# Can education policy make children happier? A comparative study in 33 countries

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# Author's declaration

**Statement 1**

The candidate confirms that the work submitted is his own, except where work which has formed part of jointly authored publications has been included. The contribution of the candidate and the other authors to this work has been explicitly indicated below. The candidate confirms that appropriate credit has been given within the thesis where reference has been made to the work of others.

Part of the analysis presented in chapter 5 of this thesis has been used in an academic paper co-authored with my PhD supervisor Dr Gill Main. This article is titled 'Can schools and education policy make children happier? A comparative study in 33 countries' and it is currently under review in Child Indicators Research. I conducted the quantitative analysis and drafted most of the paper. Dr Gill Main drafted some parts and provided suggestions on what to include and what not to include in the article and how to structure the paper.

**Statement 2**

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# Abstract

There is an increasing academic and policy interest in subjective well-being (SWB). However, the questions of whether and how public policy can promote children's SWB remain understudied. This thesis aims to reduce this gap by studying the association between education policy and students' SWB, with a focus on life satisfaction (LS). To quantitatively study this question, this thesis analyses data on 15-year-old students in 33 countries that participated in the 2015 Programme for International Student Assessment (PISA) study. The analysis draws on Bronfenbrenner's ecological model of child development and it is conducted by using a range of advanced quantitative methods, mainly multilevel regression.

This thesis presents analysis demonstrating an association between several education policy-relevant factors and students´ LS, which is particularly prominent –and observed in almost all countries- for schoolwork-related anxiety, bullying and parents' emotional support in relation to school. Results also indicate that schools may play an important role in shaping students' LS. This is supported by evidence that these associations tend to vary by school, by evidence on the existence of school effects in almost all countries, and by the finding that a proportion - substantial in some countries- of the variation in students' LS is explained by differences between schools. Moreover, findings suggest that school type and school peers' characteristics can be important to students' LS too. In addition, in many countries, the links between schools and education policy and students' LS differ for girls and boys and for students of different socio-economic status. Finally, in all the analyses described above, there are significant differences across countries.

Overall, this thesis makes key contributions to our understanding of whether and how children´s SWB can be influenced by schools and education policy, supporting calls that education policy should also be assessed in terms of its impact in children´s SWB.

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# Chapter 1: Introduction

## 1.1. Overview

This thesis studies the association between education policy and students' subjective well-being (SWB). School is central to children and young people's life. They spend a great amount of time at school and performing school-related activities and school is often their main source of social interactions. Thus, school and education are deemed to impact the well-being of children in a wide range of aspects. However, concerns with school and school life have traditionally been focused on academic outcomes and well-becoming considerations (Brim 1975, Ben-Arieh 2007) –that is children's future outcomes in adulthood- and not so much on broader well-being in the present. SWB has been largely ignored until recently. This thesis adopts the stance that education policy can be evaluated also in terms of its impact on students' SWB.

In the 18th century, Adam Smith (1776/2003) proposed that the wealth of a nation should be measured by the "produce of the whole labour of the society" and "quantity of capital stock" (pp. 4-5). He believed that measuring national income was important in order to document the progress of society. Following this approach, almost two centuries later, Kuznets et al. (1941) proposed national income to be measured as "the net value of all economic goods produced by the nation" (p. 3), which resulted in two measures: Gross National Product (GNP) and Gross Domestic Product (GDP). In most nations, these measures were used to assess the progress of societies and the well-being of their members up until the 1960s, when dissatisfaction with this approach resulted in the quality-of-life movement (Oishi and Diener 2014). The focus of this second approach was the collection and analysis of social indicators –child mortality, life expectancy, crime rates, etc.- to assess the progress of societies (Sirgy et al. 2005) and led to the creation of multiple human development indices in the following decades. A third approach emerged in the late 20$^{th}$ century. This is a subjective one and is concerned with citizen's perceptions of their quality of life and happiness (Oishi and Diener 2014).

SWB is an essential element of overall well-being and a measure of increasing use to assess people's quality of life (Layard 2005, Stiglitz 2009, Oishi and Diener 2014). It also reflects a human goal that is considered worth pursuing in almost every society (Diener 1984, Larsen and Eid 2008, Lucas 2008, Stiglitz 2009). Its consideration in policy is relatively recent, although already in the late 18$^{th}$ century Bentham (1789/2008) argued that 'the business of government is to promote the happiness of the society'. Academic and policy interest in SWB has increased over the last decades. However, interest in child SWB is a much more recent phenomenon and has traditionally attracted less attention. Some of the reasons are the lack of political importance attributed to children's

own perspectives (Casas 2011) and the tendency to consider childhood not as a stage of significance in its own right but just as a journey towards adulthood (Ben-Arieh 2007). Fortunately, although much progress is still needed, things have changed over the last two decades and interest in child SWB in academia and the policy arena is on the rise.

This thesis adopts the definition of SWB developed by Diener (1984). SWB refers to 'a person's cognitive and affective evaluations of his or her life' (Diener and Oshi 2002, p. 63). The cognitive aspect involves the assessment of satisfaction with one's life in general or with a particular aspect of one's life. The affective element refers to emotions, moods and feelings experienced by the individual, which can be positive (e.g. joy, affection, confidence, etc.) and negative (anxiety, shame, anger, etc.) (Diener 1984). Chapter 3 (section 3.2.1) provides a detailed discussion of the concept of SWB and other related concepts such as happiness and life satisfaction (LS). Due to data availability limitations (which are discussed in more detail in chapter 4, sections 4.2.3.1 and 4.4.2 and chapter 8, section 8.2) this thesis focuses on the cognitive aspect of SWB only - and in particular on overall LS.

There are three reasons driving my interest in the relationship between education policy and child SWB. The first reason is a normative one and refers to the argument put forward by Ben-Arieh (2005) more than a decade ago that we have a moral obligation to listen to children and take seriously what they think and feel. Historically, the study of child well-being has focused on objective measures that often seem to be more about well-becoming than about well-being, and more about adults' concerns about children's development and future productive potential than about children's own concerns about their own lives. Well-becoming aspects are important and child SWB is also relevant to some of these aspects. For instance, some studies have provided evidence that students' SWB in childhood and adolescence is positively associated with education achievement (Zi Jia et al. 2015, Yao et al. 2018) and negatively associated with mental health problems in adulthood (Fergusson et al. 2015). However, we must attribute to child well-being as much importance as we attribute to child well-becoming considerations. In this regard, the study of SWB allows giving children a voice on their current well-being in relation to aspects which are important in their lives such as school and education. Then there is also the legal argument. As stated in the article 12 of the Convention on the Rights of the Child, listening to children and taking their views into consideration is simply a right that children have and we, as adults, have a legal responsibility to make sure that this right is respected. Finally, the third reason is purely academic. This area of research is relatively new and we have just started to learn about the links between education policy and child SWB. Many questions remain unanswered and this thesis aims to fill some of these gaps.

## 1.2. Research questions, hypotheses and approach of this thesis

The academic literature that studies the links between public policy and child SWB – which is discussed in chapter 2- suggests that an association is hard to find but likely to exist and that this association is complex. This thesis quantitatively studies this question. In doing so, I adopt an ecological approach (Bronfenbrenner 1979), which focuses on the influence of children's different environments on their development and the interactions between them. I use this approach -which is explained in more detail in sections 3.3 and 3.4 of chapter 3- to study two main research questions and a series of research sub-questions. These are the following:

1) Is there an association between education policy and child SWB?
    A. Is there an association between education policy-relevant factors and students' LS?
    B. Do schools influence students' LS?
2) What is the nature of this association?
    A. How do schools shape students' LS?
    B. What are the links between gender, education policy and students' LS? Can education policy explain part of the gender gap in students' LS?
    C. What are the links between SES, education policy and students' LS? Does it matter how SES is measured?
    D. Does the association between education policy and students' LS vary across societies? How?

The first research question investigates the existence of an association between child SWB and education policy mainly in the first analytical chapter of this thesis (chapter 5). On the assumption that education policy can improve children's SWB, there is a first step that involves finding associations and other evidence that point in this direction. As mentioned above, the literature on the links between education policy and child SWB – summarised in section 2.5 in chapter 2 - indicates that an association seems to exist but it can be hard to find. I seek evidence of this association in two ways. First, by studying the links between child SWB and several factors that seem amenable to education policy interventions (e.g. schoolwork-related anxiety, bullying, grade repetition, school resources, etc.). And second, by studying the possible influence of schools in students' LS. Section 3.4 in chapter 3 provides a more detailed description of this approach to study education policy and its links with students' LS.

The second research question is more concerned with studying the nature of the relationship between education policy and child SWB, a question which is investigated in all the analytical chapters of this thesis (chapters 5, 6 and 7). Understanding the nature

of this association is especially important in order to inform policy interventions intended to promote higher levels of SWB among children. The literature on the association between education policy and child SWB suggests that this is association is complex as it may differ across schools, by gender, across SES and across countries. In terms of policy implications, this suggests that what could work for some students in a particular setting would not necessarily work for a different group of students in the same setting or in a different one.

As well as addressing these research questions, this thesis is characterised by being fully quantitative and comparative in nature. One of the most innovative elements of this research is its focus on studying this question in a large number of countries. In addition, this thesis is also characterised by its policy-orientation. The last chapter of this thesis discusses implications for education policy and practice based on the findings of this research (section 9.4 in chapter 9) and chapter 3 (section 3.5) discusses some important considerations guiding the analysis of policy implications in this thesis.

## 1.3. Data sources

This thesis exclusively uses data from the most recent wave of the Programme for International Student Assessment (PISA), from 2015 (OECD 2017). PISA is a worldwide study by the Organisation for Economic Cooperation and Development (OECD) in member and non-member countries and economies. This study is carried out every 3 years and focuses on 15-year-old students' performance in mathematics, science, and reading. It also includes very rich information on students' SES and on education policies and practices. Since 2015, it also collects information on a wider range of well-being aspects, including students' LS. Apart from asking 15-year-old students, PISA also gathers information from parents, teachers and school principals on a large number of issues affecting the lives of these children. Each student and school have their own id. This allows researchers to conduct multilevel analyses, an essential tool to study the association between education policy and students' SWB as it allows to investigate the role played by schools. Among the 72 participating countries and economies, 48 of them collected data on students' LS. Due to missing data in variables of interest, this study focuses on 33 of these countries. The data set is described in more detail in section 4.2 in chapter 4.

## 1.4. Structure of the thesis

There are three main sections in this thesis. The first section -chapters 2, 3 and 4- provides context and justification for the study. The second section –chapters 5, 6 and 7- present the original empirical work. Finally, the third section -chapters 8 and 9- contains the discussion and conclusion of this thesis.

Chapter 2: Literature review. This chapter reviews the literature on the association between education policy and child SWB. I first provide an overview of the increasing interest in children's SWB and the recent proliferation of surveys which include measures of child SWB –including a brief description of their main features. Then I discuss the literature on the association between education policy and child SWB, which suggests that this association can be hard to find but is likely to exist. I also discuss insights provided by the literature regarding differences by gender, across SES and across countries in this association. Finally, I present a summary and state the research questions and hypothesis studied in this thesis. Overall, this critical evaluation of the state of the question under study helps locate this thesis within the field of child SWB, identify the research gaps which this research aims to fill and inform the research questions and hypotheses examined in this thesis.

Chapter 3: A framework to study child subjective well-being in the school context. This chapter describes the approach used in this thesis to investigate child SWB in the school context in order to address the research questions and hypothesis and to draw implications for education policy and practice. First, it discusses a series of possible approaches to child well-being. Second, the chapter also describes a series of analytical frameworks that can be used in studies of child well-being and which are relevant to this thesis. After this, I describe the approach to child well-being used in this thesis, which is –above all- an ecological approach to child well-being. This approach is discussed in view of the approaches and analytical frameworks introduced in this chapter. Then the chapter describes how this ecological framework is applied in this thesis to study the research questions and hypotheses. And finally, the chapter also presents a discussion on several issues which need to be considered when drawing implications for education policy and practice.

Chapter 4: Data and methods. This chapter describes the data and methods used in this research. It first provides a discussion on the rationale for the selection of the PISA 2015 data set and discusses its main features. The chapter also describes the methods selected to answer the research questions, providing a justification for these decisions. Justification is also given in relation to some important decisions that had to be made regarding several data and methodological considerations. Finally, the chapter concludes with a brief comment on ethical considerations affecting this research.

Chapter 5: Education policy and students' LS. This first analytical chapter investigates the association between education policy and students' LS in 33 countries. In this analysis, first, I study cross-country differences in students' LS. Second, I seek evidence of a relationship between students' LS and a series of factors which may be amenable

to education policy interventions (research question 1A). And third, I also study the links between education policy and students' LS by focusing on the role played by schools (research question 1B and 2A). The aim of the second part of this chapter is to investigate whether schools play a role in shaping students' LS and how this may occur. Finally, in all these analyses, the chapter is also concerned with studying cross-country differences in the association between education policy and students' LS (research question 2D).

Chapter 6: Education policy and the gender gap in students' LS. This chapter studies the association between education policy and students' LS by focusing on gender differences in all the 33 countries studied (research questions 1A, 2A, 2B and 2D). First, I study gender differences in students' LS. Second, I investigate how gender interacts with different education policy-relevant factors to shape the LS of girls and boys in different ways. And third, I study whether the gender gap in students' LS is moderated by schools.

Chapter 7: The links between socioeconomic status, students' LS and education policy. This chapter studies the relevance of SES in the association between education policy and students' LS. SES is assessed using several different measures. I investigate, first, how LS differs for students of different SES. Then I focus on how the association between education policy-relevant factors and students' LS differs across SES. And third, I also study if and how schools moderate the association between SES and students' LS. As in all the analytical chapters, this chapter is also interested in cross-country differences. The chapter addresses research questions 1A, 2A, 2C and 2D.

Chapter 8: Discussion. This chapter discusses the results presented in this thesis. This discussion develops around the findings observed in chapters 5 to 7, which are discussed in view of the research questions studied in this thesis and the key elements of the literature review presented in chapter 2. This chapter also comments on the limitations of this research.

Chapter 9: Conclusions. This final chapter presents the conclusions of the thesis based on the discussion of the findings developed in chapter 8. The chapter briefly comments on the context of this research, restate its main objectives and describes how these were achieved. In doing so, I provide a brief summary of the findings, discuss implications for policy and practice and describe the key contributions of this research. The chapter concludes with some recommendations for future research.

# Chapter 2: Literature review

## 2.1. Introduction

In this chapter, I review the literature on the association between education policy and child SWB. First, I present a short overview of the evolution of child well-being research, where I discuss the increasing interest in child SWB observed in the last years and describe the recent proliferation of surveys including measures of child SWB. Then I proceed to present a detailed review of the literature on the research question under study: the association between education policy and child SWB. This includes a discussion of the reasons why we might not expect to find an association and a review of evidence indicating the existence of an association and that this association is complex. Finally, I conclude by providing a brief summary of the chapter and defining the main research questions and hypotheses of this thesis.

## 2.2. Evolution in child well-being research

The study of well-being dates back more than two thousand years ago. Its roots can be found in Ancient Greece and the philosophical discussions on what constitutes "the good life". These original ideas by Aristotle (350 B.C.E./2000), Plato (Brown 2015) and many others have been highly influential and still shape the ways in which well-being is studied and promoted nowadays (Stoll 2014). However, this thesis is mainly influenced by a series of discussions and research evidence which have emerged in more recent times, particularly since the 1960s.

The promotion of the notion of well-being in contemporary history has its origins in the Preamble of the Constitution of the World Health Organization (WHO), which stated that *"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"* (WHO 1948). Most progress in the field has taken place over the last half-century, a period of time where the academic and policy interest in well-being has grown importantly. In this process, the finding that above certain level gains in GDP are not associated with increases in people's happiness (Easterlin 1974) triggered a clear shift from a focus on economic growth to an interest in other measures deemed more appropriate to study people's quality of life. This paradigm shift in the way we assess human progress started in the academia but it was not late until it began to gain importance in the policy arena, where efforts have been concentrated on facilitating the collection and analysis of data to assess people's quality of life.

In the context of this paradigm shift, the last four decades have witnessed a growing interest in SWB (Diener et al. 1999, 2018). In relation to the increasing interest among governments and policymakers, an important milestone in this process was the highly influential report by the Commission on the Measurement of Economic Performance and

Social Progress in 2009 (Stiglitz 2009), which advised that social progress should be assessed using SWB indicators. Since then, efforts to assess SWB have grown worldwide. At the international level, some examples are the publication of multiple World Happiness reports (Helliwell et al. 2012; 2013; 2015; 2016; 2017; 2018; 2019) and different initiatives by the OECD, which has provided guidance on how to measure SWB (OECD 2013a) and which has begun to assess SWB in multiple countries in the Better Life Index (OECD 2011a, 2013b, 2015, 2017c). At the national level, in the United Kingdom (UK), the Office for National Statistics has created a programme to measure national well-being for adults (ONS 2016), young people (ONS 2014b) and children (ONS 2014a), including subjective measures of well-being. In some countries, SWB has gained importance in governments' agendas and nations like Buthan (OPHI n.d.) and the United Arab Emirates (UAE) (UAE Government n.d.) have appointed Ministers of Happiness and declared happiness among its citizens a national goal to be pursued through government intervention.

In the case of child well-being, its study is not new either and Ben-Arieh (2010) locates the publication of the first *'State of the Child'* reports in the early 1940s. In the 1960s, the child indicators movement was influenced by the social indicators movement which claimed that social progress could be achieved through the analysis of well-measured and consistently collected social indicators. UNICEF, a pioneer in the field, published its first State of the world's children report in 1980 (UNICEF 1980). Since then, UNICEF has remained as a leading actor but *'State of the Child'* reports have proliferated across international organisations, NGOs and public administrations at different levels. Policy interest in child well-being increased following the United Nations Convention on the Rights of the Child (UNCRC) in 1990 (United Nations 1990), which asked nations to improve the well-being of their children. In the years that followed the UNCRC, the study of child well-being evolved significantly (see Ben-Arieh 2007) and child SWB has gained greater attention both in the academia and in the policy arena, especially over the last decade.

Compared to adults, academic interest in child SWB is a more recent phenomenon and the consideration of subjective indicators of child well-being in policymaking remains far less common. In academia, important progress has been made in recent years in understanding children's SWB and its links with policy-relevant domains. This is, in part, thanks to an increasing number of studies incorporating SWB measures to investigate this question. However, there is significant variation in the way SWB is assessed in different studies. The following section presents an overview of this.

### 2.2.1. Child subjective well-being studies

In the last few decades –and especially over the last 10 years- studies collecting child SWB data have multiplied worldwide. This section describes the most prominent studies collecting child SWB data and the domains most commonly covered in this type of studies. In this section, I do not review the different measures used in the field to assessed children's SWB –although I comment on this question when discussing the limitations affecting this research in section 8.2 in chapter 8.

At the national level, the UK has traditionally been at the forefront of child SWB research and is arguably the country with the best available data. There are several national studies which have regularly collected information on children's SWB. These can be split in two. First, there are three important longitudinal studies: the UK Household Longitudinal Study - Understanding Society (before known as British Household Panel Survey), the Families and Children Study (FACS) and the Millenium Cohor Study (MCS). Since 1994, Understanding Society asks 11 and 15-year-olds how they feel about their life as a whole as well as in relation to family, friends, appearance, school work and, since 2002, also about school. FACS also collected information from 11 and 15-year-olds in several of its annual rounds between 1999 and 2008, the last year when this study was conducted. The MCS follows the lives of around 19,000 children born between 2000 and 2001, collecting information -including SWB data- every 3 years. Moreover, together with these 3 studies at the level of the UK, there is also the Growing Up in Scotland (GUS) study, which is similar to the MCS but in the context of Scotland. And second, apart from longitudinal studies, there is also a very important cross-sectional study: the study conducted by the Children's Society -a national charity that works with the most vulnerable children and young people- in The Children's Society Well-being Research Programme. In its design, this study aimed to address some limitations which are common in studies measuring child SWB in the UK, mainly regarding measurement considerations and the limited number of life domains considered (Rees et al. 2010a). Apart from collecting information on overall LS, the study also asks participants (8 to 15-year-olds) about their satisfaction with different life domains (family relationships, home, amount of choice in their life, relationships with friends, money and possessions, health, appearance, future, school and time-use, safety). This work has resulted in the publication of 8 annual reports on children's well-being in the UK so far -the last one in 2019 (The Children's Society 2019).

Apart from the UK, other studies at the national and lower administrative levels which collect children's SWB data have been developed in many other countries and there are also multiple international studies collecting this type of data. Nonetheless, due to data availability limitations, researchers interested in studying the association between public

policy and children's SWB face an important trade-off. This question can be approached in two ways. First, by using longitudinal data on children's SWB in the few countries which have collected this information, where the number of public policy-relevant variables is also limited but which allows researchers to identify causal mechanisms. And second, by using cross-sectional data on children's SWB collected in many countries from studies which provide a much larger number of public policy-relevant variables but which does not allow to infer causality (see section 3.5 in chapter 3 for a more detailed discussion on the issues of inferring causality depending on the type of data and research design). The release of PISA 2015 data in 2017 brought about a fantastic opportunity to study the links between public policy and children's SWB in the school context by adopting this second approach as it includes information on students' LS and a large number of education policy-relevant factors in many countries. For this reason, although both approaches are highly relevant to advance our knowledge on this question, I decided to adopt this second approach to study the links between education policy and children's SWB. And consequently, in the remaining of this section, I describe the most prominent cross-national studies collecting child SWB information which have proliferated over the last decades and the main domains considered in these studies.

An OECD review of cross-national surveys of child well-being (Richardson and Ali 2014) presents a summary of SWB indicators included in this type of studies. This summary considered only ongoing studies with at least 2 waves studying children from ages 11 to 16 in at least 25 countries approximately, most of which are OECD and EU countries. This included the European School Project on Alcohol and other Drugs (ESPAD), the Health Behaviour in School-aged Children (HBSC) study, the International Civic and Citizenship Education Study (ICCS), the Progress in International Reading Literacy Study (PIRLS), the PISA study, and the Trends in International Mathematics and Science Study (TIMSS). The most common domain covered in these surveys was school life (present in 4 of these sources), followed by satisfaction with life in general, subjective material situation and education (all of them covered in 3 of these sources). Although this is not a comprehensive list of international surveys incorporating SWB data (indeed, it misses a very important study like Children's Worlds (Rees and Main 2015), described below) it gives a good idea of the child SWB domains covered in cross-national studies until very recently.

Among all the cross-national studies incorporating measures of child SWB, the HBSC survey has arguably been the source most commonly used by researchers interested in child SWB as it the oldest one (it has been collected every 4 years for over 3 decades), the one covering the largest number of countries (48) and it includes information from children of different ages (11, 13 and 15). The HBSC survey is mainly concerned with

young people's well-being, health behaviours and their social context. This study collects data on overall LS and 3 other domains: relationships, subjective education and subjective health.

Another important international study which was created around a decade ago is Children's Worlds. While the focus of interest of the cross-national surveys cited above is on a specific aspect of children's lives (e.g. health, academic performance, etc.) and not necessarily on SWB, Children's Worlds is mainly concerned with children's SWB. The project was developed by a group of researchers –most of them from the International Society for Child Indicators (ISCI)- who identified a need for systematically collecting international information about children's reports on their lives. The survey has already 3 waves, with the last one covering 40 countries –including both high and middle and low-income countries- and more than 90000 children aged 8, 10 and 12. Apart from collecting data on LS, it also asks participants about their satisfaction in 9 life domains (you, the home and the people they live with, money and things they have, relationships with friends and other people, the area where they live, school, health, time management and leisure time, and self) and their affective SWB (feeling happy, satisfied, relaxed, active, calm, full of energy).

Finally, if there is a study that can be useful to examine the relationship between education policy and child SWB that is PISA 2015. Traditionally, PISA studies have focused on the academic competences of 15-year-old students in many countries and economies, collecting also very rich information on sociodemographic characteristics and education policies and practices. For the first time in PISA studies, PISA 2015 also collected information on students' LS -measured using Cantril's ladder (Cantril 1965) from 0 (lowest life satisfaction) to 10 (highest life satisfaction)- and multiple self-reported well-being elements. Some other recent studies collecting child SWB data in the school context are PISA for Development and PISA 2018. In both cases, data was released in 2019. The advantage of PISA for Development is that it focuses on low-income countries –which are often under-represented in international studies- and collects data from out-of-school children, who tend to be excluded from surveys. The main advantage of PISA 2018 is that, apart from collecting data on students' LS, it incorporates new measures of SWB –both cognitive (satisfaction in 10 life domains) and affective- and eudaimonic well-being. Unfortunately, data from PISA for Development and PISA 2018 was released too late to be considered in this thesis, which exclusively uses data from PISA 2015.

This section aimed to provide an overview of the survey data available –mainly cross-national studies- to study child SWB. Overall, most child SWB studies are more focused on the cognitive aspect of SWB (i.e. evaluations of one's life) than on the affective aspect,

which is concerned with the moods and feelings experienced by the individual (see section 1.1 in chapter 1 for the definition of SWB adopted in this thesis and section 3.2.1 in chapter 3 for a more detailed discussion on differences between cognitive and affective well-being). In relation to the cognitive aspects, although an increasing number of studies collect now information on satisfaction with life domains, overall LS remains as the most common measure used in child SWB studies (Proctor et al. 2009) and, in most cases, this is assessed using Cantril' s ladder (Cantril, 1965) rating LS from 0 to 10 (see section 8.2 in chapter 8 for a discussion of measures of SWB). In this research, I use PISA 2015 data and, therefore, I focus only on overall LS measured on a scale from 0 to 10. The limitations of studying only this single-item measure of overall LS are discussed in section 8.2 in chapter 8, where I comment on the limitations of this research.

## 2.3. Child subjective well-being and education policy

In this section, I present a detailed discussion of the literature which studies the links between education policy and child SWB. A first thing to be highlighted is that there is little research which directly focuses on this question and most research which provides insights into this is primarily concerned with other research questions (e.g. determinants of child SWB, children's experiences at school, etc.).

In relation to public policy in general, the literature suggests that there is an association between children's SWB and public policy which, however, can be hard to find. This is noted by Bradshaw (2015) in an article studying the relationship between social policy and child SWB. Although this thesis focuses on education policy, this article by Bradshaw is highly relevant to this work and, indeed, it was the trigger that motivated my academic interest in the topic. Building on Bradshaw's work by reviewing the most recent literature on the topic, this section discusses, first, why finding an association between public policy and children's SWB may be particularly difficult and, second, the evidence that indicates that this association does exist. Finally, in the third part of this review, I discuss the evidence which suggests that this is a complex association.

### 2.3.1. Why we might expect not to find an association

This section discusses the reasons that have been proposed as to why finding associations between education policy and child SWB can be difficult:

#### *2.3.1.1. Subjective well-being: difficult to conceptualise and measure*

The academic study of a construct which lacks a clear, concrete definition and is not adequately measured is problematic. In the past, the field of SWB has received some critiques pointing to these questions. In particular, the study of happiness and SWB was considered by some a "woolly" field in its early years (Duckworth et al. 2005, p. 630). Some vague definitions have certainly contributed to this. For instance, Diener et al.

(2003, p. 403), refer to it as including *"what laypeople call happiness, peace, fulfilment, and LS"*. Main (2014) points out that its multi-dimensional character, the absence of a clear, agreed definition and the fact the term is used to describe a set of different but related sub-concepts may have contributed to this perception. In addition to conceptual problems, Bradshaw (2014) argues that SWB is difficult to measure and the way we currently do it may not be good enough as most available data sets tend to include only information on hedonic elements (i.e. cognitive SWB) and mainly in the domain of LS.

However, most of the critiques mentioned above have been overcome. Main (2014) argues that, over the last few decades, important progress has been made by researchers in conceptualising, operationalising, and measuring SWB both overall (e.g. see Huebner 1991) and in different domains (e.g. see Huebner et al. 2006, Rees et al. 2013). The result of these efforts in the field of child SWB have resulted in some well-tested and scientifically validated instruments to measure it (Casas 2011, Rees et al. 2013). Moreover, in terms of measurement, there is evidence that SWB is associated with all the domains of objective well-being included in the UNICEF Report Card 11 on child well-being (Bradshaw 2013), which would indicate that current measures of child SWB may not be that bad after all. Finally, as noted earlier, more studies are incorporating now a greater variety of measures of children's SWB and happiness.

#### *2.3.1.2. Adaptive preferences*

Another difficulty for identifying an association between education policy and SWB is that people's reports on their SWB may be influenced by adaptive preferences or false expectations. In relation to poverty (see Hallerod 2006 for a discussion on this) or other difficult situations, some people might adapt their own assessments in order to avoid the pain associated with those situations. In the context of child poverty, Ridge's (2002) work suggests that some deprived children might report high LS because they do not want to complain about their situation in order to protect their parents from feeling guilty. Others might report high LS because they have never had the chance to experience better life circumstances and have accepted their situation as 'normal', or because they consider a better-off life is simply not within their reach. In an opposite example, we could think of the false expectations of an adolescent that is not satisfied with her life, her body image or the level of material resources she has access to because they seem too far from the extremely idealistic examples of these that she commonly sees in Instagram, a mainstream social network considered to reflect unrealistic lifestyles and body standards (Lub et al. 2015).

Adaptive preferences and false expectations may limit the potential of SWB research and pose a challenge for those interested in studying the association between education

policy and child SWB. However, we know very little about the relative importance of this phenomenon and the extent to which generalisations can be made in relation to some of this evidence. In the case of adaptive preferences in relation to poverty, for instance, there is mixed evidence on whether children show adaptive preferences at all (Main 2013) and, therefore, caution is needed when it comes to assessing the importance of adaptive preferences.

#### *2.3.1.3. Meanings lost in translation and cultural response bias*

Bradshaw (2015) points out that, sometimes, SWB meanings can be lost in translation due to linguistic considerations, which sets important limitations to comparative studies of SWB. He provides two examples. In the HBSC survey, two possible answers are "I like [school] a lot / I like it a bit", which are translated into Italian as *"mi piace molto / mi piace abbastanza"*. "abbastanza" is a quantifier that has a rather 'woolly' meaning in Italian and very few Italian children check it. Similarly, in PISA 2003 (student questionnaire, section D, Q27(f)), the question in English is: *"Q27 My school is a place where: (please tick only one box in each row)"*. Option (f) is *"I feel lonely"*. However, in Japan, this is translated as *"My school is a place where: (...) (f) it is boring all time"*.

Furthermore, participants' responses in survey questions could be biased by cultural issues. For instance, it has been widely reported that high arousal emotions (e.g. glad, excited, angry, afraid, happy, annoyed, delighted, etc.) are valued in Western societies. By contrast, low arousal emotions (e.g. calm, depressed, pleased, sad, satisfied, serene, etc.) are more valued in Eastern collectivist culture -this is countries like China, Japan and South Korea (Leu et al., 2011). In a cross-cultural study of the concept of happiness, Lu and Gilmour (2004) find that being upbeat is the focus of the American conception of happiness while the Chinese conception is more about being solemn and reserved. In another example noted by Bradshaw (2015), Finnish adolescents rank low in liking school a lot but this might not necessarily reflect a low level of liking school. Instead, it could simply be related to the fact that Finish students tend not to respond very enthusiastically ("a lot") in surveys. To deal with cultural variations in response patterns to questions in the second wave of the Children's Worlds Study, Rees and Main (2015) estimate a 'relative score' of the mean for each participating country for questions using a satisfaction, agreement of frequency format. The 'relative score' of the country mean aims to account for these patterns when it comes to identifying aspects of life for which children in a specific country are faring better compared to children in other nations (for more details, see Rees and Main, 2015, page 9). This approach can be useful in research that focuses on studying country differences.

Overall, both language and culture are important considerations to bear in mind in cross-cultural research that aims to understand variation in SWB. Across different cultures and languages, the interpretations of questions about SWB could vary significantly and the process of reflecting on things like LS, happiness, positive and negative affects, etc. could also be remarkably different from one culture to another. Under some specific circumstances (i.e. depending on the research design and approach), there are some methods that can be used to deal with this sort of issue. However, this is not always the case and both language and cultural differences remain as an important limitation in cross-country research on SWB.

#### *2.3.1.4. The role of genes*

Genetics is an important determinant of people's SWB, which raises concerns about the capacity of policy to influence SWB. In relation to these limitations, quantitative genetic studies and -more recently- molecular genetic studies that focus on SWB have produced some interesting findings in the last years. These findings are discussed in the following:

*How much variation in subjective well-being is explained by our genes?*

Recent meta-analysis studies assessing genetic heritability of SWB indicate that the weighted average genetic heritability of SWB would between 31% and 41% (Bartels 2015, Nes and Røysamb 2015, Vukasovic et al. 2012). Variability in these studies of heritable SWB is significant and may be due to differences in the constructs and measures used as well as demographic, environmental and cultural differences. In any case, the 31-41% figure would indicate that there is a remaining 60-70% of not genetically-determined elements shaping our SWB. Part of this could be explained by random measurement error but a significant part may refer to factors that could potentially be influenced by public policy interventions. Moreover, as discussed later in this section, research on the interplay between genes and environment indicate that environmental conditions shape genetic expressions and, therefore, this would imply that separating the role of genetics from the environment would be –virtually- impossible.

*Personality*

The capacity of policy intervention to influence child SWB would be also limited in view of evidence that indicates that SWB is significantly influenced by personality (see DeNeve and Cooper 1998, Lucas and Diener 2008, Vitterso 2001), which is also largely determined by genetic factors (Boomsma et al. 2002, Jang et al. 1996, Vassend et al. 2017). Moreover, when compared to sociodemographic variables (age, gender, education level, income and geographical location), personality tends to explain a greater proportion of variation in SWB and its effects tend to be longer-lasting than those of negative and positive life events (Røysamb and Nes 2018).

In the context of child SWB research in the UK, Goswami (2014) shows that personality can explain up to 18.5% of the variation in child SWB, while sociodemographic characteristics account for only 15% of the variation. However, this study also shows that some socio-demographic factors such as material deprivation and age have a greater effect on children's SWB than certain personality elements such as openness, extraversion and conscientiousness. Moreover, in view of these results, Bradshaw (2015) also argues that the fact that most variation in SWB that is associated with personality refers to emotional stability is problematic as this trait is arguably similar and likely to be related to SWB. He also argues that, if personality was a significant predictor of child SWB, we should study whether personality can be influenced by public policy intervention –although the desirability of this is certainly controversial. Furthermore, quantitative genetic research indicates that environmental factors also contribute to the relationship between personality and SWB to a significant extent (see Røysamb and Nes 2018 for a comprehensive review). Of particular importance to this thesis is the finding by Roberts and DelVecchio (2000) in their review of longitudinal studies on the consistency of personality traits, which indicates that the influence of environmental factors on personality is greater in childhood. Thus, as noted by Main (2014), the study of the capacity of policies to influence SWB remains particularly useful and pertinent in the case of children, whose personality traits are more malleable.

*Stability and change*

In relation to genetics, there is also the argument that, although fluctuations occur, SWB is rather stable over time and that this stable level of SWB is largely genetically-determined. This would imply that the capacity of environmental factors (e.g. education policy) to achieve sustained increases in SWB would be questionable. The value of temporary improvements in SWB should not be underestimated though. Being able to attain temporary improvements through changes in environmental factors would be highly valuable regardless of these genetically-determined baseline levels. However, concerns with our capacity to influence this stable level of SWB are important.

Hedonic adaptation theory argues that after certain life events and changes in environmental circumstances, humans tend to quickly return to a baseline level that is relatively stable over time (Brickman and Campbell 1971, Frederick and Loewenstein G. 1999). However, Cummins and Cahill (2000) find evidence of hedonic adaptation but also that these baseline levels of SWB can be affected by events of high stress or trauma such as exposure to poverty for a long period of time. In addition, return to baseline levels of SWB would not be the same for all changes in life circumstances. For instance, Frey and Stutzer (2013) find that, after a while, people may adapt to higher labour income but

not to long commuting time. This finding might also imply that individuals would adapt more easily to improvements than to detractors.

Overall, although every person has a baseline level of SWB that is largely heritable, environment circumstances can take you above and below this baseline level and some can also alter this baseline level. In their review of the literature of genetic well-being, Røysamb and Nes (2018) conclude that SWB is both heritable and changeable (Røysamb et al. 2014) and, while the stability of SWB is largely driven by genetic factors, change in SWB is mainly influenced by environmental factors. Furthermore, Røysamb and Nes (2018) also point out that, despite evidence of significant heritability and stability in SWB, there is also solid evidence that (1) SWB within a population may significantly change over time (Diener et al. 2013, Helliwell et al. 2017, Veenhoven 2009) which –if assuming low levels of variation at individual level in stable SWB- could indicate evidence of intergenerational variations; that (2) formative events may shape SWB (Dyrdal et al. 2011, Luhmann et al. 2012, Nes et al. 2014); and that (3) psychotherapy and interventions have proven effective in promoting higher SWB (Lyubomirsky and Layous 2013, Seligman et al. 2005, Haworth et al. 2016). Therefore, the fact that SWB is relatively stable over time would not necessarily imply by itself that education policy cannot influence child SWB.

*Gene-environment interplay*

The large proportion of variation in SWB that is explained by genetic factors certainly represents a limitation to the capacity of education policy to influence child SWB. However, genetic studies have found some significant interplay between genetics and environment, which would indicate that environmental factors would play a significant role not only in relation to non-genetically-determined elements but also regarding genetic factors.

Several of these interplays are relevant to this thesis. First, *heritability environment interactions* indicate that SWB heritability varies across gender (Nes et al. 2010, Røysamb et al. 2002), socio-economy (Johnson and Krueger 2006), marital status (Nes et al. 2010), and parental divorce (van der Aa et al. 2010). Second, *gene-environment interactions* (GxE) refer to the fact how individuals respond to their environment –which can vary significantly- depends on whether they carry specific genes (Karg et al. 2011, Kim-Cohen et al. 2006, Risch et al. 2009). Two concepts are important in relation to this sort of interactions: *vantage sensitivity* (Pluess and Belsky 2011), which refers to the idea that those who carry certain genes benefit more from positive life experiences; and *differential susceptibility* (Belsky 1997, Belsky and Pluess 2009a), which suggests that people who carry certain genes are especially malleable, this is they are more

susceptible to both negative and positive environmental influences. Another important concept is *gene-environment match-making* (Røysambet al. 2014), which suggests that individuals are born with several potentials which are genetically-determined and that the right environment can allow these potentials to develop. Thus, match-making genetically-determined potentials with the right environment would increase SWB. Finally, a third interplay is *gene-environment correlation* (rGE), which implies that the combination of genes and environment does not always occur randomly. Individuals usually inherit from their parents not only their genes but also the environment, which tend to reinforce each other. Moreover, individuals chose and shape their environment -in a process that is partly determined by the genes they inherited- and this environment ends up amplifying and reinforcing inherited genetic traits and dispositions (Wootton et al. 2017).

All in all, in view of these fascinating findings in the field of genetic research of SWB, public policy could influence child SWB not only by shaping those environmental factors directly associated with SWB but also those elements that may help genetically determined factors to result in higher SWB.

#### *2.3.1.5. Aspects of subjective well-being may not be policy amenable*

Finally, another limitation for the capacity of policy to influence child SWB is that, while some factors associated with child SWB seem public policy-amenable, policy amenability of other factors is more questionable. Bradshaw cites the example of the work by Rees et al. (2012) who, based on quantitative and qualitative work, identify ten life domains that are important to children's SWB in the UK. Many of these aspects (i.e. money and possessions, health, the future, school and home) seem amenable to public policy but the two most important to SWB are relationships within the family and the amount of choice that children have in their lives, two domains whose policy amenability seems more limited. Nonetheless, Bradshaw (2015) also acknowledges that aspects that at first sight do not seem directly amenable to policy interventions might be influenced by policy indirectly. For instance, in the case of family and other relationships, some actions could involve reducing the burdens of poverty and inequality on parents, identifying and treating parental depression, providing family-friendly services, etc. Tackling poverty could be an effective way to increase choices available to children and, therefore, indirectly, their SWB.

#### *2.3.1.6. Overall, difficult to explain variations in child SWB*

All the above reasons help explain why it may be difficult not only to find an association between policy and child SWB but also to explain variation in child SWB -beyond genetics- overall. Nonetheless, despite all this, there is increasing evidence of an

association between education policy and child SWB. The next section summarises evidence in support of this association.

### 2.3.2. Why this association is likely to exist

The previous section discussed the reasons why we might not expect to find an association between child SWB and education policy. In relation to most of these reasons, a series of evidence-based contra arguments have been presented. This section develops this question by presenting additional arguments and reviewing evidence in favour of the existence of an association between child SWB and public policy. The section is split into two parts. The first part briefly reviews the literature on the association between adult SWB and public policy, which reveals evidence of an association in many policy domains. The second one focuses on the literature on the links between child SWB and public policy, which points in the same direction.

#### *2.3.2.1. Subjective well-being and public policy: evidence from research on adults*

Over the past couple of decades, research studying the links between SWB and public policy have revealed strong evidence of an association between public policy-relevant factors and SWB (mostly LS). Some topics and policy domains merit particular attention:

- Social welfare.
    - Unemployment. Many studies have found unemployment to negatively affect SWB (Helliwell and Huang 2014, Lawless and Lucas 2011, Lucas et al. 2004, Luechinger et al 2010). The unemployed experience a significant decrease in LS even in countries with more generous unemployment benefits (see Lucas et al. 2004 for the case of Germany). However, unemployed –and even employed- citizens tend to be happier in countries with more generous unemployment benefits (Ouweneel 2002, Veenhoven 2000). Active labour market policies – including job training, employment incentives, and direct job creation- are also associated with higher levels of SWB (Wulfgramm 2014).
    - Family and child benefits. Having children is often found to have a negative effect on LS and positive affects (e.g., Campbellet al. 1976, Glenn and Weaver 1979, McLanahan and Adams 1989, Di Tella et al. 2003, Ono and Lee 2013) as well as on marital satisfaction (Twenge et al. 2004). Exposure to social risks is greater among families with children (Esping-Andersen 1990) and that is probably why the share of GDP spent on social welfare is associated with higher LS among married couples and, in particular, among those living with children (see Ono and Lee 2013 replicating the previous findings of Veenhoven 2000). There is also

evidence in the United States that increasing work supports and childcare subsidies for single mothers (the Temporary Assistance for Needy Family under the 1996 Personal Responsibility and Work Opportunity Reconciliation Act) is associated with a decrease in the LS gap between single mothers and single childless women and men (Ifcher 2011).

- Taxation policy. Government spending per GDP is not associated with the average national level of SWB (Bjørnskov et al. 2007, Veenhoven 2000) but how taxes are collected to fund public spending is important. People in countries with more progressive taxation systems are more satisfied with their lives, a relationship that is mediated by satisfaction with the quality of health care, education, housing, public transportation, water, and air (Oishi et al. 2012). In the US, low-income Americans experience higher SWB when taxation is more progressive while the opposite occurs among high-income Americans. However, the positive effect among low-income citizens is greater than the negative effect among high-income Americans (Oishi 2014).
- Redistribution. The level of income inequality is an important negative predictor of SWB (Wilkinson and Pickett 2010). Cross-national studies indicate that higher income inequality is associated with lower SWB but this effect nearly vanishes when controlling for GDP per capita (Diener et al. 1995, Oishi 2012). As noted by Oishi and Diener (2014), these sort of studies are vulnerable to a "third variable problem" and are also limited in the sense that some nations may be more tolerant with inequality than other nations. For this reason, analysing within-country changes over time can be particularly useful. Oishi et al. (2011) do this in the context of the United States and find a negative association between income inequality and average SWB, an association that is partly explained by the lower level of trust in others and higher perceived unfairness. Moreover, this association is inexistent among top earners but quite significant among low earners, even after accounting for absolute income level.
- Health policy. Unsurprisingly, health is a rather important predictor of SWB. Severe disability has a very strong negative effect on LS -double than the effect of unemployment (Lucas 2007). In the US, LS is higher in communities that are healthier -lower mortality from heart disease, cancer, and diabetes and lower levels of obesity (Lawless and Lucas 2011)- and in those with more generous health care coverage (Boarini et al. 2012).
- Urban planning and transport policy. Many studies have found a significant association between happiness and LS and both commuting time and satisfaction with the commute (Stutzer and Frey 2008, Olsson et al. 2013). In a study on commute in urban China, Nie and Souza-Poza (2018) estimate that

each hour of commute would require 82 yuan to compensate for the loss in SWB, which would amount to a total loss of around 10 billion yuan in urban China. In the UK context, Chatterjee et al. (2019) report that the decrease in job satisfaction associated with an increase of 20-minutes commute is the same as that associated with a salary that is 19% lower.

- Environmental policy. The importance of environmental policy has been reported in multiple studies. In Germany, living in high-pollution areas is associated with lower LS and experiencing an improvement in the quality of the air that people breath is associated with increases in LS (Luechinger 2009). In the UK, Londoners living in neighbourhoods with higher levels of NO2 experience lower LS (MacKerron and Mourato 2009). In the US, Levinson (2012) reports that the LS of participants in the U.S. General Social Survey were negatively associated with the level of pollution on the day that they responded to the survey.

Beyond these specific topics and public policy domains, a review of cross-national studies on adults' SWB (Diener et al. 2015) also indicate that that happiness is greater in nations that are economically developed and relatively wealthy (e.g., Diener et al. 2010), are strong on the rule of law and human rights (Diener et al. 1995, Helliwell et al. 2014), experience lower levels of corruption (Helliwell et al. 2014, Tay et al. 2014), have efficient and effective governments (Helliwell et al. 2014) and have political freedom, regulations protecting property rights, employment laws, and stable money (Helliwell et al. 2014, Radcliff 2013).

Overall, research on adults provides strong evidence on the links between public policy and SWB. The next section extends this analysis to the field of child SWB.

#### *2.3.2.2. Child subjective well-being and public policy*

This section reviews evidence on the links between education policy and children's SWB. This includes, first, a review of the literature on factors that explain variation in child SWB. Unquestionably, the factors which influence children's SWB will be different in some ways from those shaping the SWB of adults because of their different experiences of the world. Some of these differences emerge as a result of children's dependence on families for the provision of care and resources and others stem from their participation in different activities – e.g. school rather than work – compared to adults. In this regard, first, I focus on factors outside the school context. Some of these factors are not policy-relevant but others may be amenable to public policy interventions in different domains. This includes education policy which –although indirectly- might influence some of these factors. The second part focuses on school-related factors which explain variation in child SWB, most of which are considered to be directly amenable to education policy

interventions. Finally, this section also reviews evidence that part of the variation in children's SWB is explained by the school a child attends, which gives further indication that education policy may influence children's SWB.

*Non-school-related factors which explain variation in child subjective well-being*
These factors include:

1. Socio-demographics. Studies that aim to explain variation in child SWB have found that socio-demographic factors explain only around 10-20% of this variation -see Rees et al. 2012, Rees et al. 2013 and Goswami 2014 in the UK context and Dinisman and Ben-Arieh 2015 for a cross-national study in 14 countries. However, recent improvements in how we measure some socio-demographic factors –e.g. using a child-derived measure of material deprivation (Main 2014)- help to modestly improve these figures. The socio-demographic variables commonly studied in the field are:
    - Age. Research on the effect of age on children's SWB has produced mixed results. Many studies identify a clear association, with SWB decreasing in the transition from childhood to adolescence (Klocke et al. 2014, Rees et al. 2010b, Casas et al. 2007, Gonzalez et al. 2017, Singh et al. 2015, Casas and Gonzalez 2018). However, others do not find an association (Bokhorst et al. 2010, Crespo et al. 2011; Gilman and Huebner 2003, Suldo and Huebner 2004, Lawler et al. 2016, Lawler et al. 2017, Newland et al. 2014, Newland et al. 2015).
    - Gender. Contradictory evidence exists also in relation to gender differences in child SWB. There are studies where no significant gender differences have been found (Huebner et al. 2006, Seligson et al. 2003), others that find higher SWB levels among girls (Casas et al. 2013, Tomyn and Cummins 2011) and others where SWB is higher among boys (Bradshaw and Keung 2011, Rees et al. 2010b). This topic is examined in more detail later in this chapter in section 2.3.3.1.
    - SES (income and material well-being). Mixed results are often found in relation to SES, mainly regarding family income and material well-being (Knies 2012, Rees et al. 2012, Bradshaw et al. 2011, Dinisman and Ben-Areh 2016). The links between income and child SWB have been identified in qualitative studies (Ridge 2002, The Children's Society 2017a, b) but quantitative studies often fail to find any significant association (Knies 2012, Rees et al. 2011, Main 2013). Quantitative research shows that rather than family income, material well-being -and, especially, child-derived measures of material well-being- help explain variation in child SWB much better than

family income and adult-derived measures of material well-being (Knies 2012, Main 2014). The association between income and child SWB seems to be mediated by factors such as material deprivation, perceptions of fairness in the processes and outcomes of intra-household allocation, and subjective material well-being, among others (Main 2018). The role of SES is further discussed later in this chapter in section 2.3.3.2.

- Immigrant background. Being born in another country has been found to relate to lower SWB in some countries like the UK and Spain (Bradshaw et al. 2011, Casas et al. 2013, Rees et al. 2010b). Research also shows that SWB can also vary depending on the country of origin. For instance, in Italy, Borraccino et al. (2018) show that immigrants from Eastern European and non-Western/non-European countries are more likely to report low LS. Using data from PISA 2015 in 48 countries and economies, Tang (2019) shows that immigrant students report significantly lower levels of LS and this gap can be explained by factors such as talking to parents, bullying and schoolwork-related anxiety.
- Ethnicity. Studies assessing the effect of ethnic differences in children's SWB tend to find no significant association (e.g. Gilman and Huebner 2003; Huebner et al. 2006). However, in the UK, Bradshaw et al. (2011) find that children of Indian background are more satisfied with their lives than those of Bangladeshi and Pakistani heritage.
- Family structure. Evidence from the UK shows that children from a single-parent household experience lower levels of SWB (Rees et al. 2012, Rees et al. 2013). Cross-national studies also point in the same direction (see Klocke, Claire and Bradshaw, 2013).
- Other. Different studies present evidence of child SWB being higher among those of non-minority sexual orientation (Thorsteinsson et al. 2017), those who profess certain religions —although differences are small and variations across countries are important (Kosher and Ben-Arie 2017)- and those living in rural areas (Rees et al. 2017).

*2.* Local area. Children's perception of their own communities is an important aspect of their lives. Children's evaluations of their local area involve things like feeling safe in the neighbourhood, availability of resources (e.g. outdoor areas for children's use, feeling that there are enough places to play, etc.) and social connectedness (Eriksson et al. 2011, Oberle et al. 2011). A few studies have found a rather small or non-existent association between these factors and children's SWB (Lawler et al. 2016). However, most commonly, research indicates the existence of an association between different community

characteristics and children's SWB (see Kim and Main 2017, Lee and Yoo 2015, Lawler et al. 2017, Newland et al. 2014, Newland et al. 2015, Newland et al. 2018).

3. Home context and relationships within the family. Home environment and the quality of the relationships within the family -particularly parent-child relationships- are some of the most important factors associated with child SWB. A negative home environment can affect children's SWB in the following ways.
    - An important element is the suitability of the home environment to children's basic needs, including conditions where the child can carry out essential activities like studying (Lawler et al. 2016, Lawler et al. 2017, Newland et al. 2014, Bradley and Corwyn 2004).
    - In addition, the influence of common stressors among family members is another important element of a negative home environment. For instance, multiple studies have documented that unemployment may result in lower levels of happiness and self-confidence in the children of the unemployed (Powdthavee and Vernoit 2012, Kind and Haisken-DeNew 2012, Klocke et al. 2013).
    - The quality of children's relationships within their family and, especially, with their parents is essential to their SWB. Research has found SWB to be predicted by the quality of the interactions at home in activities like talking, playing, learning, and having fun together (Lawler et al. 2017, Newland et al. 2014, Newland et al. 2015, Newland et al. 2013, Oberle et al. 2011) as well as by the quality of the relationships with family members (Chu et al. 2010, Corsano et al. 2006, Gilman and Huebner 2006, Goswami 2012, Govender et al. 2014, Marshall 2004, Proctor et al. 2010, Rose et al. 2014, Lawler et al. 2016, Lawler et al. 2017, Newland et al. 2014, Newland et al. 2015). Levin and Currie (2010) find that, in Scotland, the relationship with mothers is of great importance to children's SWB, especially among girls. Also in Scotland, Levin et al. (2012) find the effect of parent-child communication on children's SWB to be stronger than that of family structure and family affluence. In the Welsh context, Moore et al. (2018) find an association between child SWB and the quality of relationships within family and report that positive relationships can improve mental health and prevent young people from using drugs. Using cross-national data from the Children's Worlds survey in 14 countries, Newland et al. (2018) find an association between child SWB and family relationships measured in terms of perceptions of the quality of parenting (the extent to which parents listen to them and treat them fairly) and

the quality of relationships within the family ("We have a good time together in my family" and "I am satisfied with my family life").

- Finally, another essential element is children's perception of their participation in family decisions, whose importance has been highlighted in different studies in Spain (Gonzalez et al. 2015) and the UK (Rees et al. 2012). Gonzalez et al. (2015) show that the perception of participation in family decisions is more positive among girls than boys and this is associated with the frequency of having certain experiences with the family (having a good time and learning things with the family), children's perception of having their own space at home and their satisfaction with the space they have at home, their evaluation of having a good time as a family, and satisfaction with the people they live with.

4. Other. There are other aspects of children's lives that have been found to relate to SWB. Many of these aspects are relevant in terms of education policy.
   - Health. In a Portuguese sample of the HBSC survey, Marques et al. (2017) find that overall physical fitness and cardiorespiratory fitness are associated with self-reported health, health-related quality of life and LS. In a Finnish study using Children's Worlds data, Hanpaa et al. (2018) show that the SWB of children –aged 10 and 12- with an allergic disease (asthma, eczema and/or seasonal allergic rhinitis) is significantly lower. In a United States study using HBSC data, Lew et al. (2018) find an association between drug use (alcohol, tobacco and marijuana) and adolescents LS. Klocke et al. (2013) find that child SWB is negatively associated with current smoking and ever drunk and positively associated with doing exercise more than once a week. In a Polish study using HSBC data, Kleszczewska et al. (2018) show that physical activity is positively associated with adolescents LS –especially among more materially deprived ones- and this association seems mediated by self-esteem, which is a much stronger predictor of LS in this study.
   - Activities and time use are also important to children's SWB. In relation to this, researchers have identified important differences across gender and, especially, between less and more industrialised countries (Larson and Verma 1999). In the latter case, it seems this is to do with the trade-off between working (at home and/or for paid) and attending to school that many children in middle- and low-income country have to face (Amin and Chandrasekhar 2012, Ersado 2005, Dornan and Woodhead 2015). Rees (2017) reports significant differences across countries in terms of educational-related time and find that leisure activities are more common among children in industrialised societies. The author also finds significant

gender differences. Spending time helping in the house, doing homework and reading is more common among girls and playing sports and using computers more common among boys. Rees (2017) also shows no trade-off between physical and screen-based activities. Research on children's use of screen-based activities (television, computer, etc.) among children and, in particular, the use of electronic media (texting, email, chat, phone use) is receiving increasing attention. Analyses based on HBSC data show that the use of screen-based is associated with lower LS, health and risk behaviour problems, and worse family relationships but better peer relationships in North America and Europe (Iannotti et al. 2009) and to lower overall quality of life in Australia and Germany (Mathers et al. 2009, Lacy et al. 2012, Finne et al. 2013). In the US, the amount of time spent online has been found to be negatively associated with LS and positively associated with loneliness (Rosen et al. 2014). In addition, the amount of electronic media communications would also be related to greater psychological, physical and attentional problems (Rosen et al. 2014) and to lower LS (Fergusson et al. 2014). However, Valkenburg and Peter (2007) find that this is also associated with better friendship quality, which is positively associated with higher LS. Boniel-Nissim et al (2015) report that electronic media is negatively related to adolescents LS and this association is moderated by communications with parents. However, there seems to be an optimal frequency of electronic media communications with friends that would be country-specific.

- Children's awareness of their rights as children and, especially, perceiving that these rights are respected by adults is positively related to child SWB (Casas et al. 2018).
- Body image. Satisfaction with body images strongly relates to gender –which is discussed later in this chapter- and has been found to impact SWB (Rees and Main 2015).

Some of the factors discussed in this section are public policy-relevant and –although indirectly- some of them may be amenable to education policy interventions (e.g. health habits, time-use, etc.). The next section focuses on factors in the school context which explain variation in child SWB, most of which can be directly influenced by education policy interventions.

*School-related factors which explain variation in child subjective well-being*

School is an area where children have very different experiences and where policy can make a clear difference. Using Children's Worlds data in 15 countries, Rees and Main (2015) show that there is a much higher degree of cross-country variability regarding

children's feelings about school issues than in other aspects such as health or safety. This would suggest that school is an aspect of children's lives that may be particularly amenable to policy interventions. Furthermore, this study also reveals that, although overall SWB seems to decrease from age 10 to 12, school is the area where this trend is more accentuated, with children from some countries experiencing a relatively more significant decrease of satisfaction with school than others.

In the school context, the literature has identified several factors which relate to children's SWB. A first important element is teachers-student relationships, which has been found to decrease with age (Bokhorst et al. 2010, Demaray and Malecki 2003, Furman and Buhrmester 1992, Garcia-Moya et al. 2014). Positive relationships with teachers are related to higher child SWB (Cotterel 2007, OECD 2017a), higher satisfaction with school (Samdal et al. 1998) and lower risk of initiation of health-risk behaviours (McNeely and Falci 2004). Several studies have examined this question in different countries using HBSC data. For example, in Spain, Garcia-Moya et al. (2014) find a positive association between the perceived quality of teacher-student relationships ('my teachers are interested in me as a person' and 'my teachers encourage me to express my own opinions in class') and students' SWB. Similarly, Moore et al. (2018) focus on Welsh students and find that a positive teacher-student relationship is associated with higher SWB and with a lower risk of substance use and mental health problems. Likewise, in Norway, some studies have found a strong association between teachers support and the LS of children (Danielsen et al. 2011, Diseth and Samdal 2014). Furthermore, in a cross-national study using Children's Worlds data in 14 countries, Newland et al. (2018) find an association between child SWB and children's views of their interactions with their teachers ("My teachers listen to me and take what I say into account" and "My teachers treat me fairly").

Another important element is students' relationships with their school peers and, in particular, the experience of bullying (e.g., Pedersen et al. 2007, Rudolph et al. 2005). In relation to this question, among the factors which have been found to relate to children's SWB, there are the number of friends, the frequency of interactions, satisfaction with friendships, perceiving that friends matter about oneself, group attitudes in the friendship such as hope and positivity and, especially, bullying (Chu et al. 2010, Corsano et al. 2006, Gilman and Huebner 2003, Goswami 2012, Marshall 2004, Oberle et al. 2011, Proctor et al. 2010, Rose et al. 2014, Tiliouine 2015, Marques et al. 2017).

Bullying profoundly shapes children's experiences at school and is negatively associated with factors like liking school, school climate and LS (Kutsar and Kasaeru 2017, Martinez et al. 2011). Moreover, studies in relatively different countries like Australia (Flaspohler

et al. 2009) and Spain (Navarro et al. 2015) show that both bullies and bullied experience lower LS compared to bystanders. The literature indicates that the likelihood of being bullied varies depending on how it is measured as well as on age, gender and SES (Alikasifoglu et al. 2007, Ledwell and King 2015) and, at the same time, this differs importantly by country (Bradshaw et al. 2017). Research also shows that there are important differences across countries in the strength of the negative association between bullying and SWB, that country levels of bullying are not associated with country levels of LS and that levels of bullying are better predictors of child SWB in rich countries than in poor ones Bradshaw et al. (2017). Furthermore, the distinction between different types of bullying is common in the literature. In this regard, research has shown that physical bullying is more common among boys and in earlier ages while more indirect relational (psychological) bullying is more common among girls and in later ages (Tiliouine 2015, Moon et al. 2015, Olweus 2013, Monks et al. 2012, Craig et al. 2009). Moreover, Savahl et al. (2019) find that psychological bullying (being left out) is more strongly associated with lower SWB in Western Europe compared to other regions. The relative importance of bullying on children's SWB is highlighted in a study by Klocke et al. (2013). Using data from the HBSC 2009-2010, the authors find that behavioural factors –and especially bullying- explain more variation in child SWB than socio-demographic variables. In this study, when adding exposure to bullying to the model, several positions in the international ranking of child SWB change. For instance, Austria –ranked 15$^{th}$- would move to the top of the ranking and Estonia would move from 22$^{nd}$ to 12$^{th}$ position. These dramatic changes in ranking positions suggest that tackling bullying could have a great positive effect on child SWB in some nations.

Apart from relationships with teachers and school peers (including bullying), researchers have found an association between child SWB and other aspects of the school context. A meta-analysis exploring the association between academic achievement and SWB by Bücker et al. (2018) find a small-medium positive correlation. Similarly, research also shows that school change is negatively associated with child SWB (Rees et al., 2012) and that children living in countries with more generous preschool education policies are more satisfied with their lives (Moreno et al., 2017).

Furthermore, it is important to note that, although research on child SWB has traditionally conceived school as a consistent unique life domain, children might distinguish two separate life domains: one involving teachers, learning and achievements and another one involving peers and friendships. This 'two worlds' hypothesis proposed in Casas et al. (2013, 2014) is supported by findings in Casas and Gonzalez (2017), where the authors use structural equation modelling techniques to analyse Children's Worlds data from 15 countries. However, the contribution of each component to overall SWB varies

across countries and the hypothesis is not supported in a few of them. According to the authors, this would be the result of remarkable socio-cultural differences, different children's cultures in relation to school and/or translation issues. Moreover, the authors also note that gender differences can be important –which is discussed later in this literature review.

*The influence of schools in students' life satisfaction*

Apart from evidence on education policy-relevant factors which are associated with children's SWB, research showing that variations in children's SWB are partly explained by the school a child attends provide further evidence of an association between education policy and children's SWB. Several studies have investigated this question by estimating the proportion of variation in children's SWB explained by differences between schools (Rathmann et al. 2018, Clair 2014, Oberle et al. 2011, Konu et al. 2002, Kim and Kim 2012). In these studies, this proportion ranges between 1% and 7%, although in some of them it is much higher when factors at the school level are considered (see a more technical discussion on this question in section 4.3.1 in chapter 4). Later in this chapter in section 2.3.3.1, I discuss evidence on the ways in which schools may influence children's SWB. Previous research also suggests that differences across countries in the capacity of schools to influence children's SWB can be significant. For example, Clair (2014) reports that schools in the United States have a greater influence on children's SWB than schools in England. The author argues that, in part, this could be explained by the more locally administered approach to education in the United States compared to England.

In terms of policy implications, the fact that part of the variation in children's SWB is explained at the school-level is important because this would suggest that school-level interventions -and not only policy interventions at the level of education systems or other levels- might have the capacity to promote children's SWB.

All in all, in view of the above, there is solid evidence of an association between children's SWB and factors in the school context which seem directly amenable to education policy interventions. Moreover, some other aspects of children's life outside the school context might also be indirectly influenced by education policy interventions (e.g. health habits, time-use, etc.). In addition, multiple studies find that part of the variation in children's SWB can be explained by the school a child attends. As noted above and discussed in more detailed in the next section, many studies investigating this question also explore how the influence of different factors (many of which are policy-relevant) in children's SWB differs across schools. This, together with other findings reported above which show that the association between education policy-relevant factors and children's SWB

often differs by age, gender, SES and country, suggest that the association between education policy and children's SWB is complex. The next section discusses this question.

### 2.3.3. Why this is a complex association

The literature review examined in the previous section suggests that the association between child SWB and education policy is not the same for every child. Instead, often, it varies across countries and different groups of children. This section discusses why this association may differ across schools, by gender, across SES and across countries.

#### *2.3.3.1 The role played by schools*

The links between education policy and children's SWB may differ from one school to another, which would be an indication that this is a complex association. There has been some research exploring how the influence of different factors (including education policy-relevant factors) in children's SWB varies across schools, which can be investigated by studying random effects in multilevel regression. For example, for students' SWB (both LS and affective SWB) in the context of England and the US, Clair (2014) finds statistically significant random effects in relation to a great number of factors, including gender, SES, ethnicity, having special educational needs, having a disability, living with the same adults, living with the mother, feelings about school, happiness with school, feeling tired at school, feeling left out, experiencing peer relationship problems, being bullied, being a bully, experiencing emotional difficulties, wanting to leave home, spending evenings with friends, ever drunk, currently smoking and number of health complaints.

Overall, depending on the nature of the factor considered, the implications of the existence of random effects may be different. First, this may imply that some schools treat children of different characteristics (e.g. better-off and worse-off students or boys and girls) better or worse than others. And second, in the cases of education-policy relevant factors (e.g. suffering bullying), the indication that the impact of this in children's SWB differs across schools would suggest that different schools may do better than others when it comes to dealing a particular problem or situation. In both cases, this means that the association between education policy and children's SWB is complex and that, as noted above, schools may play an important role in shaping children's SWB.

#### *2.3.3.2 Gender*

The association between child SWB and education policy is also likely to differ by gender. The main reason is that children's life experiences in relation to school and other aspects of their lives can be rather different for boys than for girls.

Nowadays, it is widely accepted that gender differences in SWB are due not only –if at all- to biological reasons but mainly to social and cultural considerations (Batz and Tay 2017). The field of sociology of gender studies gender differences by focusing on the socially constructed nature of how men and women adopt gender roles (Frawley et al. 2014). The consideration of gender as a social construct (Baker-Miller 1986, Gilligan 1982) implies that these differences are potentially amenable to policy intervention, a question that is central to this thesis.

Researchers have studied gender differences in SWB for decades and results are rather contradictory. Some studies find no significant differences (Shmotkin 1990, Okun and George 1984) while others find significant differences acting in opposite directions (Stevenson and Wolfers 2009, Haring et al.1984, Fujita et al. 1991, Diseth and Samdal 2014, Moksnes and Espnes 2013). Moreover, although there is mixed evidence in relation to LS and positive affects (Batz and Tay 2017), research suggests that women might report higher levels of negative affects and certain mental health problems like depression (see Zuckerman et al. 2017).

Research studying gender differences in child SWB has provided mixed results as well. In a recent review of the field, Chen et al. (2019) conduct the first meta-analytic study on gender differences in children and adolescents' SWB, considering 46 studies from 1980 to 2017. This analysis reveals small gender differences in favour of boys (i.e. boys were more satisfied with their life than girls) and that the mixed results observed in the literature are mainly due to differences in study features, notably in differences in the SWB domain which is the focus of the study. Boys' satisfaction with self-image, self-confidence, appearance, body, health and free time tends to be greater than that of girls and satisfaction with school and relationships with family and peers tends to be greater among girls than among boys (Verkuyten and Thijs 2002, Rees et al. 2012, Kaye-Tzadok et al. 2017, Chen et al. 2019).

School is the SWB domain where the largest gender differences are observed (Chen et al. 2019). Higher levels of satisfaction with school and school life among girls have been found in national studies in the United States (Huebner 1994, Park 2004), China (Liu et al. 2016), Spain (Casas et al. 2007) and the UK (Rees et al. 2012) as well as in international studies involving many other countries (Rees and Main 2015). In great part, gender differences in satisfaction with school are likely to be the results of girls and boys having rather different experiences in relation to school. The literature has widely reported on boys' lower academic outcomes and disliking of school (Kirikkaya 2011, Martino 1999, Millard 1997, Ofsted 2009, Kessels et al. 2014, Halpern 1997); lower motivation, expectations, enthusiasm about expanding their studies in the future and

smaller amount of time devoted to doing homework (Cox 2000, McCoy and Banks 2012, Warrington et al. 2000); more restless and less gregarious attitude at school (Liu et al 2016); and greater propensity to having more conflicting relationships with teachers (Hughes and Im 2016).

Furthermore, as discussed in the previous section, school should not be understood as a consistent unique life domain as children might conceive school as two separate domains: one of them involving learning, teachers and achievements, and the other one involving peers and friendship (Casas et al. 2013, 2014). However, although there is strong evidence supporting this 'two worlds' hypothesis in several countries, gender differences can be important, with classmates-related school satisfaction displaying a much higher contribution to LS among boys and learning-related school satisfaction displaying a slightly higher contribution among girls (Casas and Gonzalez 2017). Moreover, at the same time, the authors of this study note that differences across countries are important, which suggests that the contribution of school-related factors (and/or school sub-domains) to the shaping of satisfaction with school and LS –and how this differs by gender- would differ across different socio-cultural contexts.

Cross-society differences are, indeed, another important element that helps explain the mixed results found in research on gender differences in child SWB. This is observed in the meta-analytic study by Chen et al. (2019), who find that gender differences in SWB tend to be larger in European samples (where boys report higher levels of SWB than girls) than in Asian and North American samples (where girls report slightly higher levels of SWB than boys). Kaye-Tzadok et al. (2017) argue that gender differences in SWB may be dependent on the location of the particular study because, as a social construct, gender differences depend on prevailing social norms in each society. This has been supported by findings that gender differences in how distinct factors influence child SWB may vary across countries. For instance, Rees and Main (2015) find important cross-national variation in the association between gender and child SWB, both in terms of the strength and the direction of this association. Moreover, this study shows that satisfaction with one's body tends to be higher among boys than among girls in most countries –in particular, in Estonia, Germany, Norway, Poland, UK and South Korea. However, there is a series of countries where girls report higher satisfaction with their body (although differences are not statistically significant). These countries are Colombia, Ethiopia and Nepal. These results suggest that gender differences might operate in opposite directions when comparing richer and poorer societies, which might indicate that some aspects of development (perhaps, access to technologies) could determine these differences.

Moving back to the education context and how school may influence SWB in different ways for girls and boys, a study by Chui ad Wong (2016) provides some perplexing results in relation to SWB and academic performance. In Hong Kong, higher satisfaction with academic performance results in higher happiness among male adolescents but not among girls. However, academic satisfaction is important for LS among girls but not among boys. These results suggest that how we measure happiness and LS matters (here the authors use different measures to operationalised happiness and LS separately). Furthermore, results do not necessarily apply universally and might well vary across countries and cultures. Due to linguistic and cultural considerations, what adolescents understand by happiness and LS may differ from country to country. Students in some cultures might report very similar levels of both (and even face serious problems to distinguish between the two of them) and those from other cultures might report more dissimilar levels. Moreover, the relative importance of academic satisfaction in overall reported happiness and LS might vary across countries too. In the case of Hong Kong, the authors of this study hypothesise that *"girls might see a good academic performance as an end that can allow them to pursue a more successful and satisfied life in the future. In contrast, boys treat academic achievement as an achievement in its own right, which is a means to happiness".*

Children's experience at school is not only about satisfaction with academic outcomes and gender differences can be also significant in relation to other specific academic and non-academic aspects such as stress and anxiety with schoolwork, feeling a sense of belonging at school and relationships with peers (including feeling bullied) and teachers and how these aspects interact with overall SWB. A recent study by You et al. (2017) examines the associations between several sources of social support (family, peer and teacher), psychological factors (self-efficacy and emotional regulation) and LS among South Korean adolescents. The study shows that, in the case of boys, all three types of social support were indirectly associated with LS through both psychological factors and only family support was directly related to LS. By contrast, in the case of girls, only family and teacher support was associated with LS through mediating psychological factors (self-efficacy only) and all three types of social support were directly associated with LS.

All in all, if we understand LS as being strongly influenced by life experiences and, as described in this section, boys and girls often have different experiences in multiple aspects of their life, the relationship between gender and child SWB should be interpreted, rather than as a direct one, as a process where the formation of SWB is simply different for boys and girls (Chui and Wong 2016) –a process which also seems to differ across societies. Research exploring gender differences in the formation of

children's SWB across countries is scarce. This thesis aims to reduce this gap by studying this question in the school context in chapter 6.

#### *2.3.3.3 Socioeconomic status*

SES may be another element which is likely to shape the association between education policy and children's SWB. SES has been defined as the socially derived economic factors that influence what positions individuals or groups hold within the multiple-stratified structure of a society (Lynch et al. 2000). SES is a multidimensional construct and, as such, it is often studied with reference to three elements: education level, occupational level and a material element, most often financial income (Galobardes et al. 2006, McLaughlin et al. 2011). In research on children, these three elements often translate into parents' education level, parental occupation, and material well-being. Together with measures in these three domains, many studies –including PISA- measure children's SES using composite indices which are derived from information in these different domains.

Research studying the relationship between SES and SWB has traditionally focused on the financial element. Does money buy happiness? The literature does not provide a straightforward answer to this question. Research on adults shows that, although additional gains of income result in greater gains of happiness among the poor than among the rich (Deaton 2008, Stevenson and Wolfers 2008), there is no evidence of a saturation point from which increases in income do not translate into gains in happiness (Stevenson and Wolfers 2013). Other studies, however, show that, in relative terms, beyond a certain level, income becomes less important to people's happiness in comparison to things like health, relationships and sense of purpose (Ball and Chernova 2008, Clark and Georgellis 2013, Fowler and Chistakis 2009).

In relation to children, research studying the relationship between SES and child SWB presents a mixed picture. Qualitative studies have identified direct links between poverty and children's SWB (Ridge 2002, The Children's Society 2017a, b). However, quantitative research has so far provided rather contradictory results. Most quantitative studies focus on the relationship between family income and children's SWB, finding a very small or no association at all (Rees et al. 2011, Knies 2012, Main 2013, Gadermann et al. 2016). Evidence of an association between SES and child SWB is more robust when measures of material deprivation –rather than family income- are used (Knies 2012, Rees et al. 2011, Main 2013, Zaborskis et al. 2019, Sarriera et al. 2015, Gross-Manos 2017). Moreover, research indicates that child-derived measures of material deprivation are better predictors of children's SWB than adult-derived measures (Main 2014, Lau and Bradshaw 2016). In view of this, it seems clear that how SES is measured

matters, a question which is addressed in this thesis in chapter 7 when studying the links between SES, education policy and child SWB.

Contrasting evidence from studies using different measures of SES suggests that the relationship between SES and child SWB may be particularly hard to disentangle. In the case of the relationship between family income and child SWB, the complex nature of this association could be explained by the existence of mediating factors (Cummins and Cahill 2000). In this case, low income per se would not be a key explanatory factor. Instead, the links would be better explained by the effects of low income in different important areas of children lives (e.g. safe environment, family relationships, health, material well-being, etc.). Several studies show that family is an important mediating factor acting between the economic situation of the household and the material status of a child (Ridge 2002, Andersen and Fegter 2010) and how this impacts children's SWB (Main 2019a, b).

Apart from family, school is another domain of children's lives which could act as a mediating factor in this association. Similarly, there are reasons to believe that the association between child SWB and education policy will change across SES because children of different SES are likely to have very different experiences in relation to school and education. Growing up in poverty is associated with health problems, negative emotional and behavioural outcomes and lower cognitive development and school achievement (Brooks-Gunn and Duncan 1997). Poor children tend to grow up in disadvantaged neighbourhoods, attend schools that are not adequately funded and have parents who lack the resources to be able to invest in their child's education (Adelman and Wagmiller 2009). School readiness and school connectedness are two important elements negatively affected by the experience of growing up in poverty. School readiness is a skill that impacts the capacity to learn in school, which involves physical health, motor skills, self-care, social skills, emotional and behavioural self-regulation, communication and motivation (Black and Eagle 2008). School connectedness involves teacher support, positive relationships between adults and students and an environment of respect where students feel physically and emotionally safe (Hawkins et al. 2010). Socioeconomically disadvantaged students are also affected by more frequent and longer school absences and are more likely to arrive late to class. This is often due to health problems but also to more negative attitudes towards school among their parents, who are less likely to get involved in the school community than those of better-off socioeconomic background. The latter is the result of parents themselves having had negative experiences in school, not having been able to benefit from school and feeling alienated by the education system. Overall, children's education and development are negatively affected by poverty through greater exposure to risk factors and lower

exposure to protective factors and opportunities for simulation and enrichment (Black and Eagle 2008).

In sum, as in the case of gender, the association between education policy and child SWB is likely to vary across SES because the experiences of children of distinct SES regarding school and education may differ importantly. This is also likely to vary depending on how we measure SES and, at the same time, across countries. These questions are studied in this thesis in chapter 7.

#### *2.3.3.4 Geographical variation in children's subjective well-being*

The literature review presented in the previous sections also suggests that the association between education policy and children's SWB is likely to vary across countries. The main reason, again, is that in the same way that children's experiences in relation to school may differ by gender and across SES, these may also differ geographically. For example, some of the studies described above show that child SWB is more strongly associated to levels of bullying in rich countries than in poor ones (Bradshaw et al. 2017) and that, in the case of psychological bullying, this association is stronger in Western Europe compared to other regions (Savahl et al. 2019).

Most research studying geographical differences in child SWB focus on cross-country variations. In relation to this question, three main conclusions can be drawn from the literature. The first one is that differences in mean levels of child SWB across countries are significant (Klocke et al. 2013, Dinisman and Ben-Arieh 2016). In the case of adults, Helliwell et al. (2015) find that six nation-level factors - GDP per capita, social support, healthy life expectancy, freedom to make life choices, generosity of giving and perceptions of corruption- explain up to 74 % of the variation in SWB between countries. However, in the case of children, nation-level factors rarely explain country differences in the mean level of SWB (Lee and Yoo 2015, Bradshaw and Rees 2017). In contrast, family, school and community (i.e. elements in the close environment of the child) significantly affect the levels of children's SWB (Lee and Yoo 2015). The second conclusion is, therefore, that most of the variation in child SWB seems to be explained by differences within countries rather than between countries (Lee and Yoo 2015, Bradshaw and Rees 2017, Klocke et al. 2013, Moreno 2017, Looze et al. 2018, Bradshaw 2015, Newland et al. 2018). The third important conclusion is that the factors that explain this variation at the national level (i.e. individual, home, school and community factors) and their relative importance in the shaping of child SWB vary considerably from country to country (Lee and Yoo 2015, Bradshaw and Rees 2017). However, home, school and community factors are still significant predictors of children's

SWB even after controlling for country-specific culture and context variables (Lee and Yoo 2015).

All in all, as in the case of schools, gender and SES, the association between education policy and child SWB is likely to vary across countries. Moreover, research on geographical differences in predictors of child SWB indicates that factors in the close environment of the child –rather than nation-level factors- are better to explain variations in children's SWB. In view of this, an ecological approach (Bronfenbrenner's 1979) to study how factors in this close environment (home, school) influence children's SWB directly and in interaction with each other –and how this varies by gender and across countries- can provide excellent insights into the questions of whether and how education policy may influence children's SWB in different societies. This idea is developed in the next chapter.

## 2.5. Summary

The academic field of research which studies child SWB is rather new. However, important progress has been made over the last 10-15 years in terms of conceptualising, operationalising and measuring child SWB (e.g. Rees et al. 2010a). The increasing interest in children's SWB has resulted in the creation of new studies such as The Good Childhood Report in the UK and the Children's Worlds survey at the international level, which have helped researchers to further our understanding of determinants of child SWB. The study of the links between public policy and child SWB is a much newer phenomenon and the lack of good quality data has posed serious limitations to what researchers have been able to investigate so far. Data availability limitations remain important – see a detailed discussion on limitations imposed by data availability in section 3.5 in chapter 3 and in section 4.5 in chapter 4. However, the release of PISA 2015 (OECD 2017a) provides now an excellent opportunity for researchers to explore these links in more detail in the school context in a large number of countries. In this thesis, I harness this opportunity to study the association between education policy and students' LS.

For several reasons, finding evidence of an association between public policy and child SWB can be difficult. Despite these difficulties, there is increasing evidence of the existence of this association. In relation to education policy, the literature review presented in this chapter indicates the existence of solid evidence of an association between multiple education-policy relevant factors in the school context (e.g. bullying, relationships with teachers, school change, access to preschool education, etc.) and children's SWB. There are also elements outside the school context which are related to children's SWB and which –although indirectly- may be amenable to education policy

intervention. Moreover, there is also evidence that the specific school a child attends may influence SWB, which suggests that policy interventions at the level of the school –and not only at higher levels (e.g. education system level)- may be effective at promoting children's SWB.

Furthermore, many studies indicate that the association between education policy and child SWB is a complex one as the links between many education-policy relevant factors and child SWB often vary by school, gender, SES, age and country. First, the effect of both students' characteristics (e.g. gender, SES) and education policy-relevant factors (e.g. bullying) in children's SWB is likely to vary across schools. Moreover, gender differences in the association between education policy and children's SWB are expected to be significant, especially in view of the large body of research that reports on gender differences in terms of children's experiences at school. Similarly, children of different SES also seem to have very different experiences in relation to school and education and, therefore, the association between education policy and children's SWB is also likely to differ for children of different SES. Moreover, in this case, how we measure SES is likely to matter too. Finally, differences across countries in the association between education policy and child SWB can be important as well. However, research studying variation in child SWB across countries shows that nation-level characteristics rarely explain cross-country differences in levels of SWB. Instead, it is mainly elements in the child's close environment –home, community and school- which are responsible for variations in child SWB.

Overall, in view of the complex nature of this association, to study the links between education policy and children's SWB, it seems pertinent to adopt an ecological approach (Bronfenbrenner's 1979) –which is described in chapter 3 (sections 3.4)- and to use certain analytical techniques -detailed in chapter 3 (section 3.5) and in chapter 4 (section 4.3)- to study how elements at different levels of the child ecology influence children's SWB directly and in interactions with each other and how this differs by gender and across countries.

## 2.6. Research questions and hypotheses

In view of all the above, this thesis studies the following research questions:

1) Is there an association between education policy and child SWB?
    A. Is there an association between education policy-relevant factors and students' LS?
    B. Do schools influence students' LS?
2) What is the nature of this association?
    A. How do schools shape students' LS?

B. What are the links between gender, education policy and students' LS? Can education policy explain part of the gender gap in students' LS?
C. What are the links between SES, education policy and students' LS? Does it matter how SES is measured?
D. Does the association between education policy and students' LS vary across societies? How?

