised importance of the evidence provided by the INSP in the Sugar Tax case and for the transition to the Warning System, although for the latter the presence of PAHO as health expert was also relevant.

In the Sugar Tax case, beyond the health statistics indicating the prevalence of overweight and obesity and associated diseases in the country, evidence possessed by health experts consisted of studies about the relationship between the consumption of SSBs and health risks. Since 2008, studies and recommendations tailored to the Mexican population were published in academic journals by local health experts. Later, for the Sugar Tax passage between 2012-2014, health experts affiliated to the INSP analysed the expected impact of a Sugar Tax on SSBs consumption, tax collection, and health outcomes using local data.

For the transition to the Warning System, evidence consisted of evaluations of the use and understanding of different FOPL systems. The first study in 2011, was focused on assessing the use of GDA among nutrition students. Yet, as other systems were used internationally, analysis was extended to cover the understanding of alternative systems at population level: the Chilean warning system and Ecuador's traffic light, for instance. Alongside these studies, nutrient profiling analysis was undertaken on products available in the Mexican market to observe how permissive different FOPL systems were. Studies analysing the use of nutrition claims allowed researchers to observe that products bearing "light,"

“healthy,” and other attributes, were of lower quality and not identifiable with the GDA system.

For the FOPL systems case, PAHO’s nutrient profile model was also highlighted as a relevant source for policymaking and one of the “most recent” pieces of evidence. The model was created by an international expert consultation group, which defined thresholds to classify processed and ultra-processed food as high in sugars, fats (saturated and trans), and sodium, following WHO’s Population Nutrient Intake Goals to Prevent Obesity and Related NCDs (PAHO, 2016).

Results also reveals the use of health experts’ position-documents, and evidence compendiums as sources of information to support the policy change in both settings. For the Sugar Tax case, “the White Book” of obesity, a position-document issued by experts and the National Academy of Medicine with recommendations to prevent obesity through diverse policies (see Rivera et al., 2012), was highlighted by the interview participants. For the transition to the Warning System, the position-statement issued in 2018 by experts commissioned by the MoH (see Kaufer-Horwitz., 2018) and the updated version of “White Book” of obesity (see Rivera et al., 2019) both recommended the use of a FOPL system that was easy to understand.

As anticipated, experts engaged on evidence dissemination with the academic community in events and publications. As a strategy for influencing the adoption of the Sugar Tax and the Warning System, results demonstrate that evidence was disseminated to the public and decisionmakers by intermediation, and “translation” was done by civil society organisations and political strategists. This action may reflect how expert actors overcome the need to “bridge the gap” between the evidence and politics highlighted in the Evidence-Based Policy Making literature (Parkhurst, 2017; Cairney et al., 2016) by engaging in coalitions. Ultimately, evidence is a resource used to shape beliefs, and to persuade and frame policy solutions (Heikkila et al., 2020; Cairney, 2017), which, to influence policy decisions as Mosley and Gibson (2017, p.717) noted, must be ‘geared more to the concerns of specific users than what is generally produced by academic researchers.’

TABLE 16. Coalitions' resources, strategies, and uses of information

Research questions and link to ACF or EC's concepts		Sugar Tax		Transition between FOPL systems	
		Nascent Coalition for Health	Prospective adversarial coalition for no tax	Dominant Advocacy Coalition for the Warning System	Prospective adversarial coalition
SQ2 and SQ3: Information diffusion and strategic use	Resources (ACF, EC)	-Evidence of SSB consumption and health risks -Locally produced evidence on hydrating options and price elasticities -Position documents -Support from academics and international experts -Strategy enabled by Bloomberg Philanthropies funding	-Economic power -Interests represented within the Congress -Lobbying power	-Locally produced evidence -PAHO's nutrient profile -Position documents -Support from international experts	-Economic power - Access to the political elite - Interest represented within the Congress -Lobbying power
	Strategies (ACF)	-Coalition Building (tripartite alliance) -Raise awareness of the obesity problem, consequences of soda consumption, and need for the tax. -Looking for access to decision-makers (Venue shopping).	-Lobbying -Use of media opposing the tax -Alliance with retailer associations --Misuse of evidence.	-Coalition building ('we were a group of allies') -Raise awareness and gain public support, -Defend evidence	-Directed lobbying, -Access to decisionmakers, -Misuse of evidence
	Use of information (ACF)	Design the tax attributes, refute arguments of opponents, generate materials to decision makers. Raise awareness of the problem of obesity, sugar consumption.	No sound health evidence but reliance on economic indicators	-Provide information to generate documents at the legislative level -Design the Mexican nutrient profile -Participation in working groups	Presenting evidence as requested by the regulatory authority

Source: own elaboration based on results chapters.

Another dissemination channel was the direct involvement of health experts in discussions at the Congress and with government technicians who oversaw developing fiscal policies and regulatory policies, for the Sugar Tax and transition between FOPL system cases respectively. However, the way in which health experts participated in these venues varied. At the Congress, health experts supported the civil society organisations, the policy champions, and allies. For instance, in the period 2012-2013 for the Sugar Tax case, a health expert commented that their participation was for 'lobbying based on evidence' and providing inputs for the Congress allies, whereas for the FOPL case in 2019, the presence of a knowledge broker was observed as the key actor disseminating the evidence prepared by a group of researchers from the INSP.

Compared to the legislative stage and between the two cases, the dissemination of evidence to the ministries in charge of designing the policy varied in terms of access and forms of involvement. The Sugar Tax case involved the intermediation of civil society to grant access of health experts to the MoF's technicians, with whom health experts shared the price-elasticity studies, even though technicians decided different characteristics for this. In contrast, for the adoption of the Warning System health researchers and civil society organisations were invited to take part in the discussion groups for the changes in the NOM-051.

With regards to the opposing coalitions, it was shown in the previous question that industry had access to influence the legislative and executive decision-making venues through formal and informal channels. In the Sugar Tax case, evidence presented by opposing actors was for the most part not sound health evidence but economic indicators, highlighting that there was no relationship between the consumption of soft drinks and health risks. Industry also displayed misuse of evidence by selectively quoting health allies' documents, for example, from the "White Book" of obesity. They also presented a lack of international evidence on the effect of a sugar tax on health, including PAHO's absence of studies on the effectiveness of taxes in Latin America, to conclude that the evidence did not support the effectiveness of the tax.

In the transition to the Warning System, similar activities were observed. Opposing actors displayed the use of economic arguments to support their positionality. At the regulatory stage and facing the condition of presenting sound evidence in the discussion, industry presented commissioned studies and evidence produced locally and internationally. However, the misuse and misinterpretation of evidence was apparent, including misquoting, selective quoting, or distortion of evidence. For example, based on a study produced by health allies, industry recalculated indicators to favour industry arguments.

Strategies on the misuse of evidence by the tobacco, alcohol, and SSBs industries documented worldwide are aligned to the findings of this thesis. In a scoping study, Hoe et al. (2022) expose the fact that industries shape evidence bases by funding research that favours industry activity and use tactics such the

misrepresentation of existing health-related evidence to keep industry power. Focusing on Obesity and the SSB industry, Fooks and colleagues (2019, p.2) highlight that industry deploys more intensive 'questionable uses of evidence' in this area, based on the multi-factorial nature of obesity and mixed results of the association between health taxes and weight loss.

8.1.3 SQ 3: How is expert-based information used in policymaking?

Information is a political resource that can be 'acquired, learned, and applied in policymaking' (Weible, 2008, p.619) politically by policy advocates. Information have learning, political, and instrumental uses (Weible, 2008) but are also utilised for awareness-raising (Funke et al., 2021) by policymakers. The learning mode occurs when the accumulation of science gradually affects policy through alterations in decisionmakers' beliefs about how to address a public issue (Weible, 2008). The political use implies the use of such information to legitimise 'previously made' policy decisions (Weible 2008, p.790), whereas the instrumental use refers to a rational use of expert-based information for policy decisions. In other words, this is when a problem exists and research is conducted to find and adopt the best solution (Weible et al., 2010). Recently Funke and colleagues (2021) have argued for a fourth use of evidence, which is for raising awareness. This function refers to the use of information to shape public perceptions of uncertainty and risks regarding a policy area, similar to the issue-framing strategy, or the way in which advocates present their ideas to persuade others (Lesch and McCambridge, 2021; Holden and Hawkins, 2013).

The case studies illustrated that diverse uses of information by policymakers coexist in in subsystems. In both cases, the instrumental use of health-based information was suggested when designing the policy instrument. For the Sugar Tax, the initial draft discussed at the Senate in 2012 was based on the evidence of soda consumption and health risks, and the price-elasticity studies possessed by the INSP regarding the impact of the sugar tax on health and revenue. For the Warning System, nutrition profiling and research about understanding the different labelling systems according to national representative data contributed to the NOM-051 drafting.

The political use of information was mainly observed in the Sugar Tax case, where the tax proposed as part of the 2013 Fiscal Reform reflected the rationale but not the preferences of health advocates. The tax was presented by the executive power and defended at the Congress as a health tax, framed around the high prevalence of excess weight and obesity, as a way to curb the consumption of empty calories and decrease the health costs associated with the treatment of associated diseases while increasing tax revenue in parallel (Secretaría de Hacienda, 2013). Despite the 1-peso-per-litre rate not meeting the international threshold of a 20% price increase (WHO, 2016) to be considered a “health tax” (Wright et al., 2017), support from health advocates in decision-making and public venues allowed the executive power to legitimise this fiscal policy in line with the right to health and to counteract the opposition from the food and beverage industry.

The Warning System process also observed the political use of evidence to counteract the industry opposition at the regulatory work group meeting’s discussions throughout 2019. However, results suggest that the instrumental and learning uses of evidence outweighed political use. The FOPL system being discussed at the working group meetings was the Warning System designed by health experts, pointing towards instrumental use of evidence as described before. However, the implementation and evaluation of the Warning System in Chile, the development of PAHO’s nutrient profile, and the local studies assessing the GDA or alternative FOPL systems since 2011, modified Health Coalition and decisionmakers’ beliefs about the most appropriate FOPL system. As an illustration, the regulatory entities COFEPRIS and MoE mandated the design of the labelling system, stating that *‘it had to be better than the Chilean’* [Interviewee P-016].

Lastly, the recently proposed fourth use of evidence for “awareness-raising” mirrors civil society organisations’ advocacy and campaigning actions identified in the two case studies, what suggest this is an extension of the political use of evidence deployed by policy advocates, but not by decisionmakers as implied in Funke et al. (2021). For the Sugar Tax case, awareness about the health damage caused by the consumption of SSBs was done through forums and events where experts participated in evidence dissemination to the public, but also by

incorporating evidence to innovative media campaigns. James and colleagues (2020) found that these campaigns contributed to an increase in public perceptions about the severity of obesity in Mexico and had an impact on government attention to address the obesity and diabetes problem.

For the transition to the Warning System my results suggest that raising awareness of the problem in understanding the GDA and interference of industry in policymaking were raised by the civil society organisations since 2012. However, in 2019 while the Warning System was discussed at the legislative and regulatory stages, a mass media campaign was launched to inform the population about the superiority of the Warning System for healthy food choices, disclosing the evidence behind this labelling format. Given the lack of access to the decision-making venues, raising awareness has been one of the main roles of civil society organisations as a way to claim or create power in this policy area, as suggested by Rincón-Gallardo (2021).

Regarding the use of expert-based information as a resource found in the two subsystems, the cross-case comparison suggests two key findings. First, the instrumental use of information may be linked more to the maturity of the subsystem or to external events than to the type of subsystem (i.e., adversarial, collaborative, unitary). Weible's (2008, pp.628-629) framework on the use of information suggests that the instrumental use of information will be lower in adversarial policy subsystems, as actors will be 'set on defeating opponents and reinforcing their policy positions and not on following the suggestions from expert-based information.' Yet, the transition to the Warning System depicts an adversarial subsystem where despite industry opposition evidence was applied by the health experts in the design of the regulatory instrument. This suggests that there was a power imbalance within the network, however, as government regulatory members supported health allies, they gained significant influence.

Second, the awareness-raising function is the main use of information exerted by the civil society organisations (policy advocates) through campaigning. It is used to influence shifts in the public perception of problems and the best policy solutions based on health evidence, although it may depend on the type of policy subsystem or the policy at stake. For the adversarial policy network depicted in

these two case studies, the alliance of health experts-civil society organisations for mobilising information was highlighted in the quote that opens Chapter 5:

When you have this type of controversial policy, you strongly need academia for evidence generation and for civil society organisations to mobilise public opinion to demand the policy, so the political cost of not implementing or doing nothing becomes high [P2-04, Health researcher].

Studies on tobacco (Akin-Onitolo and Hawkins, 2022; Studlar and Cairney, 2019) and alcohol policymaking (Lesch and McCambridge, 2021; Holden and Hawkins, 2013) have also valued the role of advocates for framing the policy debates around health risks associated with the consumption of unhealthy commodities to influence policy change. It occurs particularly because these policy areas are characterised by a high degree of conflict with the industry (McCambridge et al., 2018), a factor also observed in obesity and dietary NCDs policymaking at global (Lauber et al, 2021) and national levels.

In sections 8.1.1 and 8.2.2 of this chapter we addressed how in the two cases, industry has had power to oppose health allies and influence actors at the legislative and executive venues. Industry actors used diverse strategies in these settings. In the Sugar Tax case, industry's actors allied with small grocery retailers to persuade legislators about the economic damage of the Sugar Tax to this important food-retailer sector (see Chapter 3). It was also found that industry used mass media to try to convince the population that SSBs were a safe option in the early discussion of the Sugar Tax, as well in opposition to the tax once it was implemented. In the transition to the Warning System, the beverage industry lobbied at the elite level and offered financial benefits to the policy champion, and in addition tried to impede the discussion of the FOPL system through accessing President's cabinet. Later, during the regulatory discussions, evidence presented was elaborated on with clear conflicts of interests that favoured the industry position.

Industry tactics such as the ones deployed in the case studies, have been used to influence policymaking in Australia (Mialon et al., 2017), Canada (Vandenbrink et al., 2020), Colombia (Mialon et al., 2020) and Mexico (Ojeda et al., 2020). Corporate political activity has gained relevance within the public health

community for the threats imposed to public health policy processes and the adoption of evidence-informed policies.

8.1.4 SQ 4: How is policy change attained in the Sugar Tax and FOPL cases?

Table 17 (Pathways and mechanisms of influence for policy change), summarise the findings supporting this fourth subsidiary research question. As presented in Chapter 1, for the ACF, actors form coalitions with certain resources, acting strategically to influence a policy change based on their belief system, while also acting against or in collaboration with competing coalitions. A policy change would mirror the beliefs of the winning advocacy coalition. Nevertheless, it may be influenced by one or more of the five pathways for change: '1) external events, 2) internal events, 3) policy-oriented learning, 4) negotiated agreement, and 5) changes imposed by a superior jurisdiction' (Pierce et al., 2020, p.70). These pathways may be accompanied by a secondary component to change, or causal mechanisms. These may include the opening or closing of venues, a change in the distribution of resources, and policy brokers, among others (Pierce et al., 2020).

For the ECs' literature, policy change occurs through a mechanism of influence where experts gain access to decision-makers and shape their preferences for a policy solution from within government bodies (Löblová, 2018a). However, in the absence of uncertainty, which has been referred to as the scoping condition of influence, there is a knowledge demand which may increase the importance of experts' influence in policymaking and in the adoption of policies aligned with experts' preferences. Demand for expert inputs, such as technical knowledge or evidence, may occur for instrumental or political reasons (Löblová, 2018b).

Table 17 presents the main conditions that facilitated a policy change, divided into pathways for change and mechanisms of influence. External events in the Sugar Tax case are accompanied by suasion as a mechanism of influence, whereas for the transition to the Warning System, external events and policy-oriented learning were the main pathways for change accompanied by knowledge demand as a mechanism of influence.

TABLE 17. Pathways and mechanisms of influence for policy change

Research question and link to ACF or EC's concepts		Sugar Tax		Transition between FOPL systems	
		Nascent Coalition for Health	Prospective adversarial coalition	Dominant Advocacy Coalition for the Warning System	Prospective adversarial coalition
SQ4: Policy change	Mechanisms of influence (EC)	Suasion. Experts involved in legislative and academic forums, presenting estimations to decision-makers.		Knowledge demand. Experts invited to working groups.	
	Pathways (ACF)	Change in government (external event), public support.		Change in government (external event), Policy-oriented learning, continuous campaigning of CSOs.	

Source: own elaboration based on results chapters

External events

In both of the case studies the establishment of new governments, resulting from the 2012 and 2018 federal elections held in Mexico, are the main factors associated to policy change. Change in government represents an external event to the policy subsystem, as this cannot be controlled by the actors interacting in the network (Weible and Nohrstedt, 2012). However, as an external shock, it may open or close venues, and alter the resources of coalitions 'because of renewed attention of the public or key sovereigns' (Weible, 2006, p.101).

For the Sugar Tax case, health experts highlighted that the idea of implementing the tax, based on international and local evidence, had been presented continuously in the discussions of the national nutrition strategies. This suggests that 'scientific evidence is a necessary but insufficient condition for major policy change, even when the evidence seems unequivocal to scientists' (Studlar and Cairney, 2019, p.3). Nevertheless, the establishment of a new Congress represented an opportunity avenue that health allies exploited by establishing a collaboration alliance with a policy champion in autumn 2012 (as described in section 8.1.1). The alliance with the champion helped to position the tax policy on the public government agenda, although the tax found immediate opposition at the Senate.

With the inauguration of President Peña Nieto's administration in December 2012, and the planning of the Fiscal Reform during the first semester of 2013, the MoF considered the idea of the Sugar Tax as something that could be implemented to increase government revenues, while helping also to discourage the consumption of soda around the obesity prevention rationale. These two objectives are portrayed in the government documents surrounding the adoption of the tax. Notwithstanding, the definition of the tax type and rate attributes, reflect that, despite health allies engaging in the dissemination of the modelling studies on price-elasticity and evidence on the impact of soda consumption on health, their influence was limited to issue-framing at the agenda-setting stage.

Despite the fact that experts' influence was limited to these early stages, it cannot be argued that a causal mechanism of influence for policy change did not exist (i.e., knowledge demand, uncertainty) in the logic of ECs (Löblová, 2018b). Rather the creation of alliances between health experts, civil society organisations, and other actors with political expertise was a key strategy for disseminating evidence and attracting decision-makers' attention, which ultimately boosted the political use of health evidence. This was a strategy that neither health experts nor civil society organisations had implemented prior to 2012.

For the transition to the Warning System, the change in government represented a "window of opportunity" to mobilise the labelling agenda at the legislative sphere. Patterns such as the collaboration of a "group of allies" and looking for policy champion support at the Congress, mirror the strategies behind the Sugar Tax case for positioning the labelling policy on the government agenda. In fact, it has been argued elsewhere that political cycles are important for understanding change in obesity prevention policies (Clarke et al., 2019; Freudenberg and Atkinson, 2015; Milton and Grix, 2015).

The alternation of the governing political party in Mexico also meant a readjustment of powers between the health advocates and the industry opponents. For the adoption of the GDA FOPL system in 2014, power was largely perceived as unbalanced, where industry was the actor that provided greater input for this system design. For instance, interviews recognised that decisions

made within the regulatory process, in addition to the formal power held by the industry to participate in the discussion of official standards, allowed a rapid adoption of this FOPL system, as argued in Chapter 3. Results suggested that the appointment of civil servants aware of obesity-related problems and of the interference of industry in policymaking, enabled the direct participation of health experts and key civil society actors in the working groups for the elaboration of the NOM-051. This supports Rincón-Gallardo's (2021) findings on the study of network actors' power dynamics in the same policy domain.

By formally requesting that arguments about the modifications of the Warning System must be backed by evidence, regulatory entities allowed for the greater influence of health advocates, including researchers, civil society organisations, and the UN agencies PAHO and UNICEF, who possessed the latest evidence on labelling design and understanding. In this regard, knowledge demand was the mechanism of influence (Löblová, 2018b) seen in the adoption of the Warning System. This is not to say that the NOM-051 as published mirrors entirely initial proposals of health advocates (i.e., when comparing document SB030 of the project to modify NOM-051 to SB031, which is the modification in the official gazette), but despite industry opposition the most notable change identified by the data was the sweeteners stamp. That latter, according to the interviewees, was adapted following evidence provided by the industry.

Policy-oriented learning

An underlying pathway associated with the modification of the FOPL system but not the Sugar Tax case was policy-oriented learning. This concept refers to 'adjusting understandings and beliefs based on lived or witnessed experiences, analysis, or social interaction' (Dunlop and Radaelli, 2013, p.599), including those related to public policy and policy actors (Moyson et al., 2017; Dunlop and Radaelli, 2018). For the ACF, it is defined as 'relatively enduring alterations of thought or behavio[u]ral intentions that result from experiences and/or new information that are concerned with the attainment or revision of policy objectives'

(Sabatier and Jenkins-Smith, 1999, p.123) leading mostly to minor, but also major, policy changes (Weible and Sabatier, 2006).

The findings suggests that a learning process occurred once the implementation of easy-to-interpret systems took place in other Latin American countries: Ecuador by the end of 2014 with a traffic light system (Diaz et al., 2017), the warning stamps in Chile in 2016 (Reyes et al., 2019), and Peru and Uruguay following in 2018 (PAHO, 2020a). In particular, the implementation of warning stamps shaped and aligned the preferences of health advocates, experts, and decision-makers.

In the period 2011-2015 there was disagreement in Mexico regarding the most effective FOPL system. The GDA was first introduced as a voluntary measure by industry and was then, made mandatory by the government. Civil society organisations proposed the implementation of the traffic-light system, whereas health researchers proposed a logo identifying healthy products. However, once the Chilean warning system was implemented, and evidence showed populations' higher level of comprehension of this FOPL system than the GDA, health experts and allies advocated for the modification of the NOM-051 accordingly. For its part, government officials referred to the Chilean warning system as the comparison point for designing the Mexican labelling. This may reflect the transforming effect of evidence on policy choices over time (Daviter, 2015).

International experiences in labelling implementation and the development of PAHO's nutrient profile also helped to refine the attributes of the NOM-051. For example, working groups' participants commented about recommendations made by Uruguay to modify wording in how to communicate the excess in nutrients, and feedback from Chile to also adopt the sweeteners stamp.

Learning as a by-product of bargaining was also associated with change, having effects on health advocates' strategic skills to face the opposition. On the one hand, civil society organisations learnt about the industry tactics and arguments to influence public policies from the Sugar Tax policy passage and their participation in the OMENT. On the other hand, for health experts the involvement in the discussion of policies associated to nutrition and obesity since the 2006-

2012 administration made them aware of industry as opponents. They also became familiar with the regulatory process due to their participation in the adoption of the guidelines that prohibit the sales of processed foods in schools.

8.2 Networks of experts post-policy adoption

The second research question in this research project was to understand whether networks of experts remain involved in the policy sphere once their preferred policy solution had been adopted or failed to reach the political agenda. This was driven by a gap in ECs' literature which has not addressed the long-term involvement of experts beyond the agenda setting stage. By mapping elicited collaboration networks and exploring the qualitative data on network changes, Chapter 7 results suggest that health experts and allies, when studied at organisation level, maintained collaboration ties over time for influencing policy changes in the Sugar Tax and the FOPL systems, although their main activity is to keep performing tasks associated with their workplace.

Hence, in the Sugar Tax case, the intention to increase it to at least 20% and earmark its funds remained in the political agenda due to continued civil society advocacy and campaigning activities. At the same time, health experts have continued evaluating the impact of the Sugar Tax on health, and developing further improvements to the tax (i.e., assessing the possibility of implementing a tiered system). Furthermore, although they continue providing support and evidence to civil society organisations and government by request regarding the Sugar Tax, they have also carried on generating evidence for other nutrition policy areas.

In the FOPL system case, a failure to adopt an alternative to the industry proposed GDA in 2012-2014 motivated health allies' actions towards the adoption of a different FOPL systems. Namely, health experts studied the inadequacy of the GDA system to meet the goal of enabling healthy decisions and proposed alternative systems, whereas civil society organisations campaigned against the GDA and industry interference. Notwithstanding, when time came for the Warning System to be adopted as the preferred policy solution to the problem of difficulties in interpreting the GDA and informing population

about healthy food choices, other organisations became allies to the health experts, forming collaborative relationships to defend the Warning System.

For the ACF's literature these results are not novel as it has long been observed that, when analysing organisational membership, coalitions remain stable over time, as highlighted by Weible and colleagues (2020) in the most recent revision of advocacy coalitions lessons. However, by "zooming in" on the actors that belong to coalitions, the results appear to highlight the importance of specific actors behind the stability of collaborative ties. This occurs with actors that between periods remained in central positions, for instance connecting academics and civil society actors.

Mäkinen et al. (2019) found that the continuous presence of central actors in sports policy networks contributed to shape the whole network structure. In the Sugar Tax case and the FOPL systems, the presence of an academic actor and a member of a civil society organisation, respectively, may be partially responsible for the permanence of collaboration ties between health allies for attaining policy changes. However, further research is required to explore this argument further.

A more detailed look at individual networks through the ego-centric analysis reveals affiliation as a factor that may determine both the involvement of actors in the network to influence the adoption of obesity-related policies and also the permanence of ties for policy influence purposes in the long-run.⁵⁵ When looking to the individuals that were involved in the attempts to adopt the Sugar Tax or an alternative to the GDA in the period 2012-2014 we can identify three main changes in personal networks associated to whether the participant continues in the same organisation that in the period 2012-2014 or not.

First, giving a new meaning to ties. If participants are no longer part of the organisation in which they collaborated in 2012-2014, ties with ex co-workers and other sectors may become "friendship" ties or co-working ties in other areas. This is the case for technicians from the Ministries involved in the fiscal and regulatory policies who stayed in contact with their closest collaborators beyond the adoption of the Sugar Tax or the GDA FOPL system, but are no longer involved

⁵⁵ Beyond the core beliefs presented in the first subsidiary question.

in regulatory or fiscal policies related to health. This means that these actors do not take part in further policy changes.

The second change is giving a new meaning to ties *while remaining in the public health research area* (despite leaving the organisation they collaborated in). This is the case for participants who in the first period collaborated in academic institutions. In the long run, they kept some of their collaboration ties with ex co-workers or actors from other organisations over time for conducting research on FOPL systems evaluation, documenting obesity-prevention policies' passages among other topics. However, they considered themselves no longer engaged with the same actors for influencing a policy change.

The third change is creating new ties or strengthening ties, as long as the actors remain involved in their organisation between periods. This is the case for participants working in academia, civil society organisations, and government who mentioned persistent ties. Lost ties were replaced with new ties or ties strengthened for the activities they commonly undertake, and this may have contributed to the advocacy for a change in the Sugar Tax (or other policy areas) or to the adoption of the Warning System.

Previous studies have hypothesised that networks of experts persist if they are cohesive enough to survive 'the withdrawal of demand' (Löblová, 2018b, p.182), depending on professionalism factors - including frequent interaction or a common culture between actors of expertise (Davis Cross, 2013) - or on whether the network of experts perceives a 'potential reopening of the window of opportunity' (Löblová, 2018b, p.182) as demand from other decision makers continue.

Data for the Sugar Tax and FOPL system suggest that health allies remain involved in policy because of their affiliations to organisations that belong to the governance network of obesity prevention policies, which in the case of health researchers may imply both professionalism and demand conditions. In other words, experts from the health institutes in Mexico, particularly the INSP, continued developing the evidence for public health perhaps due to the mission of the institute of guaranteeing the right to health and, in doing so, it oversees the development of evidence for health policy in the country (INSP, 2020). Hence, it

may represent a space to collaborate with members of the same institution and with international peers in the advancement of health and nutrition science, fulfilling professionalism characteristics identified by Davis Cross (2013).

With regards to demand, the INSP represents the nutrition and health point of reference for evidence from within government. However, in a lack of knowledge-demand from government officials, experts themselves “generate demand” for evidence-informed policies by creating alliances with the civil society organisations, as we discussed in the second subsidiary question. This is in line with Rivera and colleagues’ review (2019b) that identifies for the Mexican context two models in which evidence is used for nutrition policy formulation. The first model follows the mainstream ECs’ condition of influence where policymakers requested the use of evidence for alleviating undernutrition, such as in the design of the conditional cash transfer program *Progres-a-Oportunidades-Prospera*, and the second model that calls for a strategic partnership with civil society organisations to place obesity policies on the government agenda, which reinforces the claim that experts can take part in coalitions and exert the political use of evidence.

8.3 Theoretical considerations and lessons

This chapter has discussed the findings of two research questions and their subsidiary questions, aiming to address theoretical gaps in the ACF and ECs literature by exploring networks of experts over time aided by two instrumental case studies. In this chapter discussion comprised a cross-case comparison of the instrumental cases which explores the involvement of experts in the Sugar Tax and FOPL systems policy developments in Mexico. Moreover, discussion was also linked to the literature on tobacco and alcohol policy processes, as well as food policies in other jurisdictions. Broadening the scope of the discussion was considered relevant because in the prevention of the problems caused by the consumption of other unhealthy commodities, industry has played a prominent role in opposing health measures. Furthermore, such opposition is of growing power in LMICs. This section highlights the theoretical insights and lessons for the broad debate of experts’ influence in the prevention of obesity that this study has yielded, also offering country-specific lessons.