The hypotheses presented here are (1) that there is an association between education policy and child SWB, which can be observed in view of the existence of an association between education policy-relevant factors and students' LS and evidence that schools may influence students' LS. Also, that (2) this association is complex and that this complexity can be better understood through the multiple interconnections between different elements of the child's close environment –home (SES, education policy-relevant factors in the home context) and school microsystem (education policy-relevant factors in the school context)- and that it also varies depending on gender and its links with elements of this close environment and across societies.

To examine these hypotheses, I adopt an ecological approach to child SWB (Bronfenbrenner 1979) which is described in detail next in chapter 3. A graphic summary of the research questions and hypotheses, the rationale for studying these questions and the focus of the ecological approach is illustrated in figure 3.4 in chapter 3.

# Chapter 3: A framework to study child subjective well-being in the school context

## 3.1. Introduction

The previous chapter discussed the literature on the association between education policy and child SWB, which informs the research questions and hypotheses studied in this thesis. In the next two chapters, I explain the approach which I adopt to study these research questions and hypotheses –here in chapter 3- and the data and methods which I use –in chapter 4.

In this chapter, first, I briefly introduce the concept of well-being. Then I discuss the most relevant theoretical approaches to study child well-being. This is followed by a discussion on some analytical frameworks in the field of child well-being which are relevant to this thesis. Then I describe the approach to study child well-being used in this thesis and locate it in the context of the theoretical approaches and analytical frameworks discussed in the previous sections. This approach is, above all, an ecological approach to child SWB. After this, I describe how I investigate the association between education policy and students' LS in this thesis and how I apply the ecological approach to study the research questions and hypothesis which I address in this research. Finally, I also discuss some consideration which are taken into account when drawing implications for education policy and practice based on the findings presented in this thesis.

## 3.2. Child well-being

There is a general academic consensus that child well-being is a multidimensional concept that aims to measure the quality of children's lives (OECD 2009a). However, child well-being can be approached and conceptualised in different ways, which can vary depending on the main objective pursued by the researcher (Bradshaw et al. 2007a). Similarly, different frameworks can be used to study child well-being. A solid framework is essential when it comes to making decisions about child well-being measures (Frønes 2007). But also, as pointed out by Hanafin and Brooks (2005), the election of the frameworks can manifest researchers' interests and perceptions regarding children. For instance, children can be seen as having 'rights' or 'needs' or, similarly, the researcher can be interested in 'development', 'outcome' or 'resilience'. The next two sections provide a review of the main approaches that have been used to study child well-being and some of the different analytical frameworks that can be considered in this field and which are relevant to this thesis. This will set the scene for the next section, where I describe the approach to study well-being adopted in this thesis.

### 3.2.1. Approaches to child well-being

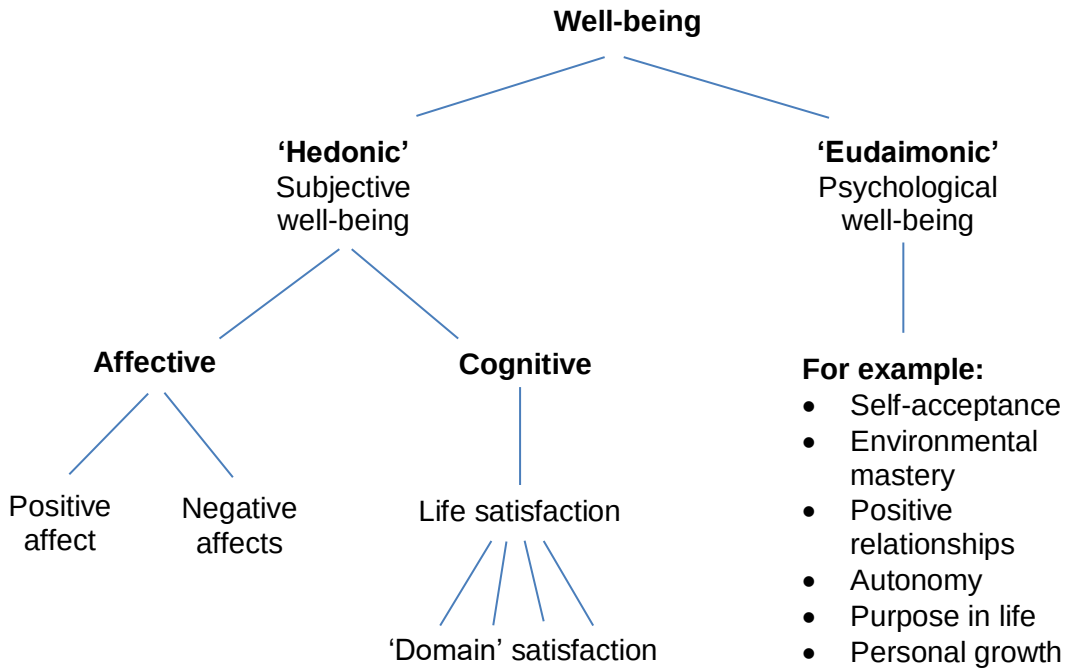
These are some of the main approaches in child well-being research:

***Hedonic and eudaimonic definitions***

Well-being can be approached from a hedonic or a eudaimonic perspective. Simply put, from a hedonic point of view, well-being is about enjoyment and pleasure, whereas a eudaimonic perspective is more concerned with meaning and purpose in life. Both words come from Ancient Greek, from hedone (delight, pleasure) and daimon (true nature).

In academia, hedonic well-being is also referred to as SWB and its conceptualisation has mainly been influenced by Diener's tripartite model of SWB (Diener 1984). SWB has been defined as 'a person's cognitive and affective evaluations of his or her life' (Diener et al. 2002, p. 63). It is, therefore, made up of two elements (see figure 3.1). The cognitive element is concerned with the assessment of satisfaction with one's life in general or with a particular aspect of one's life. The affective element refers to emotions, moods and feelings that the individual experiences, which can be positive (e.g. joy, affection, confidence, etc.) and negative (anxiety, shame, anger, etc.) (Diener et al. 1984, Rees et al. 2013).

Figure 3.1: Components of self-reported well-being




Source: The Good Childhood Report 2013 (Rees et al. 2013).

Eudaimonic well-being has been conceptualised as involving a series of different but related aspects. The father of the concept eudemonia is Aristotle (350 B.C.E./2000), who considered happiness as a vulgar idea and emphasised that, although most desires may produce pleasure, not all of them are worth pursuing as they might well not produce

wellness. Nowadays, eudaimonic well-being is mainly studied in the field of positive psychology (Seligman 1999) and the terms psychological well-being and eudaimonic well-being are often used interchangeably in the literature. According to Ryff's six-factor model of psychological well-being ( Ryff 1989), there are 6 elements which are essential to well-being: self-acceptance, personal growth, purpose in life, environmental mastery, autonomy, and positive relations with others. Eudaimonic well-being has also been associated with the concept of human flourishing (Kayes and Haidt 2003, Frederickson and Losada 2005). In his PERMA theory, Seligman (2011) proposes five elements that would lead to authentic and sustained happiness and well-being: positive emotions, engagement, relationships, meaning and accomplishments.

The academic field of hedonic or SWB is more concerned with explaining variation in people's evaluations of their lives, paying more attention to socio-demographic variables and environmental factors. On the contrary, the field of eudaimonic or psychological well-being is more interested in studying individual strengths and how to promote these to help individuals enjoy a happy, well-lived fulfilling life. Nonetheless, the different elements examined in SWB and psychological well-being studies are interconnected. Likewise, the concepts of SWB, psychological well-being, happiness and LS are interconnected too. This is discussed in the next section.

***Subjective well-being, life satisfaction and happiness***

SWB, LS and happiness are three closely related concepts about one's quality of life (Philips 2006). However, although researchers often used them interchangeably, they do not necessarily share the same meaning. Since conceptual differences can be significant, researchers need to reflect on these conceptual differences and clarify whether their research is about SWB, LS and/or happiness and what is understood by the term used.

The words 'adjustment' and 'morale' were terms used in academia in the 1950s to refer to this type of constructs (Veenhoven 2012). In the 1960s, the term LS started gaining importance and, since relatively early in the field, LS was understood as having an affective and cognitive component (Cummins 2013). In 1984, Ed Diener introduced the term SWB and proposed his tri-partite model (Diener et al. 1985), which is still dominant in psychology. This model is composed of three related but distinct elements: positive affects, negative affects and LS. Researchers have studied LS using a range of indicators which use different scales and techniques. However, there is a single, clear and widely accepted definition of the concept itself. This is, LS is a cognitive appraisal of one's overall quality of life with a positive orientation (Huebner 2004).

Diener's original model of SWB later evolved to incorporate a fourth element, happiness. Diener et al. (2003) define happiness as a pleasant emotion, this is an affective, short-lived reaction linked to concrete events. However, unlike LS, there is not a clear academic agreement on how to define happiness. Happiness is often perceived as a state of mind involving positive or pleasant emotions. Lyubomirsky et al. (2005, pg 806) define it as *"the frequent experience of positive emotions over time"*. Nonetheless, as pointed out by Diener et al. (1984, pg 543), the "fuzzy" concept of happiness is also certainly related to the cognitive aspect of SWB (i.e. LS) and may reflect a people's judgement about their overall well-being (Anand 2016). Thus, happiness can be understood not only as a mental state and an affective experience but also as an evaluation of one's life. Indeed, many authors use the term happiness and LS interchangeably (e.g. Diener et al. 1984, 1999). Other terms which have been used interchangeably with happiness are psychological well-being (Ryff 1989), emotional well-being (Fordyce 1988) and quality of life (Shin and Johnson 1978).

Furthermore, the conceptualisation of happiness is also dependent on the well-being approach which is adopted in its study. Within the field of SWB –which studies happiness from a hedonic point of view- happiness is believed to be experienced when negative affects are low and positive affects and satisfaction with life are both high (Carruthers and Hood 2004), although often happiness is defined in terms of LS only. On the contrary, positive psychologists study happiness from a eudaimonic perspective and perceive it not as an emotion but as a state of mind linked to the ideas of flourishing, meaning and fulfilment in life.

In sum, SWB is about overall LS, but also about satisfaction with specific aspects of one's life as well as about positive and negative affects. Moreover, there is a widely accepted definition of LS but not a clear agreement on the definition of happiness. Finally, all SWB, LS and happiness certainly interact with each other and with elements of eudaimonic well-being and these are often understood sometimes as a predictor and sometimes as an element of each other.

Most research on children and adolescents uses measures of LS (Proctor et al. 2009). Moreover, although the field has benefited from solid conceptual work in the last decade (Casas 2011, Rees et al. 2013), the terms SWB, LS and happiness are still used interchangeably in many studies.

***Objective and subjective measures of well-being***

Child well-being can be assessed using objective and subjective measures. Objective measures are oriented to capture aspects of children's lives which are observable by instrumentation and not by human assessment. Examples of objective child well-being

measures are school grades or health. Subjective measures capture individual's views and experiences on aspects of their lives. An example of subjective child well-being measure is LS.

Both measures are equally useful to assess the quality of children's life. An advantage of objective measures is that they provide insight into children's lives in a way that is replicable (Clair 2014, p32). However, objective measures by themselves cannot provide a complete picture. Approaches to well-being which use only objective measures have been criticised for *"treating children as passive objects that are acted upon by the adult world"* (Ben-Arieh et al. 2001, pg 44, Ben-Arieh and Frønes 2011). Others argue that what matters is how children experience their environment (Bronfenbrenner, 1979) and that well-being is inherently a "subjective phenomenon" (Diener et al. 2009, pg 11, Ben-Arieh et al. 2001, Ben-Arieh 2005).

As discussed before in this thesis, the study of child SWB has been neglected for decades. However, with the turn of the century, there has been a shift in the way child well-being is assessed, which incorporates the study of SWB to complement objective measures (Ben-Arieh 2007).

***Well-being and well-becoming***

There has also been an important change with regards to the study of children's well-being and well-becoming (Ben-Arieh 2005). Traditionally, in the case of children, the well-becoming approach –which reflects adults concerns on the future success of children- has been widely dominant over the well-being approach –concerned with children's current well-being. This has been particularly visible in the field of education, where for decades many education reforms all over the world have been oriented to achieve well-becoming goals such as academic attainment, widely ignoring children's current well-being (Reay and Wiliam 1999, Barker 2008).

Frønes (2007, pg 9) argues that *"the "under development" status of children does not legitimize poor conditions in the present"* and, therefore, we should not neglect current well-being issues. Moreover, research suggests that the balance between child well-being and well-becoming is not a zero-sum game. Not only they are not mutually exclusive but can reinforce each other and, when considered together, they represent a child's 'total well-being' (Ben-Arieh and Frønes 2011). As noted in the introduction in chapter 1, there is evidence that students' SWB in childhood and adolescence positively relate to education achievement (Zi Jia et al. 2015, Yao et al. 2018) and negatively relate to mental health problems in adulthood (Fergusson et al. 2015).

In the last two decades, there has been an increasing acknowledgement that childhood must be studied considering the rights of children and with a recognition that this is a stage –or a series of stages- of significance in its own right and not just a journey towards adulthood (Ben-Arieh 2007). Nowadays, although still dominant, the well-becoming perspective is no longer the only one and children's current well-being is now considered a legitimate subject for study as well.

***Positive and negative measures***

Another important change observed over the last decades involves the use of positive and negative approaches when it comes to measuring well-being. A negative approach is concerned with problems or failures and is oriented to assess the absence of risk factors or negative behaviours. A negative indicator, therefore, aims to measure the extent of an undesirable outcome in a population. Child mortality, school dropout rates or incidence of depression are examples of negative indicators (Clair 2014). A positive approach is concerned with positive outcomes and is oriented to assess to what extent children enjoy a good life. A positive indicator aims to measure the extent of a desirable outcome in a population. Examples of positive indicators would be educational attainment or satisfaction with life.

As pointed out by Ben-Arieh (2007), focusing on the absence of risk factors or negative behaviours is not the same as focusing on protective factors or positive behaviours. The reason is that the absence of problems or failures does not necessarily mean proper growth and success. In addition, Ben-Arieh et al. (2001) argue that positive measures are more demanding in terms of governments accountability than negative ones. Rather than just caring about "the safe warehousing of children and youth", a positive approach encourages governments to assess how children are able to "flourish" (Lippman et al. 2009, pg 1). However, emphasizing the necessity of paying more attention to positive approaches does not imply neglecting the use of negative measures, which remain highly relevant.

SWB has a strong positive orientation as it mainly aims to measure a positive outcome, this is happiness, satisfaction with life, etc. However, the affective element also assesses the presence of negative outcomes, this is the experience of negative affects like anxiety, sadness, fear, etc. Thus, SWB is mainly about positive measures but may also consider negative ones.

All in all, Ben-Arieh (2007) also acknowledges a shift in relation to this question, with governments increasing efforts to combine a focus on negative and positive aspects of children's lives.

***Child-centric approaches***

As noted above, for a long time, considerations of children's well-being mainly reflected adults' concerns about children (Ben-Arieh et al. 2001). This helps understand why in child well-being research, objective -rather than subjective- measures, well-becoming –rather than well-being- approaches and even the use of negative –rather than positive- measures have been more common. The changes described above regarding the way in which child well-being has been considered for decades help illustrate the emergence of child-centred approaches to child well-being, which aim to keep the child at the centre in the process of studying child issues.

Child-centric approaches also represent contraposition to the tradition of child studies where children are not the unit of study but just a member of a family or household (Qvortrup 1993, Ben-Arieh and Frønes 2011). In view of this tradition, rather than considering what children themselves consider is important in their lives, well-being assumptions are derived from what adult researchers considered important (NicGabhainn and Sixsmith 2006, Land et al. 2007). One of the fields where this has started to change is child poverty, where the use of child-derived measures of material deprivation is gaining relevance as they are valid, reliable and can provide better insights into children's experiences of poverty (Main 2014, Lau and Bradshaw 2016).

The origins of this shift towards child-centric approaches can be found in the increased recognition of children's rights following the UNCRC (United Nations 1990) and some of the movements that followed such as the New Sociology of Childhood (Qvortrup 1993) or the International Society for Child Indicators (ISCI n.d.). These perspectives advocate for indicators of children's well-being to be child-centred by giving voice to children and acknowledging that their needs and priorities may be different from those of adults (Ben-Arieh et al. 2001, Ben-Arieh 2005, NicGabhainn and Sixsmith 2006).

### 3.2.2. Frameworks in child well-being research

The previous section reviewed the main features and evolution of approaches to study child well-being. Apart from this, it is also important to examine the different analytical frameworks which are often considered in the field of child well-being research and why these are relevant to this thesis. This is discussed in the following sections.

***United Nations Convention on the Rights of the Child***

The UNCRC is a human rights treaty focused on children's rights. It was opened for signature on 20th November 1989 and came into force on 2nd September 1990. The UNCRC is considered "universally binding" and, as of today, it has been ratified by 196 countries, with the only exception of Somalia (unable to do it as it has not recognised government) and the United States (UNICEF, n.d.). Over the last three decades, the

UNCRC has been considered *"a very useful framework for monitoring children's rights and well-being"* (Ben-Arieh et al. 2001, pg 35, UNICEF 2007) and, at the present, all signatories regularly report on the application of the UNCRC in its territory (UNICEF n.d.).

The UNCRC is highly relevant to this thesis mainly in view of its article 12 and its recognition that children's views need to be considered in all matters affecting children's lives –thus, including policymaking. In particular, article 12 states that: *"States Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child".*

Moreover, two articles on education are relevant to this thesis. First, article 28 states that: "*States Parties recognize the right of the child to education, and with a view to achieving this right progressively and on the basis of equal opportunity".* The right to education may be hindered by education policy which can discourage children from furthering education and/or facilitate school dropout via lowering their SWB at school. In addition, this might affect more negatively some specific groups, harming equal opportunity. For example, this is the case of grade repetition, an ineffective education policy which is associated with lower SWB and which discourages students from continuing their education (OECD 2011b, Ikeda and Garcia 2014). In many countries, the incidence of grade repetition is greater among children of low SES and those with an immigrant background, even after controlling for academic competences (OECD 2014a).

Similarly, article 29 states that "[...] *States Parties agree that the education of the child shall be directed to:*

a) *The development of the child's personality, talents and mental and physical abilities to their fullest potential;*
b) *The development of respect for human rights and fundamental freedoms, and for the principles enshrined in the Charter of the United Nations;*
c) *The development of respect for the child's parents, his or her own cultural identity, language and values, for the national values of the country in which the child is living, the country from which he or she may originate, and for civilizations different from his or her own;*
d) *The preparation of the child for responsible life in a free society, in the spirit of understanding, peace, tolerance, equality of sexes, and friendship among all peoples, ethnic, national and religious groups and persons of indigenous origin;*
e) *The development of respect for the natural environment."*

The emphasis of 29.1.a on the importance of considering the broader impact of education on children can be clearly linked to children's SWB and the necessity of assessing children's experiences at school and in relation to education not only from an academic perspective but also with regards of elements which can affect well-being understood in a broader way.

***Sustainable Development Goals***

The SDGs is another framework which can be used in the study of child well-being. The SDGs is a collection of 17 goals (including a total of 169 targets) set by the UN in 2015. These broaden the scope of the UN Millennium Development Goals (MDGs) -which ended in 2015- in terms of goals and areas considered and the number of countries included. These different goals aim to achieve sustainable development globally and are focused in the areas of poverty, hunger, health, education, climate change, gender equality, water and sanitation, energy, urbanization, environment and social justice.

In relation to children, in a UNICEF study, Richardson et al. (2017) argue that the SDGs is the first official global multi-dimensional child-specific monitoring framework. In this study, the authors analyse global child well-being using 22 indicators which can help monitor progress in child well-being in relation to 10 different goals included in the SDGs. Most of them are objective indicators, only a few of them rely on children reports on their well-being (e.g. gender differences in children's reports on their daily participation in housework, children's reporting to experience frequent bullying) and only one considers child –affective- SWB measures, this is the percentage of adolescents reporting two or more psychological symptoms (feeling low, feeling irritable, feeling nervous, having sleeping difficulties) more than once a week.

The SDGs framework can be used to monitor child SWB, particularly in relation to goal 3 (Ensure healthy lives and promote well-being). It can also be of interest in relation to other goals. This is, for instance, goal 4 (ensure inclusive education and equitable quality education for all) in relation to the need for assessing the quality of education also in terms of students' SWB. A similar perspective can be adopted in relation to goals 5 (achieve gender equality and empower girls), 6 (reduce inequality within and among countries) and 11 (making cities inclusive, safe and resilience).

***Capabilities***

The capabilities theory (Sen 1979, 1993) provides another useful analytical framework for this thesis. This framework focuses on what people are able to do an be, rather than on what they have, or how they feel. Here, 'functionings' refer to the different things a person succeeds in 'doing or being' (e.g. participating in the life of society, being healthy,

etc.), whereas 'capabilities' relate to a person's real or substantive freedom to achieve those functionings - for instance, the ability to take part in the life of society (Sen 1999).

According to this theory, approaches which consider that well-being is only about access to goods and rights overlook what these can do for individuals, which is likely to change between people and culture (Sen 1979). This is an important element to consider in this thesis, particularly when exploring the relationship between access to certain resources and children's SWB across different countries. For example, in order to achieve the 'functioning' of doing well at academically –which is positively related with SWB (Bücker et al. 2018)- having your own laptop to study and do homework can be essential in Luxembourg but far less relevant in Thailand. This is also important when considering the possible role played by education policy as a means to achieve these functionings. For instance, in relation to the 'functioning' of being physically and mentally healthy, the freedom of a student to achieve this (i.e. her capabilities) might be harmed by an anti-bullying policy which is lacking or ineffective in the school she is enrolled.

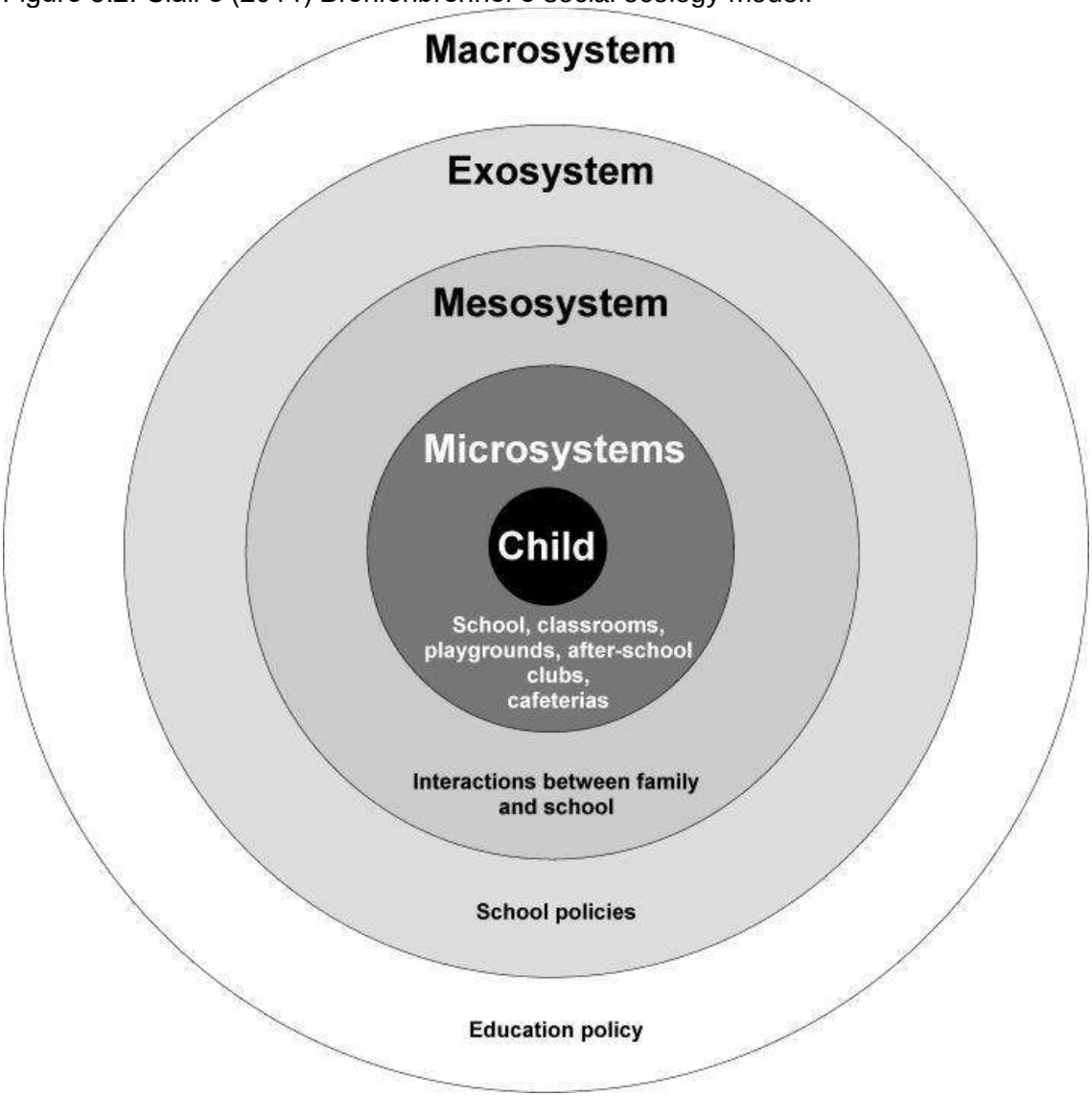
Furthermore, in this framework, capabilities are defined as a person's "actual ability to achieve various valuable functionings" (Sen 1993, pg 30). Here, the word 'valuable' indicates that a person's capability reflects her preferences (Sen 1993). This sets a clear difference between opportunities and capabilities. A child might want to get involved in an extra-curricular activity and have the opportunity to do so and another child might also have the opportunity to do so but might not be interested in doing so at all. In the case of the second child, the possibility of participating in such extra-curricular activity might not make any significant impact on her SWB. The idea of capability would capture this distinction and might help understand differences in how certain education policies might affect SWB in different ways. In this example, a school policy might involve funding access to this extra-curricular activity to all its students. However, if this activity was about going to watch a Premier League football game, in a context where boys were much more interested in professional football than girls, one would expect that –if any- the impact of this policy in students' SWB was, on average, more positive among boys than among girls. Overall, when interpreting the results of the analysis conducted in this thesis, it is important to keep these considerations in mind.

***Ecological***

Finally, the ecological theory (Bronfenbrenner 1992) focuses on the influence of children's multiple environments and the interconnections between them on their development. This analytical framework is the most relevant to this thesis. The reason is that, as it was discussed in chapter 2 (see summary in section 2.5), child SWB is mainly

influenced by elements of the child's immediate environment - mainly in the home, community, school microsystem- and the interactions between them.

Figure 3.2: Clair's (2014) Bronfenbrenner's social ecology model.




Source: The Effects of Schooling and Education Policy on the Subjective Well-Being of Children: A Comparative Study (Claire 2014).

Clair (2014) provides a very useful example of an ecological framework for the analysis of the effects of education policy and schools on children's well-being. This is illustrated in figure 3.2. The most inner circle is the microsystem, which has the greatest direct influence on the development of the child (Bronfenbrenner 1979, Bradshaw et al. 2007b). This would include the family, the school a child attends, etc. The second level would be the mesosystem, which refers to the collection of different microsystems (e.g. school, classroom, playgrounds, afterschool clubs, etc.) and the interactions between them. The following level is the exosystem, which is *"one or more settings that do not involve the developing person as an active participant, but in which events occur that affect, or are affected by, what happens in the setting containing the developing person"*

(Bronfenbrenner, 1979, pg 25). This level would include education policies and practices at the school level. Finally, the last level would be the macrosystems, which are *"manifestation of overarching patterns of ideology and organization of the social institutions common to a particular culture or subculture"* (Bronfenbrenner, 1979, pg 8) and would include education policies at a higher level (i.e. local, regional or national).

This framework can help understand some of the approaches to well-being reviewed before in this chapter. For instance, according to the ecological theory, SWB is remarkably important as it is children's perceptions of their environments what matters for their development (Bronfenbrenner, 1979). This framework locates children at the centre and does not treat them as passive agents in an objective environment but as the central element whose perceptions of the environment that surrounds them at different levels and the interactions between different levels influence their well-being. Moreover, the ecological theory focuses on children's development, which englobes both current well-being and well-becoming considerations.

Bronfenbrenner (1979, pg 27) points out that *"development never takes place in a vacuum; it is always embedded and expressed through behaviour in a particular environmental context"*. A complete analysis should not ignore the relationship between the individual and their environment and the interrelationships between different environments. Thus, an analysis of the relationship between child SWB and education policy should consider this. For example, regarding public policies intended to promote parental involvement in the school community and the effect of these on children's SWB, considering the interconnections between different environments would provide important insights. This is, whether or not this is promoted through legislation at system level (macrosystem), how it is implemented at school level (exosystem), how parents perceive it and react to this (mesosystem) and how all the above impacts the child's microsystems (home, school) would ultimately define how the well-being of the child (SWB, LS) is influenced by this policy. The next section describes the child well-being approach used in this thesis –which is, primarily, an ecological approach to child SWB.

## 3.3. Child well-being approach used in this thesis

The previous sections showed that the study of the association between education policy and child well-being can be approached in different ways. The particular approach used in this thesis to study the relationship between education policy and child SWB is inspired by some of the approaches and frameworks presented in previous sections, but it is also the result of data limitations –which are discussed in more detail chapter 8 (section 8.2).

This work focuses on what is known in the literature as hedonic or SWB and, in particular, its cognitive aspect. LS is the only SWB measure in the data set that I analyse in this

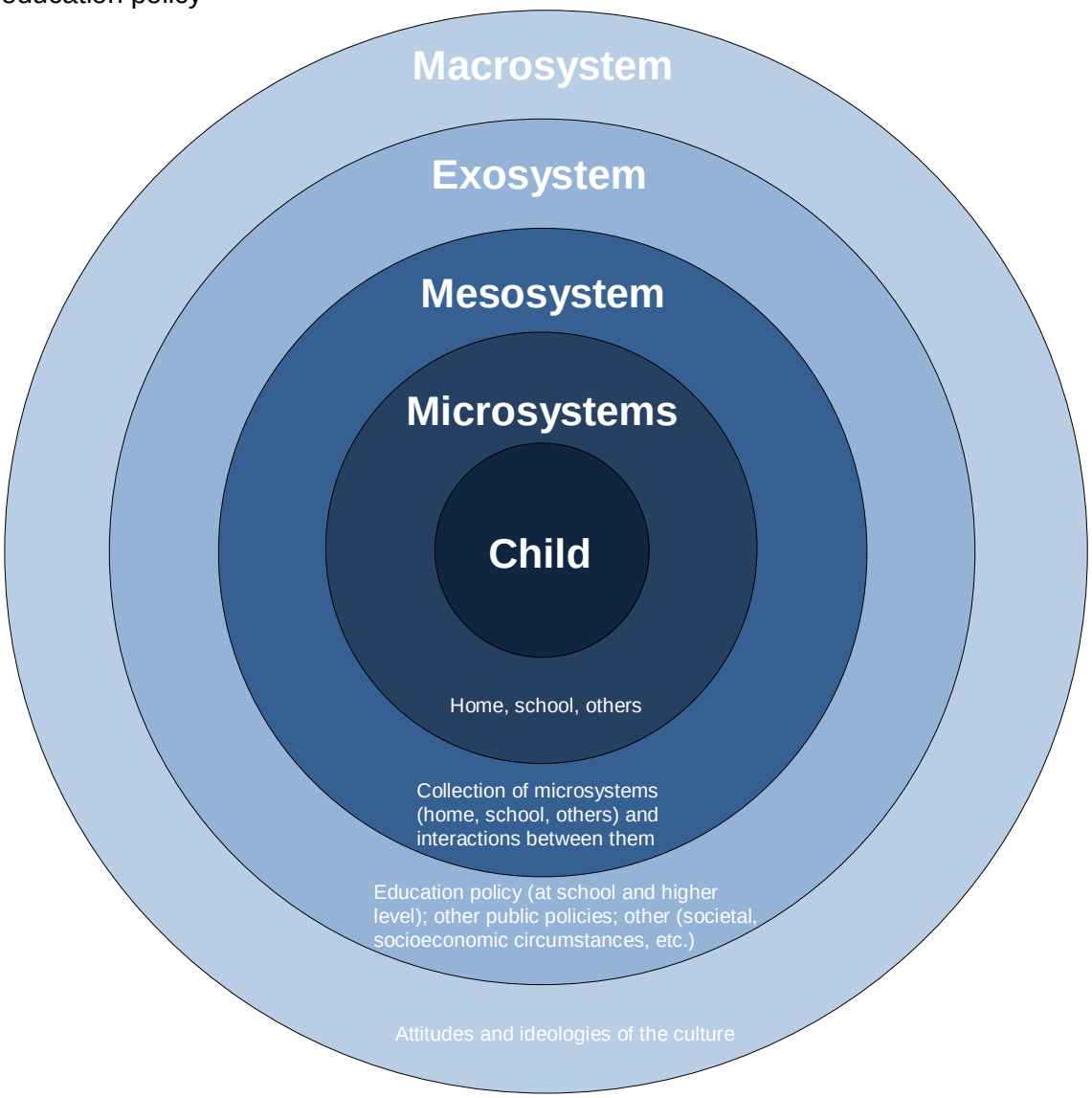
thesis and the only outcome variable that I study. As in most previous studies on child SWB which have inspired this work, LS is studied from a SWB perspective and both terms are used interchangeably throughout the thesis. The term happiness, when used, must be understood in terms of LS only, as other previous studies have done in the past (Diener et al. 1984, 1999). The focus is, therefore, on subjective measures. However, objective measures of child well-being also play a significant role in this research in the sense that LS is studied in relation to objective measures that aim to capture differences in terms of gender, socio-economic status and education-policy-relevant factors. Additionally, this thesis is concerned with children's current well-being. Nonetheless, it also reflects concerns in relation to well-becoming issues because, as noted before in this thesis, LS –and how this is influenced by school-related factors- can be a good predictor of well-becoming, including both academic and broader well-being outcomes. Furthermore, this research mainly adopts a positive well-being perspective where the maximization of child well-being –rather than just avoiding risks and ensuring minimum standards- is emphasized. However, this work is also interested in some negative measures of well-being. For instance, the thesis studies factors such as truancy and other risk-related behaviours which particularly affect at-risk children and which are assessed using negative measures.

In addition, the UNCRC framework is essential to this research in relation to articles 12, 28, and 29. In view of article 12, there is the necessity of listening to children and taking their views into consideration in all aspects affecting their lives. This work 'listens to children' to learn about how their SWB could be maximised, as I use both SWB measures and children's reports on different aspects of their lives. In relation to education, articles 28 and 29 are relevant too. Article 28 is considered with regards to concerns that education policy may harm equal access to education and progress through education systems through policies which may affect children's SWB, leading to discouragement and/or disengagement in relation to education. Article 29 is relevant in view of claims which emphasize the importance of assessing the impact of education on children's broader well-being and not only in terms of academic outcomes, an element which is central to this thesis. The SDGs framework is also relevant due to its global and multi-dimensional character and its interest in monitoring progress in child well-being over time. This thesis is inspired by this framework in the sense that it aims to identify relevant associations (e.g. the influence of bullying in students' LS) which can be studied in a large number of countries in future PISA waves so that child SWB progress can be monitored globally. In addition, the SDGs categorisation is useful to identify areas of interest where SWB research can make a contribution. Those more relevant to this work are goal 4 (ensure inclusive education and equitable quality education for all), 5 (achieve

gender equality, and empower girls), 6 (reduce inequality within and among countries) and 11 (making cities inclusive, safe and resilience).

Finally, I adopt a child-centred approach and children are the main unit of analysis. However, children are not considered in isolation from their environment. Here, to analyse the relationships between different environment levels when investigating the links between child SWB and education policy, I use Clair's (2014) ecological framework, which is inspired in Bronfenbrenner's (1979) ecological theory. Indeed, the most relevant analytical framework for this thesis the ecological theory of child well-being. To study these relationships, I use measures which refer to different elements of the child's ecology and examine how they relate to students' LS directly and in interaction with each other and how this varies by gender and across countries. In the next section, I explain how I apply this ecological framework in this thesis.

Figure 3.3. An ecological framework to study child subjective well-being and its links with education policy



## 3.4. Analysing the association between education policy and students subjective well-being

The analysis conducted in this thesis in chapters 5 to 7 is guided by 3 elements. First, the literature review discussed in chapter 2, which provides justification for the research questions and hypotheses studied. Second, the approach to child well-being described here in chapter 3, which is mainly an ecological approach to students' SWB. And third, the data and methods used to study this question, which I will describe next in chapter 4. These 3 elements are combined in figure 3.4, which summarises the what, why and how of this thesis.

Figure 3.4. Analysis of the association between education policy and students' life satisfaction

| **Insights from the literature:** | | | **Using an ecological approach to child SWB** |
|---|---|---|---|
| → | (1) | An association between public policy in general -and education policy in particular- and children's subjective well-being (SWB) can be hard to find but very likely to exist | |
| | (2) | Differences in mean levels of child SWB across countries are significant. For adults' SWB, nation-level characteristics explain a significant proportion of cross-country variation. However, in the case of children, most variation in SWB is explained by elements of the child's most immediate environment –i.e. home, community and school | |
| | (3) | The association between education policy and children's SWB is complex and it can be better understood through the multiple interconnections between different elements of the child's close environment. Moreover, it varies depending on gender and its links with elements of this close environment and across societies | |

↓ ↓ ↓

| | **Analysis** | | | |
|---|---|---|---|---|
| | **Research questions (RQ) and hypotheses (H)** | | **How RQs and Hs are studied** | **Where** |
| The most immediate environment of the child – home, school and community- explains most of the variation in child SWB | RQ 1. Is there an association between education policy and child SWB?<br>H. Yes, there is | RQ 1A. Is there an association between education policy-relevant factors and students' life satisfaction (LS)?<br>H. Yes, there is | - By studying the links between LS and multiple factors in the child's close environment (home and school microsystems) which may be amenable to education policy interventions<br>- Methods: mainly direct effects in multilevel regression (MR) but also direct effects in linear regression (LR) | Mainly in chapter 5 (but also in chapters 6 and 7) |
| | | RQ 1B. Do schools influence students' LS?<br>H. Yes, they do | - By assessing if schools may have the capacity to influence LS in view of the existence of school effects and the proportion of the variation in LS that is explained by differences between schools<br>- Methods: Likelihood-ratio test and variance partition coefficient (VPC) | Chapter 5 |

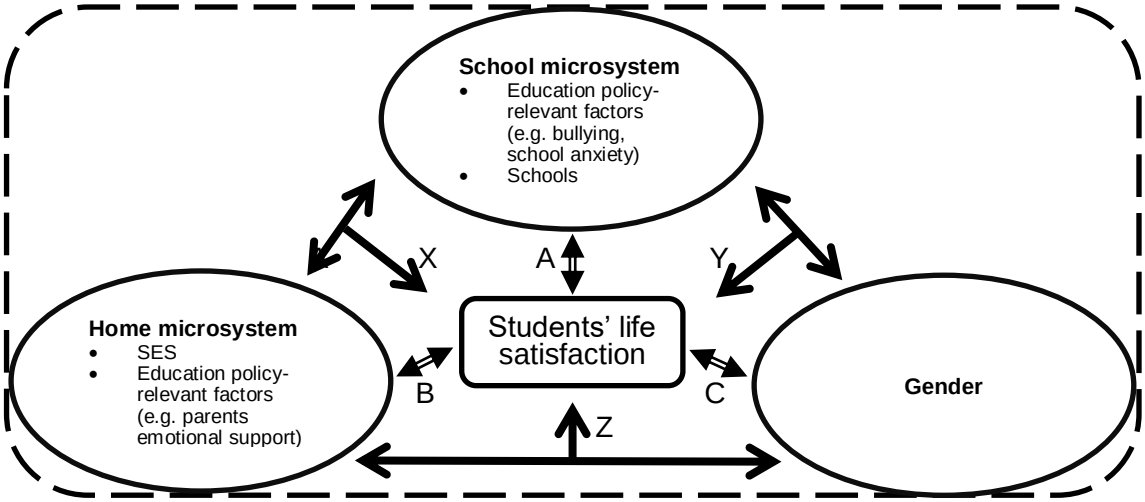
The focus is on elements of the child's most immediate environment, this is factors in the home and school microsystems

| | | | | | |
|---|---|---|---|---|---|
| Interactions between elements of the most immediate environment of the child shape the association between education policy and LS. Moreover, this association may also vary depending on gender and its links with this close environment and across societies. | RQ 2. What is the nature of this association?<br>H. This association is complex. It can be better understood through the multiple interactions between different elements of the child's close environment (home and school). It also varies depending on gender and its links with elements of this close environment and across societies | RQ 2A. How do schools shape LS?<br>H. Schools moderate the association between predictors of LS and LS. Also, LS is explained by the interactions between school characteristics (school type and school peers' characteristics) and SES, gender and education policy-relevant factors in the home and school microsystem | - By assessing if the influence of gender, SES (home microsystem) and some education policy-relevant factors (in both the home and school microsystem) in LS varies across schools. Also by studying how some school characteristics influence LS directly and in interaction with gender, SES and other education-policy-relevant factors in the home and school microsystem<br>- Methods: MR (direct effects, random effects and interaction effects) | Chapters 5, 6, and 7 | The focus is on elements of the home and school microsystems and the interactions between them (mesosystem) and with gender |
| | | RQ 2B. What are the links between gender, education policy and LS? Can education policy explain part of the gender gap in LS?<br>H. LS is shaped by gender and how it interacts with schools and education policy-relevant factors; yes, it can | - By studying the direct association between gender and LS and by studying how gender interacts with education policy-relevant factors in both the home and school microsystems (mesosystem) to influence LS Also by studying the gender gap in LS in view of education policy-relevant factors | Mainly in chapter 6 (but also in chapter 5) | |
| | | RQ 2C. What are the links between SES, education policy and LS? Does it matter how SES is measured?<br>H. LS is shaped by SES and how it interacts with schools and education policy-relevant factors; yes, it does | - By investigating the direct association between SES (home microsystem) and LS, and by studying how SES interacts with education policy-relevant factors in both the home and school microsystems (mesosystem) to shape LS. The role of SES is assessed using multiple measures of SES<br>- Methods: MR (direct and interaction effects) | Mainly in chapter 7 (but also in chapters 5 and 6) | |
| | | RQ 2D. Does the association between education policy and LS vary across societies? How?<br>H. Yes, it does; in multiple ways | - By studying differences across societies (exosystem; macrosystem) in all the analyses described above<br>- Methods: comparing results across countries | Chapters 5, 6 and 7 | |

In relation to the ecological approach to child well-being described in the previous section, figure 3.5 illustrates how this is applied to investigate the research questions and hypothesis which I address in this thesis. Apart from gender (a social construct which is shaped by elements at different levels but which does not belong to any level or microsystem specifically), the remaining predictor variables studied can be grouped according to the microsystem(s) they relate to (home, school, community, others). All the variables are enumerated in section 4.2.3 in chapter 4. In some cases, some variables may be considered to relate to more than one microsystem (e.g. feeling supported by parents in relation to school, related to both home and school microsystems). However, most variables clearly relate to just one microsystem. Moreover, some of the factors which relate to a microsystem may also relate to –or have implications at- higher levels of the ecological framework (exosystem, macrosystem). Nonetheless, because this research is interested in how LS is shaped by elements of the close environment of the child (microsystem) and the interaction between them (mesosystem) (see section 2.5 in chapter 2 for a justification for this decision), the focus is on these inner levels of the child's ecology. Finally, I am also interested in how the association between education policy and students' LS varies across countries. Although these differences may be explained by elements of the macrosystem and exosystem, in view of the literature discussed in chapter 2, most likely these will be defined by elements of the microsystem and the mesosystem, which is is the focus of this research.

The diagram represented in figure 3.5 shows how these different components (the school microsystem, the home microsystem and gender) relate to students' LS on their own and in interaction with each other. It needs to be noted that, in this diagram, the arrows do not necessarily imply the existence of a direct association but just that these three components and LS relate to each other. For instance, A indicates: (1) the existence of a direct association between LS and education policy-relevant factors in the school microsystem (e.g. bullying); (2) that factors in the school microsystem interact with each other to shape LS; and (3) that differences between schools (school microsystem) explain part of the variation in students' LS. The specific meaning behind these arrows is described in the explanatory table in the bottom half of figure 3.5, which builds on this diagram to summarise how the ecological approach is used to answer the research questions in each of the analytical chapters of this thesis and what analytical methods are used. A shorter version of this figure is included at the beginning of each analytical chapter to introduce the analysis and locate it in the context of the research questions and the ecological approach of this thesis.

Figure 3.5. How the home and school microsystem and gender relate to students' LS on their own and in interaction with each other




| | RQs studied | How the ecological approach is applied to answer the research questions | Ecological approach: How gender and the school and the home microsystem relate to LS on their own (A, B, C) and in interaction with each other (X, Y, Z) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | X | Y | Z | |
| | | | How the school microsystem relates to LS | How the home microsystem relates to LS | How gender relates to LS | How the school and home microsystem interact to shape LS | How gender and the school microsystem interact to shape LS | How gender and the home microsystem interact to shape LS | Cross-country differences |
| **CHAPTER 5** | | | | | | | | | |
| **Direct effects** of education policy-relevant factors in multilevel regression (MR) analyses and the **adjusted r-squared** in linear regression analyses | 1A, 1B, 2A and 2D | By studying the direct association between education policy-relevant factors (in the school microsystem) and LS | X | | | | | | X |
| | | By studying the direct association between education policy-relevant factors (in the home microsystem) and LS | | X | | | | | |
| | | By estimating the proportion of the variation in LS that is explained by the education policy-relevant factors studied | X | X | | | | | |
| | | By studying differences across countries | | | | | | | |
| MR. Variance partition coefficient (**VPC**) | 1B, 2D | By estimating the proportion of the variation in LS that is explained by differences between schools | X | | | | | | |
| | | By studying differences across countries | | | | | | | |
| MR. **School random effects** | 1B, 2A, 2D | Studying how the influence of factors in the school and home microsystem in LS vary across schools | X | | | X | | | |
| | | By studying differences across countries | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| MR. **Interactions effects** involving school characteristics (school type and school peers' characteristics) and other education policy-relevant factors | 1A, 1B, 2A, 2D | By studying how schools characteristics (e.g. school type, levels of bullying, etc.) interact with education policy-relevant factors in the school microsystem to shape LS | X | | | | | | | |
| | | By studying how schools characteristics (e.g. school type, levels of parents emotional support, etc.) interact with education policy-relevant factors in the home microsystem to shape LS | | | | X | | | | |
| | | By studying differences across countries | | | | | | | | |
| **CHAPTER 6** | | | | | | | | | | |
| MR. **Mean differences in** LS and other **descriptive information** | - | By studying mean differences in LS between girls and boys and differences in skewness and variance in LS | | | X | | | | | |
| | | By studying differences across countries | | | | | | | | |
| MR. **Direct effects** of gender in LS | - | By studying the direct association between gender and LS | | | X | | | | | |
| | | By studying differences across countries | | | | | | | | |
| MR. **Interactions effects** involving gender and education policy-relevant aspects in the home and school microsystem | 1A, 2B, 2D | By studying how gender interacts with education policy-relevant aspects in the school microsystem(e.g. bullying, schoolwork-related anxiety, etc.) to shape LS | X | | | | X | | | X |
| | | By studying how gender interacts with education policy-relevant aspects in the home microsystem (e.g. parents emotional support, SES, etc.) to shape LS | | | | | | X | | |
| | | By studying differences across countries | | | | | | | | |
| **Blinder-Oaxaca decomposition analysis** | 1A, 2B, 2D | By estimating the proportion of the gender gap in LS that is explained by a series of education policy-relevant aspects in the home and school microsystem | | | | | X | X | | |
| | | By studying differences across countries | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MR. **School random effects** | 2A, 2B, 2D | By studying how the influence of gender in students' LS varies across schools | | | | | X | | |
| | | By studying differences across countries | | | | | | | |
| **CHAPTER 7** | | | | | | | | | |
| MR. Direct effects of SES in LS | - | By studying the direct association between SES (home microsystem) and LS | | X | | | | | |
| | | By studying differences across countries | | | | | | | |
| MR. School random effects | 1B, 2A, 2C, 2D | By studying how the influence of SES (home microsystem) in LS varies across schools | | | | X | | | |
| | | By studying differences across countries | | | | | | | |
| MR. Interactions effects involving SES (school microsystem) and education policy-relevant factors in the home and school microsystem | 1A, 1B, 2A, 2C, 2D | By studying how SES (home microsystem) interacts with education policy-relevant factors in the school microsystem(e.g. bullying, school type, etc.) to shape LS | X | | | X | | | X |
| | | By studying how SES (home microsystem) interacts with education policy-relevant factors in the home microsystem(e.g. parents emotional support) to shape LS | | X | | | | | |
| | | By studying differences across countries | | | | | | | |

Chapter 5 begins the analysis of the research question (1). In particular, in this chapter, I study the direct association between education policy-relevant factors in both the school and the home microsystem and LS (research question 1A). I do this by studying direct effects in multilevel regression analyses and the proportion of the variation in students' LS which is explained by these factors (adjusted r-squared in linear regression). The chapter goes on investigating the association between education policy and students' LS by focusing on the role played by schools. In doing so, I conduct Likelihood-ratio tests to find evidence of school effects, and I also estimate the variance partition coefficient (VPC) -which indicates the proportion of the variation in students' LS which is explained by differences between schools (research question 1B). Then I proceed to study how schools may influence students' LS (research question 2A). I do this in two ways. First, I investigate how the association between education policy-relevant factors in the home and school microsystem and students' LS varies across schools (by studying random

effects). And second, I study how school characteristics (school type and school peers' characteristics) interact with other education policy-relevant factors in the home and school microsystem to shape LS. When studying interactions, I also examine the direct association between school peers' characteristics and students' LS (research question 1A). In all these analyses, I investigate differences across countries (research question 2D).

Chapter 6 studies the association between education policy and students' LS in all these countries by focusing on gender differences (research questions 2A, 2B and 2D). To do this, I perform the following analyses. First, I study gender differences in students' LS in view of mean differences between boys and girls, the effect of gender (identifying oneself as a girl) in students' LS in multilevel regression analyses, and gender differences in terms of variance and skewness in LS. Second, I study gender differences in some education policy-relevant factors (mean differences), in how these influence the LS of girls and boys in different ways (direct effect in multilevel regression analyses), and how these factors contribute to the gender gap in students' LS (Blinder-Oaxaca decomposition analysis). And third, I study random effects in multilevel regression in order to explore whether schools may influence students' LS in different ways for girls and boys.

Chapter 7 investigates the relevance of SES –assessed using several different measures- in the association between education policy and students' LS and how this differs across countries (research questions 1A, 1B, 2A, 2C and 2D). First, I study how LS differs across SES by estimating direct effects in multilevel regression analysis. Second, I estimate interaction effects in multilevel regression analysis to investigate how the association between education policy-relevant factors and students' LS differs across SES. And third, I estimate random effects and a series of interaction effects to study if and how schools moderate the association between SES and students' LS.

## 3.5. Analysing implications for policy

Finally, an important feature characterising this thesis is its policy orientation. Consequently, based on the results of the analysis presented in chapters 5 to 7 which are discussed in chapter 8, in chapter 9 I draw some implications to education policy and practice. In relation to this, there are some important considerations which are worth discussing.

To begin with, this research aims to be policy-relevant in several ways. First, the main objective of studying drivers of students' LS in this thesis is to identify areas where policy interventions might raise levels of SWB. In this regard, it must be noted, however, that explanatory variables often differ importantly in terms of their policy amenability. In this

research, most –but not all- of the independent variables studied are education policy-relevant factors but there are differences in the extent to which each of them may be amenable to policy interventions –this is discussed in more detail in section 4.4.2 in chapter 4 and in section 8.2 in chapter 8. Second, the aim of studying if and how schools may influence students' LS is to shed light on whether interventions at school level –and not only at higher levels (e.g. education system level)- have the potential of making a difference to students' LS –and for this reason, I study how children's SWB is shaped by the school a child attends. Third, the objective of studying differences by gender and across SES is to identify vulnerable groups within a society which may require special attention from policymakers and whether certain policy interventions (e.g. tackling bullying) should target one particular group of children especially. And fourth, the aim of studying this question in many countries is to provide international benchmarking which can allow monitoring progress in future PISA waves but also to identify country-specific issues that policymakers might need to focus on in each country. All these are elements which can help to inform policy decisions on how child SWB can be improved. In addition, this research may provide insights not only to policymakers in the field of education but also in other policy domains as well as to inform practitioners and the general public on how children's SWB can be promoted.

SWB data can inform decisions in different moments of the policymaking process. It can be used in the initial process of appraising policy options but it can also be considered in the ongoing refinement of policy design and implementation as well as when it comes to discerning the possible effects of stopping a particular policy intervention or regulation (OECD 2013a). Moreover, governments decisions are not only about choosing between different policy options to achieve a specific policy objective but also about choosing between distinct policy objectives. In this regard, SWB data can also inform policy trade-offs and, given the nature of this data, in doing so this will reflect societal preferences for different trade-offs (Loewenstein and Ubel 2008). In the context of this research, for example, this thesis might provide additional insights on policy interventions which are deemed to positively relate to higher academic competence but might negatively relate to students' SWB, thus informing a hypothetical policy trade-off between academic outcomes and SWB outcomes.

Furthermore, ideally, SWB data and the research design should allow making some inferences about causality. This could be attained either by using experimental designs -e.g. randomized control trials (RCTs)- or quasi-experimental designs -using longitudinal data, which tracks a large number of individuals at different points in time. RCTs would involve randomly allocating individuals into groups and assessing SWB outcomes before and after receiving a different treatment (e.g. group 1 receives treatment A, group 2

receives treatment B and group 3 receives no treatment). However, RCTs in SWB research are rare mainly because manipulating drivers of SWB is nearly impossible in most cases (OECD 2013a). Quasi-experimental designs using longitudinal data represent a more feasible and promising way of identifying causality in research on drivers of SWB. In this case, a group of respondents who were exposed to a specific intervention can be compared to a similar group who was not exposed to it. However, longitudinal data which allows studying drivers of SWB exists only in a few high-income countries. An alternative is to use cross-sectional data -which studies individuals at a particular point of time. Many cross-sectional studies focus on country-differences. However, given the wide variety of uncontrolled differences between countries, inferring causality from international comparisons of cross-sectional data is very difficult. All in all, it must be noted that, when using cross-sectional data, we are not talking about drivers of SWB but about covariates.

As mentioned in section 2.2.1 in chapter 2, as a result of data availability limitations, researchers interested in studying the association between education policy and children's SWB face an important trade-off. This is, using longitudinal data on children's SWB in the few high-income countries where this data is available, focusing on fewer public policy-relevant factors and being able to infer causality or, alternatively, using cross-sectional data on children's SWB investigating this question in many countries and studying more public policy-relevant factors but not being able to infer causality. To harness the many possibilities that PISA 2015 data has brought about to further our understanding of this question, in this thesis I decided to adopt this second approach. Both approaches are relevant to shed light on the links between public policy and children's SWB and, although cross-sectional data does not allow to infer causality directly, it can be interpreted together with evidence from other sources on the direction of causality. Moreover, the multilevel models used to investigate this question controlled for a large number of possible confounding influences and, all in all, the data and research design used in this thesis do provide valuable evidence on the existence and nature of the association between education policy and child SWB. Thus, this evidence certainly can shed light on the questions of whether and how education policy can make children happier.

When it comes to discussing policy implications, the most common method to assess the links between SWB and its possible predictors in both longitudinal and cross-sectional studies is testing associations. The simplest way of doing this is by looking at bivariate correlations. A more rigorous analysis involves conducting a regression analysis, which is what I do in this thesis. In particular, I use multilevel regression to account for the hierarchical structure of the data –with students nested within schools

and schools nested within countries- and be able to study the role played by schools in shaping students' LS. In order to interpret the results of regression analyses to assess policy implications, two questions are central: the size of the effect of explanatory factors and the issue of comparing the impact of these different factors (OECD 2013a). As to the first question, mean changes of 0.3 or 0.5 on a 0-10 life evaluation scale are considered as very large and are often found only in for major life events affecting the individual (OECD 2013a). Regarding the $R^2$ (which reports the proportion of the variation in child SWB explained by the variables included in the models), in SWB research this usually ranges between 3% and 15% (Senik 2011) – although, as described in chapter 2, some studies have found higher $R^2$ values. As to the second question -i.e. comparing the impact of different drivers- this is often trickier for several reasons. First, due to possible correlations among independent variables, resulting in mediation, confounding and suppression effects. And second, because the omission of an important variable may also affect the comparability of drivers of SWB. I explain the methods which I use to deal with these questions in the next chapter, where I provide a detailed account of the methods and data used to study the association between education policy and students' LS in this thesis.

# Chapter 4: Data and methods

## 4.1. Introduction

The previous chapters presented the research questions and hypotheses examined in this thesis and the approach adopted to study these questions. This chapter describes the data and methods used to study this. In this chapter, I first discuss the rationale for the selection of the PISA 2015 data set and describe the main features of the data. This is followed by a discussion on the methods selected to answer the research questions. Then, I comment on some other data and methodological issues which are important in this research. Finally, the chapter concludes with a brief comment on ethical considerations.

## 4.2. Data

### 4.2.1. Why PISA 2015

Early in my PhD studies, I was interested in the relationship between child SWB and public policy in general. To study this relationship in different countries, I first considered different sources of data. These include the Children's Worlds Survey and the HBSC survey. However, the release in April of 2017 of such a rich data set by the OECD's PISA 2015 study –which allows investigating the links between many education policy-relevant factors and students' LS in a large number of countries- was the main reasons for deciding to go with PISA 2015 data. As a result, the interest of this thesis changed from public policy in general to education policy.

Overall, the most recent PISA studies –PISA 2015, PISA 2018 and PISA for Development- are arguably the best datasets to analyse the relationships between education policy and children's SWB across countries. The release of data from PISA 2018 and PISA for Development took place too late in my PhD studies and, therefore, in this thesis I focus on PISA 2015 only. Compared to other cross-national studies, some of the advantages of PISA 2015 are the very rich data on education policies and practices and on other aspects that are important to students' well-being, the large number of participating countries and economies and the number of students who took part –over half a million in 2015 in total. PISA data is also publically available and can be analysed in main statistical analysis software.

### 4.2.2. The data set: main features

PISA is a worldwide study by the OECD conducted every 3 years since 2000 in member and non-member countries and economies. This study was designed to evaluate education systems by assessing the academic competences of 15-year-old students on mathematics, science, and reading. PISA studies can be located within the tradition of

international school studies that has its origins in the late 1950s and the International Association for the Evaluation of Educational Achievement. The OECD has been leading international efforts to conduct this type of assessments and, for more than two decades now, it has been developing similar studies such as the Trends in International Mathematics and Science Study (TIMMS, since 1995) and the Progress in International Reading Literacy Study (PIRLS, since 2001).

PISA has become highly influential in the policy arena, having shaped education reforms in a large number of countries (Zhao 2016). In all these years, the number of participating countries and economies has increased from 39 in 2000 to 79 in 2018 and the number and nature of the different domains considered have also changed. In terms of academic aspects, it has been incorporating new domains such as financial literacy, collaborative problem-solving, global competence, etc. In 2015, PISA incorporated many well-being measures (Borgonovi and Pal 2016), which included, for the first time in PISA, a measure of students' SWB: LS.

PISA tests students between 15 years and 3 months and 16 years and 2 months of age at the start of the assessment period, regardless of the school year of these students. Out of school children are not tested. The sample size must be at least 5000, although this does not apply to some small countries such as Iceland and Luxembourg. Countries interested in studying cross-region differences –e.g. Canada and Spain- use larger samples. There is a two-hour cognitive test, which takes place first, and a questionnaire that asks students about their background, time use, family, etc. which takes about one hour. In the cognitive test, there is assessment material for six and a half hours but students are not tested on all the parts. A latent regression extension of the Rasch model –a model of item response theory (IRT)- is used to predict the score in those parts not tested.

### 4.2.3. Domains and measures

The different variables studied in this thesis have been selected and transformed based on some specific criteria. These criteria are described later in this chapter in section 4.4.2. In this section, I describe the information contained in the PISA 2015 measures used in this thesis and how these have been transformed.

Table 4.1. List of variables studied in this thesis

| Group | Variable | Details | | |
|---|---|---|---|---|
| | | Type of variable | Categories | Number of countries with available data |
| | Life satisfaction (0-10) | Continuous | - | 33 |
| Sociodemographic | Gender (girl) | Dichotomous | Girl; boy | 33 |
| | Index of socioeconomic status | Continuous | - | 33 |
| | Index of parents' level of education | Continuous | - | 33 |
| | Index of parents' occupational status | Continuous | - | 33 |
| | Index of household possessions | Continuous | - | 33 |
| | Index of family wealth | Continuous | - | 33 |
| | Index of home educational resources | Continuous | - | 33 |
| | Index of cultural possessions in the household | Continuous | - | 32 |
| Self-reported well-being | Index of schoolwork-related anxiety | Continuous | - | 33 |
| | Index of sense of belonging at school | Continuous | - | 33 |
| | Index of frequency of suffering bullying | Continuous | - | 33 |
| | Index of feeling unfairly treated by teachers | Continuous | - | 33 |
| | Index of feeling emotionally supported by parents | Continuous | - | 33 |
| Time use, habits, ICT use | Worked in the household or took care of other family members | Categorical | Did it in the previous day before and after school; did it before or after school; did not do it | 33 |
| | Worked for pay | Categorical | | 33 |
| | Studied for school or homework | Categorical | | 33 |

Table 4.1. List of variables studied in this thesis (continuation)

| Group | Variable | Details | | |
|---|---|---|---|---|
| | | Type of variable | Categories | Number of countries with available data |
| Time use, habits, ICT use | Read a book / newspaper / magazine | Categorical | Did it in the previous day before and after school; did it before or after school; did not do it | 33 |
| | Played videogames | Categorical | | 33 |
| | Watched TV/<DVD>/Video | Categorical | | 33 |
| | Met friends or talked to friends on the phone | Categorical | | 33 |
| | Internet / Chat / Social networks (e.g. Facebook) | Categorical | | 33 |
| | Talked to parents | Categorical | | 33 |
| | Had breakfast | Dichotomous | Did it in the previous day; did not do it | 33 |
| | Had dinner | Dichotomous | | 33 |
| | Days of vigorous exercise outside school last week | Categorical | 0; 1; 2; 3; 4; 5; 6; 7 | 33 |
| | Learning time at school (minutes per week) | Continuous | - | 33 |
| | Out-of-school study time per week (hours) | Continuous | - | 33 |
| | Index of time spent using ICT at school in general | Continuous | - | 29 |
| | Index of time spent using ICT outside school for schoolwork | Continuous | - | 29 |
| | Index of time spent using ICT at home for leisure | Continuous | - | 29 |
| Other student-level variables | Index of valuing cooperation | Continuous | - | 33 |
| | Index of academic competence | Continuous | - | 33 |
| | Index of truancy | Continuous | - | 33 |
| | Education programme attended | Categorical | General; pre-vocational; vocational; modular | 33 |

Table 4.1. List of variables studied in this thesis (continuation)

| Group | Variable | Details | | |
|---|---|---|---|---|
| | | Type of variable | Categories | Number of countries with available data |
| Other student-level variables | Having repeated a grade at least once | Dichotomous | Yes; no | 33 |
| | Years attended to pre-primary education | Categorical | Less than 1 year; 1 year or more but less than 2 years; 2 years or more but less than 3 years; 3 years or more but less than 4 years; 4 years or more but less than 5 years; 5 years or more | 33 |
| School-level independent variables | Size of the community where the school is located | Categorical | Fewer than 3 000 people; 3 000 to about 15 000 people; 15 000 to about 100 000 people; 100 000 to about 1 000 000 people; More than 1 000 000 people | 33 |
| | School type | Categorical | Public school (publically funded and run); semi-private school (publically funded but privately run); private school (privately funded and run). | 33 |
| | School size (total school enrolment) | Continuous | - | 32 |
| | Average class size in the school | Continuous | - | 33 |
| | Index of shortage of material and human school resources | Continuous | - | 33 |
| | Student / teacher ratio | Continuous | - | 33 |
| | Percentage of certified teacher in the school | Continuous | - | 32 |
| | Index of teachers' behaviour hindering teaching | Continuous | - | 33 |
| | School practices ability grouping within classes | Dichotomous | Yes; no | 33 |
| | School practices ability grouping between classes | Dichotomous | Yes; no | 33 |

#### *4.2.3.1. Information about the PISA 2015 measures used in this thesis*

##### *4.2.3.1.1. Life satisfaction*

In a strict conceptual sense (see section 3.2.1 in chapter 3), LS is the only SWB measure in PISA 2015. This is also the only outcome variable considered in this thesis. I used the original PISA 2015 variable, which uses Cantril's ladder (Cantril 1965) to assess students' LS in question ST016. This question was asked in the following terms: *"the following question asks how satisfied you feel about your life, on a scale from "0" to "10". Zero means you feel "not at all satisfied" and "10" means "completely satisfied": Overall, how satisfied are you with our life as a whole these days?"*.

##### *4.2.3.1.2. Sociodemographic*

Two important sociodemographic domains are studied in this thesis: gender and SES.

*Gender*

Gender is assessed using the dichotomous variable (boy, girl) provided in PISA 2015. The only transformation affecting gender is the recoding of these two categories, with boys now coded a 0 and girls coded as 1 (before, 1 and 2, respectively) to facilitate the study of interaction effects. The limitations of the use of a binary measure of gender are discussed in section 6.5 in chapter 6.

*SES*

Socioeconomic status is assessed using an adaptation of PISA's index of Economic, Social and Cultural Status (ESCS) in all the analytical chapters. In chapter 7, together with the ESCS index, an adaptation of several other measures of SES considered in PISA 2015 are studied. These include the indices of parents' level of education, parents' occupational status, home possessions, family wealth, home educational resources and cultural possessions in the household. Table 4.2 illustrates how these measures relate to each other –this is how some sub-indices have been derived from information contained in others.

The index of parents' level of education (PARED) indicates the highest level of education of parents as measured in the estimated number of years of schooling using ISCED 1997 (ISCED 1997). This information was collected in PISA by asking students about the highest level of schooling of each parent and whether their mother and father have certain qualifications (OECD 2017b).

The index of parents' occupational status (HISEI) was estimated by PISA 2015 analysts from students' responses to open-ended questions that were coded to four-digit ISCO codes and then mapped to the international socio-economic index of occupational status

(Ganzeboom and Treiman 2003). Specifically, students were asked what is the main job of their father and mother and what do they do in their job.

Table 4.2 Indices and sub-indices of students' SES

<table>
<tr><td colspan="5">Index of SES</td></tr>
<tr><td rowspan="2">Index of parents' level of education</td><td rowspan="2">Index of parents' occupational status</td><td colspan="3">Index of home possessions</td></tr>
<tr><td>Index of family wealth</td><td>Index of home educational resources</td><td>Index of cultural possessions in the household</td></tr>
</table>

Four indices of material well-being at home are considered in PISA 2015. These include three domain-specific indices -the index of family wealth (WEALTH), the index of home educational resources (HEDRES), and the index of cultural possession at home (CULTPOSS)- each of which considers a distinct group of resources, and an overall measure of material well-being -the index of household possessions (HOMEPOS)- which considers all of the resources accounted for in the other 3 material well-being indices. More information about the items included in each of these material well-being indices is provided in table 7.2 in chapter 7.

The composite index of ESCS was derived by PISA analysts using information contained in these other indices (see table 4.2). The importance that each of these components has in the final ESCS index is rather arbitrary in PISA studies and, given the way in which this SES index is derived, this is mainly a measure of parents' education level. This index was derived in PISA 2015 by using principal component analysis. All the participating countries and economies contributed equally to the estimation of the ESCS scores. The ESCS scale was then transformed with 0 being the score of an average OECD student and 1 being the standard deviation across equally weighted OECD countries (OECD 2017b, p. 339).

In this thesis, all the SES indices described above are transformed. The reason is that the original PISA indices for SES were standardised with reference to all the participating countries and economies, most of which were not studied in this thesis. Moreover, because the interest of the analysis is not in cross-country differences but in within-country differences and how these differ across countries (see sections 2.5 and 2.6 in chapter 2), in this thesis, I re-standardise these indices 33 times with reference to each country considered (see table 4.3).

In chapter 7, I also use 7 new SES variables representing the mean level of SES among school peers for each of the 7 SES indices. This is estimated using information from all the other students' participating in PISA 2015 in the school attended by the student. The limitations of this approach are discussed in section 7.5 in chapter 7.

*4.2.3.1.3. Self- reported well-being*

*Schoolwork-related anxiety*

PISA 2015 provides an index of schoolwork-related anxiety. This index was derived from four items using a four-point Likert scale ("strongly agree", "agree", "disagree", and "strongly disagree"). These items are: "I often worry that it will be difficult for me taking a test."; "I worry that I will get poor grades at school."; "Even if I am well prepared for a test I feel very anxious."; "I get very tense when I study for a test"; and "I get nervous when I don't know how to solve a task at school".

*Sense of belonging at school*

An index of sense of belonging at school is also included in PISA 2015, derived from six items using a four-point Likert scale ("strongly agree", "agree", "disagree", and "strongly disagree"). These items are: "I feel like an outsider (or left out of things) at school."; "I make friends easily at school."; I feel awkward and out of place in my school."; "Other students seem to like me"; "I feel lonely at school".

*Relationships with peers (frequency of suffering bullying)*

There is also an index of frequency of suffering bullying, derived from six of the eight items using a four-point Likert scale ("never or almost never", "a few times a year", "a few times a month", "once a week"). The eight items are: "I got called names by other students."; "I got picked on by other students."; "Other students left me out of things on purpose"; "Other students made fun of me."; "I was threatened by other students"; "Other students took away or destroyed things that belonged to me."; "I got hit or pushed around by other students."; and "Other students spread nasty rumours about me". Exploratory analysis conducted by PISA analysts showed that *"the first two of the eight items on bullying did not load well onto a unidimensional construct and were also not strongly correlated with the other six items."* –see more details in PISA 2015 technical report (OECD 2017b). For this reason, the first two items detailed above are not considered in PISA's index of frequency of suffering bullying.

*Relationships with teachers (feeling unfairly treated by teachers)*

PISA 2015 includes an index of feeling unfairly treated by teachers. This is a simple derived index using students' responses to six items that use a four-point Likert scale ("never or almost never", "a few times a year", "a few times a month", "once a week"). These items are "During the past 12 months, how often did you have the following

experiences at school?": "Teachers called on me less often than they called on other students"; "teachers graded me harder than they graded other students"; "teachers gave me the impression that they think I am less smart than I really am"; "Teachers disciplined me more harshly than other students"; "Teachers ridiculed me in front of others"; "Teachers said something insulting to me in front of others").

*Feeling emotionally supported by parents in relation to school*

PISA 2015 also incorporates an index of feeling emotionally supported by parents. This index is derived from four items using a four-point Likert scale ("strongly agree", "agree", "disagree", and "strongly disagree"). These items are: "My parents are interested in my school activities."; "My parents support my educational efforts and achievements."; "My parents support me when I am facing difficulties at school; "My parents encourage me to be confident".

For the five self-reported well-being variables described in this section, the original indices were derived in PISA 2015 using IRT scaling with information from all the participating countries and economies. In this thesis, instead of using the original PISA variable, I create simple-derived indices using information from the corresponding items for each of these variables –i.e. summing up the values assigned to each response in the Likert-scale of each of the items considered in the index. These simple-derived indices are then standardised with reference to each of the 33 countries, with 0 representing the average and 1 the standard deviation (see table 4.3).

*4.2.3.1.4 Time use, health habits and ICT use*

In this thesis, I study a series of measures of students' time use and health habits. These include, first, information on the total learning time of students at school (in minutes per week) and out-of-school study time per week (in hours). I re-standardise the original PISA 2015 indices of TMINS and OUTHOURS with reference to the 33 countries analysed. In addition, I use the information contained in the PISA 2015 items ST076 and ST078. These ask, respectively, whether the student did the following tasks in the previous day before or after school: study for school or homework, watch TV/DVD/Video, read a book/newspaper/magazine, use internet/chat/social networks, play videogames, meet friends or talk to friends on the phone, talk to your parents, work in the household or take care of other family members, work for pay, exercise or practice a sport, eat breakfast (before school) and eat dinner (after school). All these items are considered time use elements and/or health habits. For all of them, I create a variable with three categories: did not do it, did it before or after school, and did it before and after school. The only exceptions are having breakfast and having dinner, which remain as two separate dichotomous variables (see table 4.3) to be able to study these two key health

habits separately. Another measure of health habits which I examine in this research is the number of days the student practised vigorous exercise outside the school in the past week. In this case, I use the original PISA variable ST082.

Furthermore, I also use three indices of Information and Communication Technologies (ICT). This includes, first a measure of time spent using ICT at school in general (USESCH). In PISA 2015, students were asked how often (never or hardly ever; once or twice a month; once or twice a week; almost every day; every day) they do the following: <Chatting on line> at school; using email at school; browsing the Internet for schoolwork; download\upload\browse schools web (e.g. <intranet>); posting my work on the schools website; playing simulations at school; practising and drilling, foreign language learning or math; doing homework on a school computer; using school computers for group work and communication with other students. Second, a measure of how often they spent using ICT outside the school for schoolwork (HOMESCH), which considers the following items: browsing the Internet for schoolwork (e.g. for preparing an essay or presentation; browsing the Internet to follow up lessons, e.g. for finding explanations; using email for communication with other students about schoolwork; using email for communication with teacher\submit of homework or other schoolwork; using Social Networks for communication with other students about schoolwork; using Social Networks for communication with teachers; download\upload\browsing from school website (e.g. time table or course materials; checking the schools website for announcements, e.g. absence of teachers; doing homework on a computer; doing homework on a mobile device; downloading learning apps on a mobile device; downloading science learning apps on a mobile device. And third, a measure of how often the student uses ICT at home for leisure (ENTUSE), which accounts for the following items: playing one-player games; playing collaborative online games; using email; <Chatting online> (e.g. <MSN®>); social networks (e.g. <Facebook>, <MySpace>); online games\Social Networks (e.g. <Farmville®>, <The Sims Social>); browsing the Internet for fun videos, e.g. <YouTube>); reading news on the Internet (e.g. current affairs); obtaining practical information from the Internet; downloading music, films, games or software from the Internet; uploading your own created contents for sharing; downloading new apps on a mobile device. For these 3 indices of ICT use, I derive three standardised measures using information from the corresponding PISA 2015 items in the exact same manner that I derive the self-reported well-being indices.

*4.2.3.1.4. Other variables measured at the student-level*

*Valuing cooperation and teamwork*

Another factor which I study is students' attitudes towards cooperation and teamwork. PISA analysts created an index (CPSVALUE) from four items that use a four-point Likert

scale (“strongly agree”, “agree”, “disagree”, and “strongly disagree”). These items are: “I prefer working as part of a team to working alone”; “I find that teams make better decisions than individuals”; “I find that teamwork raises my own efficiency”; “I enjoy cooperating with peers”. The adapted version of this index which I use in this thesis is derived in the same way as for the self-reported well-being indices.

*Academic competence*

The academic competence level of each student in each core subject (maths, reading and science) was derived by PISA analysts from 30 plausible values, 10 for each subject. Plausible values were estimated using a latent extension of the Rasch model, a model of IRT. In this thesis, the measure of academic competence is created by estimating the mean of the 10 plausible values in each domain (reading, maths and science) and then the mean of the three means. Then I standardise this index with reference to each country. However, it is important to note that, although multiple studies oriented to predict academic competence with PISA data have used the ‘raw’ plausible values before as a measure of academic competence (e.g. Lavy 2015), this practice is not recommended by some researchers who argue that a version of ‘Rubin’s rules’ for handling multiple imputations should be used (see Jerrim et al. 2017 for a detailed discussion). Details on how to do this are provided in OECD (2009b) and in PISA 2015 online Appendix D. In this research, academic competence is not studied as an outcome variable but simply as a control variable. For this reason, estimating the means of the plausible values should not compromise the validity of the results obtained in the quantitative analysis to a significant extent.

*Truancy*

PISA incorporates several measures of truancy. ST062 asks students how often over the last two weeks the following things occurred: “I skipped a whole school day”; “I skipped some classes”; “I arrived late for school”. For each item, there is a four-point Likert scale (“Never”; “Once or two times”; “Three or four times”; “Five or more times”). To create a truancy index study in this thesis, I first transform the four-point Likert scale into a three-point Likert scale (“Never”; “Once or two times”; “Three times or more”) due to the small proportion of responses in the last two categories. Then I derive a simple index summing up the values of these three three-points Likert scales and standardise it with reference to each country and economy.

*Having repeated a grade at least once*

The question ST127 of PISA 2015 asked students if they have ever repeated a grade in different stages of compulsory education. A three-point Likert scale (“No, never”; “Yes, once”; “Yes, twice or more”) was used to collect this information. For the variable on

grade repetition used in this research, I create a dummy variable for grade repetition, with a value of 0 if the student has never repeated a grade and 1 if the student has repeated a grade at least once.

*Study programme*

PISA 2015 collects information on all the study programmes available to 15-year old students in each country and economy and classify them using the International Standard Classification of Education (ISCED 1997). These can be general programmes (oriented to give access to the next programme level), pre-vocational programmes (which aim to give access to vocational studies at the next programme level), vocational programmes (designed to give direct access to the labour market) and modular programmes (those that combine any or all of these characteristics). This information is presented in the variable ISCEDO. I use this variable without making any transformation.

*Number of years attended pre-primary education*

PISA includes an indicator called DURECEC, which was derived from students' answers to questions ST125 and ST126 and represents the estimated number of years a student spent in early childhood education and care. The response options are less than 1 year, 1 year or more but less than 2 years, 2 years or more but less than 3 years, 3 years or more but less than 4 years, 4 years or more but less than 5 years, 5 years or more but less than 6 years, 6 years or more but less than 7 years, 7 years or more but less than 8 years, 8 years or more. For the variable on attendance to pre-primary education, I transform the nine-point Likert scale into a five-point Likert scale, merging the last four options into one (5 years or more). This is due to the small proportion of responses within these last categories.

*4.2.3.1.5 Variables measured at the school level*

*The population size of the community where the school is located*

In PISA 2015, the size of the population of the community where the school is located was asked to school principals in the question SC001 ("Which of the following definitions best describes the community in which your school is located?"). There are five possible answers: "A village, hamlet or rural area (fewer than 3 000 people)"; "A small town (3 000 to about 15 000 people)"; "A town (15 000 to about 100 000 people)"; "A city (100 000 to about 1 000 000 people)"; "A large city (with over 1 000 000 people)". In this research, I do not make any transformation to this variable.

*School type*

The categorisation of school type made in PISA 2015 is described in the variable SCHTYPE, derived from questions SC013 and SC016, which includes three categories: public school (publically funded and run), semi-private school (publically funded but

privately run) and private school (privately funded and run). I use this variable without performing any transformation.

*School size*

The measure of school size used in PISA 2015 is the variable SC002 (total number of enrolled students in the school). I transform this variable to report these values in hundreds of students.

*Average class size in the school*

Another measure derived by PISA analysts which I use in this thesis is the average class size (CLSIZE). This measure was derived from school principal's response to the following question: "What is the average size of <test language> classes in <national modal grade for 15-year-olds> in your school?". The following response options are given: "15 students or fewer"; "16-20 students"; "21-25 students"; "26-30 students"; "31-35 students"; "36-40 students"; "41-45 students"; "46-50 students"; "More than 50 students". These options were translated by PISA analysts into an intermediate score for each category, which is, respectively, 13, 18, 23, 28, 33, 38, 43, 48 and 53.

*Shortage of material and human resources*

PISA 2015 includes two indices of the shortage of resources at school: *edushort* (shortage of material resources at school) and *staffshort* (shortage of educational staff). These indices were derived from school principal's reports on their perception of lack of resources hindering learning (SC017: "Is your school's capacity to provide instruction hindered by any of the following issues?"). There are four response categories: "not at all", "very little", "to some extent", to "a lot". The items considered in *edushort* are: "A lack of educational material (e.g. textbooks, IT equipment, library or laboratory material)."; "Inadequate or poor quality educational material (e.g. textbooks, IT equipment, library or laboratory material)."; "A lack of physical infrastructure (e.g. building, grounds, heating/cooling, lighting and acoustic systems)."; "Inadequate or poor quality physical infrastructure (e.g. building, grounds, heating/cooling, lighting and acoustic systems).". The items used in *staffshort* are: "A lack of teaching staff"; "Inadequate or poorly qualified teaching staff."; "A lack of assisting staff."; "Inadequate or poorly qualified assisting staff.". The index of school material resources used in this thesis is derived in the same way as the indices of self-reported well-being, summing up values from all the items considered in both *edushort* and *staffshort*.

*Student/teacher ratio*

As an alternative measure of school resources, I use information from PISA's indicator of student-teacher ratio (*STRATIO*), which was derived in PISA by dividing the total

number of enrolled students (SC002) by the total number of teachers. I do not perform any transformation to the original PISA 2015 variable.

*Percentage of qualified teachers in the school*

PISA 2015 contains several measures to assess the quality of teachers at school. *PROAT5AB*, *PROAT5AM* and *PROAT6* indicate the percentage of teachers at school with bachelor, masters and doctoral qualifications, respectively. Levels of missing data affecting these variables are high in most countries. As an alternative measure of teachers' quality at school, I use information from PISA's index *PROATCE*, which indicates the percentage of certified teachers in the school and is not so affected by problems of missing data.

*School Principal's views on teachers' behaviour hindering learning*

Another aspect involving teachers measured in PISA 2015 is the school principal's perceptions of teachers' behaviour hindering learning (*TEACHBEHA*). This PISA index was derived from responses to the following question: "In your school, to what extent is the learning of students hindered by the following phenomena?". The response options are "not at all", "very little", "to some extent" and "a lot". The items used to derive this index are (SC061Q06-Q10): "Teachers not meeting individual students' needs"; "Teacher absenteeism"; "Staff resisting change"; "Teachers being too strict with students"; "Teachers not being well prepared for classes". I derive an adapted version of this index in the same way as for the self-reported well-being indices.

*Ability grouping within the class and between classes*

Finally, I also study ability grouping practices in schools using information from a question on ability grouping (SC042) included in PISA 2015: "What is your school's policy about this for students in <national modal grade for 15-year-olds>?". The two items are: "Students are grouped by ability into different classes"; and "Students are grouped by ability within their classes". The response options are: "For all subjects"; "For some subjects"; "Not for any subjects". Two ability grouping practices dichotomous variables (within the class; and between classes) are created from information contained in item SC042, indicating whether this is practised in the school or not.

Table 4.3. Transformations performed on the original PISA 2015 variables.

| | | | | | In this study | | |
|---|---|---|---|---|---|---|---|
| | PISA items / variables used | Type | Associated PISA index | IRT scaling in PISA | Transformation | Type | Number of countries with available data |
| Life satisfaction (0-10) | ST016Q01NA | CO | - | - | - | CO | 33 |
| Gender (girl) | ST004D01T | DI | - | - | Recoded (girl 2=1; boy 1=0) | DI | 33 |
| Index of socioeconomic status | ESCS | CO | ESCS | - | (re-)standardised | CO | 33 |
| Index of parents' level of education | ST005, ST006, ST007, ST008 | CO | PARED | | (re-)standardised | CO | 33 |
| Index of parents' occupational status | ST014, ST016 | CO | ISEI | | (re-)standardised | CO | 33 |
| Index of household possessions | ST011, ST012, ST013 | CO | HOMEPOS | | (re-)standardised | CO | 33 |
| Index of family wealth | ST011, ST012 | CO | WEALTH | | (re-)standardised | CO | 33 |
| Index of home educational resources | ST011, ST013 | CO | HEDRES | | (re-)standardised | CO | 33 |
| Index of cultural possessions in the household | ST011 | CO | HOMEPOSS | | (re-)standardised | CO | 32 |
| Index of schoolwork-related anxiety | ST118Q01-05 | CA | ANXTEST | YES | | CO | 33 |
| Index of sense of belonging at school | ST034Q01-06 | CA | BELONG | YES | | CO | 33 |
| Index of frequency of suffering bullying | ST038Q01-06 | CA | beingbullied | - | Created simple derived index; standardised | CO | 33 |
| Index of feeling unfairly treated by teachers | ST039Q01-06 | CA | unfairteacher | - | | CO | 33 |
| Index of feeling emotionally supported by parents | ST123Q01-04 | CA | EMOSUPS | YES | | CO | 33 |
| Index of valuing cooperation | ST082Q01-04 | CA | CPSVALUE | YES | Created simple derived index; standardised | CO | 33 |
| Index of academic competence | PV1-10 READ, MATH, SCIE | CO | - | - | Estimated mean of plausible values; standardised | CO | 33 |

**Note:** type of variables are labled as CO (continuous), CA (categorical) and DI (dichotomous)

Table 4.3 Transformations performed on the original PISA 2015 variables (continuation)

| | | | | | In this study | | |
|---|---|---|---|---|---|---|---|
| | PISA items / variables used | Type | Associated PISA index | IRT scaling in PISA | Transformation | Type | Number of countries with available data |
| Index of truancy | ST062 | CA | - | | Transformed Likert scale; created simple derived index; standardised | CO | 33 |
| Education programme attended | ISCEDO | CA | - | - | - | CA | 33 |
| Having repeated a grade at least once | ST127 | CA | - | | Transformed categorical variable into dichotomous one | DI | 33 |
| Years attended to pre-primary education | DURECEC | CA | - | - | Transformed Likert scale | CA | 33 |
| Worked in the household or took care of other family members | ST076 and ST078 | DI | - | - | | CA | 33 |
| Worked for pay | ST076 and ST078 | DI | - | - | Turned 2 dichotomous variables into one categorical variable | CA | 33 |
| Studied for school or homework | ST076 and ST078 | DI | - | - | | CA | 33 |
| Read a book / newspaper / magazine | ST076 and ST078 | DI | - | - | | CA | 33 |
| Played videogames | ST076 and ST078 | DI | - | - | | CA | 33 |
| Watched TV/<DVD>/Video | ST076 and ST078 | DI | - | - | | CA | 33 |
| Met friends or talked to friends on the phone | ST076 and ST078 | DI | - | - | Turned 2 dichotomous variables into one categorical variable | CA | 33 |
| Internet / Chat / Social networks (e.g. Facebook) | ST076 and ST078 | DI | - | - | | CA | 33 |
| Talked to parents | ST076 and ST078 | DI | - | - | | CA | 33 |
| Had breakfast | ST076 and ST078 | DI | - | - | - | DI | 33 |
| Had dinner | ST076 and ST078 | DI | - | - | - | DI | 33 |
| Days of vigorous exercise outside school last week | ST082 | CA | - | - | - | CA | 33 |

**Note:** type of variables are labled as CO (continuous), CA (categorical) and DI (dichotomous)

Table 4.3. Transformations performed on the original PISA 2015 variables (continuation)

| | | | | | In this study | | |
|---|---|---|---|---|---|---|---|
| | PISA items / variables used | Type | Associated PISA index | IRT scaling in PISA | Transformation | Type | Number of countries with available data |
| Learning time at school (minutes per week) | TMINS | CO | TMINS | NO | Standardised | CO | 33 |
| Out-of-school study time per week (hours) | OUTHOURS | CO | OUTHOURS | NO | | CO | 33 |
| Index of time spent using ICT at school in general | IC011 | CA | USESCH | YES | | CO | 29 |
| Index of time spent using ICT outside school for schoolwork | IC010 | CA | HOMESCH | YES | Created simple derived index; standardised | CO | 29 |
| Index of time spent using ICT at home for leisure | IC008 | CA | ENTUSE | YES | | CO | 29 |
| Size of the community where the school is located | SC001 | CA | - | - | - | CA | 33 |
| School type | SCHTYPE | CA | - | - | - | CA | 33 |
| School size (total school enrolment) | SC002 | CO | - | - | Transformed to report it in hundreds | CO | 32 |
| Average class size in the school | CLSIZE | CO | - | - | - | CO | 33 |
| Index of shortage of material and human school resources | SC017 | CA | EDUSHORT; STAFFSHORT | YES | Created simple derived index; standardised | CO | 33 |
| Student / teacher ratio | STRATIO | CO | STRATIO | - | - | CO | 33 |
| Percentage of certified teacher in the school | PROATCE | CO | PROATCE | - | - | CO | 32 |
| Index of teachers' behaviour hindering teaching | SC061Q06-Q10 | CO | TEACHBEHA | YES | Created simple derived index; standardised | CO | 33 |
| School practices ability grouping within classes | SC042 | CA | - | - | Transformed categorical variable into dichotomous one | DI | 33 |
| School practices ability grouping between classes | SC042 | CA | - | - | | DI | 33 |

**Note:** type of variables are labled as CO (continuous), CA (categorical) and DI (dichotomous)

### 4.2.4. Countries

One of the focus of this thesis is the study of within-country differences across different societies in the relationship between education policy and students' SWB. For that reason, I am interested in studying a series of countries that is as economically, geographically, culturally and linguistically diverse as possible.

PISA 2015 asked students to rate their LS in 48 countries/economies. These are the following: Austria, China (Beijing-Shanghai-Jiangsu-Guangdong only) (China B-S-J-G from now on), Belgium, Bulgaria, Brazil, Chile, Colombia, Costa Rica, Croatia, the Czech Republic, Dominican Republic, Estonia, Finland, France, Germany, Greece, Hong Kong (China), Hungary, Ireland, Iceland, Italy, Japan, Lithuania, Luxembourg, Latvia, Macao (China), Mexico, Montenegro, Netherlands, Peru, Poland, Portugal, Qatar, Russia, Slovakia, Slovenia, South Korea, Spain, Switzerland, Taiwan (China), Thailand, Tunisia, Turkey, Uruguay, the UAE, the UK and the US; also the states of Massachusetts (USA), North Carolina (USA); and a representative sample of the 17 Spanish Autonomous communities.

Due to high levels of missing data in key variables of interest, the final list of countries studied in this thesis is the following: Austria, China (B-S-J-G), Bulgaria, Chile, Colombia, Croatia, the Czech Republic, Estonia, Finland, France, Greece, Hong Kong, Hungary, Ireland, Iceland, Luxembourg, Latvia, Mexico, Peru, Poland, Portugal, Qatar, Russia, Slovakia, Slovenia, South Korea, Spain, Switzerland, Taiwan (China), Thailand, Turkey, the UAE and the US.

## 4.3. Methods

### 4.3.1. Multilevel modelling

The main method for data analysis used in this thesis is multilevel modelling. This method allows the partitioning of variance in the model to different levels which allows for a better understanding of the influences on factors of interest (Snijders and Bosker 2012). In education research, multilevel analysis is often used to distinguish the effects of individual-level characteristics (e.g. family background) and school influence on educational outcomes. It is also used to assess random effects, for instance, to determine whether the effect of a level 1 variable (e.g. SES) on students' academic achievement varies across level 2 units (school).

***Why multilevel modelling?***

There are two reasons for using multilevel modelling. The first one refers to the interest in assessing how important is the school a child attends to her SWB. By using multilevel modelling, it is possible to study school effects, random effects and to estimate the VPC

(i.e. the proportion of variation in students' LS which is explained at the school level), all of which make possible to assess the role played by schools in shaping students' LS. Without performing multilevel modelling, it would not be possible to accurately assign the statistical effect to the right level (Hox 2010, Snijders and Bosker 2012). And second, ignoring the hierarchical structure of the data (i.e. that students are nested within schools and schools are nested within countries) would affect the validity of the results. If all the information about students was treated as information from a higher level (i.e. information about schools), important information would be lost and the analysis would be affected by a loss of statistical power (Hox 2010). If alternatively, all data were treated as independent individual-level information, the accuracy of the statistical significance would be affected and the assumption of independence of observations involving many single-level analyses would be violated (Hox 2010, Snijders and Bosker 2012). For these reasons, I use two-level models in all countries, with students at level 1 and schools at level 2.

***Estimation***

Multilevel models can be estimated using full maximum likelihood (ML) or restricted maximum likelihood (REML). In ML, the regression coefficients and the variance components are included in the likelihood function, which tends to underestimate the variance components in the model (Hox 2010). In REML, the likelihood function is calculated without the fixed effects, resulting in less biased estimates (Hox 2010). Although REML methods tend to produce better estimates, particularly when the number of groups is small, REML is not compatible with applying sample weights in multilevel models in Stata. For this reason, I use ML to estimate multilevel models.

ML is an iterative process which identifies the most likely parameter estimates given the observations in the sample (Eliason 1993, Hox 2010). The estimates obtained in ML are robust overall, even under "mild" violations of assumptions (Hox 2010, pg 40). As an iterative process, convergence is needed for model estimation. When convergence fails after a large number of iterations, this is deemed to be due to misspecification in the model, often as a result the existence of too many random coefficients in the model which are close to or equal to zero (Hox 2010).

***Approach to creating models***

The approach to creating multilevel models is guided by Hox (2010). First, a null model is created to provide a "benchmark" (Hox 2010, pg 56) deviance value and allow for the calculation of the intra-class correlation (ICC) / VPC. Then I add to the model all the predictor variables measured at the student-level. After this, I add the random effects I am interested in in the random part of the model, one at a time, and retain only those

which significantly improve the model fit - which is assessed using a likelihood ratio (LR) test (Snijders and Bosker 2012). Then variables that are not statistically significant in the fixed part of the model are removed using a 'top-down' approach. These variables are removed one at a time, beginning with those that show the lowest level of statistical significance and using Wald tests to assess which variables are to be retained. As an exception in this step, I also retain in all models those which I consider essential control variables –this is gender and SES. Another exception is those variables retained in the random part of the model, which are also retained in the fixed part of the model regardless of whether or not the direct effect is statistically significant. As a final exception, in a couple of models I need to retain an additional non-statistically significant predictor variable because, when this is removed, the model iterates endlessly and cannot be estimated. At this point, the result of this process is model 1, which only includes individual-level predictors. After this, I add the 10 variables which were measured at the school level, all at once, in the fixed part of the model. Then I start removing those that are not statistically significant using a 'top-down' approach. Again, variables are removed one at a time, beginning with those that show the lowest level of significance and using Wald tests to assess which variables are to be retained. The result of this step is model 2, which includes both variables measured at the student level and variables measured at the school level.

The following formula describes the null model for the two-level models which I perform in this thesis:

$$Y_{ij} = \beta_{0j} + u_{0j} + e_{ij}$$

In this formula, Y represents students' LS, i represents individual students and j individual schools. $\beta_0$ is the intercept of the model, which is constant, $u_{0j}$ the school-level residuals and $e_{ij}$ the individual level residuals.

The following formula describes a random coefficient model, which includes both fixed and random effects:

$$Y_{ij} = \beta_{0j} + \beta_1 Z_{ij} + \beta_{2j} Z_{ij} + e_{ij}$$

$$\beta_{0j} = \beta_0 + u_{0j}$$

$$\beta_{2j} = \beta_2 + u_{2j}$$

In this formula, $\beta_{0j}$ is the intercept of the model, which is different for each school. $\beta_1 Z_{ij}$ is a vector of variables only included in the fixed part of the model. $\beta_{2j} Z_{ij}$ is a vector of variables that have been allowed to vary across schools, this is those which are included

in both the fixed and random part of the model. Finally, $e_{ij}$ represents the individual level residuals.

***Accounting for variance at different levels***

To identify how much of the variance in the model is explained at each level, the VPC is estimated. The formula is the following:

Variance between macro units / Total variance = School level variance / Total variance = School level variance / (School level variance + individual-level variance)

$= \sigma_u^2 / (\sigma_e^2 + \sigma_u^2)$

In the null model, the VPC and ICC are the same. This is a measure of how similar two individuals within the same group are (Hox 2010).

***Estimation of the $R^2$***

$R^2$ are used to provide an estimate of the proportion of variation in the outcome variable which is explained by the variables included in the regression models. In multilevel methods, $R^2$ can be defined in different ways, many of which have theoretical problems (e.g. decreased or negative $R^2$ in large models). These are also affected by practical difficulties (e.g. implementation). For these reasons, the $R^2$ is rarely reported in multilevel models (Nakawa and Schielzeth 2013). Although I originally estimated $R^2$ as proposed by Snijders and Bosker (1994, p. 350-354) - also see Snijders and Bosker (1999, p. 99-105)- in the multilevel models which I created, I finally decided not to report these for the reasons described above. Instead, to estimate the proportion of the variation in students' LS explained by the independent variables, I report only the adjusted $R^2$ in 3 linear regression models as described in the next section.

### 4.3.2. Other methods

***Linear regression***

Together with the multilevel regression models described above, for each country, I estimate 3 linear regression models –model 1 (which includes sociodemographic variables only), model 2 (incorporating self-reported well-being variables) and model 3 (full model, which includes all the independent variables) to report the adjusted R-squared of each of them.

***Blinder-Oaxaca decomposition method***

In chapter 6, I study the composition of the gender gap in LS in view of a series of education policy-relevant factors. To do this, I use the Blinder-Oaxaca decomposition method (Blinder 1973, Oaxaca 1973). This method was originally developed to investigate different labour market outcomes across groups (e.g. men and women,

different race or ethnic groups, etc.). However, it can be used to study any group differences in outcomes. The Blinder-Oaxaca decomposition method is used to decompose the gender gap in students' LS in view of (1) a series of selected explanatory variables (called endowments), (2) unexplained effects and (3) the interaction between the two. This analysis provides an estimate of how important is the explanatory variable (i.e. different education policy-relevant factors) to explain gender differences in students' LS and whether its contribution to the gender gap in students' LS is positive (i.e. helps increase the gender gap in students' LS) or negative (i.e. helps decrease the gender gap in students' LS).

## 4.4. Other important considerations

### 4.4.1. Treatment of missing data

As most data sets, PISA 2015 is affected by missing data. Levels of missing data are particularly high in relation to some variables in certain countries (see table 4.4). In this thesis, I use listwise deletion. This section discusses why, among the different options available, I decided to go with listwise deletion to handle missing data.

Assumptions made about missing data –this is, whether data are missing at random (MAR), completely at random (MCAR) or not at random (MNAR)- are important when it comes to making decisions about how to deal with this problem. In MCAR scenarios, the data sample is more likely to be representative of the population than in situations where values are missing systematically. In this latter case, the analysis may be biased. Multiple imputations can help to deal with this problem by estimating the value of missing data using Monte Carlo simulations (Schafer 1999). This method uses information from other variables in the data set to estimate values for missing cases. This is a computationally-intensive process that involves simulating several 'complete' data sets and performing the analysis on each of them. After that, the results are pooled together to provide the overall result (Stata Corp 2013). This process is much more complicated in multilevel data, as the imputation of the data, in this case, requires considering information from responses to other variables as well as how variables vary across different levels of data (Carter et al. 2011). Due to these complexities, the use of specialised software packages is needed when performing multiple imputations using multilevel data. Alternative methods of dealing with missing data include using weighted or maximum likelihood estimators and deletion of missing cases (Clair 2014).

Table 4.4. Proportion of missing data in variables of interest.

| Country | Life satisfaction (from 0 to 10) | Girl | Index of socioeconomic status (SES) | Index of home possessions | Index of family wealth | Index of home educational resources | Index of cultural possessions in the households | Index of parents' level of education | Index of parents' occupational status | Index of schoolwork-related anxiety | Index of sense of belonging at school | Index of frequency of suffering bullying |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 1.23% | 0.00% | 0.97% | 0.36% | 0.46% | 0.57% | 1.46% | 2.30% | 6.01% | 2.54% | 4.27% | 4.47% |
| Bulgaria | 7.32% | 0.00% | 2.28% | 2.09% | 2.94% | 4.22% | 5.75% | 2.19% | 14.81% | 8.89% | 13.24% | 12.15% |
| Chile | 2.13% | 0.00% | 1.47% | 0.84% | 0.91% | 1.06% | 1.35% | 2.58% | 8.90% | 3.42% | 4.57% | 4.52% |
| China (B-S-J-G) | 0.97% | 0.00% | 0.43% | 0.39% | 0.49% | 0.71% | 1.11% | 0.48% | 10.22% | 2.12% | 2.81% | 2.28% |
| Colombia | 4.43% | 0.00% | 1.98% | 1.93% | 2.20% | 2.70% | 3.10% | 2.10% | 10.18% | 5.41% | 6.58% | 5.73% |
| Croatia | 1.95% | 0.00% | 1.39% | 1.34% | 1.45% | 2.34% | 4.65% | 1.41% | 7.16% | 3.96% | 6.23% | 3.72% |
| Czech Republic | 2.58% | 0.00% | 1.54% | 0.96% | 1.03% | 2.58% | 4.44% | 2.41% | 7.12% | 4.31% | 7.21% | 5.57% |
| Estonia | 1.74% | 0.00% | 1.58% | 1.34% | 1.36% | 1.45% | 1.81% | 1.81% | 4.96% | 3.17% | 4.92% | 3.96% |
| Finland | 1.92% | 0.00% | 1.19% | 1.02% | 1.07% | 1.24% | 1.92% | 1.56% | 4.28% | 3.45% | 4.44% | 4.30% |
| France | 3.73% | 0.00% | 2.73% | 1.78% | 2.00% | 2.08% | 3.03% | 3.95% | 9.46% | 5.52% | 13.03% | 6.57% |
| Greece | 2.53% | 0.00% | 0.72% | 0.65% | 0.78% | 1.68% | 3.05% | 0.72% | 8.08% | 3.43% | 5.30% | 5.42% |
| Hong Kong | 3.02% | 0.00% | 2.15% | 1.49% | 1.53% | 1.57% | 1.64% | 3.38% | 11.31% | 3.38% | 3.75% | 3.40% |
| Hungary | 1.89% | 0.00% | 1.56% | 1.18% | 1.27% | 1.68% | 3.15% | 1.87% | 8.48% | 3.23% | 5.60% | 4.86% |
| Iceland | 3.03% | 0.00% | 2.61% | 2.43% | 2.49% | 2.55% | 2.88% | 3.32% | 5.73% | 4.36% | 6.56% | 5.96% |
| Ireland | 1.53% | 0.00% | 1.29% | 0.84% | 0.89% | 1.67% | 3.41% | 1.85% | 5.97% | 2.93% | 4.67% | 3.57% |
| Latvia | 1.66% | 0.00% | 1.07% | 0.74% | 0.97% | 0.94% | 1.31% | 1.29% | 8.63% | 2.38% | 3.92% | 4.00% |
| Luxembourg | 1.49% | 0.00% | 2.19% | 0.49% | 0.77% | 0.75% | 1.42% | 4.76% | 9.95% | 3.66% | 7.06% | 6.13% |
| Mexico | 1.86% | 0.00% | 0.81% | 0.74% | 0.99% | 1.52% | 1.88% | 1.00% | 5.43% | 3.34% | 4.74% | 3.81% |
| Peru | 3.83% | 0.00% | 0.39% | 0.40% | 1.10% | 1.38% | 1.56% | 0.46% | 2.63% | 4.63% | 6.25% | 6.13% |
| Poland | 1.12% | 0.00% | 0.71% | 0.18% | 0.29% | 0.29% | 0.67% | 1.52% | 5.52% | 2.01% | 3.17% | 2.52% |
| Portugal | 1.84% | 0.00% | 1.37% | 1.05% | 1.09% | 1.24% | 1.73% | 1.94% | 5.46% | 3.41% | 4.68% | 3.75% |
| Qatar | 7.33% | 0.00% | 1.27% | 0.90% | 1.73% | 3.50% | 4.92% | 1.46% | 16.20% | 8.14% | 11.59% | 12.43% |
| Russia | 4.95% | 0.00% | 4.09% | 4.01% | 4.27% | 5.14% | 6.35% | 3.93% | 11.00% | 7.21% | 9.26% | 8.08% |
| Slovakia | 3.97% | 0.00% | 1.46% | 1.26% | 1.81% | 2.54% | 3.39% | 1.43% | 12.06% | 6.52% | 9.31% | 8.54% |
| Slovenia | 3.56% | 0.00% | 0.98% | 0.73% | 0.75% | 1.23% | 2.17% | 1.09% | 5.79% | 4.96% | 7.70% | 6.35% |
| South Korea | 1.11% | 0.00% | 0.59% | 0.52% | 0.54% | 0.82% | 1.06% | 0.97% | 3.73% | 1.88% | 2.47% | 1.94% |
| Spain | 1.32% | 0.00% | 0.86% | 2.51% | 2.52% | 2.58% | 2.95% | 1.54% | 6.18% | 2.69% | 3.89% | 2.89% |
| Switzerland | 1.30% | 0.00% | 1.13% | 0.51% | 0.70% | 0.70% | 1.74% | 1.89% | 6.55% | 3.07% | 5.38% | 4.39% |
| Taiwan | 0.79% | 0.00% | 0.27% | 0.09% | 0.10% | 0.18% | 0.49% | 0.42% | 12.27% | 1.17% | 1.71% | 0.87% |
| Thailand | 3.98% | 0.00% | 1.85% | 1.84% | 2.01% | 2.22% | **100.00%** | 1.92% | **22.35%** | 3.79% | 4.76% | 4.84% |
| Turkey | 3.41% | 0.00% | 0.61% | 0.59% | 0.87% | 1.53% | 3.05% | 0.66% | 12.65% | 2.65% | 4.85% | 5.46% |
| UAE | 6.14% | 0.00% | 2.10% | 2.00% | 2.27% | 3.06% | 4.10% | 2.14% | 13.83% | 7.26% | 8.66% | 8.80% |
| United States | 2.49% | 0.00% | 1.30% | 0.86% | 0.96% | 1.70% | 2.92% | 1.73% | 7.93% | 4.06% | 5.22% | 4.32% |

Notes: High proportions of missing data (above 20%) are highlighted in bold

Table 4.4. Proportion of missing data in variables of interest (continuation)

| Country | Index of feeling unfairly treated by teachers | Index of feeling emotionally supported by parents | Index of academic competence | Index of truancy | Index of valuing cooperation | Having repeated a grade at least once | Years attended to pre-primary education | Education programme attended | Worked in the household or took care of other family members | Worked for pay | Studied for school or homework | Read a book/newspaper/magazine |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 5.14% | 2.23% | 0.00% | 2.31% | 2.78% | 0.83% | 14.50% | 0.01% | 12.79% | 14.17% | 10.79% | 12.69% |
| Bulgaria | 12.96% | 6.51% | 0.00% | 9.16% | 9.72% | 2.85% | **20.34%** | 0.00% | **24.04%** | **24.90%** | **22.93%** | **24.33%** |
| Chile | 5.78% | 2.33% | 0.00% | 4.04% | 3.16% | 1.15% | 16.19% | 0.00% | 15.45% | 16.55% | 14.48% | 15.34% |
| China (B-S-J-G) | 2.69% | 1.36% | 0.00% | 1.31% | 1.53% | 0.48% | **24.43%** | 0.00% | 2.42% | 4.35% | 1.66% | 2.40% |
| Colombia | 5.49% | 3.19% | 0.00% | 4.70% | 4.65% | 2.07% | 15.29% | 0.00% | 10.43% | 11.28% | 9.75% | 10.73% |
| Croatia | 4.73% | 2.62% | 0.00% | 3.03% | 2.94% | 1.48% | **32.14%** | 0.00% | 6.32% | 6.73% | 5.35% | 6.49% |
| Czech Republic | 5.87% | 4.03% | 0.00% | 4.44% | 4.79% | 2.18% | 14.90% | 0.00% | 7.44% | 8.33% | 6.74% | 7.82% |
| Estonia | 4.39% | 2.70% | 0.00% | 3.06% | 2.90% | 1.49% | 19.90% | 0.00% | 5.26% | 6.60% | 4.28% | 5.67% |
| Finland | 4.17% | 2.57% | 0.00% | 2.74% | 3.09% | 1.84% | 17.48% | 0.00% | 9.54% | 11.27% | 8.70% | 10.20% |
| France | 10.00% | 3.81% | 0.00% | 5.11% | 5.81% | 2.75% | 16.00% | 0.00% | 12.61% | 13.61% | 11.69% | 13.20% |
| Greece | 5.22% | 2.33% | 0.00% | 3.51% | 3.42% | 0.85% | 15.38% | 0.00% | 7.41% | 8.73% | 6.11% | 8.13% |
| Hong Kong | 4.14% | 3.17% | 0.00% | 2.00% | 2.31% | 1.70% | 17.97% | 0.00% | 3.30% | 4.20% | 3.02% | 3.55% |
| Hungary | 5.53% | 2.58% | 0.00% | 3.62% | 3.29% | 1.31% | 15.87% | 0.00% | 14.86% | 14.99% | 13.72% | 15.29% |
| Iceland | 5.78% | 4.18% | 0.00% | 4.57% | 5.70% | 2.58% | **29.75%** | 0.00% | 9.94% | 11.18% | 9.43% | 10.12% |
| Ireland | 4.42% | 1.85% | 0.00% | 3.05% | 2.79% | 1.08% | 18.55% | 0.00% | 6.64% | 8.85% | 5.54% | 6.86% |
| Latvia | 4.44% | 1.87% | 0.00% | 3.00% | 2.22% | 0.99% | **23.37%** | 0.00% | 5.87% | 6.76% | 5.11% | 6.12% |
| Luxembourg | 6.51% | 2.55% | 0.00% | 3.93% | 3.93% | 1.34% | **22.08%** | 0.00% | 14.13% | 15.21% | 12.59% | 13.96% |
| Mexico | 3.77% | 1.82% | 0.00% | 3.58% | 2.66% | 0.94% | 6.82% | 0.00% | 15.71% | 16.74% | 14.48% | 15.59% |
| Peru | 6.57% | 2.54% | 0.00% | 6.73% | 5.26% | 0.92% | 11.15% | 0.00% | **25.81%** | **26.77%** | **24.29%** | **25.09%** |
| Poland | 3.31% | 1.12% | 0.00% | 1.07% | 1.23% | 0.22% | **28.58%** | 0.00% | 3.64% | 5.25% | 2.61% | 3.48% |
| Portugal | 4.41% | 2.21% | 0.00% | 3.52% | 2.76% | 1.50% | 16.38% | 0.00% | 5.12% | 6.13% | 4.57% | 5.83% |
| Qatar | 13.98% | 4.58% | 0.00% | 10.13% | 10.03% | 3.15% | **34.69%** | 0.00% | **22.06%** | **23.35%** | **20.42%** | **21.45%** |
| Russia | 9.64% | 6.64% | 0.00% | 6.64% | 6.76% | 4.01% | **26.69%** | 0.00% | 11.45% | 12.84% | 10.21% | 12.33% |
| Slovakia | 8.87% | 5.13% | 0.00% | 6.72% | 7.12% | 3.10% | 15.54% | 0.00% | 12.76% | 13.98% | 11.40% | 12.66% |
| Slovenia | 7.20% | 4.20% | 0.00% | 4.39% | 5.17% | 2.90% | **26.05%** | 0.00% | 10.76% | 11.24% | 9.62% | 10.91% |
| South Korea | 2.04% | 1.18% | 0.00% | 1.24% | 1.02% | 0.63% | 18.98% | 0.00% | 4.17% | 4.44% | 3.37% | 4.57% |
| Spain | 4.13% | 1.60% | 0.00% | 2.40% | 2.21% | 0.55% | 7.96% | 0.00% | 7.26% | 9.01% | 6.31% | 8.18% |
| Switzerland | 4.80% | 1.81% | 0.00% | 2.78% | 2.75% | 0.85% | 15.99% | 0.34% | **23.82%** | **24.73%** | **22.34%** | **23.77%** |
| Taiwan | 1.09% | 0.70% | 0.00% | 0.54% | 0.70% | 0.12% | **26.57%** | 0.00% | 1.35% | 2.32% | 1.25% | 1.58% |
| Thailand | 5.42% | 2.65% | 0.00% | 3.16% | 3.12% | 1.98% | 9.95% | 0.00% | 5.14% | 5.49% | 4.74% | 5.58% |
| Turkey | 6.14% | 2.09% | 0.00% | 4.19% | 3.87% | 0.73% | **55.08%** | 0.00% | 7.36% | 7.74% | 6.07% | 6.82% |
| UAE | 10.04% | 4.21% | 0.00% | 6.40% | 6.40% | 2.69% | **26.48%** | 0.00% | 10.96% | 12.18% | 9.62% | 10.48% |
| United States | 5.67% | 2.80% | 0.00% | 4.15% | 3.69% | 3.13% | **37.11%** | 0.00% | 7.34% | 9.14% | 6.29% | 7.63% |

Table 4.4. Proportion of missing data in variables of interest (continuation)

| Country | Played video game+AE3: AP3s | Watched TV/<DVD>/ Video | Met friends or talked to friends on the phone | Internet/Chat/Social networks (e.g. Facebook) | Talked to their parents | Had breakfast | Had dinner | Days of vigorous exercise outside school last week | Learning time at school (minutes per week) | Out-of-school study time per week (in hours) | Index of time spent using ICT at school in general | Index of time spent using ICT outside school for schoolwork |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 12.46% | 11.66% | 11.66% | 11.22% | 11.52% | 8.38% | 9.19% | 4.41% | 7.06% | 9.05% | 17.25% | 19.89% |
| Bulgaria | **24.04%** | **23.03%** | **23.46%** | **22.87%** | **23.77%** | 18.61% | 19.60% | 10.39% | 15.54% | 19.60% | **27.50%** | **29.27%** |
| Chile | 15.11% | 14.65% | 14.67% | 14.48% | 15.00% | 12.22% | 13.58% | 4.32% | **39.53%** | 18.69% | 16.36% | 16.62% |
| China (B-S-J-G) | 2.59% | 2.22% | 2.15% | 1.75% | 1.96% | 0.79% | 0.99% | 0.80% | 6.83% | 9.58% | 6.95% | 9.42% |
| Colombia | 10.30% | 9.78% | 10.27% | 9.73% | 10.01% | 7.83% | 8.33% | 3.75% | **22.67%** | 14.12% | **24.32%** | **27.26%** |
| Croatia | 6.25% | 5.54% | 5.80% | 5.37% | 5.73% | 4.15% | 4.36% | 4.17% | 8.61% | 12.84% | 16.29% | 18.71% |
| Czech Republic | 7.50% | 6.83% | 6.95% | 6.70% | 7.06% | 4.90% | 5.31% | 4.24% | 8.38% | 9.52% | 16.83% | 18.03% |
| Estonia | 5.03% | 4.65% | 4.69% | 4.13% | 4.64% | 2.92% | 3.51% | 2.54% | 5.91% | 7.96% | 12.46% | 14.03% |
| Finland | 9.52% | 8.93% | 8.84% | 8.59% | 8.81% | 6.73% | 7.38% | 3.66% | 4.51% | 9.79% | 13.46% | 14.38% |
| France | 12.39% | 11.57% | 11.79% | 11.56% | 11.77% | 9.18% | 9.64% | 8.19% | 14.24% | 11.89% | **21.05%** | **22.36%** |
| Greece | 7.50% | 6.44% | 6.60% | 6.06% | 6.54% | 4.14% | 4.43% | 3.38% | 16.49% | 10.63% | 15.71% | 18.73% |
| Hong Kong | 2.93% | 3.27% | 3.02% | 2.87% | 3.02% | 2.09% | 2.46% | 2.05% | 7.33% | 12.07% | 7.02% | 8.60% |
| Hungary | 14.88% | 14.21% | 14.33% | 14.02% | 14.53% | 12.07% | 12.48% | 4.67% | 9.10% | 9.19% | 16.26% | 18.13% |
| Iceland | 9.67% | 9.49% | 9.52% | 9.05% | 9.52% | 7.95% | 8.19% | 5.04% | 9.58% | 12.49% | 13.50% | 14.60% |
| Ireland | 6.36% | 5.45% | 5.71% | 4.95% | 5.30% | 3.66% | 3.78% | 2.21% | 7.04% | 7.82% | 12.33% | 13.36% |
| Latvia | 5.61% | 5.24% | 5.09% | 4.99% | 5.40% | 3.57% | 3.94% | 2.46% | 5.32% | 18.98% | 12.24% | 13.19% |
| Luxembourg | 13.93% | 12.89% | 13.34% | 12.89% | 13.21% | 10.44% | 11.02% | 6.08% | 10.17% | 10.70% | **22.91%** | **24.16%** |
| Mexico | 15.37% | 14.60% | 15.26% | 14.63% | 15.05% | 12.53% | 13.78% | 3.75% | **20.06%** | 8.28% | 12.91% | 14.89% |
| Peru | **25.39%** | **24.67%** | **25.41%** | **25.03%** | **25.05%** | **21.37%** | **23.40%** | 6.86% | **21.76%** | 13.90% | 19.61% | 17.56% |
| Poland | 3.33% | 2.75% | 2.99% | 2.50% | 2.88% | 1.67% | 1.70% | 1.36% | 7.37% | 5.74% | 10.25% | 12.55% |
| Portugal | 5.09% | 4.86% | 4.60% | 4.22% | 4.55% | 3.03% | 3.29% | 3.67% | **23.58%** | 11.34% | 14.23% | 14.18% |
| Qatar | **21.51%** | **20.69%** | **21.23%** | **20.78%** | **21.23%** | 17.01% | 18.28% | 10.87% | **36.95%** | **22.05%** | **100.00%** | **100.00%** |
| Russia | 11.66% | 11.45% | 10.85% | 10.09% | 10.70% | 7.59% | 8.66% | 7.09% | 13.14% | 12.94% | 17.36% | 19.23% |
| Slovakia | 12.76% | 11.62% | 12.08% | 11.50% | 12.47% | 8.83% | 9.53% | 6.31% | 11.64% | 14.17% | 18.96% | **20.87%** |
| Slovenia | 10.62% | 9.80% | 10.40% | 9.85% | 10.51% | 6.23% | 8.09% | 5.25% | 11.80% | **31.38%** | 17.31% | 19.48% |
| South Korea | 4.37% | 3.33% | 3.37% | 2.42% | 2.97% | 1.11% | 1.49% | 1.16% | 4.77% | 9.28% | 3.94% | 6.43% |
| Spain | 7.82% | 6.55% | 6.84% | 6.10% | 6.61% | 4.59% | 4.84% | 2.17% | 9.98% | 5.91% | 13.17% | 14.25% |
| Switzerland | **23.50%** | **22.66%** | **23.23%** | **22.53%** | **23.24%** | 18.58% | **20.87%** | 4.68% | 6.86% | **21.74%** | 17.73% | 19.69% |
| Taiwan | 1.70% | 1.23% | 1.05% | 0.78% | 1.30% | 0.30% | 0.40% | 0.32% | 2.56% | 7.30% | 4.46% | 5.45% |
| Thailand | 5.06% | 5.16% | 4.86% | 4.78% | 5.02% | 3.90% | 4.05% | 2.98% | **32.06%** | **23.19%** | 11.60% | 13.10% |
| Turkey | 7.23% | 6.56% | 6.58% | 6.29% | 6.84% | 4.38% | 4.53% | 3.77% | 6.48% | 8.75% | **100.00%** | **100.00%** |
| UAE | 10.40% | 9.71% | 10.18% | 9.71% | 10.31% | 7.62% | 8.26% | 6.32% | **23.51%** | **24.94%** | **100.00%** | **100.00%** |
| United States | 6.97% | 6.37% | 6.43% | 6.00% | 6.37% | 4.83% | 5.11% | 4.39% | **20.24%** | **20.94%** | **100.00%** | **100.00%** |

Notes: High proportions of missing data (above 20%) are highlighted in bold

Table 4.4. Proportion of missing data in variables of interest (continuation)

| Country | Index of time spent using ICT at home for leisure | School type | Size of the community where the school is located | School size (total school enrolment in hundreds) | Average class size in the school | Index of shortage of material and human school resources | Student / teacher ratio | Percentage of certified teacher in the school | Index of teachers' behaviour hindering teaching | School practices ability grouping within classes | School practices ability grouping between classes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 14.97% | 9.18% | 0.97% | **100.00%** | 0.49% | 13.19% | 2.10% | 8.46% | 4.45% | 4.08% | 2.47% |
| Bulgaria | **27.24%** | 1.43% | 0.00% | 3.93% | 0.81% | 5.48% | 3.93% | 1.35% | 4.05% | 3.74% | 3.74% |
| Chile | 15.41% | 11.24% | 3.26% | 3.90% | 2.51% | 4.58% | 6.38% | 11.54% | 3.94% | 6.20% | 4.57% |
| China (B-S-J-G) | 8.99% | 1.07% | 2.07% | 0.00% | 2.12% | 1.19% | 0.41% | 0.41% | 1.95% | 1.60% | 0.82% |
| Colombia | **23.84%** | 16.12% | 13.05% | 19.07% | 14.55% | 17.69% | 19.86% | **20.66%** | 15.80% | 14.68% | 14.67% |
| Croatia | 17.13% | 0.00% | 0.00% | 1.29% | 0.00% | 1.38% | 2.65% | 2.00% | 2.69% | 0.69% | 1.36% |
| Czech Republic | 15.59% | 3.42% | 2.97% | 4.28% | 3.23% | 6.60% | 4.28% | 2.48% | 1.76% | 2.51% | 1.76% |
| Estonia | 13.64% | 0.73% | 0.91% | 4.62% | 1.81% | 1.04% | 6.55% | 8.63% | 1.58% | 0.93% | 0.13% |
| Finland | 13.72% | 2.57% | 0.61% | 2.69% | 0.63% | 3.01% | 2.70% | 1.24% | 3.26% | 3.89% | 2.58% |
| France | **20.14%** | 9.12% | 7.33% | 5.55% | 11.77% | 14.51% | 7.20% | 7.20% | 12.51% | 11.62% | 12.13% |
| Greece | 16.59% | 1.25% | 2.93% | 6.18% | 3.92% | 9.04% | 6.87% | 15.80% | 2.10% | 0.00% | 0.00% |
| Hong Kong | 8.21% | 3.38% | 0.00% | 2.11% | 0.00% | 8.99% | 4.16% | 2.65% | 5.13% | 4.40% | 5.92% |
| Hungary | 15.85% | 7.10% | 5.78% | 8.68% | 6.82% | 9.38% | 10.36% | **100.00%** | 7.35% | 6.89% | 6.70% |
| Iceland | 13.38% | 2.76% | 0.71% | 1.93% | 0.71% | 5.34% | 5.25% | 4.09% | 3.86% | 3.26% | 4.00% |
| Ireland | 15.01% | 5.92% | 5.61% | 2.72% | 5.61% | 14.46% | 9.23% | 9.08% | 9.02% | 6.51% | 7.32% |
| Latvia | 12.59% | 0.76% | 1.17% | 5.03% | 1.01% | 4.40% | 6.70% | 6.04% | 1.87% | 1.50% | 0.70% |
| Luxembourg | **21.42%** | 4.36% | 0.34% | 0.00% | 0.49% | 0.38% | 2.32% | 10.34% | 0.00% | 1.51% | 0.49% |
| Mexico | 14.71% | 2.83% | 0.55% | 5.85% | 0.90% | 4.59% | 6.43% | 9.90% | 1.39% | 2.63% | 2.81% |
| Peru | 14.86% | 6.25% | 1.56% | 0.20% | 1.18% | 3.83% | 0.17% | 0.00% | 2.91% | 1.89% | 0.73% |
| Poland | 11.48% | 1.32% | 2.05% | 2.26% | 2.26% | 4.56% | 4.22% | 10.29% | 4.85% | 2.43% | 1.63% |
| Portugal | 13.71% | 1.90% | 1.23% | 7.34% | 17.83% | 2.36% | 8.18% | 10.54% | 2.74% | 15.52% | 15.19% |
| Qatar | **100.00%** | 7.25% | 0.00% | 1.11% | 0.65% | 2.13% | 3.27% | 8.35% | 1.75% | 1.24% | 0.65% |
| Russia | 18.52% | 0.12% | 0.12% | 0.99% | 0.12% | 1.71% | 1.64% | 4.57% | 4.01% | 0.68% | 0.65% |
| Slovakia | 19.67% | 0.06% | 0.00% | 0.05% | 0.00% | 4.46% | 0.13% | 3.07% | 1.01% | 0.72% | 0.44% |
| Slovenia | 18.56% | 7.68% | 9.02% | 7.23% | 7.87% | 10.29% | 7.27% | 6.96% | 9.99% | 8.45% | 8.30% |
| South Korea | 7.11% | 1.24% | 0.00% | 0.59% | 0.00% | 2.33% | 0.59% | 2.45% | 1.29% | 0.63% | 0.65% |
| Spain | 13.49% | 2.39% | 0.15% | 6.67% | 0.40% | 3.41% | 8.64% | 13.32% | 1.07% | 1.87% | 1.29% |
| Switzerland | 16.50% | 8.89% | 5.27% | 6.71% | 6.52% | 11.26% | 8.91% | 15.43% | 9.52% | 7.17% | 7.66% |
| Taiwan | 5.60% | 3.85% | 0.00% | 0.00% | 0.47% | 4.37% | 0.00% | 0.00% | 1.91% | 2.40% | 1.45% |
| Thailand | 11.82% | 1.81% | 4.57% | 3.86% | 1.73% | 5.27% | 5.77% | 4.21% | 4.19% | 2.86% | 2.82% |
| Turkey | **100.00%** | 0.64% | 0.64% | 0.64% | 0.93% | 0.66% | 0.64% | 0.00% | 0.00% | 0.70% | 0.12% |
| UAE | **100.00%** | **22.26%** | 12.28% | 16.26% | 15.24% | 18.39% | 17.82% | 18.49% | 16.09% | 16.12% | 16.72% |
| United States | **100.00%** | 1.98% | 1.12% | 5.81% | 1.12% | 6.29% | 12.39% | 19.59% | 4.36% | 3.26% | 3.10% |

Notes: High proportions of missing data (above 20%) are highlighted in bold

Other studies performing multilevel analyses using PISA data have dealt with this problem in different ways. Overall, the OECD (2009, 2014b) does not provide any guidance or comment on this and can be assumed that PISA analysts simply do listwise deletion. Studies outside the OECD have approached the issue differently. Some do not mention anything about missing data either (Agasisti and Cordero-Ferrara 2013, Gamazo et al. 2016, Kartianon and Ndayizeye 2017, Lu and Bolt 2015). Others state that they use listwise deletion (Schirripa et al. 2018, Tsai et al. 2018, van Hek et al. 2017, Da Silva and Matos 2017). Other exclude variables (Gervasi 2017) or countries (Yi & Shin 2018, Özdemir 2016) from the analysis when missing data is high. Other studies use multiple imputations (Guio 2017, Karakolidis et al. 2016, Pitsia et al. 2017), hot deck imputation (Guo et al. 2018), EM imputation (Hu et al. 2018, Lazarević and Orlić) or mean imputation (Martini and Ricci 2010). However, I was unable to find a study that uses weights at level 1 and level 2 and, at the same time, uses imputations.

Overall, performing multiple imputations is not practical –or even possible- in this thesis. The need to use sample weights at both levels and the interest in random effects, for instance, already require performing complex and computationally intensive analyses. Even by using the most advanced version of Stata (Stata 15 MP), adding multiple imputations is completely impractical. For these reasons, I decided to use listwise deletion. Additionally, I decided to dispense with those countries that have high levels of missing data in variables of interest (above 25% of cases, approximately). Similarly, I have not used variables that have high levels of missing data in most countries. For instance, as a measure of teachers' quality, variables measuring teachers' qualifications (whether they have a bachelor, master or doctoral degree) would be worth considering if it was not because of high levels of missing data affecting these variables in most societies. In this particular case, alternatively, I use the proportion of certified teachers in the school, which is much less affected by missing data. In striking a balance between achieving socioeconomic, geographic, cultural and linguistic diversity and avoiding high levels of missing data, I ended up with a sample of 33 countries (down from the 47 that contain data on students' LS). A summary table with levels of missing data by variable and country is shown in table 4.2. It is worth keeping in mind that, for a few variables, the level of missing data is high in some countries (above 25%). In addition, the levels of missing data in some variables reach 100% in some countries. This is the case of ICT use variables in Qatar, Turkey, the UAE and the US; school size in Austria and the proportion of certified teachers in Hungary. In these cases, the variables are excluded from the analyses in these countries

### 4.4.2. Variable selection and manipulation

***The process of selecting the variables of interest***

PISA 2015 contains more than 1000 variables. The process of narrowing down this list to come up with a selection of variables of interest that is manageable in an analysis of this kind is challenging. In this research, this process is driven by the necessity of working with models that are as parsimonious as possible and, at the same time, incorporate education policy-relevant variables that are important to study the association between education policy and students' SWB. As described in the previous section, the high levels of missing data affecting certain variables and countries have facilitated this process to a significant extent as many variables of interest presented high levels of missing data in most countries and had to be excluded.

Furthermore, most of the variables are selected due to their relevance to education policy and practice. Nonetheless, there are important differences in the extent to which these factors can be considered to be amenable to policy interventions. For most of them, it is easy to see how policy could influence these factors (bullying, school anxiety, school resources, grade repetition, etc.). In other cases, the capacity of policy to influence these factors might appear more questionable. This is the case of valuing cooperation and teamwork, for example, which may be related to personality and, therefore, difficult to shape by public policy. However, there is some evidence suggesting that schools may promote more positive attitudes towards cooperation (Glăveanu et al. 2016, Gillies 2004). Another important example is feeling emotionally supported by parents in relation to school. In this case, however, the items behind this variable (see details in section 4.2.3.1.3) suggest that –although indirectly- students' feelings regarding their parents' support in relation to school could be influenced by education policy interventions intended to promote parents' involvement in the school and there is research studying possible strategies to facilitate this (Park and Holloway 2013, Bouakaz 2007).

In addition, a few independent variables are not policy-relevant but are included either because these are considered essential control variables (SES and gender) and/or because they can provide good insights into factors which may shape students' LS and which serve as an important reference to compare the relative importance of the effect of education policy-relevant factors in students' LS (certain time-use variables, the population size of the community where the school is located).

Overall, the selection of the variables studied in this thesis is the result of the necessity of striking a balance between the aim for cross-society diversity and incorporating potentially important predictor variables while, at the same time, working with regression models that are as parsimonious as possible.

***Important variables not considered and why***

In the following, I enumerate a list of variables that were originally considered but are finally not included in the analysis. The reasons for its no inclusion are: the need to achieve parsimonious models together with the need to prioritise the inclusion of other variables; the fact that preliminary analyses showed that these variables were rarely associated with students' LS; and/or the high levels of missing data affecting these variables in a large number of countries. These variables are the following:

- Sociodemographic: migrant status and whether the main language spoken at home differs from that used to assess the student in the school.
- School characteristics: students body composition (i.e. the proportion of boys/girls, the proportion of students who speak a second language at home, the proportion of students with special educational needs and the proportion of students from socio-economic disadvantaged homes); school management characteristics (i.e. different measures of school leadership, school assessment methods and school accountability), school climate (students' behaviour hindering teaching in the school), parents-school relationships (several measures of parental involvement in the school community; parents views on school quality)
- Student's competences: competences other than academic competence in reading, maths and science (i.e. financial literacy, cooperating problem solving, student perceived ICT competence)
- Student's attitudes, interests and motivations: achieving motivation, instrumental motivation, interest in science and ICT interest.
- Student's expectations: educational expectations and occupational expectations.
- Resources available in the school: material resources (computers and ICT access in the school, availability of homework assistance at school, extracurricular activities offered in the school), and human resources (several additional measures of teachers' quality, including qualification, training and experience)

***Variables manipulation***

An important step in narrowing down the number of variables of interest involves the manipulation of certain variables, including merging 2 or more variables into one. For instance, the variable *truancy* is the result of merging 3 different variables from the original data set. This process is described earlier in this chapter in relation to this and other variables (section 4.2.3.1).

Furthermore, other variables are manipulated to deal with other technical and methodological issues. Continuous variables are standardised with reference to each

country or economy, with 0 representing the mean in that society and 1 the standard deviation. This is done, first, because the interest of this thesis is in within-country differences in a large number of countries. And second, because, as noted by Hox (2010), having an explanatory variable where 0 is an observable, meaningful value is important in multilevel models as, otherwise, the results of the random part of the model can be affected. Categorical variables are also centred so that the reference category has a value of 0 (e.g. 0 boys 1 girls).

Another manipulation affecting certain variables involves merging categories of categorical variables. This is done in cases were certain categories seem to add little information in most countries (e.g. for the number of years the student attended pre-primary education, the last 4 categories are merged into 1 relabelled as 'more than 5 years'); and when it is considered that a specific categorical variable would better be treated as a dummy variable (e.g. the school practices ability grouping within classes).

Finally, there where a certain category of a categorical variable includes information from less than 30 students, results are not reported. This affects the following variables and countries: the education programme the student is enrolled in (affecting one category in Estonia, Latvia and Poland and, thus, the entire variable); the number of years attended pre-primary education (affecting the category 'less than 1 year' in Austria, Bulgaria, Estonia, Hong-Kong, Hungary, Iceland, Latvia, Poland and Russia and, as a consequence, the whole variable cannot be examined); and school type (in Croatia, the category 'private' is not examined; in Iceland, the category 'semi-private' and, as a consequence, the entire variable cannot be not examined; and in Russia, the categories 'private' and 'semi-private' and, as a consequence, the entire variable cannot be examined).

All the manipulations affecting each variable are described in section 4.2.3.

### 4.4.3. Sample size

In multilevel models, sample size considerations are different from those in single-level models (e.g. linear regression models). The reason is that the effective sample size for a multilevel model is the number of groups at the highest level (in this thesis, schools). Group size is another important consideration, particularly in those cases where the focus is on within-group differences rather than between-group differences and in those where the fixed part of the model is the main –or the only- part of interest (Hox 2010). In this thesis, the focus is on between-group differences and the interest is in the fixed part of the model, but also in the random part of the model. In this data set, the number of groups (schools) in each country is far from being a problem but in many of them, there is a proportion of schools with less than 5 students. This proportion of school, however,

is very small and, therefore, this should not affect the validity of the results to a significant extent.

Table 4.5. Sample size in each country

| Country | Number of students | Number of schools |
|---|---|---|
| Austria | 7007 | 263 |
| Bulgaria | 5928 | 180 |
| Chile | 7053 | 226 |
| China (B-S-J-G) | 9841 | 268 |
| Colombia | 11795 | 371 |
| Croatia | 5809 | 245 |
| Czech Republic | 6894 | 333 |
| Estonia | 5587 | 206 |
| Finland | 5882 | 162 |
| France | 6108 | 251 |
| Greece | 5532 | 210 |
| Hong Kong | 5359 | 138 |
| Hungary | 5658 | 245 |
| Iceland | 3371 | 124 |
| Ireland | 5741 | 167 |
| Latvia | 4869 | 250 |
| Luxembourg | 5299 | 44 |
| Mexico | 7568 | 275 |
| Peru | 6971 | 281 |
| Poland | 4478 | 169 |
| Portugal | 7325 | 246 |
| Qatar | 12083 | 167 |
| Russia | 6036 | 210 |
| Slovakia | 6350 | 280 |
| Slovenia | 6406 | 301 |
| South Korea | 5581 | 168 |
| Spain | 6736 | 201 |
| Switzerland | 5860 | 227 |
| Taiwan | 7708 | 214 |
| Thailand | 8249 | 273 |
| Turkey | 5895 | 187 |
| UAE | 14167 | 470 |
| United States | 5712 | 176 |

### 4.4.4. PISA's complex survey design: how to apply weights

Due to PISA's complex survey design, applying sample weights is of great importance to avoid getting biased estimates. In PISA studies, certain schools/pupils often are over/under-sampled for different reasons. For instance, in Australia, indigenous children are over-sampled to allow tracking progress of students of this minority group. To account for sampling and non-response consideration, PISA's data sets include a series of weights that need to be applied. PISA 2015 includes final student weights W_FSTUWT -which account for the probabilities of the student and the school being selected for participating, plus some adjustments for non-participation, etc.- and school weights

W_SCHGRNRABWT -which account for the probabilities of the school being selected for participating, plus some adjustments.

Note that applying both final student weights at level 1 and school weights at level 2 would be problematic as the probabilities of the school being selected would be considered twice. To avoid this problem, final student weights need to be scaled. This is noted by Laukaityte and Wiberg (2017), who argue that, although all of the international large-scale assessment databases include ready-to-use scaled weights and their components, these weights have been designed to use in single-level analysis and are not adequate to use in multilevel analysis. She also argues that scaling of the level 2 weights is not necessary as doing so normally does not influence the parameter estimates and their standard errors (Asparouhov 2006). Weights can be scaled in several ways and there is not an agreement on which one is best (Pfeffermann et al. 1998, Asparouhov 2006, Carle 2009). However, there is a certain agreement that simple raw weights cannot be used in estimations (Carle 2009) and that, depending on the scaling methods selected, the results obtained in different estimation techniques can vary. Rabe-Hesketh and Skrondal (2006) and Pfeffermann et al. (1998) are the two most common scaling methods for level 1 weights (Laukaityte and Wiberg 2017).

Other studies carrying out multilevel analysis with PISA data have proceeded in very different ways in relation to this question. Most analyses conducted by the OECD involve basic descriptive statistics or linear regression models at best, but the use of multilevel models is not very common. In linear regressions, it is advised to use final student weights (*W_FSTUWT*) with the 80 replicate weights that are included in the data set (see Jerrim et al. 2017, OECD 2014b). In relation to multilevel models, however, the OECD does not provide clear guidance on how to proceed. There are a couple of OECD studies that are sometimes cited as OECD 'guidelines' or 'recommendations' on this, but they use 2 different approaches. In the 'PISA data analysis manual' (OECD 2009), only final student weights are applied in multilevel analysis. However, later in the document, the authors add the following note: *"PISA has been using normalised student final weights at the student level for multilevel analysis. But, it is important to note that technical discussion is currently under way regarding the use of separate weights at the different levels"*. In another study by the OECD performing multilevel analyses with PISA 2012 data, (OECD 2014b) both final student weights and school weights are applied. However, this is done without scaling final student weights which, as noted above, is problematic.

Other studies outside the OECD have proceeded very differently. Some of them do not use weights at all or do not even mention anything about weights (Agasisti and Cordero-Ferrara 2013, Cosgrove and Cunningham 2011, Gamazo et al. 2016, Gervasi 2017, Guo

et al. 2018, Hu et al. 2018, Kartianon and Ndayizeye 2017, Lazarević and Orlić 2018, Lu and Bolt 2015, Martini and Ricci 2010, Yi and Shin 2018). Others mention the use of weights but do not specify how these are applied (Guio 2017). A couple of them use final student weights at level 1 only (van Hek et al., 2017; Karakolidis et al.), citing the PISA data analysis manual (OECD 2009b) as OECD guidelines on this. Other studies use both final student weights at level 1 and school weights at level 2, but without scaling final student weights (Da Silva and Matos 2017, Özdemir 2016, Tsai et al. 2018). Again, among these, some refer to previous studies by the OECD (2014b) as OECD guidelines on this. Finally, Schirripa et al. (2018) use both final student weights at level 1 and school weights at level 2 and do scale final student weights. The authors note that: *"(...) the student-level weights provided in PISA (the variable called W_FSTUWT) are student-level overall inclusion weights ($w_{ij}$ not $w_{i|j}$) adjusted for non-inclusion and non-participation of students. Consequently, scaling the weights is a procedure to overcome the problem of not having the conditional sampling weights. Indeed, if student-level weights are rescaled, the model estimates are equivalent to those obtained when $w_{i|j}$ is available; the adjustment factors do not affect the rescaled version of the student-level weights (Rabe-Hesketh and Skrondal 2006)"*.

In this thesis, I apply the same approach as the one described by Schirripa et al. (2018), using scale method 2 as in Rabe-Hesketh and Skrondal (2006). The process to apply this method is rather straightforward and it is described in the Stata manual (see Stata Corp 2014, p. 3).

### 4.4.5. General notes on statistical reporting

Throughout the thesis, levels of statistical significance are denoted using asterisks, where * indicates $p < .05$, ** $p < .01$, and *** $p < .001$. Whenever statistical significance is reported differently (e.g. in bold), this is explained in the corresponding table. Figures are generally rounded to 2 decimal places. This is the case of all those figures referring to the possible effect of a predictor variable on students' LS. In some cases -i.e. when reporting VPCs, random effects, etc.- figures are rounded to up to 3 or 4 decimal places.

## 4.5. Ethics

In this thesis, I exclusively analyse secondary quantitative data which ensures that participating schools and students remain anonymous. I have made sure that, at all times, this research adheres to the Research Practice & Research Ethics guidelines of the University of Leeds (UoL, n.d.) and the ESRC's Framework for Research Ethics (ESRC n.d.).

# Chapter 5: Education policy and students' life satisfaction

## 5.1. Context

Chapters 1 to 4 provided context for this research, presenting the literature that justifies the relevance of the research questions and hypotheses investigated and describing the approach, data and methods used to study the association between education policy and child SWB. Chapters 5 to 7 present the quantitative analysis that represents the original empirical contribution of this thesis. The literature review discussed in chapter 2 suggests that an association between education policy and child SWB is likely to exist but this association is complex and finding evidence of this relationship can be difficult. This first analytical chapter seeks evidence of an association between education policy and students' LS in 33 countries. I study this in two steps. First, I investigate the links between education policy-relevant factors and students' LS. And second, I study if and how schools may influence students' LS.

The chapter develops as follows. First, I describe the analysis conducted in this chapter. In this section, I enumerate the research questions and hypotheses studied and describe how the ecological framework to study child SWB is applied. Next, I present the results of the analysis. These results are then discussed in the next section. After this, some limitations that are specific to the analysis conducted in this chapter are discussed. And finally, I present the main conclusions of the chapter.

## 5.2. Analysis

This chapter studies research questions 1A, 1B, 2A and 2D:

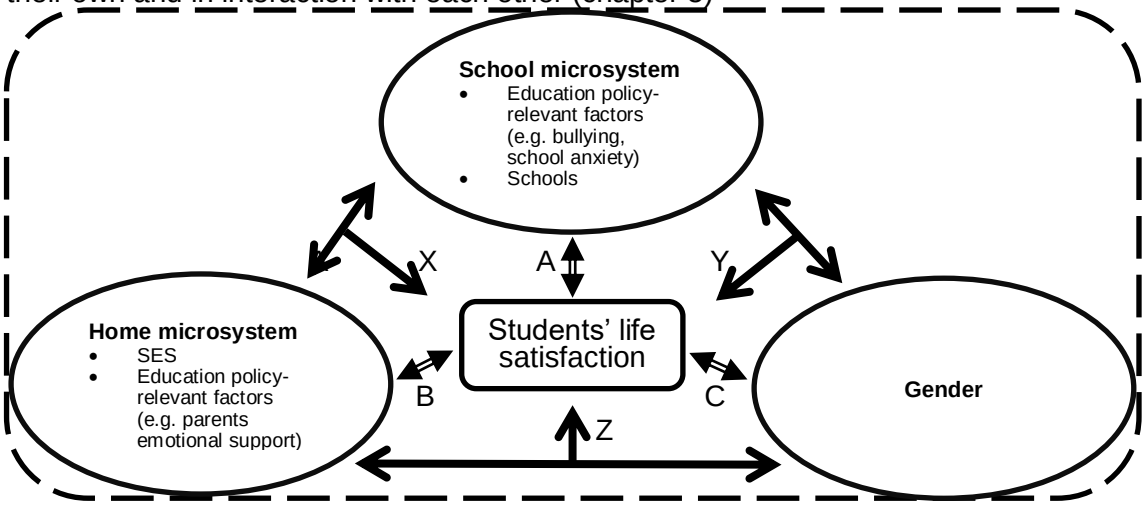
1) Is there an association between education policy and child SWB?
    A. Is there an association between education policy-relevant factors and students' LS?
    B. Do schools influence students' LS?
2) What is the nature of this association?
    A. How do schools shape students' LS?
    D. Does the association between education policy and students' LS vary across societies? How?

To study these questions, I conduct the following sets of analyses:

1. First, I provide an overview of cross-country differences in students' LS. This does not address any research question but it is a necessary informative step before addressing these questions. For all the 33 countries, I present results of mean levels in students' LS as well as levels in skewness and variance in LS.

2. Then I study the association between education policy and students' LS by focusing first on a series of factors in the home and school microsystem which seem amenable to education policy interventions and how these relate to students' LS. In this chapter, I examine this by studying direct effects in multilevel regression analyses, as well as in view of the adjusted $R^2$ in linear regression models -which indicates the proportion of the variation in students' LS that is explained by the variables considered in the models. In the ecological framework, this is a way in which the school and home microsystem relate to LS (A and B in figure 5.1). This part addresses research questions 1A and 2D. I hypothesise that there is an association between education policy-relevant factors and students' LS and that this association differs across countries.
3. Finally, I study the association between education policy and students' LS by investigating if and how schools may influence students' LS. This is done by studying the existence of school effects, the proportion of variance in students' LS explained at school level (VPC), the existence of random effects for several education policy-relevant factors, and direct and interactions effects involving school type, school peers' characteristics and other education policy-relevant factors. In the ecological framework, this illustrates how education policy-relevant factors influence students' LS directly (in the home and school microsystem; this is A and B in figure 5.1) and in interaction with each other (in the mesosystem; X in figure 5.1). This analysis examines research questions 1B, 2A and 2D mainly, but also 1A. I hypothesise that schools may influence students' LS in multiple ways and that the way this happens varies from one country to another.

Figure 5.1. How the home and school microsystem and gender relate to students' LS on their own and in interaction with each other (chapter 5)




| | RQs studied | How the ecological approach is applied to answer the research questions | Ecological approach: How gender and the school and the home microsystem relate to LS on their own (A, B, C) and in interaction with each other (X, Y, Z) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | X | Y | Z | |
| | | | How the school microsystem relates to LS | How the home microsystem relates to LS | How gender relates to LS | How the school and home microsystem interact to shape LS | How gender and the school microsystem interact to shape LS | How gender and the home microsystem interact to shape LS | Cross-country differences |
| **CHAPTER 5** | | | | | | | | | |
| **Direct effects** of education policy-relevant factors in multilevel regression (MR) analyses and the **adjusted r-squared** in linear regression analyses | 1A, 1B, 2A and 2D | By studying the direct association between education policy-relevant factors (in the school microsystem) and LS | X | | | | | | X |
| | | By studying the direct association between education policy-relevant factors (in the home microsystem) and LS | | X | | | | | |
| | | By estimating the proportion of the variation in LS that is explained by the education policy-relevant factors studied | X | X | | | | | |
| | | By studying differences across countries | | | | | | | |
| MR. Variance partition coefficient (**VPC**) | 1B, 2D | By estimating the proportion of the variation in LS that is explained by differences between schools | X | | | | | | |
| | | By studying differences across countries | | | | | | | |
| MR. **School random effects** | 1B, 2A, 2D | Studying how the influence of factors in the school and home microsystem in LS vary across schools | X | | | X | | | |
| | | By studying differences across countries | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MR. **Interactions effects** involving school characteristics (school type and school peers' characteristics) and other education policy-relevant factors | 1A, 1B, 2A, 2D | By studying how schools characteristics (e.g. school type, levels of bullying, etc.) interact with education policy-relevant factors in the school microsystem to shape LS | X | | | | | | |
| | | By studying how schools characteristics (e.g. school type, levels of parents emotional support, etc.) interact with education policy-relevant factors in the home microsystem to shape LS | | | | X | | | |
| | | By studying differences across countries | | | | | | | |

The predictor variables that are considered in the series of analyses presented in this chapter are described in section 4.2.3 of chapter 4. All of them are considered in the multilevel regression models to study their direct effect on students' LS. However, only 12 of them (index of schoolwork-related anxiety, index of sense of belonging at school, index of frequency of suffering bullying, index of feeling unfairly treated by teachers, index of feeling emotionally supported by parents, index of academic competence; index of time spent using ICT outside school for schoolwork; index of valuing cooperation; having repeated a grade at least once; index of truancy; school practices ability grouping within classes; school practices ability grouping between classes) are used to study interactions with school type -and among these, only the first five are used to study interactions with school peers' mean levels in these variables. School random effects are studied only for four variables: the index of schoolwork-related anxiety, the index of the frequency of suffering bullying, the index of feeling emotionally supported by parents and having repeated a grade at least once. It was not viable to study interaction effects and random effects for all the variables. In the selection of these specific variables, the main goal was to consider elements from different sub-domains in the school context whose effect on students' LS is likely to vary across schools and depending on school characteristics (school type and school peers' characteristics).

The main method used in this chapter is multilevel regression, although I use linear regression analysis to estimate the adjusted $R^2$. The adjusted $R^2$ is reported for 3 models: model, 1 where only socio-demographic variables (gender and SES) are included; model 2, where self-reported well-being variables are added; and model 3, where all the variables considered in the models studied in this chapter are considered. Then four types of multilevel regression models are estimated for each country. First, a null-model. Second, a model including individual-level variables only (model 1). Third, a full model also considering predictors measured at the level of the school (model 2). And fourth, an additional model for each of the interactions studied (model 3a, model 3b, etc.), where the interaction term and both terms of the interaction are added to model 2 –this is, there is only 1 interaction term in the model. The LR test conducted to determine the existence of school effects is performed using the null model. The VPC is calculated for the null-model and for models 1 and model 2 (full-model). Direct effects are reported for model 2 (full-model) only. Random effects are reported for model 2 (full-model) only. Random effects are only retained in the models in those cases where these improve the model fit. Moreover, I do not indicate the statistical significance of random effects using asterisks because these are often associated with Wald tests, which should not be used to study random effects. School random effects which are statistically significant are

reported in bold. Finally, interaction effects are reported for model 3. The approach to creating multilevel models is described in detail in section 4.3.1 of chapter 4.

## 5.3. Results

### 5.3.1. Cross-country differences in students' life satisfaction

Table 5.1. Cross-country variation in students' life satisfaction

| Country | Mean LS | Variance in LS | Skewness in LS |
|---|---|---|---|
| Austria | 7.52 | 4.83 | -1.13 |
| Bulgaria | 7.42 | 6.39 | -0.94 |
| Chile | 7.37 | 5.34 | -0.90 |
| China (B-S-J-G) | 6.83 | 5.46 | -0.59 |
| Colombia | 7.88 | 5.56 | -1.23 |
| Croatia | 7.90 | 4.20 | -1.32 |
| Czech Republic | 7.05 | 5.28 | -0.79 |
| Estonia | 7.50 | 4.43 | -1.03 |
| Finland | 7.89 | 3.41 | -1.36 |
| France | 7.63 | 3.76 | -1.03 |
| Greece | 6.91 | 5.27 | -0.79 |
| Hong Kong | 6.48 | 4.26 | -0.64 |
| Hungary | 7.17 | 5.33 | -0.95 |
| Iceland | 7.80 | 4.88 | -1.32 |
| Ireland | 7.30 | 4.64 | -0.98 |
| Latvia | 7.37 | 4.08 | -0.95 |
| Luxembourg | 7.38 | 4.89 | -1.04 |
| Mexico | 8.27 | 4.08 | -1.55 |
| Peru | 7.50 | 5.91 | -0.96 |
| Poland | 7.18 | 5.29 | -0.90 |
| Portugal | 7.36 | 3.98 | -0.88 |
| Qatar | 7.41 | 6.50 | -0.94 |
| Russia | 7.76 | 5.18 | -1.08 |
| Slovakia | 7.47 | 5.24 | -0.99 |
| Slovenia | 7.17 | 5.25 | -0.91 |
| South Korea | 6.36 | 5.50 | -0.44 |
| Spain | 7.42 | 4.30 | -1.11 |
| Switzerland | 7.72 | 3.86 | -1.21 |
| Taiwan | 6.59 | 4.47 | -0.44 |
| Thailand | 7.71 | 4.47 | -0.87 |
| Turkey | 6.12 | 8.61 | -0.37 |
| UAE | 7.30 | 6.27 | -0.80 |
| United States | 7.36 | 4.89 | -0.87 |

Table 5.1 shows, for each country, the mean level, variance and skewness in students' LS. There is great cross-country variation, with students from Eastern Asian societies -South Korea, Hong Kong, Taiwan, China (B-J-J-G)- reporting lower levels of LS on average, although Turkey is the country where LS is the lowest. Mexico is the country where LS is the highest but, in this case, we cannot say that there is a clear cluster of countries where LS tends to be higher. Skewness in LS is lower in Eastern Asian

societies and Turkey and there is not a clear cluster of countries where the variance is higher or lower than in others.

### 5.3.2. Education policy-relevant factors and students' life satisfaction

This section studies the links between education policy-relevant factors and students' LS. The analysis is divided into two sections. First, I report results of direct effects in multilevel models. And second, I present the results of the adjusted $R^2$ in linear regression models.

#### *5.3.2.1. Direct effects in multilevel regression models*

Table 5.2 presents a summary of the different direct effects at student and school level studied in model 2 (full model) in the 33 countries analysed. Results show that whereas for some predictors a statistically significant effect is found in almost all the countries, for others, a statistically significant effect is found in a much smaller number of societies. In addition, the effect size varies across countries. The direction of the effect also varies, with some effects being universally positive or negative, and others varying between different countries.

A more detailed account of the results by country and group of variables is presented in the following sections.

##### *5.3.2.1.1. Socio-demographic variables*

LS is statistically lower among girls in almost all the countries analysed (see table 5.2 and table A1.1 in Appendix 1). The effect is greater than 0.4 points (in the 0 to 10 scale of LS) in half of them and above 0.7 in Luxembourg, Slovenia and Austria.

There is a positive association between SES and students' LS in 17 countries. The size of the effect of an increase of 1 standard deviation in the index of SES is between 0.1 and 0.2 points in the majority of cases. In Slovenia, interestingly, this association is negative (-0.09 points).

##### *5.3.2.1.2. Self-reported well-being variables*

There is a strong association between self-reported well-being and students' LS. Table 5.2 and table A1.1 in Appendix 1 show that there are three predictors whose effect on students' LS is found in almost all countries: schoolwork-related anxiety, frequency of being bullied (although in South Korea this effect is not statistically significant), and feeling emotionally supported by parents in relation to school. The greatest effect size is found for feeling emotionally supported by parents in relation to school -the effect of an increase of 1 standard deviation in this index on LS ranges between 0.4 and 0.7 points. A smaller effect size (between 0.2 and 0.4 in most cases) is found for the indices of the frequency of bullying and schoolwork-related anxiety –although, in the latter case, it

seems somewhat greater overall and particularly great (around 0.6 points) in South Korea and Iceland.

An association with students' LS seems less strong for the other self-reported well-being variables. In 26 countries, feeling unfairly treated by teachers is negatively associated with students' LS. However, compared to the self-reported well-being variables mentioned above, the size of the effect is smaller (between 0.15 and 0.25 points in most countries). For sense of belonging at school, the association is positive and found in a smaller number of countries (14) and the size of the effect is smaller on average (between 0.1 and 0.2 points in most countries).

*5.3.2.1.3. Effect of time use, health habits and ICT use variables*

Several variables that refer to students' time use and health habits are associated with their LS –although for ICT use variables evidence of an association is more scarce overall. Results are shown in table 5.2 and table A1.2 in Appendix 1. In particular, talking to parents is a rather strong predictor of students' LS. In 24 countries, those who report having talked to their parents in the day before report much higher LS than those who do not. Furthermore, LS is higher among those who do it before and after school than among those who do it either before or after school only. The effect size is great (above 0.40 points) in most countries and in a few of them (the UAE, Chile, Spain, Iceland, Mexico, and the United States) it is of at least 1.00 points. Other predictors of LS observed in many countries are eating breakfast before going to school, doing vigorous exercise outside the school in the previous week and studying for school or homework.

The picture is less clear for the other time use, health habits and ICT use variables analysed. Overall, a statistically significant association is observed in a smaller number of countries. There is heterogeneity in terms of both the size and sign of the effect. In some cases, although a statistically significant effect is found in just a few societies the effect size is great in some. This is the case, for example, of watching TV/DVD/video in Turkey (between 0.59 and 0.70 points) and having dinner in Austria (0.56 points), Colombia (0.63 points), Czech Republic (0.51 points), and Ireland (0.66 points). Moreover, for a few of these other variables, a positive effect is found in some countries and a negative one in others.

*5.3.2.1.4. Effect of other student-level variables*

Some of the remaining student-level variables studied are related to students' LS in most countries (see table 5.2 and table A1.3 in Appendix 1). First, LS seems to be higher among students who have more positive attitudes towards cooperation and teamwork. The effect of an increase of 1 standard deviation in the index of valuing cooperation and teamwork is associated with higher LS in 28 countries, and the effect size is around 0.2

points in most of them. Interestingly, the association between academic competence and students' LS is negative. This negative association is observed in 20 countries and the effect size is also around 0.2 in most of them. Moreover, truancy is negatively associated with students' LS. A negative association is found in 16 countries and the size of the effect ranges between 0.1 and 0.2 points.

Evidence of an association is much scarce for the other variables of this group. Having repeated a grade, the education programme the student attends, and pre-primary education attendance relate to students' LS only in a few countries.

*5.3.2.1.5. Effect of school-level variables*

For the majority of the variables measured at the school level, an association with students' LS is observed in a small number of countries (see table 5.2 and table A1.4 in Appendix 1). The main exception is school type. In 14 out of the 31 countries where there is more than one type of school, LS is associated with school type (i.e. either public, semi-private or private), and the size of the effect tends to be great (i.e. near or above 0.4 points in most cases). The population size of the community where the school is located is also relevant in some countries. In 10 of them, students attending schools located in small communities (fewer than 3000 people) report higher LS than those living in bigger communities. The effect size differs across countries and population categories and ranges between 0.29 and 0.76 points.

For all the other school-level predictor variables, the picture is, again, more complex. A statistically significant effect is found in a small number of societies in all of them. Furthermore, for a few variables, the effect is positive in some countries and negative in others. The effect size tends to be small, although there are some exceptions. For instance, the percentage of certified teachers seems to be important to students' LS in Greece and South Korea, which are the only two countries where an association is observed. The size of the effect in these two countries is great, 0.36 and 0.73 points, respectively.

Table 5.2. Summary table of the direct effect of all predictor variables in the full multilevel model

| Predictor variable | Number of countries with available data | Number of countries where a statistically significant effect is found | Mean effect size* |
|---|---|---|---|
| Girl | 33 | 28(-) | -0.43 |
| Index of socioeconomic status (SES) | 33 | 17(+) 1(-) | 0.15 -0.09 |
| Index of schoolwork-related anxiety | 33 | 33(-) | -0.34 |
| Index of sense of belonging at school | 33 | 14(+) | 0.13 |
| Index of frequency of suffering bullying | 33 | 32(-) | -0.28 |
| Index of feeling unfairly treated by teachers | 33 | 26(-) | -0.19 |
| Index of feeling emotionally supported by parents | 33 | 33(+) | 0.53 |
| Worked in the household or took care of other family members | 33 | 5(+) 1(-) | \|*0.19*\| - \|*0.33*\| |
| Worked for pay | 33 | 5(+) | \|*0.21*\| - \|*0.70*\| |
| Studied for school or homework | 33 | 14(+) | \|*0.20*\| - \|*0.63*\| |
| Read a book/newspaper/magazine | 33 | 1(+) 1(-) | \|*0.24*\| - \|*0.39*\| |
| Played videogames | 33 | 2(+) 1(-) | \|*0.15*\| - \|*0.40*\| |
| Watched TV/<DVD>/Video | 33 | 3(+) | \|*0.23*\| - \|*0.70*\| |
| Met friends or talked to friends on the phone | 33 | 7(+) | \|*0.18*\| - \|*0.45*\| |
| Internet/Chat/Social networks (e.g. <Facebook>) | 33 | 2(-) | \|*0.32*\| - \|*0.60*\| |
| Talked to parents | 33 | 24(+) | \|*0.37*\| - \|*1.44*\| |
| Had breakfast | 33 | 25(+) | 0.39 |
| Had dinner | 33 | 4(+) | 0.59 |
| Days of vigorous exercise outside school last week | 33 | 22(+) | \|*0.20*\| - \|*0.73*\| |
| Learning time at school (minutes per week) | 33 | 3(+) | 0.12 |

*For continuous and dichotomous predictors, the mean effect in those countries where this is significant is provided. For categorical variables (effect size in *italics*), a range of the effect size (expressed in absolute terms) across different categories and countries and economies is provided.

Table 5.2. Summary table of the direct effect of all predictor variables in the full multilevel model (continuation)

| Predictor variable | Number of countries with available data | Number of countries where a statistically significant effect is found | Mean effect size* | |
|---|---|---|---|---|
| Out-of-school study time per week (hours) | 33 | 2(+) | 0.15 | |
| Index of time spent using ICT at school in general | 29 | 3(+) | 0.15 | |
| Index of time spent using ICT outside school for schoolwork | 29 | 7(+) | 0.14 | |
| Index of time spent using ICT at home for leisure | 29 | 1(+) 2(-) | 0.12 | -0.15 |
| Index of academic competence | 33 | 21(-) | | -0.18 |
| Index of truancy | 33 | 16(-) | | -0.14 |
| Index of valuing cooperation | 33 | 28(+) | 0.18 | |
| Having repeated a grade at least once | 33 | 2(-) | | -0.40 |
| Years attended pre-primary education | 33 | 3(-) | \|*0.43*\| - \|*1.14*\| | |
| Education programme attended | 33 | 2(-) | \|*0.21*\| - \|*0.30*\| | |
| School type | 32 | 15 | \|*0.16*\| - \|*1.23*\| | |
| Size of the community where the school is located | 33 | 1(+) 9(-) | \|*0.29*\| - \|*0.76*\| | |
| School size (total school enrolment in hundreds) | 32 | 1(+) 6(-) | 0.04 | -0.02 |
| Average class size in the school | 33 | 2(+) 2(-) | -0.02 | 0.02 |
| Index of shortage of material and human school resources | 33 | 1(-) | | -0.15 |
| Student / teacher ratio | 33 | 4(-) | | -0.03 |
| Percentage of certified teacher in the school | 32 | 2(+) | 0.54 | |
| Index of teachers' behaviour hindering teaching | 33 | 3(-) | | -0.12 |
| School practices ability grouping within classes | 33 | 1(+)` 1(-) | 0.19 | -0.29 |
| School practices ability grouping between classes | 33 | 1(-) | | -0.18 |

*For continuous and dichotomous predictors, the mean effect in those countries where this is significant is provided. For categorical variables (effect size in *italics*), a range of the effect size (expressed in absolute terms) across different categories and countries and economies is provided.

### *5.3.2.2. Proportion of the variation in life satisfaction explained by education policy-relevant factors*

Table 5.3 shows the adjusted $R^2$ in the linear regression models. Results indicate that the variables examined would explain, approximately, between one-fifth and one-third of the variation in students' LS in the countries analysed. A closer look at the results reveals that socio-demographic variables (gender and SES) explain a rather small proportion of this variation. Most of this variation is explained by self-reported well-being variables -all of which are highly policy-relevant- and, to a lesser extent, the remaining independent variables, most of which are also policy-relevant. Differences across countries are important. For example, these variables explain up to 36% of the variation in students' LS in Iceland but only 15% in Bulgaria. Moreover, the relative importance that each of these groups of variables has to students' LS also differs by country.