8.3.1 Advocacy Coalitions and epistemic communities

Coalition Formation. Data from this study supports the identification of coalitions through actors, beliefs, and coordination patterns, as it has long been the focus of the ACF (see Chapter 1). However, data in the Sugar Tax case also highlights that resource dependence is an important factor in bringing like-minded policy actors together and that it shapes patterns of coordination for policy influence. The grant provided by Bloomberg Philanthropies enabled coordination and increased health policy actors' resources. This finding contributes to the ACF theory (Weible, et al 2020, 1073) by identifying that beliefs can be secondary components to network coordination. Furthermore, this coordination pattern was also replicated for the transition to the Warning System in the FOPL systems' case.

Coalition stability. Data strongly supports the theory that, when observed at organisational level, key organisations remain involved within a coalition between periods, as conceived in the ACF. This occurs with principal actors such as the INSP, Consumer Power, ContraPESO, and Polithink. However, data in this study also showed that individuals have a key role in the permanence of relationships between organisations (see Chapter 7). The application of SNA tools sheds light on centrality measures, indicating the importance of certain actors for keeping the issues on the government's agenda over extended periods. For instance, this occurred with actors in Consumer Power civil society organisation.

Coalition stability also has implications for the broad literature on ECs and the permanence of networks of experts post policy adoption. Data in the two cases suggests that health allies remain involved in policy due to their affiliation to organisations that belong to the governance network of obesity prevention policies in Mexico. The INSP in particular oversees the development of evidence for health policy in the country (INSP, 2020), which could have implications on how health experts participate in policy processes. Hence, it has been suggested in section 8.2 that structure contributes to the permanence of ECs.

8.3.2 Expert influence in face of opposition

Data strongly supports the theory that health experts can be full members of advocacy coalitions. Their influence within the margins of the ACF and ECs was attributed to the strategies implemented as a coalition, and to a lesser extent to knowledge demand. In both cases health advocates sought to influence the adoption of the tax at the Congress and executive venues. At the Congress they built alliances with legislators in both case studies. However, for the Sugar Tax, civil society organisations created the bridge between health experts and the MoF at the executive level in absence of an evident knowledge-demand condition of influence. In the transition to the Warning System, health experts were invited to participate in the working groups throughout the regulatory process, pointing towards a knowledge-demand condition of influence.

It is important to highlight that the cases also illustrate that health experts can be strategic actors. By knowing that the formation of alliances with civil society boosts health experts' power to influence, they have undertaken an active role in moving forward evidence-informed policies. Data suggested that the salience of a policy, and the level of conflict within a policy area is a factor that requires the strategic involvement of experts. In both cases, health allies have faced the opposition of the food and beverage industry as observed in section 5.4 and 6.4. Nevertheless, industry opposition is a condition prevailing worldwide (Swinburn et al., 2019) for the implementation of measures aiming to prevent NCDs, with adverse consequences in LMICs (Elliott et al., 2022) including Latin-America and the Caribbean (Mialon and Gomes, 2019). This is a reason why building a strong capacity to influence the policy process through alliances is widely encouraged as a lesson from the case studies.

8.3.3 Evidence usage by policymakers

Data from the case studies partially support the theory that the political use of evidence is higher in adversarial subsystems, as the ACF states (Weible, 2008). In the Sugar Tax case the political use of evidence to legitimate a policy design formulated by government technical areas was discussed, however, in the transition to the Warning System, having similar conditions of conflict (i.e.,

industry opposition), the instrumental use of evidence was present. A main difference between cases was that the Sugar Tax was a nascent subsystem, in contrast to the maturity of the FOPL system. This implies that, through the lens of ACF, greater attention needs to be paid to the maturity of the subsystem as a condition that bolsters the instrumental use of evidence by policymakers.

The cases also strongly support the awareness-raising fourth use of evidence (Funke et al., 2021), but this is linked to policy advocates, which suggests this is an extension of the political use of evidence exerted by advocates. Civil society organisations in both cases translated evidence to decisionmakers and to the public, creating awareness of the risk of consuming SSBs and Junk Food, but also exposing the interference of the industry in policymaking. This finding, beyond revealing the significance of the fourth use of evidence within the ACF and the broad literature of knowledge utilisation that followed Weiss' (1979) seminal work, stresses the importance of civil society in generating public support for policies. In the broad literature, one of the difficulties in implementing obesity prevention policies has been the lack of public demand for government action (Swinburn et al., 2019). Thus, the awareness raising function undertaken by organised civil society in Mexico could shed light on other jurisdiction's strategies.

8.3.4 Influence on Mexico's politics

Findings show that change in government has been the main pathway for policy change. This condition has allowed health allies to execute their influence strategy, taking advantage of new government administrations to promote desired policy changes. In the broad debate surrounding policies in Mexico, the lesson of creating alliances between academics and civil society organisations to access veto points is of particular importance, not only in subsequent policies for the prevention of obesity but areas that also find strong business opposition. One factor to bear in mind is that in Mexican politics, similar to other Latin-American countries, the president holds a strong power to dictate policy agendas (Peci et al., 2022, p.5). Hence, organised civil society must prepare to engage in long term advocacy to generate public demand for policy change.

8.4 Summary

This chapter presented a cross-case discussion of findings from the previous chapters through the lens of the ACF and ECs frameworks to answer the general objective of studying networks of experts' formation, influence for policy change, and involvement over extended periods. In other words, it studied networks over time. This objective was explored through two research questions. Namely, how do networks of experts influence policy change; and what happens with the networks of experts after the adoption of policies?

With regards to the first research question the key findings are:

- Resource dependence coupled with values and beliefs enabled the collaboration of health allies to form an advocacy coalition. Furthermore, health experts are full members of advocacy coalitions, and not occasional aides.
- Health experts possess country-specific data on obesity and NCDs prevalence and incidence, but also on how policies proposed can positively affect health outcomes in the country. Information is disseminated through diverse channels, which include translation to the public and decision-makers by intermediation of civil society organisation allies and direct involvement of experts with technical areas of government overseeing policy design.
- Information was used politically by policymakers in the Sugar Tax case, which is characterised as a nascent subsystem. In contrast, the instrumental use of evidence is noted in the FOPL systems' case, for the transition to the Warning System, which is a mature subsystem.
- Change in government is a main pathway for change in these obesity prevention policies, although in the mature subsystems of the transition to the Warning System policy-oriented learning was also important.

With regards to the second question the findings highlight that structure in policy networks matters and may be the condition that allows expert involvement in the long run. Both cases demonstrate that central actors remain involved in their policy areas if they continue working in organisations belonging to the policy network.

Based on the cross-case discussion, theoretical implications, and lessons for the broad debate about obesity prevention policies and prevention of NCDs were presented in four areas: advocacy coalitions and epistemic communities, experts' influence in the face of opposition, evidence use, and influence on Mexico's politics. The next chapter offers a conclusion for the overall thesis, highlighting study limitations and avenues for future research.

Chapter 9: Conclusion

This research project had the objective to studying networks of experts' formation, influence, and involvement over extended periods. This objective was addressed by setting two research question, which were based on theoretical gaps found in the public policy literature of advocacy coalitions and epistemic communities. These are :

1. How do networks of experts influence policy change?
2. What happens to these networks of experts after the adoption of policies?

These questions were addressed by adopting an instrumental a multiple-case study design studying the adoption of the Sugar Tax (case one) and FOPL systems (case two) in Mexico to shed light on the research questions. Interview data of 32 participants was the main source of information, and it was thematically analysed and triangulated with documentary materials. For the second research question, this research employed Social Network Analysis mapping tools and procedures to identify changes at the whole network and individual levels. A cross-case discussion from the lens of the ACF and ECs allowed us to explain the findings and provide theoretical and empirical contributions which are covered throughout this concluding chapter.

9.1 Addressing the research questions

From the cross-case comparison this research found that, in order to influence the adoption of the Sugar Tax, health experts formed an alliance with civil society organisations and political strategists to mobilise the sugar tax and obesity prevention agenda in 2012. However, beyond shared beliefs of obesity prevention for granting basic rights, funding provided by Bloomberg Philanthropies was one enabler of collaboration between actors and the implementation of an influence strategy based on the pillars of evidence, communication, and political strategy. Key health allies identified for Case 1 were also present in Case 2.

Locally produced research held by health allies was used as a resource for awareness-raising, a function exerted mainly by civil society organisations who

“translated” the evidence to decision-makers at the legislative stage and communicated to the public through mass media campaigns in both cases. Yet, when evidence met with the technical areas in charge of designing fiscal (Case 1) and regulatory policies (Case 2), the use of evidence differed. The political use of evidence by policymakers was more significant than the instrumental use in Case 1. Results suggested that health evidence was used to legitimise the fiscal measure as a health tax. Hence, the tax, as approved in 2013, mirrors the proposal of the MoF, which adopted the Sugar Tax as part of a Fiscal Reform. For Case 2, the instrumental use of evidence outweighed its political use for the adoption of the Warning System. Alongside regulatory authorities from the Ministries of Health and Economy, health allies took part in designing the official standard NOM-051 that regulates FOPL systems. A main difference between cases is the maturity of the subsystem.

In both cases, the change in government is associated with policy change, as it allowed health allies to gain access to recently appointed public servants at the legislative and executive levels to support the Sugar Tax and Warning Systems’ agenda. This pathway for change was accompanied by suasion as the mechanism of influence in Case 1 (i.e., health allies helped to frame the tax as a health tax), and knowledge demand in Case 2 (i.e., health allies participated in drafting the regulatory instrument).

With regards to temporality, or the long-term involvement of networks of experts, this thesis sees the Sugar Tax’s adoption as a successful policy passage, and the attempts to modify the industry led GDA FOPL system around 2012-2014 as unsuccessful. It was observed that at the organisation level, health allies remained involved in the policy sphere after the Sugar Tax passage. civil society organisations and political strategists advocated for the Sugar Tax increase and its defence during the annual federal budget discussions, and health experts generated evidence on the impact of the tax. In the FOPL system case, health allies remain involved between periods in the policy sphere. Initially, no preferred policy option was shared among all actors, but towards 2018-2020 all actors supported the Warning System, and new ties became relevant to advocate for the policy change.

When focusing on individual networks, data suggests that actors' collaboration ties for attaining a common policy objective are related to their job position. In other words, structure within a policy network matters. Hence, once individual actors (egos), or the person they nominate as a collaborator (alter), leaves their workplace, relationships may remain for professional purposes (i.e., they undertake research projects together) not necessarily related to the adoption of the concerning policies. If the actors remain active in the policy network, the pursuit of a policy change may require the emergence of new ties. Nonetheless drawing generalisable results is not possible from individual networks, as these latter results are a first approach to understanding network dynamics.

9.2 Theoretical and empirical contributions

This study attempted to address gaps in the ACF and in the ECs literature. The selection of the instrumental cases was also guided by an empirical gap in the public health literature as discussed in the introduction to this thesis. Hence this study makes four main contributions.

Gap 1: To advance the knowledge on the formation of networks of experts, considering the need to 'broaden the theoretical scope for examining the type of beliefs that policy actors share in a coalition and the factors that shape their coordination patterns' (Weible et al., 2020, p.1073).

Contribution 1, resource dependence enables the formation of networks:

This study suggests that *in a nascent subsystem, external resources (resource dependence) may contribute to the formation of networks by aligning secondary beliefs about the preferred policy solution, and this will influence the design of coordination strategies*. The Sugar Tax case illustrated that despite actors' attempts to implement obesity-prevention policies since mid-2000, it was the interest and funding of Bloomberg Philanthropies for the implementation of the obesity agenda in 2012 that allowed for the identification of avenues of collaboration between health allies and the development of the influence strategy where the tax was selected as the first policy to implement. The importance of the resources provided by Bloomberg Philanthropies, is that these financial and technical resources enabled the configuration of the alliance and the formation of

social capital (i.e., actors know each other, and it is easier to collaborate) that later contributed to the adoption of the Warning System.

Gap 2: To expand our understanding of the use of science and the level of conflict in the policy subsystem (Jenkins-Smith et al 2017, p.156).

Contribution 2, uses of information are linked to the level of conflict and maturity of subsystems: Based on the results that observe adversarial subsystems where the food and beverage industry has been the main opposing actor to high salience policies, evidence has been used in different ways, which suggests that *in adversarial policy subsystems information uses may differ, depending on the maturity of the subsystem*. The Sugar Tax case illustrated that in a nascent subsystem information played awareness-raising and political functions. The transition to the Warning System observed that as years passed, evidence shaped the preferences of decision-makers and, despite industry opposition, the instrumental use of evidence carried over.

Gap 3: To understand what happens to networks of experts once they have disseminated the evidence to decision-makers (Löblová, 2018b; Davis Cross, 2013)

Contribution 3, epistemic communities continue involved in the policy process post-policy adoption, according to their affiliation: By applying SNA it was observed *that health allies remain involved in the policy sphere undertaking activities proper to the nature of the job position*. For example, health experts elaborated the studies on the impact of the Sugar Tax after its implementation and continue having ties with civil society organisations for the possible changes to the tax and other policies. In the FOPL systems case, they have developed the evidence to support the claim that the Warning System is superior to other FOPL systems for the Mexican population. The importance of this contribution regarding the temporality of networks is to observe that expert input may exist and be needed after policy adoption alongside advocacy efforts for the advancement or termination of policies, bearing in mind that policy does not end once a policy is implemented. Lasswell (1956) captured in the stages heuristics that the policy process is ongoing and after policy implementation, evaluation and feedback represent stages that contribute to further policy changes or their termination.

Gap 4 (empirical): Undertake the analysis of policy change for obesity-prevention policies from the policy process theories as a resource to capture the complexity of the policy arena and to draw lessons for health practitioners that aim to introduce similar nutrition strategies elsewhere (Clarke et al., 2016).

Contribution 4: This study has shown us that health experts have addressed obstacles to the use of evidence for policy change through three avenues. First, they have developed collaboration ties with other actors that bring expertise in campaigning and political strategy to position the obesity issues on the agenda and to gain public support, in what one health expert has denominated as “generating demand.” Second, the collaboration with civil society organisations have also helped to “translate” the evidence for the public. Third, they have addressed the complexity of obesity prevention by advocating the implementation of one policy or program at a time. They promoted the guidelines for food and beverages (Barquera et al., 2013), followed by the Sugar Tax and the FOPL Warning System. Although the multi-level strategy better takes into account infrastructure and education, this was done to prevent and mitigate industry interference in policy formulation (Barquera and Rivera, 2020).

These avenues for action can help to guide actions in other settings, providing examples such as the need to build coalitions and frame the need for the policies around rights-based arguments (for example granting the right to health). It has been suggested that policy change does not follow accepted and consolidated evidence when there are no allies properly organised to frame the policy debate (Ma et al., 2020) around arguments that are compelling and feasible to decision-makers (Cairney and Yamazaki, 2018). Furthermore, in the long term, health allies can help to shape the policy environment to make it conducive to change by demanding government action.

Despite the contributions to the policy process and public health literature, understanding the role that experts and knowledge play in policy processes continues to be relevant in face of the industry opposition. Consequently, further potential avenues for study are presented in the last section.

9.3 Study limitations

The findings of this study have to be seen in light of some limitations. The first pertains to the response rate; due to the low response rate of government officials from regulatory authorities in the FOPL systems case, and the lack of involvement of industry actors in both cases, the analysis of networks (coalitions) considering the perspectives of these actors was not possible. Hence, in both cases, how industry and its allies (for example health or nutrition experts with links to the industry) participated in the adoption of the policies, and how they used evidence and collaborated with other actors and organisations was captured by the views of those who agreed to be interviewed and who, except from one civil society organisation participant, volunteered no links to the industry. It is important to mention that the ECs literature suggests that even among experts, there may be disagreement. Hence, capturing experts in opposing coalitions could shed light on opposing arguments and evidence sources.

Documentary data helped to fulfil some of the gaps in capturing the positionality of the industry, however, in the case of the transition to the Warning System, one data source that was not explored was the responses to the public consultation. The Warning System is to date the official standard that has received most responses, with more than 5,000 comments submitted to the regulatory authority. The collecting of such data was not feasible due to time constraints and the study's focus on health allies; nonetheless, this is a potential area for further research (see Section 9.4).

The temporal perspective of this study is another limitation. Ideally a study that aims to capture change in networks would have a longitudinal design (not retrospective such as the one presented here). However, because there is currently no interview data for the period of 2012-2014, the study relied on retrospective data (recollections of interviewees), which could contain errors. This is particularly problematic for the SNA component because even for recent social interactions memories of relationships are somewhat unreliable (Marin and Lin, 2020; Bernard et al., 1982; Bernard et al., 1979). Hence, the elicitation of collaborative relationships may have omitted some actors that were relevant in the actor-network in the past.

Lastly, despite bounding the network to collaboration ties between actors who participated in the process of adopting or modifying the sugar tax and FOPL systems, no saturation point was reached with the names generated through the sociogram. As such, results from the SNA cannot be generalised. However, because the study explored patterns in network change, something that will be commented on in the following section, these could be enriched with the adoption of different data collection tools and analytical methods. In the meantime, this study must be considered within the frame of this limitation.

9.4 Avenues for future research

There are several avenues for future research that emerge from this study. First, is the use of theories of the policy process to shed light on how experts influence the adoption of obesity-prevention policies facing opposition. By considering previous research made in the field of public health it was clear that the obesity policies were a contested area where experts would find opposition mainly for the food and beverage industry. However, a lack of responses from this group reduced the possibility to explore *vis-à-vis* the arguments, evidence and alliances formed by this group in both cases. In the case of the Sugar Tax, it is not problematic as vast research has emerged addressing the role of industry (for example in Ojeda et al., 2020). Yet, for the adoption of the Warning System, the research could be enriched by analysing the responses to the public consultation held between October and December 2019, for example following the designs of Lauber et al. (2021), Ares et al. (2020), or Smith and Weishaar (2018).

A second avenue for further research could be exploring the adoption of the Warning System in Latin America through the lens of policy transfer and multi-level governance literature. This would shed light on the role that UN agencies (WHO/PAHO, UNICEF, FAO) and international expert networks have in promoting a uniform labelling system in the region. One aspect of this that emerged in Chapter 6 was that the adoption of the Mexican Warning System took place after Chile, Peru and Uruguay had all approved these labelling formats, and once PAHO published the nutrient profile model aimed to be the basis for obesity-

policies formulation (PAHO, 2016). After its passage in Mexico, Colombia⁵⁶ and Argentina approved similar regulation (PAHO, 2022a), and it continues to be encouraged across the region (PAHO, 2022b; PAHO, 2020b). Perhaps, as in the case of tobacco regulation (Gneiting, 2016), research will trace a global network that promotes and influences the adoption of FOPL warning systems and cognate regulation.

By the same token, research could shed light on the transnational food and beverage companies' activities to oppose or delay the adoption of warning systems. For example, similar to the cases of Uruguay (Ares et al., 2020) and Chile (Crosbie et al., 2020), Chapter 6 highlighted that one of the arguments used to oppose the Mexican Warning System were the violations to trade. In this regard, by looking at multiple jurisdictions in the case of tobacco and alcohol regulation, as done by Hawkins et al. (2019) and Holden and Hawkins (2016), one could explore whether transnational food and beverage companies operate in a coordinated way in Latin America.

Concerning experts' influence and permanence in the policy sphere, another area for further research is the consideration whether the role of experts in the adoption of obesity policies (or other policy areas) varies depending on the position they have in the public health governance structure. In both of our cases, health experts were affiliated with institutes of health that are decentralised institutions from the MoH, thus its influence was perhaps conditioned by its role within the public administration structure. Looking at other jurisdictions or cases where health experts are "outsiders" could also shed light on the conditions of influence and the permanence of health experts as policy actors.

A final avenue for research relates to further advancing the application of SNA techniques for understanding temporality in networks of experts. An initial point of departure will be delimiting the network to more specific characteristics. Based on the findings that pointed towards the permanence of key actors within the tripartite alliance (Consumer power/Alliance for Health Nutrition, ContraPESO,

⁵⁶ The Colombian symbol system presented in resolution 0810 from 16/06/2021 was challenged by civil society organisations as the design differed from the warning labelling.

Polithink, and INSP) studies could analyse change either within the organisation, or in relation to key actors. At an organisation level, Borgatti and colleagues' (2018) longitudinal analysis techniques could be applied. At the actor level, a mixed-methods design focused only on network data could deepen the knowledge of changes in ties over time.

Acronyms

Acronym	Full form
ACF	Advocacy Coalition Framework
ANPRAC	National Association of Producers of Soft Drinks and Carbonated Waters/ Asociación Nacional de Productores de Refrescos y Aguas Carbonatas
BMI	Body Mass Index
CDC	US Centers for Disease Control and Prevention
CIDE	Centre for Research and Teaching in Economics / Centro de Investigación y Docencia Económicas
COFEPRIS	Federal Commission for the Protection of Sanitary Risks / Comisión Federal para la Protección contra Riesgos Sanitarios
EBPM	Evidence-based Policymaking
ECs	Epistemic Communities
EU	European Union
FCTC	Framework Convention of Tobacco Control
FDI	Foreign Direct Investment
FEMSA	Fomento Económico Mexicano, S.A.B. de C.V.
FOPL	Front-of-package nutrition labelling
GDA	Guideline Daily Amounts
GDP	Gross Domestic Product
HFCS	High fructose corn syrup
HTA	Health Technology Assessment
INCMNSZ	National Institute of Medical Sciences and Nutrition / Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zpreubirán
INSP	National Institute of Public Health / Instituto Nacional de Salud Pública
ITAM	Autonomous Technological Institute of Mexico / Instituto Tecnológico Autónomo de México
LMICs	Low and Middle-income Countries
MoE	Ministry of Economy/ Secretaría de Economía
MoF	Ministry of Finance / Secretaría de Hacienda y Crédito Público
MoH	Ministry of Health / Secretaría de Salud
MORENA	National Regeneration Movement Party/ Partido Movimiento de Regeneración Nacional
MST	Multiple Streams Theory
NAFTA	North American Free Trade Agreement
NANH	National Agreement for Nutritional Health-Strategy to Control Overweight and Obesity / Acuerdo Nacional para la Salud Alimentaria, Estrategia contra el Sobrepeso y la Obesidad.
NCDs	Non-communicable disease/diseases
NGOs	Non-governmental organisation/organisations

Acronym	Full form
NOM-051	Official Mexican Standard 051 / Norma Oficial Mexicana 051
NPH	New Public Health
NSAOOD	National Strategy Against Overweight, Obesity and Diabetes / Estrategia Nacional para la Prevención y Control del Sobrepeso, la Obesidad y la Diabetes
Nutrition Survey	National Survey on Health and Nutrition/Encuesta Nacional de Salud y Nutrición
OECD	Organisation for Economic Co-operation and Development
OMENT	National Observatory of Non-communicable Diseases/ Observatorio Mexicano de Enfermedades no Transmisibles
PAHO	Pan American Health Organization
PAN	National Action Party/ Partido Acción Nacional
PET	Punctuated Equilibrium Theory
PRI	Institutional Revolutionary Party/ Partido Revolucionario Institucional
SNA	Social Network Analysis
SNAP	Supplemental Nutrition Assistance Program
SSBs	Sugar-sweetened beverages
UK	United Kingdom
UN	United Nations
UNICEF	United Nations Children's Fund
US	United States of America
USMCA	United States-Mexico-Canada Agreement
WHO	World Health Organization
WTO	World Trade Organization

Appendices

Appendix A. Scoping review

Networks of Experts and Policy Change: A Scoping Review of Their Role and Temporality

Summary

Background and aims: The study of the policy process and particularly how policies emerge or change from previously observed periods is the focus of research of diverse frameworks in political science. Among the literature on this field, the role of ideas and knowledge has been of importance, as well as the actors from which these ideas emerge and are disseminated. In particular, two frameworks have informed research on how science and ideas enter the political arena through networks and remain influential, namely the Advocacy Coalition Framework (Sabatier, 1993) and Epistemic Communities (Adler and Haas, 1992, Haas, 1992). However, this does not imply that these are the only theoretical approaches that can help to inform how groups of experts can contribute to policy change. With the aim of determining the range and scope of the literature that deals with policy networks of experts, policy change, and network temporality, as well as knowing how systems of expert are interpreted and studied, a scoping review was carried out during summer of 2019.

Method: The scoping review followed Arksey and O'Malley's (2005) six-step process for scoping studies. 1) A research question was developed and stated as: What is known about the role of experts' networks in policy change and network temporality. 2) To identify relevant studies criteria by reviewing only journal articles in English and Spanish from four electronic databases (Scopus, Web of Science, ASSIA and Social Policy and Practice) without an established timeframe, and complemented by hand-search techniques. 3) The criteria for study selection was developed in an iterative process as the author gained familiarity with the literature retrieved. Selection criteria included articles that talked about public policy, policy networks, and experts as a key factor in the study and those where the use of research methods was identified by their authors. 4) Data was charted and 5) collated, summarized, and reported following main themes observed in the results and relevant literature on the field. A consultation step (optional) was not performed.

Results: Nineteen articles were found. These show a broad geographical and application scope. Most pieces are written by Europe-based scholars and the most representative proportion of grouped articles study experts in public health; the research uses mostly qualitative designs and studies the networks based on public policy theoretical frameworks. The role of experts is identified as information/evidence providers and issue-framers and shapers of public opinion. The research also suggests that this role is dependent on the salience of the issue in question. Temporality, although not analysed clearly by a specific scientific method, varies according to policy settings.

Conclusion: While the literature gathered reflects a propensity to use advocacy coalitions and epistemic communities as an analytical framework, and thus the influence of experts is based on their postulates, this scoping study identified opportunities for further research.

Introduction

The study of the policy process and particularly how policy changes, understood as the alterations that affect a policy, program, or government intention from a previous period, has been the focus of inquiry in various studies around the globe and across multiple areas. Political scientists argue that to understand the dynamics of this change, in terms of why and how this a change is achieved, diverse factors that contribute to a policy's emergence or being modified such as actors, institutions, subsystems, ideas, context and events must be considered (Heikkila and Cairney, 2017, Capano, 2009). Among the scholars that study the mechanisms of policy change, there is a fraction that considers the role ideas and information dissemination as fundamental contributors to this change.

In particular, the role of experts as information generators and providers in the policy process has been at the core of two theoretical frameworks, Sabatier's (1993) Advocacy Coalition Framework (ACF), and Haas' (1992) Epistemic Communities (ECs). By using these approaches during the last three decades, political scientists have analysed the position of knowledge and experts in policymaking processes, finding, for instance, that groups of specialists are influential in agenda-setting and policy coordination. It occurs because, in times of uncertainty or a window of opportunity, these provide the evidence or technical expertise that politicians may adopt to solve a problem. Nevertheless, despite theoretical refinement of these frameworks, academics of the policy networks literature suggest that empirically little is known about specific actors in the policy process (Jenkins-Smith et al., 2018). In this scoping review, it is interpreted that experts belong to this set of under-analyzed actors. Thus, the study of their structure and

influence, whether persistent or not in a policy area, may deserve attention. This is not to say that these are the only stances from which experts' activities can be studied. For instance, the literature on evidence-based policy-making (EBPM) devotes attention to the analysis of experts as information providers to policymakers in the policy cycle (Cairney, 2017). Nevertheless, studies on this realm do not necessarily touch upon the association with other actors such as journalists, politicians, and advocacy groups over time.

Considering the rapid expansion of policy based on evidence, the impact of knowledge in policy generation, and the diverse areas and literature from which experts can be studied in the policy process, this scoping study is built on three objectives. First, it looks to know the range and scope of research articles that incorporate the role of networks of experts in the policy process. Principally, when literature analyses policy change. Second, to shed light on the theoretical and analytical frameworks adopted by these studies and the research methods used to analyse the formation and influence of these networks. Third, to know how research analyses the temporality of these grouping of knowledge-driven actors.

For the temporality aspect, the objective is to know if studies that deal with knowledge-driven actors have been carried out to determine if these actors remain active or dormant in the political arena over the years. In sum, this scoping study aims to map the research activity on the topic, finding by this mean research gaps that may be addressed by future research in the particular case study that the author is investigating. Scholars from the policy networks literature have theoretically emphasised that the number of participants involved in a network, the density of the ties among the members, and additional characteristics can make a distinction between the durability of the policy networks (Hula, 1999, cited in Zafonte and Sabatier, 2004, p. 76), and could these be of a short-term or long-term duration (Zafonte and Sabatier, 2004, p. 77).

The objectives of this study are thus in line with the potential reasons proposed by the literature on scoping studies. Arksey and O'Malley (2005) highlight its appropriateness for examining 'the extent, range, and nature of research' (p.21); and Tricco et al. (2018) point out its potential to 'summarize findings from a body of knowledge that is heterogeneous in methods or discipline; or identify gaps in the literature to aid the planning and commissioning of future research' (p. 467). In contrast to other literature syntheses, a scoping study represent the first approach to acknowledge research activity that could be further assessed through a systematic review or meta-analysis, aimed to evaluate the quality of research. To account for methodological and reporting rigor, this

scoping review follows the methodology proposed by Arksey and O'Malley (2005) advanced by Levac et al. (2010) and incorporates the reporting refinements recommended by Tricco et al. (2018).

Methods

Research question

Explicitly, the research question that guides this study is: *What is known about the role of experts' policy networks in policy change and the temporality of these networks?*

For this review, three main components of the research question are defined: Networks of experts, policy change, and temporality. First, this scoping review understands networks of experts in line with Radaelli's (1998) definition of the term which refers to 'communities of experts working on public administration (technocrats), government, parliament, universities and think tanks' (p.19) who produce policy-oriented knowledge. Second, policy change refers to any alteration in the definition and transformation of public policies, including the structure and content of policy agenda in a determined moment, contrasted with a previous period (Capano, 2009). Finally, temporality is understood as the relative duration of collaboration among members of a coalition. For instance, Zafonte and Sabatier (2004, p. 76) mention that a short-term partnership would last 'only long enough to pass a piece of legislation.'