Table 5.3. Adjusted $R^2$ in linear regression models

| Country | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Austria | 0.05 | 0.21 | 0.26 |
| Bulgaria | 0.02 | 0.13 | 0.15 |
| Chile | 0.02 | 0.12 | 0.25 |
| China (B-S-J-G) | 0.01 | 0.12 | 0.20 |
| Colombia | 0.01 | 0.13 | 0.24 |
| Croatia | 0.02 | 0.23 | 0.26 |
| Czech Republic | 0.03 | 0.17 | 0.23 |
| Estonia | 0.03 | 0.22 | 0.31 |
| Finland | 0.05 | 0.24 | 0.29 |
| France | 0.02 | 0.20 | 0.23 |
| Greece | 0.03 | 0.17 | 0.23 |
| Hong-Kong | 0.01 | 0.17 | 0.23 |
| Hungary | 0.04 | 0.18 | 0.24 |
| Iceland | 0.06 | 0.26 | 0.36 |
| Ireland | 0.02 | 0.22 | 0.29 |
| Latvia | 0.02 | 0.13 | 0.19 |
| Luxembourg | 0.04 | 0.22 | 0.30 |
| Mexico | 0.00 | 0.10 | 0.18 |
| Peru | 0.00 | 0.13 | 0.23 |
| Poland | 0.03 | 0.23 | 0.27 |
| Portugal | 0.02 | 0.16 | 0.23 |
| Qatar | 0.01 | 0.13 | 0.22 |
| Russia | 0.01 | 0.16 | 0.25 |
| Slovakia | 0.02 | 0.15 | 0.21 |
| Slovenia | 0.04 | 0.20 | 0.21 |
| South Korea | 0.02 | 0.19 | 0.25 |
| Spain | 0.02 | 0.18 | 0.22 |
| Switzerland | 0.03 | 0.21 | 0.29 |
| Taiwan | 0.01 | 0.18 | 0.23 |
| Thailand | 0.00 | 0.09 | 0.19 |
| Turkey | 0.01 | 0.16 | 0.24 |
| UAE | 0.01 | 0.14 | 0.22 |
| United States | 0.03 | 0.21 | 0.30 |

Linear regression model 1 contains socio-demographic variables only (SES and gender); model 2 adds self-reported well-being variable; and model 3 (full model) incorporate all the independent variables

### 5.3.3. The role of schools in shaping students' life satisfaction

This section studies the links between schools and students' LS in view of the existence of school effects on students' LS, the proportion of the variation in students' LS explained at the school level, random effects for a group of variables and a series of interactions involving school type and school peers' characteristics.

#### *5.3.3.1. School effects on students' life satisfaction*

Table 5.4 reports, for each country, the number of observations included in each of the 3 models analysed (null-model, model 1 and model 2), the results of the LR test in the null-model to assess school effects in students' LS and the VPC in each of the 3 models.

Results shows that, for all countries, schools may influence students' LS, although differences across countries are significant. The results of the LR tests reported in table 5.4 provide evidence of school effects (on 1 d.f., LR> 3.84) in all countries but Finland and Greece, where a multilevel model would not necessarily be preferred to a single-level model. It is important to note, however, that cross-country variation in the results of the LR tests is quite substantial.

#### *5.3.3.2. Proportion of the variation in students' life satisfaction explained at the school level*

The VPC indicates the proportion of the variance in students' LS that can be attributed to differences between schools. Table 5.4 shows that, in the full model (model 2), the proportion of the variance in students' LS that is found to be explained at school level is above 5% in 24 countries and is particularly high in 5 Eastern European countries: the Czech Republic (45.98%), Estonia (42.41%), Slovakia (40.49%), Latvia (35.58%) and Poland (24.43%). Cross-society variation is again rather important, which suggests that the links between schools and students' LS vary substantially across countries.

Table 5.4. Some model specifications in multilevel regression models.

| | Null model | | | Model 1. Student-level variables only | | Model 2. Full model | |
|---|---|---|---|---|---|---|---|
| Country | Obs. | LR test | VPC | Obs. | VPC | Obs. | VPC |
| Austria | 7007 | 64.75 | 3.47 | 5310 | 12.69% | 4909 | 14.33% |
| Bulgaria | 5928 | 5.03 | 0.90 | 2948 | 8.98% | 2898 | 9.09% |
| Chile | 7053 | 49.04 | 2.47 | 4798 | 3.96% | 4272 | 3.72% |
| China (B-S-J-G) | 9841 | 89.63 | 2.57 | 8116 | 12.28% | 5516 | 8.98% |
| Colombia | 1179 | 66.90 | 3.23 | 5706 | 12.33% | 4835 | 12.88% |
| Croatia | 5809 | 22.65 | 2.47 | 2826 | 7.60% | 2741 | 6.88% |
| Czech Republic | 6894 | 31.17 | 2.02 | 5559 | 48.07% | 5372 | 45.98% |
| Estonia | 5587 | 9.94 | 1.09 | 4696 | 42.89% | 4661 | 42.41% |
| Finland | 5882 | 1.86 | 0.83 | 4010 | 2.14% | 4010 | 2.14% |
| France | 6108 | 8.48 | 2.88 | 4463 | 10.02% | 4154 | 9.86% |
| Greece | 5532 | 2.14 | 0.34 | 3968 | 3.01% | 3154 | 2.34% |
| Hong-Kong | 5359 | 35.86 | 2.11 | 4583 | 6.90% | 4583 | 6.90% |
| Hungary | 5658 | 27.09 | 2.78 | 3641 | 7.56% | 3379 | 7.20% |
| Iceland | 3371 | 10.56 | 1.48 | 2179 | 10.48% | 2094 | 10.17% |
| Ireland | 5741 | 8.75 | 1.06 | 3519 | 11.79% | 3519 | 11.79% |
| Latvia | 4869 | 22.00 | 3.35 | 3576 | 34.78% | 3520 | 35.58% |
| Luxembourg | 5299 | 11.62 | 0.77 | 3149 | 0.72% | 3149 | 0.72% |
| Mexico | 7568 | 31.54 | 2.62 | 5839 | 7.30% | 5489 | 6.45% |
| Peru | 6971 | 39.70 | 3.10 | 4557 | 14.96% | 4153 | 14.51% |
| Poland | 4478 | 16.14 | 2.37 | 3975 | 26.49% | 3890 | 24.43% |
| Portugal | 7325 | 15.11 | 1.50 | 5629 | 5.22% | 5516 | 4.54% |
| Qatar | 1208 | 151.7 | 3.00 | 7316 | 4.75% | 6690 | 3.60% |
| Russia | 6036 | 15.81 | 1.48 | 4662 | 3.22% | 4658 | 3.08% |
| Slovakia | 6350 | 38.61 | 2.72 | 4885 | 40.09% | 4659 | 40.40% |
| Slovenia | 6406 | 63.04 | 3.59 | 4923 | 8.06% | 4471 | 8.47% |
| South Korea | 5581 | 35.86 | 2.64 | 4365 | 16.99% | 4282 | 19.21% |
| Spain | 6736 | 57.33 | 2.81 | 4824 | 14.86% | 4289 | 13.04% |
| Switzerland | 5860 | 56.67 | 1.95 | 3184 | 9.14% | 3194 | 9.14% |
| Taiwan | 7708 | 16.12 | 1.06 | 7245 | 2.08% | 7245 | 1.89% |
| Thailand | 8249 | 110.7 | 5.28 | 7214 | 3.52% | 6518 | 2.36% |
| Turkey | 5895 | 42.72 | 3.38 | 4771 | 17.04% | 4752 | 16.09% |
| UAE | 1416 | 121.9 | 2.94 | 10118 | 12.42% | 7593 | 10.18% |
| United States | 5712 | 15.97 | 2.29 | 4646 | 10.10% | 4646 | 10.10% |

**Notes:** VPC is expressed as a % and indicates the percentage of unexplained variation in students' life satisfaction that is explained at the school level

#### *5.3.3.3. Random effects*

Table 5.5 reports random effects for schoolwork-related anxiety, the frequency of suffering bullying, feeling emotionally supported by parents and having repeated a grade at least once. There is evidence of random effects in relation to these factors in 16, 29, 26 and 14 countries, respectively. The estimates not reported (in blank) indicate that the random effect was not considered because it did not improve the model fit. Among those considered, statistically significant random effects are highlighted in bold. The existence of random effects would suggest that differences in how schools deal with students with different characteristics (i.e. reporting different levels of schoolwork-related anxiety, frequency of suffering bullying and feeling emotionally supported by parents; and those who have and have not repeated a grade at least once) has a significant impact on their LS.

In 5 Eastern European nations –the Czech Republic, Estonia, Latvia, Poland and Slovakia- the school random effect coefficient for grade repetition is above 1 point. This indicates that among those students who have repeated a grade in these countries -a total of 4.03%, 3.34%, 4.23%, 4.16% and 5.88%, respectively- attending to one school or another makes a big difference to their LS. These are the exact same countries with very high VPC values - this is the countries where schools would influence students' LS the most (see section 5.3.3.2 and table 5.4 above). In the null-model, these Eastern European countries do not stand out in terms of the VPC. Nonetheless, when adding predictor variables (including random effects) to the model (i.e., model 1 and model 2), VPCs increase dramatically in these countries. Indeed, when removing school random effects for grade repetition from model 2, VPCs in the Czech Republic, Estonia, Latvia, Poland and Slovakia go, respectively, from 45.98, 42.41%, 31.22%, 24.43% and 40.40% to 6.27%, 7.04%, 7.30%, 4.27% and 6.50%

Table 5.5. Random effects in full-model for several predictor variables

| | Index of schoolwork-related anxiety | | | Index of frequency of suffering bullying | | | Index of feeling emotionally supported by parents | | | Having repeated a grade at least once | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coef. | S.E. | (95% conf. int.) | Coef. | S.E. | (95% conf. int.) | Coef. | S.E. | (95% conf. int.) | Coef. | S.E. | (95% conf. int.) |
| Austria | **0.18** | **(0.06)** | (0.09-0.36) | **0.29** | **(0.06)** | (0.20-0.42) | **0.29** | **(0.05)** | (0.21-0.42) | **0.59** | **(0.15)** | (0.36-0.97) |
| Bulgaria | **0.29** | **(0.09)** | (0.16-0.53) | **0.48** | **(0.11)** | (0.31-0.75) | **0.37** | **(0.08)** | (0.24-0.57) | | | |
| Chile | 0.10 | (0.15) | (0.01-1.87) | **0.24** | **(0.07)** | (0.13-0.43) | **0.25** | **(0.07)** | (0.15-0.42) | | | |
| China (B-S-J-G) | 0.22 | (0.22) | (0.13-0.38) | **0.17** | **(0.07)** | (0.08-0.39) | **0.32** | **(0.07)** | (0.20-0.50) | **0.48** | **(0.20)** | (0.21-1.11) |
| Colombia | 0.14 | (0.15) | (0.02-1.11) | **0.48** | **(0.09)** | (0.33-0.68) | **0.26** | **(0.07)** | (0.15-0.44) | **0.46** | **(0.12)** | (0.27-0.77) |
| Croatia | **0.30** | **(0.06)** | (0.21-0.45) | **0.29** | **(0.04)** | (0.22-0.40) | | | | | | |
| Czech Republic | **0.17** | **(0.08)** | (0.07-0.46) | **0.29** | **(0.06)** | (0.19-0.43) | **0.29** | **(0.07)** | (0.18-0.46) | **1.75** | **(0.30)** | (1.25-2.45) |
| Estonia | **0.23** | **(0.03)** | (0.18-0.31) | **0.21** | **(0.05)** | (0.14-0.34) | **0.32** | **(0.04)** | (0.25-0.41) | **1.40** | **(0.35)** | (0.85-2.30) |
| Finland | | | | **0.21** | **(0.04)** | (0.15-0.29) | | | | | | |
| France | **0.28** | **(0.15)** | (0.10-0.79) | **0.26** | **(0.08)** | (0.15-0.47) | **0.39** | **(0.18)** | (0.16-0.97) | 0.17 | (0.27) | (0.01-3.80) |
| Greece | 0.12 | (0.11) | (0.02-0.76) | **0.25** | **(0.09)** | (0.13-0.51) | | | | | | |
| Hong-Kong | | | | 0.11 | (0.07) | (0.03-0.37) | | | | **0.45** | **(0.18)** | (0.20-0.98) |
| Hungary | **0.25** | **(0.06)** | (0.16-0.41) | **0.31** | **(0.06)** | (0.22-0.45) | **0.32** | **(0.08)** | (0.19-0.53) | | | |
| Iceland | **0.32** | **(0.05)** | (0.23-0.44) | **0.32** | **(0.06)** | (0.23-0.46) | **0.32** | **(0.06)** | (0.22-0.46) | | | |
| Ireland | **0.20** | **(0.06)** | (-0.11-0.37) | **0.24** | **(0.05)** | (0.15-0.37) | **0.25** | **(0.04)** | (0.18-0.36) | 0.49 | (0.38) | (0.11-2.23) |
| Latvia | **0.28** | **(0.06)** | (0.19-0.41) | **0.31** | **(0.06)** | (0.21-0.46) | **0.31** | **(0.05)** | (0.23-0.43) | **1.10** | **(0.21)** | (0.77-1.59) |
| Luxembourg | | | | | | | | | | | | |
| Mexico | **0.20** | **(0.08)** | (0.10-0.42) | **0.33** | **(0.09)** | (0.19-0.56) | **0.21** | **(0.06)** | (0.12-0.38) | | | |
| Peru | | | | **0.36** | **(0.06)** | (0.26-0.49) | **0.32** | **(0.05)** | (0.24-0.44) | **0.69** | **(0.14)** | (0.46-1.04) |
| Poland | **0.18** | **(0.07)** | (0.08-0.37) | **0.25** | **(0.06)** | (0.16-0.39) | **0.19** | **(0.06)** | (0.10-0.34) | **1.01** | **(0.26)** | (0.61-1.67) |
| Portugal | **0.19** | **(0.07)** | (0.10-0.38) | **0.22** | **(0.05)** | (0.14-0.36) | 0.16 | (0.10) | (0.05-0.54) | 0.19 | (0.13) | (0.05-0.70) |
| Qatar | | | | **0.24** | **(0.05)** | (0.16-0.36) | **0.21** | **(0.06)** | (0.12-0.38) | | | |
| Russia | **0.20** | **(0.08)** | (0.09-0.45) | **0.23** | **(0.09)** | (0.11-0.48) | **0.18** | **(0.05)** | (0.10-0.32) | | | |
| Slovakia | | | | **0.41** | **(0.05)** | (0.33-0.51) | **0.16** | **(0.07)** | (0.06-0.38) | **1.52** | **(0.25)** | (1.11-2.09) |
| Slovenia | **0.29** | **(0.06)** | (0.20-0.42) | **0.37** | **(0.05)** | (0.28-0.50) | **0.25** | **(0.05)** | (0.17-0.37) | | | |
| South Korea | | | | **0.19** | **(0.06)** | (0.11-0.35) | **0.26** | **(0.05)** | (0.17-0.39) | **0.88** | **(0.29)** | (0.46-1.68) |
| Spain | 0.11 | (0.07) | (0.03-0.42) | **0.26** | **(0.05)** | (0.17-0.37) | **0.24** | **(0.04)** | (0.17-0.35) | **0.52** | **(0.08)** | (0.38-0.71) |
| Switzerland | 0.16 | (0.09) | (0.05-0.46) | **0.31** | **(0.06)** | (0.21-0.45) | **0.36** | **(0.05)** | (0.27-0.48) | | | |
| Taiwan | | | | **0.22** | **(0.05)** | (0.14-0.35) | **0.13** | **(0.05)** | (0.06-0.29) | | | |
| Thailand | 0.08 | (0.15) | (0.00-4.03) | | | | 0.00 | (0.00) | (0.00-0.00) | | | |
| Turkey | **0.26** | **(0.08)** | (0.13-0.49) | | | | **0.28** | **(0.08)** | (0.17-0.47) | **0.95** | **(0.25)** | (0.57-1.58) |
| UAE | | | | **0.26** | **(0.05)** | (0.18-0.36) | **0.33** | **(0.06)** | (0.24-0.47) | **0.50** | **(0.15)** | (0.28-0.89) |
| United States | 0.12 | (0.10) | (0.02-0.59) | **0.29** | **(0.06)** | (0.19-0.44) | **0.27** | **(0.04)** | (0.20-0.36) | 0.38 | (0.44) | (0.04-3.80) |

Notes: statistically significant effects are highlighted in bold

#### *5.3.3.4. The role of school type and school peers' characteristics*

Tables 5.6 and 5.7 summarise the results of a series of interaction effects involving school type and school peers' characteristics, respectively. Results detailed by county are reported in tables A1.5 and A1.6, respectively.

Table 5.6. Summary table of interaction effects involving school type.

| | Number of countries with available data | Number of countries where a statistically significant interaction is found (N) and mean effect size (MES) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Semi-private | | | | Private | | | |
| | | N (+) | MES | N (-) | MES | N (+) | MES | N (-) | MES |
| Index of schoolwork-related anxiety | 31 | 4 | 0.45 | 3 | -0.35 | 4 | 0.37 | 2 | -0.31 |
| Index of sense of belonging at school | 31 | 2 | 0.34 | 3 | -0.39 | 1 | 0.30 | 2 | -0.23 |
| Index of frequency of suffering bullying | 31 | 1 | 0.19 | 2 | -0.42 | 2 | 0.19 | 3 | -0.39 |
| Index of feeling unfairly treated by teachers | 31 | 1 | 0.34 | 2 | -0.88 | 4 | 0.37 | 1 | -0.49 |
| Index of feeling emotionally supported by parents | 31 | 2 | 0.62 | 5 | -0.29 | 1 | 0.83 | 8 | -0.41 |
| Index of academic competence | 31 | 4 | 0.68 | | | 4 | 0.37 | 4 | -0.61 |
| Index of time spent using ICT outside school for schoolwork | 25 | | | 2 | -0.93 | 1 | 0.40 | | |
| Index of valuing cooperation | 31 | 4 | 0.35 | 1 | -0.30 | 1 | 0.60 | 4 | -0.40 |
| Having repeated a grade at least once | 17 | 3 | 0.83 | 1 | -1.29 | 1 | 1.31 | | |
| Index of truancy | 31 | 1 | 1.11 | 6 | -0.30 | 5 | 0.28 | 2 | -0.61 |
| School practices ability grouping within classes | 25 | 1 | 0.37 | 2 | -0.85 | 3 | 0.59 | | |
| School practices ability grouping between classes | 25 | 2 | 0.09 | 1 | -0.36 | 2 | 0.51 | | |

Interactions reported in table 5.6 evaluate whether the effect of a predictor variable on students' LS significantly differs by school type. The existence of an interaction would suggest that, in that particular country, differences in how certain factors (e.g. feeling unfairly treated by teachers) influence students' LS would depend on unobserved characteristics that are specific to a particular type of school (private, semi-private, public). An alternative explanation could be that, in that education system, students with some specific characteristics (e.g. the relative importance of feeling unfairly treated by teachers in LS is smaller) are more likely to end up attending a particular type of school (e.g. private school). These hypotheses (that school type shapes students' LS and that students of certain characteristics tend to be sorted into particular school types) are not

mutually exclusive, and both are policy-relevant. Table 5.6 reveals that there is at least 1 statistically significant interaction in 29 out of 31 countries with available data. For example, compared to public schools, in semi-private schools the effect of schoolwork-related anxiety on students' LS is greater in 4 societies and smaller in 3 while in private schools it is greater in 4 and smaller in 2.

Table 5.7. Summary table involving school peers' mean level for several predictors

| | | School peers mean level direct effect | | | | Interaction student's level - school peers' mean level | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Number of countries with available data | Number of countries where a statistically significant effect is found (N) and mean effect size (MES) | | | | Number of countries where a statistically significant interaction is found (N) and mean effect size (MES) | | | |
| | | N (+) | MES | N (-) | MES | N (+) | MES | N (-) | MES |
| Index of schoolwork-related anxiety | 33 | 1 | 0.36 | 4 | -0.44 | | | 5 | -0.43 |
| Index of sense of belonging at school | 32 | 1 | 0.8 | 2 | -0.49 | 2 | 0.31 | 2 | -0.44 |
| Index of frequency of suffering bullying | 33 | 1 | 0.37 | | | 12 | 0.48 | | |
| Index of feeling unfairly treated by teachers | 33 | 2 | 0.46 | 1 | -0.28 | 7 | 0.41 | | |
| Index of feeling emotionally supported by parents | 33 | 2 | 0.42 | 1 | -0.68 | 5 | 0.45 | 1 | -0.28 |
| Index of academic competence | 33 | 1 | 0.18 | 5 | -0.2 | 9 | 0.19 | 1 | -0.25 |

Interactions reported in table 5.7 examine whether the mean level of a variable among school peers moderates (or increases) the effect of that predictor variable on students' LS. Both the direct and interaction effects are relevant. The existence of a direct association between students' LS and a specific characteristic among school peers would be evidence of environmental factors (i.e. who you are surrounded with and/or the school climate) influencing individual's LS. For example, in 4 countries, being exposed to a school environment characterised by greater schoolwork-related anxiety among school peers is negatively associated with students' LS. Nonetheless, this association could also operate in mediated ways. For instance, a higher mean level of schoolwork-related anxiety among peers could moderate the negative influence that schoolwork-related anxiety has on students' LS –which is observed in 5 countries. This might indicate that the impact of a specific factor on LS varies depending on students' assessment of their relative, rather than absolute, position. In this particular example, it could be the

case that having the impression that others feel as bad as oneself could make students feel better. Table 5.7 shows that there is at least 1 statistically significant interaction involving school peers' mean level in 24 out of 33 countries with available data. For example, school peers' mean level of the frequency of suffering bullying is positively associated with students' LS in 1 country, and there is a positive interaction in 12 of them – this is the greater the frequency of suffering bullying among school peers the greater the negative effect of the frequency of suffering bullying on the LS of the student.

## 5.4. Discussion

The analysis presented above provided support to all the hypotheses posed at the beginning of this chapter, this is that there is an association between education policy-relevant factors and students' LS and this association differs across countries; also that schools influence students' LS in multiple ways and the way this happens varies from one country to another. Moreover, these results also support the thesis that there is an association between education policy and child SWB and that this association is complex as it differs across countries, across schools and depending on characteristics at the school level. Some of these results deserve a more detailed discussion, which is developed in the following sections.

*Cross-country variation in students' life satisfaction*

Mean levels of LS differ across countries, with children of Eastern Asian societies reporting lower mean levels of LS. This is in line with previous studies on children and adolescents (Rees and Main 2015) and, as discussed in 2.3.1.1 in chapter 2, this may have to do with linguistic and cultural differences across countries which influence how respondents interpret the meaning of the concept of LS and how these tend to respond to questions on their SWB (Leu et al. 2011, Lu and Gilmour 2004). In Eastern Asian societies –and Turkey- not only mean levels of LS are lower but also skewness in LS is less accentuated. Moreover, variance (inequality) in LS also differs across countries, although there is not a clear cluster of countries where this is higher or lower. Overall, these results show that cross-country differences in students' LS are not only about mean values but also about how students' responses are distributed through the scale used to measure LS.

*The association between education policy-relevant factors and students' life satisfaction*

Multiple associations between education policy-relevant factors and students' LS were found. Specifically, schoolwork-related anxiety (-), the frequency of being bullied (-) and feeling emotionally supported by parents (+) were revealed as almost universal predictors of students' LS. However, in relation to the frequency of being bullied a statistically significant effect was not found in South Korea. This may have to do with the

fact that South Korean children tend to report very low levels of bullying. In PISA 2015, South Korean students reported by far the lowest frequency of feeling bullied (OECD 2017a) among the 53 countries with available data. Similarly, using data from Children's Worlds, Rees and Main (2015) also find that children aged 10 and 12 in South Korea feel bullied less frequently compared to those in other countries. Furthermore, schoolwork-related anxiety seems to be more important to students' LS than the experience of bullying -although there are some exceptions (notably Colombia, France and Chile). This is especially the case of South Korea and Iceland, which are the two countries where the effect of schoolwork-related anxiety in students' LS is by far the greatest. Nonetheless, by a considerable margin, the greatest effect on students' LS tends to be observed in relation to feeling emotionally supported by parents in relation to school. Some notable exceptions are Mexico and Chile, where the effect of feeling emotionally supported by parents in relation to school and schoolwork-related anxiety are similar and smaller than the effect of bullying, especially in Chile; and also Ireland and Iceland, where the effect of feeling emotionally supported by parents is similar to the effect of the experience of bullying and -especially in the case of Iceland- smaller than the effect of schoolwork-related anxiety. All in all, these differences across countries in the relative importance that distinct factors have in the making of students' LS indicate that the association between education policy and students' LS is complex.

In addition, in most countries, there is an association between students' LS and gender (identifying oneself as a girl) (-), feeling unfairly treated by teachers (-), valuing cooperation (+), having breakfast before going to school (+), doing vigorous exercise outside school (+), academic competence (-) and talking to parents before and/or after school (+). By a considerable margin, the greatest effect size tends to be found again in the domain of family relationships (talking to parents). The somewhat surprising negative association between academic competence and students' LS contradicts findings from previous research investigating this association. In the meta-analysis exploring the association between academic achievement and SWB described in chapter 2 (section 2.3.2.2.), Bücker et al. (2018) find a small to medium positive correlation but also acknowledge that high achieving students do not necessarily report high SWB and that low-achieving students do not automatically report lower SWB.

Furthermore, in around half of the countries studied, an association was found for SES (positive in all of them but in Slovenia), sense of belonging at school (+), truancy (-) and school type –in this case, when compared with public schools, students' LS is higher in private and/or semi-private schools in some countries and lower in others.

For the remaining predictor variables, the picture is more complex. In a few cases, the effect is positive in some societies and negative in others. Generally, for these remaining predictor variables, an effect is usually found in a smaller number of countries and the effect size tends to be smaller. However, there are some education policy-relevant factors which are associated with students' LS in a small number of countries but which are particularly important in these societies. For example, this is the case for the shortage of educational resources, where a small but statistically significant effect is found only in Spain (-0.15***). Similarly, this is also the case for the percentage of certified teachers in the school, where an effect –rather great in size- is only found in Greece and South Korea (0.36* and 0.73***, respectively).

The models studied explain, approximately, between one-fifth and one-third of the variation in students' LS. Most of this variation is explained by education policy-relevant factors, especially by self-reported well-being variables. However, both the total proportion of variation in LS explained by these variables and the different contribution to the making of LS of each of the groups of variables studied differs substantially across countries.

Overall, all this evidence of cross-society differences in the association between education-policy-relevant factors and students' LS indicates that although there are some domains of children's lives that seem to be important to their SWB almost universally, in many instances, what is observed in one particular society is not necessarily observed in others. This highlights the relevance of comparative research on children's SWB and the necessity of identifying cross-society differences and commonalities in terms of what contributes to children's SWB.

*How schools may influence students' life satisfaction*

Schools may play an important role in shaping students' LS. First, there is evidence of school effects on students' LS in all countries but two (Finland and Greece).

Second, part of the variation in students' LS is explained by differences between schools. The analysis of the VPC revealed that, in the full multilevel model (model 2), this proportion is above 5% in 24 countries and is particularly great in 5 Eastern European nations: Czech Republic (45.98%), Estonia (42.41%), Slovakia (40.49%), Latvia (35.58%) and Poland (24.43%). These results are in line with previous research (see Clair (2014) for the cases of England and the United States) which show that, in some countries, schools may explain an important proportion of variation in students' SWB.

Third, the relationships between education policy-relevant factors and students' LS often varies from one school to another. That is, there is evidence of school random effects in

all the countries analysed but Luxembourg and Thailand, which suggests that school responses to student experiences and characteristics are important. This is particularly important in those Eastern European nations where levels of between-school variance in students' LS are very high (Czech Republic, Estonia, Slovakia, Latvia and Poland) because, in view of the multilevel regression models studied, this between-school variance is mostly explained by how schools in these countries treat students who have repeated a grade –which, in these countries, represent around 4-6%.

Fourth, these associations vary depending on school type in 29 out of 31 countries. This can be interpreted in two ways. First, school type shapes students' LS because these types of schools are different enough in ways that are relevant to students' LS. And second, students of certain characteristics tend to be sorted into particular types of school. Both hypotheses are education policy-relevant.

And fifth, there is evidence of a direct association between school peers' characteristics and students' LS in 17 out of 33 countries, which provides further support to the idea that environmental variables at school level (peers and/or school climate) are important. Moreover, the association between education policy-relevant factors and students' LS varies depending on school peers' characteristics in 31 out of 33 countries. For instance, in 12 countries, higher levels of bullying among school peers accentuate the effect of bullying in students' LS. This is additional evidence that school-level environmental variables influence students' LS. In other cases, (e.g. the fact that, in 5 countries, the mean level of schoolwork-related anxiety among school peers moderates the effect of schoolwork-related anxiety in students' LS), the existence of moderating effects could indicate that the impact of a specific factor on LS may vary depending on students' assessment of their relative, rather than absolute position.

All in all, these results indicate that although schools seem to influence students' LS in all countries, there are important cross-country differences. Not only do schools seem to play a much more important role in some societies than in others but there is also substantial cross-society variation in how schools would influence students' LS (i.e. through differences when it comes to dealing with bullying, grade repetition, etc.; and perhaps through the way in which students of different characteristics are concentrated in different types of schools, study programmes and/or classrooms). Again, this highlights the important role of comparative research and the need for identifying cross-society differences and commonalities in how schools may influence students' LS and what may explain this.

*The complex association between education policy and students' life satisfaction*

An important observation derived from the analysis conducted in this chapter is that the association between education policy and children's SWB is complex. There are important cross-country variations in the links between education policy-relevant factors and students' LS as well as regarding the role played by schools in shaping students' LS. The association between education policy and child SWB varies at the country level and at the level of schools. However, it is likely that this association also varies at other levels (e.g. state/regional level, local level, etc.) for two reasons. First, because geographical differences in how schools influence the children's SWB are likely to relate to characteristics of the education system, which may well differ across regions/states within a particular country. And second, more importantly, because research has shown that cross-country variations in child SWB are mainly due to differences in factors of the close environment of the child –mainly school, home and community- (Lee and Yoo 2015) and, therefore, local characteristics are likely to play an important role. For those interested in if and how education policy and schools may promote children's SWB, a promising way forward could involve conducting comparative research on children's SWB adopting a more nuanced approach to study this complexity with consideration of factors at different levels of the child's environment and the interconnections between them.

## 5.5. Limitations

The main limitations affecting this research are discussed in chapter 8 (section 8.2). In addition to these, there are some other limitations which are specific to this chapter. First, when removing average class size in multilevel regression model 2 in Thailand as a result of not being statistically significant, the model would iterate endlessly and never converge. As explained in chapter 4 (section 4.3.1), this may happen when multiple random effects coefficients in the model are close to or equal to zero (Hox, 2010). This seems to be the case in Thailand, where there are two random effects: one of them (schoolwork-related anxiety) is rather close to 0 (0.0014-4.0325) and the other one (feeling emotionally supported by parents) is 0 (0.0000-0.0000). This only happens in Thailand. When removing the random effect that is equal to 0 –which is the solution proposed in Clair (2014) and Hox (2010)- the model converges. I adopted this solution. However, by doing so, this model does not include a random effect that significantly improves the model fit, which would have been included if convergence problems did not exist. And second, for the linear regression models presented in this chapter, the assumption of normality of residuals was checked using a 'qnorm' plot. As figure A1.7 in Appendix 1 show, there might be problems of non-normality affecting the residuals.

## 5.6. Conclusion

There seems to be room for education policy to positively influence students' LS in different ways. There is an association between multiple education policy-relevant factors in the school and home microsystem and students' LS and schools seem to play an important role in shaping students' LS. However, the association between education policy and students' LS is complex. It differs by country, across schools and depending on characteristics at the school level. Adopting a more nuanced approach to study the links between education policy and child SWB can further our understanding of whether and how societies can make children happier. To shed more light into how schools and education policy can promote child SWB, the next chapter looks into the complex nature of this association by investigating if and how the relationships education policy and students' LS differs by gender.

# Chapter 6: Education policy and the gender gap in students' life satisfaction

## 6.1. Context

The previous chapter studied the association between education policy and students' LS. The results revealed that an association exists but this is of a complex nature as it differs by country, across schools and depending on school characteristics. This chapter studies the complex nature of this association by investigating how gender interacts with different elements of the home and school microsystems to shape students' LS. In other words, the aim is to study whether there are gender differences in how schools and education policy may influence children's LS.

This chapter follows the same structure as the previous chapter. First, I describe the analysis, enumerating the research questions and hypotheses investigated and providing an explanation of how the ecological framework to study child SWB is applied. Then I present the results of the analysis, which are discussed in more detail in the following section. After that, I discuss some limitations which are specific to this chapter. And finally, I present the conclusions.

## 6.2. Analysis

In this chapter, I mainly focus on research question 2B and 2D, and –to a lesser extent- I also study research questions 2A, 1B and 1A:

1) Is there an association between education policy and child SWB?
    A. Is there an association between education policy-relevant factors and students' LS?
    B. Do schools influence students' LS?
2) What is the nature of this association?
    A. How do schools shape students' LS?
    B. What are the links between gender, education policy and students' LS? Does education policy explain part of the gender gap in students' LS?
    D. Does the association between education policy and students' LS vary across societies? How?

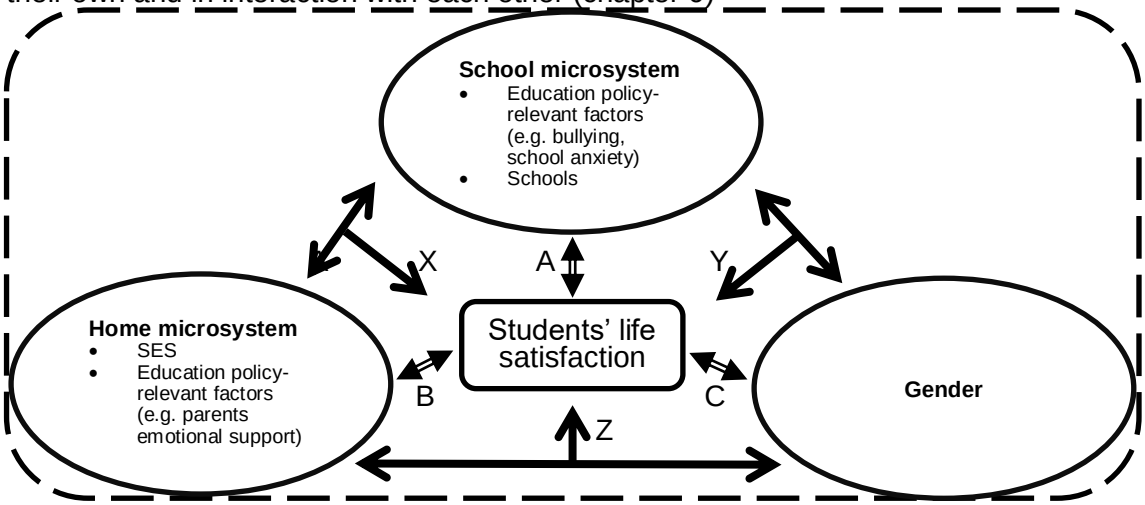
To study these questions, the following analyses are conducted:

1. First, I study cross-country variations in gender differences in students' LS. I study gender differences in mean levels of LS as well as in terms of variance and skewness in LS. In the ecological framework, this is a way in which gender directly relates to LS (C in figure 7.1) This first analysis does not aim to answer

any of the research questions studied but it is again a necessary informative step before studying these questions.

2. Second, I study cross-country differences in education policy-relevant factors in the school and home microsystem and how these shape gender differences in students' LS. First, I estimate the mean differences between girls and boys in a group of 12 education policy-relevant factors. Second, I study direct and interaction effects in multilevel regression models to examine the effect that each of these factors has in students' LS. And third, I perform a Blinder-Oaxaca decomposition analysis to investigate how each of these factors contributes to the gender gap in students' LS. In the ecological framework, this is a way in which gender interacts with factors in the home and school microsystems to shape students' LS (Y and Z in figure 7.1). This mainly addresses research questions 2B and 2D. I hypothesize that education policy-relevant factors shape gender differences in students' LS and that how this occurs differs across countries.
3. And third, I study the role played by schools in shaping gender differences in students' LS and how this differs across countries. I do this by estimating gender random effects in multilevel regression models, which indicate whether the gender gap in students' LS differs across schools. In the ecological framework, this illustrates how gender interacts with the school microsystem to influence students' LS (Y in figure 7.1). This analysis addresses research questions 1B, 2A, 2B and 2D. I hypothesise that schools may have the capacity of influencing gender differences in students' LS and that differences across countries are important.

Figure 6.1. How the home and school microsystem and gender relate to students' LS on their own and in interaction with each other (chapter 6)




| | RQs studied | How the ecological approach is applied to answer the research questions | Ecological approach: How gender and the school and the home microsystem relate to LS on their own (A, B, C) and in interaction with each other (X, Y, Z) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | X | Y | Z | |
| | | | How the school microsystem relates to LS | How the home microsystem relates to LS | How gender relates to LS | How the school and home microsystem interact to shape LS | How gender and the school microsystem interact to shape LS | How gender and the home microsystem interact to shape LS | Cross-country differences |
| **CHAPTER 6** | | | | | | | | | |
| MR. **Mean differences in** LS and other **descriptive information** | - | By studying mean differences in LS between girls and boys and differences in skewness and variance in LS | | | X | | | | X |
| | | By studying differences across countries | | | | | | | |
| MR. **Direct effects** of gender in LS | - | By studying the direct association between gender and LS | | | X | | | | |
| | | By studying differences across countries | | | | | | | |
| MR. **Interactions effects** involving gender and education policy-relevant aspects in the home and school microsystem | 1A, 2B, 2D | By studying how gender interacts with education policy-relevant aspects in the school microsystem(e.g. bullying, schoolwork-related anxiety, etc.) to shape LS | X | | | | X | | |
| | | By studying how gender interacts with education policy-relevant aspects in the home microsystem (e.g. parents emotional support, SES, etc.) to shape LS | | | | | | X | |
| | | By studying differences across countries | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Blinder-Oaxaca decomposition analysis** | 1A, 2B, 2D | By estimating the proportion of the gender gap in LS that is explained by a series of education policy-relevant aspects in the home and school microsystem | | | | | X | X | |
| | | By studying differences across countries | | | | | | | |
| MR. **School random effects** | 2A, 2B, 2D | By studying how the influence of gender in students' LS varies across schools | | | | | X | | |
| | | By studying differences across countries | | | | | | | |

The analysis presented in this chapter uses the same variables studied in the previous chapter. The dummy variable gender is the most important predictor variable this time. Together with gender, the same 40 variables which were used in chapter 5 were considered in the multilevel regression models used in this chapter too. However, only 12 of them were selected to study gender differences, while the remaining 28 were only considered as control variables in the multilevel regression models. These 12 variables are the same variables selected to study interactions in chapter 5, this is the index of schoolwork-related anxiety, the index of sense of belonging at school, the index of frequency of being bullied, the index of feeling unfairly treated by teachers, the index of feeling emotionally supported by parents, the index of academic competence, the index of ICT use at home for schoolwork, the index of valuing cooperation and teamwork, the of truancy, having repeated a grade, attending a school which practices ability grouping within classes, and attending a school practices ability grouping between classes.

The main method that I use is in this chapter is multilevel regression to study direct effects, interaction effects and random effects. In addition, I estimate mean differences and perform a Blinder-Oaxaca decomposition analysis of the gender gap in students' LS in view of the 12 predictor variables selected to study gender differences. The process of creating multilevel models and the way in which direct, interaction and random effects are studied are the same as in chapter 5 (section 5.2).

## 6.3. Results

### 6.3.1. Gender differences in students' life satisfaction

Students' reports on their LS differ by gender (table 6.1; detailed results of the mean, variance and skewness disaggregated by gender are reported in table A2.1 in Appendix 2). Results in table 6.1 show that, on average, students report lower LS in Eastern Asian societies and in Turkey. Furthermore, LS is lower among girls than among boys in all countries, although gender differences are not statistically significant in some of them and there is great cross-country variation overall. This is observed in view of both 'raw' mean differences as well as in view of the effect of the variable gender (girls=1, boys=0) in multilevel models. Moreover, skewness in LS is smaller among girls than among boys in all countries and variance (inequality) in LS tends to be greater among girls than among boys with the exception of mainly Asian countries.

Table 6.1. Gender differences in students' life satisfaction

| Country | Mean LS | Gender differences in mean levels of LS | Gender differences in variance in LS | Gender differences in skewness in LS | Effect of gender (girls=1, boys=0) in LS in multilevel regression models |
|---|---|---|---|---|---|
| Iceland | 7.80 | **-0.93** | 1.77 | 0.64 | **-0.55** |
| Slovenia | 7.17 | **-0.91** | 1.03 | 0.56 | **-0.31** |
| Austria | 7.52 | **-0.86** | 1.41 | 0.51 | **-0.65** |
| Luxembourg | 7.38 | **-0.78** | 0.39 | 0.51 | **-0.76** |
| Finland | 7.89 | **-0.74** | 0.78 | 0.50 | **-0.63** |
| Hungary | 7.17 | **-0.74** | 0.87 | 0.29 | **-0.36** |
| Poland | 7.18 | **-0.69** | 0.97 | 0.29 | **-0.62** |
| Switzerland | 7.72 | **-0.65** | 0.53 | 0.56 | **-0.58** |
| Czech Republic | 7.05 | **-0.65** | 0.57 | 0.26 | **-0.50** |
| Greece | 6.91 | **-0.64** | 0.36 | 0.29 | **-0.54** |
| United States | 7.36 | **-0.60** | 0.24 | 0.48 | **-0.26** |
| Croatia | 7.90 | **-0.60** | 0.85 | 0.50 | **-0.55** |
| Slovakia | 7.47 | **-0.59** | 0.54 | 0.36 | **-0.80** |
| Turkey | 6.12 | **-0.59** | 0.84 | 0.22 | **-0.52** |
| Ireland | 7.30 | **-0.56** | 1.14 | 0.29 | **-0.32** |
| Portugal | 7.36 | **-0.51** | 0.31 | 0.29 | **-0.37** |
| South Korea | 6.36 | **-0.47** | -1.13 | 0.19 | -0.19 |
| Chile | 7.37 | **-0.47** | 1.09 | 0.24 | **-0.36** |
| Estonia | 7.50 | **-0.46** | 0.30 | 0.33 | **-0.31** |
| France | 7.63 | **-0.45** | 0.29 | 0.25 | -0.16 |
| Bulgaria | 7.42 | **-0.42** | 0.28 | 0.25 | **-0.24** |
| Colombia | 7.88 | **-0.37** | 1.07 | 0.27 | **-0.39** |
| Spain | 7.42 | **-0.37** | 0.29 | 0.20 | **-0.34** |
| Russia | 7.76 | **-0.32** | 0.81 | 0.19 | **-0.25** |
| Taiwan | 6.59 | **-0.29** | -0.80 | 0.16 | **-0.31** |
| UAE | 7.30 | **-0.27** | -0.25 | 0.23 | **-0.19** |
| Qatar | 7.41 | **-0.21** | -0.07 | 0.20 | **-0.18** |
| Latvia | 7.37 | **-0.16** | -0.35 | 0.13 | **-0.17** |
| Peru | 7.50 | **-0.15** | 0.50 | 0.06 | -0.13 |
| Mexico | 8.27 | **-0.12** | 0.30 | 0.32 | -0.12 |
| China (B-S-J-G) | 6.83 | -0.10 | -0.41 | 0.06 | -0.16 |
| Hong-Kong | 6.48 | -0.07 | -1.56 | 0.02 | **-0.31** |
| Thailand | 7.71 | -0.04 | -0.66 | 0.11 | -0.12 |

Notes: countries are ordered from greater to smaller gender differences in mean levels of LS. Negative values in gender differences in mean levels of LS indicate that boys report higher LS than girls (statistically significant differences are highlighted in bold). Negative values in gender differences in variance in LS indicate that variance is greater among boys. Negative values in gender differences in skewness in LS indicate that skewness is greater among girls. Negative values in the effect of gender in LS in multilevel regression models indicate that gender (identifying oneself as a girl) has a negative effect on LS (statistically significant effects are highlighted in bold)

## 6.3.2. Education policy-relevant factors and students' life satisfaction: differences by gender

### *6.3.2.1. Gender differences in education policy-relevant factors*

Table 6.2 summarises the results of the gender gap (mean differences) in 12 education policy-relevant factors. A brief explanation of how to interpret this table is given in the notes below table 6.2. Tables A2.2 and A2.3 in Appendix 2 present the results by country. For most of the factors studied, a clear pattern is visible across countries, with girls scoring either higher or lower than boys in all the countries where gender differences are observed. For a few factors, there is one or several countries where results are the opposite of those observed in most countries. And finally, for a small number of them, there is not a clear pattern of gender differences at all as the number of countries where girls score higher than boys is similar to the number of countries where the opposite is observed.

Table 6.2. Summary of the gender gap (mean differences) in education policy-relevant factors

| Education policy-relevant factor | NA | Girls score higher than boys | | Boys score higher than girls | |
|---|---|---|---|---|---|
| | | N (+) | MES | N (-) | MES |
| Index of schoolwork-related anxiety | 33 | 33 | 0.39 | | |
| Index of sense of belonging at school | 33 | 19 | 0.10 | 4 | -0.13 |
| Index of frequency of being bullied | 33 | | | 29 | -0.20 |
| Index of feeling unfairly treated by teachers | 33 | | | 33 | -0.28 |
| Index of feeling emotionally supported by parents | 33 | 18 | 0.10 | 1 | -0.08 |
| Index of academic competence | 33 | 16 | 0.18 | 1 | -0.09 |
| Index of ICT use at home for schoolwork | 29 | | | 24 | -0.17 |
| Index of valuing cooperation and teamwork | 33 | 1 | 0.05 | 23 | -0.11 |
| Index of truancy | 33 | | | 27 | -0.19 |
| Having repeated a grade | 33 | | | 28 | -4.94% |
| School practices ability grouping within classes | 33 | 4 | 3.82% | 2 | -4.47% |
| School practices ability grouping between classes | 33 | 3 | 4.84% | 2 | -8.38% |

Notes: NA indicates the number of countries with available data. N indicates the number of countries where a statistically significant difference (either positive (+) or negative (-)) is found). MES indicates the average mean difference (in standard deviations for indices and in % of students for the other variables) in the countries where statistically significant differences are found. For example, boys report a higher frequency of being bullied than girls in 29 countries, and the average gender gap in these countries is -0.20 standard deviations. Similarly, in 28 countries, boys score higher in having repeated a grade and the average gender gap in these countries is -4.94% -this is, on average in these countries, the percentage of boys who have repeated a grade at least once is 4.94% higher than the percentage of girls who have repeated a grade at least once. Detailed results by country are reported in tables A2.2 and A2.3 in Appendix 2

#### *6.3.2.2. Gender differences in the effect that education policy-relevant factors have in students' life satisfaction*

Gender differences in the effect that the 12 education policy-relevant factors studied in the previous section have in students' LS are summarised in table 6.3. An explanation on how to interpret this table is provided in the notes below table 3. Tables A2.4 to A2.15 in Appendix 2 report results by country. Table 6.3 reveals some patterns of cross-country variations in how these factors relate to LS in different ways for girls and boys. This is observed, first, regarding the number of countries where a direct association is found (direct effects). Whereas for some factors an association is observed in a similar number of countries among girls and boys, for others and association is more commonly observed either among girls or among boys. Second, regarding the size of the effect (interaction effects), which varies by gender in at least one country and in up to 11 countries depending on the education policy-relevant factor considered. And third, regarding the sign of the association, which differs by gender in a small number of countries for a few of these factors.

Table 6.3. Summary of gender differences in the effect that education policy-relevant factors have in students' life satisfaction

| | | Direct effect | | | | | | | | | | | | Interaction (gender gap) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | All students | | | | Girls | | | | Boys | | | | | |
| Education policy-relevant factor | NA | N (+) | MES | N (-) | MES | N (+) | MES | N (-) | MES | N (+) | MES | N (-) | MES | N (+) | N (-) |
| Index of schoolwork-related anxiety | 33 | | | 33 | -0.34 | | | 32 | -0.39 | | | 32 | -0.30 | | 11 |
| Index of sense of belonging at school | 33 | 16 | 0.13 | | | 9 | 0.16 | | | 7 | 0.17 | | | 1 | |
| Index of frequency of being bullied | 33 | | | 32 | -0.26 | | | 30 | -0.31 | | | 31 | -0.24 | | 8 |
| Index of feeling unfairly treated by teachers | 33 | | | 25 | -0.18 | | | 20 | -0.24 | | | 22 | -0.18 | | 9 |
| Index of feeling emotionally supported by parents | 33 | 33 | 0.53 | | | 33 | 0.57 | | | 33 | 0.48 | | | 11 | |
| Index of academic competence | 33 | 1 | 0.12 | 21 | -0.18 | | | 11 | -0.23 | | | 18 | -0.20 | 10 | 1 |
| Index of ICT use at home for schoolwork | 29 | 12 | 0.14 | | | 7 | 0.21 | | | 11 | 0.14 | 1 | -0.14 | 1 | 2 |
| Index of valuing cooperation and teamwork | 33 | 32 | 0.19 | | | 26 | 0.19 | | | 28 | 0.22 | | | 1 | 4 |
| Index of truancy | 33 | | | 19 | -0.13 | | | 18 | -0.19 | | | 10 | -0.18 | 1 | 9 |
| Having repeated a grade | 33* | | | 2 | -0.31 | | | | | 2 | 0.23 | 4 | -0.13 | 1 | |
| School practices ability grouping within classes | 33 | 1 | 0.19 | | | 2 | 0.32 | | | 2 | 0.20 | 2 | -0.49 | | 3 |
| School practices ability grouping between classes | 33 | | | 1 | -0.16 | | | | | 1 | 0.21 | 1 | -0.27 | 1 | |

Notes: NA indicates the number of countries with available data. *For having repeated a grade, there is available data to study direct effects among all students in 33 countries, among girls in 31 countries, among boys in 29 countries, and interaction effects in 29 countries. This is because, in a few countries, the sample size for these groups (girls or boys who have repeated a grade) contains less than 30 observations. Direct effects are reported considering the entire population, considering boys only, and considering girls only. N indicates the number of countries where a statistically significant effect (either positive (+) or negative (-)) is found. MES indicates the average effect size in the countries where a statistically significant effect is observed. An interaction indicates the gender gap in the effect of the education policy-relevant factor in students' LS. When the direct effect on students' LS is negative (e.g. in 19 countries, truancy), a negative interaction indicates that the effect is greater among girls (for truancy, this is observed in 9 countries) and a positive interaction indicates that the effect is greater among boys (for truancy, this is observed in 1 country). When the direct effect on students' LS is positive (e.g. in 12 countries, ICT use at home for schoolwork), a negative interaction indicates that the effect is greater among boys (for ICT use at home for schoolwork, this is observed in 2 countries) and a positive interaction indicates that the effect is greater among girls (for ICT use at home for schoolwork, this is observed in 1 country). Detailed results by country are reported in tables A.2.4 to A.2.15 in Appendix 2.

#### *6.3.2.3. Contribution of education policy-relevant factors to the gender gap in students' life satisfaction*

The results of a Blinder-Oaxaca decomposition analysis of the gender gap in students' LS in view of the 12 education policy-relevant factors studied in the previous two sections are reported in table 6.4. This analysis shows whether a factor makes a positive contribution to the gender gap in students LS (this is, benefits boys over girls, increasing the gap) or a negative one (benefits girls over boys, reducing the gender gap). Tables A2.16 to A2.27 in Appendix 2 report results by country. The size of the effects in table 6.4 is expressed in terms of the percentage of the gender gap in LS. More details on how to interpret the results are provided in notes below table 6.4. For some factors, there is a clear pattern across countries –this is, in the countries where the factor makes a significant contribution to the gender gap in LS, this contribution is either positive or negative in all of them. For others, there are some exceptions. This is, in a few countries, the sign of the contribution to the gender gap differs from that observed in most of the countries. For others, there is no clear pattern at all. And finally, a few education policy-relevant factors do not seem to make any significant contribution to the gender gap in LS in any country.

Table 6.4. Summary of the Blinder-Oaxaca decomposition analysis of the gender gap in students' life satisfaction in view of 12 education policy-relevant factors

| | | Endowment effect | | | | Unexplained effect | | | | Interaction | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Education policy-relevant factor | NA | N (+) | MES (%) | N (-) | MES (%) | N (+) | MES (%) | N (-) | MES (%) | N (+) | MES (%) | N (-) | MES (%) |
| Index of schoolwork-related anxiety | 33 | 32 | 39.92% | | | 28 | 76.10% | | | | | 15 | -15.26% |
| Index of sense of belonging at school | 33 | 4 | 8.59% | 13 | -7.10% | 30 | 101.06% | | | 4 | 6.02% | | |
| Index of frequency of being bullied | 33 | | | 28 | -32.98% | 32 | 117.45% | | | 11 | 21.65% | | |
| Index of feeling unfairly treated by | 33 | | | 33 | -34.66% | 32 | 124.09% | | | 21 | 12.38% | | |
| Index of feeling emotionally supported by parents | 33 | 2 | 4.49% | 17 | -7.52% | 28 | 105.78% | | | 15 | 1.08% | | |
| Index of academic competence | 33 | 2 | 11.73% | 7 | -8.45% | 30 | 100.71% | | | 4 | 7.01% | 2 | -12.17% |
| Index of ICT use at home for schoolwork | 29 | 9 | 10.85% | | | 26 | 96.30% | | | | | 1 | -23.49% |
| Index of valuing cooperation | 33 | 22 | 8.70% | | | 30 | 93.47% | | | 1 | 2.17% | | |
| Index of truancy | 33 | | | 27 | -12.85% | 31 | 106.03% | | | 10 | 7.93% | | |
| Having repeated a grade | 33 | | | 15 | -8.04% | 30 | 102.78% | | | 3 | 6.14% | | |
| School practices ability grouping within classes | 33 | | | | | 30 | 100.10% | | | | | | |
| School practices ability grouping between classes | 33 | | | | | 29 | 99.85% | | | | | | |

Note: the endowment effect indicates the proportion of the gender gap in LS explained by the education policy-relevant factor. The unexplained effect indicates the proportion of the gender gap in LS which is not explained by the education policy-relevant factor. The interaction indicates the proportion of the gender gap in LS explained by the interaction between the endowment and the unexplained effects. NA indicates the number of countries with available data. N indicates the number of countries where a statistically significant effect (either positive (+) or negative (-)) is found. MES (%) indicates the average effect size in the countries where a statistically significant effect is found, which is expressed as a % of the gender gap in LS. When the effect of the education policy-relevant related factor in students' LS is positive (e.g. in 16 countries, sense of belonging at school; see table 3), positive endowment values indicate that the education policy-relevant factor benefits boys over girls (i.e. increases the gender gap in LS; for sense of belonging at school this is observed in 4 countries) while negative values indicate the opposite effect (for sense of belonging at school this is observed in 13 countries). When the effect of the education policy-relevant factor in students' LS is negative (e.g. in 21 countries, academic competence; see table 3), positive endowment values indicate that the education policy-related factor benefits girls over boys (i.e. reduces the gender gap in LS; for academic competence, this is observed in 2 countries) while negative values indicate the opposite effect (for academic competence this is observed in 7 countries). Detailed results by country are shown in tables A.2.16 to A.2.27 in Appendix 2

### 6.3.3. The role of schools in shaping gender differences in students' life satisfaction

Table 6.5 shows the results of the study of gender random effects. The existence of statistically significant random effects for gender indicates that the gender gap in students' LS differs across schools. There is evidence of random effects in 8 countries.

Table 6.5. Gender random effects on students' overall life satisfaction

| Country | Coefficient | S.E. | (95% confidence interval) |
|---|---|---|---|
| Austria | | | |
| Bulgaria | | | |
| Chile | | | |
| China (B-S-J-G) | | | |
| Colombia | | | |
| Croatia | | | |
| Czech Republic | **0.31** | **(0.09)** | **(0.18 - 0.55)** |
| Estonia | 0.16 | (0.11) | (0.04 - 0.62) |
| Finland | **0.24** | **(0.06)** | **(0.15 - 0.39)** |
| France | **0.33** | **(0.15)** | **(0.13 - 0.81)** |
| Greece | | | |
| Hong Kong | | | |
| Hungary | | | |
| Iceland | | | |
| Ireland | | | |
| Latvia | | | |
| Luxembourg | 0.14 | (0.17) | (0.01 - 1.64) |
| Mexico | | | |
| Peru | **0.42** | **(0.20)** | **(0.17 - 1.05)** |
| Poland | **0.23** | **(0.11)** | **(0.09 - 0.57)** |
| Portugal | | | |
| Qatar | | | |
| Russia | 0.18 | (0.47) | (0.00 - 33.67) |
| Slovakia | **0.33** | **(0.11)** | **(0.17 - 0.64)** |
| Slovenia | 0.23 | (0.14) | (0.07 - 0.78) |
| South Korea | | | |
| Spain | 0.00 | (0.00) | (0.00 - $1.12e^{14}$) |
| Switzerland | **0.34** | **(0.08)** | **(0.22 - 0.54)** |
| Taiwan | | | |
| Thailand | 0.23 | (0.16) | (0.06 - 0.88) |
| Turkey | **0.49** | **(0.12)** | **(0.30 - 0.79)** |
| UAE | | | |
| United States | | | |

Note: in those countries where gender random effects were not retained in the multilevel regression models because their inclusion did not improve the model fit, results are not reported (in blank). Among those countries where random effects were retained, statistically significant effects are highlighted in bold

## 6.4. Discussion

This analysis provided support to all the hypotheses presented at the beginning of this chapter. This is that education policy-relevant factors shape gender differences in students' LS and there are cross-country differences in how this occurs; and that schools

may have the capacity of influencing students' LS in different ways for girls and boys and cross-country variation is, again, substantial. Furthermore, this analysis also supports the thesis that there is an association between education policy and child SWB and, especially, that this association is complex because it differs by gender and, at the same time, this varies by country. Some of the results observed in the analysis presented in this chapter are described in the following.

*Cross-country variation in gender differences in students' life satisfaction*

LS is, on average, lower among girls in all the countries studied. Compared to European countries, the gender gap in LS is smaller in most Asian societies and also in two American countries (Mexico and Peru). The gender gap in LS in the United States does not differ much in size to that observed in most European nations. These findings contradict results reported in the meta-analysis on gender differences in children and adolescents' LS by Chen et al. (2019), who find a positive gender gap (girls report lower LS) in European countries, and a small and negative gender gap in Asian and North American countries. This may be the result of differences in study features, including the age of participants and the SWB domain studied.

In addition, within most countries, the size of the gender gap in LS differs importantly depending on whether control variables are considered (direct gender effect in multilevel regression models) or not ('raw' mean differences). This means that these control variables are important in explaining the gender gap in students' LS. Since most of these variables are education policy-relevant factors, these results suggest that gender differences in children's experiences in relation to school can explain, at least in part, gender differences in LS, a question that is discussed in more detail in the next section with regards to the 12 factors used in this chapter to study gender differences in LS.

Moreover, inequality in LS is greater for girls than for boys. In some Asian societies, Peru and Latvia, however, gender differences are smaller. Similarly, boys tend to report levels of LS more concentrated around the highest values of the 0 to 10 scale, although the opposite is observed in Asian countries and Latvia. These results show that cross-society variations in gender differences in LS can be significant also in terms of how students' responses are distributed throughout the 0 to 10 scale, and not only in terms of mean levels of LS. Researchers interested in understanding why girls and boys may report different levels of SWB should pay more attention to this type of differences as well.

*Cross-country variations in gender differences in students' life satisfaction: the role of education policy-relevant factors*

The study of gender differences in 12 education policy-relevant factors, how these factors relate to LS among boys and girls, and how all this shapes the gender gap in LS

revealed the existence some interesting patterns across countries. First, girls tend to report higher levels of schoolwork-related anxiety, sense of belonging at school, feeling emotionally supported by parents in relation to school, and academic competence, and lower levels of frequency of being bullied, feeling unfairly treated by teachers, ICT use at home for schoolwork, valuing cooperation and teamwork, truancy and having repeated a grade. Second, the effect of self-reported well-being (schoolwork-related anxiety, frequency of being bullied, feeling unfairly treated by teachers and feeling emotionally supported by parents in relation to school) in students' LS tends to be greater among girls. The only exception is the sense of belonging at school, where gender differences seem small and direct and interaction effects are observed in fewer countries. For other factors, gender differences tend to be small or found in a smaller number of countries. And third, all this results in the following patterns in terms of the contribution of each factor to the gender gap in LS. The most prominent negative contributors to the gender gap in LS (i.e. gender differences in these factors benefit girls over boys) are feeling unfairly treated by teachers (-34.66% on average in 33 countries) and the frequency of being bullied (-32.98% on average in 28 countries). Another negative contributor to the gender gap in LS observed in most countries (27) is truancy –although its contribution is smaller in size (-12.85% on average). In about half of the countries, having repeated a grade and feeling emotionally supported by parents in relation to school make a negative and small contribution to the gender gap in students' LS (on average, -8.04% and -7.52%, respectively). In the latter case, however, a positive small contribution is observed in 2 countries (Chile and the UAE). The most prominent positive contributor to the gender gap in LS (i.e. gender differences in these factors benefit boys over girls) is schoolwork-related anxiety, which explains 39.92% of the gender gap in LS on average across 32 countries. Another positive contributor to the gender gap in LS observed in a large number of countries (22) is valuing cooperation and teamwork, although its contribution is smaller in size (8.70% on average). ICT use at home for school work is a positive contributor in 9 countries (10.85% on average). For the remaining education policy-relevant factors, cross-country patterns are less clear. Sense of belonging at school and academic competence make a small contribution to the gender gap in LS, which is positive in some countries and negative in others. Attending a school which practices ability grouping does not make any significant contribution in any country.

In some cases, exceptions to the general patterns observed across countries provide some interesting findings for some countries. Some of these exceptions are worth mentioning. For example, girls report higher levels of academic competence and feeling emotionally supported by parents in relation to school than boys in 16 and 18 countries, respectively, and lower levels than boys in 1 country only (Chile in both cases). In 23

countries, levels of valuing cooperation and teamwork are higher among boys but in 1 country (Qatar) levels are higher among girls. Schoolwork-related anxiety is negatively associated with students' LS in all countries but in France among girls, and in all countries but in Colombia among boys. The negative effect of academic competence in students' LS is greater among boys in 10 countries and greater among girls in 1 country, the UAE, where academic competence is 0.30 standard deviations greater among girls than among boys. The negative effect of truancy is greater among girls in 9 countries and greater among boys in 1 country, South Korea, where the effect is negative and statistically significant among boys (-0.30*** points) and positive but very small and not statistically significant among girls (0.00 points). Finally, attending a school which practices ability grouping rarely influences gender differences in LS. However, in France, attending a school which practices ability grouping within classes is positively associated with students' LS among girls (0.41** points) and negatively associated among boys (-0.51** points). In no other country, a statistically significant effect is observed for both gender groups for this variable.

Another interesting case worth discussing involves bullying in South Korea. In chapter 5, I found that South Korea is the only country where the frequency of being bullied is not associated with students' LS. This might be due to the fact that, compared to their peers in other countries, students in South Korea tend to report by far the lowest levels of bullying. As noted in chapter 5, this is observed in two different international comparative studies involving a large number of countries: PISA 2015 (OECD 2017a) and Children's Worlds (Rees and Main 2015). However, these results seem to hide important gender differences. This study revealed that, in South Korea, there is an association between bullying and students' LS among girls (a statistically significant negative effect of -0.28*** points) but not among boys (a non-statistically significant negative effect of -0.01). Indeed, South Korea is one of the only 8 countries where statistically significant gender differences are observed (i.e. the negative effect being greater among girls). However, although both girls and boys report very low levels of bullying, girls report lower levels of bullying than boys (-0.21 standard deviations less on average). This is in line with findings by Rees and Main (2015), which show that South Korea is by far the country where boys are more likely than girls to suffer physical bullying (being hit); and also, among those countries where boys are more likely than girls to suffer psychological bullying (being excluded), South Korea is the second country where these gender differences are the greatest. As a result, in South Korea, gender differences in bullying negatively contribute to the gender gap in LS (negative contribution of -24.80% of the gender gap in LS). This is –as in almost all countries- boys tend to have more negative experiences in relation to bullying than girls on average.

The patterns observed across countries –as well as the exceptions to these patterns- highlight the importance of conducting comparative research on child SWB to study differences and commonalities across countries in terms of what may result in different levels of SWB among girls and boys. In view of these results, it seems clear that girls and boys have different experiences at school and these influence students' LS in different ways for girls and boys. Moreover, it seems that, overall, in the school context, boys tend to have more negative experiences than girls in factors shaping their LS –at least regarding the factors investigated in this study. Among those factors that contribute the most to influencing the gender gap in LS in most countries, boys tend to have more negative experiences than girls with regards to relationships (bullying and relationships with teachers), which is consistent with findings from previous research (Casas and Gonzalez 2017, Rees and Main 2015). By contrast, schoolwork-related anxiety is an aspect of students' lives in which girls tend to have much more negative experiences than boys.

The literature largely reports on satisfaction with school being higher among girls than among boys and that this is the domain where gender differences are the greatest (see meta-analysis on the association between gender and child SWB by Chen et al. 2019), which is not fully in line with some of the results presented in this chapter (e.g. regarding school-related anxiety). This might be due to the fact that gender differences in relation to bullying, relationship with teachers and other education policy-relevant factors considered and not considered in this study are more important to students' SWB than school anxiety and other education policy-relevant factors where girls have more negative experiences than boys. However, this might also be due to how children perceive and reflect on their well-being in relation to school and how researchers tend to assess children's SWB in the school context. Casas and Gonzalez (2017) study SWB in the school domain and find support to their 'two worlds' hypothesis, arguing that all education policy-relevant aspects of children's lives cannot be captured by a single item for satisfaction with school. Instead –they argue- two school sub-domains can be distinguished: learning-related satisfaction and peers-related satisfaction. Moreover, the authors find that *satisfaction with your relationship with teachers*, *with your school marks* and *with things you have learned* do not directly relate to LS in most countries but are strongly correlated with satisfaction with your life as students, which is directly associated with LS; by contrast, *satisfaction with other children in your classroom* directly relates to LS and to satisfaction with your life as student. In addition, these complex associations seem to vary by gender and across different socio-cultural context. Although Casas and Gonzalez (2017) do not study school anxiety, this might well relate to LS and satisfaction in the school domain and sub-domains in different ways, which might explain why girls

tend to report higher satisfaction with school than boys despite having a much more negative experience in an aspect of their lives which has such a strong negative influence in LS. Moreover, the analysis presented in this chapter showed that school anxiety and parents' emotional support in relation to school are elements of paramount importance to children's SWB. This suggests that, although they have been assessed in view of self-reported well-being measures but not through SWB measures in strict conceptual sense (Diener et al. 2002, Rees et al. 2012), research studying these factors/sub-domains of child SWB in the school context might reveal in the future that there is more than 'two worlds' defining children's experiences in relation to school and/or that these different worlds incorporate other important elements which have been ignored in previous studies. Future research should study this question.

*Cross-country variations in gender differences in students' life satisfaction: the role of schools*

In chapter 5, I found that schools may play an important role in shaping students' LS, and the findings presented in this chapter suggest that this may well differ for girls and boys. There is evidence that the gender gap in students' LS differs across schools in 8 countries. This is in several European countries – the Czech Republic, Finland, France, Poland, Slovakia and Switzerland- as well as in Peru and Turkey. Gender random effects were not found in any Asian or North American country. The greater effect sizes were observed in Peru and, especially, in Turkey. The existence of gender random effects would suggest that, across schools, girls and boys may find rather different environments in terms of education policy-relevant factors which shape gender differences in LS.

*The complex association between education policy and students' life satisfaction*

The idea that the association between education policy and students' LS is of a complex nature was already supported by findings in chapter 5, and this chapter added some evidence supporting this argument. Not only this association differs by country, across schools and depending on factors at the school level but it also varies by gender. In view of these results, future research should further study whether and how this association varies for different groups of students (e.g. students of distinct immigrant background, SES, etc).

## 6.5. Limitations

Apart from the overall limitations affecting this research –which are discussed in chapter 8 (section 8.2)- there is another important limitation which is specific to the analysis presented in this chapter. This limitation refers to the definition of gender, which is rather restrictive. Although this imposed by data availability limitations, future studies should – ideally- allow for the study of different gender identities other than just boys and girls.

This would allow researchers to provide a more accurate picture of the links between gender and child SWB involving some minority groups.

## 6.6. Conclusion

The study of gender differences in the association between education policy and students' LS added further insights into the complex nature of this association. There are gender differences in the LS of 15-year-old students, with girls reporting lower LS in all countries, and this seems to be explained –at least in part- by boys and girls having different experiences in school. Education policy-relevant factors in the school and home microsystem influence the LS of students in different ways for girls and boys and, at the same time, this differs across countries and, in some countries, also across schools. Education policy, therefore, may play an important role in shaping gender differences in students' LS. Moreover, these results beg the question of whether students' experiences in school and how these shape their LS differ not only between boys and girls but also for other groups like, for instance, better off and worse off students. This is studied in the next chapter, which investigates if and how the association between education policy and students' LS varies depending on another important socio-demographic variable -and a key factor in the home microsystem- like SES.

# Chapter 7: The links between socioeconomic status, students' life satisfaction and education policy

## 7.1. Context

The previous chapter studied the complex nature of the association between education policy and students' LS by focusing on how this association differs by gender. Results showed that the relationship between education policy-relevant factors and students' LS differs for boys and girls and, at the same time, this varies across countries and, in some countries, across schools. As discussed in the literature review in chapter 2, together with gender, SES is another important element that may shape the association between education policy and child SWB. In the same way that boys and girls have rather different experiences in school, so are students of different SES. This chapter studies this question by investigating the links between education policy, students' LS and SES.

This chapter is structured in the same way as chapters 5 and 6. First, a description of the analysis conducted in this chapter is presented. This section details the research questions and hypotheses studied and how the ecological framework to study child SWB is applied. Next, I present the results of the analysis. These results are discussed in more detail in the following section. This is followed by a section where I briefly discuss some of the limitations which are specific to the analysis presented in this chapter. And finally, in the last section, I present the conclusions.

## 7.2. Analysis

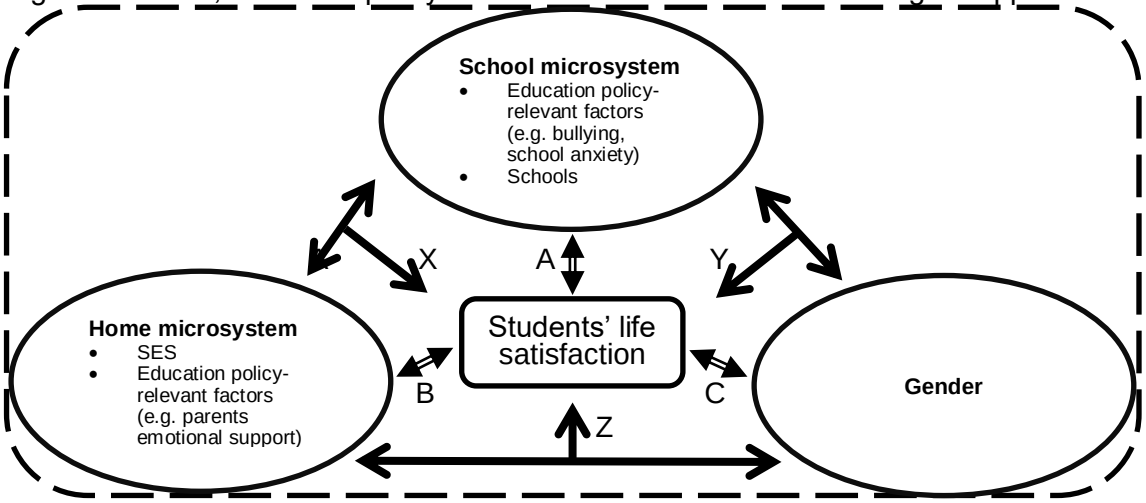
This chapter is mainly concerned with research question 2C and 2D, and –to a lesser extent- it also studies research questions 2A, 1B, and 1A:

1) Is there an association between education policy and child SWB?
    A. Is there an association between education policy-relevant factors and students' LS?
    B. Do schools influence students' LS?
2) What is the nature of this association?
    A. How do schools shape students' LS?
    C. What are the links between SES, education policy and students' LS? Does it matter how SES is measured?
    D. Does the association between education policy and students' LS vary across societies? How?

These questions are studied in the following way:

1. First, I investigate cross-country differences in the association between students' LS and SES using several SES measures (the rationale for this decision was discussed sections 2.3.3.2 section and 2.5 in chapter 2). In the ecological framework, this is a way in which SES (home microsystem) relates to LS in a direct way (B in figure 7.1) This first part of the analysis does not address any of the research questions but it is a necessary informative first step before investigating the research questions studied in this chapter.
2. Second, I investigate cross-country differences in how the association between education policy and students' LS differs across SES. I study this question by estimating interaction effects in multilevel regression. In the ecological framework, this is a way in which SES (home microsystem) interacts with factors in the school microsystem and with other factors in the home microsystem to shape students' LS (X and B in figure 7.1). This part of the analysis studies research questions 2C and 2D mainly. I hypothesize that the influence of education policy-relevant factors in students' LS differs across SES and that this varies across countries and, at the same time, depending on the SES measure used.
3. And third, I study if and how schools can moderate the impact of SES in students' LS and how this differs across countries. First, I study whether the association between SES and students' LS differs across schools. This is investigated by estimating SES random effects. And second, I study whether characteristics at the level of school (school type and school peers' mean level of SES) influence the association between SES and students' LS. I investigate this by studying direct and interaction effects. In the ecological framework, this illustrates how SES (home microsystem) interacts with factors in the school microsystem to influence students' LS (X in figure 7.1). This analysis is concerned with research questions 1B, 2A, 2C and 2D. I hypothesise that schools can moderate the influence of SES in students' LS and that the way in which happens differs across countries and depending on the SES measure analysed.

Figure 7.1. SES, education policy and students' life satisfaction: ecological approach




| | RQs studied | How the ecological approach is applied to answer the research questions | Ecological approach: How gender and the school and the home microsystem relate to LS on their own (A, B, C) and in interaction with each other (X, Y, Z) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | X | Y | Z | |
| | | | How the school microsystem relates to LS | How the home microsystem relates to LS | How gender relates to LS | How the school and home microsystem interact to shape LS | How gender and the school microsystem interact to shape LS | How gender and the home microsystem interact to shape LS | Cross-country differences |
| **CHAPTER 7** | | | | | | | | | |
| MR. Direct effects of SES in LS | - | By studying the direct association between SES (home microsystem) and LS | | X | | | | | |
| | | By studying differences across countries | | | | | | | |
| MR. School random effects | 1B, 2A, 2C, 2D | By studying how the influence of SES (home microsystem) in LS varies across schools | | | | X | | | |
| | | By studying differences across countries | | | | | | | |
| MR. Interactions effects involving SES (school microsystem) and education policy-relevant factors in the home and school microsystem | 1A, 1B, 2A, 2C, 2D | By studying how SES (home microsystem) interacts with education policy-relevant factors in the school microsystem(e.g. bullying, school type, etc.) to shape LS | X | | | X | | | X |
| | | By studying how SES (home microsystem) interacts with education policy-relevant factors in the home microsystem(e.g. parents emotional support) to shape LS | | X | | | | | |
| | | By studying differences across countries | | | | | | | |

The most important predictor variables in this chapter are the SES indices. These are the composite index of SES studied in chapters 5 and 6 and 6 new variables, including the indices of parents' level of education, parents' occupational status, and 4 indices of material well-being: household possessions, family wealth, home educational resources and cultural possession at home. Together with SES variables, the multilevel regression models used in this chapter considered the same 40 predictor variables analysed in chapters 5 and 6 as well as 7 additional variables which measure the average level of the 7 SES indices among school peers. To study interaction effects, the same 12 variables used in chapter 6 to study gender differences are used in this chapter to look at differences across SES. These are the index of schoolwork-related anxiety, the index of sense of belonging at school, the index of frequency of being bullied, the index of feeling unfairly treated by teachers, the index of feeling emotionally supported by parents, the index of academic competence, the index of ICT use at home for schoolwork, the index of valuing cooperation and teamwork, the of truancy, having repeated a grade, attending a school which practices ability grouping within classes, and attending a school which practices ability grouping between classes. In addition, the variable school type and the 7 variables measuring the average SES among school peers are also used to study interactions. All the remaining predictor variables are only considered as control variables in the multilevel regression models.

Table 7.1 Indices of socioeconomic status considered in each model.

<table>
<tr><td>Model A</td><td colspan="5">Index of SES</td></tr>
<tr><td>Model B</td><td>Index of parents' level of education</td><td>Index of parents' occupational status</td><td colspan="3">Index of home possessions</td></tr>
<tr><td>Model C</td><td>Index of parents' level of education</td><td>Index of parents' occupational status</td><td>Index of family wealth</td><td>Index of home educational resources</td><td>Index of cultural possessions in the household</td></tr>
</table>

Table 7.2. Material well-being items and indices.

| Variable name in PISA 2015 | Item | Item considered in each PISA index of material well-being | | | |
|---|---|---|---|---|---|
| | | Index of home possessions | Index of family wealth | Index of home educational | Index of cultural possessions |
| ST011Q01TA | A desk to study | X | | X | |
| ST011Q02TA | A room of your own | X | X | | |
| ST011Q03TA | A quiet place to study | X | | X | |
| ST011Q04TA | A computer you can use for school work | X | | X | |
| ST011Q05TA | Educational software | X | | X | |
| ST011Q06TA | A link to the internet | X | X | | |
| ST011Q07TA | Classic literature (e.g. <Shakespeare>) | X | | | X |
| ST011Q08TA | Books of poetry | X | | | X |
| ST011Q09TA | Works of art (e.g. paintings) | X | | | X |
| ST011Q10TA | Books to help with your school work | X | | X | |
| ST011Q11TA | <Technical reference books> | X | | X | |
| ST011Q12TA | A dictionary | X | | X | |
| ST011Q16NA | Books on art, music, or design | X | | | X |
| ST011Q17TA | <Country-specific wealth item1> | X | X | | |
| ST011Q18TA | <Country-specific wealth item1> | X | X | | |
| ST011Q19TA | <Country-specific wealth item1> | X | X | | |
| ST012Q01TA | Televsions | X | X | | |
| ST012Q02TA | Cars | X | X | | |
| ST012Q03TA | Rooms with a bath or shower | X | X | | |
| ST012Q05NA | <Cell phones> with Internet acces (e.g. smartphones) | X | X | | |
| ST012Q06NA | Computers (desktop computer, portable laptop, or notebook) | X | X | | |
| ST012Q07NA | <Table computers> (e.g. <iPad>, <BlackBerry>, etc.) | X | X | | |
| ST012Q08NA | E-book readers (e.g. <Kindle TM>, <Kobo>, <Bookeen>) | X | X | | |
| ST012Q09NA | Musical instruments (e.g. guitar, piano) | X | | | X |
| ST013Q01TA | How many books are there in your home? | X | | | |

The only method that I use in this chapter is multilevel regression. The approach to creating multilevel models and the way of studying direct, interaction and random effects are the same as in chapters 5 and 6. To study SES, three types of models are created, which differ in the SES indices used (see table 7.1). Model A considers the composite index of SES. Model B considers the indices of parents' level of education, parents' occupational status and home possessions. Model C considers the indices of parents' level of education, parents' occupational status, family wealth, home educational resources, and cultural possessions in the household. For the indices of parents' level of education and parents' occupational status, for the sake of simplicity, I report results from model B only because, for these indices, differences between results in models B and C do not seem significant (i.e. these models control for almost the same control variables and, consequently, the estimates for these 2 variables in these 2 models are very similar). The specific items included in each of the 4 indices of material well-being are enumerated in table 7.2.

## 7.3. Results

### 7.3.1. Students' socioeconomic status and life satisfaction

Table 7.3 shows that, in general, there is a positive association between SES and students' LS. However, there are important differences depending on the SES index used and this association is mainly explained by material well-being. Parents' level of education, parents' occupational status and cultural possessions in the household rarely relate to students' LS. By contrast, for the indices of home possessions, family wealth and home educational resources, an association is found in 27, 24 and 25 countries, respectively, with an average effect size of 0.21 points, 0.17 points and 0.16 points, respectively. For the composite index of SES and association is found in 19 countries, with an average effect size of 0.14 points.