Sources

Four electronic databases were searched from July 9th to July 22nd, 2019: Scopus, Web of Science, the Applied Social Sciences Index and Abstracts (ASSIA) and Social Policy & Practice. Scopus and Web of Science were selected by its appropriateness to cover a full range of disciplines. To account for a political and social sciences perspective, ASSIA accessed through PROQUEST was selected. Besides the decision to look through Social Policy & Practice (hosted by OVID) was undertaken by recommendation of the academic librarian for the Department of Social Policy and Social Work at the University of York, with the objective to include specialized resources relevant to the field where the author carries out her research activities.

No specific timeframe was selected for two reasons. First, to account for the most significant number of resources and, second, due to the difficulty of delimiting the emergence of the policy networks literature. Initial search criteria included articles written in English and Spanish as the author is bilingual. The search was also bound only by

scientific journal articles due to time limitations to the completion of the study, considering as well that in the case of empirical research, journals would incorporate most of these scientific works (Öchsner, 2013, p. 11). In retrospect, the decision of limiting the study to journal articles that explicitly expressed research designs may have been detrimental in capturing highly cited pieces of work that deal with networks of experts and knowledge exchange. To mention a few examples, this may be the case for Adler and Haas' (1992) research agenda for ECs, Stone's (2001) studies on think tanks and policy transfer, and Weible's (2008) review regarding expert-based information and its influence in diverse policy subsystems..

Search Strategy

Between June and July 2019, preliminary search terms were developed to reflect several key concepts and associated terms according to the research question. These relate to who will be considered “expert”, how to capture the term policy network and policy change, as well as network temporality. A preliminary list was refined by the author's academic advisors and in consultation with the specialized academic librarian for the Department of SPSW, who also assisted the author to implement the search strategy in July 2019. The final list of terms used is shown in Table 1.

Table1. Keywords introduced in the search

Experts	Networks	Policy	Change	Temporality
Expert*	Network	Policy	Change*	Temporal*
Professional*	Networks	Policies	Develop*	Persist*
Specialist*	Communit*	Policy process	Innovat*	Permanen*
Technician*	Group*	Policy-process	Transform*	Time
Scientific*	Coalition*	Policyprocess	Implementation	-
Epistemic	-	-	Inertia	-
-	-	-	Stasis	-

Table 2 lists the search strategy used in SCOPUS, which was replicated in the subsequent databases. Among the particularities of the search string, a proximity search between “experts” and “network” was included, as well as within “policy” and change”, with the objective to reduce the irrelevant references for public policy field that may emerge from words such as network and change that may be related to multiple disciplines and not policy studies. Annex A includes the search string used in the rest of the databases.

Table 2. Search Terms (as used in SCOPUS)

1 Networks of Experts	(TITLE-ABS-KEY (("Expert*" OR "Professional*" OR "Specialist*" OR "Technician*" OR "Scientific*" OR "Epistemic") W/3 ("Network" OR "Networks" OR "Communit*" OR "Group*" OR "Coalition*"))
2 Policy Change	AND TITLE-ABS-KEY (("Policy" OR "Policies" OR "Policy Process" OR "Policy-Process" OR "Policyprocess") W/3 ("Change*" OR "Develop*" OR "Innovat*" OR "Transform*" OR "Implementation" OR "Inertia" OR "Stasis"))
3 Temporality	(TITLE-ABS-KEY ("Temporal*" OR "Persist*" OR "Permanen*" OR "time"))
4 Combined terms	1 AND 2 AND 3
5 Publication type	4 AND DOCTYPE (ar)
6 Language	AND (LIMIT-TO (LANGUAGE, "English") OR LIMIT-TO (LANGUAGE, "Spanish"))

The electronic search was complemented with hand-searching techniques (snowballing). It consisted of reviewing the reference lists of articles obtained in the electronic search, which were considered for a full review as defined in the following section. Snowballing results were identified by reviewing the citations made by Li and Wong (2019), Bartonova (2012) and Radaelli (1999), and the bibliographic information of these studies is found in Annex B.

Identification of relevant studies and study selection

Retrieved bibliographical information was compiled in a Microsoft Excel workbook, duplicated articles were removed manually. Titles, abstracts, and full documents for all items retrieved were saved in Paperpile and Endnote. In total 327 references were found in electronic databases (Annex A shows the number of hits obtained by each of the databases), of which 114 consisted of duplicated items, resulting in 213 publications to screen by title and abstract. Through hand-search, there were identified nine relevant publications.

The eligibility criteria were refined in an iterative process as greater familiarity with the literature was developed, an action that Levac et al. (2010) and (Arksey and O'Malley, 2005) suggests as a pertinent practice. After reviewing the titles, four questions guided the scanning of title and summary for the overall publications.

1. Does the article talk about public policy (this is, those implemented by the government at any level)?
2. Does the article talk about policy networks?
3. Are the experts (or the associated terms) mentioned as a relevant element in the article?

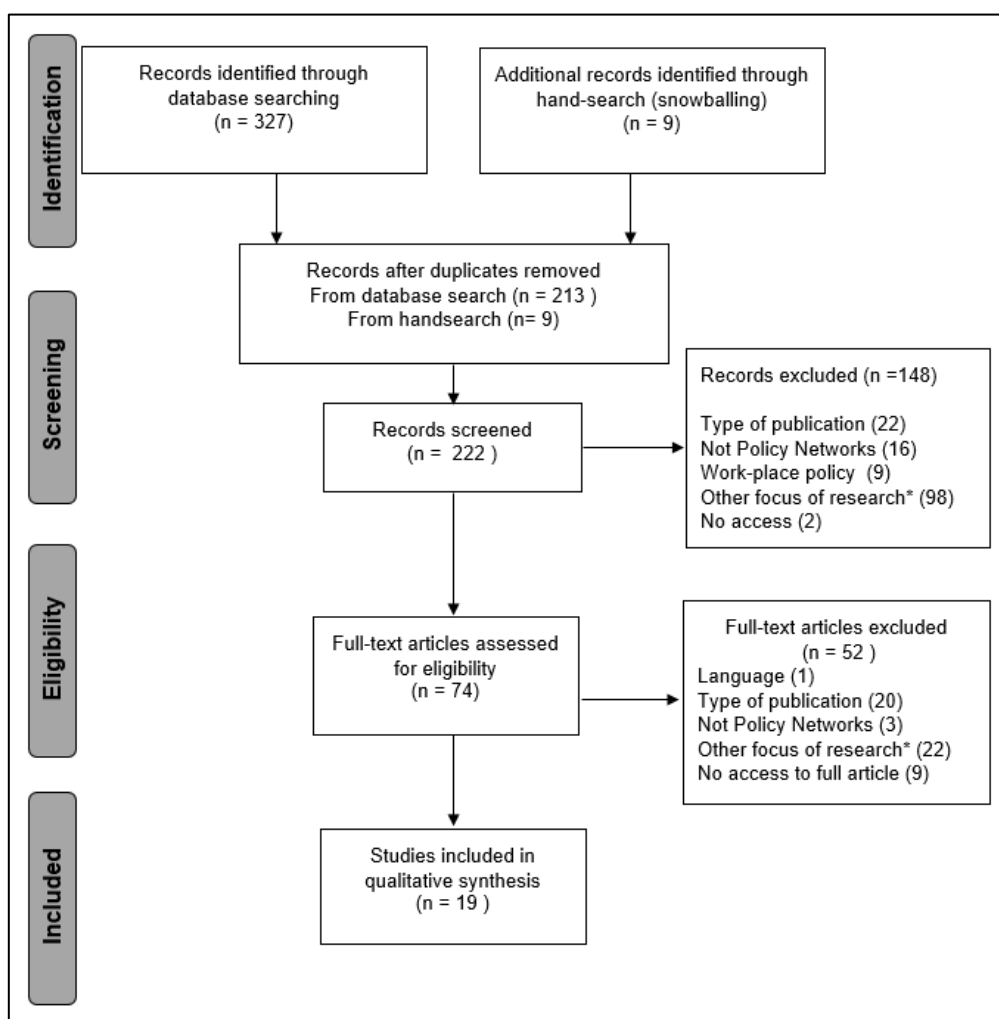
4. Does it mention research design and methods?

Considering the previous questions, 148 records were excluded in the screening of titles and abstracts. For instance, those articles that talked about communities as a territorial space or computer and technology networks were not considered for full-text revision. It also occurred with those articles that mentioned the role of experts implementing change in a private organisation, or delivering policies related to their workplace and not precisely in the territorial scope that was set in the rationale of the study (public programmes/strategies in national and subnational level). Neither were those articles that mentioned experts (and its synonyms) uniquely as a keyword or beneficiaries of the research findings included, nor those whose primary focus of the study was not related to public policies or policy networks.

Finally, the author focused on those articles that presented empirical work to gather a list of research designs and methods by which policy change, networks, and temporality are studied. This decision discarded books, conference reports, and another type of publications such as those that presented the reflections (suggesting been anecdotal) of working groups that are involved in the development of policy recommendations. For instance, the articles written by Duclos et al. (2011) and White et al. (2018) fit into the latter category. The first one describes the development of the Strategic Advisory Group of Experts (SAGE) on immunisation and its relevance for recommending the use of vaccines in developing countries. The second presents the experience of the creation and development of a think tank that advice the National Tuberculosis Program in South Africa. At this screening stage, articles for which a clear exclusion criterion was not determined, were considered for the entire reading.

In total, 71 articles were eligible for a full review. The same criteria used for titles and abstracts was employed for the selection of materials to be reported in the scoping study. In total, 19 studies did not present reasons for exclusion; hereof these compose the reported items in this review. Figure 1 presents the PRISMA flow diagram for article selection, including the reasons for elimination in the diverse stages of the review process.

Figure 1. PRISMA flow diagram for publications' screening and selection



* This category includes articles that do not deal with public policy, experts' networks, and policy change. It also includes materials that use experts (and its synonyms) as a keyword.

Source: Adapted from Moher et al. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7). Available at <http://prisma-statement.org/PRISMAStatement/FlowDiagram>.

Assessment questions for data charting

In line with the objectives stated at the beginning of this scoping review, a list of items for charting and reporting the content of the articles included in the qualitative synthesis was developed in an iterative process while the full reading of articles was carried out. The guide of inquiry is shown in Table 3. First, it incorporates questions regarding the geographical and academic scope of analysis, followed by the characteristics and role of the networks analyzed (including whether the policy network was the main focus of study or not), whether the study talked about the temporality of the policy network, and what articles reported about the role of experts in policy change. To collate the data,

information obtained from the materials included in the report was revised twice in an approximated period of three weeks from the first reading.

Table 3. Assessment questions for data charting, collating, and reporting

1	Date of publication
2	Place of Publication
3	Area and policy it analyses
4	Place and Level of Government Analysed
5	Does it explore experts' policy networks explicitly?
6	What is the research design and methods used in the study?
7	Timeframe the article analyses
8	How are networks of experts defined? Who are the experts the article analyses?
9	Does it use Political Science literature to frame the analysis?
10	What is said about the participation of experts in policy change?
11	Does it explore network temporality? What is said about it?

Results

This scoping review yielded 19 articles written between 1995 and July 2019 by authors based in 10 different countries. Most of these studies come from England (7), followed by China (3), Switzerland (2), and Australia, Belgium, Eritrea, Finland, Norway, the United States of America and Wales each with one article. The above suggests that Europe concentrates most of the studies of policy networks according to the criteria established in this report. An important point to highlight is the fact that in some cases, the author affiliation does not correspond to the place where the policy under study is applied. It occurred with articles written by Kulmala (2017) and Rowe (2012), who study Russian policies, Radaelli (1998) who all studies strategies in Italy, and Williams et al. (2009) which study is focused on Malaria treatment in Peru. Studies written by Amahazion (2016) and Galbreat (2013) include policies on multiple regions.

Policy areas in which networks operate also reflect diversity. Six of the articles are related to public health, whereas a couple of articles are written in the areas of public administration, demography, environment, and law or regulations. One-piece was found for the remaining areas, namely, fiscal policy, immigration, social policy, and transportation infrastructure. The timeframe the articles analyse vary from the specific point in time that an issue and a policy response gains salience ("vignette" studies), to a decade or more (historical studies). For instance, this occurs by contrasting article [4] that analyses the reaction of anthropologist in the 2014's Ebola outbreak, with the development of one-child policy in China during three and half decades [1], in both cases, as will be outlined in the following sections, the role of experts have been fundamental

to suggest policies that help to prevent salient issues. Table 4 summarises the characteristics of included studies.

How do the articles study policy networks? (Explicitly studied or not, guided by literature on political science)

Articles found in the review observe diversity on how experts are considered. In most of the materials networks of experts are the variable of study, or it is explicitly stated that networks of experts influence policy formulation, dissemination, and delivery inclusively. In some other cases, a policy subsystem as a whole is studied, and networks represent a fundamental part of it, but many other issues are stated as well as contributor of change, what suggests that experts play a secondary role to study (e.g., in Dauvrin et al., 2012).

The theoretical framework that underpins these studies varies, including literature from political science (public policy and administration) and public health. In the case of articles [15] and [16], no theoretical framework was stated. In the case of those articles that mentioned a conceptual approach, the use of epistemic communities literature solely or in conjunction with another theory was the most salient literature as it is found in eight articles [3, 4, 6, 8, 10,11,14,18], followed by the use of advocacy coalitions [articles 1, 12, 17 and 18], public administration [5, 7, 13] public health literature [9, 13] including Shiffman and Smith's (2007) framework for generation of political priority in health initiatives. There was also used policy analysis employing Kingdon's (1984) Multiple Streams [2], and the stages heuristics [19].

What research methods are employed to analyze experts and policy change?

Qualitative methods are the most used by the literature observed. These are employed in 16 of the 19 articles reported. Among these the most used method is case study informed by interviews, documentary analysis and observation, although in the case of [5] and [16] the authors use ethnography and in article [12] focus groups. Only article [13] contemplates quantitative techniques using surveys, but this is complemented by qualitative methods such as interviews and documentary analysis. The article written by Dauvrin et al. (2012) suggest having adopted an evaluation research approach, whereas in the case of Afonso (2007, p.7) the author mentions having undertaken process-tracing although no further reference to methods is done in the document. The number of participants in the interviews, surveys, and focus groups, as well as analyzed papers, varies by study as observed in the fifth column of Table 4.

What types of networks and in which areas they participate?

The studies can be classified in four categories according to how they analyse experts' systems. In specific, there is a propensity to study these as coalitions or epistemic communities, what suggests that these reflect the theoretical frameworks on which articles are sustained, it can be observed in column 4 of the summary table. Followed by classifying the experts among the stakeholders or policymakers within a policy subsystem or analyzed as professions or professional groups which influence relates more to implementation and evaluation (if it is considered the stages heuristics model of policy process). One last representation of expert network is the one that refers solely to a governance structure.

Four articles study coalitions of experts, analyzing for instance how in the same subsystem minority and opposing coalitions can coexist [1] as occurring in the development of the national birth control policy in China and the development of trunk roads policy in England [18]. Also, [11] studies how a network of experts can be composed by diverse coalitions of government-organized non-governmental organizations (CONGOs) and how these networks can institutionalize new climate-change-related initiatives. Lastly, it was found that networks of experts can be part of a broader coalition instrumental in contributing to the formation of politicians' opinion regarding economic and fiscal policy [17].

On the other hand, epistemic communities-driven studies emphasize the role of profession-bounded actors that drive policy change mainly at international level. In this regard, article [4] studies how a scientific network of anthropologists engaged in coordinating a response to the Ebola outbreak from UK with global application, whereas article [6] studies the medical community's influence in the regulation against organ trade. On a national level, economists' susceptibility to having an impact policymaking is studied by article [14]. It analyses the formulation of immigration policy based on arguments of economic development and productivity. Report [10], also on national level policymaking, observes the local influence (in Russia) of a scientific community that participated in the assessment process of the International Panel on Climate Change and the Arctic climate impact assessment. Studies that do not consider a profession in particular as epistemic community include 'experts on human and minority rights' [8] and even NGOs as this type of knowledge-based network [3].

Notwithstanding, articles retrieved also show working groups and professional groups as stakeholders in the policy process can participate in agenda setting, implementation, and delivery. On the one hand, promoting science and research for the development of

policies, three articles [2, 9, 16] study expert or scientific groups integrated by researchers whose evidence is incorporated into policymaking. Article [2] for instance, analyzes how researchers generate a proof for establishing a new model or resources' allocations to physicians located in rural areas. Similarly, [9] explores how a group of experts participate to provide recommendations and work in the implementation of health coverage to migrants and ethnic minority groups. On the other hand, three articles study the role of individual professions in policymaking. This is the case of articles [7] and [19] that explores nurses' contribution to policies, [5] studying professional communities and their role in successful implementation of marketization, and [15] observing pharmacists' role in the deregulation of emergency contraception in UK.

Lastly, two articles observe networks as governance structures. Article [12] explores how stakeholders produced policy change in malaria treatment in Peru, defining the importance of collaboration between international organizations, local stakeholders but also subnational level healthcare workers (Williams et al., 2009, p. 10). Perhaps Sager (2007) who explores scientific and evidence flows into politics can be considered a more abstract application of experts' networks and governance structure.

What is their role in policy change?

As briefly discussed when describing the studies of networks of experts, the literature found shows diverse roles of influence in policy change. Two things are important to consider: the articles found study the role of ideas, knowledge, and evidence, but also report findings across the distinct stages of the policy process. For instance, it can be noted that the role in policy change occurs mostly in agenda-setting stages where networks of experts formulate evidence, identify policy priorities, frame the issue to be solved, create coalitions, issue recommendations, influence public opinion or act as a pressure group [19]. Furthermore, networks of experts also participate in policy evaluation and implementation, although these policy stages were analyzed less frequently [5, 7, 9].

What is known about networks' temporality?

During the rationale and research question's presentation for this scoping review, it was included a definition on how temporality is conceived by public policy scholars, defining it as a relative duration of network ties among participants. Following this construction, no article explicitly explored temporality. However, some arguments presented by the authors under continuous policy change in most of the policy areas explored suggest the constant participation of actors in networks on extended periods, what allowed to create a narrative account regarding the permanence of expertise networks. It does not imply

that there is no opportunity for a more detailed exploration through an alternative methodology.

Column seven in table 4 shows how articles deal with temporality of networks. It was observed in three pieces that these talked about the emergence of groups of experts. Some of these, as the article [2] points out, are commissioned by the government. In other cases, these appear on crisis [4] or under uncertainty [14]. Six articles explored on long periods the permanence of dominant and adversarial networks, arguing that dominant coalitions institutionalize their policies [6], but in light of new information that challenges these institutionalized views, minority coalitions can displace a former dominant coalition [1, 16, 18]. Other articles highlight that networks influence varies across time [11,12,16] responding to economic, political, and social conditions. This finding broadly supports the work of Rowe (2012, p. 721-722) who concedes that the temporality of a knowledge-based network depends on politics request of scientific information.

Table 4. Included studies

(Study number) Author details and Publication date	Location	Area/Policy Studied/ Level of Government	Theory/Exploration of Policy Networks	Research Design/ Methods/ Participants	Experts' Networks/Role in Policy Change	Network Temporality
[1] Li and Wong, 2019.	China	Demography/National Birth Control Policy (one-child policy) in China. Analysed in three and half decades.	Focuses on analysing networks. Informed by the ACF	Single case study. Informed by 33 interviews with experts and officials with the objective to 'identify coordination actions and verify coalition beliefs' (p. 6	Dominant and minority coalitions. These provide technical expertise, influence of public opinion and advocated further policy as policy feedback emerged (p.14). Moreover, the pathway to influence in different periods occurred by 'external perturbations, internal perturbations, and policy-oriented learning by minority coalitions' (p. 19).	Dominant Coalition influenced from 1980-2013. Minority coalition of demographers emerged in 1990 but remains without influence until 2012. Minority coalitions of legal scholars emerged in 2012 (p. 9)
[2] Humphreys and Wakeman, 2018.	Australia	Labour/ Payments scheme for rural and remote doctors. National policy in Australia.	Researchers and evidence using MST and EBPM.	Case study. It does not specify methods. Written in narrative.	Rural Health Researchers, Expert Working Groups transferring evidence into implementation. Facilitators of knowledge exchange include 'isound evidence, transparency, long-term commitment to rural health research support, credibility of the researcher (...) (multiple modes of communication, validation and amplification' (p. 333) as well as persistence and timing.	Emergence of the Rural Classification System Working Group to consider the implementation of the Monash Model (p.332)
[3] Kulmala et al. 2017.	Finland	Social Policy/ Child welfare policy (placement of children without parental care in foster families) a national policy in Russia. Policy shift occurred in 2010.	Ideas in social policy and ECs.	Qualitative. Interviews with activists and NGOs. Documentary analysis of key policy and legislative documents, government briefings and published articles with key actors.	NGOs and EC developed the evidence for adopting a deinstitutionalisation policy. This consisted in children welfare not provided directly by the state but allocating children in fostering families. The authors point out that 'ideas, long-term advocacy by NGOs and wider diffusion of (international) norms around children's rights penetrated into government thinking against a background of political and societal concern about the well-being of Russian children' (P. 364). However, political factors such as the centralisation of power and prioritisation of social issues in times of demographic crisis allowed the implementation of the reform.	Does not explain the emergence and development of NGOs as EC although it talks about continuing advocacy efforts.
[4] Martineau et al. 2017.	England	Public Health/Ebola Response in the 2014's outbreak.	Professionals forming ECs.	Case study, Personal Reflections, informal discussions among members, interviews and discussions with policy makers.	EC of Anthropologists. Experts on this field engaged in providing support and advice regarding the epidemic social dimension of Ebola's outbreak to UK-based organisations (mainly) involved in the disease response.	Emergence of the epistemic community of Anthropologists that promote the creation and formalization of a platform of anthropological expertise in 2014 (p. 478)
[5] Turner et al. 2016.	England	Administration/ Marketization in three National policy areas in the UK.	Communities of Practise and Public Administration.	Qualitative (Comparative Case Study), 84 interview with participants from NHS and BBC. Ethnography observing project teams. Documentary Analysis. Royal Mail Ethnography observing two project teams, 33 interviews, and documentary analysis.	Professional communities, helped to shape reform processes of marketization in the three areas, these had an effect on the planning and implementation of change. For instance 'the power of medical professionals helped to resist reform in the [NHS], while the association representing independent producers helped to lobby for and encourage change in the terms of trade with broadcasters' (p. 711). In Royal Mail, professional groups had less influence.	Does not analyse explicitly temporality. However the authors mention that communities of practise have 'strong boundaries (...) which means that [these] may resist process of external change' (p. 703)

Table 4. (Cont.) Included studies

(Study number) Author details and the Publication date	Location	Area/Policy Studied/ Level of Government	Theory/Exploration of Policy Networks	Research Design/ Methods/ Participants	Experts' Networks/Role in Policy Change	Network Temporality
[6] Amahazion, 2016.	Eritrea	Law/Regulation against organ trade in various regions from 1970 to 2014.	Professionals are forming ECs.	Qualitative. Open-ended and semi-structured interviews. Probable observation. Documentary data analysis.	Medical EC (comprised of transplant doctors surgeons, practitioners, and researchers), participated in 'shaping, guiding, and influencing norms and approaches to transplantation' (p. 1). This EC was instrumental in the development of resolution and laws, and fundamental to position the issue as globally relevant.	Emergence of the medical community in 1952 and its institutionalisation.
[7] Noyes et al., 2014.	Wales	Administration/ Children's continuing care Policy developed between 2007 and 2008.	Public Administration (evaluation literature).	Evaluation using theory-based realist methods for policy implementation. Key stakeholder interviews.	Practitioners and Nurses involved in generating supporting tools for a new policy in the implementation stage.	Not explored.
[8] Galbreath and McEvoy, 2013.	England	Law/Minority Rights in Europe in 1992.	ECs.	Qualitative. Interviews with experts in various bodies.	The role of experts in the EU, the OSCE and the Council of Europe within the European minority rights regime. They contribute to policy innovation (identify the nature of the issue), diffusion (sharing norms and standards) and persistence.	Not explicitly. The authors suggest experts participate in various organisms. Notable influence of epistemic communities in 1990.
[9] Dauvin et al. 2012.	Belgium	Public Health/Migrants and Ethnic Minorities Health Policy between 2010 and 2011.	Experts' groups. Using Shiffman and Smith framework (2007)	Steering committee including 21 participants (21 women, 8 men).	Working group of experts in diverse fields commissioned by the Ministry of Public Health. Participate to create a list of recommendations about how to provide health coverage to migrants and Ethnic Minority groups. The ETHHEALTH group of experts was also participant in the implementation of the recommendation. (p. 6)	No explicitly. Working group commissioned by the government circa 2010.
[10] Rowe. 2012.	Norway	Environment/ Domestic Climate Change policy in Russia in 2004.	ECs.	Case study, 17 interviews conducted in 2008.	Scientists who have participated in assessment processes of the [International Panel on Climate Change] IPCC and the Arctic Climate Impact Assessment (ACIA)" (p. 713). According to the authors, experts see themselves as 'providers and defenders of information and indicate that this role has expanded only after Russia's political commitments and positions have been clarified.' (p. 722)	Does not explain the emergence of epistemic community. However it suggest temporality depends on politics request of scientific information (pp. 721-722).
[11] Franceschi-Huidobro and Qianqing. 2012.	China	Environment/ Climate Plans and Strategies at a subnational level since 2007.	ACF and ECs.	Qualitative. In-depth, semi-structured interviews (carried out in 2011), supplemented by observation and unstructured interviews.	Network of three climate advocacy coalitions identified as government-organized nongovernmental organizations (GONGOS). These facilitate information sharing between the government and coalitions and see themselves as advocates who 'press for gradual policy change' (p. 55S). The authors note that 'although they are essentially advocacy coalitions within the realm of government, they perform the functions that in a more open system civil society organizations would perform.' (p. 56), classifying these as not traditional AC.	GONGOs emergence in 1991 (GLCA), 2009 (GDEC) and 2011 (GLCA). Suggest permanence of coalitions, although their focus may vary (p. 62).
[12] Williams et al. 2009.	USA	Public Health/ Malaria Treatment at national level in Peru science earlies 1990s.	Experts influencing policy change based on Public Health literature.	Qualitative. 14 participants in open-ended interviews and focus groups. Stakeholder analysis and documentary review.	Stakeholders involved directly in the policymaking process of Maliana treatment change, including public servants from the Peruvian Ministry of Health, World Health Organization regional staff, Department level (DISA) staff, NGO and donor representatives. These are involved at different points in time during a gradual process of change. Networking relationships were fundamental to sustain change despite changes in government. The network took advantage of the movement of key individuals upward within the Ministry of Health, pushed for change and supported the policy as a 'win-win' solution (p. 10).	Authors describe how the network of stakeholders promote policy change during 13 years.

Table 4. (Cont.) Included studies

(Study number) Author details and the Publication date	Location	Area/Policy Studied/ Level of Government	Theory/Exploration of Policy Networks	Research Design/ Methods/ Participants	Experts' Networks/Role in Policy Change	Network Temporality
[13] Sager, 2007.	Switzerland	Public Health/ Alcohol Prevention at the subnational level.	Governance Theory Habermas (models of decisionism).	Mixed-Methods. Quantitative comparison of decision-making and implementation using surveys. To validate the findings, it uses a case study and interviews.	Stakeholder involved in the decision-making and implementation that can give an opinion on how science flows into politics. Findings suggest that the influence of science and evidence into policy tend to be practiced wherever there is less need for decisions to be bound to short-term political considerations. (p. 444). 43% of the cantons analysed report that scientific discoveries are not significant for politicians.	It does not apply.
[14] Afonso, A. 2007.	Switzerland	Immigration/ Immigration control reform in Switzerland. Two-period comparison (1960 and 1990)	Ideas and ECs.	Unclear. The article suggests a documentary process tracing.	Economists' EC. The author argues and finds that the influence of EC depends on the interests of existent institutions and under uncertainty (p. 30). In the case of immigration policies, economists are predominantly influential in framing issues in a way that gets legitimization from opposing actors.	Arguments suggest the emergence of epistemic communities of economists in 1960 and 1990. Its influence varies.
[15] Schenk. 2003.	England	Public Health/ Deregulation of Emergency Contraception at the national level from 1984 to early 2000.	Not informed by theoretical frameworks.	Case-study. Literature review.	Stakeholders and Professional Groups of pharmacists. The article highlights that communication among stakeholders 'was essential in development and acting upon a unified plan of action' (p. 38). In particular pharmacists' role was of greater significance for implementation, as these group of professional identified training requirements and opportunities.	Not explored.
[16] Greenhald. 2003.	China	Demography/Development of One-child policy between 1978 and 1983.	Not informed by theoretical frameworks.	Qualitative research. Interviews, documentary research, ethnographic insights.	Chinese population specialists and policymakers. Participate by providing information on the consequences of maintaining the birth grow rate in late 1970s, and framing the issue as urgent policy (p. 186)	Emergence of group of scholars in 1978 that promote one-child policy based on quantitative methods.
[17] Radaelli. 1998.	England	Fiscal Policy/ Fiscal adjustment and economic reform at national level in Italy.	Ideas, Knowledge and ACF.	Qualitative. Informed by interviews that are part of a larger study.	Networks of expertise formed by Academics, public servants, and think tanks (p. 15). In particular explores the role of think-tanks as information providers contributing to the formation of opinion (p. 16) in the two reforms analysed (fiscal and economic).	Not explored.
[18] Dudley and Richardson. 1996.	England	Transportation Infrastructure/ Trunk Roads Policy between 1945 and 1995	ACF, ECs and PET.	Case Study. Not specified methods.	Highway engineers and environmentalists forming two rival coalitions. These were continually fighting to have a place in policy process, particularly rising issues to the government agenda. Competing alliances attempt to change the 'image of the policy problem' (p. 71). Selecting a 'correct venue' (p. 65, emphasis in original) suggest been of importance to gain access to the policy community.	The rivalry of two coalitions. The dominance of the road lobby between 1950 and 1970, disturbed by the emergence of the environmental lobby in 1970.
[19] Gavin. 1995.	England	Labour/ Reward clinical nursing skills between 1991- circa 1994.	Policy Analysis.	Case Study. Literature Review and Structured Interviews with stakeholders in the policy process	Nurses groups and unions. In particular, it explores the roles of traditional union and a professional union of nurses. These participate as pressure groups in designing the policy beneficiaries (types of nurses) well as the grading system.	Not explored.