Table 7.3. Direct effect of socioeconomic status on students' life satisfaction

| Index of socioeconomic status (SES) | | | Index of parents' level of education | | | Index of parents' occupational status | | | Index of home possessions | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Model A | | | Model B | | | Model B | | | Model B | |
| Country | b | SE | Country | b | SE | Country | b | SE | Country | b | SE |
| Czech Republic | 0.24*** | (0.04) | Switzerland | 0.15** | (0.05) | Bulgaria | 0.12* | (0.06) | China (B-S-J-G) | 0.36*** | (0.05) |
| UAE | 0.21*** | (0.04) | United States | 0.11 | (0.06) | Colombia | 0.09 | (0.06) | UAE | 0.35*** | (0.04) |
| Taiwan | 0.18*** | (0.03) | Chile | 0.09 | (0.06) | UAE | 0.02 | (0.04) | Bulgaria | 0.34*** | (0.07) |
| Qatar | 0.17*** | (0.04) | Russia | 0.08 | (0.06) | Finland | 0.02 | (0.04) | Turkey | 0.34*** | (0.08) |
| Chile | 0.17** | (0.06) | Hungary | 0.07 | (0.06) | Czech Republic | 0.02 | (0.04) | France | 0.30*** | (0.05) |
| Slovakia | 0.15** | (0.05) | Croatia | 0.06 | (0.05) | Taiwan | 0.02 | (0.04) | Estonia | 0.29*** | (0.05) |
| Turkey | 0.14* | (0.07) | Czech Republic | 0.06 | (0.04) | Slovakia | 0.02 | (0.05) | Qatar | 0.25*** | (0.04) |
| Estonia | 0.14*** | (0.03) | Greece | 0.04 | (0.05) | Latvia | 0.01 | (0.05) | Chile | 0.24** | (0.08) |
| France | 0.13* | (0.06) | Iceland | 0.03 | (0.04) | Poland | 0.00 | (0.04) | Taiwan | 0.23*** | (0.04) |
| Croatia | 0.13** | (0.04) | Mexico | 0.02 | (0.05) | Turkey | 0.00 | (0.07) | Latvia | 0.21*** | (0.05) |
| China (B-S-J-G) | 0.13** | (0.05) | Slovakia | 0.02 | (0.05) | Qatar | 0.00 | (0.03) | Thailand | 0.21** | (0.07) |
| Russia | 0.13** | (0.13) | Latvia | 0.00 | (0.05) | Estonia | 0.00 | (0.04) | Czech Republic | 0.20*** | (0.04) |
| United States | 0.12* | (0.05) | Austria | 0.00 | (0.06) | Hong Kong | -0.01 | (0.03) | United States | 0.20*** | (0.05) |
| Latvia | 0.12** | (0.04) | Hong Kong | -0.01 | (0.04) | South Korea | -0.01 | (0.05) | Poland | 0.20*** | (0.06) |
| Spain | 0.10* | (0.04) | Taiwan | -0.02 | (0.04) | Croatia | -0.02 | (0.06) | Austria | 0.19*** | (0.04) |
| Austria | 0.09* | (0.04) | Thailand | -0.02 | (0.07) | Iceland | -0.02 | (0.04) | Ireland | 0.19*** | (0.04) |
| Iceland | 0.09* | (0.04) | Spain | -0.03 | (0.05) | Ireland | -0.02 | (0.04) | Slovakia | 0.17* | (0.08) |
| Bulgaria | 0.08 | (0.05) | Ireland | -0.03 | (0.04) | Spain | -0.02 | (0.03) | Hungary | 0.17*** | (0.05) |
| Thailand | 0.08 | (0.06) | Colombia | -0.04 | (0.06) | Luxembourg | -0.03 | (0.04) | Russia | 0.16** | (0.06) |
| Hungary | 0.08* | (0.05) | Estonia | -0.04 | (0.04) | Peru | -0.04 | (0.06) | Hong Kong | 0.16*** | (0.04) |
| Hong Kong | 0.07* | (0.03) | Qatar | -0.04 | (0.03) | Portugal | -0.04 | (0.04) | Portugal | 0.15** | (0.05) |
| Ireland | 0.07 | (0.04) | China (B-S-J-G) | -0.05 | (0.05) | Austria | -0.05 | (0.05) | Spain | 0.14*** | (0.04) |
| Colombia | 0.06 | (0.05) | South Korea | -0.06 | (0.08) | Greece | -0.05 | (0.06) | South Korea | 0.14** | (0.05) |
| Switzerland | 0.06 | (0.04) | France | -0.06 | (0.05) | Mexico | -0.06 | (0.05) | Peru | 0.14* | (0.07) |
| Mexico | 0.06 | (0.04) | Portugal | -0.06 | (0.04) | Russia | -0.06 | (0.04) | Iceland | 0.14** | (0.05) |
| Poland | 0.05 | (0.04) | Luxembourg | -0.06 | (0.05) | Chile | -0.06 | (0.06) | Croatia | 0.13*** | (0.04) |
| South Korea | 0.04 | (0.04) | Finland | -0.07* | (0.03) | France | -0.06 | (0.06) | Mexico | 0.13* | (0.05) |
| Finland | 0.01 | (0.03) | Slovenia | -0.07 | (0.04) | Thailand | -0.07 | (0.06) | Luxembourg | 0.09 | (0.05) |
| Luxembourg | 0.00 | (0.04) | UAE | -0.07 | (0.04) | Hungary | -0.07 | (0.06) | Slovenia | 0.08 | (0.05) |
| Greece | 0.00 | (0.05) | Poland | -0.09 | (0.05) | Slovenia | -0.09 | (0.04) | Finland | 0.07 | (0.04) |
| Peru | -0.01 | (0.05) | Turkey | -0.10 | (0.08) | United States | -0.10 | (0.06) | Colombia | 0.07 | (0.07) |
| Portugal | -0.06 | (0.04) | Peru | -0.10 | (0.06) | China (B-S-J-G) | -0.11 | (0.06) | Switzerland | 0.06 | (0.05) |
| Slovenia | -0.09* | (0.04) | Bulgaria | -0.11 | (0.06) | Switzerland | -0.12* | (0.05) | Greece | 0.06 | (0.06) |

Notes: for each SES index, countries are ordered from greater to smaller effect size

Table 7.3. Direct effect of socioeconomic status on students' life satisfaction (continuation)

| Index of family wealth | | | Index of home educational resources | | | Index of cultural possessions in the household | | |
|---|---|---|---|---|---|---|---|---|
| Model C | | | Model C | | | Model C | | |
| Country | b | SE | Country | b | SE | Country | b | SE |
| UAE | 0.38*** | (0.04) | Turkey | 0.26** | (0.09) | Peru | 0.11* | (0.04) |
| Qatar | 0.26*** | (0.04) | Mexico | 0.25*** | (0.06) | Turkey | 0.11 | (0.07) |
| Estonia | 0.24*** | (0.04) | Bulgaria | 0.23*** | (0.07) | Poland | 0.07 | (0.05) |
| Russia | 0.23*** | (0.05) | Qatar | 0.22*** | (0.04) | Taiwan | 0.07 | (0.06) |
| Bulgaria | 0.21** | (0.06) | Chile | 0.21*** | (0.05) | China (B-S-J-G) | 0.06 | (0.05) |
| United States | 0.20*** | (0.06) | Ireland | 0.20*** | (0.04) | Chile | 0.05 | (0.05) |
| Hong Kong | 0.20*** | (0.04) | France | 0.19** | (0.06) | Hungary | 0.05 | (0.06) |
| China (B-S-J-G) | 0.18*** | (0.05) | Latvia | 0.18*** | (0.04) | Iceland | 0.03 | (0.04) |
| Austria | 0.18*** | (0.05) | Russia | 0.18*** | (0.05) | Estonia | 0.03 | (0.04) |
| France | 0.18** | (0.06) | China (B-S-J-G) | 0.17*** | (0.05) | Czech Republic | 0.03 | (0.04) |
| Latvia | 0.17*** | (0.04) | United States | 0.17** | (0.06) | Luxembourg | 0.01 | (0.04) |
| Iceland | 0.15** | (0.05) | Slovakia | 0.15** | (0.05) | Latvia | 0.00 | (0.05) |
| Ireland | 0.15*** | (0.04) | Taiwan | 0.15*** | (0.04) | Slovakia | 0.00 | (0.04) |
| Greece | 0.14** | (0.05) | Portugal | 0.14*** | (0.04) | Bulgaria | 0.00 | (0.06) |
| Poland | 0.14** | (0.05) | Czech Republic | 0.14*** | (0.04) | Austria | -0.01 | (0.04) |
| Czech Republic | 0.13*** | (0.04) | Poland | 0.13** | (0.04) | Finland | -0.01 | (0.03) |
| Spain | 0.13*** | (0.04) | UAE | 0.13* | (0.06) | Slovenia | -0.02 | (0.04) |
| Slovakia | 0.13* | (0.06) | Thailand | 0.13 | (0.07) | Switzerland | -0.03 | (0.04) |
| Slovenia | 0.12** | (0.04) | Peru | 0.12* | (0.05) | Croatia | -0.03 | (0.05) |
| Taiwan | 0.12*** | (0.03) | Spain | 0.12** | (0.04) | Spain | -0.03 | (0.04) |
| Croatia | 0.11** | (0.04) | Finland | 0.12*** | (0.04) | France | -0.04 | (0.06) |
| Portugal | 0.11** | (0.04) | Estonia | 0.12*** | (0.03) | Colombia | -0.04 | (0.06) |
| Hungary | 0.11* | (0.05) | South Korea | 0.11* | (0.05) | Ireland | -0.04 | (0.04) |
| Thailand | 0.10 | (0.09) | Iceland | 0.10* | (0.05) | South Korea | -0.05 | (0.06) |
| South Korea | 0.10 | (0.06) | Croatia | 0.09* | (0.04) | Hong Kong | -0.07 | (0.04) |
| Finland | 0.08* | (0.04) | Hungary | 0.09 | (0.05) | Mexico | -0.07 | (0.05) |
| Turkey | 0.08 | (0.11) | Hong Kong | 0.08* | (0.04) | UAE | -0.08 | (0.04) |
| Chile | 0.07 | (0.08) | Luxembourg | 0.07 | (0.04) | Qatar | -0.08* | (0.04) |
| Colombia | 0.06 | (0.07) | Austria | 0.06 | (0.04) | United States | -0.10 | (0.05) |
| Switzerland | 0.05 | (0.05) | Switzerland | 0.06 | (0.05) | Greece | -0.12* | (0.05) |
| Luxembourg | 0.05 | (0.05) | Colombia | 0.05 | (0.06) | Russia | -0.15** | (0.05) |
| Peru | -0.03 | (0.07) | Greece | 0.05 | (0.05) | Portugal | | |
| Mexico | -0.05 | (0.05) | Slovenia | 0.02 | (0.05) | Thailand | | |

Notes: for each SES index, countries are ordered from greater to smaller effect size

### 7.3.2. Education policy-relevant factors and students' life satisfaction: differences across socioeconomic status

Tables 7.4 and 7.5 summarise the results of the interaction effects involving SES and 12 education policy-relevant factors. Detailed results by country are reported in tables A3.1 to A3.4 in Appendix 3. The existence of an interaction indicates that the effect of that particular education policy-relevant factors varies across SES. Alternatively, it can also be understood as the effect of SES in students' LS being influenced by education policy-relevant factors. There is evidence of these interactions in all countries but in Portugal and Qatar.

Schoolwork-related anxiety is negatively associated with students' LS in all countries (see table 5.2 in chapter 5) and this effect is greater among students of higher SES (i.e., a positive interaction is found) in 8 countries and smaller (negative interaction) in 4. The size of the effect of the interaction is about 0.1 points in most cases, meaning that an increase of 1 standard deviation in the corresponding SES index increases/decreases the negative effect of schoolwork-related anxiety in students' LS by 10%, approximately.

In 14 countries, sense of belonging at school has a positive effect on students' LS (table 5.2 in chapter 5), which is greater among students of higher SES in 3 countries and smaller in 6. The effect size of the interaction ranges between 0.05 and 0.15 for both negative and positive interactions.

In all countries but South Korea, bullying has an important negative effect on students' LS (table 5.2 in chapter 5) and this effect is greater among students of higher SES in 11 countries and smaller in 1 country. In most cases, for both negative and positive interactions, the effect size of all the interactions is about 0.1 points.

Feeling unfairly treated by teachers negatively relates to students' LS in 26 countries (table 5.2 in chapter 5) and this relationship is stronger among students of higher SES in 6 countries and smaller in 2. The effect size of the interaction rounds 0.1 points for both positive and negative interactions.

Feeling emotionally supported by parents is positively associated with students' LS in all the countries analysed (table 5.2 in chapter 5). This effect is greater among students of lower SES in 14 countries and smaller only in 1 country. For both positive and negative interactions, the effect size is about 0.10 to 0.15 points, approximately.

A negative association between academic competence and students' LS is found in 21 countries (table 5.2 in chapter 5) and this association is stronger among students of higher SES in 6 countries and weaker in 3. The size of the effect of the interactions –for both positive and negative ones- ranges between 0.10 and 0.15 points, approximately.

Table 7.4. Socioeconomic status, education policy-relevant aspects and students' life satisfaction: interaction effects

| Education policy-relevant factor | SES index considered in the interaction | NA | Interaction education policy-relevant factor - SES index | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | N* (+) | N (+) | MES | N* (-) | N (-) | MES |
| Index of schoolwork-related anxiety | Index of socioeconomic status (SES) | 33 | | | | | 1 | -0.11 |
| | Index of home possessions | 33 | | 3 | 0.11 | | 1 | -0.08 |
| | Index of parents' level of education | 33 | | 1 | 0,11 | | 1 | -0.15 |
| | Index of parents' occupational status | 33 | 8 | | | 4 | 3 | -0.09 |
| | Index of family wealth | 33 | | 3 | 0.09 | | | |
| | Index of home educational resources | 33 | | 3 | 0.10 | | 1 | -0.11 |
| | Index of cultural possessions in the household | 32 | | 1 | 0.09 | | 1 | -0.09 |
| Index of sense of belonging at school | Index of socioeconomic status (SES) | 33 | | | | | | |
| | Index of home possessions | 33 | | 2 | 0.07 | | 1 | -0.10 |
| | Index of parents' level of education | 33 | | 1 | 0.07 | | 1 | -0.12 |
| | Index of parents' occupational status | 33 | 3 | | | 6 | | |
| | Index of family wealth | 33 | | 1 | 0.06 | | 1 | -0.12 |
| | Index of home educational resources | 33 | | | | | 2 | -0.14 |
| | Index of cultural possessions in the household | 32 | | 1 | 0.15 | | 1 | -0.07 |
| Index of frequency of being bullied | Index of socioeconomic status (SES) | 33 | | 4 | 0.12 | | | |
| | Index of home possessions | 33 | | 3 | 0.09 | | | |
| | Index of parents' level of education | 33 | | 5 | 0.11 | | 1 | -0.11 |
| | Index of parents' occupational status | 33 | 11 | 1 | 0.09 | 1 | | |
| | Index of family wealth | 33 | | 6 | 0.11 | | | |
| | Index of home educational resources | 33 | | 1 | 0.06 | | | |
| | Index of cultural possessions in the household | 32 | | 2 | 0.10 | | | |
| Index of feeling unfairly treated by teachers | Index of socioeconomic status (SES) | 33 | | 1 | 0.10 | | 1 | -0.12 |
| | Index of home possessions | 33 | | | | | | |
| | Index of parents' level of education | 33 | | 1 | 0.12 | | 1 | -0.12 |
| | Index of parents' occupational status | 33 | 6 | 1 | 0.10 | 2 | | |
| | Index of family wealth | 33 | | 3 | 0.09 | | | |
| | Index of home educational resources | 33 | | 1 | 0.09 | | | |
| | Index of cultural possessions in the household | 32 | | 1 | 0.09 | | 1 | -0.10 |
| Index of feeling emotionally supported by parents | Index of socioeconomic status (SES) | 33 | | | | | 4 | -0.10 |
| | Index of home possessions | 33 | | | | | 3 | -0.13 |
| | Index of parents' level of education | 33 | | 1 | 0.15 | | 4 | -0.08 |
| | Index of parents' occupational status | 33 | 14 | | | 1 | 1 | -0.11 |
| | Index of family wealth | 33 | | | | | 2 | -0.08 |
| | Index of home educational resources | 33 | | 1 | 0.12 | | 6 | -0.12 |
| | Index of cultural possessions in the household | 32 | | | | | 2 | -0.12 |
| Index of academic competence | Index of socioeconomic status (SES) | 33 | | 2 | 0.11 | | | |
| | Index of home possessions | 33 | | 2 | 0.16 | | | |
| | Index of parents' level of education | 33 | | 1 | 0.11 | | | |
| | Index of parents' occupational status | 33 | 6 | 3 | 0.10 | 3 | 1 | -0.11 |
| | Index of family wealth | 33 | | 1 | 0.15 | | 1 | -0.08 |
| | Index of home educational resources | 33 | | 2 | 0.11 | | 1 | -0.11 |
| | Index of cultural possessions in the household | 32 | | 2 | 0.10 | | | |

**NA** indicates the number of countries with available data

**N** indicates the number of countries where a statistically significant effect is found. **N*** refers to the number of countries where a statistically significant effect is found for any of the SES indices

**MES** indicates the mean effect size in the countries where a statistically significant effect is found

**MA** indicates model A; **MB** indicates model B; and **MC** indicates model C.

An **interaction** indicates that the effect of the education policy-relevant factor in students' life satisfaction varies across socioeconomic status (as measured by different indices)

The table reports the results of those countries where a statistically significant interaction was found

In 7 out of 29 countries with available data, using ICT at home for schoolwork is positively related to students' LS (table 5.2 in chapter 5) and interactions with students' SES are rarely found (i.e. a positive interaction in 3 countries and a negative one in 1 country). The effect size of the interaction tends to be slightly below 0.1 points for both positive and negative effects.

Valuing cooperation and teamwork is positively associated with students' LS in 28 countries (table 5.2 in chapter 5). A positive interaction is found in 5 countries and a negative one in 8. The effect size of both positive and negative interactions is about 0.10 point in most cases.

A negative association between having repeated a grade at least once and students' LS may exist in several countries but this association is statistically significant only in China (B-S-J-G) (-0.25 points) and the UAE (-0.27 points) (table 5.2 in chapter 5). However, a positive interaction is found in 5 countries (with an average effect rather great in size, around 0.4 points) and a negative one in 2 (effect size of about -0.2 points).

In 16 out of 33 countries, truancy is negatively associated with students' LS (table 5.2 in chapter 5) and the effect size is greater among students of higher SES in 12 countries and smaller in 2 countries. The size of the effect is about 0.1 points for both positive and negative interactions.

An association between ability grouping practices in the school and students' LS is rarely observed (table 5.2 in chapter 5). In relation to ability group within classes, there is evidence of a positive interaction in 5 countries (effect size ranging between 0.20 and 0.44 points) and a negative interaction in 1 country (effect size of -0.19 points). Finally, in relation to ability grouping between classes, evidence of a positive interaction is found in 8 countries (effect size of 0.15 to 0.20, approximately) while evidence of a negative interaction is only found in 1 country (effect size of -0.19 points).

Table 7.5. Socioeconomic status, education policy-relevant aspects and students' life satisfaction: interaction effects

| Education policy-relevant factor | SES index considered in the interaction | NA | Interaction education policy-relevant factor - SES index | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | N* (+) | N (+) | MES | N* (-) | N (-) | MES |
| Index of ICT use at home for schoolwork | Index of socioeconomic status (SES) | 29 | | | | | | |
| | Index of home possessions | 29 | | | | | | |
| | Index of parents' level of education | 29 | | 1 | 0.09 | | | |
| | Index of parents' occupational status | 29 | 3 | | | 1 | | |
| | Index of family wealth | 29 | | 2 | 0.08 | | | |
| | Index of home educational resources | 29 | | | | | 1 | -0.07 |
| | Index of cultural possessions in the household | 28 | | | | | | |
| Index of valuing cooperation | Index of socioeconomic status (SES) | 33 | | | | | 1 | -0.12 |
| | Index of home possessions | 33 | | 1 | 0.13 | | 3 | -0.10 |
| | Index of parents' level of education | 33 | | | | | 2 | -0.11 |
| | Index of parents' occupational status | 33 | 5 | 1 | 0.10 | 8 | 1 | -0.10 |
| | Index of family wealth | 33 | | 1 | 0.12 | | 3 | -0.09 |
| | Index of home educational resources | 33 | | 1 | 0.08 | | 2 | -0.08 |
| | Index of cultural possessions in the household | 32 | | 2 | 0.15 | | 2 | -0.08 |
| Having repeated a grade | Index of socioeconomic status (SES) | 33 | | | | | 1 | -0.17 |
| | Index of home possessions | 33 | | | | | | |
| | Index of parents' level of education | 33 | | 1 | 0.46 | | | |
| | Index of parents' occupational status | 33 | 5 | | | 2 | 1 | -0.22 |
| | Index of family wealth | 33 | | 2 | 0.45 | | | |
| | Index of home educational resources | 33 | | 1 | 0.35 | | | |
| | Index of cultural possessions in the household | 32 | | 2 | 0.33 | | | |
| Index of truancy | Index of socioeconomic status (SES) | 33 | | 2 | 0.08 | | 1 | -0.08 |
| | Index of home possessions | 33 | | 1 | 0.10 | | | |
| | Index of parents' level of education | 33 | | 1 | 0.10 | | 1 | -0.10 |
| | Index of parents' occupational status | 33 | 12 | 3 | 0.11 | 2 | | |
| | Index of family wealth | 33 | | 4 | 0.09 | | | |
| | Index of home educational resources | 33 | | 2 | 0.12 | | | |
| | Index of cultural possessions in the household | 32 | | 1 | 0.09 | | 2 | -0.11 |
| School practices ability grouping within classes | Index of socioeconomic status (SES) | 33 | | 2 | 0.24 | | | |
| | Index of home possessions | 33 | | 2 | 0.27 | | | |
| | Index of parents' level of education | 33 | | 1 | 0.23 | | 1 | -0.19 |
| | Index of parents' occupational status | 33 | 5 | 3 | 0.22 | 1 | | |
| | Index of family wealth | 33 | | 1 | 0.44 | | | |
| | Index of home educational resources | 33 | | | | | | |
| | Index of cultural possessions in the household | 32 | | 2 | 0.20 | | | |
| School practices ability grouping between classes | Index of socioeconomic status (SES) | 33 | | 2 | 0.18 | | | |
| | Index of home possessions | 33 | | 1 | 0.14 | | | |
| | Index of parents' level of education | 33 | | | | | 1 | -0.19 |
| | Index of parents' occupational status | 33 | 8 | 3 | 0.18 | 1 | | |
| | Index of family wealth | 33 | | 1 | 0.22 | | | |
| | Index of home educational resources | 33 | | 1 | 0.16 | | | |
| | Index of cultural possessions in the household | 32 | | 1 | 0.12 | | | |

**NA** indicates the number of countries with available data

**N** indicates the number of countries where a statistically significant effect is found. **N*** refers to the number of countries where a statistically significant effect is found for any of the SES indices

**MES** indicates the mean effect size in the countries where a statistically significant effect is found

**MA** indicates model A; **MB** indicates model B; and **MC** indicates model C.

An **interaction** indicates that the effect of the education policy-relevant factor in students' life satisfaction varies across socioeconomic status (as measured by different indices)

The table reports the results of those countries where a statistically significant interaction was found

### 7.3.3. The role of schools in shaping differences in students' life satisfaction across socioeconomic status

#### *7.3.3.1. Random effects*

Tables 7.6 and 7.7 show the results of the SES random effects in the models examined in this chapter. These tables only report effects for the factors which were retained in the models because these improve the model fit and which are statistically significant. The existence of statistically significant random effects indicates that the influence of the SES index in students' LS differs across schools. This would suggest that school responses to children's needs and experiences in relation to their socio-economic circumstances matter to their LS. There are 18 countries where there is evidence of schools playing a moderating role in the association between SES and students' LS. The only 15 countries where this is not observed are Chile, Greece, Hong-Kong, Hungary, Luxembourg, Mexico, Peru, Portugal, Qatar, Russia, Slovenia, Taiwan, Thailand, Turkey and the United States. Random effects are observed for more than one SES index only in Latvia (in 3), Poland (in 4) and Spain (in 4).

There are important differences depending on the SES index studied and the country considered. For the composite index of SES, there is evidence of school random effects in 6 countries. The average school random effect is 0.19. Furthermore, in 12 countries there is evidence of school random effects involving at least one material well-being index. In particular, for the index of home possessions, school random effects exist in 3 countries with an average school random effect is 0.28; for the index of family wealth, in 4 countries with an average mean effect of 0.20; for the index of home educational resources, in 5 countries with an average random effect of 0.27; and for the index of cultural possessions in the household, in 5 countries with an average random effect of 0.2. In relation to the index of parents' level of education, evidence of school random effects is observed in 3 countries in model 2, and in 5 countries in model 3 with an average random effect of 0.19 in both. Finally, regarding the index of parents' occupational status, in both model B and model C, evidence of school random effects is observed in China (B-S-J-G) only, with a random effect of 0.31.

Table 7.6 School random effects on students' life satisfaction (models A and B).

| | Model A | | | Model B | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Index of SES | | | Index of parents' level of education | | | Index of parents' occupational status | | | Index of home possessions | | |
| Country | Coef. | S.E. | (95% conf. interv.) | Coef. | S.E. | (95% conf. interv.) | Coef. | S.E. | (95% conf. interv.) | Coef. | S.E. | (95% conf. interv.) |
| Austria | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | |
| Chile | | | | | | | | | | | | |
| China (B-S-J-G) | | | | | | | 0.31 | (0.07) | (0.19 - 0.48) | | | |
| Colombia | 0.16 | (0.07) | (0.07 - 0.36) | 0.20 | (0.09) | (0.08 - 0.50) | | | | | | |
| Croatia | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | |
| Estonia | | | | | | | | | | 0.24 | (0.06) | (0.14 - 0.41) |
| Finland | | | | | | | | | | | | |
| France | 0.28 | (0.09) | (0.15 - 0.51) | | | | | | | | | |
| Greece | | | | | | | | | | | | |
| Hong Kong | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | |
| Ireland | 0.20 | (0.07) | (0.10 - 0.41) | 0.19 | (0.09) | (0.08 - 0.46) | | | | | | |
| Latvia | | | | | | | | | | 0.31 | (0.08) | (0.19 - 0.52) |
| Luxembourg | | | | | | | | | | | | |
| Mexico | | | | | | | | | | | | |
| Peru | | | | | | | | | | | | |
| Poland | | | | | | | | | | 0.30 | (0.08) | (0.17 - 0.51) |
| Portugal | | | | | | | | | | | | |
| Qatar | | | | | | | | | | | | |
| Russia | | | | | | | | | | | | |
| Slovakia | 0.22 | (0.08) | (0.11 - 0.46) | | | | | | | | | |
| Slovenia | | | | | | | | | | | | |
| South Korea | | | | | | | | | | | | |
| Spain | 0.13 | (0.06) | (0.06 - 0.31) | 0.19 | (0.05) | (0.11 - 0.32) | | | | | | |
| Switzerland | | | | | | | | | | | | |
| Taiwan | | | | | | | | | | | | |
| Thailand | | | | | | | | | | | | |
| Turkey | | | | | | | | | | | | |
| UAE | 0.17 | (0.05) | (0.09 - 0.32) | | | | | | | | | |
| United States | | | | | | | | | | | | |

Note: in those countries where gender random effects were not retained in the multilevel regression models because their inclusion did not improve the model fit, results are not reported (in blank). Results are not reported either (in blank) in the cases where the effect is not statistically significant.

Table 7.7 School random effects on students' life satisfaction (model C).

| Country | Model C | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Index of parents' level of education | | | Index of parents' occupational status | | | Index of family wealth | | | Index of home educational resources | | | Index of cultural possesions in the households | | |
| | Coef. | S.E. | (95% conf. interv.) | Coef. | S.E. | (95% conf. interv.) | Coef. | S.E. | (95% conf. interv.) | Coef. | S.E. | (95% conf. interv.) | Coef. | S.E. | (95% conf. interv.) |
| Austria | | | | | | | 0.17 | (0.08) | (0.07 - 0.44) | | | | | | |
| Bulgaria | | | | | | | 0.20 | (0.10) | (0.08 - 0.53) | | | | | | |
| Chile | | | | | | | | | | | | | | | |
| China (B-S-J-G) | | | | 0.31 | (0.07) | (0.20 - 0.49) | | | | | | | | | |
| Colombia | | | | | | | | | | | | | | | |
| Croatia | 0.20 | (0.10) | (0.08 - 0.52) | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | 0.18 | (0.09) | (0.07 - 0.46) |
| Estonia | | | | | | | | | | | | | 0.17 | (0.07) | (0.07 - 0.40) |
| Finland | | | | | | | 0.18 | (0.08) | (0.08 - 0.41) | | | | | | |
| France | | | | | | | | | | 0.24 | (0.12) | (0.09 - 0.63) | | | |
| Greece | | | | | | | | | | | | | | | |
| Hong Kong | | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | 0.24 | (0.06) | (0.15 - 0.37) | | | |
| Ireland | 0.18 | (0.06) | (0.09 - 0.36) | | | | | | | | | | | | |
| Latvia | | | | | | | | | | 0.27 | (0.09) | (0.14 - 0.52) | 0.25 | (0.08) | (0.13 - 0.48) |
| Luxembourg | | | | | | | | | | | | | | | |
| Mexico | | | | | | | | | | | | | | | |
| Peru | | | | | | | | | | | | | | | |
| Poland | 0.19 | (0.08) | (0.08 - 0.43) | | | | 0.25 | (0.07) | (0.14 - 0.45) | | | | 0.27 | (0.07) | (0.16 - 0.45) |
| Portugal | | | | | | | | | | | | | | | |
| Qatar | | | | | | | | | | | | | | | |
| Russia | | | | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | |
| South Korea | 0.19 | (0.10) | (0.07 - 0.52) | | | | | | | | | | | | |
| Spain | 0.19 | (0.05) | (0.12 - 0.32) | | | | | | | | | | 0.13 | (0.06) | (0.05 - 0.32) |
| Switzerland | | | | | | | | | | 0.29 | (0.06) | (0.19 - 0.44) | | | |
| Taiwan | | | | | | | | | | | | | | | |
| Thailand | | | | | | | | | | | | | | | |
| Turkey | | | | | | | | | | | | | | | |
| UAE | | | | | | | | | | 0.29 | (0.05) | (0.21 - 0.41) | | | |
| United States | | | | | | | | | | | | | | | |

Note: in those countries where gender random effects were not retained in the multilevel regression models because their inclusion did not improve the model fit, results are not reported (in blank). Results are not reported either (in blank) in the cases where the effect is not statistically significant.

### *7.3.3.2. The influence of school type and school peers' characteristics in students' life satisfaction*

Table 7.8 summarises the results of the interaction effects involving SES and school type (detailed results by country can be found in tables A3.5 and A3.6 in Appendix 3). Results show that, out of 31 countries with available data, there is evidence of an interaction in 19 countries. This means that when compared to public schools, the effect of SES in students' LS is greater in semi-private and/or private schools in some countries and smaller in others. An alternative explanation would be that the effect on students' LS of attending one particular type of school would be different for students of different SES. Depending on the SES index used, an interaction is found in 6 to 11 countries. Only in 12 countries (Austria, Chile, Colombia, Croatia, Estonia, Finland, Iceland, Mexico, Russia, Slovakia, South Korea and the United States) no interaction involving any SES index and school type is found. In relation to the sign of the effect –this is, whether the effect of SES in students' LS is greater in public, semi-private or private schools- the picture is mixed, meaning that differences between countries are significant.

Table 7.8. Socioeconomic status, school type and students' life satisfaction: interaction effects

| SES index considered in the interaction | Interactions (ref: public schools) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Semi-private | | | | Private | | | |
| | Total NA | Total N* | Total N | N (+) | MES | N (-) | MES | N (+) | MES | N (-) | MES |
| Index of socioeconomic status (SES) | 31 | | 6 | 5 | 0.47 | | | 2 | 0.81 | 1 | -0.37 |
| Index of home possessions | 31 | | 9 | 4 | 0.38 | 1 | -0.37 | 3 | 0.79 | 2 | -0.22 |
| Index of parents' level of education | 31 | | 11 | 2 | 0.55 | 3 | -0.34 | 2 | 0.57 | 5 | -0.42 |
| Index of parents' occupational status | 31 | 19 | 6 | 2 | 0.42 | 2 | -0.21 | 2 | 0.33 | 2 | -0.24 |
| Index of family wealth | 31 | | 9 | 3 | 0.42 | 4 | -0.34 | 3 | 0.78 | 1 | -0.17 |
| Index of home educational resources | 31 | | 8 | 4 | 0.42 | 2 | -0.35 | | | 4 | -0.77 |
| Index of cultural possessions in the household | 30 | | 10 | 3 | 0.78 | 3 | -0.53 | 2 | 0.51 | 3 | -0.37 |

**NA** indicates the number of countries with available data
**N** indicates the number of countries where a statistically significant effect is found. **N*** refers to the number of countries where a statistically significant effect is found for any of the SES indices
**MES** indicates the mean effect size in the countries where a statistically significant effect is found
**MA** indicates model A; **MB** indicates model B; and **MC** indicates model C
An **interaction** indicates that, when compared with public schools, the effect of the socioeconomic related index in students' life satisfaction is different in semi-private and/or private schools

The results of the interaction effects involving SES and school peers' SES are shown in table 7.9 (detailed results by country can be found in tables A3.7 and A3.8 in Appendix 3). In this case, two types of results are relevant: results of the direct association between school peers' SES and students' LS and results of the interaction between students' and school peers' mean level of SES. In relation to the former, there is evidence of a direct association between school peers' SES and students' LS in 18 countries. In general, a higher level of SES among school peers tends to relate to

lower students' LS. This seems to be the case especially for the level of education of school peers' parents, and not so much for the material well-being of school peers –especially not for the indices of home possessions and family wealth. For some of these countries, an association is found only in relation to one SES index while for others this association is observed for several SES indices. In this regard, a country that stands out is South Korea, where a negative association is found for all the SES indices but for the index of parents' level of education. Overall, the effect size of school peers' SES in students' LS ranges between -0.25 points and -0.40 points in most cases, being particularly great in a few instances.

Table 7.9. Socioeconomic status, school peers' characteristics and students' life satisfaction: interaction effects

| SES index considered in the interaction | Total NA | Direct effects of school peers' mean level | | | | | | Interaction student's level - school peers' mean level | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total N* | Total N | N (+) | MES | N (-) | MES | Total N* | Total N | N (+) | MES | N (-) | MES |
| Index of socioeconomic status (SES) | 33 | | 8 | 1 | 0.21 | 6 | -0.25 | | 2 | 1 | 0.28 | 1 | -0.13 |
| Index of home possessions | 33 | | 3 | 1 | 0.22 | 2 | -0.31 | | 3 | 1 | 0.10 | 2 | -0.25 |
| Index of parents' level of education | 33 | | 9 | 1 | 0.27 | 8 | -0.35 | | 3 | 3 | 0.17 | | |
| Index of parents' occupational status | 33 | 18 | 4 | | | 4 | -0.24 | 16 | 2 | 2 | 0.20 | | |
| Index of family wealth | 33 | | 2 | | | 2 | -0.29 | | 4 | 3 | 0.13 | 1 | -0.20 |
| Index of home educational resources | 33 | | 5 | | | 5 | -0.38 | | 8 | 5 | 0.23 | 3 | -0.23 |
| Index of cultural possessions in the household | 32 | | 4 | | | 4 | -0.39 | | 2 | 2 | 0.19 | | |

**NA** indicates the number of countries with available data
**N** indicates the number of countries where a statistically significant effect is found. **N*** refers to the number of countries where a statistically significant effect is found for any of the SES indices
**MES** indicates the mean effect size in the countries where a statistically significant effect is found
**MA** indicates model A; **MB** indicates model B; and **MC** indicates model C.
An **interaction** indicates that the effect of the socioeconomic status-related index in students' life satisfaction varies depending on the mean level of that index among school peers
The table reports the results of those countries where a statistically significant interaction or school peers mean level direct effect was found

In addition, there is evidence of an interaction in 16 countries. This means that, in these societies, school peers' SES moderates (negative interaction) or accentuates (positive interaction) the mainly positive effect of SES in students' LS. Alternatively, this could be also interpreted in terms of SES moderating/accentuating the effect of school peers' SES in students' LS. Depending on the SES index considered, the effect size ranges between 0.1 and 0.3 points in most cases for both positive and negative interactions, although the effect size of the interaction is particularly great in some cases. A negative interaction effect of -0.2 points means that an increase of 1 standard deviation in the mean level of a SES index among school peers reduces the effect of that SES in students' LS by 20% - a positive interaction of 0.2 points means that this effect is increased by 20%. Overall, despite some exceptions (notably for the index of home educational resources and, across several indices, in Taiwan), the interaction tends to be positive. Interestingly, in Estonia and Turkey, the sign

of the interaction varies depending on the SES index used. In Estonia, this interaction is positive for the index of parents' level of education (0.13 points) and negative for the index of home educational resources (-0.26 points). And in Turkey, the interaction is positive for the index of family wealth (0.14 points) and negative for the index of home educational resources (-0.24 points)

## 7.4. Discussion

The results of the analysis presented in the previous section support all the hypotheses posed at the beginning of this chapter. This is, first, the influence of education policy-relevant factors in students' LS differs across SES and, at the same time, this varies across countries. Also, the latter varies depending on the SES measure used. In addition, schools can moderate the influence of SES in students' LS and the way in which this happens varies across countries and, again, depending on the SES measure analysed. Moreover, these results support the thesis that there is an association between education policy and child SWB and, more importantly, that this association is complex. This is so because this association differs for students of different SES and, at the same time, this varies by country. The following sections present a detail discussion on some of the results observed in the analysis conducted in this chapter.

*Students' socioeconomic status and life satisfaction*

There is a direct positive association between SES and students' LS in 31 of the 33 countries studied –with the only exception of Colombia and Luxembourg, where an association is not observed for any SES index. However, how SES is measured matters as not all the dimensions of SES relate to students' LS to a similar degree. Overall, the association between SES and students' LS is mainly explained by material well-being. Parents' level of education, parents' occupational status and cultural possessions in the household are rarely associated with students' LS. By contrast, using the indices of home possessions, family wealth, home educational resources and the composite index of SES, an association is found in most countries. Also, within the material well-being domain, it seems clear that having access to cultural possessions in the household is of little importance to students' LS compared to the availability of education-related resources and more generic resources which can be considered to be more needed or desired among a larger proportion of the population. This is in line with findings from multiple studies which indicate that measures of material well-being are a better predictor of children's SWB than other SES measures (e.g. better than family income, see Knies 2012).

Despite these general patterns across countries, some exceptions to these patterns are worth discussing. For example, although the indices of parents' level of education, parents' occupational status and cultural possessions in the household rarely relate to students' LS, an association is observed in a small number of countries. Similarly, in a few countries, a negative association between students' LS and some SES indices is observed. Even more interesting is the fact that results change dramatically in some countries depending on the material well-being index used. For

example, Turkey and Mexico rank the highest in terms of the size of the positive effect of access to home educational resources in students' LS, and Chile ranks 5th. For all of them, the effect size is above 0.2 points. However, these are 3 of the only 9 countries where a statistically significant association between family wealth and students' LS is not found. Similarly, in Slovenia, a negative association is observed when using the index of SES while a positive one is found when using the index of family wealth. Another interesting case refers to Switzerland, a very high-income nation which is the only country where parents' level of education is positively associated with students' LS but also the only country where parents' occupational status is negatively related to students' LS.

The exceptions to general patterns observed in most countries and the few intriguing results observed in some of them may be related to measurement consideration and cross-society differences in which factors are more important to students' LS. Some measures of SES and/or material well-being may relate to children's needs better in some countries than in others. Although PISA 2015 includes 3 country-specific items for the indices of SES, household possessions and family wealth (see table 7.2), these may not be enough to capture these cross-society differences. Moreover, in view of the items included, it seems likely that –at least in most countries- the selection of these country-specific items did not consider children's views on what is important in their lives, which is essential to identify SES-related aspects that may influence children's SWB (Main 2014, Lau and Bradshaw 2016). Finally, these few intriguing results in the association between SES and SWB may also be the results of mediating factors (see Main 2017, 2018 in the UK context) that were not accounted for in this analysis, which may be particularly important in some societies. For example, how students' LS is influenced by the lack of some educational resources at home could be mediated in some education systems by schools providing access to these resources in the school.

*Education policy-relevant factors and students' life satisfaction: differences across socioeconomic status*

For the 12 education policy-relevant factors studied in this chapter, interactions between these factors and SES were observed in all countries but in Portugal and Qatar. These interactions indicate that the influence of an education policy-relevant factors on students' LS differs for better off and worse off students. An alternative explanation is that the education policy-relevant factor can increase or reduce the positive impact of SES (and the negative impact of socioeconomic disadvantage) on students' LS. The size usually rounds to 0.1 points for both for positive and negative interactions, which implies an increase/reduction of 10% in the effect of SES (or the corresponding education policy-relevant aspect) on students' LS.

There seem to be some clear patterns across countries in relation to a few of these factors. For instance, feeling emotionally supported by parents in relation to school has a positive effect on students' LS in all the countries studied and this effect is greater among better-off students in 1

country (positive interaction) and smaller in 14 (negative interaction) –this is, feeling emotionally supported by parents in relation to school is particularly important for socioeconomically disadvantaged students. Something similar is observed for truancy, whose negative effect on students' LS (observed in 16 countries) would be –in most cases- stronger among better-off students (a positive interaction is observed in 12 countries and a negative one in 2). Similarly, the negative effect of the frequency of being bullied in students' LS (observed in all countries but in South Korea) would be greater among better-off students in the majority of cases (a positive interaction with SES in found 11 countries and a negative one in 1).

However, in most cases, either exceptions to the general patterns observed in most countries are more common or there is not a clear pattern at all. For example, feeling unfairly treated by teachers is negatively related to students' LS in 26 countries and the negative effect is greater among better-off students in 6 countries (positive interaction) and smaller in 2 (negative interaction). This is also the case for using ICT at home for schoolwork (out of 29 countries with available data, a positive direct association is found in 7 of them; a positive interaction with SES is observed in 3 and a negative one in 1); having repeated a grade at least once (a negative direct association is observed in multiple countries but this association is statistically significant only in 2; positive interaction in 5 and negative one in 2); schoolwork-related anxiety (positive direct association in all countries; positive interaction in 8 and negative one in 4); sense of belonging (positive direct association in 14 countries; positive interaction in 3 and negative one in 6); academic competence (negative direct association in 14 countries; positive interaction in 6 and negative one in 3); and valuing cooperation and teamwork (positive direct association in 28 countries; positive interaction in 5 and negative one in 8). The interpretation of results for ability grouping practices is even more difficult because, although some interactions of a different sign are found, direct effects are positive in some cases and negative in others and non-statistically significant in most of them.

Furthermore, there are some important differences depending on the SES index used to investigate these interactions. This might reflect cross-country differences in the role played by different domains of SES (material well-being, parents' level of education, etc.) in interacting with education policy-relevant factors to shape students' LS. For instance, for some factors, interactions are observed for just one SES index in some countries and for several of them in others. Similarly, for some factors, only negative interactions are found for some SES indices and only positive ones are observed for others. This is the case of the negative effect of schoolwork-related anxiety, which could be moderated by parents' occupational status (i.e. only negative interactions are found) and accentuated by family wealth (i.e. only positive interactions are observed). Moreover, for some education policy-relevant factors, an interaction is observed in more countries when a specific SES index is used. Even within the same country, the interaction may be positive for one SES index and negative for others. This is the case of China (B-S-J-G) only, where the negative effect of bullying in students' LS is greater among students of higher SES measured in terms of family wealth (0.08

points) but lower among students of higher SES measured in terms of parents' education level (-0.10 points).

Overall, despite the general patterns observed for a few education policy-relevant factors, the complex picture affecting most of these factors in their interaction with SES reflect the very different realities experienced by children of different societies. It seems that school may shape how children experience their SES –or that SES may influence children's experiences at school- but how this operates differs significantly across societies.

*The role of schools in shaping differences in students' life satisfaction across socioeconomic status*

SES is positively associated with students' LS in 33 countries, and in 18 of them, this association varies across schools –although for any SES index school random effects were observed in more than 6 countries. This means that the environment specific to each school moderates the impact of SES –or poverty- in students' LS, which may occur either via school responses to student SES or via characteristics of the school environment which are not necessarily defined by school policies and practices. This lends further support to the hypothesis that schools play an important role in shaping students' LS, which has been supported by findings in chapters 5 and 6 and by previous research exploring the links between education and students' SWB (e.g. Clair 2014). The analysis of random effects studied in chapters 5 and 6 revealed evidence of random effects in 16 to 29 countries for self-reported well-being variables, in 14 countries for grade repetition and in 8 countries for gender. In comparison, for SES indices, the size of the random effect (between 0.2 and 0.30) is similar to that observed for self-reported well-being variables, between 3 and 4 times smaller than that observed for grade repetition and somewhat smaller than that found for gender.

On average, among the SES indices studied, the school random effect coefficient is the greatest for the indices of home educational resources (0.27) and home possessions (0.28) -which includes the items considered in the former and some more generic items- as well as for the index of parents' occupational status (0.31), although this might be a special case as it is only observed in China (B-S-J-G). The average school random effect ranges between 0.19 and 0.20 for the other SES indices, although there is significant cross-country variation in some of them. These results indicate the school a child attends is more important with regards to the negative effect on LS of not having access to home educational resources than with regards to not having access to other kinds of –more generic- resources (or having parents of lower education level and occupational status). This may be due to some schools facilitating access to some of these resources (thus, not having access to these at home becomes less important for students attending these schools) or not making these resources so essential (e.g. not requiring students to have access to these resources to be able to do their schoolwork).

An important finding again is that differences across countries are important. The moderating role played by schools in the association between SES and students' LS differs by country in terms of the SES index involved and the size of the random effect.

Further analyses of the possible mediating role of schools in the association between SES and students' LS involved the study of some characteristics of the school and how these may shape the association between SES and students' LS. This was investigated for school type and school peers' SES. In relation to school type, results reveal that in 19 out of 31 countries with available data, the association between SES and students' LS varies depending on the type of school. This could be interpreted as (1) the effect of SES in students' LS being greater in semi-private and/or private schools –compared to public schools- in some societies and smaller in others; or (2) the effect of attending one particular type of school in students' LS varying across SES. The explanation for these two possible scenarios is also twofold. This is, first, it could be that these types of schools are different enough in aspects that are relevant to students' socioeconomic circumstances and how they experience these circumstances. And second, it could also be that students of certain characteristics are more likely to attend one type of school than another. Both hypotheses are education policy-relevant, either for reasons which have to do with the kind of environment that schools provide to their students or in terms of education policies (e.g. school admission policies) which may lead to the segregation of students in schools according to their SES. Overall, these results are in line with those observed in chapter 5, which indicated that, in a large number of countries, the impact that some important aspects of students' lives have in their LS varies depending on school type. This provides additional support to the idea that schools may play an important role in shaping students' LS.

The role played by school peers' SES also provides some interesting insights into this question. First, a direct association between school peers' SES and students' LS is observed in 18 countries and, interestingly, this association is negative in 17 of them. This is further evidence that environmental variables at school level (not only the characteristics of the school but also those of your school peers) are important to students' LS. And second, when investigating how SES and school peers' SES interact to influence students' LS, an interaction is observed in 16 countries. In most of them, the interaction is positive. This can be interpreted as (1) the mainly positive effect of SES in students' LS being greater when the student is surrounded by school peers of higher SES, and as (2) the –mainly- negative effect of school peers' SES in students' LS being greater among students of higher SES.

Although this may sound confusing, a closer look at the differences in terms of the SES domains involved in these effects may help make sense of these results. The mainly positive effect of SES in students' LS is mostly about material well-being whereas the mainly negative effect of school peers' SES in students' LS is found, more commonly, when considering the index of parents' education

level, and not so much when using material well-being indices – especially not for those material well-being indices derived from items which are not related to education or culture. In view of these results, it could be hypothesised that, although SES would result in higher LS –mainly via higher material well-being- being surrounded by school peers from families of higher educational and cultural capital could lead, probably, to a more demanding school environment which (via higher stress and anxiety at school, perhaps) negatively influenced students' LS. Future research should study this question by looking at the mediating effects of school anxiety in the association between school peers' SES (measured in several different ways) and students' LS.

In relation to the role of schools in shaping students' LS, it seems clear that how we measure SES matters. Moreover, the general patterns across countries described in this section are not observed universally. Differences across countries are important, which suggests, again, that children's experiences at home -and in life- and the capacity of schools to influence these are defined by country-specific factors. These findings highlight the relevance of comparative research to identify cross-society differences and commonalities in the association between SES and students' LS. This association is complex and, as proposed in chapters 5 and 6, future research could benefit from more nuanced approaches. These approaches should focus on the child's close environment (this is home, school and community, which are found to explain more cross-country variation in children's SWB than macro-level factors, see Lee and Yoo 2015), be sensitive to the different realities experienced in each society, and consider children's views on what is important in their lives (Main 2014; Lau and Bradshaw 2016).

## 7.5. Limitations

The analysis presented in this chapter is affected by the overall limitations affecting this research and discussed in detail in section 8.2 in chapter 8. In addition, some limitations which are specific to this chapter must be noted. One of them is that the statistical software used to estimate these models could not estimate the direct effect of the index of cultural possessions in the household in students' LS in model C in Portugal nor the standard error and the 95% confidence interval for the random effect for SES in Russia in model A. Another limitation refers to the use of multiple indices of SES to capture differences between distinct important dimensions of SES. The material well-being indices seem to have followed adult-based criteria to determine what is important in children's lives. However, child-derived approaches which considered children's views on what is important in their lives are better at explaining variation in child SWB than adult-derived approaches (Main 2014; Lau and Bradshaw 2016).

## 7.6. Conclusion

This chapter provided some insights into the links between SES, education policy and students' LS. SES is positively related to students' LS, mainly via material well-being. The effect of education policy-relevant factors in LS often varies for students of different SES. Moreover, schools seem to

moderate the positive association between SES and students' LS in different ways. Not only this association differs across schools but also depending on school characteristics like school type and the SES of school peers. In addition, although some general patterns were observed across countries, all the above tends to differ depending on how SES is measured and, again, across societies.

All in all, this chapter provided additional evidence that the association between education policy and students' LS is complex. This complexity should not be overlooked in the development of policy interventions oriented to promote higher SWB among students. In the next chapter, I discuss the results presented in the last three chapters in view of the research questions and hypothesis studied in this thesis and the main elements of the literature review presented in chapter 2, and I also discuss the limitations of this research.

# Chapter 8: Discussion

The previous three chapters presented the empirical analysis of this thesis. The analysis conducted in these chapters has revealed evidence on the existence and complex nature of the association between education policy and students' LS. This evidence is discussed in this chapter in view of the literature presented in chapter 2 and the research questions and hypotheses studied in this thesis. The chapter also discusses the limitations of this research.

## 8.1. Discussion of key findings

The analysis conducted in chapters 5 to 7 aimed to address the following research questions:

1) Is there an association between education policy and child SWB?
    A. Is there an association between education policy-relevant factors and students' LS?
    B. Do schools influence students' LS?
2) What is the nature of this association?
    A. How do schools shape students' LS?
    B. What are the links between gender, education policy and students' LS? Can education policy explain part of the gender gap in students' LS?
    C. What are the links between SES, education policy and students' LS? Does it matter how SES is measured?
    D. Does the association between education policy and students' LS vary across societies? How?

The hypotheses examined are: that (1) there is an association between education policy and child SWB, which can be observed in view of the existence of an association between education policy-relevant factors and students' LS and evidence that schools may influence students' LS. Also, that (2) this association is complex; that it can be better understood through the multiple interconnections between different elements of the child's close environment –home (SES, education policy-relevant factors at home) and school microsystem (education policy-relevant factors at school)- and that it also varies depending on gender and its links with elements of this close environment and across societies.

These hypotheses were supported by the results presented in chapters 5 to 7. The remaining of this section discusses the findings of this thesis.

### 8.1.1. On the existence of an association between education policy and students' life satisfaction

This thesis presented evidence of an association between education policy and students' LS in two ways. First, by identifying multiple associations between education policy-relevant factors and students' LS. And second, by showing that schools may influence students' LS.

#### *8.1.1.1. The association between education policy-relevant factors and students' life satisfaction*

The existence of an association between education policy-relevant factors and students' LS was assessed in two ways. First, in terms of the proportion of the variation in students' LS explained by education policy-relevant factors. And second, in view of the direct association between each of these factors and students' LS.

The variables examined in the regression models explain between one-fifth and one-third of the variation in students' LS in the countries studied (see table 5.3 in chapter 5). Gender and SES account for a small proportion of this. By contrast, the five self-reported well-being variables, which are highly relevant to education policy, explain most of this the variation. The remaining variables, most of which are policy-relevant, explain more variation than gender and SES on average across countries but less than self-reported well-being. Overall, this is a bigger proportion compared to previous studies (Senik 2011, Bradshaw and Rees 2017). However, it is important to note 2 things. First, self-reported well-being is not independent of LS. And second, not all the factors included in the models are policy-relevant. Both questions are discussed further in section 8.2.

The study of the direct association between these variables and students' LS (summarised in table 5.2 in chapter 5) revealed again the relevance of the self-reported well-being variables to students' LS, although there are important differences in the relative importance of each of them. This association is particularly robust –observed in all or almost all countries and with a rather great effect size- for schoolwork-related anxiety (-), the frequency of being bullied (-) and, especially, feeling emotionally supported by parents in relation to school (+), which displayed the greatest effect size. An association is found in a smaller number of countries and the effect size is less strong for feeling unfairly treated by teachers and, particularly, for sense of belonging at school. Apart from these, other factors which are relevant to education policy to different degrees and which related to students' LS in most countries are valuing cooperation and teamwork (+), having breakfast before going to school (+), doing vigorous exercise outside school (+), academic competence (-) and talking to parents before and/or after school (+); and, in around half of the countries, truancy (-) and school type (i.e. in several countries, students' LS is on average greater in some types of schools (public, private, semi-private) than in others). For the other education policy-relevant factors studied, the picture is more complex. For these other factors, effects are found in a smaller number of countries and, in some cases, positive and negative effects are observed in a much similar proportion across countries. Nonetheless, despite effects being observed in a small number of countries, some of these other factors seem particularly important to the LS of students in some of them.

Findings on the universal importance of bullying and the existence of cross-country variations are in line with those observed in previous studies (Rees and Main 2015, Bradshaw et al. 2017). However, these results do not support the finding by Bradshaw et al. (2017) that levels of bullying are better

predictors of child SWB in rich countries than in poor ones. Perhaps, this can be explained by the use of different measures of SWB.

As to the great importance of parents' support in relation to school, the results support evidence from previous research which shows that the quality of the relationship with parents in general and the interactions with parents in different activities (learning, having fun together, etc.) are key elements shaping children's SWB (Lawler et al. 2017, Newland and Giger 2018). This finding emphasizes the importance of school as an aspect of children's lives where parents' support is highly important.

Furthermore, the importance of most of the most relevant factors studied in this research (bullying, relationship with parents, relationship with teachers, etc.) has already been identified in previous international studies (Rees and Main 2015, Bradshaw et al. 2017, Newland and Giger 2018). In relation to school anxiety, however, although several studies have found a negative association between anxiety –in general- and children's SWB (Huebner 1991, Serin et al. 2010), previous research studying the links between school/test anxiety and children's SWB is almost non-existent. Research on test anxiety usually conceives this as being composed of two dimensions, this is an affective physiological dimension (emotionality) and a cognitive dimension (worry) (Liebert and Morris 1967, Cassady and Johnson 2002), and two recent studies which focus on test anxiety and children's SWB have found that the worry component of test anxiety negatively predicts variation in LS (Steinmayr et al. 2016, 2018). In relation to this question, this thesis makes an important contribution to the literature on child SWB by demonstrating the universal importance of schoolwork-anxiety, an understudied aspect of children's lives which is amenable to policy (policy and practice implications regarding this question are analysed in see section 9.4. in chapter 9).

Apart from findings in these domains, this thesis also sheds light on cross-country differences in the relative importance that each of the education policy-relevant factors has to students' LS, helping identify areas of interventions which should be prioritised by policymakers in each country. An important finding, however, is that, compared to student-level factors, factors measured at the school-level seem less important to students' LS (i.e. associations are observed in fewer countries and the size of the effect are also smaller). This may be due to the fact that the school-level variables studied in this research (with the exception of school type, mainly) are simply not so important to students' LS. However, this does not necessarily mean that schools do not play an important role in shaping children's SWB. Indeed, as discussed in the following section, the role played by schools can be quite important in some cases.

#### *8.1.1.2. The influence of schools in students' life satisfaction*

The influence of schools in students' LS was examined in this thesis in view of two elements: the existence of school effects on students' LS and the proportion of variation in students' LS explained at the school level. I find evidence of school effects on students' LS in all countries but Finland and Greece (table 5.4 in chapter 5). In the case of the Nordic country, Konu et al. 2002 also find that

schools in Finland do not play an important role in influencing students' LS and argue that this is probably due to Finnish schools presenting quite homogeneous conditions. All in all, evidence on school effects indicates that, with the exception of these two countries, it seems pertinent to use multilevel models (with students at level 1 and schools at level 2) to study variation in students' LS. Furthermore, the proportion of the variation in students' LS which can be attributed to differences between schools is above 5% in 24 countries, being especially high (25-45%, approximately) in 5 Eastern European countries (table 5.4 in chapter 5). These differences can be largely explained by the variables included in the models –especially in the random part. The VPC values in the null-models range between 1% and 4% approximately, in most cases. These are similar in size to those observed in previous research studying this (Rathmann et al. 2018, Oberle et al. 2011, Konu et al. 2002, Clair 2014). In relation to this question, the main contribution to the field made by this research is the possibility of comparing in a large number of countries (probably greater than any other study up to date) to what extent variations in children's SWB are explained by differences between schools.

### 8.1.2. On the nature of the association between education policy and students' life satisfaction

The nature of the association between education policy and students' LS was studied with reference to four questions. First, in view of the different ways in which schools influence students' LS. Second, in terms of how the associations between schools and education policy and students' LS differ for girls and boys. Third, with regards to how these associations vary for children of different SES. And fourth, in view of cross-country differences.

#### *8.1.2.1. The multiple ways in which schools influence students' life satisfaction*

I conducted two types of analysis to assess the ways in which schools may influence students' LS. First, I estimated random effects to examine the way in which the impact of certain factors on LS may differ across schools. And second, I studied interaction effects to assess the moderating role of school characteristics (school type and school peers' characteristics) in the association between education policy-relevant factors (e.g. bullying) and students' characteristics (e.g. SES) and LS.

The study of random effects shows that, in multiple countries, the effect of schoolwork-related anxiety, the frequency of being bullied, feeling emotionally supported by parents in relation to school and having repeated a grade on students' LS significantly differs across schools (table 5.5 in chapter 5). This is observed in 16, 29, 26 and 14 countries, respectively. As discussed in section 8.1.1.2 above, this suggests that school responses to student experiences and characteristics are important to students' LS. These findings are similar to those observed in previous studies in the field (Klocke et al. 2014, Clair 2014) although, again, this research is pioneering in the sense that it explores this question in a large number of countries.

Of special relevance is the finding observed in 5 Eastern European nations –the Czech Republic, Estonia, Latvia, Poland and Slovakia- where, compared to other countries, the school random

coefficient for grade repetition is particularly great (above 1 point). These are the same countries which display very high VPC values –this is, where schools explain a very large proportion (25-45%) of the variation in students' LS (table 5.4 in chapter 5). When grade repetition random effects are added to the models, the VPC values in these countries go from a value which is similar to those observed in other countries to levels which are far higher. This indicates that these high levels of between-school variance are mostly explained by how schools in these countries deal with students who have repeated a grade –who, in these nations, represent around 4-6% of the 15-year-old student population. That is, in these Eastern European nations, attending to one school or another makes a very big difference to the LS of students who have repeated a grade. The fact that, among 33 quite diverse countries, these results are found in 5 nations from such a specific part of the World which share a common past (all of them belonged to the East Bloc in times of the Cold War), suggest that there might be elements which are common in these education systems explaining these results -a question which should be further investigated in future research.

Apart from the finding itself, the results regarding grade repetition and students' LS in these Eastern European countries highlight the relevance of studying random effects at the school level for different factors. Especially in cross-national studies, this can help identify issues which are specific to some education systems and which require special attention from policymakers in these nations. This particular finding is observed because random effects were studied for grade repetition (as well as for schoolwork-related anxiety, the frequency of being bullied and feeling emotionally supported) but –due to feasibility reasons- random effects were not studied for all the remaining education policy-relevant factors. Perhaps, had random effects been studied for other education policy-relevant factors, further evidence of the relevant role of schools in influencing students' LS might well be found for some of these factors as well.

The study of interaction effects involving school characteristics (school type and school peers' characteristics) also revealed interesting insights into how schools may influence students' LS. In around half of the countries, students' LS is greater in some type of schools than in others (table 5.2 in chapter 5) and in almost all countries the effect of education policy-relevant factors differs by school type (5.7 in chapter 5). Similarly, school peers' characteristics (school peers' levels in 5 self-reported well-being variables and academic competence) are associated with students' LS in a few countries (table 5.7 in chapter 5). More importantly, in most countries, the effect of these factors in students' LS varies depending on school peers' characteristics regarding these factors. Overall, the study of these interaction effects adds to findings from the body of research which suggests that environmental factors at the level of school (or school type) are important to children's SWB (e.g. Lee and Yoo 2015, Newland and Giger 2018).

#### *8.1.2.2. Schools and education policy shape students' life satisfaction in different ways for boys and girls*

This study shows that girls report lower LS than boys in all the countries analysed (table 6.1 in chapter 6). This is in line with the results found by Chen et al. (2019) in a meta-analysis on gender differences in the SWB of children. However, Chen et al. (2019) find that girls report slightly lower LS than boys in Asian and North American countries, which contradicts the results observed in this research. This is probably due to differences in study features, which may include the age of participants and the SWB domain studied.

More relevant to the research questions studied are the results of a series of analyses conducted in chapter 6, which show that schools and education policy influence students' LS in different ways for boys and girls. The first set of analyses explored gender differences in students' experiences in view of several education policy-relevant factors (table 6.2 in chapter 6). In this regard, first, for multiple education policy-relevant factors, gender differences are observed in a large number of countries. For instance, on average, girls tend to report lower levels of bullying but higher schoolwork-related anxiety. Second, the effect of some of these factors in students' LS varies by gender too, mainly for self-reported well-being variables, where the effect is often greater among girls (table 6.3 in chapter 6). And third, the Blinder-Oaxaca decomposition analysis revealed how these factors contribute to the gender gap in students' LS (table 6.4 in chapter 6). Girls tend to have less negative experiences than boys with regards to bullying and feeling unfairly treated by teachers mostly, which are factors that would contribute to decrease the gender gap in students' LS. By contrast, girls have more negative experiences than boys mainly in relation to schoolwork-related anxiety, which is a factor that contributes to increasing the gender gap in students' LS. Other factors also make a positive or negative contribution to the gender gap in LS, although for these factors evidence is observed in a smaller number of countries and the size of the effects are smaller too. The type of analysis conducted in chapter 6 can be very useful to identify country-specific issues. For example, chapter 5 revealed that South Korea is the only country where bullying is not associated with students' LS, probably because levels of bullying in this country are the lowest observed in cross-national studies (Rees and Main 2015, OECD 2017a). However, chapter 6 showed that there are important gender differences behind this and that, in South Korea, a negative association exists for girls but not for boys.

These findings show important gender differences in children's views and experiences in the school context. Previous research studying children's worlds in relation to school have suggested that gender differences can be important and that the field would benefit from research studying this question (Casas and Gonzalez 2017). This thesis contributed to this by shedding some light onto gender differences in how school-related elements influence students' LS in different ways for girls and boys. Moreover, research studying children's worlds in school and how this differs by gender and across countries may benefit from insights provided in this research, particularly in relation to

schoolwork anxiety. This is a school domain which –as noted before- has been overlooked in previous research, which is strongly related to students' LS and where important gender differences are observed. In addition, these results are also relevant in view of the interesting findings by Chui and Wong (2016) discussed in detail in section 2.2.3.2 in chapter 2 – who find that, in Hong Kong, while higher satisfaction with academic performance results in higher happiness among boys but not among girls, academic satisfaction is important for LS among girls but not among boys. The authors of this study argue that the relationship between gender and child SWB should be interpreted, rather than as a direct one, as a process where the formation of SWB is simply different for boys and girls -and, in view of findings from chapter 6, we could add that, at the same time, this also seems to vary across countries.

Finally, apart from evidence on how education policy-relevant factors shape students' LS in different ways for girls and boys, chapter 6 also shows that, in several countries, the gender gap differs across schools (table 6.5 in chapter 6,), suggesting that girls and boys may find rather different environments across schools in elements which influence their LS. In other words, this means that individual schools would play an important role in shaping the LS of girls and boys differently. This finding adds to previous research which has reported similar results in different countries (Klocke et al. 2013, Clair 2014).

#### *8.1.2.3. Schools and education policy shape students' life satisfaction in different ways for children of different socioeconomic status*

Chapter 7 shows the existence of an association between SES –mainly material well-being- and students' LS in almost all countries (table 7.3 in chapter 7). Results in chapter 7 support findings from multiple studies which report on this association (e.g. Ridge 2002, Sarriera et al. 2015, Gross-Manos 2017) and research suggesting that how we measure SES matters when it comes to finding associations between this and children's SWB (Knies 2011, 2012, Main 2014, Lau and Bradshaw 2016).

Of more relevance is the finding that the effect of multiple education policy-relevant factors in students' LS differs for students of different SES in almost all countries (tables 7.4 and 7.5 in chapter 7). For example, feeling emotionally supported by parents has a positive effect on students' LS in all the countries studied and this is particularly important for socioeconomically disadvantaged students. Similarly, truancy is negatively associated with students' LS in about half of the countries and this effect tends to be stronger among better-off students. Likewise, bullying is found to negatively relate to students' LS but the effect tends to be greater among better-off students. Interactions are observed for several other education policy-relevant factors, but in these other cases, the picture is less clear. In these other cases, effects are found in fewer countries and positive and negative effects are found in a much similar proportion. These findings are not surprising in view of the body of research - discussed in section 2.3.3.3 in chapter 2- which reports that children of different SES have

rather different experiences in relation to school (e.g. Adelman and Wagmiller 2009, Saunders et al. 2018) and that the links between SES and child SWB can be explained by the existence of mediating factors (Cummins and Cahill 2000), which may include factors such as family, health and, most likely, school. However, this research is innovative in providing an international perspective in relation to this question, showing that, for some of the key school-related factors explaining variations in children's SWB, the way in which this varies for children of different SES differs across countries.

The analysis in chapter 7 also reveals that not only education policy-relevant factors influence students' LS in different ways for students of different SES but also that schools seem to play an important role in this. Like findings in previous research studying this question (Klocke et al. 2013, Clair 2014), SES random effects are observed in several countries (tables 7.6 and 7.7 in chapter 7), which suggests that, in these countries, schools moderate the impact of SES in students' LS. Furthermore, in most countries, the effect of SES in students' LS differs by school type too (table 7.8 in chapter 7). In addition, also in most countries, there is a –mostly negative- association between school peers' SES and students' LS and in around half of the countries studied school peers' SES moderates the association between SES and LS (table 7.9 in chapter 7). This evidence suggests, again, that environmental factors at the school level (or the school type level) influence students' LS, as indicated by previous research (Lee and Yoo 2015, Newland and Giger 2018, Klocke et al. 2013). In this case, in some countries, the environment specific to each school seems to moderate the impact of SES on students' LS, which may occur either through school responses to student SES or as a result of the characteristics of the school environment which are not necessarily defined by school policies and practices. Again, because of the international comparative approach of this thesis, thanks to this analysis we know now much more about how all this differs across different socio-cultural contexts, which can inform future research focusing on studying this question in specific countries.

#### *8.1.2.4. Cross-society variation in how schools and education policy influence students' life satisfaction*

A recurrent finding observed in all the analyses conducted in this thesis is that differences across countries are important. For some analyses, a clear pattern is observed across all countries (e.g. the negative effect of school anxiety in students' LS). For others, however, some important exceptions to the general patterns are found in one or just a few countries. These exceptions involve the existence of an effect only in a few countries (e.g. in no country the proportion of certified teachers in the schools relates to students' LS but in South Korea and Greece), the absence of an effect which is observed in almost all countries (e.g. bullying relates to students' LS in all countries but in South Korea) or the existence of an effect which differs in its nature from that observed in most countries (e.g. boys report higher levels of feeling emotionally supported by parents and lower academic competence than girls in 18 and 16, respectively, while, for both factors, the opposite is observed only in one country, Chile in both cases). And for other analyses, the cross-country patterns are not

so clear, it is more difficult making generalisations across countries, and the picture is more mixed overall. This is so either because an effect is observed just in several countries (e.g. the existence of gender random effects) or because positive and negative effects are observed in a much similar proportion (e.g. compared to students attending public schools, the effect of schoolwork-related anxiety in LS is greater in semi-private schools in some countries and smaller in others). It is important to emphasize that the fact that some results are not observed in all or almost all countries or that the effects differ in sign across countries does not mean that some results are not particularly robust in some of these countries (i.e. strong statistical significance and strong effect size), as some of the examples cited above reflect.

These results provide further evidence that drivers of SWB differ across countries (Klocke et al. 2013). The reasons for this may be that children of different societies experience very different realities in relation to school and education policy and how these shape their LS. However, this may also be the result of language and cultural considerations (Leu et al. 2011, Lu and Gilmour 2004), an issue which was discussed in section 2.3.1.3 in chapter 2. Going back to the study by Chui and Wong (2016) on gender differences in the links between happiness, LS and academic satisfaction in Hong Kong discussed above -where the authors use different measures to distinguish between happiness and LS- it is easy to imagine how distinguishing between the notions of happiness and LS might be difficult for children in some societies and that, in some languages, translation issues could be a problem. As noted by Bradshaw 2015, linguistic and cultural considerations remain an important limitation to comparative studies of SWB. However, some research techniques can be applied to deal with cultural variations in response patterns (e.g. Rees and Main 2015, p. 9). Moreover, overall, despite these limitations, comparative research which aims to study cross-society differences and commonalities in the association between school, education policy and students' LS (or closely-related concepts) is useful to identify education policy-relevant factors that can help to make children happier in different societies.

Finally, cross-country differences can be important but it is likely that this association also differs at other levels (e.g. state/regional level, local level, etc.). There are two reasons for this. First, because geographical differences in the way in which schools influence the children's SWB are likely to relate to characteristics of the education system, which in some countries like Spain and Canada may differ significantly across regions/states. And second, because cross-country variations in child SWB are mainly the result of differences in elements of the close environment of the child (mostly school, home and community, see Lee and Yoo 2015) and, therefore, local characteristics are likely to play an important role. Moreover, this thesis shows that, in 9 countries, students in schools located in less populated communities report higher LS than those in schools located in more populated ones, while the opposite is observed only in one country. Although the study of differences between rural and urban communities in this thesis is limited only to this finding, the way in which school and education policy influence LS in a particular country might also be different in rural and urban contexts. All in

all, the field would benefit from research studying the links between education policy and children's SWB at these different levels too.

## 8.2. Limitations of this research

In chapters 5 to 7, I discussed some limitations which are more specific to the analyses presented in these chapters. Apart from these, there are some overall limitations affecting this research which are discussed in this sections.

The first important limitation refers to the study of only one outcome variable (LS) which is derived from a single item using Cantril's ladder to rate LS on a scale from 0 to 10. Most research studying child SWB has traditionally focused on LS (Proctor et al. 2009). However, as noted before, on some occasions, studies focusing on different SWB aspects or using different measures of LS (either single- or multi-item scales) may differ in their findings (e.g. Chen et al. 2019, Clair 2014, etc.). In view of this, had other measures of SWB been used in this research, findings might differ from those reported in this thesis. The use in this thesis of only one (single-item) outcome variable was imposed by data availability limitations but, ideally, future research exploring this question should consider other elements of SWB (both cognitive and affective well-being) and eudaimonic/psychological well-being.

Another significant limitation is that, given the nature of the data and the research design used, this thesis does not provide evidence of causality. As discussed in detail in section 3.5 in chapter 3, in view of data availability limitations, I decided to use cross-sectional data (to be able investigate this question in many countries and studying more public policy-relevant factors but not being able to infer causality) rather than longitudinal data (which is available in a few high-income countries only and which would involve focusing on fewer public policy-relevant factors but being able to infer causality). For this reason, caution is needed when interpreting the associations reported in this research as the findings indicate only an association – not the direction which that association might take. Despite this important limitation, however, these results can be interpreted together with findings from other studies on the direction of this association (e.g. see Steinmayr et al. 2016, 2018, on the effect of schoolwork anxiety on children's SWB). In addition, despite the impossibility of inferring causality in this thesis, all in all, this research makes an important contribution to the field studying the links between education policy and children's SWB as the multilevel models used controlled for a large number of possible confounding influences and evidence on the existence of an association between education policy and students' LS is quite robust overall.

In addition, due to data availability limitations, this research exclusively focuses on 15-16-year-old adolescents who are enrolled in mainstream education. This is a rather restrictive definition of childhood as it excludes children from other ages, those who are out of school as well as those with special educational needs that do not attend mainstream schools. Moreover, although the countries considered are relatively diverse, there are not representatives from Africa, Oceania, the Caribbean

and certain Asian Regions and only a few of them are considered low-income countries. Had other groups of children and countries from other regions (especially more low-income countries) been included in the analysis, results might present a different picture.

Also, LS data are often negatively skewed (Cummins 2003), which might affect the validity of the results. There is some disagreement among academics on how one has to account for the special character of SWB variables (Ferrer-i-Carbonell & Frijters, 2004, Rees 2018) and researchers have used a range of methods to deal with this, including tobit regression (Main 2014), a combination of linear, ordinal and logistic regression (Powdthavee and Vernoit 2013) and a combination of logistic and linear regression (Rees and Bradshaw 2016). Because of the interest in the role played by schools –which requires the use of multilevel regression models- and the fact that the analysis required to study these research questions was already rather complex (mainly due to the need of applying weights at both levels, studying random effects, etc.), this research did not make use of any technique to deal with skewed data.

In addition, the assumption of normality of residuals was checked for the linear regression models studied in chapter 5, which include all the variables studied in this chapter. The qnorm plot in table A1.7 in Appendix 1 shows that there might be problems of non-normality affecting the residuals in most countries, which might affect the validity of these results.

Also, as reported in multiple studies (e.g. Goswami 2012), self-reported well-being is not independent of LS, which may explain why it accounts for most of the variation in students' LS in this research. Different approaches to dealing with this problem when using cross-sectional data have been proposed. However, there are additional problems associated with these solutions (see OECD 2013a, p. 224). All in all, it is important to keep this mind that, compared to other variables in this thesis, the effect on students' LS of those factors measured using self-reported variables may be inflated.

Another issue to keep in mind is that a few of the factors studied are not policy-relevant. The rationale for their inclusion was discussed in section 2.2 in chapter 2 and, although this is something to be considered when interpreting the results presented in chapters 5 to 7, their consideration does not affect the main findings reported in this thesis.

Moreover, although I adopted a rather conservative approach to dealing with missing data by excluding variables and countries where levels of missing data were particularly high, there are high levels of missing data (above 20%) in some of the variables studied in some countries (see levels of missing data in table 4.4 in section 4.1.1 in chapter 4). Because the models were already quite hard to run (mainly due to the use of weights and the study of random effects), adopting a solution other than using listwise deletion (e.g. imputing missing values) was not feasible. The aim of this thesis was to provide a broad overview of this topic across a range of countries and, for this reason, in

order not to exclude most countries, it could not be extremely strict in relation to the issue of handling missing data. Future research focusing in more depth on individual countries should probably handle missing data differently to ensure that sufficient cases are available for the analyses performed.

A final consideration to be highlighted is that PISA studies have been strongly criticised for multiple reasons, including accusations of promoting a neo-liberal policy agenda, making false claims that PISA measures knowledge and skills which are essential in all societies, and showing a monolithic, distorted view of education, among others (Uljens 2007, Berliner 2011, Sjøberg 2015, Zhao 2016, 2017). These critiques focus on the academic element of PISA studies and the –often- questionable use made of this data to draw policy recommendations. However, they are of little relevance to the findings presented in this thesis, which are exclusively focused on students' SWB.

Overall, despite the limitations described in this section, this research presented robust evidence on the existence and nature of the association between education policy and children's SWB. Based on this evidence, some important conclusions can be drawn regarding this question. The conclusions of this thesis are presented in the next chapter.

# Chapter 9: Conclusions

The previous chapter discussed the main findings of this thesis as well as the limitations of this research. In view of that discussion, this chapter presents now the main conclusions of this work. First, I briefly comment on the context of this research and state its main objectives. Then I describe how this thesis achieved these objectives. I do this by briefly enumerating the major findings (discussed in more detail in chapter 8), by drawing implications for policy and practice based on these findings and by describing the overall contribution of this research. Finally, I conclude with some recommendations for future research interested in studying the association between education policy and children's SWB.

## 9.1. Context of the research

This thesis was concerned with the association between education policy and child SWB. In a context of increasing academic and policy interest in SWB, compared to adults' SWB, interest children's SWB is a more recent phenomenon and child SWB still attracts far less attention in the policy arena. As noted in chapter 1 (section 1.1), my interest in this question was motivated by normative, legal and academic reasons. My particular stance on this issue was that education policy can –and therefore should- be assessed not only in view of academic outcomes and well-becoming considerations but also in terms of children's own evaluations of their well-being in the present, this is in terms of their SWB. My stance and interest on this topic were inspired by findings from the literature studying the association between public policy and child SWB. Findings in this relatively new field of research indicate that an association between policy and child SWB is often hard to find but likely to exist and that, overall, this seems to be a complex association which differs across schools, by gender, across SES and by country.

The argument that education policy can be assessed in terms of child SWB implies that the former can influence the latter. As discussed in section 2.1.1 in chapter 2, section 3.5 in chapter 3 and in section 8.2 in chapter 8, out of the 2 possible approaches to studying this association imposed by data availability limitations, this research did not attempt to prove the existence of causal mechanisms for a few education policy-relevant factors in a few countries using longitudinal data. Instead, I decided to harness the release of PISA 2015 -a cross-sectional data set with very rich information on education policy-relevant factors- and, consequently, focus on a large number of countries and education policy-relevant factors to find evidence on the existence and nature of this association. My thesis was that there is an association between education policy and students' LS and that this association is complex.

## 9.2. Objectives of the research

In purely academic terms, two main objectives were pursued in this thesis. First, this research set out to build on existing evidence indicating that public policy has the potential of promoting children's

SWB. And second, this work aimed to fill the research gap that exists with regards to our knowledge about the nature of the association between public policy and children's SWB.

To achieve this, given the nature of the PISA 2015 data set, the focus was on education policy and the LS of 15-year-old students in 33 and the use of multilevel regression to account for the hierarchical structure of the data set and be able to assess the role played by schools. Moreover, in pursuing these two objectives, I adopted an ecological approach (Bronfenbrenner 1979) to study the association between education policy and students' LS, which focuses on the influence on children's development of children's multiple environments and the interconnections between them. This framework is commonly used in research that aims to explain variation in child SWB (e.g. Clair 2014, Newland and Giger 2018) and has been revealed to be very useful to study the links between education policy and child SWB in this thesis.

In relation to the first of the two objectives defined above, the approach was to find evidence of the association between education policy-relevant factors and students' LS and evidence on whether schools influence students' LS. As to the second objective, the approach was to study how schools influence students' LS, to investigate differences by gender and across SES in how schools and education policy-relevant factors influence students' LS, and to study how all the above differs across countries. All in all, the overall academic aim of this research was, therefore, answering the following research questions:

1) Is there an association between education policy and child SWB?
    A. Is there an association between education policy-relevant factors and students' LS?
    B. Do schools influence students' LS?
2) What is the nature of this association?
    A. How do schools shape students' LS?
    B. What are the links between gender, education policy and students' LS? Can education policy explain part of the gender gap in students' LS?
    C. What are the links between SES, education policy and students' LS? Does it matter how SES is measured?
    D. Does the association between education policy and students' LS vary across societies? How?

This thesis aimed to test the following hypotheses: that (1) there is an association between education policy and child SWB, which can be observed in view of the existence of an association between education policy-relevant factors and students' LS and evidence that schools may influence students' LS. Also, that (2) this association is complex; that it can be better understood through the multiple interconnections between different elements of the child's close environment –home (SES, education policy-relevant factors at home) and school microsystem (education policy-relevant factors at school)- and that it also varies depending on gender and its links with aspects of this close

environment and across societies. A summary of the research questions and hypotheses, the rationale for investigating these questions and the use of the ecological approach is illustrated in figure 3.4 in chapter 3 – and a more detailed account on this is presented in figure 3.5 in chapter 3 and at the beginning of each analytical chapter in figure 5.1 in figure 5, figure 6.1 in chapter 6 and figure 7.1 in chapter 7.

Finally, apart from these two research-oriented objectives, a third policy-oriented goal pursued in this thesis was to further our understanding of how schools and education systems may promote child SWB. In relation to this, an analysis of the implications for policy and practice of the findings of this research is presented later in section 9.4.

## 9.3. Major findings

The findings of this research were discussed in detail in chapter 8 (section 8.1) in view of the research questions and hypothesis of this thesis and the main elements of the literature investigating this question, which was presented in chapter 2. A summary of the main findings of this thesis is presented in the following.

- There is solid evidence of an association between education policy and children´s SWB.
    - The study of direct effects in multilevel regression indicates that there is an association between many education policy-relevant factors and students' LS. This association is particularly robust (i.e. greater effect size found in almost all countries) for bullying, school anxiety and parents' emotional support in relation to school. For other factors, the association is less robust and there is great variation in terms of the number of countries where an association is observed and the size of the effects. In addition, the analysis of the adjusted $R^2$ suggests that education policy-relevant factors can explain an important proportion of the variation in students' LS, although differences across countries are important.
    - Evidence of school effects and the VPC estimates indicate that differences in students' LS are partly explained by the specific school a child attends.
- The association between education policy and children´s SWB is complex.
    - Schools may influence students´ LS in several different ways. Moreover, the role played by schools differs by country and is particularly important in some Eastern European nations mainly due to differences across schools in how grade repetition influences students´ LS. In addition, the association between education policy-relevant factors and students´ LS also varies depending on the type of school and on school peers´ characteristics.
    - Girls report lower LS than boys in all countries and the way in which schools and education policy influence students´ LS differs for girls and boys. Overall, although boys seem to have more negative experiences than girls in relation to school (mainly

via bullying and relationships with teachers), there are some exceptions to this –mostly regarding schoolwork anxiety. Moreover, in some countries, the gender gap in students´ LS differs across schools.

- There is a positive association between SES and students´ LS which is mainly explained by material well-being. In addition, in some countries, the effect of SES in students´ LS seems to be moderated by the specific school a child attends. Likewise, in many countries, the association between some education policy-relevant factors and students´ LS differs for students of different SES and depending on school type and school peers´ SES.
- Finally, an overall finding is that, for all the analyses described above, differences across countries are important.

## 9.4. Implications for policy and practice

In view of the main findings discussed in the previous section and in chapter 8 (section 8.2), some important implications for education policy and practice can be drawn.

***Policies and policy domains which require special attention***

To start with, there are some important implications regarding some specific policies and policy domains. First, tackling bullying and school anxiety is essential to increase children's SWB. Second, interactions with parents are also very important, especially in view of the evidence on the great relevance of feeling emotionally supported by parents in relation to school. Although this may not seem as amenable to policy interventions as bullying and school anxiety, as discussed in section 4.4.2 in chapter 4, there is evidence that –although indirectly- public policy can influence this. Practitioners and policymakers should work towards facilitating that parents can spend more time with their children and provide them with a more supportive and nurturing environment. Third, the quality of the relationships between students and teachers is important too and measures oriented to improve this –and particularly, to reduce the feeling of being unfairly treated by teachers- could boost child SWB. Fourth, the promotion of healthy habits –having breakfast before going to school and practising vigorous exercise several days a week- is another way in which children's SWB could be increased in many countries. And fifth, schools and education systems that tackle truancy, promote cooperation values and manage to increase the sense of belonging to school among students may achieve that these enjoy higher levels of SWB.