Discussion

At the beginning of this study, the rationale for conducting this review was presented arguing that literature that analyses the role of policy networks of experts and its influence on policy change is mainly guided by two theoretical frameworks namely ACF and ECs as noted by Smith and Weishaar (2018). These stances postulate the mechanisms by which knowledge and ideas penetrate the policy arena and produce change. From one hand, the EC literature supports that under conditions of complexity and uncertainty, the role of experts for generating policy change is to be knowledge carriers (information providers) and knowledge disseminators. The ACF in contrast, observes that change occurs over extended periods which are sufficient for a policy change derived from abrupt social, economic, or political alteration, or by eventual modifications of a belief system.

Both frameworks share the idea that the generation and dissemination of knowledge and values are carried out by actors who interact in a subsystem, for EC it is a community, while for ACF, the policy network is composed by coalitions. Even though these network-based approaches deal effectively with knowledge and diverse actors, there is literature from other areas such as public health or evidence-based policymaking that also explores experts and their influence on policy change (Brooks, 2018). This study looked to capture the breadth of documentation that may deal with networks of experts without the precondition of classifying studies under the umbrella of the frameworks above. The researcher looked at well at the nature of research, and at possible research gaps.

Two questions motivated undertaking this review. On the one hand, the aim was to know specifically how science and knowledge flow within and from a network to produce policy alterations. On the other hand, if ACF assumes that policy change takes time, what is known about the temporality of policy networks? Hence, three objectives were stated for this study: first, to map the breadth and scope of the research activity concerning this topic. second, to know how networks of experts are explored in terms of who are the experts and if some theoretical framework is employed to account for their role in policy change. Third, to capture what is known about the study of networks' temporality.

The scoping study gathered 19 articles that did not present any reason to be discarded according to the criteria of exclusion. Regarding the first objective, it can be observed that these journal articles cover a span of two and half decades and were published across six continents, being Europe the region where most of the authors carry out their research activity. Literature also captures diverse areas of research; however, studies of public health expert networks predominate. This is not surprising, as these results reflect

that this is an area where science, research, and expertise is highly valuable (Brooks, 2018).

Regarding the second objective - getting information about how networks are studied - it was observed that knowledge-driven systems are analysed based on diverse theoretical frameworks, which include public health and political science literature. Regarding the latter, research is studied under the lens of the ACF, EC and the role of ideas. To a lesser extent, this is carried out with alternative policy process theories such as Punctuated Equilibrium Theory (PET) and MST. Only a couple of articles analysed policy implementation based on public administration and policy analysis literature.

Networks of experts retrieved diverse ways of analysing the grouping of experts. These are studied as coalitions, communities, groups, and professions, as stakeholders, and even within a governance structure. It may support the observations made by Marsh and Rhodes (1992) regarding the two ways that networks can be analysed from political science or to the nature and variability of the “network” as a concept (as observed by Borzel 1997). Despite the diverse interpretations of networks, most of the articles adopt qualitative research designs over quantitative methods. The use of case studies, interviews, and documentary analysis were frequently detected.

The research was fundamental to observing the role of experts in policy change. These as suggested by the theoretical frameworks adopted by the revised researchers, reflect what is known about the role of evidence, experts and networks for attaining policy change. Notably, a frequently observed narrative was that of scientists and experts as evidence providers, issue framers, and contributors to the formation of opinion regarding an issue. It was also found that competing views that may not rise to the agenda in a determined period (t_0) but after years passed (t_1) and due to internal (e.g. policy learning from evidence or previous experience among and within networks) and external changes (such as socio-political or economic events), these may gain a place in the political agenda. In other cases, a disruptive event such as crisis may be a condition of experts influence in policy process.

A concept that emerged in a couple of articles, which was not considered for this review but grants the opportunity to explore in subsequent studies is legitimisation. This could have a twofold purpose, on one hand analysing how experts participate in the legitimisation of policies. Alternatively, how these networks of experts become legitimate political actors.

Finally, regarding the last objective that aimed to know about the study of the temporality of the networks, it is noted that articles analysed specific points in time or the

development of a policy area in which systems of experts participate. It may imply that some policy issues require rapid action and thus new networks of experts, whereas institutionalised policies areas may take time to be changed; alternatively, it may only illustrate “vignette” and historical studies. An illustration of these arguments can be observed by contrasting the influence of anthropologist EC during the 2014s Ebola outbreak (Martineau et al., 2017), against the immigration policy in Switzerland (Afonso, 2007). Although the articles suggest a diverse temporality of networks, methodologically a specific research design that sheds light on the permanence and extinction of knowledge-based networks was not found. It may indicate an area for further research.

The review process followed the framework proposed by Arksey and O’Malley (2005), and this report details the decisions made by the author throughout the study. For this reason, it is essential to reflect on the limitations of the process. These can be grouped into two categories. On the one hand, those that have to do with time and resources and, on the other hand, those related to methodological choices.

Time and resources were factors that motivated some of the choices made by the author at the early stages of the process. Time restriction meant that the author adopted a position of considering only articles published in scientific journals; this probably discarded evidence for other relevant sources such as books and grey literature. Furthermore, resources limited the opportunity to review all publications for which the University of York had no access.

Methodologically, this review was limited by the research question. It comprises two concepts (policy change and network temporality) that used together may have limited the number of hits found in each database. For instance, an article that dealt with network temporality and did not emerge in the electronic database search is Zafonte and Sabatier (2004) or the literature that cites this article. However, this brings the opportunity to undertake a subsequent study only based on finding network temporality evidence or research linked to policy change.

Conclusion

Following the six-step method for undertaking a scoping review developed by Arksey and O’Malley (2005) a literature review of such type was carried out in summer of 2019, with the objective of knowing the range and scope of research activity that integrates the role of the networks of experts and policy change; the theoretical and analytical stances these studies consider; and what is known about the temporality of these type of networks.

The review gathered information of 19 research articles that fulfilled the inclusion criteria. Most of these (68%) are written by academics in Europe, analysing public health policies (26%). Moreover, these articles guide their analyses based predominantly on policy process frameworks from the political science perspective which considers Sabatier's (1993) Advocacy Coalition Framework, and Haas' (1992) Epistemic Communities, and the role of ideas in the policy process. In terms of research design, 95% of the articles employed qualitative methods to conduct their research.

Considering the above, it can be argued that the findings of this review reflect the argument that networks of experts influence on policy change are well explained by these frameworks (Smith and Weishaar, 2018, Brooks, 2018). Therefore, it was observed among the articles that these mention that networks of experts bring evidence and policy options to the political arena and may play an important role in modifying public perception on the issue. Nevertheless, three articles fell outside these parameters that found valuable experts' participation at the agenda-setting stage. For instance, one of the articles mentioned that professional communities are an essential factor to attain policy implementation (Turner et al., 2016).

In the case of temporality, it was not used in the reviewed articles as a specific methodology to inform the formation and evolution of policy networks. Moreover, network temporality has been analyzed through the alteration of each policy issue system (or a policy subsystem in terms of the ACF), as it was presented by Li and Wong (2019) and Dudley and Richardson (1996). Limited results on this regard may be a consequence of the construction of the research question which merged the concepts of "policy change" and "network temporality", which can be studied individually in future research.

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Scoping study Annex A

Search information by electronic database

Database	Hits	Observations	Specific Search String
Web of Science (Searched on July 20 th , 2019)	124	-96 duplicates deleted on July 22 nd 2019)	TOPIC: (("Expert*" OR "Professional*" OR "Specialist*" OR "Technician*" OR "Scientific*" OR "Epistemic") NEAR/3 ("Network" OR "Networks" OR "Communit*" OR "Group*" OR "Coalition*")) AND TOPIC: (("Policy" OR "Policies" OR "Policy Process" OR "Policy-Process" OR "Policyprocess") NEAR/3 ("Change*" OR "Develop*" OR "Innovat*" OR "Transform*" OR "Implementation" OR "Inertia" OR "Stasis")) AND TOPIC: ("Temporal*" OR "Persist*" OR "Permanen*" OR "time") Refined by: DOCUMENT TYPES: (ARTICLE) AND LANGUAGES: (ENGLISH OR SPANISH) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years
Applied Social Sciences Index & Abstracts (ASSIA) (Searched on July 9 th , 2019)	21	Accessed through PROQUEST -15 duplicates removed on July 22 nd 2019)	noft(("Expert*" OR "Professional*" OR "Specialist*" OR "Technician*" OR "Scientific*" OR "Epistemic") NEAR/3 ("Network" OR "Networks" OR "Communit*" OR "Group*" OR "Coalition*")) AND noft(("Policy" OR "Policies" OR "Policy Process" OR "Policy-Process" OR "Policyprocess") NEAR/3 ("Change*" OR "Develop*" OR "Innovat*" OR "Transform*" OR "Implementation" OR "Inertia" OR "Stasis")) AND noft(("Temporal*" OR "Persist*" OR "Permanen*" OR "time")) AND at.exact("Article") AND la.exact("Spanish" OR "English") Databases: Applied Social Sciences Index & Abstracts (ASSIA)
Social Policy & Practice (Searched on July 9 th , 2019)	7	Accessed Through OVID -It was not possible to filter by language -It looked in All fields 7 -3 duplicated were removed	noft(("Expert*" OR "Professional*" OR "Specialist*" OR "Technician*" OR "Scientific*" OR "Epistemic") NEAR/3 ("Network" OR "Networks" OR "Communit*" OR "Group*" OR "Coalition*")) AND noft(("Policy" OR "Policies" OR "Policy Process" OR "Policy-Process" OR "Policyprocess") NEAR/3 ("Change*" OR "Develop*" OR "Innovat*" OR "Transform*" OR "Implementation" OR "Inertia" OR "Stasis")) AND

			noft(("Temporal*" OR "Persist*" OR "Permanen*" OR "time")) AND at.exact("Article") AND la.exact("Spanish" OR "English")
Scopus (Searched on July 9 th , 2019)	175	Title, Abstract and Keywords Language Article 121 articles excluded by title and abstract	(TITLE-ABS-KEY (("Expert*" OR "Professional*" OR "Specialist*" OR "Technician*" OR "Scientific*" OR "Epistemic") W/3 ("Network" OR "Networks" OR "Communit*" OR "Group*" OR "Coalition*")) AND TITLE-ABS-KEY (("Policy" OR "Policies" OR "Policy Process" OR "Policy-Process" OR "Policyprocess") W/3 ("Change*" OR "Develop*" OR "Innovat*" OR "Transform*" OR "Implementation" OR "Inertia" OR "Stasis")) AND TITLE-ABS-KEY ("Temporal*" OR "Persist*" OR "Permanen*" OR "time")) AND DOCTYPE (ar) AND (LIMIT-TO (LANGUAGE , "English") OR LIMIT-TO (LANGUAGE , "Spanish"))
Total	327		

Scoping study Annex B

Publications identified through hand-search

#	Bibliographic information
1	Francesch-Huidobro, Maria, and Qianqing Mai. 2012. "Climate Advocacy Coalitions in Guangdong, China." <i>Administration and Society</i> 44 (6S): 43–64. https://doi.org/10.1177/0095399712460068
2	Greenhalgh, Susan.. 2003. "Science, Modernity, and the Making of China's One-Child Policy." <i>Population and Development Review</i> 29 (2): 163–96.
3	Greenhalgh, Susan. 2008. <i>Just One Child: Science and Policy in Deng's China</i> . Berkeley: University of California Press.
4	Stensdal, Iselin. 2014. "Chinese Climate-Change Policy, 1988–2013: Moving on Up." <i>Asian Perspective</i> 38:111–35.
5	Weible. 2008. "Expert-Based Information and Policy Subsystems: A Review and Synthesis." <i>Policy Studies Journal</i> 36 (4): 615–35. https://doi.org/10.1111/j.1541-0072.2008.00287.x
6	Choi and Pack. 2006. Multidisciplinarity, interdisciplinarity and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness
7	Folb PI, Bernatowska E, Chen R et al. 2004. A global perspective on vaccine safety and public health: the global advisory committee on vaccinsafety. <i>Am. J. Pub. Health</i> 94(11), 1926–1931.
8	Radaelli, C.M. 1998. 'Networks of expertise and policy change in Italy', <i>South European Society and Politics</i> 3(2): 1–22.
9	Beynon-Jones, S. and Brown, N., 2011. Time, timing and narrative at the interface between UK technoscience and policy. <i>Science and Public Policy</i> , 38 (8), 639–648.

Appendix B. Interview guides

Experts' Networks in Preventive Policymaking: The emergence, influence, and temporality of networks of expertise on Obesity Prevention Policies in Mexico

Interview Protocol for the Sugar Tax Experience

Introduction (7 min)

- Researcher introduction and project overview
- Give information sheet, consent form, and privacy notice
- Ask about doubts and get signatures

Professional information questions (3 min)

- Occupation _____
- Years in the post _____
- Other jobs in private or public sector _____
- Member of professional associations _____

Show a simplified version of the Sugar Tax timeline. **The diagram is a visual tool to minimize recall bias and to converse about key moments in the policy process.**

_____ Network emergence

1. **Obesity: Meaning, implications, and policy responses (5 min)** ---Voice recording starts---

- The opinion of what is obesity how it is affecting Mexico
- Importance of preventing obesity
- How to prevent it

2. **Preparation and use of information and scientific evidence in the formulation of obesity prevention policies (10 min)**

- When and how did you become involved in the policy process of obesity prevention in Mexico?
- By the time you started to be involved in the policy process of obesity-related policies who else shared similar ideas? Did you collaborate with this person(s) in what form (technical support, advocacy, shared knowledge)?
- Use of information and evidence to support your position. (What type of evidence, who produces it?)

_____ Network Influence

3. **Experiences and Reflections regarding your participation in the policy process of Sugar Tax (10 min)**

- **(showing the timeline):** tell me about the policy process of the sugar tax (key moments)
- Back in 2013-2014, what may be the reasons why the sugar tax was implemented (e.g. Health, political, economic factors)
- Tell me about your activities in the policy process of the sugar tax (in which stage did you participate? What did you do?)

_____ Network Temporality

4. **Principal allies and people with whom you shared your ideas regarding the need of a Sugar Tax (25 min)**

- Reflecting on the implementation of the sugar tax, who were the people with whom you had communication and support regarding the sugar tax?
- (at this point Complete the Sociogram)
- Who do you think were the most influential actors? Why? Did you collaborate with them?
- Do you keep in contact with them?
- After the implementation of the sugar tax in 2014, have you been involved in any activity related to making any modifications to the Sugar Tax or another policy area? Where? What types of activities?
- Do your activities include getting in touch with people who may have participated and collaborated with you in 2013-2014? (Observe the sociogram)
- Alternatively, what type of relationship do you keep with these actors?

In case that the participant have also participated in the FOP labelling. Start with the questions at this point. If not, conclude:

Conclusion

- Wrapping up: Key points of the conversation
- Thanks again the participant for the time spent in the interview

---End voice Recording---

Experts' Networks in Preventive Policymaking: The emergence, influence, and temporality of networks of expertise on Obesity Prevention Policies in Mexico

Interview Protocol for the FOP Labelling Experience

The interview includes visual tools for data collection. A timeline for the FOP labelling experience and a sociogram to reflect about participants social networks (policy-related)

Introduction (7 min)

- Thanks the participant to accept the interview
- Researcher introduction and project overview
- Give information sheet, consent form, and privacy notice
- Ask about doubts and get signatures

Professional information questions (3) min

- Occupation _____
- Years in the post _____
- Other jobs in private or public sector _____
- Member of professional associations _____

Show a simplified version of the FOP labelling timeline. The diagram is a visual tool to minimize recall bias and to converse about key moments in the policy process.

Network emergence

1. Obesity: Meaning, implications, and policy responses (5 min) ---Voice recording starts---

- The opinion of what is Obesity how it is affecting Mexico
- Importance of preventing obesity
- How to prevent it

2. Preparation and use of information and scientific evidence in the formulation of obesity prevention policies (10 min)

- When and how did you become involved in the policy process of obesity prevention in Mexico?
- By the time you started to be involved in the policy process of obesity-related policies, who else shared similar ideas? Did you collaborate with this person(s) in what form (technical support, advocacy, shared knowledge)?
- Use of information and evidence to support your position. (What type of evidence?, who produces it?)

Network Influence

3. Experiences and Reflections regarding your participation in the policy process of FOP labelling (10 min)

- (showing the timeline): tell me about your activities in the policy process of the FOP labelling (in which stage did you participate? What did you do?)
- Why do you think the GDA was implemented (e.g. Health, political, economic factors?) who do you believe was an influential actor?
- What was different between 2019-and 2020 and the modifications to the General Law of Health and the FOP informative design?

Network Temporality

4. Principal allies and people with whom you shared your ideas regarding the need of a FOP labelling (25 min)

- Back in 2013-2014, reflecting on the implementation of the GDA, who were the people with whom you had communication and support regarding to the need of a FOP labelling?

- **At this point complete a sociogram**
- After the implementation of a mandatory GDA/Informative FOP labelling, were/are you involved in other aspects of this policy?
- Do your activities include getting in touch with people who may have participated and collaborated with you in the policy process? Alternatively, what type of relationship do you keep with these actors? (**observe the sociogram**)

Conclusion

- Wrapping up: Key points of the conversation
- Thanks again the participant for the time spent in the interview

---End voice recording---

Appendix C. Ethics approval



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7 January 2020

Anette Bonifant Cisneros
Phd Social Policy and Social Work

Dear Anette

Application to Social Policy and Social Work Ethics Committee

Project title: Experts' networks in preventive policy-making: The emergence, influence, and temporality of networks of expertise on obesity prevention policies in Mexico

Reference: SPSW/P/2019/8

Thank you for submitting your application to the SPSW Ethics Committee for the above named research project.

Your application has been reviewed by the Committee and I am pleased to inform you that they have approved your application. Where relevant, any conditions attached to this approval are enclosed.

As your project progresses, please do let the Committee know via spsw-ethics@york.ac.uk if there are any material changes to the project that will require further ethical approval (for example, changes to your research methods).

Yours sincerely

A handwritten signature in black ink that reads 'Mark Wilberforce'.

Dr Mark Wilberforce
Chair, SPSW Ethics Committee

Appendix D. Invitation template and information sheets

Participant Invitation Template

Asunto: Invitación a entrevista de investigación

Buen día Sr. / Sra./ Título académico nombre,

Mi nombre es Anette Bonifant y soy estudiante de doctorado en el Departamento de Política Social y Trabajo Social (SPSW) de la Universidad de York en el Reino Unido. Actualmente estoy llevando a cabo un proyecto de investigación con el cual soporto mi candidatura a la obtención del grado de Doctor en Política Social. Mi investigación explora el papel de la información, la evidencia y la experiencia en el proceso de las políticas públicas de prevención, así como las relaciones y actividades que los expertos mantienen a través del tiempo para influir en dichos programas. En particular, mi proyecto se centra en estudiar el papel desempeñado por las redes de expertos (redes basadas en el conocimiento) en México en el desarrollo de dos políticas de prevención de la obesidad: el impuesto a las bebidas azucaradas y el etiquetado frontal de alimentos (incluyendo el esquema de Guías Diarias de Alimentación y el etiquetado de advertencia).

Le estoy solicitando participar en este estudio ya que mi investigación de antecedentes de la implementación del impuesto a las bebidas azucaradas y el etiquetado frontal en México lo revelaron como un actor relevante en el proceso de alguna de dichas políticas. Por ejemplo, al ser un servidor público encargado del diseño e implementación de estas políticas, un defensor o crítico de ellas, o un experto en alguna faceta de estos temas (por ejemplo, salud pública y nutrición, política fiscal o regulación). También pudo haber sido nominado por otro participante. Creemos que sus puntos de vista y opiniones son muy valiosos para este estudio. Si decide participar, realizaré una entrevista en persona cualquier día, hora y lugar de su preferencia durante este mes, alternativamente, podríamos concertar una entrevista telefónica.

Adjunto a este correo electrónico encontrará la "Hoja de información para el participante" (también en inglés como *participant information sheet*), que proporciona más información del estudio, así como detalles de lo que implica su participación, también cómo se recopilan, utilizan y manejan sus datos. Por favor léalo detenidamente antes de tomar cualquier decisión, tenga en cuenta que su participación es totalmente voluntaria.

Si le gustaría participar en este estudio o tiene alguna pregunta, no dude en responder a este correo electrónico.

Agradezco de antemano la atención brindada a esta invitación,

Anette

Participant information sheet

Department of Social Policy and Social Work

UNIVERSITY *of* York

Participant Information Sheet

Experts' networks in preventive policymaking: The emergence, influence, and temporality of networks of expertise on obesity prevention policies in Mexico

My name is Anette Bonifant Cisneros, and I am a Postgraduate Research Student in the Department of Social Policy and Social Work at the University of York in the United Kingdom. I am currently undertaking this research study supporting my candidacy for the degree of Doctor of Philosophy in Social Policy. My research explores the role of information, evidence, and experts in the policy process of prevention policies, as well as the relationships that experts maintain over time to influence policies. In particular, it focuses on the role played by networks of experts in Mexico developing two obesity prevention policies: the Tax on Sweetened Beverages (*Impuesto Especial Sobre Producción y Servicios a las bebidas saborizadas*) and the Front-of-Package (FOP) food labellings which include the Guideline Daily Amounts and the most recent regulation.

This research will contribute to refinements in theories of the Policy Process and Public Health literature regarding the formation of groups of experts who create, use, and disseminate evidence over extended periods to develop policies. The results of this research may also reach a global audience and help policymakers and experts to draw lessons on the policy process of prevention policies.

Why have I been invited to take part?

You are being asked to take part in this study because my background research of how the process of the Sugar Tax and the FOP labelling unfolded in Mexico, which consisted in reading Government publications, Congress documents (Bill drafts), position documents, research articles and newspaper articles revealed you as an actor of relevance in the policy process. You may be a public servant in charge of the design and implementation of these policies, an advocate or critic of them or as an expert in some facet in this topic (for instance nutrition/public health, fiscal policy for the sugar tax or regulation for FOP labelling). It may be also the case that other participant of this research has nominated you as a relevant respondent. Your views and opinions are highly valuable for this study.

What does taking part involve?

If you decide to take part in this study, I will conduct a face-to-face interview with you at a time and place of your preference, please bear in mind that a public space could compromise confidentiality as our conversation may be heard by third parties. If for logistical reasons, we cannot meet in-person, I will interview you by phone. It will take approximately 1 hour to complete the interview. You will be asked questions about your participation in the development of the Sugar Tax or FOP food labelling. Themes discussed include what does obesity and its prevention mean for you, and how evidence was produced and used in the formulation of these policies. You will also be asked, if possible, to identify individuals with whom you most frequently discussed your ideas or consider influential regarding the design and implementation of any of these policies or how the Mexican government should respond to the prevalence of Obesity. Eventually, I will contact the individuals you identify and ask them to participate in this study. However, I will not reveal your responses to these individuals. I neither will say that you identify them, unless you allow me to do so. Identifying future participants is voluntary, you can still taking part in this study even if you do not want to identify other individuals.

If you agree, I will record the interview with a voice recorder. The voice recording will be transcribed, translated into English and analysed by me at the University of York. I can provide you a copy of the transcript and a copy of the final research document upon request. Alternatively, if you decide not to be recorded, I will take some notes during the conversation.

Participation is entirely voluntary, and you have the option to withdraw from the interview without needing to provide a reason. In addition if you took part in the interview and want to withdrawn from the study (ie don't want your interview to be used) you have two months after the interview to request it otherwise the

analysis would have already started. Once data has included in the analysis and research documents, it cannot be withdrawn.

What are the benefits and risks of participating?

Benefits. As a participant in this research study, there will be no economic incentives to you; however, information from this study may benefit other people now or in the future. For instance, it will help to disseminate the experience of Mexico in the creation and use of knowledge and evidence for implementing fiscal and regulatory policies related to health benefits.

Risks. This research does not involve greater than minimal risks in that procedures are like those participants encounter in daily life.

Will I be identified in any research outputs?

To protect your confidentiality, the data obtained from your interview will be anonymised. This information will be analysed and included in my Ph.D. thesis, related research journal publications, conference papers, and presentations. Eventually, I could use direct quotes of the information you provide, applying a pseudonym to reduce any possibility of being identified. Other identifiable features such as your job title will only be used for data classification purposes but will not be disclosed in publications.

Data security and management

I can promise you that any personal details, as well as the interview voice recording and transcript files resulting from the interview, will be accessible only to me. Transcripts once translated by me into English will be available to my supervisors. The information will be kept safe, stored in my personal server managed by the University of York and accessed through a password-protected computer, which is physically located in a safe place. Also, I will have a data backup stored in an electronic server managed as well by the University of York.

Voice recordings and any personal identifiers will be kept only for the length of time necessary to conduct the data analysis. However, pseudonymised transcripts files in English may be securely stored in a data repository for 10 years. After these periods, data will be securely disposed.

Who has given approval to conduct the research?

The Research Ethics Committee of the Department of Social Policy and Social Work at the University of York in the United Kingdom approved this research project.

How to know more about this project?

If you have any questions about this study now or in the future, you may contact me or my supervisors, Dr. Neil Lunt (neil.lunt@york.ac.uk) and Dr. Daniel Horsfall (daniel.horsfall@york.ac.uk). If you had questions or concerns about your rights as a research participant and you still dissatisfied, you can approach the Departmental Ethics Committee using the email address: spsw-ethics@york.ac.uk.

Thank you!

Anette Bonifant Cisneros

E-mail: anette.bonifant@york.ac.uk
Tel: +44 (0) 75 9506 0848 and + 52 1 55 1258 7942
Research Centre for Social Sciences
6 Innovation Close, University of York,
Heslington, York, YO10 5ZF, UK

Data Information Sheet

Department of Social Policy and Social Work

UNIVERSITY of York

Data Information Sheet (supplement to the participant information sheet)

Experts' networks in preventive policymaking: The emergence, influence, and temporality of networks of expertise on obesity prevention policies in Mexico

The purpose of this information sheet is to explain how your data will be used and protected, in line with the General Data Protection Regulation (GDPR) valid in the United Kingdom. In a separate sheet, you will be given the Privacy Notice to comply with the Federal Law on the Protection of Personal Data Held by Private Parties (*Ley Federal de Protección de Datos Personales en Posesión de los Particulares*) in force in Mexico.

On what basis will you process my data?

Under the GDPR, the University must identify a legal basis for processing personal data and, where appropriate, an additional condition for processing special category data.

In line with our charter, which states that we advance learning and knowledge by teaching and research, the University processes personal data for research purposes under Article 6 (1) (e) of the GDPR:

Processing is necessary for the performance of a task carried out in the public interest

For this research project, I will collect professional information such as your occupation and job position now and in the past, as well as your contact details. This research does not involve obtaining and handling any special categories of personal data (data that reveals racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union-membership, data concerning health, sex life and sexual orientation, genetic data and biometric data). However, research will only be undertaken where ethical approval has been obtained, where there is a clear public interest and where appropriate safeguards have been put in place to protect data.

In line with ethical expectations and to comply with common law duty of confidentiality, I will seek your consent to participate where appropriate. This consent will not, however, be the legal basis for processing your data under the GDPR.

How will you use my data?

Data will be processed for the purposes outlined in this notice and the participant information sheet. All interviews will be audio-recorded (with consent). The device used for audio-recording will be password protected; the audio file will be transferred to the secure University of York encrypted files server at the earliest opportunity and then deleted from the recording device. The transcript files resulting from the interview (and its translations) will also be kept in my personal server managed by the University of York. You will be required to provide informed consent for participation. This will include your signature or a voice recording if you are interviewed by telephone. These consent forms will be kept in a locked cabinet only accessed by me (the researcher) at the Research Centre for Social Sciences at the University of York, voice-consent recordings will be kept in the server. Transcripts will be anonymised, analysed and used in my Ph.D. thesis and related documents that may include journal publications and conference papers. A copy of the transcript and the final research document will be available to those who took part in the study, upon request.

How will you keep my data secure?

The University will put in place appropriate technical and organisational measures to protect your personal data and/or special category data. For the purposes of this project, I will ensure that personal data is kept separate from all audio files and interview transcripts. All data will be password protected and saved onto the secure University of York files server. During the fieldwork in Mexico data will be kept in the University of York files server accessed remotely through my my password-protected laptop, which will be safe in my private accommodation which has also general security 24 hours 7 days per week.

Information will be treated with confidentiality and shared on a need-to-know basis. The University is committed to the principle of data protection by design and default and will collect the minimum amount of data necessary for the project.

Will you share my data with 3rd parties?

Raw data will only be accessible to me, Anette Bonifant Cisneros (the researcher) and my supervisors Professor Neil Lunt and Dr. Daniel Horsfall, at the University of York in the United Kingdom.

Will I be identified in any research outputs?

You will not be identified in any research output. A pseudonym or code will be applied when using direct quotes in publications.

How long will you keep my data?

Data will be retained in line with legal requirements or where there is a business need. Retention timeframes will be determined in line with the University's Records Retention Schedule. Professional information data and audio recordings will be kept only for the time necessary to conduct the study. Anonymised transcripts will be kept for ten years from the end of the study and consent forms/recordings will be kept for three years from the end of the study. After these periods, data will be securely disposed.

What rights do I have in relation to my data?

Under the GDPR, you have a general right of access to your data, a right to rectification, erasure, restriction, objection or portability. You also have a right to withdrawal. Please note, not all rights apply where data is processed purely for research purposes. For further information, see <https://www.york.ac.uk/records-management/general-dataprotection-regulation/individuals-rights/>.

Questions

If you have any questions about this participant information sheet or concerns about how your data is being processed, please contact me at Anette Bonifant Cisneros anette.bonifant@york.ac.uk or my supervisors Prof. Neil Lunt (neil.lunt@york.ac.uk) and Dr. Daniel Horsfall (daniel.horsfall@york.ac.uk). If you are still dissatisfied, please contact the University's Acting Data Protection Officer at dataprotection@york.ac.uk.

If you are unhappy with the way in which the University has handled your personal data, you have a right to complain to the Information Commissioner's Office. For information on reporting a concern to the Information Commissioner's Office, see www.ico.org.uk/concerns.

Privacy Notice

Página 1 de 2

AVISO DE PRIVACIDAD

De conformidad con el artículo 15 de la **Ley Federal de Protección de Datos Personales en Posesión de los Particulares (LFPDPPP)**, el presente documento tiene como finalidad informar al titular de datos personales la información que se recaba y el tratamiento que se dará a dicha información.

Título del Proyecto: Redes de expertos y la formulación de políticas preventivas: la emergencia, influencia y temporalidad de redes de expertos en las políticas de prevención de la obesidad en México

Investigadora responsable

Nombre: Anette Bonifant Cisneros

Domicilio: Research Centre for the Social Sciences. 6 Innovation Close, University of York Heslington, York. YO105 ZF.

Teléfono: +44 (0) 75-97-06-08-48 y +52 (55) 12-58-79-42

Correo Electrónico: anette.bonifant@york.ac.uk

Tipo de Información que se solicitará:

Su información personal será utilizada con la finalidad de clasificar entrevistas, y realizar estadística descriptiva que será incluida de manera anónima en la tesis doctoral de la responsable y documentos de investigación relacionados con el proceso de las políticas públicas para prevenir la obesidad. En especial el impuesto a las bebidas azucaradas (IEPS) y el etiquetado frontal de alimentos (NOM-051). Para lo cual se requiere la obtención de los siguientes datos personales: nombre, sitio donde labora, cargo u ocupación y antigüedad en el mismo, así como afiliaciones a alguna asociación civil que promueva políticas para prevenir esta u otra enfermedad no transmisible.

A pesar de que este proyecto no maneja datos personales sensibles es importante que usted sepa que sus datos serán tratados bajo medidas de seguridad y confidencialidad. Primero, estos datos personales no serán publicados. Segundo, las bases de datos y demás documentación obtenida en preparación de la investigación, que contengan información personal serán tratados únicamente por la investigadora responsable y se encontrarán resguardados en servidor electrónico administrado por la Universidad de York accesible de manera remota cuando se lleva a cabo el trabajo de campo en México. Tercero, la información personal será resguardada únicamente por el tiempo necesario para completar el proyecto de investigación doctoral y la obtención del grado. Cuarto, una vez terminado el proyecto, los datos personales serán eliminados de manera segura.

De acuerdo con el artículo 22 de la LFPDPPP usted tiene el derecho de acceder, rectificar, cancelar y oponerse al uso y manejo de sus datos personales de acuerdo con lo establecido en este aviso de privacidad. Para tal efecto deberá presentar una carta con firma autógrafa dirigida a *Anette Bonifant Cisneros*, en el domicilio *Research Centre for the Social Sciences. 6 Innovation Close, University of York Heslington, York, United Kingdom. YO105 ZF.*

Los datos que usted proporcione no serán compartidos con otras instancias o instituciones y únicamente serán utilizados por la investigadora responsable en la Universidad de York, para los fines establecidos, es

decir la elaboración de una tesis doctoral, así como reportes, publicaciones y presentaciones relacionados con la misma no sin antes haber anonimizado la información.

Declaración de conformidad

Si usted no manifiesta oposición para que sus datos personales se compartan con las instancias mencionadas, se entenderá que ha otorgado su consentimiento para ello.

En caso de no estar de acuerdo, favor de marcar con una X el siguiente recuadro

No consiento que mis datos personales sean transferidos en los términos que señala el presente aviso de privacidad

Nombre y Firma autógrafa de la (el) titular _____

Fecha:

Appendix E. Consent form

Department of Social Policy and Social Work

UNIVERSITY *of York*

CONSENT FORM

Experts' Networks in Preventive Policy-making

Please mark with an X the appropriate boxes

	YES	NO
I am voluntarily participating in this interview	<input type="checkbox"/>	<input type="checkbox"/>
I have been given the opportunity to select the place of the interview, and I have been told to consider that confidentiality can be compromised if the interview takes place in a public space.	<input type="checkbox"/>	<input type="checkbox"/>
I have been told what this research is about and what it involves. I have been given an information sheet before the interview, I have had the opportunity to ask questions and had any questions answered.	<input type="checkbox"/>	<input type="checkbox"/>
<p>I understand that I could voluntarily provide names of future research participants. In this regard, I wish the following: (please <u>underline</u> the statement that better presents your position)</p> <p>I allow Anette Bonifant Cisneros to tell future participants that I have identified them.</p> <p>I do not allow Anette Bonifant Cisneros to tell future participants that I have identified them.</p>	<input type="checkbox"/>	<input type="checkbox"/>
I understand that I do not have to take part in the research. I understand that I can ask for the interview to be stopped at any time without giving a reason.	<input type="checkbox"/>	<input type="checkbox"/>
I agree to be audio-recorded.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that I can still take part without being recorded if I wish.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that I can request a copy of the transcript and the final piece of research upon request.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that I can withdraw my data up to two months after the interview. I am aware that once data has been analysed and included in research reports it cannot be withdrawn.	<input type="checkbox"/>	<input type="checkbox"/>
I understand that my words, but not my name nor job title may be used in research reports.	<input type="checkbox"/>	<input type="checkbox"/>
I agree with my anonymous data to be securely stored in a server managed by the University of York in the United Kingdom.	<input type="checkbox"/>	<input type="checkbox"/>
I agree to Anette Bonifant Cisneros keeping a copy of this signed/verbal consent form.	<input type="checkbox"/>	<input type="checkbox"/>

Participant signature: _____

Date: _____

Researcher signature: _____

Date: _____

For researcher use only.

Respondent ID:

Consent_V01

**Formulario de
Consentimiento Informado**

Redes de Expertos en la Formulación de Políticas Públicas de Prevención

Por favor señale con una X la opción deseada

	SI	NO
Participo de manera voluntaria en esta entrevista		
Me han dado la oportunidad de seleccionar el lugar donde se llevará a cabo la entrevista y se me ha informado que la confidencialidad de la información podría ser comprometida si la entrevista se lleva a cabo en un sitio público.		
Se me ha informado el tema de investigación así como lo que involucra. Se me ha dado la hoja de información del participante antes de la entrevista, he tenido la oportunidad de preguntar dudas y se me han resuelto las mismas.		
Entiendo que de manera voluntaria puedo proporcionar nombres de futuros participantes. Al respecto, deseo lo siguiente: (favor de subrayar la declaración que refleja tu postura) Yo permito a Anette Bonifant Cisneros decir a futuros participantes que yo los identifiqué Yo no permito a Anette Bonifant Cisneros decir a futuros participantes que yo los identifiqué		
Entiendo que no tengo que participar en la investigación obligatoriamente. Entiendo que puedo pedir que la entrevista termine en cualquier momento sin tener que dar una razón.		
Estoy de acuerdo en que la entrevista sea grabada (audio)		
Entiendo que puedo seguir participando en el estudio sin que sea grabado, si así lo deseo.		
Entiendo que puedo obtener una copia de la transcripción y del documento de investigación final si lo solicito.		
Entiendo que puedo retirar mis datos de participación hasta dos meses después de la entrevista. Estoy al tanto que una vez que la información haya sido analizada e incluida en reportes de investigación, no puedo desistir.		
Entiendo que mis palabras, pero no mi nombre ni mi puesto de trabajo podrían ser usados en reportes de investigación.		
Estoy de acuerdo en que mi información anónima sea almacenada de forma segura en un servidor administrado por la Universidad de York en el Reino Unido.		
Estoy de acuerdo con que Anette Bonifant Cisneros retenga una copia de este formulario de consentimiento firmado/verbal.		

Firma del Participante: _____

Fecha: _____

Firma de la Investigadora: _____

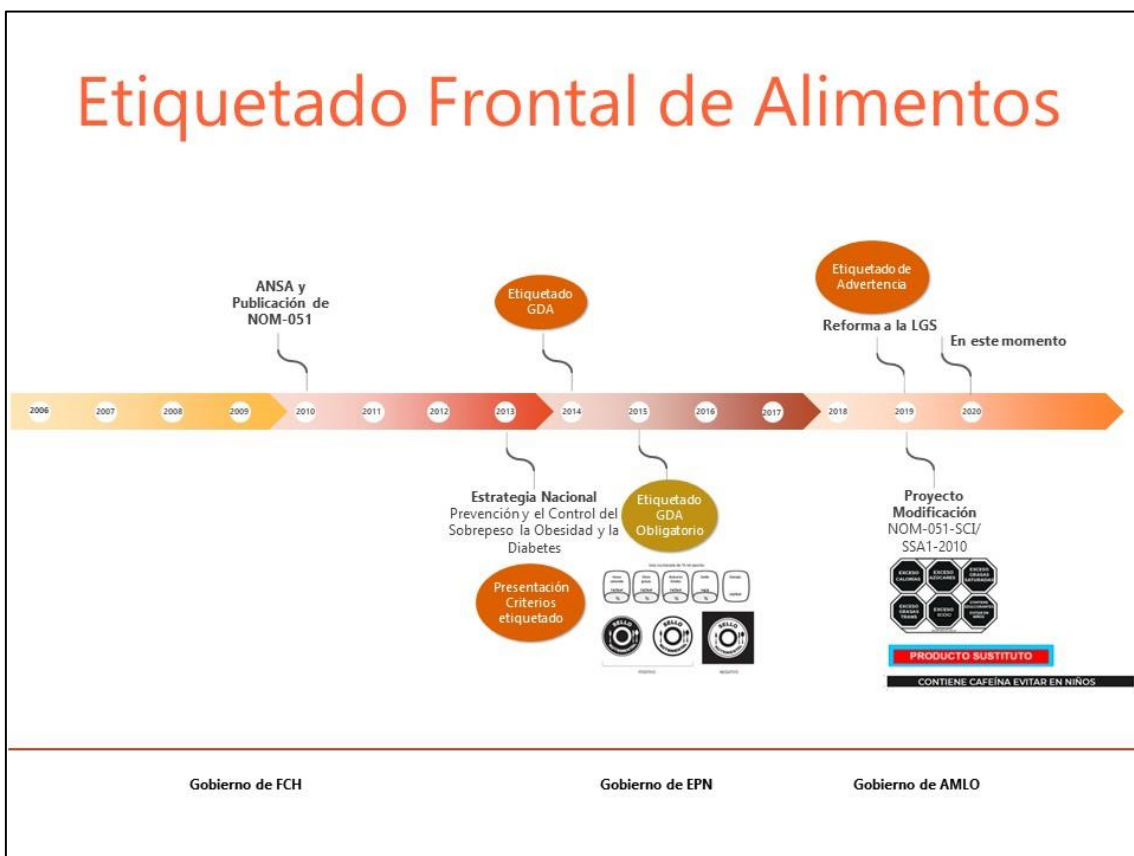
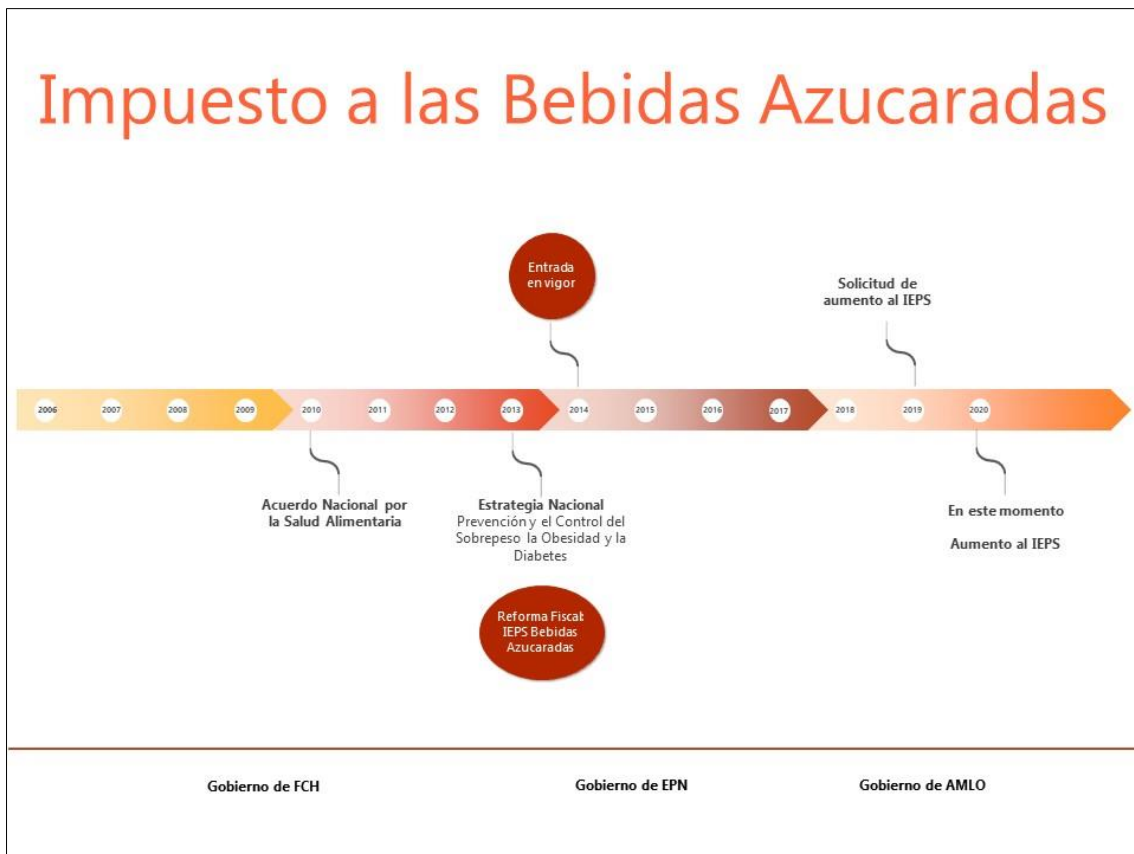
Fecha: _____

For researcher use only.

Respondent ID:

Consent_V01

Appendix F. Timelines



Appendix G. Transcription template

Code: Transcript (add code given to anonymised respondent)

A= Anette (the researcher)

P= Participant (code) interviewed in round (1 or 2), number given according to the (purposive / snowball) participant list.

Length: (hours and minutes)

Numbering by speaker (box no)	Notes (Taken during the interview)	Transcript	Other type of notes (ex-post)
1		A:	
2		P:	
3		A:	
4		P:	
5		A:	
6		P:	
7		A:	
8		P:	
9		A:	
10		P:	
11		A:	
12		P:	
13		A:	
14		P:	
15		A:	
16		P:	
17		A:	
18		P:	
19		A:	
20		P:	
21		A:	
22		P:	
23		A:	
24		P:	
25		A:	
26		P:	
27		A:	
28		P:	
29		A:	
30		P:	

Appendix H. Documentary search Sugar Tax

For data triangulation purposes, the author reviewed documentary sources, the search and analysis of these consisted of three stages. First, the creation of a search strategy, second the retrieval and selection of documents and third, sorting by date, reading and summarising the content of documents by observing the type of document, the instrument it modifies, who presents it, and what is mentioned regarding the Sugar Tax passage and attempts to modify it in the period that followed its implementation until May 2020.

The first step started on May 2020 with the creation of a search strategy that would allow the systematic search of policy-relevant documents that related to the role of experts in the development of the Sugar Tax and attempts to modify it. A list of keywords in Spanish and their synonyms was created to operationalise a search string applied on the Google browser for the policy area. The combination of keywords was subject to an iterative sensitive analysis that allowed returning relevant data not too specific that could limit the number of results and not too broad that returned an unmanageable number of non-relevant sources.

Keywords for the Sugar Tax Case

Obesidad	Expertos	Evidencia	Impuesto	Bebidas Azucaradas
Sobrepeso	Experto/a	Investigación	Impuesto Especial Sobre Producción y Servicios	Bebidas Saborizadas
Exceso de peso	Investigadores	Estudio	IEPS	Refresco
	Investigador/a		Gravamen	
	Científicos			
	Especialista			
	Especialistas			

Boolean operators “AND”, and “OR” were used to link and combine keywords in the search string. The operator “AROUND” was also included for proximity search between two words. In the case of the Sugar Tax, the proximity search was set to two words of distance, mainly because linking the word “Tax” (Impuesto) to the term “Sugar” (Bebidas azucaradas) in Spanish, requires two connectors as it is read in: Impuesto a las bebidas azucaradas.

The search string shown in the table below was applied in the main Google browser. The decision to apply the string on the general browser was discussed with the academic

librarian for Social Policy and Social Work at the University of York, who agreed that a Google search would allow a systematic search of documents; furthermore, it would help to return relevant results. In the practice, Google algorithms also offer the opportunity to observe the most relevant results first. The browser's advanced search feature was also used to limit the timeframe of documents, from 2006 to May 2020. It was also used to set the search region to Mexico. Lastly, search by site was also applied to search in relevant policy actors' websites, which were identified in Carriedo's (2018) analysis of the Sugar Tax passage.

Search String for the Sugar Tax

Case	Search String
Sugar Tax	site:diputados.gob.mx ("exceso de peso" OR "sobrepeso" OR "obesidad") AND ("expertos" OR "experto" OR "experta" OR "investigadores" OR "investigadora" OR "investigador" OR "cientificos" OR "especialista" OR "especialistas" OR "investigacion" OR "estudio" OR "evidencia") AND ("impuesto" OR "impuesto especial sobre produccion y servicios" OR "IEPS" OR "gravamen") AROUND(2) ("bebidas azucaradas" OR "bebidas saborizadas" OR "refresco")

Note: the "site" component in this table is an example of the search string adapted for each actor in the policy process.

The search string was applied to the sites of 26 actors. It is important to note that a difficulty found with electronic sources is that pages can be removed, and documents may become unavailable. Some government domains were different from past administrations, in those cases, the search was carried out on both sites. An illustration of this is the Ministry of Finance's site which active domain in 2020 was gob.mx/hacienda, in contrast to the site shcp.gob.mx, which was active prior to 2018. Also, some websites were no longer active by the time the search was carried out, it was the case of Fundación Mídete, an organisation mentioned by the interview participants to be relevant for the passage of the Sugar Tax.

Domains searched in the Sugar Tax case

Government	Site
National Council of Science and Technology (CONACYT)	Conacyt.gob.mx
Ministry of Welfare (Previously Ministry of Social Development)	gob.mx/bienestar sedesol.gob.mx
Ministry of Health	salud.gob.mx gob.mx/se
Ministry of Economy	economia.gob.mx gob.mx/salud
Ministry of Finance	shcp.gob.mx gob.mx/hacienda
National Commission for the Protection of Health Risks (COFEPRIS)	cofepris.gob.mx gob.mx/cofepris
Upper house (Senate)	senado.gob.mx
Lower house (Deputies)	diputados.gob.mx
Non-government organisations	
National Academy of Medicine	anmm.org.mx
El Poder del Consumidor	elpoderdelconsumidor.org
Alianza por la Salud Alimentaria	alianzasalud.org
ContraPESO Coalition	coalicioncontrapeso.org
Mexican Federation of Diabetes (FMD)	fmdiabetes.org
Mexican Association of Diabetes (AMD)	amdiabetes.org
Mexican Institute of Competitiveness (IMCO)	imco.org.mx
Research and academic institutions	
Centre for Research and Teaching in Economics (CIDE)	cide.edu
Mexico's Autonomous Institute of Technology (ITAM)	itam.mx
National Autonomous University of Nuevo Leon (UANL)	uanl.mx
National Institute of Public Health (INSP)	insp.mx
Mexican Foundation for Health (FUNSALUD)	funsalud.org.mx
Industry	
Consejo Mexicano de la Industria de Productos de Consumo (CONMEXICO)	conmexico.com.mx
Confederación de Cámaras Industriales (CONCAMIN)	concamin.org.mx
Asociación Nacional de Productores de Refrescos y Aguas Carbonatadas (ANPRAC)	anprac.org.mx
PepsiCo	pepsico.com.mx
Coca-Cola Mexico	coca-colamexico.com.mx
Nestle	nestle.com.mx

The electronic search was completed with snowballing and hand search techniques when the electronic sources linked to relevant information, or when participants mentioned a relevant document. Documents were reviewed and assessed, following an eligibility framework, which was applied in two phases. The first consisted of a rapid review of titles and links to remove duplicates, archives different from documents such as videos or images, expired URL's documents, or those that were out of the period of analysis, also those that were clearly unrelated to the study or were secondary sources

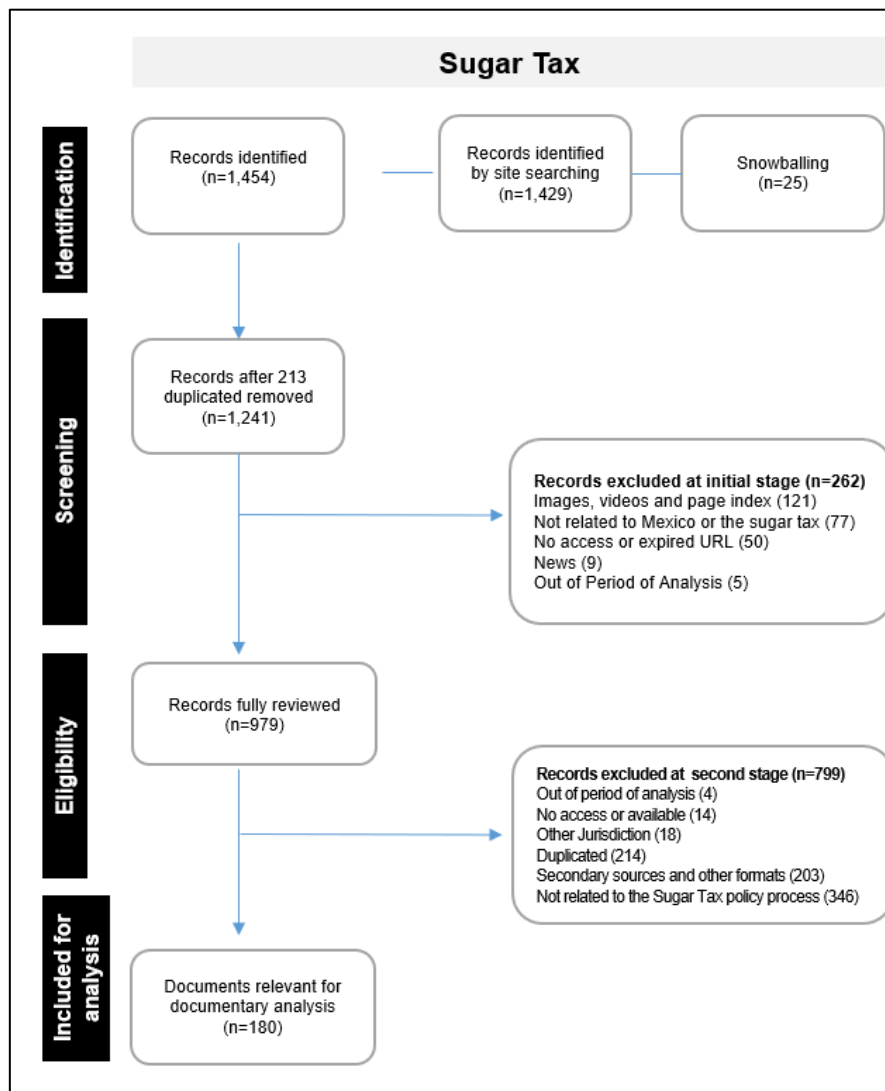
such as in the case of newspaper articles. In a second stage which took place between May 2020 and October 2021, the complete content of the documents was scanned, which allowed identifying also records that included the keywords such as “*impuesto al refresco*” but were not linked to the policy process (i.e intentions to implement, modify or keep the Sugar Tax). The following table shows the inclusion criteria developed for the documentary sample.

Inclusion criteria for documents

Criteria	Include	Exclude
Year of publication	2006-2020	Prior 2006
Country	Mexico	Other countries
Type of source	Documents (Congress gazettes, stenographic version of meetings, press releases, position statements, blog posts)	Audio Video Webpage indices Newspaper articles
Discussion of the policy	Documents that related to intention to implement, modify, or keep the Sugar Tax, evaluation of the Tax	Documents that mention the Sugar Tax but do not relate to the discussion of the policy.
Authenticity	Primary sources	Secondary sources and unknown author

The web search threw 1,429 documents, whereas 16 documents were retrieved with the snowballing technique. In total, in both stages 1,274 documents were excluded, which turned into a sample of 180 documents. The diagram below summarizes the screening process. It is important to mention that the high number of duplicates relates mainly to Congress’ sources. Documents such as bills, discussions and meetings are commonly found in diverse formats such as html, pdf or word, and also can be found individually or nested into a parliament compendium (i.e., a bill can be available on the webpage of the Senator who proposed the bill, but also in the Parliament Gazette for discussion).

Documents' screening process



A large amount of data was classified as “Not related to the Sugar Tax policy process”, this category consisted of those documents that mentioned the sugar tax only as a keyword or as an antecedent for the discussion of other policy areas. For example, it includes documents related to the implementation of drinking fountains and references to espionage activities suffered by health advocates.

Documents included as documentary sources were read in full between October and November 2021. A synthesis was created, extracting the following elements:

- Date of publication,
- Type of document,
- Rate and type of tax supported,
- Mentions to the modification of a legislation or regulatory instrument,
- Summary of sources of evidence, events and actors mentioned.

Documentary data served to contextualise and confirm the events and sources mentioned by the interview participants.