Furthermore, attention needs to be paid to country-specific issues, this is factors which -regardless of the number of countries where an effect is found- can be of especial importance to improving children's SWB in some societies. For example, in view of the results observed for Spain, increasing the availability of human and material resources in schools in this nation could result in higher SWB. The fact that some interventions are likely to be important in some countries but not in others highlights the importance of policymakers having access to representative data for their country (and,

ideally, also access to data at the region/state- and municipality-level) to be more effective at identifying the public policy and practice interventions which are more likely to increase the SWB of their children.

In addition, it is also important to note that, although the focus of this research is on education policy, for some of these factors (e.g. interactions with parents, health habits, etc.) interventions would not be limited to schools and education policy but would also involve taking action in other policy domains (health, work-life balance, broader social policy, etc.). For example, regarding the quality of the relationships between children and their parents, this could be promoted through policy interventions intended to improve the work-life balance of parents and ensure that these can spend time with their children and to reduce the stress associated to the lack of resources among socio-economically disadvantaged families.

***School-level interventions***

In relation to the role of schools, evidence that individual schools –and not only education systems- may influence students' SWB has some policy implications too. The fact that students' LS differs from one school to another and/or from one type of school to another may lead to two hypotheses, which are not mutually exclusive and policy-relevant. The first one is that schools –and/or types of schools- are different enough in ways which are important to students' LS. And the second one is that students of certain characteristics are more likely to attend some schools –or types of schools- than others. In view of the first of these two hypotheses, policymakers should aim at identifying the characteristics that result in higher LS in some schools –and/or type of schools- and how these conditions can be promoted in others through changes in policy and practice. In view of the results presented in this research, some of these conditions are to do with school anxiety, bullying, feeling emotionally supported by parents in relation to school and grade repetition, whose impact in students' LS varies across schools in many countries -meaning that some schools do better than others when it comes to dealing with these issues and that we should aim at identifying how those schools which do worse can learn from those which do better. And in view of the second hypothesis, policymakers should consider the effects on child SWB -and not only academic outcomes- of policies which determine how students are distributed into schools and types of schools (i.e. school admission policies, etc.).

***Accounting for gender differences***

Gender differences in how schools and education policy influence students' LS highlight the necessity of targeting some groups in particular (either boys or girls) when dealing with some issues. For example, policymakers and education practitioners should especially target girls when developing interventions oriented to deal with schoolwork-related anxiety. Moreover, the finding that the gender gap in students' LS may vary from one school to another may be to do, again, either with how students are sorted into schools (i.e. students of different characteristics being more likely to

attend some schools than others) or with differences in how schools deal with boys and girls in different ways. The policy implications regarding this question are the same as those discussed in the previous section.

***Accounting for differences across SES***

There are also some relevant policy implications regarding students' SES and how this relates to LS and education policy. First, policies oriented to increase the material well-being of children – especially that of those who are more materially deprived- are likely to have a positive impact on their LS. Second, in view of the great importance of the access to educational resources and that some of the items included in this index could well be provided by schools, policy interventions could also involve targeting schools (i.e. helping schools provide access to these resources) and not only families. Third, when dealing with some issues (e.g. the importance of feeling emotionally supported by parents in relation to school), targeting some groups of students whose SWB is more sensitive to this (in this case, socioeconomically disadvantaged students) may be a pertinent thing to do. And fourth, the fact that the effect of SES in students' LS varies across schools and depending on school characteristics (school type and school peers' SES) may be to do, again, either with how students of different characteristics are allocated into different schools and/or types of schools or with differences in how schools and/or types of schools deal with students' of different SES in different ways. In relation to this fourth point, the policy implications are the same as those discussed in the previous two sections.

***Accounting for differences by country***

Finally, in view of findings on cross-country variation in the set of analyses conducted in this research, the main policy lesson is that caution is needed when making generalisations across-countries because what it is observed in one particular country may well not be observed in a different one (or, perhaps, neither in a region/state or municipality or either in rural or urban communities in that country). Policymakers must be aware that differences across countries mainly –but, probably, also across regions, communities and between urban and rural areas- can be substantial. To deal with this issue, the best response would be to promote the collection and analysis of data at the country level but also, ideally, data which is representative of these different administrative levels and the rural/urban population.

## 9.5. Key contributions of this thesis

Overall, this thesis has answered the research questions and tested these hypotheses defined above in section 9.2 and, therefore, it has achieved its main objectives. In doing so, this thesis has made key contributions to the understanding of child SWB in relation to schools and education policy. A detailed summary of these contributions is presented below:

- This work presented solid evidence of the existence of an association between education policy and students' LS. In doing so, this thesis provided insights into factors which explain

variation in students' LS, mainly regarding factors which are relevant to education policy. Not all these factors related to students' LS in the same way and this thesis sheds light onto the relative importance of each of them in each country. Evidence on the existence of this association was also supported by findings that schools may influence students' LS.

- This thesis also provided insights into the nature of the association between education policy and students' LS. This includes evidence on differences across schools and types of schools, by gender, across SES and across countries. These findings are particularly important to advance our knowledge of the ways in which public policy could promote children's SWB.
    - This thesis adopted a cross-national comparative approach. In this regard, one of the main contributions of this research was furthering our understanding of cross-country differences in children's experiences at school and in relation to education and how these define their SWB in a large number of countries.
- Finally, given its policy-orientation, this thesis contributed to advance our knowledge not only in academia but also in the policy arena. Some of the findings presented in this research can be used to inform policy and practice interventions oriented to promote children's SWB. Moreover, by presenting evidence that schools and education policy may influence children's SWB, it also provided support to the idea that education policy can be evaluated in view of child SWB and not only in terms of academic outcomes and other well-becoming considerations.

## 9.6. Recommendations for future research

In view of the findings of this research, its limitations and some improvements in terms of data availability which have taken place recently, this section briefly proposes some possible lines for future research.

First, the findings of this thesis can inform future research using longitudinal data in those countries where this type of data is available, which has the potential of identifying causal mechanisms in the association between public policy and children's SWB.

Future research should consider other education policy-relevant factors which could not be studied in this thesis as a result of data availability limitation at the time this work was conducted. These other factors can be considered to further study their possible influence on children's SWB as well as to investigate the role played by schools.

Furthermore, research would benefit from studies that investigated this association in different contexts. This could involve, first, studying other age groups. And second, considering countries in regions which have not been covered in this study (e.g. Africa, Oceania, the Caribbean, Central Asia, etc.) and, especially, in developing countries.

Likewise, it would be interesting to comparatively study this question not only across countries but also across lower administrative levels (regions/states and municipalities) and comparing urban and rural communities. The interest in this is twofold. First, in those countries where education systems differ across regions/states (e.g. Spain, Canada), this is interesting to study how different education systems within the same country may influence children's SWB. And second, this is also interesting to compare this association in different societies or communities (in terms of culture, language, or religion) which may be geographically and/or administratively separated but which share the same education system.

In addition, when it comes to studying differences by groups, future research should look at gender identities other than boys and girls as well as differences by migrant status, ethnic groups, religion and language and in view of other measures of SES –for example, family income and, ideally, child-derived measures of material deprivation.

Future research should also study other measures of child SWB other than LS (i.e. affective well-being and satisfaction with different life domains) together with measures of psychological (eudaimonic) well-being. If data allows for considering multiple measures in different domains, developing a multi-item measure of overall wellbeing would increase the validity of the results of future research exploring this question. Moreover, other policy domains (e.g. health, work-life balance, broader social policy, etc.) should be considered in future research as well.

Finally, while it is true that there might not exist data to study all these issues yet, in this context of increasing data availability the study of all these questions could be possible sooner than later. For example, the release of PISA for Development in 2019 (OECD 2018) makes it possible now to study these questions in multiple developing countries. Similarly, the release of PISA 2018 in December of 2019 (OECD 2019) allows the study of other SWB domains as well as psychological well-being in dozens of countries and economies. Overall, the proliferation of better quality data at the international, national and regional level that we are witnessing these days will certainly allow researchers in this new field of research to study most of these issues in the following years and, thus, be able to advance our knowledge on the question of whether and how public policy can make our children happier.

# Appendix 1: Tables of chapter 5

This appendix includes the tables corresponding to the analysis presented in chapter 5 which show the results by country of the direct effects of independent variables at student- and school-level (tables A1.1 to A1.4) and the interaction effects involving school type and school peers' characteristics (table A1.5 and table A1.6). The appendix also includes a figure illustrating the q-norm of residuals of the linear regression model, in the full model (figure A1.7).

Table A1.1. Effect of socio-demographic and self-reported well-being variables by country

| | Girl | | Index of socioeconomic status | | Index of schoolwork-related anxiety | | Index of sense of belonging at school | | Index of frequency of suffering bullying | | Index of feeling unfairly treated by teachers | | Index of feeling emotionally supported by parents | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.77 *** | (0.09) | 0.08 | (0.04) | -0.46 *** | (0.05) | | | -0.24 *** | (0.05) | -0.17 ** | (0.05) | 0.52 *** | (0.05) |
| Bulgaria | -0.26 * | (0.11) | 0.05 | (0.05) | -0.33 *** | (0.07) | | | -0.28 ** | (0.09) | -0.14 * | (0.06) | 0.50 *** | (0.08) |
| Chile | -0.31 ** | (0.09) | 0.13 * | (0.06) | -0.36 *** | (0.04) | | | -0.46 *** | (0.05) | | | 0.32 *** | (0.05) |
| China (B-S-J-G) | -0.16 | (0.08) | 0.11 * | (0.04) | -0.38 *** | (0.04) | 0.14 ** | (0.04) | -0.26 *** | (0.04) | | | 0.55 *** | (0.06) |
| Colombia | -0.46 *** | (0.10) | 0.15 ** | (0.06) | -0.16 ** | (0.06) | | | -0.33 *** | (0.08) | -0.12 * | (0.05) | 0.54 *** | (0.07) |
| Croatia | -0.54 *** | (0.07) | 0.12 ** | (0.04) | -0.24 *** | (0.05) | 0.11 * | (0.05) | -0.21 *** | (0.06) | -0.16 ** | (0.05) | 0.67 *** | (0.04) |
| Czech Republic | -0.48 *** | (0.07) | 0.20 *** | (0.04) | -0.39 *** | (0.04) | 0.11 ** | (0.04) | -0.25 *** | (0.04) | -0.18 *** | (0.05) | 0.58 *** | (0.04) |
| Estonia | -0.35 *** | (0.06) | 0.14 *** | (0.03) | -0.39 *** | (0.04) | 0.14 *** | (0.04) | -0.19 *** | (0.04) | -0.23 *** | (0.04) | 0.69 *** | (0.05) |
| Finland | -0.63 *** | (0.06) | 0.02 | (0.03) | -0.30 *** | (0.03) | 0.06 | (0.03) | -0.27 *** | (0.04) | | | 0.48 *** | (0.03) |
| France | -0.21 * | (0.10) | 0.05 | (0.05) | -0.22 *** | (0.06) | 0.18 *** | (0.05) | -0.36 *** | (0.05) | | | 0.55 *** | (0.06) |
| Greece | -0.52 *** | (0.10) | 0.01 | (0.05) | -0.34 *** | (0.05) | | | -0.22 *** | (0.05) | -0.21 *** | (0.05) | 0.63 *** | (0.05) |
| Hong Kong | -0.35 *** | (0.07) | 0.07 * | (0.03) | -0.27 *** | (0.04) | | | -0.27 *** | (0.04) | -0.09 * | (0.04) | 0.51 *** | (0.04) |
| Hungary | -0.44 ** | (0.13) | 0.09 | (0.05) | -0.25 *** | (0.05) | 0.15 ** | (0.06) | -0.32 *** | (0.07) | -0.17 ** | (0.06) | 0.44 *** | (0.06) |
| Iceland | -0.50 *** | (0.09) | 0.09 * | (0.04) | -0.63 *** | (0.06) | 0.13 ** | (0.04) | -0.35 *** | (0.06) | -0.08 | (0.04) | 0.37 *** | (0.06) |
| Ireland | -0.28 *** | (0.07) | 0.10 * | (0.04) | -0.45 *** | (0.05) | 0.15 *** | (0.04) | -0.38 *** | (0.05) | -0.29 *** | (0.04) | 0.40 *** | (0.05) |
| Latvia | -0.13 * | (0.07) | 0.12 ** | (0.04) | -0.29 *** | (0.05) | 0.11 ** | (0.04) | -0.27 *** | (0.05) | -0.14 *** | (0.04) | 0.40 *** | (0.05) |
| Luxembourg | -0.79 *** | (0.10) | 0.04 | (0.05) | -0.39 *** | (0.04) | 0.09 * | (0.04) | -0.23 ** | (0.08) | -0.18 ** | (0.05) | 0.66 *** | (0.05) |
| Mexico | -0.12 | (0.08) | 0.06 | (0.04) | -0.22 *** | (0.05) | | | -0.28 *** | (0.06) | -0.15 ** | (0.05) | 0.24 *** | (0.05) |
| Peru | -0.21 * | (0.09) | -0.04 | (0.05) | -0.27 *** | (0.05) | | | -0.23 *** | (0.06) | -0.17 ** | (0.05) | 0.61 *** | (0.06) |
| Poland | -0.59 *** | (0.08) | 0.05 | (0.04) | -0.40 *** | (0.04) | | | -0.29 *** | (0.05) | -0.21 *** | (0.04) | 0.67 *** | (0.05) |
| Portugal | -0.37 *** | (0.08) | 0.01 | (0.04) | -0.20 *** | (0.04) | | | -0.22 *** | (0.05) | -0.26 *** | (0.05) | 0.50 *** | (0.05) |
| Qatar | -0.21 ** | (0.07) | 0.17 *** | (0.04) | -0.44 *** | (0.04) | 0.11 ** | (0.04) | -0.33 *** | (0.04) | -0.19 *** | (0.04) | 0.64 *** | (0.04) |
| Russia | -0.25 ** | (0.08) | 0.13 ** | (0.04) | -0.28 *** | (0.05) | | | -0.35 *** | (0.06) | -0.22 *** | (0.05) | 0.60 *** | (0.04) |
| Slovakia | -0.59 *** | (0.07) | 0.14 *** | (0.04) | -0.34 *** | (0.04) | | | -0.33 *** | (0.05) | -0.21 *** | (0.04) | 0.55 *** | (0.04) |
| Slovenia | -0.79 *** | (0.09) | -0.09 * | (0.04) | -0.41 *** | (0.05) | 0.13 ** | (0.04) | -0.33 *** | (0.06) | -0.23 *** | (0.04) | 0.58 *** | (0.05) |
| South Korea | -0.16 | (0.12) | 0.04 | (0.03) | -0.59 *** | (0.04) | 0.14 * | (0.06) | | | | | 0.61 *** | (0.06) |
| Spain | -0.38 *** | (0.06) | 0.08 * | (0.04) | -0.27 *** | (0.03) | | | -0.21 *** | (0.04) | -0.17 *** | (0.04) | 0.48 *** | (0.04) |
| Switzerland | -0.58 *** | (0.09) | 0.04 | (0.04) | -0.43 *** | (0.05) | | | -0.27 *** | (0.05) | -0.15 ** | (0.06) | 0.47 *** | (0.06) |
| Taiwan | -0.32 *** | (0.06) | 0.18 *** | (0.04) | -0.31 *** | (0.03) | | | -0.18 *** | (0.05) | -0.13 ** | (0.05) | 0.53 *** | (0.04) |
| Thailand | -0.18 | (0.10) | 0.10 | (0.07) | -0.17 ** | (0.05) | | | -0.22 *** | (0.06) | | | 0.38 *** | (0.04) |
| Turkey | -0.52 *** | (0.12) | 0.13 | (0.07) | -0.39 *** | (0.07) | | | -0.27 ** | (0.09) | -0.32 *** | (0.06) | 0.79 *** | (0.06) |
| UAE | -0.16 | (0.09) | 0.21 *** | (0.04) | -0.30 *** | (0.04) | | | -0.21 *** | (0.05) | -0.21 *** | (0.04) | 0.57 *** | (0.05) |
| United States | -0.28 *** | (0.08) | 0.12 * | (0.05) | -0.42 *** | (0.05) | 0.16 ** | (0.06) | -0.22 *** | (0.06) | -0.14 * | (0.05) | 0.58 *** | (0.06) |

Table A1.2. Effect of time use, health habits and ICT use variables by country

| | Days of vigorous exercise outside school last week (ref.cat.: 0 days) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 day | | 2 days | | 3 days | | 4 days | | 5 days | | 6 days | | 7 days | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | | | | | | | | | | | | | | |
| Bulgaria | 0.01 | (0.17) | 0.24 | (0.14) | 0.31 | (0.18) | 0.31 | (0.19) | 0.48 ** | (0.18) | 0.11 | (0.28) | 0.48 ** | (0.18) |
| Chile | 0.05 | (0.14) | 0.12 | (0.13) | 0.29 | (0.15) | 0.27 | (0.17) | 0.16 | (0.18) | 0.04 | (0.27) | 0.54 ** | (0.17) |
| China (B-S-J-G) | 0.29 * | (0.13) | 0.57 *** | (0.14) | 0.34 ** | (0.11) | 0.35 * | (0.16) | 0.46 ** | (0.14) | 0.36 | (0.21) | 0.37 * | (0.17) |
| Colombia | | | | | | | | | | | | | | |
| Croatia | 0.33 * | (0.13) | 0.31 * | (0.14) | 0.48 *** | (0.12) | 0.45 ** | (0.13) | 0.25 | (0.16) | 0.29 | (0.19) | 0.40 ** | (0.15) |
| Czech Republic | | | | | | | | | | | | | | |
| Estonia | 0.31 ** | (0.12) | 0.11 | (0.12) | 0.27 * | (0.13) | 0.38 ** | (0.13) | 0.32 ** | (0.12) | 0.26 | (0.17) | 0.37 ** | (0.14) |
| Finland | 0.11 | (0.12) | 0.18 | (0.11) | 0.35 ** | (0.13) | 0.32 ** | (0.12) | 0.27 * | (0.14) | 0.47 *** | (0.13) | 0.59 *** | (0.16) |
| France | | | | | | | | | | | | | | |
| Greece | 0.33 * | (0.15) | 0.31 * | (0.14) | 0.44 ** | (0.15) | 0.38 * | (0.18) | 0.46 * | (0.21) | 0.59 * | (0.28) | 0.41 | (0.21) |
| Hong Kong | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | |
| Iceland | -0.15 | (0.19) | -0.13 | (0.19) | 0.07 | (0.18) | 0.13 | (0.17) | 0.29 | (0.16) | 0.34 * | (0.16) | 0.52 ** | (0.17) |
| Ireland | 0.44 *** | (0.12) | 0.28 * | (0.12) | 0.39 ** | (0.13) | 0.42 ** | (0.13) | 0.69 *** | (0.14) | 0.70 *** | (0.14) | 0.71 *** | (0.14) |
| Latvia | 0.04 | (0.13) | 0.14 | (0.13) | 0.20 | (0.13) | 0.31 * | (0.14) | 0.35 * | (0.15) | 0.35 | (0.20) | 0.38 * | (0.15) |
| Luxembourg | 0.07 | (0.12) | 0.20 * | (0.09) | 0.05 | (0.12) | 0.07 | (0.12) | 0.12 | (0.15) | 0.35 | (0.22) | 0.34 * | (0.16) |
| Mexico | | | | | | | | | | | | | | |
| Peru | 0.29 | (0.15) | 0.34 * | (0.16) | 0.41 ** | (0.16) | 0.33 | (0.20) | 0.63 ** | (0.20) | 0.12 | (0.22) | 0.73 ** | (0.21) |
| Poland | | | | | | | | | | | | | | |
| Portugal | 0.23 | (0.12) | 0.12 | (0.10) | 0.08 | (0.11) | -0.01 | (0.13) | 0.23 | (0.12) | 0.02 | (0.21) | 0.25 | (0.14) |
| Qatar | | | | | | | | | | | | | | |
| Russia | | | | | | | | | | | | | | |
| Slovakia | 0.21 | (0.12) | 0.26 * | (0.12) | 0.32 * | (0.13) | 0.36 ** | (0.13) | 0.19 | (0.13) | 0.46 ** | (0.16) | 0.28 * | (0.12) |
| Slovenia | 0.07 | (0.16) | 0.23 | (0.14) | 0.12 | (0.15) | 0.08 | (0.14) | 0.35 * | (0.14) | 0.15 | (0.16) | 0.29 | (0.15) |
| South Korea | 0.01 | (0.15) | 0.42 *** | (0.12) | 0.58 *** | (0.14) | 0.36 * | (0.15) | 0.15 | (0.19) | 0.23 | (0.22) | 0.35 * | (0.18) |
| Spain | 0.07 | (0.09) | 0.10 | (0.09) | 0.14 | (0.10) | 0.23 * | (0.12) | 0.46 *** | (0.11) | 0.37 | (0.19) | 0.18 | (0.15) |
| Switzerland | 0.05 | (0.14) | 0.07 | (0.13) | 0.05 | (0.16) | 0.15 | (0.16) | 0.39 ** | (0.14) | 0.42 * | (0.18) | 0.38 * | (0.16) |
| Taiwan | 0.15 | (0.13) | 0.21 | (0.12) | 0.24 * | (0.12) | 0.29 * | (0.12) | 0.18 | (0.14) | 0.28 | (0.20) | 0.27 * | (0.11) |
| Thailand | 0.02 | (0.19) | -0.06 | (0.18) | 0.20 | (0.19) | 0.39 | (0.23) | 0.02 | (0.21) | 0.00 | (0.43) | 0.47 * | (0.21) |
| Turkey | | | | | | | | | | | | | | |
| UAE | 0.00 | (0.10) | 0.13 | (0.10) | 0.03 | (0.12) | -0.03 | (0.13) | 0.17 | (0.16) | 0.05 | (0.25) | 0.23 * | (0.11) |
| United States | -0.04 | (0.18) | 0.03 | (0.23) | 0.25 | (0.14) | 0.16 | (0.18) | 0.30 * | (0.14) | 0.35 * | (0.17) | 0.44 ** | (0.16) |

Table A1.2. Effect of time use, health habits and ICT use variables by country (continuation)

| | Worked in the household or took care of other family members (ref.cat: no) | | | | Worked for pay (ref.cat: no) | | | | Studied for school or homework (ref.cat: no) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Before or after | | Before and after | | Before or after | | Before and after | | Before or after | | Before and after | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | | | | | | | | | 0.41 ** | (0.13) | 0.40 ** | (0.12) |
| Bulgaria | | | | | | | | | | | | |
| Chile | | | | | | | | | 0.28 * | (0.13) | 0.47 *** | (0.12) |
| China (B-S-J-G) | | | | | | | | | | | | |
| Colombia | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | |
| Czech Republic | | | | | 0.12 | (0.13) | 0.35 * | (0.14) | 0.20 * | (0.09) | 0.23 * | (0.09) |
| Estonia | 0.22 ** | (0.07) | 0.33 *** | (0.08) | | | | | 0.23 * | (0.10) | 0.33 ** | (0.11) |
| Finland | 0.22 ** | (0.07) | 0.29 *** | (0.06) | | | | | | | | |
| France | | | | | 0.70 *** | (0.15) | 0.37 ** | (0.14) | | | | |
| Greece | | | | | 0.21 | (0.16) | 0.55 ** | (0.17) | 0.29 | (0.16) | 0.36 * | (0.14) |
| Hong Kong | 0.19 ** | (0.07) | 0.12 | (0.08) | | | | | 0.32 * | (0.15) | 0.38 * | (0.15) |
| Hungary | | | | | | | | | 0.63 *** | (0.17) | 0.47 ** | (0.16) |
| Iceland | | | | | | | | | 0.40 *** | (0.10) | 0.42 *** | (0.12) |
| Ireland | | | | | 0.02 | (0.13) | 0.28 * | (0.11) | 0.45 *** | (0.11) | 0.50 *** | (0.11) |
| Latvia | 0.12 | (0.11) | 0.28 ** | (0.09) | | | | | 0.47 *** | (0.11) | 0.35 ** | (0.11) |
| Luxembourg | | | | | | | | | | | | |
| Mexico | | | | | | | | | | | | |
| Peru | | | | | | | | | | | | |
| Poland | | | | | | | | | 0.25 * | (0.12) | 0.41 ** | (0.14) |
| Portugal | | | | | | | | | | | | |
| Qatar | | | | | 0.26 ** | (0.09) | 0.21 ** | (0.08) | | | | |
| Russia | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | |
| Slovenia | | | | | 0.47 *** | (0.12) | 0.46 ** | (0.15) | | | | |
| South Korea | | | | | | | | | | | | |
| Spain | -0.19 * | (0.08) | -0.25 ** | (0.07) | | | | | 0.28 * | (0.12) | 0.25 * | (0.12) |
| Switzerland | 0.18 | (0.11) | 0.24 * | (0.10) | | | | | | | | |
| Taiwan | | | | | | | | | | | | |
| Thailand | | | | | | | | | | | | |
| Turkey | | | | | | | | | | | | |
| UAE | | | | | | | | | 0.25 * | (0.11) | 0.24 * | (0.11) |
| United States | | | | | | | | | 0.27 * | (0.14) | 0.50 *** | (0.13) |

Table A1.2. Effect of time use, health habits and ICT use variables by country (continuation)

| | Read a book/newspaper/magazine (ref.cat: no) | | | | Played video games (ref.cat: no) | | | | Watched TV/<DVD>/Video (ref.cat: no) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Before or after | | Before and after | | Before or after | | Before and after | | Before or after | | Before and after | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | |
| Chile | | | | | | | | | | | | |
| China (B-S-J-G) | 0.35 ** | (0.11) | 0.39 *** | (0.10) | | | | | | | | |
| Colombia | | | | | | | | | 0.27 | (0.16) | 0.40 ** | (0.13) |
| Croatia | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | |
| Finland | | | | | | | | | | | | |
| France | | | | | | | | | | | | |
| Greece | -0.24 * | (0.10) | -0.07 | (0.12) | | | | | | | | |
| Hong Kong | | | | | | | | | 0.36 ** | (0.11) | 0.23 * | (0.12) |
| Hungary | | | | | 0.24 | (0.15) | 0.40 ** | (0.14) | | | | |
| Iceland | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | |
| Luxembourg | | | | | -0.28 ** | (0.09) | -0.21 | (0.14) | | | | |
| Mexico | | | | | | | | | | | | |
| Peru | | | | | | | | | | | | |
| Poland | | | | | | | | | | | | |
| Portugal | | | | | | | | | | | | |
| Qatar | | | | | 0.12 | (0.08) | 0.15 * | (0.07) | | | | |
| Russia | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | |
| South Korea | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | |
| Taiwan | | | | | | | | | | | | |
| Thailand | | | | | | | | | | | | |
| Turkey | | | | | | | | | 0.70 *** | (0.18) | 0.59 *** | (0.15) |
| UAE | | | | | | | | | | | | |
| United States | | | | | | | | | | | | |

Table A1.2. Effect of time use, health habits and ICT use variables by country (continuation)

| | Met friends or talked to friends on the phone (ref.cat: no) | | | | Internet/Chat/Social networks (e.g. <Facebook>) (ref.cat: no) | | | | Talked to their parents (ref.cat: no) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Before or after | | Before and after | | Before or after | | Before and after | | Before or after | | Before and after | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | 0.18 * | (0.09) | 0.31 ** | (0.10) | | | | | 0.20 | (0.18) | 0.49 ** | (0.17) |
| Bulgaria | | | | | -0.60 * | (0.27) | -0.34 | (0.23) | 0.54 | (0.29) | 0.81 ** | (0.26) |
| Chile | | | | | | | | | 1.16 *** | (0.18) | 1.26 *** | (0.16) |
| China (B-S-J-G) | | | | | -0.07 | (0.11) | -0.32 ** | (0.10) | 0.05 | (0.13) | 0.52 *** | (0.10) |
| Colombia | | | | | | | | | 0.41 | (0.22) | 0.89 *** | (0.17) |
| Croatia | 0.12 | (0.13) | 0.31 ** | (0.10) | | | | | | | | |
| Czech Republic | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | |
| Finland | 0.19 | (0.10) | 0.22 * | (0.09) | | | | | 0.54 * | (0.22) | 0.46 * | (0.23) |
| France | | | | | | | | | 0.33 | (0.25) | 0.47 * | (0.23) |
| Greece | | | | | | | | | | | | |
| Hong Kong | | | | | | | | | 0.37 ** | (0.13) | 0.59 *** | (0.11) |
| Hungary | | | | | | | | | 0.61 | (0.34) | 0.64 * | (0.29) |
| Iceland | | | | | | | | | 0.69 | (0.45) | 1.01 * | (0.47) |
| Ireland | | | | | | | | | 0.28 | (0.42) | 0.99 * | (0.40) |
| Latvia | | | | | | | | | 0.69 * | (0.28) | 0.88 *** | (0.24) |
| Luxembourg | | | | | | | | | 0.49 ** | (0.18) | 0.68 ** | (0.20) |
| Mexico | | | | | | | | | 0.76 *** | (0.18) | 1.02 *** | (0.16) |
| Peru | | | | | | | | | 0.31 | (0.18) | 0.73 *** | (0.16) |
| Poland | | | | | | | | | 0.39 | (0.23) | 0.51 * | (0.22) |
| Portugal | 0.12 | (0.14) | 0.28 * | (0.12) | | | | | | | | |
| Qatar | | | | | | | | | 0.41 * | (0.17) | 0.63 *** | (0.15) |
| Russia | 0.28 | (0.15) | 0.45 ** | (0.14) | | | | | 0.77 * | (0.33) | 0.82 ** | (0.31) |
| Slovakia | | | | | | | | | 0.44 * | (0.19) | 0.68 *** | (0.17) |
| Slovenia | | | | | | | | | | | | |
| South Korea | 0.11 | (0.11) | 0.26 * | (0.12) | | | | | | | | |
| Spain | 0.13 | (0.08) | 0.18 * | (0.07) | | | | | 0.84 *** | (0.19) | 1.16 *** | (0.18) |
| Switzerland | | | | | | | | | | | | |
| Taiwan | | | | | | | | | 0.52 *** | (0.13) | 0.73 *** | (0.13) |
| Thailand | | | | | | | | | 0.48 | (0.45) | 0.93 * | (0.43) |
| Turkey | | | | | | | | | | | | |
| UAE | | | | | | | | | 0.89 ** | (0.32) | 1.29 *** | (0.31) |
| United States | | | | | | | | | 1.16 ** | (0.41) | 1.44 *** | (0.40) |

Table A1.2. Effect of time use, health habits and ICT use variables by country (continuation)

| | Had breakfast | | Had dinner | | Learning time at school (minutes per week) | | Out-of-school study time per week (hours) | | Index of time spent using ICT at school in general | | Index of time spent using ICT outside school for schoolwork | | Index of time spent using ICT at home for leisure | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | 0.26 ** | (0.10) | 0.56 * | (0.22) | | | | | | | | | | |
| Bulgaria | | | | | | | | | 0.14 * | (0.07) | 0.12 * | (0.06) | | |
| Chile | | | | | | | | | | | 0.17 *** | (0.05) | | |
| China (B-S-J-G) | | | | | | | | | | | | | 0.12 * | (0.05) |
| Colombia | | | 0.63 ** | (0.23) | 0.14 ** | (0.05) | | | 0.12 * | (0.05) | | | -0.17 ** | (0.06) |
| Croatia | 0.26 ** | (0.10) | | | | | | | | | 0.11 ** | (0.04) | | |
| Czech Republic | 0.21 ** | (0.07) | 0.51 ** | (0.18) | | | | | | | | | | |
| Estonia | 0.22 * | (0.09) | | | | | | | | | | | | |
| Finland | 0.33 ** | (0.10) | | | | | | | | | | | | |
| France | 0.25 ** | (0.10) | | | | | | | | | | | | |
| Greece | | | | | 0.15 *** | (0.04) | | | | | | | | |
| Hong Kong | | | | | | | | | | | | | | |
| Hungary | 0.30 ** | (0.10) | | | | | | | | | | | | |
| Iceland | 0.45 *** | (0.11) | 0.66 * | (0.26) | | | | | | | 0.19 *** | (0.05) | -0.13 * | (0.06) |
| Ireland | 0.56 *** | (0.11) | | | 0.09 * | (0.04) | | | | | | | | |
| Latvia | | | | | | | | | 0.17 *** | (0.04) | | | | |
| Luxembourg | 0.18 * | (0.08) | | | | | | | | | 0.08 * | (0.04) | | |
| Mexico | 0.47 *** | (0.11) | | | | | | | | | | | | |
| Peru | 0.74 *** | (0.18) | | | | | | | | | | | | |
| Poland | 0.50 *** | (0.10) | | | | | | | | | | | | |
| Portugal | 0.40 *** | (0.11) | | | | | | | | | 0.09 | (0.05) | | |
| Qatar | 0.46 *** | (0.07) | | | | | | | | | | | | |
| Russia | 0.41 *** | (0.11) | | | | | | | | | | | | |
| Slovakia | 0.20 ** | (0.07) | | | | | | | | | | | | |
| Slovenia | 0.29 *** | (0.08) | | | | | | | | | | | | |
| South Korea | 0.30 ** | (0.11) | | | | | 0.18 *** | (0.05) | | | 0.14 ** | (0.05) | | |
| Spain | 0.49 *** | (0.10) | | | | | | | | | 0.13 *** | (0.03) | | |
| Switzerland | | | | | | | 0.12 ** | (0.04) | | | | | | |
| Taiwan | 0.30 *** | (0.08) | | | | | | | | | | | | |
| Thailand | 0.62 *** | (0.17) | | | | | | | | | | | | |
| Turkey | 0.77 *** | (0.13) | | | | | | | | | | | | |
| UAE | 0.33 *** | (0.09) | | | | | | | | | | | | |
| United States | 0.43 *** | (0.10) | | | | | | | | | | | | |

Table A1.3. Effect of other student-level variables by country

| | Index of academic competence | | Having repeated a grade at least once | | Index of valuing cooperation | | Index of truancy | | Education programme attended (reference category: general) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Pre-vocational | | Vocational | | Modular | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.16** | (0.05) | -0.21 | (0.14) | 0.12** | (0.04) | -0.16*** | (0.04) | | | | | | |
| Bulgaria | | | | | 0.17** | (0.05) | | | | | | | | |
| Chile | -0.13* | (0.07) | | | | | | | | | | | | |
| China (B-S-J-G) | -0.22*** | (0.04) | -0.25* | (0.12) | 0.25*** | (0.05) | -0.17*** | (0.04) | | | | | | |
| Colombia | -0.26*** | (0.06) | -0.10 | (0.11) | 0.22*** | (0.06) | -0.11* | (0.04) | | | | | | |
| Croatia | -0.17*** | (0.05) | | | 0.11** | (0.04) | | | | | | | | |
| Czech Republic | -0.16** | (0.05) | -0.06 | (0.28) | 0.21*** | (0.04) | | | | | -0.30*** | (0.08) | | |
| Estonia | -0.16*** | (0.04) | -0.27 | (0.25) | 0.19*** | (0.04) | | | | | | | | |
| Finland | | | | | 0.17*** | (0.03) | -0.08* | (0.03) | | | | | | |
| France | | | -0.15 | (0.10) | | | | | | | | | | |
| Greece | | | | | | | -0.16** | (0.06) | | | | | | |
| Hong Kong | | | -0.08 | (0.10) | 0.30*** | (0.04) | -0.10** | (0.04) | | | | | | |
| Hungary | | | | | 0.13** | (0.05) | | | | | | | | |
| Iceland | -0.11* | (0.05) | | | 0.20*** | (0.04) | -0.16** | (0.05) | | | | | | |
| Ireland | -0.14*** | (0.04) | -0.15 | (0.15) | 0.24*** | (0.04) | | | | | | | | |
| Latvia | | | 0.40 | (0.23) | 0.16*** | (0.04) | -0.10** | (0.04) | | | | | | |
| Luxembourg | -0.13* | (0.05) | | | 0.19*** | (0.04) | -0.16** | (0.05) | | | | | | |
| Mexico | | | | | 0.20*** | (0.05) | | | | | | | | |
| Peru | | | 0.07 | (0.14) | 0.16** | (0.05) | -0.21*** | (0.05) | | | | | | |
| Poland | | | 0.00 | (0.22) | 0.15** | (0.05) | | | | | | | | |
| Portugal | -0.18** | (0.06) | -0.04 | (0.11) | 0.15** | (0.04) | | | | | | | | |
| Qatar | -0.24*** | (0.04) | | | 0.23*** | (0.04) | | | | | | | | |
| Russia | -0.21*** | (0.04) | | | 0.19*** | (0.04) | -0.11** | (0.04) | | | | | | |
| Slovakia | -0.22*** | (0.05) | 0.09 | (0.26) | 0.12*** | (0.03) | | | | | -0.39* | (0.16) | -0.21* | (0.09) |
| Slovenia | | | | | 0.17*** | (0.04) | | | | | | | | |
| South Korea | | | -0.11 | (0.28) | 0.27*** | (0.04) | -0.14** | (0.05) | | | | | | |
| Spain | -0.14** | (0.04) | -0.15 | (0.10) | 0.15*** | (0.04) | -0.09** | (0.04) | | | | | | |
| Switzerland | | | | | 0.09* | (0.04) | | | | | | | | |
| Taiwan | -0.14** | (0.04) | | | 0.25*** | (0.04) | -0.11* | (0.05) | | | | | | |
| Thailand | -0.23** | (0.08) | | | | | -0.14** | (0.05) | | | | | | |
| Turkey | -0.29*** | (0.07) | -0.18 | (0.28) | 0.15* | (0.06) | -0.20*** | (0.06) | | | | | | |
| UAE | -0.17** | (0.06) | -0.27* | (0.12) | 0.21*** | (0.04) | | | | | | | | |
| United States | -0.24*** | (0.06) | -0.19 | (0.19) | | | | | | | | | | |

Table A1.3. Effect of other student-level variables by country (continuation)

| | Years attended to pre-primary education as reported by students (reference category: less than 1 year) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Between 1 and 2 years | | Between 2 and 3 years | | Between 3 and 4 years | | Between 4 and 5 years | | More than 5 years | |
| | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | | | | | | | | | | |
| Bulgaria | | | | | | | | | | |
| Chile | | | | | | | | | | |
| China (B-S-J-G) | | | | | | | | | | |
| Colombia | | | | | | | | | | |
| Croatia | -0.97 ** | (0.33) | -1.10 ** | (0.32) | -1.14 *** | (0.32) | -1.05 ** | (0.31) | -1.13 *** | (0.32) |
| Czech Republic | | | | | | | | | | |
| Estonia | | | | | | | | | | |
| Finland | -0.61 ** | (0.22) | -0.67 ** | (0.22) | -0.56 * | (0.22) | -0.73 ** | (0.22) | -0.56 ** | (0.22) |
| France | | | | | | | | | | |
| Greece | | | | | | | | | | |
| Hong Kong | | | | | | | | | | |
| Hungary | | | | | | | | | | |
| Iceland | | | | | | | | | | |
| Ireland | -0.38 | (0.21) | -0.43 * | (0.22) | -0.39 | (0.23) | -0.25 | (0.28) | -0.54 | (0.57) |
| Latvia | | | | | | | | | | |
| Luxembourg | | | | | | | | | | |
| Mexico | | | | | | | | | | |
| Peru | | | | | | | | | | |
| Poland | | | | | | | | | | |
| Portugal | | | | | | | | | | |
| Qatar | | | | | | | | | | |
| Russia | | | | | | | | | | |
| Slovakia | | | | | | | | | | |
| Slovenia | | | | | | | | | | |
| South Korea | | | | | | | | | | |
| Spain | | | | | | | | | | |
| Switzerland | | | | | | | | | | |
| Taiwan | | | | | | | | | | |
| Thailand | | | | | | | | | | |
| Turkey | | | | | | | | | | |
| UAE | | | | | | | | | | |
| United States | | | | | | | | | | |

Table A1.4. Effect school-level variables by country

| | Size of the community where the school is located (ref.cat.: fewer than 3 000 people) | | | | | | | | School type (ref. cat.: public) | | | | School size (total school enrolment) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3 000 - 15 000 people | | 15 000 - 100 000 people | | 100 000 - 1 000 000 people | | More than 1 000 000 people | | Semi-private | | Private | | | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | | | | | | | | | -0.16 * | (0.07) | 0.02 | (0.08) | | |
| Bulgaria | | | | | | | | | | | 0.58 * | (0.27) | | |
| Chile | | | | | | | | | -0.40 ** | (0.12) | -0.13 | (0.15) | | |
| China (B-S-J-G) | | | | | | | | | -1.23 *** | (0.07) | -0.10 | (0.13) | 0.00 * | (0.00) |
| Colombia | | | | | | | | | 0.18 | (0.14) | -0.42 *** | (0.12) | | |
| Croatia | -0.37 ** | (0.12) | -0.29 * | (0.13) | -0.29 * | (0.12) | -0.76 ** | (0.22) | | | | | | |
| Czech Republic | | | | | | | | | 0.25 | (0.14) | 0.50 * | (0.22) | | |
| Estonia | | | | | | | | | -0.22 | (0.17) | 0.85 *** | (0.23) | | |
| Finland | | | | | | | | | | | | | | |
| France | -0.32 * | (0.15) | -0.32 * | (0.15) | -0.45 ** | (0.16) | -0.56 *** | (0.16) | | | | | | |
| Greece | | | | | | | | | | | | | | |
| Hong Kong | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | -0.17 | (0.14) | 0.45 * | (0.23) | | |
| Iceland | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | 0.31 ** | (0.09) | -1.01 * | (0.39) | | |
| Luxembourg | | | | | | | | | | | | | | |
| Mexico | | | | | | | | | | | | | -0.01 ** | (0.01) |
| Peru | 0.15 | (0.13) | -0.05 | (0.13) | -0.25 | (0.16) | 0.41 ** | (0.15) | -0.32 | (0.23) | -0.26 ** | (0.09) | | |
| Poland | 0.00 | (0.11) | 0.04 | (0.10) | -0.48 *** | (0.13) | -0.23 | (0.16) | 0.32 ** | (0.10) | 0.33 | (0.21) | | |
| Portugal | | | | | | | | | -0.42 * | (0.20) | 0.50 *** | (0.12) | | |
| Qatar | -0.34 | (0.22) | -0.30 | (0.22) | -0.51 * | (0.21) | -0.54 * | (0.22) | -0.05 | (0.11) | -0.35 ** | (0.12) | -0.01 * | (0.00) |
| Russia | -0.27 | (0.14) | -0.41 ** | (0.13) | -0.32 * | (0.13) | -0.43 ** | (0.14) | | | | | | |
| Slovakia | 0.01 | (0.13) | -0.11 | (0.12) | -0.43 ** | (0.16) | | | | | | | | |
| Slovenia | -0.56 * | (0.27) | -0.65 * | (0.26) | -0.58 * | (0.27) | | | | | | | | |
| South Korea | | | | | | | | | | | | | -0.05 *** | (0.01) |
| Spain | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | |
| Taiwan | -0.37 * | (0.16) | -0.41 ** | (0.13) | -0.41 ** | (0.13) | -0.56 | (0.12) | | | | | | |
| Thailand | -0.15 | (0.18) | -0.31 * | (0.15) | -0.52 ** | (0.16) | -0.39 | (0.26) | -0.42 * | (0.19) | -0.21 | (0.15) | -0.01 * | (0.01) |
| Turkey | | | | | | | | | | | | | 0.04 * | (0.02) |
| UAE | | | | | | | | | -0.28 | (0.22) | -0.25 * | (0.11) | -0.01 *** | (0.00) |
| United States | | | | | | | | | | | | | | |

Table A1.4. Effect school-level variables by country (continuation)

| | Average class size in the school | | Index of shortage of material and human school resources | | Student / teacher ratio | | Percentage of certified teacher in the school | | Index of teachers' behaviour hindering teaching | | School practices ability grouping within classes | | School practices ability grouping between classes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | |
| Chile | | | | | | | | | | | | | | |
| China (B-S-J-G) | | | | | | | | | | | | | | |
| Colombia | -0.01 ** | (0.01) | | | | | | | | | | | | |
| Croatia | 0.03 * | (0.01) | | | | | | | -0.12 ** | (0.04) | 0.19 * | (0.08) | | |
| Czech Republic | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | |
| Finland | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | |
| Greece | | | | | -0.04 * | (0.02) | 0.36 * | (0.14) | | | -0.29 * | (0.12) | | |
| Hong Kong | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | -0.18 * | (0.08) |
| Ireland | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | -0.11 ** | (0.04) | | | | |
| Luxembourg | | | | | | | | | | | | | | |
| Mexico | | | | | | | | | | | | | | |
| Peru | | | | | | | | | | | | | | |
| Poland | | | | | | | | | | | | | | |
| Portugal | | | | | | | | | | | | | | |
| Qatar | | | | | | | | | | | | | | |
| Russia | | | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | | | |
| Slovenia | -0.02 * | (0.01) | | | | | | | | | | | | |
| South Korea | | | | | | | 0.73 *** | (0.17) | | | | | | |
| Spain | 0.01 * | (0.00) | -0.15 *** | (0.04) | -0.02 ** | (0.01) | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | |
| Taiwan | | | | | -0.01 ** | (0.00) | | | | | | | | |
| Thailand | 0.02 | (0.01) | | | | | | | -0.12 * | (0.05) | | | | |
| Turkey | | | | | -0.04 * | (0.02) | | | | | | | | |
| UAE | | | | | | | | | | | | | | |
| United States | | | | | | | | | | | | | | |

Table A1.5. Interaction effects (school type) by country

| | Index of schoolwork-related anxiety | | | | Index of sense of belonging at school | | | | Index of frequency of suffering bullying | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Semi-private | | Private | | Semi-private | | Private | | Semi-private | | Private | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.12 | (0.18) | 0.05 | (0.08) | 0.24 | (0.30) | 0.30 ** | (0.09) | 0.05 | (0.22) | -0.09 | (0.08) |
| Bulgaria | | | 0.26 | (0.45) | | | -0.48 | (0.47) | | | -0.54 *** | (0.15) |
| Chile | -0.26 * | (0.11) | 0.04 | (0.12) | 0.09 | (0.10) | -0.02 | (0.18) | 0.10 | (0.10) | 0.04 | (0.11) |
| China (B-S-J-G) | -0.34 *** | (0.06) | -0.12 | (0.14) | 0.43 *** | (0.06) | 0.11 | (0.16) | 0.08 | (0.05) | 0.12 | (0.12) |
| Colombia | -0.28 | (0.17) | -0.16 | (0.12) | -0.32 * | (0.14) | 0.09 | (0.12) | -0.08 | (0.14) | 0.22 | (0.17) |
| Croatia | -0.19 | (0.16) | | | -0.07 | (0.31) | | | -0.25 | (0.24) | | |
| Czech Republic | 0.00 | (0.10) | 0.39 | (0.37) | -0.31 ** | (0.11) | 0.10 | (0.07) | -0.19 | (0.12) | 0.18 * | (0.07) |
| Estonia | -0.39 | (0.22) | -0.09 | (0.15) | 0.13 | (0.10) | -0.06 | (0.25) | 0.00 | (0.13) | 0.20 ** | (0.06) |
| Finland | -0.08 | (0.09) | | | -0.21 | (0.19) | | | -0.24 | (0.13) | | |
| France | 0.23 * | (0.12) | 0.06 | (0.14) | -0.03 | (0.12) | -0.01 | (0.14) | -0.04 | (0.15) | 0.06 | (0.21) |
| Greece | | | 0.25 ** | (0.08) | | | -0.02 | (0.25) | | | -0.37 * | (0.15) |
| Hong-Kong | 0.07 | (0.09) | | | 0.11 | (0.09) | | | -0.09 | (0.15) | | |
| Hungary | 0.18 | (0.11) | -0.01 | (0.18) | -0.09 | (0.13) | 0.12 | (0.24) | -0.27 | (0.14) | 0.24 | (0.37) |
| Iceland | | | | | | | | | | | | |
| Ireland | -0.11 | (0.08) | 0.48 *** | (0.09) | -0.02 | (0.07) | 0.03 | (0.11) | 0.11 | (0.09) | 0.33 | (0.20) |
| Latvia | 0.46 * | (0.21) | 0.43 | (0.42) | -0.04 | (0.24) | 0.30 | (0.26) | 0.43 | (0.43) | 0.25 | (0.19) |
| Luxembourg | 0.11 | (0.09) | -0.43 *** | (0.05) | -0.12 | (0.12) | -0.16 | (0.09) | 0.04 | (0.14) | -0.28 * | (0.14) |
| Mexico | | | 0.26 * | (0.13) | | | -0.01 | (0.07) | | | -0.18 | (0.13) |
| Peru | 0.32 ** | (0.12) | -0.11 | (0.09) | -0.35 | (0.22) | -0.10 | (0.11) | -0.55 | (0.33) | -0.07 | (0.14) |
| Poland | 0.11 | (0.28) | -0.10 | (0.10) | 0.27 | (0.15) | -0.14 * | (0.06) | -0.05 | (0.10) | -0.29 | (0.16) |
| Portugal | -1.09 | (0.81) | 0.11 | (0.08) | -0.83 | (0.62) | -0.32 ** | (0.11) | -0.65 *** | (0.12) | 0.03 | (0.07) |
| Qatar | -0.47 *** | (0.07) | -0.18 * | (0.07) | -0.08 | (0.28) | 0.14 | (0.08) | -0.09 | (0.07) | -0.11 | (0.08) |
| Russia | | | | | | | | | | | | |
| Slovakia | 0.10 | (0.11) | | | -0.08 | (0.10) | | | -0.16 | (0.13) | | |
| Slovenia | -0.33 | (0.18) | | | -0.19 | (0.13) | | | -0.61 | (0.35) | | |
| South Korea | -0.05 | (0.09) | 0.10 | (0.11) | 0.03 | (0.11) | -0.08 | (0.14) | -0.13 | (0.13) | -0.15 | (0.13) |
| Spain | 0.02 | (0.08) | 0.09 | (0.08) | 0.06 | (0.08) | 0.14 | (0.14) | 0.17 | (0.10) | 0.15 | (0.11) |
| Switzerland | 0.11 | (0.13) | -0.32 | (0.21) | -0.25 | (0.17) | -0.03 | (0.13) | -0.05 | (0.18) | 0.39 | (0.35) |
| Taiwan | 0.28 | (0.15) | 0.04 | (0.07) | 0.26 * | (0.13) | -0.19 | (0.13) | -0.18 * | (0.08) | 0.04 | (0.07) |
| Thailand | 0.20 | (0.13) | -0.15 | (0.14) | 0.12 | (0.11) | 0.24 | (0.29) | 0.20 | (0.14) | 0.01 | (0.33) |
| Turkey | 0.78 *** | (0.11) | 0.48 * | (0.20) | 0.05 | (0.10) | 0.24 | (0.14) | 0.34 *** | (0.10) | 0.11 | (0.20) |
| UAE | 0.48 | (0.25) | -0.13 | (0.08) | -0.54 *** | (0.13) | -0.13 | (0.07) | 0.20 | (0.14) | 0.00 | (0.09) |
| United States | | | 0.09 | (0.14) | | | 0.11 | (0.13) | | | 0.15 | (0.10) |

Table A1.5. Interaction effects (school type) by country (continuation)

| | Index of feeling unfairly treated by teachers | | | | Index of feeling emotionally supported by parents | | | | Index of academic competence | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Semi-private | | Private | | Semi-private | | Private | | Semi-private | | Private | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.15 | (0.17) | -0.08 | (0.06) | 0.25 | (0.17) | 0.22 | (0.13) | -0.02 | (0.14) | 0.18 | (0.18) |
| Bulgaria | | | 0.31 | (0.51) | | | 0.83 *** | (0.20) | | | -0.92 * | (0.44) |
| Chile | 0.00 | (0.10) | 0.05 | (0.10) | 0.16 | (0.11) | 0.12 | (0.13) | 0.18 | (0.11) | -0.24 | (0.18) |
| China (B-S-J-G) | 0.62 *** | (0.08) | 0.20 * | (0.10) | -0.22 * | (0.09) | 0.03 | (0.15) | 1.14 *** | (0.11) | 0.33 ** | (0.11) |
| Colombia | 0.06 | (0.20) | 0.07 | (0.13) | -0.16 | (0.16) | -0.13 | (0.15) | 0.06 | (0.18) | 0.05 | (0.13) |
| Croatia | -0.29 | (0.17) | | | 0.03 | (0.28) | | | 0.19 | (0.41) | | |
| Czech Republic | -0.09 | (0.10) | 0.09 | (0.12) | -0.07 | (0.10) | -0.38 *** | (0.10) | 0.11 | (0.12) | -0.25 | (0.28) |
| Estonia | 0.14 | (0.32) | 0.68 * | (0.32) | -0.04 | (0.21) | -0.34 *** | (0.07) | 0.04 | (0.18) | -0.31 | (0.26) |
| Finland | 0.04 | (0.15) | | | -0.02 | (0.15) | | | 0.21 | (0.23) | | |
| France | 0.02 | (0.13) | 0.21 * | (0.10) | -0.27 | (0.15) | 0.21 | (0.31) | -0.01 | (0.11) | 0.18 | (0.19) |
| Greece | | | 0.10 | (0.07) | | | 0.07 | (0.19) | | | 0.55 ** | (0.16) |
| Hong-Kong | -0.19 | (0.11) | | | -0.04 | (0.15) | | | -0.08 | (0.14) | | |
| Hungary | -0.23 | (0.15) | -0.16 | (0.13) | -0.22 | (0.14) | 0.03 | (0.08) | -0.10 | (0.13) | -0.60 ** | (0.20) |
| Iceland | | | | | | | | | | | | |
| Ireland | 0.07 | (0.08) | 0.17 | (0.13) | -0.04 | (0.09) | -0.38 *** | (0.09) | -0.12 | (0.07) | 0.06 | (0.14) |
| Latvia | -0.21 | (0.22) | -0.02 | (0.15) | -0.28 * | (0.13) | 0.46 | (0.51) | -0.49 | (0.28) | -0.32 | (0.30) |
| Luxembourg | -0.01 | (0.15) | -0.17 | (0.15) | -0.09 | (0.12) | -0.61 *** | (0.05) | 0.32 * | (0.16) | 0.07 | (0.15) |
| Mexico | | | 0.17 | (0.11) | | | 0.05 | (0.17) | | | -0.24 * | (0.11) |
| Peru | | | | | -0.02 | (0.26) | -0.09 | (0.11) | | | | |
| Poland | -0.61 *** | (0.10) | 0.21 | (0.29) | -0.48 * | (0.21) | 0.14 | (0.49) | -0.19 | (0.15) | -0.29 | (0.32) |
| Portugal | -1.16 * | (0.57) | 0.14 | (0.08) | 1.06 *** | (0.30) | -0.34 *** | (0.10) | 0.15 | (0.46) | -0.05 | (0.10) |
| Qatar | 0.13 | (0.12) | -0.09 | (0.07) | -0.19 * | (0.09) | 0.04 | (0.09) | 0.06 | (0.09) | 0.30 *** | (0.08) |
| Russia | | | | | | | | | | | | |
| Slovakia | -0.06 | (0.10) | | | 0.19 * | (0.09) | | | 0.00 | (0.13) | | |
| Slovenia | 0.22 | (0.28) | | | -0.20 | (0.17) | | | 0.94 *** | (0.24) | | |
| South Korea | 0.13 | (0.12) | -0.12 | (0.13) | -0.01 | (0.15) | 0.03 | (0.13) | 0.06 | (0.12) | -0.02 | (0.11) |
| Spain | -0.05 | (0.10) | 0.00 | (0.16) | -0.17 | (0.09) | -0.27 * | (0.13) | 0.15 | (0.08) | -0.11 | (0.10) |
| Switzerland | 0.63 | (0.47) | 0.39 * | (0.20) | 0.04 | (0.11) | -0.56 *** | (0.11) | -0.17 | (0.39) | -0.66 * | (0.33) |
| Taiwan | -0.01 | (0.13) | 0.05 | (0.10) | 0.14 | (0.12) | -0.04 | (0.07) | 0.18 | (0.12) | -0.16 | (0.09) |
| Thailand | 0.00 | (0.11) | -0.49 *** | (0.12) | -0.02 | (0.11) | -0.06 | (0.16) | 0.15 | (0.27) | 0.19 | (0.18) |
| Turkey | 0.00 | (0.08) | 0.16 | (0.11) | -0.27 *** | (0.06) | -0.37 * | (0.16) | 0.33 ** | (0.11) | -0.32 | (0.33) |
| UAE | 0.45 | (0.26) | 0.01 | (0.07) | 0.06 | (0.44) | -0.16 | (0.09) | -0.42 | (0.43) | -0.11 | (0.11) |
| United States | | | 0.01 | (0.14) | | | 0.09 | (0.17) | | | 0.30 * | (0.14) |

Table A1.5. Interaction effects (school type) by country (continuation)

| | Index of time spent using ICT outside school for schoolwork | | | | Index of valuing cooperation | | | | Having repeated a grade at least once | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Semi-private | | Private | | Semi-private | | Private | | Semi-private | | Private | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | 0.08 | (0.09) | -0.04 | (0.34) | 0.06 | (0.10) | -0.30 *** | (0.06) | | | | |
| Bulgaria | | | -0.16 | (0.17) | | | 0.08 | (0.08) | | | | |
| Chile | 0.07 | (0.09) | 0.05 | (0.10) | 0.13 | (0.11) | 0.08 | (0.12) | -0.35 | (0.30) | 0.55 | (0.33) |
| China (B-S-J-G) | | | | | 0.67 *** | (0.08) | 0.15 | (0.16) | -1.29 *** | (0.15) | -0.58 | (0.32) |
| Colombia | 0.14 | (0.17) | 0.03 | (0.11) | 0.25 | (0.34) | 0.02 | (0.12) | -0.51 | (0.63) | -0.05 | (0.25) |
| Croatia | 0.18 | (0.18) | | | -0.09 | (0.16) | | | | | | |
| Czech Republic | 0.19 | (0.12) | -0.09 | (0.17) | 0.13 | (0.15) | -0.31 | (0.18) | | | | |
| Estonia | -0.01 | (0.14) | 0.31 | (0.39) | -0.06 | (0.17) | -0.12 | (0.20) | | | | |
| Finland | -0.44 * | (0.18) | | | 0.05 | (0.22) | | | | | | |
| France | -0.04 | (0.19) | 0.13 | (0.23) | -0.08 | (0.10) | -0.17 | (0.11) | -0.03 | (0.22) | -0.37 | (0.36) |
| Greece | | | -0.14 | (0.18) | | | 0.13 | (0.14) | | | | |
| Hong-Kong | -0.11 | (0.17) | | | 0.03 | (0.09) | | | 0.13 | (0.33) | | |
| Hungary | 0.00 | (0.14) | 0.42 | (0.31) | 0.02 | (0.11) | -0.28 | (0.16) | 0.01 | (0.49) | | |
| Iceland | | | | | | | | | | | | |
| Ireland | 0.02 | (0.09) | 0.12 | (0.20) | 0.13 | (0.07) | -0.11 | (0.11) | 0.45 | (0.33) | | |
| Latvia | 0.09 | (0.14) | 0.39 | (0.35) | -0.11 | (0.29) | 0.60 *** | (0.17) | | | | |
| Luxembourg | 0.11 | (0.10) | -0.18 | (0.11) | -0.30 ** | (0.12) | -0.43 *** | (0.10) | 0.33 * | (0.14) | | |
| Mexico | . | . | 0.12 | (0.11) | | | 0.18 | (0.12) | | | -0.08 | (0.53) |
| Peru | 0.14 | (0.16) | -0.01 | (0.10) | -0.15 | (0.29) | -0.05 | (0.10) | | | 0.58 | (0.30) |
| Poland | 0.13 | (0.28) | -0.15 | (0.32) | 0.00 | (0.25) | -0.06 | (0.19) | | | | |
| Portugal | 0.70 | (0.62) | 0.06 | (0.07) | 0.26 *** | (0.07) | -0.32 *** | (0.07) | | | | |
| Qatar | | | | | 0.22 ** | (0.08) | 0.06 | (0.07) | 1.01 ** | (0.30) | -0.24 | (0.17) |
| Russia | | | | | | | | | | | | |
| Slovakia | 0.13 | (0.08) | | | 0.23 ** | (0.07) | | | -0.04 | (1.07) | | |
| Slovenia | -0.49 ** | (0.15) | | | -0.10 | (0.31) | | | | | | |
| South Korea | -0.10 | (0.16) | -0.15 | (0.11) | -0.03 | (0.08) | -0.11 | (0.09) | 0.33 | (0.73) | -0.60 | (0.53) |
| Spain | -0.12 | (0.08) | -0.04 | (0.11) | -0.14 | (0.08) | 0.16 | (0.14) | -0.07 | (0.21) | | |
| Switzerland | -0.10 | (0.23) | 0.40 ** | (0.12) | 0.38 | (0.20) | -0.26 | (0.30) | | | 1.31 * | (0.67) |
| Taiwan | | | | | 0.21 | (0.15) | 0.03 | (0.08) | | | | |
| Thailand | -0.01 | (0.21) | 0.14 | (0.15) | 0.01 | (0.21) | 0.05 | (0.23) | -0.52 | (0.54) | | |
| Turkey | | | | | 0.04 | (0.14) | -0.19 | (0.21) | | | | |
| UAE | | | | | -0.28 | (0.22) | 0.03 | (0.09) | 1.14 * | (0.47) | -0.19 | (0.27) |
| United States | | | | | | | -0.54 *** | (0.12) | | | | |

Table A1.5. Interaction effects (school type) by country (continuation)

| | Index of truancy | | | | School practices ability grouping within classes | | | | School practices ability grouping between classes | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Semi-private | | Private | | Semi-private | | Private | | Semi-private | | Private | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.09 | (0.12) | 0.16 | (0.11) | -0.02 | (0.18) | | | | | -0.12 | (0.15) |
| Bulgaria | | | 0.01 | (0.09) | | | | | | | | |
| Chile | 0.02 | (0.09) | 0.09 | (0.09) | -0.63 ** | (0.21) | 0.16 | (0.23) | -0.26 | (0.21) | 0.09 | (0.28) |
| China (B-S-J-G) | -0.23 *** | (0.05) | -0.01 | (0.10) | | | 0.05 | (0.26) | 0.59 * | (0.25) | 0.43 | (0.46) |
| Colombia | -0.39 * | (0.17) | 0.06 | (0.09) | 0.07 | (0.19) | 0.28 | (0.20) | -0.12 | (0.15) | 0.05 | (0.21) |
| Croatia | -0.06 | (0.10) | | | | | | | | | | |
| Czech Republic | -0.03 | (0.10) | -0.08 | (0.06) | -0.19 | (0.24) | | | 0.08 | (0.26) | | |
| Estonia | 0.13 | (0.18) | 0.26 | (0.23) | -0.79 | (0.54) | | | -0.56 | (0.29) | | |
| Finland | 0.15 | (0.11) | | | 0.11 | (0.19) | | | 0.08 | (0.22) | | |
| France | 0.15 | (0.11) | 0.03 | (0.10) | 0.23 | (0.16) | 0.29 | (0.24) | 0.03 | (0.15) | 0.08 | (0.22) |
| Greece | | | -0.31 | (0.24) | | | 0.56 * | (0.22) | | | 0.57 * | (0.25) |
| Hong-Kong | -0.01 | (0.18) | | | | | | | -0.19 | (0.18) | | |
| Hungary | -0.01 | (0.14) | 0.28 * | (0.11) | -0.16 | (0.25) | 0.76 ** | (0.27) | -0.04 | (0.36) | | |
| Iceland | | | | | | | | | | | | |
| Ireland | 0.11 | (0.08) | 0.45 * | (0.20) | 0.17 | (0.39) | | | -0.10 | (0.13) | -0.04 | (0.20) |
| Latvia | 0.01 | (0.12) | 0.02 | (0.19) | | | | | | | | |
| Luxembourg | -0.33 ** | (0.11) | -0.41 *** | (0.07) | 0.26 | (0.26) | | | 0.56 *** | (0.15) | | |
| Mexico | . | . | 0.16 * | (0.08) | | | 0.02 | (0.21) | | | 0.32 | (0.22) |
| Peru | -0.08 | (0.25) | -0.03 | (0.10) | | | 0.44 * | (0.19) | -0.22 | (0.15) | 0.46 ** | (0.17) |
| Poland | -0.33 *** | (0.09) | -0.80 ** | (0.25) | 0.37 ** | (0.11) | | | | | | |
| Portugal | 1.11 ** | (0.42) | 0.09 | (0.08) | | | | | | | | |
| Qatar | -0.13 | (0.14) | -0.02 | (0.07) | | | 0.00 | (0.19) | | | 0.03 | (0.23) |
| Russia | | | | | | | | | | | | |
| Slovakia | -0.10 | (0.11) | | | -0.39 | (0.27) | | | 0.22 | (0.20) | | |
| Slovenia | -0.15 | (0.30) | | | -1.06 *** | (0.27) | | | 0.71 | (0.45) | | |
| South Korea | -0.24 * | (0.11) | -0.01 | (0.15) | 0.03 | (0.16) | 0.05 | (0.25) | 0.08 | (0.18) | 0.26 | (0.23) |
| Spain | 0.05 | (0.08) | 0.34 *** | (0.06) | 0.07 | (0.12) | 0.06 | (0.26) | -0.19 | (0.14) | 0.01 | (0.26) |
| Switzerland | 0.43 | (0.24) | 0.19 | (0.22) | | | 0.60 | (0.39) | | | | |
| Taiwan | -0.09 | (0.16) | 0.18 * | (0.08) | 0.12 | (0.14) | 0.13 | (0.16) | -0.36 ** | (0.11) | -0.22 | (0.17) |
| Thailand | -0.29 ** | (0.09) | -0.12 | (0.26) | -0.45 | (0.36) | -0.26 | (0.29) | -0.60 | (0.31) | -0.26 | (0.26) |
| Turkey | 0.01 | (0.10) | 0.20 | (0.14) | | | 0.44 | (0.40) | | | 0.16 | (0.15) |
| UAE | 0.18 | (0.35) | 0.12 | (0.08) | -0.11 | (0.34) | 0.13 | (0.15) | 0.15 | (0.47) | 0.04 | (0.17) |
| United States | | | 0.07 | (0.12) | | | | | | | -0.20 | (0.48) |

Table A1.6. Interaction effects (school peers' characteristics) by country

| | Index of schoolwork-related anxiety | | | | Index of sense of belonging at school | | | | Index of frequency of suffering bullying | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | School peers mean level | | Interaction student's level - school peers' mean level | | School peers mean level | | Interaction student's level - school peers' mean level | | School peers mean level | | Interaction student's level - school peers' mean level | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.46 ** | (0.17) | 0.26 | (0.22) | -0.28 | (0.18) | 0.16 ** | (0.05) | 0.10 | (0.18) | -0.04 | (0.16) |
| Bulgaria | -0.31 | (0.22) | 0.15 | (0.31) | 0.07 | (0.25) | 0.30 | (0.21) | -0.12 | (0.23) | 0.71 *** | (0.19) |
| Chile | -0.12 | (0.29) | -0.45 * | (0.21) | -0.02 | (0.26) | -0.16 | (0.09) | 0.07 | (0.27) | 0.02 | (0.09) |
| China (B-S-J-G) | 0.03 | (0.17) | -0.02 | (0.13) | . | . | . | . | -0.15 | (0.16) | 0.22 | (0.12) |
| Colombia | -0.68 *** | (0.18) | -0.18 | (0.17) | -0.58 * | (0.24) | 0.15 | (0.30) | -0.06 | (0.26) | 0.76 ** | (0.28) |
| Croatia | -0.37 | (0.20) | -0.06 | (0.16) | -0.30 | (0.20) | 0.11 | (0.23) | 0.37 * | (0.18) | 0.34 | (0.26) |
| Czech Republic | -0.08 | (0.13) | 0.12 | (0.13) | 0.04 | (0.16) | -0.06 | (0.04) | 0.07 | (0.13) | 0.26 * | (0.13) |
| Estonia | 0.18 | (0.15) | -0.22 | (0.14) | -0.03 | (0.18) | -0.03 | (0.16) | 0.24 | (0.13) | 0.06 | (0.14) |
| Finland | 0.17 | (0.14) | -0.17 | (0.15) | -0.04 | (0.13) | -0.09 | (0.15) | 0.05 | (0.14) | 0.20 | (0.16) |
| France | -0.25 | (0.18) | -0.49 ** | (0.18) | 0.14 | (0.15) | -0.07 | (0.15) | -0.04 | (0.14) | 0.01 | (0.11) |
| Greece | 0.10 | (0.22) | -0.22 | (0.22) | -0.34 | (0.18) | -0.28 | (0.17) | 0.14 | (0.18) | 0.13 | (0.16) |
| Hong-Kong | -0.09 | (0.18) | -0.39 * | (0.16) | -0.07 | (0.18) | 0.21 | (0.20) | 0.18 | (0.18) | -0.04 | (0.11) |
| Hungary | 0.15 | (0.19) | 0.26 | (0.18) | 0.05 | (0.20) | 0.00 | (0.19) | 0.04 | (0.23) | 0.24 | (0.13) |
| Iceland | -0.11 | (0.16) | -0.02 | (0.17) | 0.32 | (0.19) | -0.02 | (0.16) | 0.05 | (0.21) | 0.54 ** | (0.19) |
| Ireland | -0.02 | (0.15) | -0.06 | (0.17) | -0.41 * | (0.16) | -0.03 | (0.20) | 0.18 | (0.14) | 0.25 | (0.24) |
| Latvia | 0.10 | (0.16) | -0.10 | (0.15) | -0.04 | (0.15) | 0.19 | (0.11) | -0.09 | (0.14) | 0.24 * | (0.11) |
| Luxembourg | 0.18 | (0.23) | -0.14 | (0.26) | -0.20 | (0.29) | 0.47 * | (0.22) | 0.27 | (0.41) | 1.12 ** | (0.43) |
| Mexico | 0.02 | (0.16) | 0.17 | (0.12) | 0.10 | (0.19) | 0.13 | (0.14) | -0.06 | (0.16) | 0.53 *** | (0.14) |
| Peru | 0.29 | (0.22) | 0.03 | (0.17) | 0.06 | (0.19) | -0.09 | (0.15) | 0.15 | (0.17) | 0.17 | (0.22) |
| Poland | 0.03 | (0.16) | -0.06 | (0.20) | 0.26 | (0.18) | -0.38 | (0.23) | 0.06 | (0.22) | 0.33 | (0.27) |
| Portugal | 0.36 * | (0.17) | -0.16 | (0.20) | 0.02 | (0.21) | -0.16 | (0.15) | 0.20 | (0.15) | -0.01 | (0.15) |
| Qatar | 0.08 | (0.24) | -0.30 | (0.19) | 0.07 | (0.21) | 0.22 | (0.16) | 0.15 | (0.12) | 0.27 ** | (0.09) |
| Russia | -0.14 | (0.13) | -0.14 | (0.13) | 0.12 | (0.14) | -0.01 | (0.16) | -0.16 | (0.16) | 0.26 | (0.20) |
| Slovakia | 0.06 | (0.14) | -0.12 | (0.13) | 0.22 | (0.14) | 0.16 | (0.12) | 0.02 | (0.13) | 0.30 * | (0.14) |
| Slovenia | -0.21 | (0.14) | -0.04 | (0.18) | -0.04 | (0.17) | 0.20 | (0.15) | 0.05 | (0.15) | 0.04 | (0.12) |
| South Korea | 0.02 | (0.19) | -0.27 | (0.20) | 0.17 | (0.23) | -0.38 * | (0.19) | 0.21 | (0.21) | 0.52 | (0.30) |
| Spain | -0.29 * | (0.14) | -0.16 | (0.12) | -0.10 | (0.16) | -0.50 ** | (0.15) | 0.14 | (0.15) | 0.03 | (0.17) |
| Switzerland | 0.07 | (0.12) | 0.08 | (0.13) | -0.16 | (0.13) | 0.05 | (0.08) | 0.32 | (0.17) | 0.47 * | (0.19) |
| Taiwan | -0.35 * | (0.14) | 0.09 | (0.18) | 0.13 | (0.16) | 0.14 | (0.19) | 0.03 | (0.13) | -0.28 | (0.22) |
| Thailand | -0.04 | (0.25) | -0.05 | (0.12) | 0.80 ** | (0.29) | -0.13 | (0.13) | -0.34 | (0.20) | 0.02 | (0.17) |
| Turkey | 0.05 | (0.34) | 0.33 | (0.30) | 0.01 | (0.42) | 0.78 | (0.40) | 0.41 | (0.27) | 0.31 *** | (0.07) |
| UAE | -0.03 | (0.22) | -0.32 * | (0.16) | 0.33 | (0.20) | 0.11 | (0.16) | -0.10 | (0.20) | 0.30 ** | (0.11) |
| United States | -0.20 | (0.16) | -0.49 ** | (0.15) | -0.27 | (0.23) | -0.31 | (0.42) | -0.01 | (0.13) | 0.19 | (0.12) |

Table A1.6. Interaction effects (school peers' characteristics) by country (continuation)

| | Index of feeling unfairly treated by teachers | | | | Index of feeling emotionally supported by parents | | | | Index of academic competence | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | School peers mean level | | Interaction student's level - school peers' mean level | | School peers mean level | | Interaction student's level - school peers' mean level | | School peers mean level | | Interaction student's level - school peers' mean level | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.15 | (0.18) | 0.14 | (0.18) | 0.26 | (0.17) | -0.11 | (0.15) | 0.18 * | (0.08) | 0.12 | (0.06) |
| Bulgaria | 0.53 * | (0.22) | 0.95 *** | (0.27) | -0.25 | (0.30) | 0.47 *** | (0.13) | -0.09 | (0.11) | 0.21 ** | (0.08) |
| Chile | 0.18 | (0.18) | -0.16 | (0.10) | 0.10 | (0.20) | 0.17 | (0.16) | 0.03 | (0.12) | -0.12 | (0.07) |
| China (B-S-J-G) | 0.21 | (0.16) | 0.44 *** | (0.09) | -0.03 | (0.15) | 0.08 | (0.15) | 0.00 | (0.08) | 0.00 | (0.04) |
| Colombia | -0.02 | (0.22) | 0.28 * | (0.14) | 0.09 | (0.22) | 0.58 * | (0.26) | -0.08 | (0.13) | 0.15 * | (0.07) |
| Croatia | 0.00 | (0.18) | 0.00 | (0.13) | 0.32 | (0.19) | -0.16 | (0.18) | -0.19 * | (0.10) | 0.06 | (0.05) |
| Czech Republic | 0.20 | (0.12) | 0.13 | (0.13) | -0.08 | (0.15) | 0.41 * | (0.16) | 0.00 | (0.08) | 0.03 | (0.06) |
| Estonia | -0.05 | (0.12) | 0.20 | (0.12) | -0.11 | (0.15) | 0.25 | (0.16) | -0.17 | (0.09) | 0.22 ** | (0.07) |
| Finland | -0.09 | (0.14) | -0.07 | (0.14) | -0.06 | (0.13) | 0.00 | (0.16) | 0.06 | (0.09) | 0.06 | (0.08) |
| France | -0.28 * | (0.14) | 0.28 * | (0.12) | 0.29 | (0.15) | -0.27 | (0.22) | 0.10 | (0.09) | 0.06 | (0.07) |
| Greece | 0.36 | (0.21) | 0.12 | (0.13) | -0.28 | (0.18) | -0.15 | (0.18) | -0.03 | (0.11) | 0.09 | (0.07) |
| Hong-Kong | 0.02 | (0.16) | 0.08 | (0.09) | -0.07 | (0.19) | 0.11 | (0.13) | 0.04 | (0.07) | 0.05 | (0.06) |
| Hungary | 0.02 | (0.23) | 0.07 | (0.11) | 0.12 | (0.15) | 0.11 | (0.17) | 0.20 | (0.11) | 0.01 | (0.08) |
| Iceland | -0.19 | (0.19) | 0.06 | (0.17) | -0.05 | (0.20) | 0.20 | (0.15) | -0.05 | (0.13) | -0.09 | (0.11) |
| Ireland | -0.02 | (0.17) | 0.14 | (0.16) | -0.20 | (0.18) | 0.40 | (0.21) | 0.00 | (0.09) | -0.14 | (0.08) |
| Latvia | 0.02 | (0.12) | 0.11 | (0.11) | 0.07 | (0.15) | 0.17 | (0.20) | -0.15 | (0.09) | 0.18 ** | (0.07) |
| Luxembourg | 0.15 | (0.25) | -0.21 | (0.23) | -0.34 | (0.25) | -0.09 | (0.28) | 0.00 | (0.08) | 0.17 ** | (0.06) |
| Mexico | -0.05 | (0.12) | 0.06 | (0.15) | 0.12 | (0.19) | 0.25 | (0.17) | 0.05 | (0.08) | -0.11 | (0.06) |
| Peru | -0.06 | (0.20) | 0.09 | (0.20) | 0.21 | (0.24) | 0.21 | (0.21) | 0.14 | (0.11) | -0.25 ** | (0.08) |
| Poland | 0.03 | (0.16) | 0.05 | (0.11) | 0.19 | (0.13) | -0.04 | (0.15) | -0.23 | (0.13) | 0.08 | (0.09) |
| Portugal | -0.27 | (0.18) | 0.00 | (0.18) | 0.36 | (0.19) | -0.22 | (0.16) | -0.09 | (0.09) | 0.04 | (0.06) |
| Qatar | 0.01 | (0.18) | 0.23 | (0.12) | 0.13 | (0.22) | 0.10 | (0.18) | -0.17 | (0.09) | 0.17 ** | (0.05) |
| Russia | 0.08 | (0.13) | 0.28 | (0.15) | 0.37 ** | (0.14) | -0.28 * | (0.14) | 0.02 | (0.08) | 0.11 | (0.07) |
| Slovakia | -0.03 | (0.14) | 0.10 | (0.13) | -0.17 | (0.16) | 0.04 | (0.12) | -0.02 | (0.08) | 0.02 | (0.07) |
| Slovenia | 0.04 | (0.11) | 0.12 | (0.11) | -0.16 | (0.14) | 0.33 ** | (0.13) | -0.21 ** | (0.07) | 0.21 ** | (0.06) |
| South Korea | 0.26 | (0.20) | 0.51 ** | (0.17) | -0.19 | (0.16) | -0.12 | (0.28) | -0.27 * | (0.12) | 0.05 | (0.09) |
| Spain | -0.07 | (0.14) | 0.15 | (0.16) | 0.04 | (0.13) | 0.21 | (0.23) | -0.09 | (0.09) | 0.18 * | (0.08) |
| Switzerland | 0.38 ** | (0.11) | 0.25 * | (0.12) | -0.07 | (0.15) | 0.21 | (0.18) | -0.15 * | (0.07) | 0.07 | (0.06) |
| Taiwan | 0.14 | (0.15) | -0.07 | (0.20) | -0.02 | (0.11) | 0.09 | (0.16) | -0.05 | (0.07) | 0.11 | (0.06) |
| Thailand | 0.15 | (0.30) | 0.13 | (0.25) | 0.46 ** | (0.17) | 0.04 | (0.03) | -0.17 | (0.17) | 0.10 | (0.08) |
| Turkey | 0.28 | (0.41) | -0.08 | (0.21) | 0.56 | (0.32) | 0.46 ** | (0.18) | -0.10 | (0.13) | 0.20 * | (0.08) |
| UAE | -0.15 | (0.16) | 0.13 | (0.10) | -0.68 *** | (0.15) | 0.05 | (0.18) | -0.18 * | (0.08) | -0.14 | (0.07) |
| United States | 0.20 | (0.18) | 0.45 * | (0.21) | 0.05 | (0.21) | 0.28 | (0.24) | 0.01 | (0.12) | 0.02 | (0.08) |

Figure A1.7. Q-norm of residuals of the linear regression model (full-model)

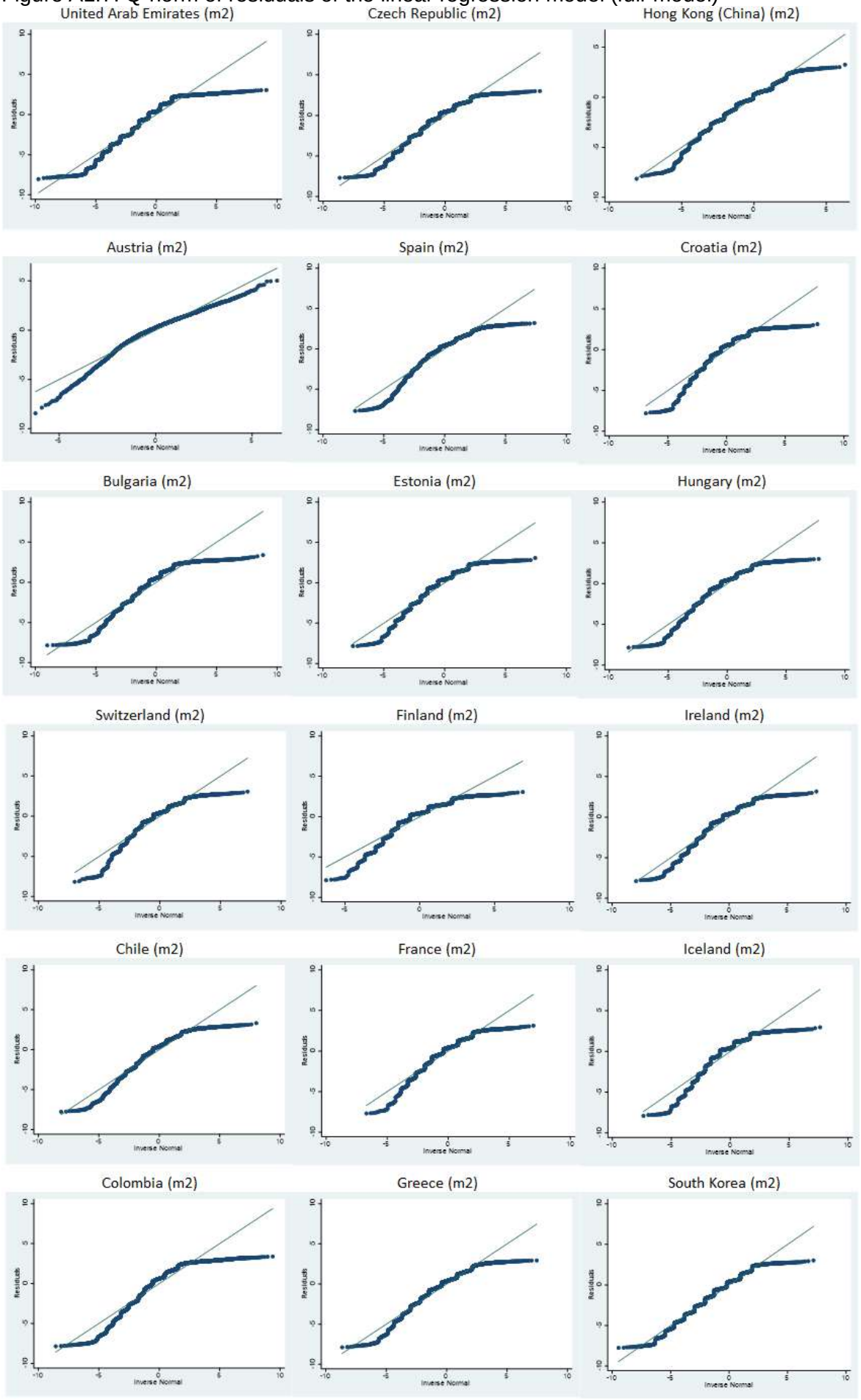
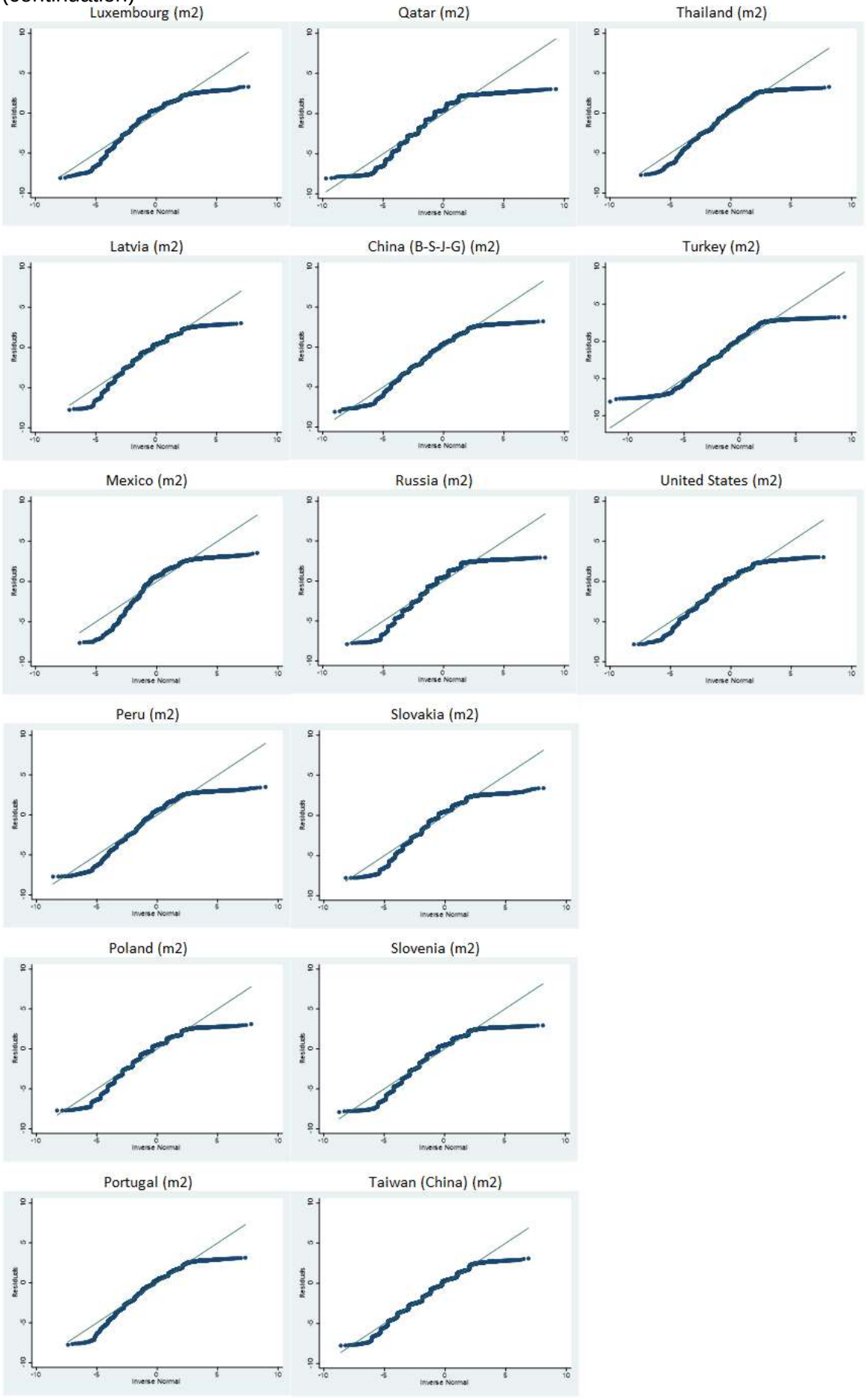


Figure A1.7. Q-norm of residuals of the linear regression model (full-model) (continuation)



# Appendix 2: Tables of chapter 6

This appendix includes more detailed tables corresponding to the analysis presented in chapter 6. This includes: table A2.1, with students' mean, variance and skewness in the variable LS for girls and boys; tables A2.2 and A2.3, with results by country of gender differences in students' scores school-related factors; tables A2.4 to A2.15, with results by country of gender differences in the effect that school-related factors have in students' LS; and tables A2.16 to A2.27, with results by country of the contribution that school-related factors make to the gender gap in students' LS.