Documentary Materials for the Sugar Tax case

#	Source	Date	Title	URL link
1	NGO	05-sep-11	Pedimos imponer impuesto a los refrescos	HS008
2	NGO	07-mar-12	Mexico "Coca-colizado"	EPC220
3	NGO	03-dic-12	Organizaciones civiles exigimos al nuevo gobierno discutir el impuesto a refrescos para detener obesidad y diabetes	AHN094
4	Congress	04-dic-12	De los senadores Marcela Torres Peimbert, Silvia Guadalupe Garza Galván, Gabriela Cuevas Barrón, Luis Fernando Salazar Fernández, Juan Carlos Romero Hicks, Francisco Salvador López Brito, Martín Orozco Sandoval, Luiz María Beristáin Navarrette, Mario Delgado Carrillo y Sofío Ramírez Hernández, La que contiene Proyecto de Decreto por el que se Reforman y Adicionan Diversas Disposiciones a la Ley del Impuesto Especial Sobre Producción y Servicios.	HS009
5	NGO	11-dic-12	Demandamos a diputados bebederos de agua en escuelas	EPC256
6	NGO	13-dic-12	Conclusiones foro Sobre Obesidad en Latinoamérica	EPC130
7	NGO	21-dic-12	Miente la industria refresquera al tratar de desligar el consumo de refresco con la obesidad	AHN162
8	Research-University	31-dic-12	¿Los refrescos son una opción de hidratación saludable? (Circa 2012)	INSP038
9	Research-University	01-ene-13	Impuestos a los refrescos: estrategia para la prevención de la obesidad (Circa 2013)	INSP005
10	Government-TA	09-ene-13	Estrategia Nacional Para la Prevención y el Control del Sobrepeso, La Obesidad y la Diabetes (Page 83)	SB014
11	NGO	30-ene-13	Obesidad en México Recomendaciones para una política de estado (Section reviewed: Políticas fiscales, un caso especial: Impuestos a Refrescos en México)	SB013
12	NGO	31-ene-13	Urge política integral contra la obesidad en México	EPC110
13	Research-University	30-ene-13	Presentan el libro Obesidad en México: recomendaciones para una política de Estado	SB011

14	NGO	26-feb-13	Académicos, investigadores y organizaciones sociales demandamos política integral contra la obesidad	SB004
15	Research-University	06-mar-13	Las bebidas azucaradas a debate: Efectos en la salud y políticas para su regulación	INSP030
16	NGO	13-may-13	Urge modificar el marco regulatorio y el medio ambiente que genera la grave epidemia de obesidad en México: expertos nacionales e internacionales	SB015
17	NGO	22-may-13	Presentamos nuestra campaña “¿Te comerías 12 cucharadas de azúcar?”	AHN231
18	Research-University	26/06/2013	Efectos en salud de un impuesto al refresco	INSP002
19	Research-University	01-sep-13	Impuesto al refresco (Circa 2013)	INSP001
20	Congress/Industry	30-sep-13	Cámara Nacional de las industrias Azucarera y Alcohólica (Industry presentation to the Finance Commission at the Lower Chamber)	DIP046
21	Government-TA	02-sep-13	Criterios Generales de Política Económica (Section: Impuestos de Salud, pp.93-94)	MOF003
22	Research-University	14-ago-13	Mexico attempts to tackle obesity: the process, results, push backs and future challenges	HS005
23	Congress	08-sep-13	DECRETO por el que se reforman, adicionan y derogan diversas disposiciones del Código Fiscal de la Federación. (Legislative Process Archive. The Sugar Tax case analyses document 1)	DIP021
24	Congress	10-sep-13	Conferencia de la Senadora Marcela Torres Peimbert, del PAN	SEN067
25	INT_ORG	11-sep-13	Foro Legislativo sobre bebidas azucaradas	SB007
26	Research-University	17-sep-13	Aspectos económicos relacionados con un impuesto al refresco en México	INSP018
27	NGO	18-sep-13	Presentan exposición fotográfica en el Senado sobre la Obesidad y el Consumo de Refresco	AHN180
28	Congress	24-sep-13	Proposición de los senadores Marcela Torres Peimbert, Zoe Robledo Aburto y Javier corral Jurado, la que contiene punto de acuerdo que exhorta a la Comisión de Presupuesto y Cuenta Pública de la Cámara de Diputados a que, en el proceso de análisis, discusión y aprobación del PEF2014, integre la necesidad de invertir los recursos recaudados por el impuesto especial sobre producción y servicios a bebidas azucaradas, en la implementación de programas de prevención de la obesidad.	SEN291
29	NGO	24-sep-13	Recurre industria refresquera a mentiras contra impuesto	EPC075

30	Congress	25-sep-13	Versión estenográfica de la reunión de trabajo de la Comisión de Hacienda y Crédito Público de la Honorable Cámara de Diputados, LXII Legislatura (Fiscal Reform Discussion)	DIP061
31	Congress	25-sep-13	Gaceta Parlamentaria, año XVIII, número 4170, viernes 5 de diciembre de 2014. De la comisión de Hacienda y Crédito Público, relativa al foro de consulta sobre la reforma hacendaria 2014	DIP242
32	Congress	26-sep-13	Gaceta del Senado No. 18, Tomo III. Propositiones de los Senadores Marcela Torres Peimbert, et al que contiene punto de acuerdo que exhorta a la Comisión de Hacienda a reformular la propuesta de IEPS	SEN189
33	Congress	01-oct-13	Versión estenográfica de la sesión celebrada el martes 1 de octubre de 2013. Intervención Sen. Martha Palafox	SEN235
34	Congress	01-oct-13	Versión Estenográfica de la Audiencia pública, convocada por la Comisión de Hacienda y Crédito Público, de la Honorable Cámara de Diputados, LXII Legislatura, llevada a cabo este martes en el salón Legisladores de la República	DIP048
35	Congress	02-oct-13	Versión estenográfica de la reunión de trabajo de la Comisión de Hacienda y Crédito Público de la Honorable Cámara de Diputados, LXII Legislatura, llevada a cabo este miércoles en el salón Legisladores de la República.	DIP145
36	NGO	08-oct-13	Expertos hablan sobre el daño a la Salud por el consumo de azúcar y bebidas azucaradas	AHN035
37	NGO	04-oct-13	El imperio contraataca	EPC262
38	NGO	09-oct-13	Advierten expertos daños a la salud por consumo de refrescos	AHN234
39	Congress	09-oct-13	Diario de los debates Año II Sesión 18. México, DF, miércoles 9 de octubre de 2013. Sección Ley del Impuesto Especial Sobre Producción y Servicios	DIP143
40	NGO	16-oct-13	El azúcar es tan dañina como el alcohol y el tabaco, asegura especialista	AHN222
41	Congress	17-oct-13	Declaratoria de publicidad de dictámenes De la Comisión de Hacienda y Crédito Público, con proyecto de decreto que reforma, adiciona y deroga diversas disposiciones de la Ley del Impuesto al Valor Agregado, de la Ley del Impuesto Especial sobre Producción y Servicios, de la Ley Federal de Derechos y se expide la Ley del Impuesto sobre la Renta	DIP038

42	Congress	17-oct-13	Cámara de Diputados del Honorable Congreso de la Unión, LXII Legislatura. Versión estenográfica de la Sesión Ordinaria del jueves 17 de octubre de 2013	DIP214
43	NGO	17-oct-13	Hace "Guerra Sucia" la industria refresquera	EPC237
44	NGO	18-oct-13	Declara la OPS/OMS la necesidad del impuesto al refresco en México como medida de salud pública	AHN015
45	Congress	28-oct-13	Dictamen correspondiente a la Minuta con Proyecto de Decreto por el que se Reforman, Adicionan y Derogan Diversas Disposiciones de la Ley del Impuesto al Valor Agregado, de la Ley del Impuesto Especial Sobre Producción y Servicios, de la Ley Federal de derechos; se Expide la Ley del Impuesto Sobre la Renta y se Abrogan la Ley del Impuesto Empresarial a Tasa Única y la Ley a los Depósitos en Efectivo.	SEN129
46	NGO	01-nov-13	Conoce la campaña "Fue la obesidad, después la diabetes..."	AHN110
47	NGO	12-nov-13	Urge instalar bebederos en escuelas públicas del país	EPC228
48	NGO	20-feb-14	Aceptan amparo de uso de impuesto a refrescos para agua potable	EPC090
49	NGO	01-jul-14	¿Cómo vamos con la Diabetes? Estado de la Política Pública	MFD003
50	NGO	26-ago-14	Es urgente asignar una partida específica para bebederos en las escuelas	EPC261
51	NGO	09-sep-14	Insuficiente el presupuesto asignado para bebederos en escuelas	EPC211
52	Congress	07-oct-14	Denuncia Torres Peimbert Incumplimiento	SEN082
53	Congress	09-oct-14	Gaceta Parlamentaria, Número 4129-V, jueves 9 de octubre de 2014. Iniciativa que reforma el Artículo 2o. De la Ley del Impuesto Especial Sobre Producción y Servicios, a cargo del Diputado Fernando Zárate Salgado, del Grupo Parlamentario del PRD	DIP011
54	NGO	13-oct-14	El impuesto a bebidas azucaradas funciona, 52% considera que consume menos refresco: Encuesta Nacional de Obesidad	AHN090
55	Congress	15-oct-14	Comisión de Hacienda y Crédito Público Miércoles 15 de octubre de 2014	DIP132
56	Congress	16-oct-14	Gaceta Parlamentaria Número 4134-II Año XVII	DIP075
57	Congress	22-oct-14	Versión Estenográfica de la Reunión de Trabajo de las Comisiones Unidas de Hacienda y Crédito Público; y de Estudios Legislativos	SEN250

			Gaceta Parlamentaria Número 4143-I martes 28 de octubre de 2014. Con proyecto de decreto, que reforma el artículo 2o. De la Ley del Impuesto Especial sobre Producción y Servicios, en materia de Impuesto a las Bebidas Saborizadas, presentada por el Senador Mario Delgado Carrillo, del Grupo Parlamentario del PRD.	DIP017
58	Congress	28-oct-14		
59	NGO	31-oct-14	Potenciar el Impuesto y que cumplan Ejecutivo y Legislativo	EPC122
60	Congress	13-nov-14	Decreto por el que se expide la Ley de Ingresos de la Federación para el Ejercicio Fiscal de 2015	DIP034
61	Research-University	01-dic-14	Taxing Calories in Mexico	SB003
62	Research-University	01-ene-15	Resultados preliminares sobre los efectos del impuesto a bebidas azucaradas y alimentos básicos de alta densidad energética sobre sus precios (circa 2015)	INSP009
63	Research-University	01-ene-15	Resultados preliminares sobre los efectos del impuesto de un peso a bebidas azucaradas en México (circa 2015)	INSP058
64	NGO	11-mar-15	Kilos de Más, Peos de Menos-Los costos de la obesidad en México	IMCO004
65	NGO	16-abr-15	Fracasa la Estrategia Contra la Obesidad y la Diabetes por secuestro de la industria: revela estudio que hemos publicado	AHN050
66	NGO	13-may-15	Consumo de bebidas azucaradas aumenta el riesgo de enfermedades cardiovasculares	EPC083
67	Government-TA	24-may-15	Sistema de Indicadores para Monitorear los Avances de la Estrategia Nacional para la Prevención y el Control del Sobrepeso, la Obesidad y la Diabetes (ENPCSOD) Reporte de Resultados	MOH016
68	Research-University	01-jun-15	Reducción en el Consumo de Bebidas con Impuesto después de la implementación del Impuesto en México	INSP017
69	NGO	16-jun-15	El impuesto a las bebidas azucaradas logra reducir su compra en hogares mexicanos	AHN046
70	Congress	17-jun-15	Gaceta del Senado, LXII, miércoles 17 de junio de 2015. Dictamen con Punto de Acuerdo por el que se exhorta a los titulares de SHPC, SEP Y SSA a dar cumplimiento a lo establecido en el artículo sexto transitorio.	SEN039
71	NGO	22-jul-15	Los daños por el consumo de bebidas azucaradas le cuestan mucho más al país que los ingresos obtenidos por el impuesto	AHN141

72	NGO	25-ago-15	Urgente tomar medidas más drásticas para reducir el consumo de bebidas azucaradas en México, señalan expertos.	AHN161
73	Congress	22-sep-15	Gaceta del Senado del día martes 22 de septiembre de 2015	SEN037
74	Government-TA	24-sep-15	Artículo del Subsecretario de Ingresos (SHCP); y del Subsecretario de Prevención y Promoción de la Salud (SSA) publicado en Milenio	MOF001
75	NGO	24-sep-15	Las industrias refresqueras y de comida chatarra son 'mosquitos' que transmiten las epidemias del siglo XXI; denuncia ASA y ContraPeso	EPC189
76	NGO	30-sep-15	Cardiólogos mexicanos demandan acciones enérgicas del gobierno para frenar muertes por infartos ligados al consumo de alimentos y bebidas "chatarra"	AHN252
77	Research-University	01-oct-15	Posicionamiento del INSP sobre la propuesta de reducción del IEPS a las bebidas azucaradas que tengan hasta 5g de azúcares añadidos por 100ml (circa 2015)	INSP008
78	Congress	15-oct-15	Comisión de Hacienda y Crédito Público	DIP036
79	Congress	19-oct-15	Versión estenográfica de la sesión ordinaria del lunes 19 de octubre de 2015. discusión del dictamen con proyecto de decreto por el que se reforman, adicionan y derogan diversas disposiciones de la Ley del Impuesto Sobre la Renta, de la Ley del Impuesto Especial sobre Producción y Servicios, del Código Fiscal de la Federación y de la Ley Federal de Presupuesto y Responsabilidad Hacendaria	DIP220
80	NGO	19-oct-15	Anexo: Declaraciones de organismo e instituciones sobre la reducción del impuesto al refresco	EPC183
81	NGO	20-oct-15	Ponen en riesgo la salud de niños y niñas diputados del PRI y PAN en contubernio con la industria refresquera	EPC197
82	Congress	22-oct-15	Conferencia de prensa concedida por los senadores del PAN, Maki Esther Ortiz Domínguez, Sonia Rocha Acosta y Salvador López Brito, acompañados de senadores del PRD	SEN093
83	NGO	22-oct-15	Senadores y organizaciones demandan no disminuir impuesto a las bebidas azucaradas: el futuro de la salud de niñas y niños en manos del Senado	EPC200
84	NGO	25-oct-15	La reducción del 50% al impuesto especial a bebidas azucaradas representa un riesgo para la salud de los menores	EPC096

85	Congress	26-oct-15	Modificación al Dictamen de la Comisión de Hacienda y Crédito Público	SEN040
86	Congress	26-oct-15	Rechaza Hacienda aumento al precio de gasolinas para el 2016	SEN113
87	Congress	26/10/2015	Versión Estenográfica de la Reunión de las Comisiones Unidas de Hacienda y Crédito Público y Estudios Legislativos segunda, del Senado de la República	SEN178
88	NGO	27-oct-15	Capturan a legisladores priistas las refresqueras: ponen en riesgo salud de niñas y niños pequeños	EPC181
89	Congress	28-oct-15	Versión Estenográfica No 22 miércoles 28 de octubre de 2015	SEN126
90	Congress	28-oct-15	Versión Estenográfica de la Reunión de las Comisiones Unidas de Hacienda y Crédito Público y Estudios Legislativos segunda, del Senado de la República	SEN241
91	NGO	28-oct-15	Llama Dr. Lustig a mantener impuesto y presenta nuevo estudio que demuestra daño metabólico por consumo de azúcares en niños	EPC139
92	Congress	28/10/2015	Propuesta de reforma al artículo 2 de la Ley del Impuesto Especial Sobre Producción y Servicios en materia de bebidas azucaradas	SEN026
93	Research-Academics/ Industry	01-nov-15	Estudio de los efectos sobre el bienestar de la política de impuestos sobre alimentos y bebidas con alto contenido calórico. Del Gasto y la Demanda de Refrescos de los Hogares 2012-2014. Reporte de Resultados. (Comex Study retrieved from the ANPRAC)	SB002
94	NGO	03-nov-15	Asignación de Recursos para Programas contra Obesidad y Diabetes, Incongruente con Objetivos de la Estrategia Nacional	EPC207
95	Congress	18-nov-15	Decreto por el que se expide la Ley de Ingresos de la Federación para el ejercicio fiscal de 2016	DIP032
96	Congress	18-nov-15	DECRETO por el que se reforman, adicionan y derogan diversas disposiciones de la Ley del Impuesto Sobre la Renta, de la Ley del Impuesto Especial sobre Producción y Servicios, del Código Fiscal de la Federación y de la Ley Federal de Presupuesto y Responsabilidad Hacendaria	DIP044
97	Congress	27-nov-15	PRESUPUESTO de Egresos de la Federación para el Ejercicio Fiscal 2016	DIP108
98	Research-University	01-dic-15	La industria de las bebidas no alcohólicas en México	SB001
99	Research-University	01-dic-15	Elasticidad precio demanda de las bebidas azucaradas y refrescos en México	INSP024

100	Research-University	14-dic-15	Cambios en los precios de las bebidas azucaradas en México después de la implementación del impuesto: evidencia en zonas urbanas	INSP013
101	Industry	01-ene-16	Estudios académicos sobre los efectos del IEPS en bebidas saborizadas en el año 2014 (Circa 2016)	ANPRAC002
102	Research-University	01-ene-16	Cambios en empleo asociados con la implementación de los impuestos a bebidas azucaradas y a alimentos no básicos con alta densidad energética en México (Circa 2016)	INSP065
103	Research-University	01-ene-16	Estudio Publicado en Revista Científica con Revisión de Pares Sobre el Impacto del Impuesto a Bebidas Azucaradas en México	INSP004
104	Research-University	01-ene-16	Beverage purchases from stores in Mexico under the excise tax on sugar sweetened beverages: observational study	SB006
105	Research-University	01-abr-16	¿Por qué no es posible concluir sobre la utilidad del impuesto a las bebidas azucaradas en México en 2015 usando datos directos de ventas?	INSP027
106	Research-University	06-ene-16	Crecimiento de tasas y agregados: datos para la lucha contra el refresco	INSP052
107	Research-University	01-oct-16	Cambios en las ventas de bebidas saborizadas en México antes (2007-2013) y después del impuesto (2014-2016)	INSP021
108	NGO	07-ene-16	Se publica en el British Medical Journal por primera vez estudio sobre impacto del IEPS en Compra de Bebidas Azucaradas	EPC210
109	Research-University	12-ene-16	El impuesto disminuyó 6% el consumo de bebidas azucaradas: INSP	INSP007
110	NGO	27-ene-16	OMS respalda "Impuesto Efectivo" a bebidas azucaradas para frenar obesidad infantil.	EPC010
111	NGO/Researchers-Academics	02-feb-16	No se ha probado efectividad de los impuestos para modificar patrones de consumo en alimentos y bebidas: COLMEX	MFD006
112	Government-TA	16-feb-16	INSP participa en foro de la ANM sobre impuesto a refrescos	MOH017
113	Congress	16-mar-16	Gaceta del Senado del día miércoles 16 de marzo de 2016 (Desechada)	SEN029
114	NGO	06-abr-16	Colocan lata de refresco de 5 metros frente a SS para exigir acciones urgentes contra diabetes	EPC244
115	NGO	14-jun-16	El impuesto a las bebidas azucaradas disminuyó más el consumo en 2015	HS010
116	Congress	13-jul-16	Propondrán senadores del PRD aumentar IEPS a bebidas azucaradas	SEN020
117	NGO	13-jul-16	Senadores y Organizaciones Proponen Impuesto a Bebidas Azucaradas de 2 pesos por Litro	AHN019

118	NGO	14-jul-16	Senadores y organizaciones civiles proponen impuesto a bebidas azucaradas de \$2 pesos por litro	EPC045
119	Congress	20-jul-16	Diario de los debates Año I Segundo Receso del Primer año LXIII Legislatura Sesión Número 13. Punto de Acuerdo por el que se solicita realizar una fiscalización del destino y ejercicio de los recursos obtenidos por el impuesto a bebidas saborizadas del 2014 al 2016.	SEN270
120	Congress	26-jul-16	Gaceta Parlamentaria, año XIX, número 4582, martes 26 de julio de 2016	DIP195
121	NGO	26-ago-16	El éxito del impuesto a bebidas azucaradas se va imponiendo como política pública para combatir epidemia de la obesidad	EPC018
122	NGO	05-sep-16	Las Bebidas Azucaradas en el Contexto de las Enfermedades Crónicas. La experiencia de México	AHN021
123	NGO	05-sep-16	Especialistas en Salud Pública Recomiendan al Senado Aumentar 20% el IEPS a bebidas azucaradas	EPC028
124	Congress	05-sep-16	Alarmantes, los efectos del consumo de alimentos de alto contenido calórico en zonas marginadas del país: Armando Ríos Piter	SEN088
125	Congress	27-sep-16	Sesión Ordinaria de la H. Cámara de Senadores, Celebrada el martes 27 de septiembre de 2016	SEN207
126	NGO	04-oct-16	La evidencia muestra que las medidas fiscales funcionan mientras que la industria de bebidas intenta desinformar a la población	AHN012
127	NGO	11-oct-16	En el Día Mundial de la Obesidad ASA llama a una política real para combatir la epidemia de obesidad y diabetes y libera el documental "Dulce Agonía"	EPC119
128	NGO	17-oct-16	Cooptación de Política y Ciencia por Corporaciones se Convierte en el Mayor Riesgo para la Salud Pública	AHN125
129	NGO	18-oct-16	Margaret Chan (OMS) menciona a México y reitera recomendación de al menos 20% en impuesto a bebidas azucaradas y enfatiza acciones para afrontar obesidad y diabetes	EPC180
130	NGO	19-oct-16	Revela INSP nuevos datos sobre impacto de impuesto a bebidas azucaradas: en 2016 se presentó en el primer semestre una reducción de 11%	EPC101
131	Congress	20-oct-16	Diario de los debates año II Sesión 17. Iniciativa con proyecto de decreto por la que se reforman y adicionan diversas disposiciones de la Ley del Impuesto Especial sobre Producción y Servicios, en materia de bebidas saborizadas con azúcar.	DIP236

132	Research-University	01-nov-16	El impuesto al azúcar en México ¿hizo la diferencia?	INSP019
133	Government-TA	07-nov-16	Boletín Informativo 7 de noviembre 2016. El Impuesto a refrescos tiene potencial de reducir diabetes, enfermedades cardiacas y costos de atención en México.	MOH051
134	Congress	15-nov-16	Decreto por el que se expide la Ley de Ingresos de la Federación para el Ejercicio Fiscal de 2017	DIP057
135	Research-University	01-jun-17	Tax to Sugar sweetened beverages in Mexico	INSP124
136	Research-University	21-feb-17	Dos años después de que se introdujo el primer impuesto a bebidas azucaradas en México, las compras siguieron su tendencia a la baja (Circa 2017)	INSP003
137	Government-TA	23-feb-17	Disminuye consumo de bebidas azucaradas entre los mexicanos	MOH005
138	NGO	22-mar-17	La comunidad internacional de salud pública demanda a EPN cesar espionaje e intimidación a defensores de la salud pública e investigar y castigar a los culpables	EPC249
139	NGO	17-may-17	El impuesto a las bebidas azucaradas seguirá disminuyendo gradualmente la obesidad y la diabetes en México	EPC001
140	NGO	07-jun-17	Solicitamos a Secretaría de Salud cumplir los compromisos a los que se llegó en Gobierno Abierto para evitar el conflicto de interés en la política contra la obesidad	EPC265
141	Research-University	27-jun-17	Preservar nuestro legado y afrontar los nuevos retos de la Salud Pública/Generación y análisis de evidencia para el diseño de políticas efectivas de prevención de la obesidad	INSP129
142	Research-University	01-jul-17	Cambio en ventas de bebidas azucaradas a tres años y medio de la implementación del impuesto (circa 2017)	INSP015
143	NGO	08-ago-17	El impuesto a bebidas azucaradas se internacionaliza y se convierte en fuente de bienestar social	AHN041
144	Congress	09-ago-17	Boletín 3918 Llamam a construir agenda para fortalecer regulación de publicidad de alimentos y bebidas dirigidas a Menores	DIP010
145	NGO	12-sep-17	Entornos obesogénicos violan derechos de la infancia: ONG's	AHN171
146	Congress	11-oct-17	Versión estenográfica de la audiencia pública, convocada por la Comisión de Hacienda y Crédito Público, para recibir a las organizaciones de la sociedad civil, en el marco de análisis del paquete económico de 2018, celebrada el miércoles 11 de octubre de 2017	DIP091

147	Congress	17-oct-17	Diario de los Debates Año III, Sesión No. 16-I, martes 17 de octubre de 2017	DIP089
148	NGO	26-oct-17	El Impuesto Especial a los Alimentos con Alta Densidad Calórica y Bebidas Saborizadas: Un impuesto "extrafiscal" empleado para fines fiscales	EPC011
149	NGO	08-nov-17	Pese a la emergencia epidemiológica por obesidad y diabetes, y un impuesto especial eficaz, no existe una política presupuestaria integral de prevención	EPC275
150	Congress	15-nov-17	DECRETO por el que se expide la Ley de Ingresos de la Federación para el Ejercicio Fiscal de 2018. (Legislative Process)	DIP055
151	Congress	16-nov-17	Gaceta Parlamentaria Año XX Número 4908-V, jueves 16 de noviembre de 2017. Con punto de acuerdo, relativo a Impulsar una estrategia de combate del sobrepeso, la obesidad y otros problemas relacionados financiada con los recursos obtenidos por el impuesto a bebidas saborizadas, suscrita por los diputados Evelyn Parra Álvarez y Juan Fernando Rubio Quiróz, del grupo parlamentario del PRD.	DIP126
152	NGO	27-feb-18	La Trama Oculta de la Epidemia, Obesidad, Industria Alimentaria y Conflicto de Interés	HS011
153	Congress	22-mar-18	Diario de los Debates Año III, Sesión 17 apéndice, jueves 22 de marzo de 2018	DIP226
154	Congress	05-abr-18	Gaceta del día Jueves 05 de abril de 2018	SEN060
155	NGO	17-abr-18	México puede encabezar la batalla para hacer frente a la crisis de obesidad	AHN048
156	Research-University	01-oct-18	Posicionamiento sobre los impuestos a alimentos no básicos densamente energéticos y bebidas azucaradas	HS003
157	NGO	11-oct-18	En el Día Mundial de la Obesidad se hace un llamado global a dejar de estigmatizar a las personas con obesidad y mejor estigmatizar el ambiente obesogénico	EPC147
158	NGO	01-nov-18	Urgente actuar ante la crisis de obesidad, diabetes y enfermedades cardiovasculares en México	AHN029
159	Congress	06-nov-18	Diario de los Debates, Año I, Sesión No. 25 Apéndice	DIP063
160	NGO	07-nov-18	Propuestas para una política integral frente a la epidemia de Sobrepeso y Obesidad en México	AHN006
161	Congress	20-nov-18	Diario de los Debates de la Cámara de Diputados Año I, Primer Periodo, 20 de noviembre de 2018	DIP222
162	Research-University	30-nov-18	CINyS da cátedra anual de medicina preventiva en la Universidad de Minnesota	INSP077

163	Congress	18-dic-18	Diario de los debates Año 1 Sesión No. 40, martes 18 de diciembre de 2018	DIP185
164	NGO	01-ene-19	La (O)posición? Legislativa frente a la Salud Pública y la influencia de la industria de alimentos y bebidas (Section ii.- Iniciativas que pretender regular a la IAB: Impuestos)	EPC238
165	NGO	13-feb-19	Morena encabeza mesa de trabajo para analizar y fortalecer las estrategias de combate al sobrepeso, obesidad y diabetes	AHN200
166	NGO/Research-University	13-feb-19	La obesidad en México Estado de Política Pública y recomendaciones para su prevención y control (Chapters: Postura and Medidas Fiscales como una Estrategia de Salud Pública)	INSP071
167	Research-University	13-feb-19	Presenta el INSP el libro "La obesidad en México" ante legisladores	INSP039
168	Congress	26-feb-19	Gaceta Parlamentaria, año XXII, número 5226-III, martes 26 de febrero de 2019	DIP212
169	Congress	29-abr-19	Foro abierto, vida saludable, obesidad, encontrando soluciones	SEN100
170	Congress	30-abr-19	Diario de los Debates de la Cámara de Diputados, Año I, Segundo Periodo, 30 de abril de 2019/ Apéndice III	DIP135
171	Research-University	01-nov-19	Si el impuesto a refrescos fuera el doble...	INSP011
172	Congress	10-sep-19	Iniciativa de Decreto por el que se reforman, adicionan y derogan diversas disposiciones de la Ley del Impuesto sobre la Renta, de la Ley del Impuesto al Valor Agregado, de la Ley del Impuesto Especial sobre Producción y Servicios y del Código Fiscal de la Federación	HS012
173	Congress	14-sep-19	Boletín No. 2172 Consumo de tabaco, alcohol, bebidas azucaradas y comida con bajo aporte nutricional, agudizan las enfermedades crónicas en los mexicanos	DIP008
174	congress	14-oct-19	Boletín No. 2448 Piden que impuesto a bebidas azucaradas sea por lo menos del 20%	DIP002
175	Congress	15-oct-19	Gaceta Parlamentaria Año XXII No. 5387-VI, martes 15 de octubre de 2019	DIP162
176	Congress	17-oct-19	Gaceta Parlamentaria Año XXII No. 5389-II, jueves 17 de octubre de 2019	DIP153
177	Congress	17-oct-19	Diario de los Debates Año II Sesión 18 jueves 17 de octubre de 2019	DIP191
178	Congress	09-dic-19	DECRETO por el que se reforman, adicionan y derogan diversas disposiciones de la Ley del Impuesto sobre la Renta, de la Ley del Impuesto al Valor Agregado, de la Ley del	HS013

			Impuesto Especial sobre Producción y Servicios y del Código Fiscal de la Federación.	
179	Congress	21-abr-20	Gaceta Parlamentaria Año XXIII No. 5502-I, martes 21 de abril de 2020	DIP060
180	NGO	07-may-20	British Medical Journal publica investigación que muestra reducción de consumo de bebidas azucaradas tres años después de imponerse el impuesto en México	EPC109

Appendix I. Documentary search FOPL systems

For data triangulation, the author reviewed documentary sources, the search and analysis of these consisted of three stages. First, the Creation of a search strategy, second the retrieval and selection of documents and third, sorting by date, reading and summarising the content of documents by observing the type of document, the instrument it modifies, who presents it, and what is mentioned regarding the FOPL system.

The first step started in May 2020 with the creation of a search strategy that would allow the systematic search of policy-relevant documents that related to the role of experts in the development of the FOPL system. A list of keywords in Spanish and their synonyms was created to operationalise a search string applied on the Google browser for this policy area. The combination of keywords was subject to an iterative sensitive analysis that allowed returning relevant data not too specific that could limit the number of results and not too broad that returned an unmanageable number of non-relevant sources.

Keywords for the FOPL Case

Obesidad	Expertos	Evidencia	Etiquetado Frontal	de alimentos
Sobrepeso	Experto/a	Investigación	NOM-051	de advertencia
Exceso de peso	Investigadores	Estudio		nutrimental
	Investigador/a			GDA
	Científicos			
	Especialista			
	Especialistas			

Boolean operators “AND”, “OR” were used to link and combine keywords in the search string. The operator “AROUND” was also included for proximity search between two words. In the case of the FOPL, the proximity search was limited to one word of distance, mainly because linking the word “labelling” to the term “food” requires only one connector and adding more distancing between words returned unrelated documents.

The search string shown in the table below was applied in the main Google browser. The decision to apply the string in the Google browser was discussed with the academic librarian for Social Policy and Social Work at the University of York, who agreed that Google would allow a systematic search of documents; furthermore, it would help to return relevant results. In the practice, Google algorithms also offer the opportunity to

observe the most relevant results first. The browser's advanced search feature was also used to limit the timeframe of documents, from 2006 to June 2020. It was also used to set the search region to Mexico. Lastly, search by site was also applied to select uniquely those policy actors that were identified as relevant following Munguia's (2019) identification of actors involved in the development of the FOPL Warning System.

Domains searched

Government	Site
Ministry of Health	salud.gob.mx gob.mx/salud
Ministry of Economy	salud.gob.mx gob.mx/salud
National Commission for the Protection of Health Risks (COFEPRIS)	cofepris.gob.mx gob.mx/cofepris
National Commission of Regulatory Improvement (CONAMER)	cofemer.gob.mx conamer.gob.mx
Upper house (Senate)	senado.gob.mx
Lower house (Deputies)	diputados.gob.mx
Non-government organisations	
Academia Nacional de Medicina	anmm.org.mx
El Poder del Consumidor	elpoderdelconsumidor.org
Alianza por la Salud Alimentaria	alianzasalud.org
Contrapeso	coalicioncontrapeso.org
Salud Critica	saludcritica.org
Queremos Mexicanos Activos	mexicanosactivos.org
Polithink	polithink.mx
Research and academic institutions	
National Institute of Public Health (INSP)	insp.mx
National Institute of Medical Sciences and Nutrition Salvador Zubirán (INCMNSZ)	incmnsz.mx
International organisations	
Pan-American Health Organization (PAHO)	paho.org/es
United Nations Children's Fund (UNICEF)	unicef.org.mx
Industry	
Consejo Mexicano de la Industria de Productos de Consumo (CONMEXICO)	conmexico.com.mx
Consejo Coordinador Empresarial (CCE)	cce.org.mx
Confederación de Cámaras Industriales (CONCAMIN)	concamin.org.mx
Asociación Nacional de Productores de Refrescos y Aguas Carbonatadas (ANPRAC)	anprac.org.mx
Movimiento por una Vida Saludable	movisa.org.mx

The search string was applied to 22 sites for the FOPL case. It is important to mention that some domains, for example, those of the federal government are different from

past administrations, in those cases the search was carried out on both sites. An illustration of this is the MoH site whose current domain is gob.mx/salud, whereas prior to 2018, it was salud.gob.mx.

Search String for FOPL cases

Case	Search String
FOPL	site:senado.gob.mx ("exceso de peso" OR "sobrepeso" OR "obesidad") AND ("expertos" OR "experto" OR "experta" OR "investigadores" OR "investigadora" OR "investigador" OR "cientificos" OR "especialista" OR "especialistas" OR "investigacion" OR "estudio" OR "evidencia") AND ("etiquetado frontal" OR "NOM-051") AROUND(1) ("nutrimental" OR "de alimentos" OR "de advertencia" OR "GDA")

Note: the "site" component in this table is an example of the search string adapted for each actor in the policy process.

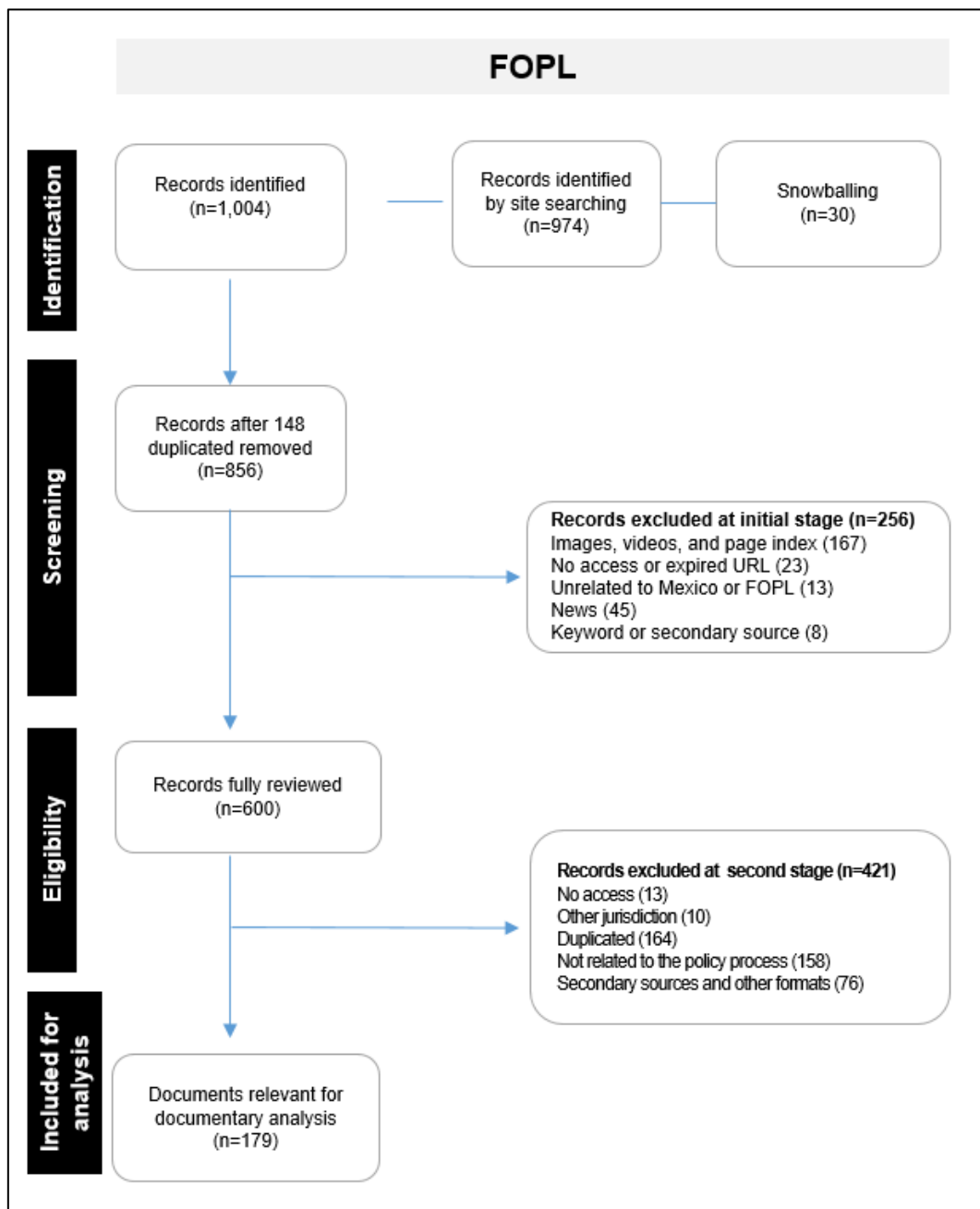
The electronic search was completed with snowballing techniques when the electronic sources linked to relevant information, or when participants mentioned a relevant document. Documents were reviewed and assessed, following an eligibility framework, which was applied in two phases. The first consisted of a rapid review of titles and links to remove duplicates, archives different from documents such as videos or images, expired URL's documents, or those that were out of the period of analysis, also those that were clearly unrelated to the study or were secondary sources such as in the case of newspaper articles. In a second stage, the complete content of the documents was scanned, which allowed identifying also records that included the keywords such as "*etiquetado frontal*" but were not linked to the policy process (i.e., intentions to implement, modify or keep a FOPL system). The following table shows the inclusion criteria developed for the documentary sample.

Inclusion criteria for documents

Criteria	Include	Exclude
Year of publication	2006-2020	Prior 2006
Country	Mexico	Other countries
Type of source	Documents (Congress gazettes, stenographic versions of meetings, press releases, position statements, blog posts)	Audio Video Webpage indices Newspaper articles
Discussion of the policy	Documents that related to the intention to implement, modify or keep a FOPL system	Documents that mention the FOPL but do not relate to the discussion of the policy.
Authenticity	Primary sources	Secondary sources and unknown author

The web search threw 974 documents, whereas 30 document were retrieved through snowballing. In total, in both stages, 825 documents were excluded, which turned into a sample of 179 documents. The diagram below summarizes the screening process. It is important to mention that the high number of duplicates relates mainly to Congress' sources, which are available in different formats; these include html, pdf and word; and documents that are found individually or nested into a parliament compendium (i.e., a bill, available in the webpage of a deputy, but also in the Parliament Gazette).

Documents' screening process



Documents included as documentary sources were read in full. A synthesis was created, extracting the following elements (if available within the document):

- Date of publication,
- Type of document,
- FOPL system mentioned or supported,
- Mentions to the modification of a legislation or regulatory instrument,
- Summary of Sources of evidence, events and actors mentioned

Documentary data served to contextualise and confirm the events and sources mentioned by the interview participants.

Documentary Materials for the FOPL Systems Case

#	Source Category	Date ↓	Title	URL link
1	Congress	25-Oct-07	Gaceta del Senado del día jueves 25 de octubre de 2007. Iniciativa de Reforma a la Ley General de Salud.	SEN042
2	Congress	19-May-10	Iniciativa con Proyecto de Decreto que reforma diversas disposiciones de las Leyes General de Educación, General de Salud y Federal de Protección al Consumidor, en lo referente a la Comercialización, Publicidad y Etiquetación de alimentos y bebidas con alto contenido de grasas, calorías, carbohidratos y sal.	SEN024
3	Government-TA	01-Jan-11	Revisión del etiquetado frontal: análisis de las Guías Diarias de Alimentación (GDA) y su comprensión por estudiantes de nutrición en México	MOH001
4	Research - University	01-Jan-12	Rendición de Cuentas y Transparencia INSP 2012	INSP056
5	NGO	09-Jan-12	Denuncia y Demanda contra el etiquetado de CONMEXICO	EPC131
6	NGO	01-Jan-13	Obesidad en México, Recomendaciones para una Política de Estado [Book]	ANMM01
7	NGO	31-Jan-13	Obesidad en México, Recomendaciones para una política de estado [Blog entry]	AHN208
8	NGO	26-Feb-13	Por una Política de Estado para Combatir Obesidad	EPC066
9	NGO	06-Jun-13	La doctora mercedes Juan López y las 12 cucharadas	AHN298
10	NGO	18-Jul-13	En peligro la estrategia contra obesidad y diabetes por intervención de las empresas y conflicto de interés	AHN181

11	Governm et-TA	12-Dec-13	DECRETO por el que se aprueba el Programa Sectorial de Salud 2013-2018	MOH041
12	Governm et-TA	14-Feb-14	DECRETO por el que se reforman y adicionan diversas disposiciones del Reglamento de Control Sanitario de Productos y Servicios.	SB026
13	Governm et-TA	15-Apr-14	ACUERDO por el que se emiten los Lineamientos a que se refiere el artículo 25 del Reglamento de Control Sanitario de Productos y Servicios que deberán observar los productores de alimentos y bebidas no alcohólicas preenvasadas para efectos de la información que deberán ostentar en el área frontal de Exhibición.	SB027
14	NGO	21-Apr-14	Advierten expertos riesgo de nuevo etiquetado en carta abierta a Peña Nieto	SB005
15	NGO	22-Apr-14	Presentan organizaciones civiles amparo contra etiquetado de alimentos	EPC093
16	NGO	13-May-14	Carta abierta a la Secretaria de Salud Mercedes Juan	SB006
17	NGO	10-Jul-14	Los engaños de Cofepris (parte 3)	SB007
18	NGO	22-Jul-14	Sin efecto la regulación a publicidad infantil de chatarra y sello nutrimental	SB008
19	Governm et-TA	24-Jul-14	Respuesta a la solicitud de exención de presentación de Manifestación de Impacto Regulatorio. Respecto del anteproyecto denominado "Modificación de la Norma Oficial Mexicana"	SB000
20	Governm et-TA	14-Aug-14	MODIFICACIÓN de la Norma Oficial Mexicana NOM-051-SCFI/SSA1-2010, Especificaciones generales de etiquetado para alimentos y bebidas no alcohólicas preenvasados- Información comercial y sanitaria, publicada el 5 de abril de 2010.	SB025
21	Congress	18-Sep-14	Gaceta Parlamentaria, Número 4114-III, jueves 18 de septiembre de 2014	DIP019
22	NGO	22-Sep-14	Etiquetado frontal reprobado por consumidores mexicanos en un sondeo realizado por alianza por la salud alimentaria	AHN273
23	INT_ORG	26-Sep-14	Beyond the UN Political Declaration: lessons learnt by Brazil, Colombia and Mexico for the implementation of integrated national plans on NCD	PAHO018
24	Congress	02-Oct-14	Gaceta Parlamentaria, Número 4124-IV, jueves 2 de octubre de 2014	DIP035
25	NGO	23-Oct-14	Iniciativas desechadas por la Comisión de Salud	EPC127
26	Congress	13-Nov-14	Gaceta Parlamentaria, Número 4155-IV, jueves 13 de noviembre de 2014	DIP113
27	NGO	02-Dec-14	Renuncia Santa a famosa refresquera y exige un etiquetado que advierta los riesgos a la salud	SB009
28	NGO	05-Dec-14	Organizaciones y senadores presentan la Ley General de Obesidad	AHN173
29	Congress	15-Dec-14	Diario de los Debates, Año III, Sesión No. 42 Apéndice, lunes 15 de diciembre de 2014	DIP056
30	Congress	15-Dec-14	Diario de los Debates de la Cámara de Diputados, Año III, Primer periodo, 15 de diciembre de 2014	DIP100
31	NGO	01-Jan-15	Acciones para enfrentar a la diabetes	ANMM003

32	NGO	01-Jan-15	Las políticas de Nutrición como Rehén de las Transnacionales y los Conflictos de Interés: La epidemia de la Obesidad y la Diabetes en México	EPC184
33	NGO	05-Mar-15	Confirman recomendaciones de la OMS la permisividad de la regulación Mexicana sobre la ingesta de azúcares	EPC143
34	NGO	01-Apr-15	Contra la Obesidad y la Diabetes: Una estrategia secuestrada. Análisis de la Estrategia Nacional para la Prevención y el Control del Sobrepeso, la Obesidad y la Diabetes	EPC051
35	NGO	01-Apr-15	Encuesta Nacional sobre Obesidad 2014	EPC150
36	Congress	07-Apr-15	Gaceta parlamentaria, Número 4248-VII, martes 7 de abril de 2015	DIP024
37	NGO	16-Apr-15	Fracasa la Estrategia contra la obesidad y la Diabetes por secuestro de la industria: revela estudio que hemos publicado	AHN103
38	INT_ORG	18-May-15	La OPS/OMS aboga por la protección del derecho a la salud de los niños y las niñas	SB024
39	NGO	02-Jul-15	Representa un riesgo para la salud el nuevo etiquetado de alimentos y bebidas	EPC129
40	Research - University	02-Sep-15	Mind the Gap: Buscando soluciones creativas contra la obesidad	INSP042
41	Governm et-TA	16-Oct-15	REVISTA COFEPRIS. Protección y Salud/Cultura Sanitaria/ Etiquetado Frontal Nutrimental	MoH002
42	Governm et-TA	16-Oct-15	REVISTA COFEPRIS. Protección y Salud/ Bienestar/ Estrategia contra la Obesidad y Diabetes	MoH007
43	Congress	03-Feb-16	Gaceta Parlamentaria, Número 4460-VI, miércoles 3 de febrero de 2016	DIP078
44	Congress	18-Feb-16	Diario de los Debates, Año I, Sesión 7, Jueves 18 de febrero de 2016	DIP126
45	NGO	18-Feb-16	Las políticas de combate al sobrepeso y la obesidad en México deben incorporar los criterios nutrimentales de la OPS	AHN128
46	NGO	21-Mar-16	Semana Mundial de Concientización de la Sal: Urgen medidas más fuertes para combatir el exceso de sal, "el asesino oculto"	EPC170
47	Congress	21-Apr-16	Dictamen de las Comisiones Unidas de Salud, Estudios Legislativos y Estudios Legislativos, Segunda, de Veintitrés Iniciativas con Proyecto de Decreto por el que se Reforman y Adicionan Diversas Disposiciones de la Ley General de Salud, en Materia de Nutrición, Sobrepeso, Obesidad y Otros Trastornos de la Conducta Alimentaria	SEN035
48	NGO	23-Jun-16	Etiquetado frontal nutrimental de bebidas y alimentos en México- a dos años de su implementación	EPC062
49	NGO	29-Jun-16	A dos años de su implementación, el etiquetado frontal de bebidas y alimentos ha fracasado	AHN215
50	Congress	29-Sep-16	Diario de los Debates de la Cámara de Diputados. Volumen IV Continuación de la Sesión 11 del 4 de octubre de 2016	DIP070

51	NGO	11-Oct-16	En el día mundial de la Obesidad ASA llama a una Política real para combatir la epidemia de obesidad y diabetes y libera el documental "Dulce Agonía"	EPC126
52	NGO	31-Oct-16	A 3 años de la Estrategia Nacional para Prevenir Sobrepeso, Obesidad y Diabetes debe ser Revisada para lograr sus Objetivos	EPC090
53	NGO	01-Nov-16	Análisis de regulaciones y prácticas para el etiquetado de alimentos y bebidas para niños y adolescentes en algunos países de América Latina	EPC046
54	NGO	24-Nov-16	Un etiquetado de alimentos comprensible e integral ayuda a prevenir el sobrepeso y obesidad infantil	EPC021
55	Governm et-TA	16-Jan-17	IP y sociedad civil comprometidos en la lucha contra la obesidad y la diabetes	MoH004
56	NGO	08-Feb-17	El etiquetado nutrimental mexicano viola el derecho a la salud, a la alimentación de calidad y a la información de la población: sentencia de juez	EPC130
57	NGO	21-Feb-17	¿por qué daña tu salud el etiquetado nutrimental?	AHN258
58	NGO	01-Mar-17	¿Por qué la campaña Checa y Elige engaña y constituye un riesgo para el consumidor?	EPC133
59	NGO	08-Mar-17	Organizaciones interponen queja ante la CNDH por omisión del Estado frente a emergencia epidemiológica por obesidad y diabetes	AHN255
60	NGO	21-Mar-17	Urgen medidas más fuertes para combatir el exceso de sal, "el asesino oculto"	EPC123
61	NGO	28-Mar-17	El etiquetado frontal de alimentos y bebidas mexicano es un atentado contra la salud, contribuye a la epidemia de obesidad y diabetes	EPC016
62	NGO	25-Apr-17	Demandamos a gobierno atender recomendaciones de CEPAL sobre etiquetado frontal para prevenir sobrepeso y obesidad	EPC059
63	Industry	01-Jun-17	Movimiento por una Vida Saludable: Reporte de Actividades	Movisa006
64	Congress	21-Jun-17	Gaceta Parlamentaria LXIII Legislatura No. 15 Tomo V miércoles 21 de junio de 2017. Punto de Acuerdo por el que se Exhorta a la Secretaría de Salud a Través de Comisión Federal para la Protección Contra Riesgos Sanitarios a Revisar la Norma Sobre Etiquetados al Frente de los Productos, para Enfrentar la Epidemia de Obesidad, así como Fortalecer los Criterios Establecidos para Otorgar el Sello Nutrimental, Privilegiando en todo Momento la Salud de la Población.	SB011
65	NGO	05-Jul-17	Urge modificar el etiquetado nutrimental mexicano por uno que beneficie a toda la población, incluidos niños y niñas	EPC149
66	NGO	01-Aug-17	Ante la inacción del gobierno, creamos herramienta de etiquetado nutrimental	EPC118

67	Congress	02-Aug-17	Gaceta del Senado LXIII (Desechada) miércoles 02 de agosto de 2017. De la Sen. Ana Gabriela Guevara, del Grupo parlamentario del Partido del Trabajo, con punto de acuerdo para que la Secretaría de Salud Proponga una Modificación Sustantiva del Etiquetado Nutricional Frontal de alimentos y Bebidas Actual, Siguiendo los Requerimientos de la Organización Panamericana de la Salud.	SB012
68	NGO	21-Aug-17	Los cereales de caja para el desayuno en México no son saludables en su mayoría por alto contenido de azúcar y sodio, indica estudio	AHN299
69	Congress	10-Oct-17	Gaceta Parlamentaria, año XX, número 4882-VI, martes 10 de octubre de 2017. Que Reforma el Artículo 212 de la Ley General de Salud, a Cargo del Diputado José Luis Orozco Sánchez Aldana, del Grupo Parlamentario del PRI.	DIP133
70	Congress	07-Dec-17	Gaceta Parlamentaria, año XXI, número 4922-IX, jueves 7 de diciembre de 2017. Que Reforma Diversas Disposiciones de la Ley General de Salud, en Materia de Salud Pública, a Cargo de la Diputada Verónica Delgadillo García, del Grupo Parlamentario de Movimiento Ciudadano.	DIP135
71	Industry	12-Dec-17	Campaña Checa y Elige (Circa 2017)	Movisa004
72	Congress	14-Dec-17	Diario de los Debates de la Cámara de Diputados, Año III, Primer periodo, 14 de diciembre de 2017, Apéndice VIII. Iniciativa que reforma los artículos 115, 210, 212 y 301 de la Ley General de Salud, a cargo del diputado Ricardo García Portilla, del Grupo Parlamentario del PRI	DIP138
73	Research - University	01-Jan-18	La Obesidad en México, Estado de la Política Pública y Recomendaciones para su Prevención y Control. [Postura] Recomendaciones para una política de Estado para la prevención y control de la obesidad en México en el periodo 2018-2024	INSP015
74	Governm et-TA	19-Jan-18	Recomendaciones de la OPS sobre etiquetado para alimentos y bebidas no alcohólicas preenvasados en México y otros instrumentos normativos relacionados	MOH015
75	NGO	19-Jan-18	Con deficiencias el etiquetado de alimentos en México	AHN116
76	NGO	01-Feb-18	La evaluación de la Estrategia Nacional frente a la Obesidad y la Diabetes es negativa, regulaciones sustanciales son una simulación	EPC116
77	NGO	22-Feb-18	La Suprema Corte de Justicia de la Nación atrae la revisión de la sentencia que declara inconstitucional el sistema de etiquetado frontal mexicano	EPC165
78	NGO	28-Feb-18	Presenta El Poder del Consumidor Pruebas de la Intromisión de la industria en la política pública contra la obesidad en México y el mundo	EPC060
79	Research - University	01-Mar-18	Etiquetado Nutricional (GDA) [Blog entry]	INSP002

80	Research - University	01-Mar-18	El Etiquetado de Alimentos y bebidas: La experiencia de México [Document]	INSP018
81	NGO	07-Mar-18	Lanza la Alianza por la Salud Alimentaria la campaña "Que este no sea su futuro", un llamado urgente y verdadero de atención a la obesidad	SB014
82	NGO	12-Mar-18	Proponen en renegociación de TLC bloquear política de prevención de obesidad para favorecer a corporaciones de comida chatarra y bebidas azucaradas	EPC152
83	NGO	01-Apr-18	Propuestas para una Política Integral frente a la Epidemia de Sobrepeso y Obesidad en México	AHN028
84	Congress	03-Apr-18	Gaceta Parlamentaria, año XXI, número 4996-VIII, martes 3 de abril de 2018. Que Reforma y Adiciona los Artículos 2123 y 307 de la Ley General de Salud, a Cargo de la Diputada Verónica Bermúdez Torres, del Grupo Parlamentario de Movimiento Ciudadano.	DIP049
85	Congress	03-Apr-18	Gaceta Parlamentaria, año XXI, número 4996-IX, martes 3 de abril de 2018. Con punto de acuerdo, relativo a modificar la NOM-051-SCFI/SSA1-2010 para incluir en la etiqueta frontal de los envases y empaques de alimentos y bebidas no alcohólicas un semáforo nutricional que informe de forma visual al consumidor acerca del contenido calórico, de proteínas, carbohidratos, grasas, grasas saturadas, almidones, azúcares propios y añadidos, y sodio del producto, a cargo del diputado Santiago Torreblanca Engell, del Grupo Parlamentario del PAN	DIP066
86	NGO	11-Apr-18	Sociedad civil propone a candidatos una política integral efectiva y realista frente a la emergencia por sobrepeso y obesidad	AHN228
87	NGO	18-Apr-18	Carta abierta a las autoridades mexicanas y canadienses sobre la protección del etiquetado frontal nutricional en alimentos y bebidas	EPC183
88	NGO	26-Apr-18	En el marco del Día del Niño acudimos ante el Consejo de Derechos Humanos de Naciones Unidas y la CNDH por omisión del Estado en prevención de la obesidad infantil	AHN253
89	Congress	30-Apr-18	Diario de los Debates, Año III, sesión No. 28 Apéndice, 30 de abril de 2018. Iniciativa que reforma diversas disposiciones de la Ley General de Salud, suscrita por integrantes del Grupo Parlamentario de Movimiento Ciudadano	DIP079
90	NGO	02-May-18	Gobierno mexicano se posiciona en la OMC contra las políticas para enfrentar la obesidad recomendadas por la OMS en otros países, mientras no hace nada frente a la emergencia epidemiológica por obesidad y diabetes que declara en México	EPC099
91	NGO	01-Jul-18	Sistema de etiquetado frontal de alimentos y bebidas para México: una estrategia para la toma de decisiones saludable	EPC069
92	NGO	10-Jul-18	Urgen aplicación de etiquetado frontal de advertencia en alimentos y bebidas no saludables grupo de expertos de los institutos	EPC003

			nacionales de salud e instituciones académicas públicas y privadas	
93	NGO	01-Aug-18	Publicidad dirigida a niños: Una infancia enganchada a la obesidad	EPC053
94	NGO	21-Aug-18	Los ministros de la SCJN Se encuentran frente a una decisión trascendental para enfrentar las emergencias epidemiológicas de obesidad y diabetes de los mexicanos	EPC115
95	Congress	22-Aug-18	Gaceta Parlamentaria, Comisión Permanente, Segundo Receso del Tercer año, LXIII Legislatura. Iniciativa con Proyecto de Decreto por el que se Reforma y Adiciona el Artículo 212 de la Ley General de Salud, a Cargo del Diputado Juan Manuel Cavazos Balderas, del Grupo Parlamentario del Partido Revolucionario Institucional	SEN129
96	NGO	27-Aug-18	La SCJN tiene ya sentencia de la Academia contra etiquetado frontal	EPC081
97	NGO	29-Aug-18	El Poder del Consumidor —organización integrante de la Alianza por la Salud Alimentaria— ve posibilidad de que la SCJN afine sentencia sobre etiquetado frontal	EPC068
98	Congress	04-Sep-18	Gaceta Parlamentaria, año XXI, número 5106-IV, martes 4 de septiembre de 2018, Que reforma los artículos 212 de la Ley General de Salud y 251 de la Ley Federal de Telecomunicaciones y Radiodifusión, a cargo del diputado José Luis Montalvo Luna, del Grupo Parlamentario del PT	SB015
99	NGO	06-Sep-18	México en riesgo de quedar atado a la epidemia de obesidad por firma de anexo del Tratado de Libre Comercio con Estados Unidos	EPC041
100	NGO	17-Sep-18	¡86% de la población apoya etiquetado de advertencia en alimentos y bebidas!	EPC024
101	Congress	19-Sep-18	Diario de los Debates, año I, Sesión 8, miércoles 19 de septiembre de 2018. Participación del Diputado José Luis Montalvo Luna.	DIP097
102	NGO	24-Sep-18	OSC's reiteran que TLCAN prohíbe etiquetado de advertencia en alimentos y que Secretaria de Economía ha concordado con esta prohibición	EPC175
103	Research - University	01-Oct-18	Treating Obesity Seriously in Mexico: Realizing, Much Too Late, Action Must be Immediate	SB001
104	NGO	01-Oct-18	Se congratula comunidad trinacional de salud pública ante la remoción del anexo en el nuevo acuerdo comercial USMCA que prohibía etiquetado frontal de advertencia en alimentos y bebidas no saludables	EPC034
105	NGO	03-Oct-18	El gobierno mexicano actuó de manera tardía en la prevención de la epidemia de obesidad: reporta la revista científica Obesity	EPC100
106	NGO	25-Oct-18	Demandan a Secretaría de la Función Pública no cubrir conflicto de interés en Salud	EPC083

107	Congress	30-Oct-18	Gaceta Parlamentaria, año XXI, número 5146-II, martes 30 de octubre de 2018. Que Reforma y Adiciona los Artículos 115, 212 y 216 de la Ley General de Salud, a Cargo del Diputado Rubén Moreira Valdez, del Grupo Parlamentario del PRI.	DIP137
108	Congress	06-Dec-18	Gaceta Parlamentaria, año XXI, número 5172-II, jueves 6 de diciembre de 2018. Que adiciona los Artículos 210 y 212 de la Ley General de Salud, Suscrita por los Diputados Óscar Bautista Villegas y Érika Mariana Rosas Uribe, de los Grupos Parlamentarios del PVEM y MORENA, respectivamente.	DIP107
109	NGO	01-Jan-19	Mejoras al Etiquetado frontal de alimentos y bebidas	SC001
110	Congress	13-Feb-19	Dictamen de la comisión de salud de la proposición con punto de acuerdo en Materia de Etiquetado	SEN022
111	Congress	07-Mar-19	Gaceta Parlamentaria, año XXII, número 5233-II, jueves 7 de marzo de 2019. Que reforma y adiciona los artículos 65, 66 y 212 de la Ley General de Salud, a cargo de la diputada Carmen Mora García, del Grupo Parlamentario de Morena Que reforma los artículos 212 y 215 de la Ley General de Salud, a cargo del diputado Juan Martín Espinoza Cárdenas, del Grupo Parlamentario de Movimiento Ciudadano	DIP033
112	Congress	12-Mar-19	Diario de los Debates Año I, Sesión No. 17-I, 4 de febrero de 2019. Iniciativa que reforma y adiciona diversas disposiciones de la Ley General de Salud, a cargo de la diputada Carmen Medel Palma, del Grupo Parlamentario de Morena.	DIP068
113	NGO	12-Mar-19	Presentan Iniciativa para Reformar el Etiquetado de Alimentos y Bebidas	EPC102
114	NGO	20-Mar-19	Para dar frente a las estrategias de la industria de ultraprocesados, tabaco y alcohol es necesario que la presente administración esté libre de conflicto de interés en el diseño de políticas públicas	EPC178
115	Congress	28-Mar-19	Gaceta del Senado, LXIV Legislatura, No. 111, Tomo I, Jueves 28 de marzo de 2019. De las senadoras Geovanna del Carmen Bañuelos de la Torre, Alejandra del Carmen León Gastélum, Cora Cecilia Pinedo Alonso y los senadores Miguel Ángel Lucero Olivas y Joel Padilla Peña, del Grupo Parlamentario del Partido del Trabajo, con proyecto de decreto que propone modificar el etiquetado frontal nutrimental de bebidas y de alimentos en beneficio del combate a la obesidad (Reforma el artículo 212 de la Ley General de Salud).	SEN070
116	Governm et-TA	01-Apr-19	Recomendaciones de la Organización Panamericana de la Salud/Organización Mundial de la Salud (OPS/OMS) sobre Etiquetado Frontal de Alimentos (circa 2020)	MoH052