Table A2.1. Mean, variance and skewness in students' life satisfaction for boys and girls.

| | Mean LS | | Variance | | Skewness | |
|---|---|---|---|---|---|---|
| | Girls | Boys | Girls | Boys | Girls | Boys |
| Austria | 7.09 | 7.95 | 5.27 | 3.86 | -0.91 | -1.43 |
| Bulgaria | 7.20 | 7.62 | 6.44 | 6.17 | -0.83 | -1.07 |
| Chile | 7.13 | 7.60 | 5.52 | 4.43 | -0.82 | -1.07 |
| China (B-S-J-G) | 6.78 | 6.88 | 5.23 | 5.64 | -0.64 | -0.70 |
| Colombia | 7.71 | 8.08 | 6.15 | 5.08 | -1.03 | -1.30 |
| Croatia | 7.62 | 8.21 | 4.50 | 3.65 | -1.10 | -1.61 |
| Czech Republic | 6.72 | 7.37 | 5.37 | 4.80 | -0.69 | -0.95 |
| Estonia | 7.27 | 7.73 | 4.58 | 4.28 | -0.87 | -1.21 |
| Finland | 7.51 | 8.25 | 3.68 | 2.90 | -1.15 | -1.65 |
| France | 7.41 | 7.86 | 3.80 | 3.52 | -0.93 | -1.18 |
| Greece | 6.59 | 7.22 | 5.24 | 4.88 | -0.69 | -0.98 |
| Hong-Kong | 6.44 | 6.51 | 3.41 | 4.97 | -0.63 | -0.64 |
| Hungary | 6.80 | 7.54 | 5.50 | 4.63 | -0.84 | -1.13 |
| Iceland | 7.35 | 8.28 | 5.48 | 3.71 | -1.05 | -1.69 |
| Ireland | 7.02 | 7.58 | 5.16 | 4.03 | -0.83 | -1.12 |
| Latvia | 7.29 | 7.46 | 3.93 | 4.28 | -0.86 | -1.00 |
| Luxembourg | 6.99 | 7.78 | 4.93 | 4.54 | -0.84 | -1.34 |
| Mexico | 8.21 | 8.33 | 4.16 | 3.86 | -1.41 | -1.73 |
| Peru | 7.42 | 7.57 | 6.12 | 5.61 | -0.93 | -0.98 |
| Poland | 6.83 | 7.53 | 5.66 | 4.69 | -0.77 | -1.06 |
| Portugal | 7.11 | 7.61 | 4.18 | 3.88 | -0.73 | -1.01 |
| Qatar | 7.30 | 7.51 | 6.45 | 6.51 | -0.85 | -1.05 |
| Russia | 7.60 | 7.92 | 5.66 | 4.85 | -0.99 | -1.18 |
| Slovakia | 7.17 | 7.76 | 5.38 | 4.85 | -0.81 | -1.17 |
| Slovenia | 6.71 | 7.62 | 5.78 | 4.75 | -0.66 | -1.22 |
| South Korea | 6.12 | 6.59 | 4.86 | 5.98 | -0.36 | -0.56 |
| Spain | 7.24 | 7.60 | 4.34 | 4.05 | -1.03 | -1.23 |
| Switzerland | 7.38 | 8.03 | 4.17 | 3.64 | -0.95 | -1.51 |
| Taiwan | 6.45 | 6.74 | 4.11 | 4.91 | -0.37 | -0.53 |
| Thailand | 7.70 | 7.73 | 4.16 | 4.82 | -0.81 | -0.92 |
| Turkey | 5.83 | 6.41 | 9.00 | 8.16 | -0.26 | -0.48 |
| UAE | 7.17 | 7.44 | 6.10 | 6.35 | -0.70 | -0.93 |
| United States | 7.06 | 7.66 | 4.95 | 4.71 | -0.65 | -1.13 |

Table A2.2. Gender gap (mean differences) in school-related factors, by country (I)

| | Index of schoolwork-related anxiety | | Index of sense of belonging at school | | Index of frequency of being bullied | | Index of feeling unfairly treated by teachers | | Index of feeling emotionally supported by parents | | Index of academic competence | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | 0.33 *** | (0.03) | 0.03 | (0.03) | -0.24 *** | (0.03) | -0.28 *** | (0.03) | -0.04 | (0.03) | -0.10 | (0.05) |
| Bulgaria | 0.40 *** | (0.03) | 0.08 * | (0.03) | -0.15 *** | (0.03) | -0.23 *** | (0.03) | 0.11 *** | (0.03) | 0.23 *** | (0.05) |
| Chile | 0.30 *** | (0.03) | 0.14 *** | (0.03) | -0.11 ** | (0.04) | -0.26 *** | (0.03) | -0.08 * | (0.03) | -0.09 * | (0.04) |
| China (B-S-J-G) | 0.17 *** | (0.04) | 0.06 ** | (0.02) | -0.32 *** | (0.02) | -0.28 *** | (0.03) | 0.06 * | (0.03) | 0.00 | (0.03) |
| Colombia | 0.34 *** | (0.03) | 0.09 *** | (0.02) | -0.21 *** | (0.03) | -0.34 *** | (0.03) | -0.02 | (0.02) | -0.02 | (0.04) |
| Croatia | 0.47 *** | (0.03) | 0.11 *** | (0.02) | -0.10 ** | (0.03) | -0.19 *** | (0.03) | 0.11 *** | (0.03) | 0.03 | (0.04) |
| Czech Republic | 0.43 *** | (0.02) | -0.01 | (0.03) | -0.17 *** | (0.03) | -0.27 *** | (0.03) | 0.01 | (0.03) | 0.04 | (0.04) |
| Estonia | 0.51 *** | (0.03) | -0.08 ** | (0.03) | -0.19 *** | (0.03) | -0.18 *** | (0.03) | 0.06 * | (0.03) | 0.08 ** | (0.03) |
| Finland | 0.40 *** | (0.02) | -0.01 | (0.03) | -0.16 *** | (0.03) | -0.22 *** | (0.03) | 0.05 | (0.03) | 0.30 *** | (0.02) |
| France | 0.47 *** | (0.03) | 0.03 | (0.03) | 0.00 | (0.03) | -0.27 *** | (0.02) | 0.05 * | (0.02) | 0.07 * | (0.03) |
| Greece | 0.35 *** | (0.03) | 0.11 *** | (0.03) | -0.23 *** | (0.03) | -0.31 *** | (0.03) | 0.11 *** | (0.03) | 0.19 *** | (0.04) |
| Hong Kong | 0.32 *** | (0.03) | 0.06 * | (0.03) | -0.43 *** | (0.04) | -0.42 *** | (0.03) | 0.18 *** | (0.04) | 0.12 * | (0.05) |
| Hungary | 0.39 *** | (0.03) | 0.00 | (0.03) | -0.06 * | (0.03) | -0.18 *** | (0.03) | -0.01 | (0.03) | 0.05 | (0.04) |
| Iceland | 0.63 *** | (0.03) | 0.08 * | (0.04) | -0.02 | (0.04) | -0.09 * | (0.04) | -0.02 | (0.04) | 0.18 *** | (0.03) |
| Ireland | 0.48 *** | (0.03) | -0.14 *** | (0.03) | -0.10 *** | (0.03) | -0.29 *** | (0.03) | 0.09 *** | (0.02) | -0.06 | (0.04) |
| Latvia | 0.39 *** | (0.03) | 0.09 ** | (0.03) | -0.18 *** | (0.03) | -0.32 *** | (0.03) | 0.12 *** | (0.03) | 0.25 *** | (0.03) |
| Luxembourg | 0.49 *** | (0.02) | 0.07 * | (0.03) | -0.13 *** | (0.03) | -0.37 *** | (0.03) | 0.04 | (0.03) | 0.01 | (0.02) |
| Mexico | 0.35 *** | (0.03) | 0.16 *** | (0.03) | -0.19 *** | (0.03) | -0.31 *** | (0.03) | 0.03 | (0.02) | 0.00 | (0.03) |
| Peru | 0.20 *** | (0.03) | 0.09 ** | (0.03) | -0.26 *** | (0.03) | -0.33 *** | (0.02) | 0.00 | (0.03) | -0.05 | (0.04) |
| Poland | 0.44 *** | (0.03) | -0.03 | (0.03) | -0.14 *** | (0.03) | -0.31 *** | (0.03) | 0.02 | (0.03) | 0.05 | (0.03) |
| Portugal | 0.61 *** | (0.03) | 0.07 * | (0.03) | -0.06 * | (0.03) | -0.30 *** | (0.03) | 0.05 * | (0.03) | -0.01 | (0.02) |
| Qatar | 0.28 *** | (0.02) | 0.13 *** | (0.02) | -0.50 *** | (0.02) | -0.37 *** | (0.02) | 0.05 ** | (0.02) | 0.31 *** | (0.01) |
| Russia | 0.46 *** | (0.03) | 0.06 | (0.04) | -0.05 | (0.03) | -0.19 *** | (0.03) | 0.06 * | (0.03) | 0.07 * | (0.04) |
| Slovakia | 0.38 *** | (0.03) | 0.11 *** | (0.03) | -0.11 *** | (0.03) | -0.24 *** | (0.03) | 0.07 ** | (0.02) | 0.11 ** | (0.04) |
| Slovenia | 0.55 *** | (0.03) | 0.00 | (0.03) | -0.14 *** | (0.03) | -0.21 *** | (0.03) | 0.16 *** | (0.03) | 0.18 *** | (0.02) |
| South Korea | 0.25 *** | (0.03) | -0.14 *** | (0.03) | -0.21 *** | (0.03) | -0.20 *** | (0.03) | 0.07 | (0.04) | 0.22 *** | (0.06) |
| Spain | 0.48 *** | (0.02) | 0.13 *** | (0.03) | -0.12 *** | (0.02) | -0.43 *** | (0.03) | 0.13 *** | (0.03) | -0.01 | (0.03) |
| Switzerland | 0.42 *** | (0.03) | -0.03 | (0.03) | -0.09 ** | (0.03) | -0.34 *** | (0.03) | 0.06 | (0.03) | 0.03 | (0.03) |
| Taiwan | 0.25 *** | (0.03) | 0.07 ** | (0.02) | -0.25 *** | (0.03) | -0.25 *** | (0.03) | 0.11 *** | (0.03) | 0.05 | (0.06) |
| Thailand | 0.22 *** | (0.03) | 0.03 | (0.03) | -0.33 *** | (0.03) | -0.38 *** | (0.02) | 0.16 *** | (0.03) | 0.18 *** | (0.04) |
| Turkey | 0.42 *** | (0.03) | 0.07 * | (0.03) | -0.30 *** | (0.04) | -0.31 *** | (0.03) | 0.12 *** | (0.03) | 0.13 * | (0.06) |
| UAE | 0.27 *** | (0.02) | 0.12 *** | (0.02) | -0.44 *** | (0.02) | -0.34 *** | (0.03) | -0.03 | (0.02) | 0.30 *** | (0.05) |
| United States | 0.57 *** | (0.03) | -0.15 *** | (0.03) | 0.00 | (0.03) | -0.18 *** | (0.03) | -0.03 | (0.03) | 0.02 | (0.03) |

**Notes:** positive values indicate that girls score higher than boys and negative values indicate the opposite. Results are expressed in standard deviations, this is 1 point equals the standard deviation of that index in that country (considering both girls and boys) and 0 equals the mean.

Table A2.3. Gender gap (mean differences) in school-related factors, by country (II)

| | Index of ICT use at home for schoolwork | | Index of valuing cooperation | | Index of truancy | | Having repeated a grade at least once | | Attending a school that practices ability grouping within classes | | Attending a school that practices ability grouping between classes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.09 ** | (0.03) | -0.06 | (0.03) | -0.07 | (0.04) | -0.03 ** | (0.01) | -0.04 | (0.03) | -0.06 | (0.04) |
| Bulgaria | -0.20 *** | (0.04) | -0.10 ** | (0.03) | -0.12 ** | (0.04) | -0.04 *** | (0.01) | -0.01 | (0.02) | -0.07 ** | (0.03) |
| Chile | -0.02 | (0.04) | -0.12 *** | (0.03) | -0.06 | (0.03) | -0.05 *** | (0.01) | 0.03 | (0.02) | 0.03 | (0.03) |
| China (B-S-J-G) | -0.18 *** | (0.03) | 0.00 | (0.02) | -0.29 *** | (0.03) | -0.08 *** | (0.01) | 0.04 ** | (0.01) | 0.00 | (0.01) |
| Colombia | -0.12 ** | (0.04) | -0.02 | (0.02) | -0.13 *** | (0.02) | -0.15 *** | (0.01) | -0.01 | (0.02) | -0.01 | (0.02) |
| Croatia | -0.25 *** | (0.04) | -0.08 *** | (0.02) | -0.22 *** | (0.03) | 0.00 | (0.00) | 0.04 | (0.03) | 0.01 | (0.03) |
| Czech Republic | -0.07 * | (0.03) | -0.05 | (0.03) | -0.17 *** | (0.03) | -0.03 *** | (0.01) | 0.03 | (0.02) | -0.03 | (0.03) |
| Estonia | -0.15 *** | (0.03) | -0.11 *** | (0.03) | -0.15 *** | (0.03) | -0.02 ** | (0.01) | 0.01 | (0.01) | 0.02 | (0.01) |
| Finland | -0.25 *** | (0.04) | -0.20 *** | (0.03) | -0.03 | (0.03) | -0.02 *** | (0.00) | -0.01 | (0.01) | 0.00 | (0.01) |
| France | -0.13 *** | (0.03) | -0.07 * | (0.03) | -0.19 *** | (0.03) | -0.05 *** | (0.01) | -0.02 | (0.02) | 0.01 | (0.02) |
| Greece | -0.29 *** | (0.03) | -0.06 * | (0.03) | -0.29 *** | (0.03) | -0.04 *** | (0.01) | -0.01 | (0.01) | 0.01 | (0.01) |
| Hong Kong | -0.14 *** | (0.04) | -0.02 | (0.03) | -0.23 *** | (0.03) | -0.04 *** | (0.01) | -0.04 | (0.03) | -0.04 | (0.03) |
| Hungary | -0.23 *** | (0.04) | -0.07 * | (0.03) | -0.16 *** | (0.03) | -0.02 | (0.01) | 0.04 | (0.03) | 0.01 | (0.03) |
| Iceland | -0.13 *** | (0.04) | -0.19 *** | (0.04) | -0.18 *** | (0.04) | -0.01 | (0.00) | 0.02 *** | (0.00) | 0.02 ** | (0.01) |
| Ireland | 0.06 | (0.04) | -0.06 * | (0.02) | -0.05 | (0.04) | -0.02 ** | (0.01) | 0.02 | (0.01) | 0.04 | (0.05) |
| Latvia | -0.23 *** | (0.03) | -0.10 *** | (0.03) | -0.17 *** | (0.03) | -0.03 *** | (0.01) | 0.01 | (0.01) | 0.04 ** | (0.01) |
| Luxembourg | -0.26 *** | (0.03) | -0.08 ** | (0.02) | -0.18 *** | (0.03) | -0.07 *** | (0.01) | -0.09 *** | (0.00) | -0.09 *** | (0.00) |
| Mexico | -0.12 *** | (0.03) | -0.08 ** | (0.03) | -0.14 *** | (0.02) | -0.08 *** | (0.01) | -0.02 | (0.01) | 0.00 | (0.01) |
| Peru | -0.09 * | (0.03) | -0.11 *** | (0.02) | -0.07 * | (0.03) | -0.08 *** | (0.01) | -0.05 ** | (0.02) | -0.03 | (0.02) |
| Poland | -0.14 *** | (0.03) | -0.10 *** | (0.03) | -0.31 *** | (0.03) | -0.05 *** | (0.01) | -0.01 | (0.01) | 0.00 | (0.01) |
| Portugal | -0.20 *** | (0.03) | -0.08 ** | (0.03) | -0.17 *** | (0.03) | -0.10 *** | (0.01) | -0.01 | (0.01) | 0.00 | (0.01) |
| Qatar | | | 0.05 * | (0.02) | -0.14 *** | (0.02) | -0.04 *** | (0.01) | 0.02 *** | (0.00) | 0.00 | (0.00) |
| Russia | -0.11 ** | (0.03) | -0.11 *** | (0.03) | -0.11 *** | (0.03) | -0.02 *** | (0.00) | -0.01 | (0.01) | 0.00 | (0.01) |
| Slovakia | -0.21 *** | (0.03) | -0.04 | (0.03) | -0.15 *** | (0.03) | -0.02 * | (0.01) | 0.00 | (0.03) | 0.09 ** | (0.03) |
| Slovenia | -0.13 *** | (0.03) | -0.06 * | (0.03) | -0.21 *** | (0.03) | -0.01 * | (0.01) | 0.07 *** | (0.01) | -0.01 | (0.01) |
| South Korea | 0.03 | (0.03) | -0.18 *** | (0.03) | -0.11 *** | (0.03) | -0.01 | (0.01) | -0.02 | (0.05) | 0.00 | (0.05) |
| Spain | -0.12 *** | (0.03) | -0.03 | (0.03) | -0.04 | (0.02) | -0.08 *** | (0.01) | 0.00 | (0.01) | -0.01 | (0.01) |
| Switzerland | -0.18 *** | (0.04) | -0.08 ** | (0.03) | -0.19 *** | (0.04) | -0.04 ** | (0.01) | -0.02 | (0.02) | -0.03 | (0.02) |
| Taiwan | 0.05 | (0.03) | -0.08 *** | (0.02) | -0.21 *** | (0.03) | 0.00 | (0.00) | 0.02 | (0.03) | 0.00 | (0.03) |
| Thailand | -0.02 | (0.03) | -0.09 ** | (0.03) | -0.30 *** | (0.04) | -0.04 *** | (0.01) | 0.03 | (0.03) | 0.02 | (0.03) |
| Turkey | | | -0.05 | (0.03) | -0.32 *** | (0.03) | -0.07 *** | (0.01) | 0.03 | (0.04) | -0.03 | (0.04) |
| UAE | | | 0.01 | (0.02) | -0.15 *** | (0.03) | -0.05 *** | (0.01) | -0.06 | (0.05) | 0.00 | (0.05) |
| United States | | | -0.21 *** | (0.03) | 0.04 | (0.03) | -0.04 *** | (0.01) | 0.00 | (0.01) | -0.01 | (0.01) |

Note: positive values indicate that girls score higher than boys and negative values indicate the opposite. For indices, results are expressed in standard deviations, this is 1 point equals the standard deviation of that index in that country (considering both girls and boys) and 0 equals the mean. For other variables, results refer to % of students.

Table A2.4. Gender differences in the effect of schoolwork-related anxiety in students' life satisfaction, by country

| | Direct effects | | | | | | Interaction effects | |
|---|---|---|---|---|---|---|---|---|
| | All students | | Girls | | Boys | | | |
| | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.43 *** | (0.04) | -0.42 *** | (0.06) | -0.43 *** | (0.06) | -0.04 | (0.08) |
| Bulgaria | -0.38 *** | (0.07) | -0.43 *** | (0.11) | -0.33 *** | (0.08) | -0.07 | (0.11) |
| Chile | -0.36 *** | (0.05) | -0.48 *** | (0.07) | -0.23 *** | (0.06) | -0.24 ** | (0.09) |
| China (B-S-J-G) | -0.36 *** | (0.04) | -0.40 *** | (0.07) | -0.34 *** | (0.05) | -0.09 | (0.08) |
| Colombia | -0.16 ** | (0.05) | -0.27 *** | (0.07) | -0.06 | (0.06) | -0.19 * | (0.08) |
| Croatia | -0.24 *** | (0.05) | -0.33 *** | (0.07) | -0.13 * | (0.06) | -0.20 * | (0.09) |
| Czech Republic | -0.38 *** | (0.04) | -0.45 *** | (0.05) | -0.32 *** | (0.05) | -0.14 * | (0.07) |
| Estonia | -0.40 *** | (0.04) | -0.44 *** | (0.05) | -0.32 *** | (0.05) | -0.15 * | (0.07) |
| Finland | -0.31 *** | (0.03) | -0.38 *** | (0.05) | -0.22 *** | (0.04) | -0.19 ** | (0.07) |
| France | -0.21 *** | (0.05) | -0.10 | (0.07) | -0.28 *** | (0.06) | 0.15 | (0.10) |
| Greece | -0.33 *** | (0.05) | -0.40 *** | (0.06) | -0.24 *** | (0.07) | -0.20 * | (0.10) |
| Hong Kong | -0.27 *** | (0.04) | -0.39 *** | (0.04) | -0.18 ** | (0.06) | -0.23 ** | (0.07) |
| Hungary | -0.31 *** | (0.06) | -0.39 *** | (0.08) | -0.25 *** | (0.07) | -0.19 | (0.10) |
| Iceland | -0.59 *** | (0.06) | -0.61 *** | (0.07) | -0.52 *** | (0.07) | -0.18 * | (0.09) |
| Ireland | -0.43 *** | (0.04) | -0.54 *** | (0.05) | -0.33 *** | (0.06) | -0.28 *** | (0.07) |
| Latvia | -0.30 *** | (0.05) | -0.32 *** | (0.05) | -0.29 *** | (0.06) | -0.03 | (0.07) |
| Luxembourg | -0.38 *** | (0.04) | -0.42 *** | (0.06) | -0.31 *** | (0.05) | -0.21 ** | (0.08) |
| Mexico | -0.22 *** | (0.05) | -0.23 *** | (0.06) | -0.20 *** | (0.06) | -0.01 | (0.08) |
| Peru | -0.29 *** | (0.05) | -0.28 *** | (0.07) | -0.28 *** | (0.06) | -0.01 | (0.09) |
| Poland | -0.38 *** | (0.05) | -0.43 *** | (0.06) | -0.34 *** | (0.06) | -0.11 | (0.09) |
| Portugal | -0.24 *** | (0.05) | -0.27 *** | (0.06) | -0.18 ** | (0.06) | -0.10 | (0.08) |
| Qatar | -0.44 *** | (0.04) | -0.46 *** | (0.05) | -0.41 *** | (0.05) | -0.06 | (0.07) |
| Russia | -0.28 *** | (0.04) | -0.35 *** | (0.06) | -0.20 *** | (0.06) | -0.17 | (0.09) |
| Slovakia | -0.31 *** | (0.04) | -0.28 *** | (0.06) | -0.33 *** | (0.05) | 0.03 | (0.08) |
| Slovenia | -0.41 *** | (0.05) | -0.44 *** | (0.07) | -0.38 *** | (0.06) | -0.12 | (0.09) |
| South Korea | -0.58 *** | (0.04) | -0.64 *** | (0.07) | -0.55 *** | (0.05) | -0.09 | (0.09) |
| Spain | -0.26 *** | (0.03) | -0.31 *** | (0.05) | -0.19 *** | (0.05) | -0.07 | (0.07) |
| Switzerland | -0.43 *** | (0.05) | -0.47 *** | (0.07) | -0.38 *** | (0.06) | -0.11 | (0.09) |
| Taiwan | -0.32 *** | (0.03) | -0.34 *** | (0.05) | -0.30 *** | (0.04) | -0.01 | (0.05) |
| Thailand | -0.17 *** | (0.05) | -0.14 * | (0.06) | -0.20 ** | (0.07) | 0.07 | (0.09) |
| Turkey | -0.40 *** | (0.06) | -0.36 *** | (0.08) | -0.42 *** | (0.09) | 0.04 | (0.12) |
| UAE | -0.31 *** | (0.04) | -0.35 *** | (0.05) | -0.27 *** | (0.06) | -0.09 | (0.08) |
| United States | -0.40 *** | (0.05) | -0.44 *** | (0.07) | -0.39 *** | (0.06) | -0.07 | (0.09) |

Notes: direct effects are reported considering the entire population, considering boys only, and considering girls only. An interaction indicates the gender gap in the effect of this factor in students' life satisfaction. When the direct effects are negative, negative interactions indicate that the effect is greater among girls. When the direct effects are positive, negative interactions indicate that the effect is greater among boys.

Table A2.5. Gender differences in the effect of sense of belonging at school in students' life satisfaction, by country

| | Direct effects | | | | | | Interaction effects | |
|---|---|---|---|---|---|---|---|---|
| | All students | | Girls | | Boys | | | |
| | b | SE | b | SE | b | SE | b | SE |
| Austria | 0.07 | (0.05) | 0.04 | (0.07) | 0.09 | (0.06) | -0.04 | (0.09) |
| Bulgaria | 0.06 | (0.08) | 0.17 | (0.11) | 0.01 | (0.09) | 0.15 | (0.13) |
| Chile | 0.11 * | (0.05) | 0.09 | (0.07) | 0.14 | (0.07) | -0.06 | (0.10) |
| China (B-S-J-G) | 0.14 ** | (0.04) | 0.12 | (0.07) | 0.14 * | (0.06) | 0.01 | (0.09) |
| Colombia | 0.07 | (0.05) | 0.07 | (0.07) | 0.07 | (0.05) | -0.01 | (0.08) |
| Croatia | 0.12 * | (0.05) | 0.14 | (0.08) | 0.09 | (0.06) | 0.10 | (0.10) |
| Czech Republic | 0.10 * | (0.04) | 0.09 | (0.05) | 0.11 | (0.06) | 0.04 | (0.08) |
| Estonia | 0.14 ** | (0.04) | 0.16 ** | (0.06) | 0.15 ** | (0.06) | 0.05 | (0.08) |
| Finland | 0.06 | (0.03) | 0.09 | (0.06) | 0.02 | (0.04) | 0.11 | (0.07) |
| France | 0.21 *** | (0.05) | 0.22 ** | (0.07) | 0.20 *** | (0.06) | 0.05 | (0.08) |
| Greece | 0.03 | (0.05) | -0.01 | (0.07) | 0.09 | (0.07) | -0.01 | (0.09) |
| Hong Kong | 0.06 | (0.05) | 0.09 * | (0.04) | 0.04 | (0.06) | 0.07 | (0.08) |
| Hungary | 0.17 ** | (0.06) | 0.16 | (0.08) | 0.20 ** | (0.08) | 0.02 | (0.12) |
| Iceland | 0.14 ** | (0.04) | 0.13 | (0.07) | 0.10 | (0.07) | 0.05 | (0.10) |
| Ireland | 0.17 *** | (0.04) | 0.17 ** | (0.06) | 0.16 ** | (0.06) | 0.11 | (0.08) |
| Latvia | 0.11 ** | (0.04) | 0.07 | (0.05) | 0.14 * | (0.07) | -0.05 | (0.08) |
| Luxembourg | 0.11 * | (0.05) | 0.14 * | (0.07) | 0.06 | (0.06) | 0.12 | (0.10) |
| Mexico | 0.03 | (0.05) | 0.05 | (0.06) | 0.02 | (0.06) | 0.05 | (0.08) |
| Peru | 0.05 | (0.06) | -0.01 | (0.08) | 0.10 | (0.08) | -0.14 | (0.10) |
| Poland | 0.08 | (0.05) | 0.03 | (0.06) | 0.10 | (0.08) | -0.06 | (0.10) |
| Portugal | 0.06 | (0.04) | 0.03 | (0.07) | 0.10 | (0.06) | -0.07 | (0.09) |
| Qatar | 0.11 ** | (0.04) | 0.15 ** | (0.06) | 0.08 | (0.06) | 0.08 | (0.08) |
| Russia | -0.07 | (0.05) | -0.06 | (0.06) | -0.07 | (0.07) | 0.05 | (0.09) |
| Slovakia | 0.07 | (0.04) | 0.13 | (0.07) | 0.04 | (0.06) | 0.12 | (0.09) |
| Slovenia | 0.14 *** | (0.04) | 0.20 *** | (0.06) | 0.10 | (0.06) | 0.15 | (0.08) |
| South Korea | 0.13 * | (0.06) | 0.14 * | (0.06) | 0.11 | (0.09) | 0.09 | (0.11) |
| Spain | 0.01 | (0.04) | 0.05 | (0.06) | -0.03 | (0.05) | 0.08 | (0.08) |
| Switzerland | 0.00 | (0.04) | 0.12 | (0.06) | -0.10 | (0.05) | 0.24 ** | (0.08) |
| Taiwan | 0.04 | (0.04) | 0.08 | (0.05) | 0.01 | (0.05) | 0.07 | (0.06) |
| Thailand | 0.08 | (0.04) | 0.12 | (0.07) | 0.03 | (0.06) | 0.06 | (0.10) |
| Turkey | -0.03 | (0.08) | -0.03 | (0.09) | -0.04 | (0.11) | 0.02 | (0.14) |
| UAE | 0.07 * | (0.04) | 0.09 | (0.05) | 0.04 | (0.05) | 0.04 | (0.07) |
| United States | 0.17 ** | (0.06) | 0.16 * | (0.07) | 0.18 * | (0.08) | 0.00 | (0.09) |

Notes: direct effects are reported considering the entire population, considering boys only, and considering girls only. An interaction indicates the gender gap in the effect of this factor in students' life satisfaction. When the direct effects are negative, negative interactions indicate that the effect is greater among girls. When the direct effects are positive, negative interactions indicate that the effect is greater among boys.

Table A2.6. Gender differences in the effect of the frequency of being bullied in students' life satisfaction, by country

| | Direct effects | | | | | | | | | Interaction effects | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | All students | | | Girls | | | Boys | | | | | |
| | b | | SE | b | | SE | b | | SE | b | | SE |
| Austria | -0.15 | *** | (0.04) | -0.17 | * | (0.07) | -0.13 | * | (0.05) | -0.14 | | (0.09) |
| Bulgaria | -0.22 | ** | (0.08) | -0.22 | * | (0.11) | -0.21 | * | (0.10) | -0.04 | | (0.12) |
| Chile | -0.44 | *** | (0.04) | -0.41 | *** | (0.07) | -0.47 | *** | (0.05) | 0.03 | | (0.08) |
| China (B-S-J-G) | -0.24 | *** | (0.04) | -0.37 | *** | (0.08) | -0.19 | *** | (0.05) | -0.22 | ** | (0.08) |
| Colombia | -0.31 | *** | (0.06) | -0.30 | * | (0.12) | -0.31 | *** | (0.08) | -0.06 | | (0.16) |
| Croatia | -0.22 | *** | (0.06) | -0.26 | *** | (0.08) | -0.20 | * | (0.09) | -0.15 | | (0.11) |
| Czech Republic | -0.22 | *** | (0.05) | -0.20 | ** | (0.07) | -0.22 | *** | (0.06) | -0.06 | | (0.08) |
| Estonia | -0.19 | *** | (0.04) | -0.26 | *** | (0.08) | -0.15 | ** | (0.05) | -0.13 | | (0.08) |
| Finland | -0.27 | *** | (0.04) | -0.30 | *** | (0.06) | -0.26 | *** | (0.05) | -0.11 | | (0.07) |
| France | -0.34 | *** | (0.05) | -0.41 | *** | (0.08) | -0.28 | *** | (0.06) | -0.11 | | (0.10) |
| Greece | -0.24 | *** | (0.06) | -0.49 | *** | (0.08) | -0.14 | | (0.08) | -0.41 | *** | (0.11) |
| Hong Kong | -0.26 | *** | (0.03) | -0.19 | ** | (0.06) | -0.29 | *** | (0.04) | 0.01 | | (0.08) |
| Hungary | -0.29 | *** | (0.06) | -0.33 | *** | (0.08) | -0.22 | * | (0.09) | -0.15 | | (0.12) |
| Iceland | -0.30 | *** | (0.06) | -0.40 | *** | (0.09) | -0.23 | *** | (0.06) | -0.24 | * | (0.10) |
| Ireland | -0.33 | *** | (0.04) | -0.49 | *** | (0.06) | -0.24 | *** | (0.05) | -0.32 | *** | (0.07) |
| Latvia | -0.25 | *** | (0.06) | -0.33 | *** | (0.09) | -0.21 | ** | (0.07) | -0.10 | | (0.10) |
| Luxembourg | -0.28 | *** | (0.07) | -0.30 | ** | (0.10) | -0.26 | ** | (0.08) | -0.22 | | (0.12) |
| Mexico | -0.27 | *** | (0.05) | -0.40 | *** | (0.10) | -0.20 | *** | (0.06) | -0.19 | | (0.12) |
| Peru | -0.16 | * | (0.07) | -0.13 | | (0.11) | -0.17 | * | (0.08) | 0.08 | | (0.12) |
| Poland | -0.25 | *** | (0.05) | -0.28 | ** | (0.09) | -0.23 | *** | (0.06) | -0.11 | | (0.11) |
| Portugal | -0.26 | *** | (0.06) | -0.34 | *** | (0.07) | -0.18 | * | (0.08) | -0.05 | | (0.10) |
| Qatar | -0.34 | *** | (0.04) | -0.39 | *** | (0.07) | -0.33 | *** | (0.05) | -0.11 | | (0.07) |
| Russia | -0.34 | *** | (0.05) | -0.39 | *** | (0.08) | -0.30 | *** | (0.05) | -0.22 | ** | (0.08) |
| Slovakia | -0.28 | *** | (0.05) | -0.37 | *** | (0.09) | -0.22 | *** | (0.06) | -0.20 | * | (0.09) |
| Slovenia | -0.29 | *** | (0.05) | -0.30 | *** | (0.07) | -0.27 | *** | (0.06) | -0.17 | * | (0.08) |
| South Korea | -0.08 | | (0.06) | -0.28 | *** | (0.08) | -0.01 | | (0.07) | -0.26 | * | (0.12) |
| Spain | -0.21 | *** | (0.04) | -0.16 | ** | (0.06) | -0.25 | *** | (0.06) | 0.02 | | (0.08) |
| Switzerland | -0.27 | *** | (0.05) | -0.27 | *** | (0.08) | -0.28 | *** | (0.07) | -0.07 | | (0.10) |
| Taiwan | -0.20 | *** | (0.05) | -0.16 | * | (0.08) | -0.21 | *** | (0.06) | 0.06 | | (0.08) |
| Thailand | -0.20 | *** | (0.06) | -0.15 | | (0.08) | -0.24 | ** | (0.08) | 0.09 | | (0.10) |
| Turkey | -0.24 | * | (0.10) | -0.15 | | (0.12) | -0.28 | * | (0.12) | -0.02 | | (0.16) |
| UAE | -0.19 | *** | (0.05) | -0.31 | *** | (0.08) | -0.14 | * | (0.07) | -0.14 | | (0.10) |
| United States | -0.24 | *** | (0.05) | -0.24 | *** | (0.07) | -0.23 | *** | (0.07) | -0.04 | | (0.07) |

Notes: direct effects are reported considering the entire population, considering boys only, and considering girls only. An interaction indicates the gender gap in the effect of this factor in students' life satisfaction. When the direct effects are negative, negative interactions indicate that the effect is greater among girls. When the direct effects are positive, negative interactions indicate that the effect is greater among boys.

Table A2.7. Gender differences in the effect of feeling unfairly treated by teachers in students' life satisfaction, by country

| | Direct effects | | | | | | Interaction effects | |
|---|---|---|---|---|---|---|---|---|
| | All students | | Girls | | Boys | | | |
| | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.18 *** | (0.04) | -0.26 *** | (0.07) | -0.12 * | (0.05) | -0.22 ** | (0.07) |
| Bulgaria | -0.12 | (0.06) | -0.05 | (0.09) | -0.15 * | (0.07) | 0.07 | (0.11) |
| Chile | -0.11 | (0.06) | -0.16 | (0.09) | -0.05 | (0.09) | 0.00 | (0.12) |
| China (B-S-J-G) | -0.05 | (0.05) | -0.02 | (0.08) | -0.08 | (0.07) | -0.01 | (0.10) |
| Colombia | -0.11 * | (0.05) | -0.16 * | (0.07) | -0.08 | (0.07) | -0.11 | (0.11) |
| Croatia | -0.17 *** | (0.05) | -0.19 * | (0.08) | -0.18 ** | (0.06) | -0.12 | (0.09) |
| Czech Republic | -0.19 *** | (0.05) | -0.20 ** | (0.06) | -0.20 ** | (0.07) | -0.11 | (0.08) |
| Estonia | -0.23 *** | (0.04) | -0.18 *** | (0.05) | -0.26 *** | (0.05) | -0.04 | (0.07) |
| Finland | -0.08 * | (0.03) | -0.05 | (0.06) | -0.10 ** | (0.04) | -0.07 | (0.07) |
| France | -0.08 | (0.05) | -0.06 | (0.08) | -0.09 | (0.07) | -0.05 | (0.09) |
| Greece | -0.24 *** | (0.05) | -0.25 ** | (0.08) | -0.24 *** | (0.06) | -0.20 * | (0.09) |
| Hong Kong | -0.10 ** | (0.04) | -0.22 *** | (0.06) | -0.03 | (0.04) | -0.20 ** | (0.06) |
| Hungary | -0.11 | (0.06) | -0.10 | (0.08) | -0.12 | (0.08) | -0.02 | (0.10) |
| Iceland | -0.06 | (0.05) | -0.07 | (0.07) | -0.03 | (0.06) | -0.18 * | (0.09) |
| Ireland | -0.25 *** | (0.04) | -0.32 *** | (0.06) | -0.19 *** | (0.04) | -0.22 ** | (0.08) |
| Latvia | -0.12 ** | (0.04) | -0.07 | (0.06) | -0.15 ** | (0.06) | 0.01 | (0.07) |
| Luxembourg | -0.16 *** | (0.05) | -0.37 *** | (0.07) | -0.06 | (0.05) | -0.41 *** | (0.07) |
| Mexico | -0.14 ** | (0.05) | -0.08 | (0.07) | -0.19 ** | (0.06) | 0.00 | (0.09) |
| Peru | -0.21 *** | (0.06) | -0.15 | (0.09) | -0.26 *** | (0.07) | 0.10 | (0.09) |
| Poland | -0.23 *** | (0.05) | -0.27 *** | (0.07) | -0.21 *** | (0.06) | -0.14 | (0.08) |
| Portugal | -0.23 *** | (0.05) | -0.17 * | (0.08) | -0.29 *** | (0.07) | 0.10 | (0.10) |
| Qatar | -0.20 *** | (0.04) | -0.26 *** | (0.05) | -0.15 ** | (0.05) | -0.11 | (0.06) |
| Russia | -0.22 *** | (0.05) | -0.31 *** | (0.07) | -0.15 * | (0.07) | -0.29 ** | (0.10) |
| Slovakia | -0.16 *** | (0.04) | -0.19 ** | (0.06) | -0.14 * | (0.06) | -0.14 | (0.07) |
| Slovenia | -0.22 *** | (0.04) | -0.37 *** | (0.08) | -0.15 ** | (0.05) | -0.30 *** | (0.09) |
| South Korea | -0.04 | (0.06) | -0.11 | (0.09) | -0.02 | (0.07) | -0.10 | (0.11) |
| Spain | -0.16 *** | (0.04) | -0.16 * | (0.07) | -0.17 *** | (0.05) | -0.06 | (0.08) |
| Switzerland | -0.16 ** | (0.05) | -0.19 * | (0.08) | -0.14 * | (0.07) | -0.12 | (0.10) |
| Taiwan | -0.12 * | (0.05) | -0.07 | (0.08) | -0.16 ** | (0.06) | 0.08 | (0.10) |
| Thailand | 0.01 | (0.06) | 0.00 | (0.08) | 0.02 | (0.08) | 0.02 | (0.08) |
| Turkey | -0.28 *** | (0.06) | -0.46 *** | (0.11) | -0.15 * | (0.07) | -0.28 * | (0.12) |
| UAE | -0.20 *** | (0.04) | -0.19 *** | (0.05) | -0.21 *** | (0.06) | -0.02 | (0.07) |
| United States | -0.12 * | (0.06) | -0.18 * | (0.07) | -0.10 | (0.07) | -0.09 | (0.09) |

Notes: direct effects are reported considering the entire population, considering boys only, and considering girls only. An interaction indicates the gender gap in the effect of this factor in students' life satisfaction. When the direct effects are negative, negative interactions indicate that the effect is greater among girls. When the direct effects are positive, negative interactions indicate that the effect is greater among boys.

Table A2.8. Gender differences in the effect of feeling emotionally supported by parents in students' life satisfaction, by country

| | Direct effects | | | | | | Interaction effects | |
|---|---|---|---|---|---|---|---|---|
| | All students | | Girls | | Boys | | | |
| | b | SE | b | SE | b | SE | b | SE |
| Austria | 0.51 *** | (0.05) | 0.53 *** | (0.06) | 0.44 *** | (0.06) | 0.18 * | (0.08) |
| Bulgaria | 0.49 *** | (0.09) | 0.47 *** | (0.13) | 0.52 *** | (0.09) | 0.02 | (0.13) |
| Chile | 0.30 *** | (0.05) | 0.37 *** | (0.07) | 0.23 ** | (0.07) | 0.13 | (0.09) |
| China (B-S-J-G) | 0.54 *** | (0.05) | 0.57 *** | (0.06) | 0.52 *** | (0.07) | 0.10 | (0.08) |
| Colombia | 0.59 *** | (0.07) | 0.60 *** | (0.08) | 0.55 *** | (0.09) | 0.13 | (0.11) |
| Croatia | 0.66 *** | (0.04) | 0.79 *** | (0.06) | 0.47 *** | (0.05) | 0.31 *** | (0.08) |
| Czech Republic | 0.56 *** | (0.04) | 0.59 *** | (0.06) | 0.53 *** | (0.07) | 0.11 | (0.09) |
| Estonia | 0.68 *** | (0.05) | 0.76 *** | (0.06) | 0.58 *** | (0.06) | 0.18 * | (0.07) |
| Finland | 0.49 *** | (0.03) | 0.55 *** | (0.05) | 0.39 *** | (0.05) | 0.22 ** | (0.07) |
| France | 0.54 *** | (0.06) | 0.61 *** | (0.09) | 0.47 *** | (0.06) | 0.15 | (0.10) |
| Greece | 0.62 *** | (0.05) | 0.66 *** | (0.07) | 0.56 *** | (0.08) | 0.18 | (0.11) |
| Hong Kong | 0.52 *** | (0.04) | 0.63 *** | (0.05) | 0.43 *** | (0.06) | 0.18 * | (0.08) |
| Hungary | 0.48 *** | (0.06) | 0.60 *** | (0.07) | 0.32 *** | (0.08) | 0.31 ** | (0.11) |
| Iceland | 0.33 *** | (0.06) | 0.33 *** | (0.07) | 0.29 *** | (0.08) | 0.15 | (0.10) |
| Ireland | 0.38 *** | (0.04) | 0.37 *** | (0.05) | 0.39 *** | (0.05) | 0.03 | (0.07) |
| Latvia | 0.39 *** | (0.05) | 0.39 *** | (0.06) | 0.37 *** | (0.07) | 0.01 | (0.09) |
| Luxembourg | 0.66 *** | (0.05) | 0.67 *** | (0.06) | 0.63 *** | (0.07) | 0.16 * | (0.07) |
| Mexico | 0.23 *** | (0.04) | 0.32 *** | (0.06) | 0.14 * | (0.06) | 0.20 * | (0.08) |
| Peru | 0.59 *** | (0.06) | 0.60 *** | (0.08) | 0.60 *** | (0.07) | -0.01 | (0.10) |
| Poland | 0.68 *** | (0.05) | 0.73 *** | (0.06) | 0.62 *** | (0.08) | 0.15 | (0.08) |
| Portugal | 0.55 *** | (0.05) | 0.54 *** | (0.07) | 0.55 *** | (0.06) | -0.04 | (0.09) |
| Qatar | 0.66 *** | (0.04) | 0.72 *** | (0.05) | 0.57 *** | (0.06) | 0.09 | (0.07) |
| Russia | 0.59 *** | (0.04) | 0.63 *** | (0.05) | 0.55 *** | (0.07) | 0.15 | (0.08) |
| Slovakia | 0.55 *** | (0.04) | 0.62 *** | (0.07) | 0.49 *** | (0.06) | 0.18 * | (0.09) |
| Slovenia | 0.59 *** | (0.05) | 0.64 *** | (0.07) | 0.54 *** | (0.06) | 0.15 | (0.08) |
| South Korea | 0.65 *** | (0.06) | 0.65 *** | (0.06) | 0.62 *** | (0.07) | 0.02 | (0.08) |
| Spain | 0.48 *** | (0.04) | 0.54 *** | (0.05) | 0.41 *** | (0.06) | 0.20 * | (0.08) |
| Switzerland | 0.45 *** | (0.06) | 0.59 *** | (0.10) | 0.31 *** | (0.08) | 0.30 * | (0.13) |
| Taiwan | 0.52 *** | (0.04) | 0.49 *** | (0.04) | 0.55 *** | (0.06) | -0.05 | (0.06) |
| Thailand | 0.39 *** | (0.04) | 0.41 *** | (0.06) | 0.37 *** | (0.06) | 0.04 | (0.09) |
| Turkey | 0.77 *** | (0.06) | 0.78 *** | (0.09) | 0.79 *** | (0.08) | 0.06 | (0.12) |
| UAE | 0.58 *** | (0.05) | 0.63 *** | (0.06) | 0.52 *** | (0.07) | 0.05 | (0.09) |
| United States | 0.54 *** | (0.07) | 0.48 *** | (0.09) | 0.59 *** | (0.09) | -0.04 | (0.10) |

Notes: direct effects are reported considering the entire population, considering boys only, and considering girls only. An interaction indicates the gender gap in the effect of this factor in students' life satisfaction. When the direct effects are negative, negative interactions indicate that the effect is greater among girls. When the direct effects are positive, negative interactions indicate that the effect is greater among boys.

Table A2.9. Gender differences in the effect of academic competence in students' life satisfaction, by country

| | Direct effects | | | | | | Interaction effects | |
|---|---|---|---|---|---|---|---|---|
| | All students | | Girls | | Boys | | | |
| | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.09 | (0.06) | -0.01 | (0.08) | -0.19 ** | (0.07) | 0.18 * | (0.08) |
| Bulgaria | -0.11 | (0.07) | -0.03 | (0.11) | -0.15 | (0.10) | 0.00 | (0.13) |
| Chile | -0.16 * | (0.06) | -0.16 | (0.09) | -0.16 | (0.08) | 0.02 | (0.10) |
| China (B-S-J-G) | -0.22 *** | (0.05) | -0.16 * | (0.06) | -0.29 *** | (0.07) | 0.13 | (0.09) |
| Colombia | -0.23 *** | (0.06) | -0.24 ** | (0.08) | -0.23 ** | (0.08) | -0.02 | (0.07) |
| Croatia | -0.17 *** | (0.04) | -0.18 * | (0.07) | -0.16 ** | (0.05) | 0.04 | (0.08) |
| Czech Republic | -0.17 *** | (0.05) | 0.05 | (0.06) | -0.33 *** | (0.07) | 0.36 *** | (0.08) |
| Estonia | -0.13 ** | (0.04) | -0.06 | (0.06) | -0.17 ** | (0.05) | 0.13 * | (0.06) |
| Finland | -0.05 | (0.04) | -0.03 | (0.06) | -0.07 | (0.05) | 0.09 | (0.07) |
| France | 0.12 * | (0.05) | 0.12 | (0.08) | 0.13 | (0.08) | -0.10 | (0.10) |
| Greece | -0.17 ** | (0.06) | -0.12 | (0.09) | -0.24 ** | (0.08) | 0.22 * | (0.09) |
| Hong Kong | -0.06 | (0.04) | 0.03 | (0.06) | -0.12 ** | (0.05) | 0.21 *** | (0.06) |
| Hungary | -0.09 | (0.06) | 0.04 | (0.10) | -0.20 * | (0.08) | 0.22 * | (0.11) |
| Iceland | -0.08 | (0.05) | -0.03 | (0.07) | -0.13 | (0.08) | 0.19 * | (0.08) |
| Ireland | -0.15 ** | (0.05) | -0.20 *** | (0.05) | -0.12 | (0.06) | 0.01 | (0.07) |
| Latvia | -0.08 | (0.05) | -0.05 | (0.06) | -0.10 | (0.07) | 0.04 | (0.08) |
| Luxembourg | -0.09 | (0.05) | -0.04 | (0.07) | -0.11 | (0.07) | 0.22 * | (0.09) |
| Mexico | -0.08 | (0.05) | -0.09 | (0.06) | -0.09 | (0.06) | -0.06 | (0.07) |
| Peru | -0.13 * | (0.06) | -0.13 | (0.10) | -0.12 | (0.07) | -0.12 | (0.10) |
| Poland | -0.10 * | (0.05) | -0.16 * | (0.07) | -0.05 | (0.07) | -0.02 | (0.08) |
| Portugal | -0.13 ** | (0.04) | -0.16 * | (0.07) | -0.09 | (0.06) | -0.07 | (0.08) |
| Qatar | -0.23 *** | (0.04) | -0.27 *** | (0.05) | -0.15 * | (0.06) | -0.06 | (0.06) |
| Russia | -0.21 *** | (0.04) | -0.17 ** | (0.06) | -0.24 *** | (0.05) | 0.16 * | (0.07) |
| Slovakia | -0.16 ** | (0.05) | -0.14 | (0.07) | -0.17 ** | (0.07) | 0.13 | (0.09) |
| Slovenia | -0.15 ** | (0.05) | -0.09 | (0.07) | -0.20 ** | (0.06) | 0.28 ** | (0.09) |
| South Korea | -0.02 | (0.06) | 0.02 | (0.10) | -0.04 | (0.08) | 0.11 | (0.14) |
| Spain | -0.09 * | (0.04) | -0.06 | (0.06) | -0.11 * | (0.06) | 0.12 | (0.07) |
| Switzerland | -0.06 | (0.05) | -0.04 | (0.10) | -0.06 | (0.07) | 0.06 | (0.10) |
| Taiwan | -0.14 ** | (0.04) | -0.06 | (0.06) | -0.20 ** | (0.06) | 0.11 | (0.07) |
| Thailand | -0.21 ** | (0.08) | -0.18 | (0.10) | -0.25 ** | (0.09) | 0.06 | (0.11) |
| Turkey | -0.30 *** | (0.07) | -0.38 *** | (0.10) | -0.21 ** | (0.08) | -0.02 | (0.11) |
| UAE | -0.24 *** | (0.05) | -0.41 *** | (0.06) | -0.11 | (0.07) | -0.25 ** | (0.09) |
| United States | -0.22 *** | (0.05) | -0.26 *** | (0.06) | -0.21 ** | (0.07) | -0.03 | (0.08) |

Notes: direct effects are reported considering the entire population, considering boys only, and considering girls only. An interaction indicates the gender gap in the effect of this factor in students' life satisfaction. When the direct effects are negative, negative interactions indicate that the effect is greater among girls. When the direct effects are positive, negative interactions indicate that the effect is greater among boys.

Table A2.10. Gender differences in the effect of the time spent using ICT outside school for schoolwork in students' life satisfaction, by country

| | Direct effects | | | | | | Interaction effects | |
|---|---|---|---|---|---|---|---|---|
| | All students | | Girls | | Boys | | | |
| | b | SE | b | SE | b | SE | b | SE |
| Austria | 0.04 | (0.07) | -0.02 | (0.11) | 0.12 | (0.07) | -0.14 | (0.10) |
| Bulgaria | 0.13 * | (0.07) | 0.23 ** | (0.09) | 0.07 | (0.10) | 0.22 * | (0.11) |
| Chile | 0.19 *** | (0.05) | 0.17 * | (0.07) | 0.20 *** | (0.05) | 0.00 | (0.09) |
| China (B-S-J-G) | 0.09 * | (0.04) | 0.05 | (0.07) | 0.11 * | (0.05) | -0.07 | (0.08) |
| Colombia | 0.11 | (0.07) | 0.10 | (0.10) | 0.14 | (0.11) | -0.01 | (0.09) |
| Croatia | 0.12 *** | (0.04) | 0.16 ** | (0.06) | 0.09 * | (0.04) | 0.07 | (0.07) |
| Czech Republic | 0.01 | (0.04) | -0.11 | (0.06) | 0.06 | (0.06) | -0.19 * | (0.08) |
| Estonia | 0.09 * | (0.04) | 0.02 | (0.06) | 0.13 ** | (0.04) | -0.09 | (0.07) |
| Finland | -0.06 | (0.03) | -0.03 | (0.06) | -0.06 | (0.04) | 0.04 | (0.07) |
| France | -0.07 | (0.06) | 0.05 | (0.11) | -0.14 * | (0.07) | 0.16 | (0.12) |
| Greece | 0.06 | (0.06) | -0.05 | (0.09) | 0.13 | (0.07) | -0.18 | (0.11) |
| Hong Kong | 0.07 | (0.04) | -0.04 | (0.05) | 0.11 * | (0.05) | -0.14 * | (0.06) |
| Hungary | 0.14 * | (0.07) | 0.10 | (0.10) | 0.15 | (0.08) | -0.02 | (0.10) |
| Iceland | 0.21 *** | (0.05) | 0.27 *** | (0.07) | 0.15 * | (0.07) | 0.08 | (0.09) |
| Ireland | 0.04 | (0.04) | 0.10 | (0.06) | -0.02 | (0.05) | 0.09 | (0.07) |
| Latvia | 0.07 | (0.06) | 0.25 ** | (0.08) | -0.04 | (0.08) | 0.16 | (0.08) |
| Luxembourg | 0.06 | (0.04) | 0.08 | (0.07) | 0.03 | (0.04) | -0.02 | (0.08) |
| Mexico | 0.11 * | (0.04) | 0.06 | (0.06) | 0.15 ** | (0.06) | -0.07 | (0.08) |
| Peru | 0.17 ** | (0.06) | 0.13 | (0.09) | 0.21 ** | (0.08) | -0.06 | (0.10) |
| Poland | 0.07 | (0.05) | 0.18 * | (0.08) | 0.01 | (0.06) | 0.15 | (0.09) |
| Portugal | 0.13 * | (0.06) | 0.16 | (0.10) | 0.10 * | (0.05) | 0.07 | (0.09) |
| Qatar | | | | | | | | |
| Russia | 0.03 | (0.04) | 0.00 | (0.06) | 0.06 | (0.06) | -0.11 | (0.08) |
| Slovakia | 0.08 | (0.04) | 0.10 | (0.07) | 0.08 | (0.05) | -0.02 | (0.08) |
| Slovenia | 0.01 | (0.04) | 0.00 | (0.08) | 0.02 | (0.05) | -0.10 | (0.09) |
| South Korea | 0.14 * | (0.05) | 0.10 | (0.07) | 0.20 ** | (0.06) | -0.07 | (0.09) |
| Spain | 0.15 *** | (0.03) | 0.18 *** | (0.05) | 0.13 ** | (0.04) | 0.06 | (0.06) |
| Switzerland | 0.03 | (0.04) | 0.01 | (0.08) | 0.05 | (0.05) | -0.04 | (0.09) |
| Taiwan | 0.05 | (0.04) | 0.06 | (0.06) | 0.05 | (0.05) | -0.02 | (0.07) |
| Thailand | 0.06 | (0.05) | 0.10 | (0.06) | 0.02 | (0.08) | 0.11 | (0.09) |
| Turkey | | | | | | | | |
| UAE | | | | | | | | |
| United States | | | | | | | | |

Notes: direct effects are reported considering the entire population, considering boys only, and considering girls only. An interaction indicates the gender gap in the effect of this specific factor in students' life satisfaction. When the direct effects are negative, negative interactions indicate that the effect is greater among girls. When the direct effects are positive, negative interactions indicate that the effect is greater among boys. Data on ICT use at home for schoolwork was not collected in Qatar, Turkey, the UAE and the United States (in blank)

Table A2.11. Gender differences in the effect of valuing cooperation and teamwork in students' life satisfaction, by country

| | Direct effects | | | | | | Interaction effects | |
|---|---|---|---|---|---|---|---|---|
| | All students | | Girls | | Boys | | | |
| | b | SE | b | SE | b | SE | b | SE |
| Austria | 0.15 *** | (0.04) | 0.19 ** | (0.06) | 0.09 | (0.05) | 0.11 | (0.08) |
| Bulgaria | 0.22 *** | (0.06) | 0.35 *** | (0.09) | 0.11 | (0.07) | 0.25 * | (0.10) |
| Chile | 0.18 *** | (0.05) | 0.18 ** | (0.06) | 0.18 * | (0.07) | -0.02 | (0.09) |
| China (B-S-J-G) | 0.26 *** | (0.05) | 0.29 *** | (0.06) | 0.25 *** | (0.06) | 0.05 | (0.08) |
| Colombia | 0.28 *** | (0.05) | 0.33 *** | (0.08) | 0.21 ** | (0.07) | 0.11 | (0.12) |
| Croatia | 0.12 ** | (0.04) | 0.12 | (0.06) | 0.14 * | (0.06) | 0.02 | (0.09) |
| Czech Republic | 0.19 *** | (0.04) | 0.22 *** | (0.06) | 0.17 ** | (0.06) | 0.03 | (0.08) |
| Estonia | 0.20 *** | (0.04) | 0.13 ** | (0.05) | 0.26 *** | (0.06) | -0.09 | (0.08) |
| Finland | 0.16 *** | (0.03) | 0.18 *** | (0.04) | 0.14 *** | (0.04) | 0.08 | (0.06) |
| France | 0.16 ** | (0.05) | 0.06 | (0.07) | 0.24 *** | (0.07) | -0.14 | (0.10) |
| Greece | 0.06 | (0.05) | 0.01 | (0.06) | 0.13 | (0.08) | -0.07 | (0.10) |
| Hong Kong | 0.30 *** | (0.04) | 0.20 *** | (0.04) | 0.37 *** | (0.05) | -0.14 * | (0.06) |
| Hungary | 0.15 ** | (0.05) | 0.16 * | (0.07) | 0.16 * | (0.07) | 0.05 | (0.10) |
| Iceland | 0.21 *** | (0.05) | 0.18 * | (0.07) | 0.23 *** | (0.06) | -0.04 | (0.10) |
| Ireland | 0.23 *** | (0.04) | 0.19 *** | (0.05) | 0.26 *** | (0.05) | -0.03 | (0.07) |
| Latvia | 0.17 *** | (0.04) | 0.15 * | (0.06) | 0.19 *** | (0.06) | -0.02 | (0.08) |
| Luxembourg | 0.22 *** | (0.03) | 0.23 *** | (0.04) | 0.20 *** | (0.06) | 0.02 | (0.07) |
| Mexico | 0.21 *** | (0.04) | 0.24 *** | (0.06) | 0.19 ** | (0.06) | 0.12 | (0.08) |
| Peru | 0.14 ** | (0.05) | 0.14 | (0.07) | 0.15 * | (0.07) | -0.02 | (0.09) |
| Poland | 0.14 ** | (0.05) | 0.11 | (0.06) | 0.18 * | (0.07) | -0.05 | (0.09) |
| Portugal | 0.15 *** | (0.05) | 0.05 | (0.06) | 0.25 *** | (0.07) | -0.19 * | (0.09) |
| Qatar | 0.23 *** | (0.04) | 0.14 ** | (0.05) | 0.31 *** | (0.05) | -0.14 * | (0.07) |
| Russia | 0.19 *** | (0.04) | 0.14 * | (0.06) | 0.22 *** | (0.06) | -0.02 | (0.08) |
| Slovakia | 0.14 *** | (0.04) | 0.16 ** | (0.06) | 0.13 ** | (0.05) | 0.08 | (0.08) |
| Slovenia | 0.18 *** | (0.04) | 0.19 ** | (0.06) | 0.18 ** | (0.06) | 0.01 | (0.08) |
| South Korea | 0.27 *** | (0.05) | 0.17 ** | (0.06) | 0.35 *** | (0.07) | -0.20 * | (0.09) |
| Spain | 0.19 *** | (0.04) | 0.18 *** | (0.05) | 0.17 *** | (0.04) | 0.03 | (0.07) |
| Switzerland | 0.11 ** | (0.04) | 0.14 * | (0.06) | 0.09 | (0.07) | 0.07 | (0.09) |
| Taiwan | 0.25 *** | (0.04) | 0.25 *** | (0.06) | 0.26 *** | (0.04) | -0.04 | (0.07) |
| Thailand | 0.15 ** | (0.06) | 0.12 | (0.08) | 0.16 * | (0.07) | -0.03 | (0.10) |
| Turkey | 0.13 * | (0.06) | 0.20 ** | (0.07) | 0.03 | (0.10) | 0.16 | (0.13) |
| UAE | 0.21 *** | (0.04) | 0.11 * | (0.05) | 0.30 *** | (0.07) | -0.13 | (0.08) |
| United States | 0.21 *** | (0.05) | 0.15 * | (0.07) | 0.27 *** | (0.08) | -0.09 | (0.10) |

Notes: direct effects are reported considering the entire population, considering boys only, and considering girls only. An interaction indicates the gender gap in the effect of this factor in students' life satisfaction. When the direct effects are negative, negative interactions indicate that the effect is greater among girls. When the direct effects are positive, negative interactions indicate that the effect is greater among boys.

Table A2.12. Gender differences in the effect of truancy in students' life satisfaction, by country

| | Direct effects | | | | | | Interaction effects | |
|---|---|---|---|---|---|---|---|---|
| | All students | | Girls | | Boys | | | |
| | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.12 ** | (0.04) | -0.17 * | (0.07) | -0.08 | (0.05) | -0.16 | (0.09) |
| Bulgaria | -0.05 | (0.06) | -0.07 | (0.08) | -0.04 | (0.07) | 0.02 | (0.11) |
| Chile | -0.13 ** | (0.04) | -0.24 *** | (0.05) | -0.04 | (0.07) | -0.20 * | (0.08) |
| China (B-S-J-G) | -0.16 *** | (0.04) | -0.14 | (0.07) | -0.17 *** | (0.05) | -0.04 | (0.09) |
| Colombia | -0.16 *** | (0.05) | -0.14 * | (0.06) | -0.19 ** | (0.06) | 0.03 | (0.09) |
| Croatia | -0.03 | (0.05) | -0.09 | (0.07) | -0.01 | (0.06) | -0.13 | (0.09) |
| Czech Republic | -0.01 | (0.04) | -0.08 | (0.06) | 0.03 | (0.06) | -0.17 * | (0.07) |
| Estonia | -0.14 ** | (0.04) | -0.10 | (0.06) | -0.18 ** | (0.06) | 0.03 | (0.07) |
| Finland | -0.09 ** | (0.03) | -0.12 ** | (0.05) | -0.08 | (0.04) | -0.11 | (0.06) |
| France | 0.02 | (0.05) | 0.10 | (0.07) | -0.02 | (0.07) | 0.07 | (0.10) |
| Greece | -0.17 *** | (0.05) | -0.19 * | (0.08) | -0.17 * | (0.07) | -0.09 | (0.10) |
| Hong Kong | -0.11 ** | (0.04) | -0.05 | (0.05) | -0.14 ** | (0.05) | 0.03 | (0.07) |
| Hungary | 0.00 | (0.06) | -0.06 | (0.08) | 0.06 | (0.08) | -0.14 | (0.11) |
| Iceland | -0.18 *** | (0.05) | -0.29 *** | (0.07) | -0.07 | (0.06) | -0.02 | (0.06) |
| Ireland | -0.07 | (0.04) | -0.17 *** | (0.05) | 0.00 | (0.05) | -0.17 * | (0.07) |
| Latvia | -0.09 * | (0.04) | -0.14 ** | (0.05) | -0.06 | (0.06) | -0.09 | (0.08) |
| Luxembourg | -0.09 | (0.05) | -0.19 ** | (0.07) | -0.02 | (0.06) | -0.29 *** | (0.08) |
| Mexico | -0.07 | (0.04) | -0.16 ** | (0.06) | 0.02 | (0.05) | -0.22 ** | (0.08) |
| Peru | -0.24 *** | (0.05) | -0.32 *** | (0.08) | -0.15 * | (0.06) | -0.18 | (0.10) |
| Poland | 0.00 | (0.05) | -0.07 | (0.07) | 0.05 | (0.06) | -0.20 * | (0.09) |
| Portugal | -0.11 * | (0.05) | -0.15 * | (0.07) | -0.07 | (0.06) | -0.04 | (0.08) |
| Qatar | -0.06 | (0.03) | -0.07 | (0.05) | -0.03 | (0.06) | -0.05 | (0.07) |
| Russia | -0.11 ** | (0.04) | -0.22 *** | (0.06) | -0.02 | (0.05) | -0.27 *** | (0.07) |
| Slovakia | -0.07 * | (0.04) | -0.10 | (0.06) | -0.05 | (0.05) | -0.10 | (0.08) |
| Slovenia | -0.14 ** | (0.04) | -0.19 ** | (0.06) | -0.12 * | (0.05) | -0.20 * | (0.08) |
| South Korea | -0.12 ** | (0.05) | 0.00 | (0.05) | -0.30 *** | (0.08) | 0.29 ** | (0.10) |
| Spain | -0.07 | (0.04) | -0.05 | (0.06) | -0.07 | (0.05) | -0.02 | (0.07) |
| Switzerland | -0.09 | (0.05) | -0.23 ** | (0.07) | 0.01 | (0.07) | -0.27 * | (0.11) |
| Taiwan | -0.11 * | (0.05) | -0.16 * | (0.07) | -0.07 | (0.06) | -0.10 | (0.08) |
| Thailand | -0.14 ** | (0.05) | -0.13 * | (0.07) | -0.16 ** | (0.06) | 0.04 | (0.09) |
| Turkey | -0.18 ** | (0.06) | -0.21 * | (0.09) | -0.18 * | (0.08) | -0.09 | (0.11) |
| UAE | -0.06 | (0.04) | -0.05 | (0.06) | -0.08 | (0.06) | 0.02 | (0.08) |
| United States | -0.03 | (0.05) | 0.05 | (0.09) | -0.10 | (0.05) | 0.13 | (0.10) |

Notes: direct effects are reported considering the entire population, considering boys only, and considering girls only. An interaction indicates the gender gap in the effect of this factor in students' life satisfaction. When the direct effects are negative, negative interactions indicate that the effect is greater among girls. When the direct effects are positive, negative interactions indicate that the effect is greater among boys.

Table A2.13. Gender differences in the effect of having repeated a grade at least once in students' life satisfaction, by country

| | Direct effects | | | | | | Interaction effects | |
|---|---|---|---|---|---|---|---|---|
| | All students | | Girls | | Boys | | | |
| | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.12 | (0.13) | 0.08 | (0.20) | -0.31 * | (0.16) | -0.26 | (0.23) |
| Bulgaria | 0.35 | (0.67) | 0.42 | (0.86) | 0.23 | (0.72) | -0.13 | (0.94) |
| Chile | -0.20 | (0.15) | 0.01 | (0.20) | -0.37 * | (0.18) | -0.31 | (0.21) |
| China (B-S-J-G) | -0.26 * | (0.11) | -0.26 | (0.15) | -0.29 | (0.15) | 0.10 | (0.21) |
| Colombia | -0.18 | (0.10) | -0.08 | (0.14) | -0.27 * | (0.12) | -0.15 | (0.17) |
| Croatia | -0.03 | (0.45) | 0.01 | (0.66) | -0.05 | (0.69) | 0.06 | (1.07) |
| Czech Republic | -0.03 | (0.28) | -0.44 | (0.42) | 0.11 | (0.33) | 0.96 | (0.51) |
| Estonia | -0.29 | (0.24) | 0.06 | (0.34) | -0.48 | (0.33) | -0.34 | (0.48) |
| Finland | 0.18 | (0.26) | -0.29 | (0.51) | 0.36 | (0.23) | 0.79 | (0.48) |
| France | -0.11 | (0.11) | -0.15 | (0.16) | -0.09 | (0.14) | -0.04 | (0.21) |
| Greece | 0.36 | (0.24) | 0.06 | (0.29) | 0.44 | (0.31) | 0.65 | (0.42) |
| Hong Kong | -0.10 | (0.10) | -0.21 | (0.14) | -0.02 | (0.13) | 0.25 | (0.18) |
| Hungary | -0.07 | (0.22) | -0.40 | (0.32) | 0.14 | (0.37) | 0.48 | (0.57) |
| Iceland | 0.15 | (0.56) | | | | | | |
| Ireland | -0.10 | (0.12) | 0.02 | (0.16) | -0.19 | (0.18) | -0.06 | (0.26) |
| Latvia | 0.37 | (0.23) | -0.03 | (0.34) | 0.56 * | (0.27) | 0.58 | (0.42) |
| Luxembourg | 0.12 | (0.07) | -0.09 | (0.11) | 0.26 ** | (0.10) | 0.53 *** | (0.13) |
| Mexico | -0.18 | (0.10) | -0.12 | (0.17) | -0.19 | (0.14) | -0.08 | (0.23) |
| Peru | 0.16 | (0.13) | 0.43 | (0.25) | 0.00 | (0.14) | -0.43 | (0.26) |
| Poland | 0.04 | (0.22) | 0.02 | (0.48) | -0.02 | (0.25) | 0.17 | (0.55) |
| Portugal | 0.05 | (0.10) | 0.04 | (0.14) | 0.03 | (0.15) | -0.02 | (0.19) |
| Qatar | -0.01 | (0.09) | 0.06 | (0.11) | -0.07 | (0.14) | -0.11 | (0.17) |
| Russia | -0.35 | (0.38) | -0.48 | (0.81) | | | | |
| Slovakia | 0.15 | (0.26) | 0.43 | (0.42) | -0.04 | (0.30) | -0.09 | (0.47) |
| Slovenia | 0.33 | (0.30) | 0.27 | (0.44) | | | | |
| South Korea | -0.07 | (0.28) | 0.24 | (0.38) | -0.23 | (0.33) | -0.49 | (0.53) |
| Spain | -0.05 | (0.09) | -0.07 | (0.15) | -0.06 | (0.11) | 0.21 | (0.17) |
| Switzerland | -0.05 | (0.11) | -0.18 | (0.16) | 0.00 | (0.14) | 0.22 | (0.21) |
| Taiwan | -0.30 | (0.43) | | | | | | |
| Thailand | -0.24 | (0.20) | -0.66 | (0.38) | 0.05 | (0.25) | 0.73 | (0.48) |
| Turkey | -0.21 | (0.24) | 0.18 | (0.42) | -0.37 | (0.31) | -0.50 | (0.54) |
| UAE | -0.35 ** | (0.13) | -0.31 | (0.20) | -0.38 * | (0.17) | -0.27 | (0.28) |
| United States | -0.20 | (0.19) | -0.21 | (0.33) | -0.22 | (0.19) | 0.00 | (0.36) |

Notes: direct effects are reported considering the entire population, considering boys only, and considering girls only. An interaction indicates the gender gap in the effect of this factor in students' life satisfaction. When the direct effects are negative, negative interactions indicate that the effect is greater among girls. When the direct effects are positive, negative interactions indicate that the effect is greater among boys. For direct effects, spaces in blank indicate that the effect was not estimated because the sample size for that group (girls or boys) contains less than 30 observations. In these cases, interaction effects was not estimated either (in blank)

Table A2.14. Gender differences in the effect of attending a school which practices ability grouping within classes in students' life satisfaction, by country

| | Direct effects | | | | | | Interaction effects | |
|---|---|---|---|---|---|---|---|---|
| | All students | | Girls | | Boys | | | |
| | b | SE | b | SE | b | SE | b | SE |
| Austria | -0.05 | (0.13) | 0.14 | (0.18) | -0.31 | (0.20) | -0.43 | (0.24) |
| Bulgaria | -0.08 | (0.10) | -0.11 | (0.17) | -0.05 | (0.15) | -0.01 | (0.25) |
| Chile | 0.02 | (0.12) | -0.06 | (0.14) | 0.12 | (0.15) | 0.07 | (0.17) |
| China (B-S-J-G) | -0.11 | (0.08) | -0.14 | (0.11) | -0.08 | (0.10) | -0.04 | (0.15) |
| Colombia | -0.09 | (0.09) | -0.18 | (0.12) | 0.02 | (0.12) | 0.21 | (0.17) |
| Croatia | 0.19 * | (0.08) | 0.24 * | (0.12) | 0.10 | (0.09) | -0.06 | (0.15) |
| Czech Republic | 0.08 | (0.08) | 0.09 | (0.13) | 0.08 | (0.11) | 0.04 | (0.17) |
| Estonia | 0.01 | (0.07) | 0.07 | (0.10) | -0.04 | (0.09) | -0.10 | (0.12) |
| Finland | 0.08 | (0.06) | 0.00 | (0.09) | 0.17 * | (0.08) | 0.18 | (0.12) |
| France | -0.13 | (0.11) | 0.41 ** | (0.14) | -0.50 ** | (0.18) | -0.82 *** | (0.25) |
| Greece | -0.11 | (0.11) | -0.17 | (0.16) | 0.00 | (0.17) | 0.26 | (0.25) |
| Hong Kong | 0.10 | (0.09) | 0.04 | (0.10) | 0.19 | (0.19) | 0.19 | (0.23) |
| Hungary | 0.11 | (0.10) | 0.07 | (0.14) | 0.12 | (0.15) | -0.06 | (0.20) |
| Iceland | -0.03 | (0.09) | -0.08 | (0.14) | 0.06 | (0.09) | 0.14 | (0.15) |
| Ireland | 0.06 | (0.24) | 0.05 | (0.25) | 0.03 | (0.26) | 0.06 | (0.16) |
| Latvia | -0.05 | (0.09) | 0.04 | (0.11) | -0.17 | (0.12) | -0.14 | (0.17) |
| Luxembourg | -0.03 | (0.09) | -0.14 | (0.15) | 0.04 | (0.11) | 0.29 | (0.17) |
| Mexico | -0.06 | (0.09) | 0.02 | (0.12) | -0.13 | (0.11) | -0.14 | (0.16) |
| Peru | 0.14 | (0.10) | 0.13 | (0.21) | 0.15 | (0.12) | 0.01 | (0.25) |
| Poland | 0.02 | (0.08) | 0.00 | (0.11) | 0.02 | (0.11) | -0.02 | (0.15) |
| Portugal | -0.06 | (0.11) | 0.06 | (0.16) | -0.15 | (0.13) | -0.22 | (0.17) |
| Qatar | 0.11 | (0.09) | 0.07 | (0.11) | 0.22 | (0.12) | 0.11 | (0.13) |
| Russia | 0.10 | (0.08) | -0.04 | (0.11) | 0.22 * | (0.10) | 0.17 | (0.15) |
| Slovakia | -0.01 | (0.09) | -0.02 | (0.11) | -0.02 | (0.10) | -0.02 | (0.14) |
| Slovenia | -0.06 | (0.09) | -0.02 | (0.13) | -0.12 | (0.11) | -0.13 | (0.18) |
| South Korea | -0.07 | (0.09) | -0.14 | (0.13) | -0.03 | (0.13) | 0.17 | (0.21) |
| Spain | 0.02 | (0.07) | 0.12 | (0.09) | -0.09 | (0.09) | -0.26 * | (0.11) |
| Switzerland | 0.01 | (0.08) | 0.19 | (0.14) | -0.13 | (0.11) | -0.31 | (0.19) |
| Taiwan | -0.07 | (0.07) | -0.02 | (0.08) | -0.09 | (0.12) | -0.04 | (0.15) |
| Thailand | -0.05 | (0.15) | 0.12 | (0.20) | -0.21 | (0.14) | -0.30 | (0.19) |
| Turkey | -0.17 | (0.16) | 0.04 | (0.24) | -0.20 | (0.18) | -0.27 | (0.25) |
| UAE | -0.09 | (0.09) | -0.01 | (0.11) | -0.20 | (0.11) | -0.12 | (0.15) |
| United States | -0.21 | (0.12) | 0.03 | (0.15) | -0.48 *** | (0.13) | -0.47 ** | (0.18) |

Notes: direct effects are reported considering the entire population, considering boys only, and considering girls only. An interaction indicates the gender gap in the effect of this factor in students' life satisfaction. When the direct effects are negative, negative interactions indicate that the effect is greater among girls. When the direct effects are positive, negative interactions indicate that the effect is greater among boys.