117	Congress	02-Apr-19	Gaceta Parlamentaria. Martes 2 de abril de 2019. Que reforma y adiciona diversas disposiciones de las Leyes General de Salud, y Federal de Protección al Consumidor, a cargo del diputado Juan Martín Espinoza Cárdenas, del Grupo Parlamentario de Movimiento Ciudadano	SB016
118	Congress	02-Apr-19	Diario de los Debates, Año I, Sesión 17 Apéndice, martes 2 de abril de 2019. Iniciativa que reforma y adiciona diversas disposiciones de la Ley General de Salud, a cargo de la diputada Carmen Medel Palma, del Grupo Parlamentario de Morena.	DIP090
119	Congress	09-Apr-19	Iniciativa con Proyecto de Decreto por el que se Adiciona un Párrafo al Artículo 212 y se Reforman los Artículos 31 y 421 de la Ley General de Salud en Materia de Etiquetado y Publicidad de Alimentos y Bebidas de Bajo Valor Nutricional y Alta Densidad Energética	SEN025
120	Research - University	02-May-19	Comunicado del INSP de México sobre el amparo indirecto en revisión, relacionado con el etiquetado frontal de alimentos	INSP014
121	INT_ORG	06-May-19	Agencias de la ONU en México se pronuncian a favor de un etiquetado de alimentos claro, sencillo, veraz y de fácil comprensión.	SB020
122	NGO	06-May-19	OPS/OMS, FAO Y UNICEF Señalan que Argumentos en Proyecto de Sentencia de la SCJN que Defiende el Actual Etiquetado Frontal de Alimentos y Bebidas, son Contrarios a sus Recomendaciones	AHN279
123	NGO	06-May-19	Comentario sobre el Proyecto de Resolución de la Suprema Corte de Justicia de la Nación (SCJN) respecto al amparo promovido por la organización civil El Poder del Consumidor	AHN290
124	NGO	08-May-19	Ante fallo de la SCJN sobre el caso del etiquetado, El Poder del Consumidor acudirá a la Comisión Interamericana de Derechos Humanos (CIDH) para impugnar la sentencia	EPC138
125	Congress	15-May-19	De la Dip. Verónica Beatriz Juárez Piña, del Grupo Parlamentario del Partido de la Revolución Democrática, con punto de acuerdo que exhorta al titular de la Secretaría de Salud para que implemente acciones dirigidas a que las etiquetas nutrimentales que se incluyen en los productos de consumo alimenticio, sean claras y entendibles para la población	SB017
126	Congress	22-May-19	Gaceta del senado del día miércoles 22 de mayo de 2019. LXIV/1SR-5/95760. Proposición con Punto de Acuerdo por el que la Comisión Permanente Exhorta Respetuosamente al Titular de la Secretaría de Salud Para que Implemente Acciones Dirigidas a que las Etiquetas Nutrimentales que se incluyen en los Productos de Consumo Alimenticio, sean Claras y Entendibles para la Población	SEN026
127	Congress	23-May-19	Opinión de la Comisión de Economía, Comercio y Competitividad a la iniciativa con Proyecto de Decreto por el que reforma y adiciona los artículos 210, 212 y 216 de la LGS	DIP020

128	NGO	29-May-19	Hacia un etiquetado frontal claro y veraz que contribuya a disminuir el sobrepeso y la obesidad en México	EPC063
129	Congress	04-Jun-19	Iniciativa con Proyecto de Decreto que Reforma y Adiciona Diversas Disposiciones de la Ley General de Salud en Materia de Derecho a la Información Alimentaria, Suscrita por la Diputada Carmen Medel Palma, del Grupo Parlamentario de Morena.	SEN001
130	NGO	17-Jun-19	Bimbo de la mano de FEMSA Coca-Cola inician estrategia con legisladores y funcionarios contra etiquetado de advertencia que realmente informe a consumidores	EPC035
131	Congress	26-Jun-19	Gaceta de la Comisión Permanente del Senado del día Miércoles 26 de junio de 2019, LXIV/1SR-17/96776. De los diputados Rubén Ignacio Moreira Valdez y Frinné Azuara Yarzabal, del Grupo Parlamentario del Partido Revolucionario Institucional, con proyecto de decreto que adiciona la fracción XII del artículo 115 y se reforman los artículos 212 y 216 de la Ley General de Salud.	SEN014
132	NGO	02-Jul-19	Lanzan campaña por etiquetado frontal de advertencia para enfrentar las emergencias epidemiológicas de obesidad y diabetes	EPC078
133	NGO	15-Jul-19	Los etiquetados frontales de advertencia urgentes para México, muestran ser efectivos en la región de América Latina	AHN188
134	NGO	22-Jul-19	En la batalla contra la obesidad, la industria sabe cómo presionar y corromper a los políticos: Boyd Swinburn	EPC029
135	NGO	30-Jul-19	Avances hacia un etiquetado claro: La Comisión de Salud y la interferencia de las industrias	Contrapeso003
136	Governm et-TA	18-Aug-19	Carta Martha Kaufer Senado	MoH50
137	Governm et-TA	19-Aug-19	Etiquetado frontal de advertencia en el marco de una política integral para prevenir y atender el problema del sobrepeso y la obesidad	MoH51
138	Governm et-TA	19-Aug-19	Barreras y oportunidades para lograr una alimentación saludable: Conflicto de interés en las políticas públicas	MoH57
139	Governm et-TA	19-Aug-19	Postura de la Academia Mexicana de Pediatría sobre el Etiquetado Frontal de Bebidas y alimentos	MoH058
140	Governm et-TA	19-Aug-19	Postura del grupo de expertos y resultados del etiquetado de advertencia en México: políticas basadas en la mejor evidencia disponible	MoH060
141	Congress	19-Aug-19	Indispensable, impulsar legislación para reformular etiquetado frontal de alimentos	SEN003
142	Research - University	27-Aug-19	Sistema de etiquetado frontal de alimentos y bebidas para México	INSP003
143	Research - University	27-Aug-19	Las raíces de la obesidad son profundas	INSP016
144	NGO	28-Aug-19	Urge un etiquetado de advertencia en los productos que están generando las epidemias de obesidad y diabetes: Guido Girardi	EPC013

145	Congress	10-Sep-19	Diario de los debates año II, Sesión 5, 10 de septiembre de 2019. El diputado Víctor Adolfo Mojica Wences, del Grupo Parlamentario de Morena, presenta la iniciativa con proyecto de decreto que adiciona el artículo 216 de la Ley General de Salud. Se turna a las Comisiones Unidas de Salud, y de Economía, Comercio y Competitividad, para dictamen	DIP098
146	Government-TA	11-Sep-19	Expertos recomiendan etiquetado Frontal Claro	MoH049
147	Government-HHRR	19-Sep-19	Saluda CNDH que legisladores discutan la iniciativa para el etiquetado frontal de alimentos y formula a la Cámara de Diputados 7 propuestas para incluirlas en ese debate y contribuir a erradicar sobrepeso y obesidad	CN001
148	Congress	24-Sep-19	Gaceta del Senado, Segundo año de ejercicio, primer periodo ordinario, martes 24 de septiembre de 2019. De la Sen. Xóchitl Gálvez Ruiz, del Grupo Parlamentario del Partido Acción Nacional, con Proyecto de Decreto por el que se Reforman y Adicionan Diversas Disposiciones de la Ley General de Salud	SEN059
149	NGO	27-Sep-19	ConMéxico va contra etiquetado de advertencia, como ha ido contra toda política de salud pública que afecta sus intereses	EPC043
150	Government-TA	30-Sep-19	Versión Estenográfica de la Comparecencia del titular de la COFEPRIS Doctor José Alonso Novelo Baeza	MoH062
151	NGO	30-Sep-19	Históricamente las corporaciones de la chatarra atacan políticas de salud pública contra las emergencias epidemiológicas de obesidad y diabetes	EPC141
152	INT_ORG	30-Sep-19	Etiquetado frontal de advertencia, un paso urgente para enfrentar epidemia de sobrepeso y obesidad en México	PAHO001
153	Research - University	01-Oct-19	Retos del etiquetado frontal de alimentos para lograr la reducción del consumo de sodio (sal)	SB021
154	Congress	01-Oct-19	Nota 3214 Aprueba Cámara de Diputados Dictamen en materia de etiquetado de alimentos y bebidas no alcohólicas; lo turna al Senado	DIP003
155	Congress	01-Oct-19	Versión estenográfica de la sesión ordinaria del martes 1 de octubre de 2019	DIP015
156	Government-TA	02-Oct-19	Boletín Informativo 30 de septiembre de 2019 Día Internacional de la no violencia /Cuando Menos, es Más. Un Etiquetado de Alimentos Simple para Decidir Mejor	MoH022
157	NGO	09-Oct-19	Academia Nacional de Medicina de México. Acta de la Sesión 9 de octubre de 2019.	ANMM002
158	Government-TA	11-Oct-19	PROYECTO de Modificación a la Norma Oficial Mexicana NOM-051-SCFI/SSA1-2010, Especificaciones generales de etiquetado para alimentos y bebidas no alcohólicas preenvasados-Información comercial y sanitaria, publicada el 5 de abril de 2010.	SB030
159	Congress	15-Oct-19	Versión Estenográfica Comisión de Salud	SEN057

160	Research - University	16-Oct-19	Día Mundial de la Alimentación: comida sana para todos	INSP010
161	Congress	17-Oct-19	Dictamen de las Comisiones Unidas de Salud; y de Estudios Legislativos, Segunda. De la Minuta Proyecto de Decreto por el que se Reforman y Adicionan Diversas Disposiciones de la Ley General de Salud, en Materia de Sobrepeso, Obesidad y de Etiquetado de Alimentos y Bebidas no Alcohólicas.	SEN007
162	Congress	22-Oct-19	Diario de los Debates de la Cámara de Senadores del Congreso de los Estados Unidos Mexicanos, Año II Primer periodo ordinario, Sesión Núm. 20, 22 de octubre de 2019. Segunda Lectura del Dictamen de las Comisiones Unidas de Salud; y de Estudios Legislativos, Segunda, por el que se Reforman y Adicionan Diversas Disposiciones de la Ley General de Salud, en Materia de Etiquetado de los alimentos y Bebidas no Alcohólicas	SEN058
163	Congress	08-Nov-19	Diario Oficial de la Federación, lunes 30 de septiembre de 2019. DECRETO por el que se Reforman y Adicionan Diversas Disposiciones de la Ley General de Salud, en Materia de Sobrepeso, Obesidad y de Etiquetado de Alimentos y Bebidas Alcohólicas	DIP064
164	Congress	08-Nov-19	DECRETO por el que se reforman y adicionan diversas disposiciones de la Ley General de Salud, en materia de sobrepeso, obesidad y de etiquetado de alimentos y bebidas no alcohólicas. [Proceso Legislativo]	DIP007
165	NGO	08-Nov-19	Paso fundamental para la salud pública la publicación de la reforma a la Ley General de Salud en materia de etiquetado	AHN233
166	Governm et-TA	29-Nov-19	Ley General de Salud	MoH042
167	Governm et-TA	26-Jan-20	Fue aprobada la modificación a la NOM 051 sobre etiquetado de alimentos y bebidas	MoE001
168	NGO	29-Jan-20	El etiquetado de advertencia aprobado fue resultado de la participación democrática de todos los sectores y con apego a la mejor evidencia científica	EPC030
169	NGO	04-Feb-20	Nuevo etiquetado frontal de advertencia con la mayor evidencia científica y a través de un proceso transparente y democrático	EPC004
170	INT_ORG	05-Feb-20	UNICEF: El etiquetado frontal de alimentos y bebidas aprobado en México, “de los mejores del mundo”.	SB004
171	Governm et-TA	05-Feb-20	Agencias de la ONU felicitan al Gobierno de México por norma de etiquetado en alimentos y bebidas no alcohólicas	MoE003
172	Governm ent-HHRR	08-Feb-20	Llama CNDH a autoridades y empresas a privilegiar el interés superior de la niñez y adolescencia en las decisiones sobre el etiquetado frontal de alimentos	CN002
173	NGO	02-Mar-20	La Alianza por la Salud Alimentaria —de la que somos parte— denuncia a Concamin de intentar suspender publicación de nueva norma de etiquetado	EPC106

174	Government-TA	04-Mar-20	Agencias de la ONU se pronuncian a favor de nuevo etiquetado frontal de alimentos y bebidas no alcohólicas	MoH043
175	NGO	06-Mar-20	La Alianza por la Salud Alimentaria se congratula de la revocación a la suspensión de la norma de etiquetado	EPC161
176	Government-TA	27-Mar-20	MODIFICACIÓN a la Norma Oficial Mexicana NOM-051-SCFI/SSA1-2010, Especificaciones generales de etiquetado para alimentos y bebidas no alcohólicas preenvasados-Información comercial y sanitaria, publicada el 5 de abril de 2010.	SB031
177	NGO	31-Mar-20	El triunfo de la evidencia científica: Etiquetado de advertencia aprobado	Contrapeso001
178	Research - University	02-Jun-20	Mexico Adopts Food Warning Labels, Why Now?	SB010
179	NGO	29-Jun-20	Senado Mexicano: Ante el inicio de la vigencia del T-MEC, defendamos la implementación sin retrasos del nuevo etiquetado de advertencia en alimentos y bebidas	AHN292

Appendix J. UCINET outputs

Sugar Tax Network t1

Density

ID	Density	No. of Ties	Std Dev	Avg Degree	Alpha
ST1_Net	0.0345	88	0.1825	1.7255	0.6458

Centrality

ID	OutDeg	Indeg	OutEigen	InEigen	Between
ST1_1	14	5	-0.5000	0.2892	56.0
ST1_2	11	5	-0.3536	0.2892	48.5
ST1_3	0	1	0.0000	0.1198	0.0
ST1_4	6	1	-0.5000	0.1198	2.0
ST1_5	0	1	0.0000	0.1198	0.0
ST1_6	0	6	0.0000	0.3388	0.0
ST1_7	0	1	0.0000	0.1198	0.0
ST1_8	0	10	0.0000	0.4474	0.0
ST1_9	0	1	0.0000	0.1198	0.0
ST1_10	0	1	0.0000	0.1198	0.0
ST1_11	0	1	0.0000	0.1198	0.0
ST1_12	0	1	0.0000	0.1198	0.0
ST1_13	0	1	0.0000	0.1198	0.0
ST1_14	0	1	0.0000	0.1198	0.0
ST1_15	6	2	-0.3536	0.1694	4.0
ST1_16	0	2	0.0000	0.1198	0.0
ST1_17	5	0	0.0000	0.0000	0.0
ST1_18	0	1	0.0000	0.0000	0.0
ST1_19	0	1	0.0000	0.0000	0.0
ST1_20	0	1	0.0000	0.0000	0.0
ST1_21	0	1	0.0000	0.0000	0.0
ST1_22	10	0	-0.3536	0.0000	0.0
ST1_23	0	1	0.0000	0.0000	0.0
ST1_24	5	8	0.0000	0.2237	69.5
ST1_25	0	7	0.0000	0.3369	0.0
ST1_26	0	1	0.0000	0.0000	0.0
ST1_27	0	1	0.0000	0.0000	0.0
ST1_28	0	2	0.0000	0.1198	0.0
ST1_29	0	1	0.0000	0.0000	0.0
ST1_30	0	3	0.0000	0.2125	0.0
ST1_31	0	1	0.0000	0.0927	0.0
ST1_32	5	1	0.0000	0.0927	34.0
ST1_33	0	1	0.0000	0.0927	0.0
ST1_34	3	1	0.0000	0.0384	11.0
ST1_35	0	1	0.0000	0.0384	0.0
ST1_36	2	0	0.0000	0.0000	0.0
ST1_37	6	0	0.0000	0.0000	0.0
ST1_38	0	1	0.0000	0.0000	0.0
ST1_39	6	0	0.0000	0.0000	0.0
ST1_40	0	2	0.0000	0.1198	0.0
ST1_41	0	1	0.0000	0.0000	0.0
ST1_42	0	1	0.0000	0.0000	0.0
ST1_43	0	1	0.0000	0.0000	0.0
ST1_44	0	1	0.0000	0.0000	0.0
ST1_45	0	1	0.0000	0.0159	0.0
ST1_46	4	0	0.0000	0.0000	0.0
ST1_47	0	1	0.0000	0.0000	0.0
ST1_48	0	1	0.0000	0.0000	0.0
ST1_49	5	1	-0.3536	0.1198	0.0
ST1_50	0	1	0.0000	0.1198	0.0
ST1_51	0	3	0.0000	0.1900	0.0

Actors collapsed by organisation

ID	Organisation	Indegree	OutDegree	Betweenness-Dir
1	Senate	3	5	6.50
2	Contrapeso	3	6	13.00
3	AMD	1	0	0.00
4	INSP	5	7	32.00
5	Consumer Power (EPC)	6	0	0.00
6	Polithink	2	5	1.50
7	MoF	2	2	12.00
8	Presidency	1	0	0.00
9	Congress	1	0	0.00
10	Bloomberg Philantropies	1	0	0.00
14	PAHO	2	0	0.00
11	Fundación Mídete	1	0	0.00
12	INCMNSZ	0	2	0.00
13	MoH	0	3	0.00
15	University of Michigan	1	0	0.00
16	Instituto Carlos Slim de la Salud	1	0	0.00

Sugar Tax Network t2

Density

ID	Density	No. of Ties	Std Dev	Avg Degree	Alpha
ST2_Net	0.0483	51	0.2144	1.5455	0.6261

Centrality

ID	OutDeg	Indeg	OutEigen	InEigen	Between
ST2_1	3	1	0.0000	0.0000	4.0
ST2_15	0	2	0.0000	0.0000	0.0
ST2_2	0	3	0.0000	0.0000	0.0
ST2_8	0	6	0.0000	0.0000	0.0
ST2_24	6	6	-0.4233	-0.3406	82.5
ST2_6	0	5	0.0000	-0.4111	0.0
ST2_25	0	4	0.0000	-0.5814	0.0
ST2_32	5	1	-0.2993	-0.2408	18.0
ST2_34	5	1	-0.2993	-0.2408	27.0
ST2_3	0	1	0.0000	-0.2408	0.0
ST2_33	0	1	0.0000	-0.2408	0.0
ST2_4	0	1	0.0000	-0.1703	0.0
ST2_5	0	1	0.0000	-0.1703	0.0
ST2_36	2	0	-0.2993	0.0000	0.0
ST2_37	3	0	-0.2993	0.0000	0.0
ST2_39	5	0	-0.1496	0.0000	0.0
ST2_40	0	1	0.0000	0.0000	0.0
ST2_7	3	1	-0.2116	0.0000	20.0
ST2_42	0	1	0.0000	0.0000	0.0
ST2_43	0	1	0.0000	0.0000	0.0
ST2_44	0	1	0.0000	0.0000	0.0
ST2_45	0	1	0.0000	-0.1703	0.0
ST2_9	0	1	0.0000	-0.1703	0.0
ST2_10	0	1	0.0000	-0.1703	0.0
ST2_49	6	3	-0.2993	0.0000	51.5
ST2_11	0	1	0.0000	0.0000	0.0
ST2_22	4	0	-0.2116	0.0000	0.0
ST2_12	0	1	0.0000	0.0000	0.0
ST2_13	0	2	0.0000	0.0000	0.0
ST2_14	0	1	0.0000	0.0000	0.0
ST2_16	9	0	-0.5109	0.0000	0.0
ST2_17	0	1	0.0000	0.0000	0.0
ST2_18	0	1	0.0000	0.0000	0.0

Actors collapsed by organisation

ID	Organisation	Indegree	OutDegree	Betweenness-Dir
8	Deputies	1	3	0.50
2	Polithink	2	0	0.00
3	Contrapeso	3	3	5.00
4	Consumer Power (EPC)	5	8	33.50
5	INSP	5	1	6.00
6	INCMNSZ	0	2	0.00
7	MoH	0	2	0.00
15	University of Michigan	1	0	0.00
9	WPHNA	0	3	0.00
10	Salud Crítica	1	0	0.00
11	ASA (Food Health Alliance)	1	0	0.00
12	Professional associations	1	0	0.00
14	UCSF	1	0	0.00
13	NYU	1	0	0.00

FOPL systems Network t1

Density

ID	Density	No. of Ties	Std Dev	Avg Degree	Alpha
FOPL1_Net	0.0260	80	0.1591	1.4286	0.5989

Actors collapsed by organisation

ID	Organisation	Indegree	OutDegree	Betweenness-Dir
1	Senate	1	5	11.00
2	ContraPeso	2	2	4.00
3	AMD	1	0	0.00
4	INSP	5	6	36.00
5	Consumer Power (EPC)	4	3	9.00
6	Polithink	1	0	0.00
7	COFEMER	0	2	0.00
8	COFEPRIS	2	0	0.00
9	INDUSTRY	1	0	0.00
10	University of North Carolina	1	0	0.00
11	UNICEF	1	0	0.00
12	MoH	1	3	5.00
13	INCMNSZ	1	2	1.00
14	ASA	1	0	0.00
15	Instituto Carlos Slim de la Salud	1	0	0.00

Centrality by actor

ID	OutDeg	Indeg	OutEigen	InEigen	Between
FOPL1_1	14	2	0.5774	0.1814	22.0
FOPL1_2	0	1	0.0000	0.1814	0.0
FOPL1_3	0	2	0.0000	0.3628	0.0
FOPL1_4	0	1	0.0000	0.1814	0.0
FOPL1_5	0	10	0.0000	0.3628	0.0
FOPL1_6	0	8	0.0000	0.3628	0.0
FOPL1_7	0	2	0.0000	0.3628	0.0
FOPL1_8	6	1	0.5774	0.1814	2.0
FOPL1_9	0	1	0.0000	0.1814	0.0
FOPL1_10	0	1	0.0000	0.1814	0.0
FOPL1_11	0	1	0.0000	0.1814	0.0
FOPL1_12	0	1	0.0000	0.1814	0.0
FOPL1_13	0	1	0.0000	0.1814	0.0
FOPL1_14	0	1	0.0000	0.1814	0.0
FOPL1_15	0	1	0.0000	0.1814	0.0
FOPL1_16	0	1	0.0000	0.1814	0.0
FOPL1_17	7	1	0.0000	0.0572	1.0
FOPL1_18	0	2	0.0000	0.1144	0.0
FOPL1_19	0	2	0.0000	0.1144	0.0
FOPL1_20	0	2	0.0000	0.1144	0.0
FOPL1_21	0	2	0.0000	0.1144	0.0
FOPL1_22	0	2	0.0000	0.1144	0.0
FOPL1_23	0	1	0.0000	0.0572	0.0
FOPL1_24	7	1	0.0000	0.0572	1.0
FOPL1_25	4	1	0.0000	0.0000	2.0
FOPL1_26	0	1	0.0000	0.0000	0.0
FOPL1_27	2	1	0.0000	0.0000	2.0
FOPL1_28	11	0	0.5774	0.0000	0.0
FOPL1_29	2	2	0.0000	0.0000	3.0
FOPL1_30	0	1	0.0000	0.0000	0.0
FOPL1_31	0	1	0.0000	0.0000	0.0
FOPL1_32	0	1	0.0000	0.0000	0.0
FOPL1_33	4	1	0.0000	0.0000	2.5
FOPL1_34	6	1	0.0000	0.0000	3.5
FOPL1_35	0	1	0.0000	0.0000	0.0
FOPL1_36	2	1	0.0000	0.0000	1.0
FOPL1_37	0	1	0.0000	0.0000	0.0
FOPL1_38	0	1	0.0000	0.0000	0.0
FOPL1_39	6	1	0.0000	0.0000	5.0
FOPL1_40	0	1	0.0000	0.0000	0.0
FOPL1_41	0	1	0.0000	0.0000	0.0
FOPL1_42	0	1	0.0000	0.0000	0.0
FOPL1_43	0	1	0.0000	0.0000	0.0
FOPL1_44	0	1	0.0000	0.0000	0.0
FOPL1_45	0	1	0.0000	0.0000	0.0
FOPL1_46	0	1	0.0000	0.0000	0.0
FOPL1_47	0	3	0.0000	0.0000	0.0
FOPL1_48	0	1	0.0000	0.0000	0.0
FOPL1_49	0	1	0.0000	0.0000	0.0
FOPL1_50	2	0	0.0000	0.0000	0.0
FOPL1_51	7	0	0.0000	0.0000	0.0
FOPL1_52	0	1	0.0000	0.0000	0.0
FOPL1_53	0	1	0.0000	0.0572	0.0
FOPL1_54	0	1	0.0000	0.0000	0.0
FOPL1_55	0	1	0.0000	0.0000	0.0
FOPL1_56	0	1	0.0000	0.0000	0.0

FOPL Systems t2

Density

ID	Density	No. of Ties	Std Dev	Avg Degree	Alpha
FOPL2_Net	0.0486	124	0.2151	2.4314	0.7227

Centrality

ID	OutDeg	Indeg	OutEigen	InEigen	Between
FOPL2_5	0	12	0.0000	0.4953	0.0
FOPL2_6	0	12	0.0000	0.5140	0.0
FOPL2_15	0	1	0.0000	0.0075	0.0
FOPL2_27	4	3	-0.1657	0.0785	6.6
FOPL2_29	5	1	-0.3730	0.0198	0.0
FOPL2_31	0	2	0.0000	0.0937	0.0
FOPL2_32	6	4	0.0000	0.1593	72.4
FOPL2_34	3	1	0.0000	0.0153	4.5
FOPL2_36	9	9	0.0000	0.2842	84.0
FOPL2_37	0	4	0.0000	0.2906	0.0
FOPL2_38	0	2	0.0000	0.0274	0.0
FOPL2_39	6	3	-0.1405	0.0514	54.3
FOPL2_40	0	1	0.0000	0.0199	0.0
FOPL2_42	0	1	0.0000	0.0199	0.0
FOPL2_43	0	1	0.0000	0.0000	0.0
FOPL2_44	0	1	0.0000	0.0199	0.0
FOPL2_47	0	2	0.0000	0.0400	0.0
FOPL2_48	7	3	0.0000	0.1328	41.5
FOPL2_49	0	2	0.0000	0.0470	0.0
FOPL2_50	2	1	0.0000	0.0881	9.7
FOPL2_51	8	3	-0.3633	0.0819	85.3
FOPL2_52	0	2	0.0000	0.0514	0.0
FOPL2_60	11	5	-0.4284	0.1321	130.9
FOPL2_61	6	4	-0.3702	0.1102	62.0
FOPL2_62	0	3	0.0000	0.1542	0.0
FOPL2_63	7	4	0.0000	0.2277	48.9
FOPL2_64	11	1	-0.5717	0.0511	45.5
FOPL2_65	0	4	0.0000	0.1882	0.0
FOPL2_66	0	2	0.0000	0.1174	0.0
FOPL2_67	0	2	0.0000	0.1174	0.0
FOPL2_68	0	2	0.0000	0.1253	0.0
FOPL2_69	6	3	0.0000	0.1073	23.6
FOPL2_71	10	3	0.0000	0.0397	55.4
FOPL2_72	0	1	0.0000	0.0198	0.0
FOPL2_73	0	1	0.0000	0.0616	0.0
FOPL2_74	0	1	0.0000	0.0616	0.0
FOPL2_75	0	2	0.0000	0.0770	0.0
FOPL2_76	0	1	0.0000	0.0616	0.0
FOPL2_77	0	2	0.0000	0.0589	0.0
FOPL2_78	4	2	-0.1652	0.0501	70.2
FOPL2_79	13	1	-0.0639	0.0194	52.1
FOPL2_80	0	1	0.0000	0.0415	0.0
FOPL2_81	0	1	0.0000	0.0075	0.0
FOPL2_82	0	1	0.0000	0.0075	0.0
FOPL2_83	0	1	0.0000	0.0075	0.0
FOPL2_84	0	1	0.0000	0.0075	0.0
FOPL2_85	0	1	0.0000	0.0881	0.0
FOPL2_86	0	1	0.0000	0.0881	0.0
FOPL2_87	6	0	-0.0544	0.0000	0.0
FOPL2_88	0	1	0.0000	0.0000	0.0
FOPL2_90	0	1	0.0000	0.0000	0.0

Actors collapsed by organisation

ID	Organisation	Indegree	OutDegree	Betweenness-Dir
4	INSP	7	9	37.88
5	Consumer Power (EPC)	11	10	79.87
10	Lower Chamber	3	8	17.08
11	UNICEF	4	7	16.87
8	COFEPRIS	4	2	2.17
12	MoH	3	2	0.25
2	ContraPeso	7	8	26.28
13	INCMNSZ	4	2	0.00
14	ASA	3	1	0.00
16	PAHO	4	6	24.83
7	MoE	3	0	0.00
17	UNAM	3	5	27.50
18	PROFECO	2	0	0.00
15	Media	2	0	0.00
6	Polithink	2	3	2.27
19	IPN	1	0	0.00
1	Senate	1	0	0.00
20	Cenaprece	1	0	0.00
21	Salud Justa	1	0	0.00
22	THP (The Hunger Project)	0	5	0.00
9	Ethos	1	0	0.00
3	Conabio	1	0	0.00

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