Table A2.15. Gender differences in the effect of attending a school which practices ability grouping between classes in students' life satisfaction, by country

| | Direct effects | | | | | | Interaction effects | |
|---|---|---|---|---|---|---|---|---|
| | All students | | Girls | | Boys | | | |
| | b | SE | b | SE | b | SE | b | SE |
| Austria | 0.09 | (0.09) | 0.11 | (0.13) | 0.06 | (0.14) | -0.04 | (0.18) |
| Bulgaria | 0.08 | (0.10) | 0.15 | (0.16) | 0.04 | (0.13) | -0.12 | (0.20) |
| Chile | -0.13 | (0.10) | -0.06 | (0.12) | -0.21 | (0.14) | -0.23 | (0.17) |
| China (B-S-J-G) | 0.01 | (0.11) | -0.02 | (0.16) | 0.01 | (0.15) | 0.03 | (0.23) |
| Colombia | 0.08 | (0.10) | 0.06 | (0.12) | 0.09 | (0.13) | -0.01 | (0.16) |
| Croatia | -0.02 | (0.09) | -0.12 | (0.11) | 0.09 | (0.10) | 0.15 | (0.14) |
| Czech Republic | 0.09 | (0.09) | 0.01 | (0.12) | 0.12 | (0.11) | 0.11 | (0.16) |
| Estonia | 0.10 | (0.07) | 0.05 | (0.10) | 0.13 | (0.09) | 0.10 | (0.13) |
| Finland | -0.09 | (0.06) | -0.03 | (0.09) | -0.12 | (0.07) | -0.09 | (0.12) |
| France | 0.07 | (0.10) | 0.14 | (0.12) | -0.01 | (0.16) | -0.07 | (0.21) |
| Greece | -0.18 | (0.10) | -0.18 | (0.11) | -0.23 | (0.17) | -0.05 | (0.20) |
| Hong Kong | 0.05 | (0.07) | -0.02 | (0.09) | 0.10 | (0.12) | 0.15 | (0.14) |
| Hungary | 0.19 | (0.12) | 0.21 | (0.17) | 0.10 | (0.16) | -0.17 | (0.22) |
| Iceland | -0.16 * | (0.08) | -0.15 | (0.13) | -0.15 | (0.10) | -0.04 | (0.15) |
| Ireland | 0.05 | (0.06) | 0.00 | (0.10) | 0.12 | (0.08) | 0.14 | (0.13) |
| Latvia | -0.06 | (0.08) | 0.01 | (0.09) | -0.11 | (0.11) | -0.12 | (0.13) |
| Luxembourg | -0.01 | (0.07) | -0.14 | (0.13) | 0.07 | (0.08) | 0.29 * | (0.13) |
| Mexico | 0.01 | (0.08) | 0.08 | (0.13) | -0.04 | (0.10) | -0.12 | (0.17) |
| Peru | 0.06 | (0.09) | -0.01 | (0.17) | 0.10 | (0.11) | 0.12 | (0.20) |
| Poland | 0.16 | (0.10) | 0.18 | (0.15) | 0.11 | (0.13) | -0.03 | (0.20) |
| Portugal | 0.01 | (0.11) | 0.04 | (0.12) | -0.02 | (0.16) | -0.08 | (0.18) |
| Qatar | -0.07 | (0.11) | 0.02 | (0.14) | -0.04 | (0.14) | 0.07 | (0.13) |
| Russia | 0.10 | (0.07) | 0.14 | (0.10) | 0.07 | (0.11) | 0.02 | (0.16) |
| Slovakia | -0.04 | (0.08) | 0.04 | (0.12) | -0.12 | (0.09) | -0.22 | (0.14) |
| Slovenia | -0.11 | (0.09) | -0.13 | (0.12) | -0.13 | (0.10) | -0.07 | (0.16) |
| South Korea | 0.04 | (0.10) | 0.00 | (0.13) | 0.00 | (0.13) | 0.10 | (0.24) |
| Spain | 0.13 | (0.07) | 0.06 | (0.09) | 0.21 * | (0.09) | 0.15 | (0.12) |
| Switzerland | 0.00 | (0.08) | 0.00 | (0.12) | 0.04 | (0.11) | 0.04 | (0.18) |
| Taiwan | 0.06 | (0.06) | 0.09 | (0.07) | 0.02 | (0.09) | -0.07 | (0.12) |
| Thailand | -0.10 | (0.12) | -0.13 | (0.16) | -0.07 | (0.14) | 0.02 | (0.20) |
| Turkey | 0.09 | (0.16) | 0.17 | (0.18) | 0.09 | (0.21) | -0.12 | (0.25) |
| UAE | -0.11 | (0.10) | -0.01 | (0.13) | -0.27 * | (0.12) | -0.21 | (0.20) |
| United States | -0.09 | (0.11) | 0.07 | (0.14) | -0.26 | (0.14) | -0.30 | (0.19) |

Notes: direct effects are reported considering the entire population, considering boys only, and considering girls only. An interaction indicates the gender gap in the effect of this factor in students' life satisfaction. When the direct effects are negative, negative interactions indicate that the effect is greater among girls. When the direct effects are positive, negative interactions indicate that the effect is greater among boys.

Table A2.16. Blinder-Oaxaca analysis of the gender gap in life satisfaction in view of schoolwork-related anxiety

| | Mean LS | | Gender gap in LS | | Composition of the gender gap in LS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Endowment share | | | Unexplained share | | | Interaction | | |
| | Boys | Girls | b | SE | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS |
| Austria | 7.95 | 7.08 | 0.87 *** | (0.06) | 0.18 *** | (0.02) | 20.37% | 0.70 *** | (0.07) | 80.45% | -0.01 | (0.02) | -0.82% |
| Bulgaria | 7.65 | 7.21 | 0.44 *** | (0.07) | 0.17 *** | (0.03) | 37.75% | 0.34 *** | (0.07) | 77.26% | -0.07 * | (0.03) | -15.02% |
| Chile | 7.60 | 7.13 | 0.47 *** | (0.08) | 0.16 *** | (0.02) | 34.20% | 0.39 *** | (0.08) | 83.90% | -0.08 *** | (0.02) | -18.10% |
| China (B-S-J-G) | 6.87 | 6.79 | 0.09 | (0.06) | 0.07 *** | (0.02) | | 0.04 | (0.06) | | -0.02 | (0.01) | |
| Colombia | 8.08 | 7.72 | 0.35 *** | (0.06) | 0.03 | (0.02) | 8.08% | 0.36 *** | (0.06) | 103.25% | -0.04 * | (0.02) | -11.33% |
| Croatia | 8.23 | 7.61 | 0.62 *** | (0.06) | 0.17 *** | (0.03) | 27.60% | 0.53 *** | (0.07) | 85.83% | -0.08 * | (0.04) | -13.43% |
| Czech Republic | 7.38 | 6.73 | 0.65 *** | (0.07) | 0.22 *** | (0.02) | 33.22% | 0.52 *** | (0.08) | 79.81% | -0.08 *** | (0.02) | -13.03% |
| Estonia | 7.74 | 7.27 | 0.47 *** | (0.06) | 0.27 *** | (0.03) | 57.37% | 0.32 *** | (0.06) | 67.03% | -0.12 *** | (0.03) | -24.40% |
| Finland | 8.26 | 7.51 | 0.75 *** | (0.05) | 0.24 *** | (0.02) | 32.67% | 0.59 *** | (0.05) | 79.38% | -0.09 *** | (0.02) | -12.05% |
| France | 7.87 | 7.41 | 0.45 *** | (0.05) | 0.15 *** | (0.02) | 32.68% | 0.32 *** | (0.06) | 69.63% | -0.01 | (0.03) | -2.31% |
| Greece | 7.23 | 6.59 | 0.64 *** | (0.06) | 0.22 *** | (0.02) | 33.72% | 0.52 *** | (0.06) | 81.42% | -0.10 *** | (0.03) | -15.13% |
| Hong Kong | 6.51 | 6.43 | 0.08 | (0.07) | 0.13 *** | (0.02) | | 0.03 | (0.07) | | -0.08 ** | (0.02) | |
| Hungary | 7.55 | 6.81 | 0.74 *** | (0.09) | 0.17 *** | (0.03) | 22.75% | 0.61 *** | (0.09) | 82.12% | -0.04 | (0.03) | -4.87% |
| Iceland | 8.29 | 7.35 | 0.94 *** | (0.07) | 0.59 *** | (0.05) | 63.26% | 0.55 *** | (0.08) | 58.91% | -0.21 *** | (0.06) | -22.18% |
| Ireland | 7.58 | 7.02 | 0.56 *** | (0.05) | 0.33 *** | (0.03) | 58.10% | 0.36 *** | (0.06) | 64.73% | -0.13 *** | (0.03) | -22.83% |
| Latvia | 7.46 | 7.29 | 0.18 ** | (0.06) | 0.12 *** | (0.02) | 69.02% | 0.08 | (0.06) | 46.56% | -0.03 | (0.02) | -15.58% |
| Luxembourg | 7.79 | 6.99 | 0.80 *** | (0.06) | 0.27 *** | (0.03) | 33.17% | 0.63 *** | (0.06) | 78.40% | -0.09 ** | (0.03) | -11.57% |
| Mexico | 8.34 | 8.22 | 0.12 * | (0.05) | 0.10 *** | (0.02) | 80.24% | 0.05 | (0.05) | 44.31% | -0.03 | (0.02) | -24.55% |
| Peru | 7.59 | 7.43 | 0.16 * | (0.07) | 0.04 *** | (0.01) | 26.48% | 0.13 * | (0.07) | 82.18% | -0.01 | (0.02) | -8.66% |
| Poland | 7.53 | 6.83 | 0.70 *** | (0.07) | 0.22 *** | (0.03) | 31.54% | 0.52 *** | (0.08) | 74.96% | -0.05 | (0.04) | -6.50% |
| Portugal | 7.62 | 7.11 | 0.51 *** | (0.06) | 0.12 *** | (0.03) | 22.62% | 0.45 *** | (0.06) | 88.74% | -0.06 | (0.04) | -11.36% |
| Qatar | 7.53 | 7.30 | 0.23 *** | (0.05) | 0.15 *** | (0.02) | 63.04% | 0.13 ** | (0.05) | 56.30% | -0.04 ** | (0.02) | -19.35% |
| Russia | 7.92 | 7.61 | 0.30 *** | (0.07) | 0.16 *** | (0.04) | 52.05% | 0.23 ** | (0.07) | 74.90% | -0.08 | (0.05) | -26.95% |
| Slovakia | 7.75 | 7.17 | 0.58 *** | (0.07) | 0.13 *** | (0.02) | 22.16% | 0.45 *** | (0.07) | 77.12% | 0.00 | (0.03) | 0.72% |
| Slovenia | 7.61 | 6.71 | 0.91 *** | (0.08) | 0.34 *** | (0.04) | 37.71% | 0.69 *** | (0.08) | 75.70% | -0.12 * | (0.05) | -13.41% |
| South Korea | 6.59 | 6.12 | 0.47 *** | (0.07) | 0.15 *** | (0.02) | 31.61% | 0.35 *** | (0.07) | 73.70% | -0.02 | (0.02) | -5.31% |
| Spain | 7.60 | 7.24 | 0.36 *** | (0.06) | 0.10 *** | (0.02) | 28.38% | 0.31 *** | (0.06) | 86.90% | -0.06 | (0.03) | -15.28% |
| Switzerland | 8.02 | 7.38 | 0.65 *** | (0.06) | 0.23 *** | (0.02) | 35.38% | 0.47 *** | (0.07) | 72.65% | -0.05 | (0.03) | -8.03% |
| Taiwan | 6.75 | 6.45 | 0.30 *** | (0.05) | 0.08 *** | (0.02) | 28.12% | 0.23 *** | (0.05) | 77.98% | -0.02 | (0.02) | -6.09% |
| Thailand | 7.74 | 7.70 | 0.05 | (0.07) | 0.07 *** | (0.01) | | -0.03 | (0.06) | | 0.00 | (0.01) | |
| Turkey | 6.42 | 5.83 | 0.59 *** | (0.10) | 0.22 *** | (0.04) | 38.17% | 0.41 *** | (0.11) | 69.91% | -0.05 | (0.04) | -8.09% |
| UAE | 7.46 | 7.16 | 0.30 *** | (0.06) | 0.11 *** | (0.02) | 38.78% | 0.20 *** | (0.06) | 68.50% | -0.02 | (0.02) | -7.28% |
| United States | 7.65 | 7.07 | 0.58 *** | (0.06) | 0.38 *** | (0.04) | 65.52% | 0.35 *** | (0.07) | 59.14% | -0.14 *** | (0.04) | -24.66% |

Note: when the effect of the school-related related factor in students' LS is positive, positive endowment values indicate that the education policy related factor increases the gender gap in LS while negative values indicate the opposite effect. When the effect of the school-related factor in students' LS is negative, positive endowment values indicate that the education policy related factor benefits girls over boys (i.e. reduces the gender gap in LS) while negative values indicate the opposite effect. Results as the % of the gender gap are not reported for those countries where the gender gap in life satisfaction is not statistically significant

Table A2.17. Blinder-Oaxaca analysis of the gender gap in life satisfaction in view of sense of belonging at school

| | Mean LS | | Gender gap in LS | | Composition of the gender gap in LS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Endowment share | | | Unexplained share | | | Interaction | | |
| | Boys | Girls | b | SE | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS |
| Austria | 7.96 | 7.08 | 0.88 *** | (0.06) | 0.00 | (0.00) | -0.42% | 0.88 *** | (0.06) | 100.32% | 0.00 | (0.00) | 0.10% |
| Bulgaria | 7.64 | 7.20 | 0.44 *** | (0.07) | -0.01 | (0.01) | -1.72% | 0.45 *** | (0.07) | 102.42% | 0.00 | (0.01) | -0.70% |
| Chile | 7.60 | 7.16 | 0.43 *** | (0.08) | -0.02 * | (0.01) | -4.52% | 0.46 *** | (0.08) | 105.26% | 0.00 | (0.01) | -0.73% |
| China (B-S-J-G) | 6.88 | 6.78 | 0.09 | (0.06) | -0.02 ** | (0.01) | | 0.11 | (0.07) | | 0.00 | (0.01) | |
| Colombia | 8.10 | 7.72 | 0.37 *** | (0.06) | -0.01 | (0.00) | -1.50% | 0.38 *** | (0.06) | 101.32% | 0.00 | (0.01) | 0.18% |
| Croatia | 8.22 | 7.61 | 0.61 *** | (0.06) | -0.03 *** | (0.01) | -4.42% | 0.62 *** | (0.06) | 101.80% | 0.02 | (0.01) | 2.62% |
| Czech Republic | 7.38 | 6.70 | 0.67 *** | (0.07) | 0.00 | (0.01) | 0.44% | 0.67 *** | (0.07) | 99.84% | 0.00 | (0.01) | -0.27% |
| Estonia | 7.74 | 7.28 | 0.46 *** | (0.06) | 0.02 * | (0.01) | 4.64% | 0.45 *** | (0.06) | 97.36% | -0.01 | (0.01) | -2.01% |
| Finland | 8.25 | 7.51 | 0.74 *** | (0.05) | 0.01 | (0.01) | 0.95% | 0.73 *** | (0.05) | 99.52% | 0.00 | (0.00) | -0.47% |
| France | 7.86 | 7.45 | 0.41 *** | (0.06) | -0.01 | (0.01) | -2.41% | 0.41 *** | (0.06) | 101.10% | 0.01 | (0.00) | 1.30% |
| Greece | 7.25 | 6.59 | 0.66 *** | (0.06) | -0.03 ** | (0.01) | -4.41% | 0.66 *** | (0.06) | 100.97% | 0.02 * | (0.01) | 3.44% |
| Hong Kong | 6.52 | 6.44 | 0.07 | (0.07) | -0.01 | (0.01) | | 0.08 | (0.07) | | 0.01 | (0.01) | |
| Hungary | 7.54 | 6.80 | 0.74 *** | (0.09) | 0.00 | (0.00) | 0.06% | 0.74 *** | (0.09) | 99.92% | 0.00 | (0.00) | 0.02% |
| Iceland | 8.30 | 7.35 | 0.95 *** | (0.07) | -0.02 * | (0.01) | -2.44% | 0.95 *** | (0.07) | 100.54% | 0.02 | (0.01) | 1.91% |
| Ireland | 7.57 | 7.02 | 0.56 *** | (0.05) | 0.06 *** | (0.02) | 11.04% | 0.51 *** | (0.05) | 91.70% | -0.02 | (0.01) | -2.74% |
| Latvia | 7.46 | 7.29 | 0.17 ** | (0.06) | -0.02 * | (0.01) | -14.43% | 0.19 ** | (0.06) | 111.09% | 0.01 | (0.01) | 3.35% |
| Luxembourg | 7.78 | 7.01 | 0.76 *** | (0.06) | -0.02 | (0.01) | -2.15% | 0.77 *** | (0.06) | 101.02% | 0.01 | (0.01) | 1.13% |
| Mexico | 8.34 | 8.21 | 0.13 ** | (0.05) | -0.02 * | (0.01) | -14.73% | 0.14 ** | (0.05) | 108.65% | 0.01 | (0.01) | 6.08% |
| Peru | 7.61 | 7.42 | 0.18 ** | (0.07) | -0.01 | (0.01) | -5.17% | 0.20 ** | (0.07) | 106.66% | 0.00 | (0.01) | -1.49% |
| Poland | 7.54 | 6.84 | 0.70 *** | (0.07) | 0.01 | (0.01) | 1.08% | 0.70 *** | (0.07) | 99.31% | 0.00 | (0.00) | -0.39% |
| Portugal | 7.62 | 7.11 | 0.51 *** | (0.05) | -0.02 * | (0.01) | -2.94% | 0.52 *** | (0.05) | 100.65% | 0.01 | (0.01) | 2.29% |
| Qatar | 7.51 | 7.31 | 0.20 *** | (0.05) | -0.03 *** | (0.01) | -13.92% | 0.21 *** | (0.05) | 105.28% | 0.02 * | (0.01) | 8.64% |
| Russia | 7.89 | 7.60 | 0.29 *** | (0.07) | 0.00 | (0.00) | -0.55% | 0.29 *** | (0.07) | 99.34% | 0.00 | (0.01) | 1.20% |
| Slovakia | 7.76 | 7.17 | 0.59 *** | (0.07) | -0.03 ** | (0.01) | -4.53% | 0.61 *** | (0.07) | 102.91% | 0.01 | (0.01) | 1.63% |
| Slovenia | 7.61 | 6.71 | 0.90 *** | (0.07) | 0.00 | (0.01) | 0.31% | 0.90 *** | (0.07) | 99.90% | 0.00 | (0.01) | -0.21% |
| South Korea | 6.60 | 6.11 | 0.49 *** | (0.07) | 0.05 *** | (0.01) | 9.45% | 0.46 *** | (0.07) | 94.52% | -0.02 | (0.01) | -3.96% |
| Spain | 7.62 | 7.23 | 0.39 *** | (0.06) | -0.02 ** | (0.01) | -6.28% | 0.40 *** | (0.06) | 100.53% | 0.02 * | (0.01) | 5.75% |
| Switzerland | 8.02 | 7.38 | 0.63 *** | (0.06) | 0.01 | (0.01) | 1.22% | 0.63 *** | (0.06) | 100.17% | -0.01 | (0.01) | -1.39% |
| Taiwan | 6.73 | 6.44 | 0.29 *** | (0.05) | -0.01 | (0.00) | -2.72% | 0.30 *** | (0.05) | 102.65% | 0.00 | (0.00) | 0.07% |
| Thailand | 7.75 | 7.70 | 0.05 | (0.07) | 0.00 | (0.00) | | 0.05 | (0.07) | | 0.00 | (0.00) | |
| Turkey | 6.41 | 5.82 | 0.59 *** | (0.10) | -0.01 * | (0.01) | -2.29% | 0.59 *** | (0.10) | 100.26% | 0.01 | (0.01) | 2.03% |
| UAE | 7.46 | 7.16 | 0.30 *** | (0.06) | -0.03 *** | (0.01) | -10.26% | 0.31 *** | (0.06) | 104.02% | 0.02 * | (0.01) | 6.24% |
| United States | 7.66 | 7.05 | 0.61 *** | (0.06) | 0.06 *** | (0.01) | 9.24% | 0.57 *** | (0.06) | 92.65% | -0.01 | (0.01) | -1.89% |

Note: when the effect of the school-related related factor in students' LS is positive, positive endowment values indicate that the education policy related factor increases the gender gap in LS while negative values indicate the opposite effect. When the effect of the school-related factor in students' LS is negative, positive endowment values indicate that the education policy related factor benefits girls over boys (i.e. reduces the gender gap in LS) while negative values indicate the opposite effect. Results as the % of the gender gap are not reported for those countries where the gender gap in life satisfaction is not statistically significant

Table A2.18. Blinder-Oaxaca analysis of the gender gap in life satisfaction in view of the frequency of being bullying

| | Mean LS | | Gender gap in LS | | Composition of the gender gap in LS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Endowment share | | | Unexplained share | | | Interaction | | |
| | Boys | Girls | b | SE | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS |
| Austria | 7.96 | 7.10 | 0.86 *** | (0.06) | -0.13 *** | (0.02) | -15.42% | 0.94 *** | (0.06) | 108.89% | 0.06 ** | (0.02) | 6.52% |
| Bulgaria | 7.65 | 7.22 | 0.43 *** | (0.07) | -0.07 *** | (0.02) | -16.24% | 0.48 *** | (0.07) | 111.75% | 0.02 | (0.01) | 4.50% |
| Chile | 7.60 | 7.15 | 0.45 *** | (0.08) | -0.05 ** | (0.02) | -11.56% | 0.49 *** | (0.08) | 108.85% | 0.01 | (0.01) | 2.71% |
| China (B-S-J-G) | 6.89 | 6.80 | 0.09 | (0.07) | -0.17 *** | (0.03) | | 0.22 *** | (0.06) | | 0.04 | (0.03) | 49.31% |
| Colombia | 8.08 | 7.73 | 0.36 *** | (0.05) | -0.10 *** | (0.02) | -29.20% | 0.44 *** | (0.05) | 123.08% | 0.02 | (0.02) | 6.12% |
| Croatia | 8.22 | 7.62 | 0.60 *** | (0.06) | -0.06 * | (0.02) | -9.38% | 0.64 *** | (0.06) | 107.26% | 0.01 | (0.01) | 2.12% |
| Czech Republic | 7.39 | 6.73 | 0.66 *** | (0.07) | -0.10 *** | (0.02) | -14.42% | 0.73 *** | (0.07) | 110.41% | 0.03 | (0.01) | 4.01% |
| Estonia | 7.73 | 7.27 | 0.46 *** | (0.06) | -0.11 *** | (0.02) | -23.47% | 0.53 *** | (0.06) | 114.14% | 0.04 * | (0.02) | 9.32% |
| Finland | 8.26 | 7.52 | 0.74 *** | (0.05) | -0.09 *** | (0.02) | -11.93% | 0.79 *** | (0.04) | 107.02% | 0.04 ** | (0.01) | 4.91% |
| France | 7.87 | 7.43 | 0.44 *** | (0.05) | 0.00 | (0.01) | 0.59% | 0.44 *** | (0.05) | 99.52% | 0.00 | (0.00) | -0.10% |
| Greece | 7.24 | 6.59 | 0.65 *** | (0.06) | -0.14 *** | (0.03) | -22.09% | 0.70 *** | (0.06) | 108.48% | 0.09 ** | (0.03) | 13.61% |
| Hong Kong | 6.52 | 6.44 | 0.08 | (0.06) | -0.16 *** | (0.03) | | 0.25 *** | (0.06) | | -0.01 | (0.03) | -8.40% |
| Hungary | 7.55 | 6.79 | 0.75 *** | (0.08) | -0.04 * | (0.02) | -5.08% | 0.78 *** | (0.08) | 103.18% | 0.01 | (0.01) | 1.90% |
| Iceland | 8.29 | 7.36 | 0.92 *** | (0.07) | -0.02 | (0.03) | -2.30% | 0.93 *** | (0.07) | 101.02% | 0.01 | (0.02) | 1.28% |
| Ireland | 7.59 | 7.03 | 0.56 *** | (0.05) | -0.08 ** | (0.03) | -14.20% | 0.61 *** | (0.05) | 108.69% | 0.03 ** | (0.01) | 5.51% |
| Latvia | 7.46 | 7.32 | 0.14 * | (0.06) | -0.09 *** | (0.02) | -60.02% | 0.21 *** | (0.06) | 145.12% | 0.02 | (0.02) | 14.89% |
| Luxembourg | 7.78 | 7.01 | 0.77 *** | (0.06) | -0.07 *** | (0.02) | -8.95% | 0.80 *** | (0.06) | 104.51% | 0.03 * | (0.02) | 4.44% |
| Mexico | 8.34 | 8.22 | 0.12 ** | (0.05) | -0.10 *** | (0.02) | -81.90% | 0.19 *** | (0.05) | 158.95% | 0.03 | (0.01) | 22.95% |
| Peru | 7.62 | 7.44 | 0.18 ** | (0.07) | -0.14 *** | (0.03) | -76.90% | 0.26 *** | (0.06) | 148.13% | 0.05 * | (0.02) | 28.77% |
| Poland | 7.53 | 6.83 | 0.70 *** | (0.07) | -0.09 *** | (0.03) | -12.93% | 0.76 *** | (0.07) | 108.79% | 0.03 | (0.02) | 4.15% |
| Portugal | 7.62 | 7.10 | 0.52 *** | (0.06) | -0.03 | (0.01) | -5.10% | 0.54 *** | (0.05) | 103.29% | 0.01 | (0.01) | 1.81% |
| Qatar | 7.51 | 7.32 | 0.19 *** | (0.05) | -0.33 *** | (0.03) | -170.55% | 0.37 *** | (0.05) | 188.93% | 0.16 *** | (0.04) | 81.62% |
| Russia | 7.93 | 7.61 | 0.32 *** | (0.06) | -0.03 | (0.02) | -11.01% | 0.34 *** | (0.07) | 106.89% | 0.01 | (0.01) | 4.12% |
| Slovakia | 7.78 | 7.19 | 0.59 *** | (0.07) | -0.06 ** | (0.02) | -10.40% | 0.63 *** | (0.07) | 107.40% | 0.02 | (0.01) | 3.00% |
| Slovenia | 7.62 | 6.72 | 0.90 *** | (0.08) | -0.08 *** | (0.02) | -8.91% | 0.96 *** | (0.07) | 107.33% | 0.01 | (0.01) | 1.58% |
| South Korea | 6.60 | 6.12 | 0.48 *** | (0.07) | -0.12 *** | (0.02) | -24.80% | 0.52 *** | (0.07) | 108.08% | 0.08 *** | (0.02) | 16.72% |
| Spain | 7.62 | 7.25 | 0.37 *** | (0.06) | -0.06 *** | (0.02) | -15.23% | 0.42 *** | (0.05) | 113.51% | 0.01 | (0.01) | 1.72% |
| Switzerland | 8.01 | 7.40 | 0.61 *** | (0.06) | -0.05 ** | (0.02) | -7.40% | 0.65 *** | (0.06) | 106.54% | 0.01 | (0.01) | 0.85% |
| Taiwan | 6.73 | 6.45 | 0.28 *** | (0.05) | -0.10 *** | (0.02) | -36.03% | 0.37 *** | (0.05) | 132.74% | 0.01 | (0.02) | 3.28% |
| Thailand | 7.73 | 7.70 | 0.03 | (0.06) | -0.08 *** | (0.02) | | 0.12 | (0.06) | | -0.01 | (0.02) | -28.84% |
| Turkey | 6.41 | 5.83 | 0.58 *** | (0.10) | -0.22 *** | (0.04) | -37.52% | 0.70 *** | (0.10) | 119.82% | 0.10 ** | (0.04) | 17.70% |
| UAE | 7.44 | 7.16 | 0.28 *** | (0.06) | -0.28 *** | (0.04) | -100.03% | 0.43 *** | (0.06) | 150.98% | 0.14 *** | (0.04) | 49.05% |
| United States | 7.67 | 7.06 | 0.60 *** | (0.06) | 0.00 | (0.02) | -0.19% | 0.60 *** | (0.06) | 100.14% | 0.00 | (0.01) | 0.06% |

Note: when the effect of the school-related related factor in students' LS is positive, positive endowment values indicate that the education policy related factor increases the gender gap in LS while negative values indicate the opposite effect. When the effect of the school-related factor in students' LS is negative, positive endowment values indicate that the education policy related factor benefits girls over boys (i.e. reduces the gender gap in LS) while negative values indicate the opposite effect. Results as the % of the gender gap are not reported for those countries where the gender gap in life satisfaction is not statistically significant

Table A2.19. Blinder-Oaxaca analysis of the gender gap in life satisfaction in view of feeling unfairly treated by teachers

| | Mean LS | | Gender gap in LS | | Composition of the gender gap in LS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Endowment share | | | Unexplained share | | | Interaction | | |
| | Boys | Girls | b | SE | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS |
| Austria | 7.96 | 7.09 | 0.87 *** | (0.06) | -0.18 *** | (0.03) | -20.50% | 0.95 *** | (0.06) | 109.94% | 0.09 *** | (0.02) | 10.56% |
| Bulgaria | 7.63 | 7.21 | 0.42 *** | (0.07) | -0.08 *** | (0.02) | -20.18% | 0.47 *** | (0.07) | 112.85% | 0.03 | (0.02) | 7.33% |
| Chile | 7.59 | 7.13 | 0.46 *** | (0.08) | -0.08 *** | (0.02) | -18.58% | 0.52 *** | (0.08) | 113.25% | 0.02 | (0.02) | 5.33% |
| China (B-S-J-G) | 6.88 | 6.79 | 0.09 | (0.06) | -0.08 *** | (0.02) | | 0.15 * | (0.06) | | 0.01 | (0.02) | |
| Colombia | 8.08 | 7.72 | 0.36 *** | (0.06) | -0.14 *** | (0.02) | -39.52% | 0.46 *** | (0.05) | 127.60% | 0.04 | (0.03) | 11.92% |
| Croatia | 8.20 | 7.61 | 0.59 *** | (0.06) | -0.10 *** | (0.02) | -17.77% | 0.64 *** | (0.06) | 108.78% | 0.05 ** | (0.02) | 8.99% |
| Czech Republic | 7.37 | 6.73 | 0.65 *** | (0.07) | -0.13 *** | (0.02) | -20.81% | 0.73 *** | (0.07) | 112.44% | 0.05 * | (0.02) | 8.37% |
| Estonia | 7.73 | 7.27 | 0.46 *** | (0.06) | -0.10 *** | (0.02) | -21.70% | 0.53 *** | (0.06) | 115.21% | 0.03 * | (0.01) | 6.49% |
| Finland | 8.26 | 7.52 | 0.74 *** | (0.05) | -0.09 *** | (0.02) | -12.81% | 0.79 *** | (0.05) | 106.33% | 0.05 *** | (0.01) | 6.49% |
| France | 7.86 | 7.42 | 0.44 *** | (0.05) | -0.12 *** | (0.02) | -26.38% | 0.51 *** | (0.05) | 115.43% | 0.05 ** | (0.02) | 10.95% |
| Greece | 7.24 | 6.59 | 0.65 *** | (0.06) | -0.18 *** | (0.03) | -28.24% | 0.72 *** | (0.06) | 110.38% | 0.12 *** | (0.02) | 17.86% |
| Hong Kong | 6.51 | 6.45 | 0.06 | (0.07) | -0.14 *** | (0.02) | | 0.15 * | (0.07) | | 0.05 | (0.03) | |
| Hungary | 7.55 | 6.79 | 0.76 *** | (0.08) | -0.09 *** | (0.02) | -12.26% | 0.81 *** | (0.08) | 106.91% | 0.04 * | (0.02) | 5.35% |
| Iceland | 8.28 | 7.35 | 0.93 *** | (0.07) | -0.06 * | (0.02) | -6.07% | 0.95 *** | (0.07) | 101.99% | 0.04 * | (0.02) | 4.08% |
| Ireland | 7.57 | 7.02 | 0.55 *** | (0.05) | -0.22 *** | (0.03) | -39.18% | 0.68 *** | (0.05) | 123.30% | 0.09 *** | (0.02) | 15.88% |
| Latvia | 7.46 | 7.30 | 0.16 ** | (0.06) | -0.11 *** | (0.02) | -68.62% | 0.25 *** | (0.06) | 150.19% | 0.03 | (0.02) | 18.43% |
| Luxembourg | 7.77 | 6.99 | 0.78 *** | (0.06) | -0.22 *** | (0.03) | -28.30% | 0.87 *** | (0.06) | 112.20% | 0.13 *** | (0.03) | 16.09% |
| Mexico | 8.33 | 8.22 | 0.12 * | (0.05) | -0.13 *** | (0.02) | -112.20% | 0.23 *** | (0.04) | 202.10% | 0.01 | (0.02) | 10.11% |
| Peru | 7.60 | 7.44 | 0.15 * | (0.07) | -0.14 *** | (0.02) | -90.55% | 0.30 *** | (0.06) | 196.49% | -0.01 | (0.02) | -5.95% |
| Poland | 7.51 | 6.83 | 0.69 *** | (0.07) | -0.21 *** | (0.03) | -29.94% | 0.82 *** | (0.07) | 118.82% | 0.08 ** | (0.03) | 11.12% |
| Portugal | 7.61 | 7.11 | 0.50 *** | (0.05) | -0.15 *** | (0.02) | -29.55% | 0.61 *** | (0.05) | 121.10% | 0.04 * | (0.02) | 8.45% |
| Qatar | 7.51 | 7.31 | 0.20 *** | (0.05) | -0.18 *** | (0.02) | -93.56% | 0.30 *** | (0.05) | 153.76% | 0.08 *** | (0.02) | 39.79% |
| Russia | 7.92 | 7.61 | 0.31 *** | (0.06) | -0.12 *** | (0.03) | -37.99% | 0.36 *** | (0.06) | 115.86% | 0.07 ** | (0.02) | 22.14% |
| Slovakia | 7.76 | 7.17 | 0.60 *** | (0.07) | -0.12 *** | (0.02) | -20.23% | 0.67 *** | (0.06) | 112.58% | 0.05 * | (0.02) | 7.65% |
| Slovenia | 7.62 | 6.71 | 0.91 *** | (0.08) | -0.11 *** | (0.02) | -12.39% | 0.97 *** | (0.08) | 107.22% | 0.05 ** | (0.02) | 5.17% |
| South Korea | 6.59 | 6.12 | 0.48 *** | (0.07) | -0.07 *** | (0.01) | -14.24% | 0.52 *** | (0.07) | 109.37% | 0.02 | (0.02) | 4.87% |
| Spain | 7.61 | 7.24 | 0.37 *** | (0.06) | -0.21 *** | (0.03) | -56.07% | 0.51 *** | (0.06) | 136.33% | 0.07 * | (0.03) | 19.75% |
| Switzerland | 8.01 | 7.40 | 0.62 *** | (0.06) | -0.17 *** | (0.03) | -28.02% | 0.74 *** | (0.05) | 120.27% | 0.05 | (0.03) | 7.74% |
| Taiwan | 6.74 | 6.45 | 0.29 *** | (0.05) | -0.07 *** | (0.01) | -25.62% | 0.37 *** | (0.05) | 128.14% | -0.01 | (0.01) | -2.52% |
| Thailand | 7.75 | 7.70 | 0.04 | (0.06) | -0.08 *** | (0.02) | | 0.12 | (0.06) | | 0.01 | (0.02) | |
| Turkey | 6.43 | 5.85 | 0.58 *** | (0.10) | -0.22 *** | (0.03) | -37.50% | 0.71 *** | (0.09) | 123.16% | 0.08 * | (0.03) | 14.34% |
| UAE | 7.47 | 7.18 | 0.29 *** | (0.06) | -0.17 *** | (0.02) | -57.41% | 0.42 *** | (0.06) | 141.45% | 0.05 * | (0.02) | 15.96% |
| United States | 7.68 | 7.07 | 0.61 *** | (0.06) | -0.08 *** | (0.02) | -13.71% | 0.67 *** | (0.06) | 109.20% | 0.03 * | (0.01) | 4.52% |

Note: when the effect of the school-related related factor in students' LS is positive, positive endowment values indicate that the education policy related factor increases the gender gap in LS while negative values indicate the opposite effect. When the effect of the school-related factor in students' LS is negative, positive endowment values indicate that the education policy related factor benefits girls over boys (i.e. reduces the gender gap in LS) while negative values indicate the opposite effect. Results as the % of the gender gap are not reported for those countries where the gender gap in life satisfaction is not statistically significant

Table A2.20. Blinder-Oaxaca analysis of the gender gap in life satisfaction in view of feeling emotionally supported by parents

| | Mean LS | | Gender gap in LS | | Composition of the gender gap in LS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Endowment share | | | Unexplained share | | | Interaction | | |
| | Boys | Girls | b | SE | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS |
| Austria | 7.95 | 7.09 | 0.86 *** | (0.06) | 0.04 | (0.02) | 4.21% | 0.83 *** | (0.06) | 96.75% | -0.01 | (0.01) | -0.95% |
| Bulgaria | 7.64 | 7.20 | 0.44 *** | (0.07) | -0.07 ** | (0.03) | -16.09% | 0.49 *** | (0.06) | 112.46% | 0.02 | (0.01) | 3.63% |
| Chile | 7.61 | 7.13 | 0.48 *** | (0.08) | 0.05 ** | (0.02) | 9.84% | 0.44 *** | (0.07) | 92.60% | -0.01 | (0.01) | -2.44% |
| China (B-S-J-G) | 6.88 | 6.78 | 0.10 | (0.06) | -0.04 * | (0.02) | | 0.13 * | (0.06) | | 0.00 | (0.00) | |
| Colombia | 8.08 | 7.72 | 0.36 *** | (0.05) | 0.02 | (0.02) | 5.60% | 0.34 *** | (0.05) | 95.42% | 0.00 | (0.00) | -1.02% |
| Croatia | 8.22 | 7.62 | 0.60 *** | (0.06) | -0.09 *** | (0.02) | -15.76% | 0.68 *** | (0.05) | 113.55% | 0.01 | (0.01) | 2.21% |
| Czech Republic | 7.37 | 6.73 | 0.64 *** | (0.07) | 0.00 | (0.02) | -0.50% | 0.64 *** | (0.07) | 100.40% | 0.00 | (0.00) | 0.09% |
| Estonia | 7.74 | 7.27 | 0.47 *** | (0.06) | -0.05 * | (0.02) | -11.31% | 0.51 *** | (0.06) | 108.98% | 0.01 | (0.01) | 2.33% |
| Finland | 8.25 | 7.51 | 0.74 *** | (0.05) | -0.04 | (0.02) | -4.90% | 0.76 *** | (0.04) | 103.06% | 0.01 | (0.01) | 1.84% |
| France | 7.85 | 7.41 | 0.45 *** | (0.05) | -0.03 * | (0.02) | -7.76% | 0.47 *** | (0.05) | 106.31% | 0.01 | (0.00) | 1.44% |
| Greece | 7.24 | 6.58 | 0.66 *** | (0.06) | -0.08 *** | (0.02) | -12.71% | 0.71 *** | (0.06) | 108.12% | 0.03 * | (0.01) | 4.60% |
| Hong Kong | 6.53 | 6.44 | 0.09 | (0.07) | -0.14 *** | (0.03) | | 0.21 ** | (0.07) | | 0.02 | (0.01) | |
| Hungary | 7.54 | 6.80 | 0.74 *** | (0.09) | 0.01 | (0.03) | 0.73% | 0.73 *** | (0.09) | 99.54% | 0.00 | (0.01) | -0.27% |
| Iceland | 8.27 | 7.35 | 0.92 *** | (0.07) | 0.01 | (0.02) | 1.51% | 0.91 *** | (0.07) | 98.68% | 0.00 | (0.00) | -0.19% |
| Ireland | 7.59 | 7.02 | 0.57 *** | (0.06) | -0.06 *** | (0.02) | -10.66% | 0.62 *** | (0.05) | 107.91% | 0.02 * | (0.01) | 2.75% |
| Latvia | 7.45 | 7.29 | 0.17 ** | (0.06) | -0.06 *** | (0.02) | -38.37% | 0.22 *** | (0.06) | 134.24% | 0.01 | (0.01) | 4.13% |
| Luxembourg | 7.78 | 7.00 | 0.77 *** | (0.06) | -0.03 | (0.02) | -3.43% | 0.79 *** | (0.05) | 102.60% | 0.01 | (0.01) | 0.82% |
| Mexico | 8.33 | 8.21 | 0.12 * | (0.05) | -0.01 | (0.01) | -11.94% | 0.13 ** | (0.05) | 108.62% | 0.00 | (0.00) | 3.31% |
| Peru | 7.59 | 7.43 | 0.16 * | (0.07) | 0.00 | (0.02) | -2.91% | 0.16 ** | (0.06) | 102.73% | 0.00 | (0.00) | 0.18% |
| Poland | 7.54 | 6.84 | 0.71 *** | (0.07) | -0.02 | (0.03) | -2.24% | 0.72 *** | (0.07) | 101.86% | 0.00 | (0.01) | 0.39% |
| Portugal | 7.62 | 7.11 | 0.51 *** | (0.05) | -0.04 * | (0.02) | -7.03% | 0.55 *** | (0.05) | 106.71% | 0.00 | (0.00) | 0.32% |
| Qatar | 7.53 | 7.31 | 0.22 *** | (0.05) | -0.01 | (0.01) | -4.65% | 0.23 *** | (0.05) | 103.48% | 0.00 | (0.00) | 1.16% |
| Russia | 7.92 | 7.60 | 0.31 *** | (0.06) | -0.06 * | (0.03) | -17.78% | 0.36 *** | (0.06) | 114.56% | 0.01 | (0.01) | 3.23% |
| Slovakia | 7.76 | 7.18 | 0.58 *** | (0.07) | -0.05 ** | (0.02) | -8.98% | 0.63 *** | (0.06) | 107.64% | 0.01 | (0.01) | 1.34% |
| Slovenia | 7.62 | 6.70 | 0.92 *** | (0.07) | -0.11 *** | (0.02) | -12.24% | 1.02 *** | (0.07) | 110.07% | 0.02 | (0.01) | 2.17% |
| South Korea | 6.60 | 6.12 | 0.47 *** | (0.07) | -0.06 | (0.03) | -11.68% | 0.52 *** | (0.06) | 110.55% | 0.01 | (0.00) | 1.13% |
| Spain | 7.60 | 7.25 | 0.35 *** | (0.06) | -0.10 *** | (0.02) | -27.80% | 0.43 *** | (0.05) | 121.74% | 0.02 * | (0.01) | 6.06% |
| Switzerland | 8.03 | 7.38 | 0.64 *** | (0.06) | -0.05 | (0.02) | -7.02% | 0.68 *** | (0.06) | 105.72% | 0.01 | (0.01) | 1.30% |
| Taiwan | 6.74 | 6.45 | 0.29 *** | (0.05) | -0.08 *** | (0.02) | -26.90% | 0.38 *** | (0.04) | 130.62% | -0.01 | (0.01) | -3.72% |
| Thailand | 7.74 | 7.70 | 0.04 | (0.06) | -0.09 *** | (0.02) | | 0.13 * | (0.06) | | 0.00 | (0.01) | |
| Turkey | 6.41 | 5.83 | 0.57 *** | (0.10) | -0.12 *** | (0.03) | -20.87% | 0.67 *** | (0.10) | 117.37% | 0.02 | (0.01) | 3.50% |
| UAE | 7.44 | 7.17 | 0.27 *** | (0.06) | 0.04 ** | (0.02) | 15.73% | 0.23 *** | (0.06) | 85.67% | 0.00 | (0.00) | -1.40% |
| United States | 7.67 | 7.06 | 0.60 *** | (0.06) | 0.02 | (0.02) | 3.24% | 0.59 *** | (0.06) | 96.90% | 0.00 | (0.00) | -0.14% |

Note: when the effect of the school-related related factor in students' LS is positive, positive endowment values indicate that the education policy related factor increases the gender gap in LS while negative values indicate the opposite effect. When the effect of the school-related factor in students' LS is negative, positive endowment values indicate that the education policy related factor benefits girls over boys (i.e. reduces the gender gap in LS) while negative values indicate the opposite effect. Results as the % of the gender gap are not reported for those countries where the gender gap in life satisfaction is not statistically significant

Table A2.21. Blinder-Oaxaca analysis of the gender gap in life satisfaction in view of academic competence

| | Mean LS | | Gender gap in LS | | Composition of the gender gap in LS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Endowment share | | | Unexplained share | | | Interaction | | |
| | Boys | Girls | b | SE | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS |
| Austria | 7.95 | 7.09 | 0.86 *** | (0.06) | 0.02 | (0.01) | 2.12% | 0.87 *** | (0.06) | 100.62% | -0.02 | (0.01) | -2.75% |
| Bulgaria | 7.62 | 7.20 | 0.42 *** | (0.07) | -0.02 | (0.01) | -3.84% | 0.45 *** | (0.07) | 106.62% | -0.01 | (0.02) | -2.78% |
| Chile | 7.60 | 7.13 | 0.47 *** | (0.08) | 0.01 | (0.01) | 1.46% | 0.48 *** | (0.08) | 100.97% | -0.01 | (0.01) | -2.43% |
| China (B-S-J-G) | 6.88 | 6.78 | 0.10 | (0.06) | 0.00 | (0.00) | | 0.10 | (0.06) | | 0.00 | (0.00) | |
| Colombia | 8.08 | 7.71 | 0.37 *** | (0.05) | 0.00 | (0.01) | -0.89% | 0.37 *** | (0.05) | 100.70% | 0.00 | (0.00) | 0.19% |
| Croatia | 8.21 | 7.62 | 0.60 *** | (0.06) | 0.00 | (0.00) | 0.21% | 0.59 *** | (0.06) | 99.32% | 0.00 | (0.01) | 0.47% |
| Czech Republic | 7.37 | 6.72 | 0.65 *** | (0.07) | -0.01 | (0.01) | -0.81% | 0.65 *** | (0.07) | 99.87% | 0.01 | (0.01) | 0.94% |
| Estonia | 7.73 | 7.27 | 0.46 *** | (0.06) | -0.01 | (0.00) | -1.76% | 0.47 *** | (0.06) | 100.81% | 0.00 | (0.00) | 0.95% |
| Finland | 8.25 | 7.51 | 0.74 *** | (0.05) | -0.05 *** | (0.01) | -6.09% | 0.76 *** | (0.05) | 102.72% | 0.03 | (0.02) | 3.37% |
| France | 7.86 | 7.41 | 0.45 *** | (0.05) | -0.01 | (0.01) | -2.46% | 0.45 *** | (0.05) | 101.18% | 0.01 | (0.00) | 1.28% |
| Greece | 7.22 | 6.59 | 0.64 *** | (0.06) | -0.04 ** | (0.01) | -6.29% | 0.63 *** | (0.06) | 99.68% | 0.04 ** | (0.01) | 6.61% |
| Hong Kong | 6.51 | 6.44 | 0.07 | (0.07) | -0.02 | (0.01) | | 0.08 | (0.06) | | 0.02 | (0.01) | |
| Hungary | 7.54 | 6.80 | 0.74 *** | (0.09) | -0.02 | (0.01) | -2.10% | 0.74 *** | (0.09) | 99.96% | 0.02 | (0.01) | 2.14% |
| Iceland | 8.28 | 7.35 | 0.93 *** | (0.07) | -0.06 *** | (0.02) | -6.69% | 0.95 *** | (0.07) | 102.24% | 0.04 ** | (0.02) | 4.44% |
| Ireland | 7.58 | 7.02 | 0.56 *** | (0.05) | 0.01 | (0.00) | 1.00% | 0.56 *** | (0.05) | 100.11% | -0.01 | (0.01) | -1.11% |
| Latvia | 7.46 | 7.29 | 0.16 ** | (0.06) | -0.04 * | (0.02) | -23.91% | 0.19 ** | (0.06) | 115.15% | 0.01 | (0.02) | 8.75% |
| Luxembourg | 7.78 | 6.99 | 0.78 *** | (0.06) | 0.00 | (0.00) | 0.00% | 0.78 *** | (0.06) | 100.00% | 0.00 | (0.00) | 0.00% |
| Mexico | 8.33 | 8.21 | 0.12 * | (0.05) | 0.00 | (0.00) | -0.04% | 0.12 * | (0.05) | 100.57% | 0.00 | (0.00) | -0.52% |
| Peru | 7.57 | 7.42 | 0.15 * | (0.07) | 0.00 | (0.00) | -2.47% | 0.14 * | (0.07) | 97.19% | 0.01 | (0.01) | 5.28% |
| Poland | 7.53 | 6.83 | 0.69 *** | (0.07) | 0.00 | (0.00) | -0.30% | 0.69 *** | (0.07) | 99.88% | 0.00 | (0.00) | 0.43% |
| Portugal | 7.61 | 7.11 | 0.51 *** | (0.05) | 0.00 | (0.00) | -0.21% | 0.51 *** | (0.05) | 100.31% | 0.00 | (0.00) | -0.10% |
| Qatar | 7.51 | 7.30 | 0.21 *** | (0.05) | 0.03 *** | (0.01) | 13.07% | 0.20 *** | (0.05) | 95.13% | -0.02 * | (0.01) | -8.20% |
| Russia | 7.92 | 7.60 | 0.32 *** | (0.07) | 0.00 | (0.00) | 0.83% | 0.31 *** | (0.07) | 97.04% | 0.01 | (0.01) | 2.14% |
| Slovakia | 7.76 | 7.17 | 0.59 *** | (0.07) | -0.01 * | (0.01) | -2.43% | 0.59 *** | (0.07) | 100.25% | 0.01 | (0.01) | 2.19% |
| Slovenia | 7.62 | 6.71 | 0.91 *** | (0.08) | -0.02 * | (0.01) | -2.49% | 0.89 *** | (0.07) | 97.70% | 0.04 ** | (0.01) | 4.79% |
| South Korea | 6.59 | 6.12 | 0.47 *** | (0.07) | -0.05 ** | (0.02) | -11.27% | 0.47 *** | (0.07) | 99.07% | 0.06 ** | (0.02) | 12.21% |
| Spain | 7.60 | 7.24 | 0.37 *** | (0.06) | 0.00 | (0.01) | 1.13% | 0.36 *** | (0.06) | 99.89% | 0.00 | (0.00) | -1.02% |
| Switzerland | 8.03 | 7.38 | 0.65 *** | (0.06) | 0.00 | (0.01) | -0.70% | 0.65 *** | (0.06) | 100.02% | 0.00 | (0.01) | 0.69% |
| Taiwan | 6.74 | 6.45 | 0.29 *** | (0.05) | -0.01 | (0.01) | -1.94% | 0.29 *** | (0.05) | 99.99% | 0.01 | (0.01) | 1.95% |
| Thailand | 7.73 | 7.70 | 0.04 | (0.06) | 0.01 | (0.01) | | 0.01 | (0.06) | | 0.01 | (0.01) | |
| Turkey | 6.41 | 5.83 | 0.59 *** | (0.10) | -0.01 | (0.01) | -0.86% | 0.58 *** | (0.10) | 98.41% | 0.01 | (0.01) | 2.45% |
| UAE | 7.44 | 7.17 | 0.27 *** | (0.06) | 0.03 * | (0.01) | 10.38% | 0.29 *** | (0.06) | 105.76% | -0.04 * | (0.02) | -16.14% |
| United States | 7.66 | 7.06 | 0.60 *** | (0.06) | 0.00 | (0.00) | 0.00% | 0.60 *** | (0.06) | 100.02% | 0.00 | (0.00) | -0.02% |

Note: when the effect of the school-related related factor in students' LS is positive, positive endowment values indicate that the education policy related factor increases the gender gap in LS while negative values indicate the opposite effect. When the effect of the school-related factor in students' LS is negative, positive endowment values indicate that the education policy related factor benefits girls over boys (i.e. reduces the gender gap in LS) while negative values indicate the opposite effect. Results as the % of the gender gap are not reported for those countries where the gender gap in life satisfaction is not statistically significant

Table A2.22. Blinder-Oaxaca analysis of the gender gap in life satisfaction in view of the time spent using ICT outside school for schoolwork

| | Mean LS | | Gender gap in LS | | Composition of the gender gap in LS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Endowment share | | | Unexplained share | | | Interaction | | |
| | Boys | Girls | b | SE | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS |
| Austria | 7.97 | 7.12 | 0.85 *** | (0.06) | 0.00 | (0.01) | 0.30% | 0.84 *** | (0.06) | 98.25% | 0.01 | (0.01) | 1.44% |
| Bulgaria | 7.63 | 7.22 | 0.40 *** | (0.08) | 0.06 *** | (0.02) | 14.04% | 0.36 *** | (0.09) | 90.09% | -0.02 | (0.02) | -4.13% |
| Chile | 7.57 | 7.16 | 0.41 *** | (0.08) | 0.01 | (0.01) | 1.74% | 0.41 *** | (0.08) | 98.60% | 0.00 | (0.00) | -0.35% |
| China (B-S-J-G) | 6.90 | 6.79 | 0.11 | (0.07) | 0.04 ** | (0.01) | | 0.05 | (0.07) | | 0.01 | (0.01) | |
| Colombia | 8.07 | 7.70 | 0.37 *** | (0.06) | 0.01 | (0.01) | 1.74% | 0.37 *** | (0.06) | 97.77% | 0.00 | (0.01) | 0.49% |
| Croatia | 8.22 | 7.63 | 0.59 *** | (0.07) | 0.05 *** | (0.01) | 8.58% | 0.53 *** | (0.07) | 90.86% | 0.00 | (0.01) | 0.56% |
| Czech Republic | 7.37 | 6.73 | 0.64 *** | (0.08) | 0.00 | (0.00) | 0.09% | 0.63 *** | (0.08) | 98.47% | 0.01 | (0.01) | 1.44% |
| Estonia | 7.79 | 7.27 | 0.51 *** | (0.07) | 0.01 | (0.01) | 2.24% | 0.49 *** | (0.07) | 95.40% | 0.01 | (0.01) | 2.36% |
| Finland | 8.25 | 7.51 | 0.74 *** | (0.05) | 0.01 | (0.02) | 1.47% | 0.74 *** | (0.05) | 99.80% | -0.01 | (0.02) | -1.27% |
| France | 7.91 | 7.45 | 0.46 *** | (0.06) | 0.02 * | (0.01) | 3.97% | 0.46 *** | (0.06) | 98.57% | -0.01 | (0.01) | -2.54% |
| Greece | 7.24 | 6.66 | 0.59 *** | (0.07) | 0.01 | (0.02) | 1.43% | 0.55 *** | (0.07) | 93.77% | 0.03 | (0.03) | 4.81% |
| Hong Kong | 6.54 | 6.44 | 0.10 | (0.07) | 0.02 * | (0.01) | | 0.07 | (0.07) | | 0.01 | (0.01) | |
| Hungary | 7.56 | 6.83 | 0.74 *** | (0.09) | 0.02 | (0.01) | 3.14% | 0.71 *** | (0.09) | 96.34% | 0.00 | (0.01) | 0.52% |
| Iceland | 8.30 | 7.39 | 0.91 *** | (0.08) | 0.03 * | (0.01) | 3.41% | 0.90 *** | (0.08) | 98.36% | -0.02 | (0.01) | -1.77% |
| Ireland | 7.59 | 7.03 | 0.56 *** | (0.06) | -0.01 | (0.01) | -1.44% | 0.57 *** | (0.06) | 100.87% | 0.00 | (0.01) | 0.56% |
| Latvia | 7.50 | 7.31 | 0.19 ** | (0.06) | 0.06 *** | (0.01) | 31.37% | 0.18 ** | (0.06) | 92.12% | -0.05 ** | (0.01) | -23.49% |
| Luxembourg | 7.78 | 7.00 | 0.78 *** | (0.07) | 0.01 | (0.02) | 1.86% | 0.76 *** | (0.07) | 96.79% | 0.01 | (0.02) | 1.35% |
| Mexico | 8.36 | 8.22 | 0.14 ** | (0.05) | 0.01 | (0.01) | 7.02% | 0.12 * | (0.05) | 85.74% | 0.01 | (0.01) | 7.25% |
| Peru | 7.64 | 7.40 | 0.24 *** | (0.07) | 0.01 | (0.01) | 3.73% | 0.22 *** | (0.06) | 91.44% | 0.01 | (0.01) | 4.82% |
| Poland | 7.55 | 6.84 | 0.71 *** | (0.07) | 0.02 | (0.01) | 2.90% | 0.70 *** | (0.07) | 97.66% | 0.00 | (0.01) | -0.56% |
| Portugal | 7.62 | 7.09 | 0.53 *** | (0.05) | 0.04 * | (0.02) | 7.55% | 0.49 *** | (0.06) | 93.27% | 0.00 | (0.01) | -0.82% |
| Qatar | | | | | | | | | | | | | |
| Russia | 7.93 | 7.59 | 0.34 *** | (0.07) | 0.00 | (0.01) | 1.34% | 0.32 *** | (0.07) | 94.56% | 0.01 | (0.01) | 4.11% |
| Slovakia | 7.78 | 7.14 | 0.64 *** | (0.07) | 0.01 | (0.01) | 1.55% | 0.62 *** | (0.07) | 97.08% | 0.01 | (0.01) | 1.37% |
| Slovenia | 7.60 | 6.73 | 0.87 *** | (0.08) | 0.01 | (0.01) | 1.09% | 0.86 *** | (0.08) | 98.81% | 0.00 | (0.01) | 0.10% |
| South Korea | 6.59 | 6.11 | 0.48 *** | (0.07) | -0.01 | (0.01) | -1.16% | 0.49 *** | (0.07) | 101.57% | 0.00 | (0.00) | -0.41% |
| Spain | 7.61 | 7.24 | 0.37 *** | (0.06) | 0.03 ** | (0.01) | 7.01% | 0.35 *** | (0.06) | 94.50% | -0.01 | (0.01) | -1.51% |
| Switzerland | 8.06 | 7.37 | 0.69 *** | (0.06) | -0.01 | (0.01) | -1.37% | 0.69 *** | (0.06) | 99.08% | 0.02 | (0.02) | 2.29% |
| Taiwan | 6.75 | 6.45 | 0.30 *** | (0.05) | -0.01 | (0.01) | -3.88% | 0.31 *** | (0.05) | 103.89% | 0.00 | (0.00) | -0.01% |
| Thailand | 7.75 | 7.69 | 0.06 | (0.07) | 0.00 | (0.00) | | 0.05 | (0.07) | | 0.00 | (0.00) | |
| Turkey | | | | | | | | | | | | | |
| UAE | | | | | | | | | | | | | |
| United States | | | | | | | | | | | | | |

Note: when the effect of the school-related related factor in students' LS is positive, positive endowment values indicate that the education policy related factor increases the gender gap in LS while negative values indicate the opposite effect. When the effect of the school-related factor in students' LS is negative, positive endowment values indicate that the education policy related factor benefits girls over boys (i.e. reduces the gender gap in LS) while negative values indicate the opposite effect. Results as the % of the gender gap are not reported for those countries where the gender gap in life satisfaction is not statistically significant

Table A2.23. Blinder-Oaxaca analysis of the gender gap in life satisfaction in view of valuing cooperation and teamwork

| | Mean LS | | Gender gap in LS | | Composition of the gender gap in LS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Endowment share | | | Unexplained share | | | Interaction | | |
| | Boys | Girls | b | SE | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS |
| Austria | 7.95 | 7.09 | 0.86 *** | (0.06) | 0.01 | (0.01) | 1.57% | 0.85 *** | (0.06) | 98.34% | 0.00 | (0.00) | 0.09% |
| Bulgaria | 7.63 | 7.20 | 0.43 *** | (0.07) | 0.05 ** | (0.01) | 10.80% | 0.40 *** | (0.07) | 92.93% | -0.02 | (0.01) | -3.73% |
| Chile | 7.61 | 7.14 | 0.47 *** | (0.08) | 0.04 *** | (0.01) | 8.83% | 0.42 *** | (0.08) | 89.10% | 0.01 | (0.01) | 2.07% |
| China (B-S-J-G) | 6.89 | 6.78 | 0.11 | (0.06) | 0.00 | (0.01) | | 0.11 | (0.06) | | 0.00 | (0.00) | |
| Colombia | 8.09 | 7.71 | 0.38 *** | (0.06) | 0.01 | (0.01) | 2.03% | 0.37 *** | (0.05) | 98.69% | 0.00 | (0.00) | -0.72% |
| Croatia | 8.21 | 7.62 | 0.60 *** | (0.06) | 0.03 ** | (0.01) | 5.48% | 0.56 *** | (0.06) | 94.31% | 0.00 | (0.00) | 0.22% |
| Czech Republic | 7.37 | 6.71 | 0.66 *** | (0.07) | 0.02 | (0.01) | 2.69% | 0.65 *** | (0.07) | 98.25% | -0.01 | (0.01) | -0.94% |
| Estonia | 7.73 | 7.27 | 0.46 *** | (0.06) | 0.03 ** | (0.01) | 6.31% | 0.42 *** | (0.06) | 92.05% | 0.01 | (0.01) | 1.64% |
| Finland | 8.25 | 7.51 | 0.74 *** | (0.05) | 0.07 *** | (0.01) | 9.41% | 0.68 *** | (0.05) | 91.91% | -0.01 | (0.01) | -1.32% |
| France | 7.85 | 7.41 | 0.44 *** | (0.05) | 0.01 | (0.00) | 1.69% | 0.43 *** | (0.06) | 96.51% | 0.01 | (0.01) | 1.80% |
| Greece | 7.24 | 6.58 | 0.65 *** | (0.06) | 0.02 * | (0.01) | 2.52% | 0.64 *** | (0.06) | 97.88% | 0.00 | (0.01) | -0.40% |
| Hong Kong | 6.51 | 6.45 | 0.06 | (0.07) | 0.01 | (0.01) | | 0.05 | (0.06) | | 0.00 | (0.00) | |
| Hungary | 7.55 | 6.80 | 0.75 *** | (0.09) | 0.02 * | (0.01) | 2.51% | 0.73 *** | (0.08) | 97.57% | 0.00 | (0.00) | -0.08% |
| Iceland | 8.29 | 7.35 | 0.94 *** | (0.07) | 0.06 ** | (0.02) | 6.13% | 0.89 *** | (0.07) | 94.45% | -0.01 | (0.02) | -0.58% |
| Ireland | 7.58 | 7.02 | 0.55 *** | (0.05) | 0.02 * | (0.01) | 4.24% | 0.53 *** | (0.05) | 96.28% | 0.00 | (0.00) | -0.52% |
| Latvia | 7.45 | 7.30 | 0.15 ** | (0.06) | 0.03 ** | (0.01) | 17.87% | 0.13 * | (0.06) | 84.21% | 0.00 | (0.01) | -2.08% |
| Luxembourg | 7.77 | 7.00 | 0.77 *** | (0.06) | 0.02 ** | (0.01) | 2.84% | 0.75 *** | (0.06) | 97.48% | 0.00 | (0.01) | -0.32% |
| Mexico | 8.34 | 8.21 | 0.13 ** | (0.05) | 0.02 * | (0.01) | 16.83% | 0.11 * | (0.05) | 84.78% | 0.00 | (0.00) | -1.61% |
| Peru | 7.60 | 7.43 | 0.17 * | (0.07) | 0.03 ** | (0.01) | 16.51% | 0.14 * | (0.07) | 78.27% | 0.01 | (0.01) | 5.23% |
| Poland | 7.53 | 6.83 | 0.70 *** | (0.07) | 0.03 ** | (0.01) | 4.92% | 0.66 *** | (0.07) | 94.58% | 0.00 | (0.01) | 0.50% |
| Portugal | 7.62 | 7.10 | 0.51 *** | (0.06) | 0.02 ** | (0.01) | 3.78% | 0.48 *** | (0.06) | 94.04% | 0.01 * | (0.01) | 2.17% |
| Qatar | 7.50 | 7.29 | 0.21 *** | (0.05) | -0.01 | (0.01) | -3.30% | 0.22 *** | (0.05) | 103.78% | 0.00 | (0.00) | -0.48% |
| Russia | 7.91 | 7.59 | 0.32 *** | (0.06) | 0.05 *** | (0.01) | 15.90% | 0.27 *** | (0.07) | 86.63% | -0.01 | (0.01) | -2.52% |
| Slovakia | 7.74 | 7.16 | 0.58 *** | (0.07) | 0.01 | (0.01) | 1.86% | 0.58 *** | (0.07) | 98.50% | 0.00 | (0.00) | -0.36% |
| Slovenia | 7.62 | 6.72 | 0.90 *** | (0.08) | 0.02 * | (0.01) | 2.30% | 0.88 *** | (0.07) | 97.76% | 0.00 | (0.01) | -0.06% |
| South Korea | 6.59 | 6.12 | 0.48 *** | (0.07) | 0.08 *** | (0.01) | 16.90% | 0.39 *** | (0.07) | 82.37% | 0.00 | (0.01) | 0.73% |
| Spain | 7.60 | 7.24 | 0.36 *** | (0.06) | 0.01 | (0.01) | 2.08% | 0.35 *** | (0.06) | 97.76% | 0.00 | (0.00) | 0.16% |
| Switzerland | 8.02 | 7.40 | 0.62 *** | (0.06) | 0.02 * | (0.01) | 2.70% | 0.60 *** | (0.06) | 97.21% | 0.00 | (0.01) | 0.09% |
| Taiwan | 6.74 | 6.45 | 0.29 *** | (0.05) | 0.04 *** | (0.01) | 12.48% | 0.25 *** | (0.05) | 85.77% | 0.00 | (0.00) | 1.75% |
| Thailand | 7.73 | 7.69 | 0.04 | (0.06) | 0.03 ** | (0.01) | | 0.01 | (0.06) | | 0.01 | (0.01) | |
| Turkey | 6.41 | 5.83 | 0.58 *** | (0.10) | 0.01 | (0.01) | 1.92% | 0.57 *** | (0.10) | 97.72% | 0.00 | (0.01) | 0.36% |
| UAE | 7.45 | 7.18 | 0.28 *** | (0.06) | 0.00 | (0.01) | 0.81% | 0.27 *** | (0.06) | 99.20% | 0.00 | (0.00) | -0.01% |
| United States | 7.66 | 7.06 | 0.61 *** | (0.07) | 0.08 *** | (0.01) | 13.38% | 0.52 *** | (0.07) | 85.82% | 0.00 | (0.01) | 0.81% |

Note: when the effect of the school-related related factor in students' LS is positive, positive endowment values indicate that the education policy related factor increases the gender gap in LS while negative values indicate the opposite effect. When the effect of the school-related factor in students' LS is negative, positive endowment values indicate that the education policy related factor benefits girls over boys (i.e. reduces the gender gap in LS) while negative values indicate the opposite effect. Results as the % of the gender gap are not reported for those countries where the gender gap in life satisfaction is not statistically significant

Table A2.24. Blinder-Oaxaca analysis of the gender gap in life satisfaction in view of truancy

| | Mean LS | | Gender gap in LS | | Composition of the gender gap in LS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Endowment share | | | Unexplained share | | | Interaction | | |
| | Boys | Girls | b | SE | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS |
| Austria | 7.96 | 7.10 | 0.86 *** | (0.06) | -0.02 | (0.01) | -2.28% | 0.87 *** | (0.06) | 101.05% | 0.01 | (0.01) | 1.23% |
| Bulgaria | 7.63 | 7.21 | 0.42 *** | (0.07) | -0.02 * | (0.01) | -3.87% | 0.44 *** | (0.07) | 104.32% | 0.00 | (0.01) | -0.44% |
| Chile | 7.61 | 7.14 | 0.48 *** | (0.08) | -0.02 | (0.01) | -3.38% | 0.48 *** | (0.08) | 101.12% | 0.01 | (0.01) | 2.26% |
| China (B-S-J-G) | 6.88 | 6.78 | 0.10 | (0.06) | -0.09 *** | (0.02) | | 0.16 * | (0.06) | | 0.03 | (0.02) | |
| Colombia | 8.09 | 7.72 | 0.37 *** | (0.06) | -0.04 *** | (0.01) | -11.63% | 0.40 *** | (0.06) | 109.71% | 0.01 | (0.01) | 1.93% |
| Croatia | 8.23 | 7.62 | 0.61 *** | (0.06) | -0.05 *** | (0.01) | -8.46% | 0.63 *** | (0.06) | 104.06% | 0.03 | (0.02) | 4.40% |
| Czech Republic | 7.38 | 6.73 | 0.64 *** | (0.07) | -0.04 *** | (0.01) | -6.80% | 0.66 *** | (0.07) | 102.13% | 0.03 * | (0.01) | 4.67% |
| Estonia | 7.74 | 7.27 | 0.47 *** | (0.06) | -0.05 *** | (0.01) | -9.93% | 0.51 *** | (0.06) | 108.21% | 0.01 | (0.01) | 1.71% |
| Finland | 8.25 | 7.51 | 0.74 *** | (0.05) | -0.01 | (0.01) | -1.25% | 0.75 *** | (0.05) | 100.64% | 0.00 | (0.01) | 0.61% |
| France | 7.88 | 7.42 | 0.46 *** | (0.05) | -0.04 *** | (0.01) | -8.13% | 0.48 *** | (0.05) | 103.54% | 0.02 * | (0.01) | 4.59% |
| Greece | 7.23 | 6.61 | 0.62 *** | (0.06) | -0.09 *** | (0.02) | -14.30% | 0.66 *** | (0.06) | 106.81% | 0.05 | (0.02) | 7.49% |
| Hong Kong | 6.52 | 6.44 | 0.07 | (0.07) | -0.06 *** | (0.01) | | 0.13 | (0.07) | | 0.00 | (0.01) | |
| Hungary | 7.53 | 6.80 | 0.73 *** | (0.08) | -0.04 *** | (0.01) | -5.64% | 0.74 *** | (0.08) | 102.23% | 0.02 | (0.01) | 3.41% |
| Iceland | 8.30 | 7.35 | 0.95 *** | (0.07) | -0.13 *** | (0.03) | -14.06% | 1.01 *** | (0.06) | 105.93% | 0.08 *** | (0.02) | 8.14% |
| Ireland | 7.58 | 7.02 | 0.57 *** | (0.05) | -0.02 | (0.02) | -3.65% | 0.58 *** | (0.05) | 102.00% | 0.01 | (0.01) | 1.64% |
| Latvia | 7.46 | 7.30 | 0.16 ** | (0.06) | -0.05 *** | (0.01) | -31.83% | 0.20 *** | (0.06) | 123.51% | 0.01 | (0.01) | 8.32% |
| Luxembourg | 7.77 | 7.00 | 0.78 *** | (0.06) | -0.08 *** | (0.02) | -9.73% | 0.80 *** | (0.06) | 103.81% | 0.05 ** | (0.02) | 5.92% |
| Mexico | 8.34 | 8.21 | 0.12 ** | (0.05) | -0.05 *** | (0.01) | -38.62% | 0.15 ** | (0.05) | 121.46% | 0.02 * | (0.01) | 17.16% |
| Peru | 7.61 | 7.43 | 0.18 ** | (0.07) | -0.03 * | (0.02) | -19.47% | 0.20 ** | (0.06) | 111.73% | 0.01 | (0.01) | 7.75% |
| Poland | 7.52 | 6.83 | 0.70 *** | (0.07) | -0.10 *** | (0.02) | -13.83% | 0.72 *** | (0.07) | 103.09% | 0.07 ** | (0.03) | 10.74% |
| Portugal | 7.61 | 7.10 | 0.51 *** | (0.05) | -0.04 *** | (0.01) | -7.84% | 0.52 *** | (0.05) | 103.07% | 0.02 * | (0.01) | 4.77% |
| Qatar | 7.49 | 7.30 | 0.19 *** | (0.05) | -0.01 ** | (0.01) | -7.25% | 0.19 *** | (0.05) | 102.65% | 0.01 | (0.01) | 4.60% |
| Russia | 7.92 | 7.61 | 0.32 *** | (0.07) | -0.04 ** | (0.01) | -11.91% | 0.33 *** | (0.07) | 105.12% | 0.02 | (0.01) | 6.79% |
| Slovakia | 7.75 | 7.17 | 0.58 *** | (0.07) | -0.04 ** | (0.01) | -6.60% | 0.60 *** | (0.07) | 103.89% | 0.02 | (0.01) | 2.71% |
| Slovenia | 7.61 | 6.71 | 0.90 *** | (0.08) | -0.08 *** | (0.02) | -8.99% | 0.94 *** | (0.07) | 104.15% | 0.04 * | (0.02) | 4.84% |
| South Korea | 6.59 | 6.12 | 0.47 *** | (0.07) | -0.01 * | (0.01) | -3.09% | 0.49 *** | (0.07) | 104.61% | -0.01 | (0.01) | -1.52% |
| Spain | 7.60 | 7.25 | 0.36 *** | (0.06) | -0.01 | (0.01) | -3.74% | 0.36 *** | (0.06) | 101.37% | 0.01 | (0.01) | 2.37% |
| Switzerland | 8.02 | 7.39 | 0.63 *** | (0.06) | -0.07 *** | (0.02) | -11.65% | 0.66 *** | (0.06) | 104.01% | 0.05 ** | (0.02) | 7.64% |
| Taiwan | 6.74 | 6.45 | 0.29 *** | (0.05) | -0.05 *** | (0.01) | -16.33% | 0.32 *** | (0.05) | 110.18% | 0.02 | (0.01) | 6.15% |
| Thailand | 7.74 | 7.70 | 0.04 | (0.06) | -0.06 *** | (0.01) | | 0.09 | (0.06) | | 0.02 | (0.02) | |
| Turkey | 6.40 | 5.83 | 0.58 *** | (0.10) | -0.17 *** | (0.03) | -29.73% | 0.69 *** | (0.10) | 118.86% | 0.06 * | (0.03) | 10.87% |
| UAE | 7.45 | 7.17 | 0.28 *** | (0.06) | -0.02 ** | (0.01) | -8.61% | 0.31 *** | (0.06) | 109.12% | 0.00 | (0.01) | -0.51% |
| United States | 7.65 | 7.06 | 0.59 *** | (0.06) | 0.01 | (0.01) | 1.64% | 0.58 *** | (0.06) | 98.57% | 0.00 | (0.00) | -0.21% |

Note: when the effect of the school-related related factor in students' LS is positive, positive endowment values indicate that the education policy related factor increases the gender gap in LS while negative values indicate the opposite effect. When the effect of the school-related factor in students' LS is negative, positive endowment values indicate that the education policy related factor benefits girls over boys (i.e. reduces the gender gap in LS) while negative values indicate the opposite effect. Results as the % of the gender gap are not reported for those countries where the gender gap in life satisfaction is not statistically significant

Table A2.25. Blinder-Oaxaca analysis of the gender gap in life satisfaction in view of having repeated a grade at least once

| | Mean LS | | Gender gap in LS | | Composition of the gender gap in LS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Endowment share | | | Unexplained share | | | Interaction | | |
| | Boys | Girls | b | SE | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS |
| Austria | 7.95 | 7.09 | 0.86 *** | (0.06) | -0.01 * | (0.01) | -1.64% | 0.88 *** | (0.06) | 101.53% | 0.00 | (0.01) | 0.11% |
| Bulgaria | 7.62 | 7.20 | 0.42 *** | (0.07) | -0.01 | (0.02) | -2.79% | 0.44 *** | (0.07) | 105.05% | -0.01 | (0.02) | -2.25% |
| Chile | 7.61 | 7.13 | 0.48 *** | (0.08) | -0.02 * | (0.01) | -4.00% | 0.49 *** | (0.08) | 102.07% | 0.01 | (0.01) | 1.94% |
| China (B-S-J-G) | 6.88 | 6.78 | 0.09 | (0.06) | -0.03 ** | (0.01) | | 0.12 | (0.06) | | 0.00 | (0.01) | |
| Colombia | 8.09 | 7.71 | 0.38 *** | (0.05) | -0.04 ** | (0.01) | -11.28% | 0.38 *** | (0.05) | 100.77% | 0.04 * | (0.02) | 10.51% |
| Croatia | 8.21 | 7.62 | 0.60 *** | (0.06) | 0.00 | (0.00) | -0.04% | 0.60 *** | (0.06) | 100.00% | 0.00 | (0.00) | 0.04% |
| Czech Republic | 7.37 | 6.72 | 0.65 *** | (0.07) | -0.03 ** | (0.01) | -5.38% | 0.65 *** | (0.07) | 101.05% | 0.03 * | (0.01) | 4.32% |
| Estonia | 7.73 | 7.27 | 0.46 *** | (0.06) | -0.01 | (0.01) | -2.27% | 0.47 *** | (0.06) | 102.14% | 0.00 | (0.01) | 0.13% |
| Finland | 8.25 | 7.51 | 0.75 *** | (0.05) | 0.00 | (0.01) | -0.11% | 0.76 *** | (0.05) | 101.18% | -0.01 | (0.01) | -1.06% |
| France | 7.86 | 7.41 | 0.45 *** | (0.05) | -0.02 ** | (0.01) | -3.71% | 0.47 *** | (0.05) | 104.21% | 0.00 | (0.01) | -0.50% |
| Greece | 7.23 | 6.59 | 0.64 *** | (0.06) | -0.02 | (0.02) | -3.40% | 0.64 *** | (0.06) | 99.76% | 0.02 | (0.02) | 3.64% |
| Hong Kong | 6.52 | 6.44 | 0.08 | (0.07) | -0.02 * | (0.01) | | 0.08 | (0.07) | | 0.01 | (0.01) | |
| Hungary | 7.54 | 6.80 | 0.74 *** | (0.09) | -0.01 | (0.01) | -1.58% | 0.74 *** | (0.09) | 99.83% | 0.01 | (0.01) | 1.75% |
| Iceland | 8.28 | 7.35 | 0.93 *** | (0.07) | -0.01 | (0.01) | -1.35% | 0.94 *** | (0.07) | 100.52% | 0.01 | (0.01) | 0.83% |
| Ireland | 7.58 | 7.02 | 0.56 *** | (0.05) | -0.01 | (0.00) | -1.30% | 0.56 *** | (0.05) | 100.64% | 0.00 | (0.00) | 0.65% |
| Latvia | 7.45 | 7.29 | 0.16 ** | (0.06) | -0.02 * | (0.01) | -12.81% | 0.16 ** | (0.06) | 99.87% | 0.02 | (0.01) | 12.94% |
| Luxembourg | 7.78 | 6.99 | 0.79 *** | (0.06) | -0.03 ** | (0.01) | -4.28% | 0.79 *** | (0.06) | 100.69% | 0.03 * | (0.01) | 3.59% |
| Mexico | 8.33 | 8.21 | 0.12 * | (0.05) | -0.03 ** | (0.01) | -26.52% | 0.13 ** | (0.05) | 111.03% | 0.02 | (0.02) | 15.49% |
| Peru | 7.57 | 7.42 | 0.15 * | (0.07) | -0.01 | (0.01) | -6.96% | 0.18 ** | (0.07) | 117.48% | -0.02 | (0.01) | -10.52% |
| Poland | 7.52 | 6.83 | 0.69 *** | (0.07) | -0.04 * | (0.02) | -5.80% | 0.70 *** | (0.07) | 101.13% | 0.03 | (0.02) | 4.68% |
| Portugal | 7.62 | 7.11 | 0.51 *** | (0.05) | -0.02 | (0.01) | -3.53% | 0.50 *** | (0.05) | 98.78% | 0.02 | (0.01) | 4.75% |
| Qatar | 7.52 | 7.30 | 0.22 *** | (0.05) | 0.00 | (0.00) | -0.09% | 0.23 *** | (0.05) | 102.86% | -0.01 | (0.00) | -2.77% |
| Russia | 7.92 | 7.60 | 0.32 *** | (0.07) | -0.01 | (0.01) | -3.36% | 0.34 *** | (0.07) | 104.94% | -0.01 | (0.01) | -1.58% |
| Slovakia | 7.76 | 7.17 | 0.59 *** | (0.07) | 0.00 | (0.01) | -0.14% | 0.60 *** | (0.07) | 101.79% | -0.01 | (0.01) | -1.65% |
| Slovenia | 7.62 | 6.71 | 0.91 *** | (0.08) | -0.01 | (0.01) | -0.90% | 0.91 *** | (0.07) | 99.85% | 0.01 | (0.02) | 1.06% |
| South Korea | 6.59 | 6.12 | 0.47 *** | (0.07) | 0.00 | (0.00) | -0.58% | 0.47 *** | (0.07) | 100.49% | 0.00 | (0.00) | 0.08% |
| Spain | 7.61 | 7.24 | 0.37 *** | (0.06) | -0.05 *** | (0.01) | -13.10% | 0.40 *** | (0.06) | 109.57% | 0.01 | (0.01) | 3.53% |
| Switzerland | 8.02 | 7.38 | 0.65 *** | (0.06) | -0.02 * | (0.01) | -2.88% | 0.66 *** | (0.06) | 102.44% | 0.00 | (0.01) | 0.44% |
| Taiwan | 6.74 | 6.45 | 0.29 *** | (0.05) | 0.00 | (0.00) | -0.31% | 0.29 *** | (0.05) | 100.00% | 0.00 | (0.00) | 0.31% |
| Thailand | 7.74 | 7.70 | 0.04 | (0.06) | -0.03 ** | (0.01) | | 0.05 | (0.06) | | 0.01 | (0.01) | |
| Turkey | 6.41 | 5.83 | 0.59 *** | (0.10) | -0.01 | (0.02) | -1.10% | 0.61 *** | (0.10) | 103.64% | -0.01 | (0.02) | -2.53% |
| UAE | 7.45 | 7.17 | 0.27 *** | (0.06) | -0.01 * | (0.01) | -5.02% | 0.30 *** | (0.06) | 108.12% | -0.01 | (0.01) | -3.09% |
| United States | 7.65 | 7.06 | 0.59 *** | (0.06) | -0.02 | (0.01) | -3.79% | 0.60 *** | (0.06) | 101.95% | 0.01 | (0.01) | 1.85% |

Note: when the effect of the school-related related factor in students' LS is positive, positive endowment values indicate that the education policy related factor increases the gender gap in LS while negative values indicate the opposite effect. When the effect of the school-related factor in students' LS is negative, positive endowment values indicate that the education policy related factor benefits girls over boys (i.e. reduces the gender gap in LS) while negative values indicate the opposite effect. Results as the % of the gender gap are not reported for those countries where the gender gap in life satisfaction is not statistically significant

Table A2.26. Blinder-Oaxaca analysis of the gender gap in life satisfaction for attending a school which practices ability grouping within classes

| | Mean LS | | Gender gap in LS | | Composition of the gender gap in LS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Endowment share | | | Unexplained share | | | Interaction | | |
| | Boys | Girls | b | SE | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS |
| Austria | 7.95 | 7.11 | 0.85 *** | (0.06) | 0.00 | (0.00) | -0.19% | 0.84 *** | (0.06) | 99.64% | 0.00 | (0.01) | 0.55% |
| Bulgaria | 7.62 | 7.20 | 0.42 *** | (0.07) | 0.00 | (0.00) | -0.01% | 0.42 *** | (0.07) | 99.77% | 0.00 | (0.00) | 0.23% |
| Chile | 7.61 | 7.14 | 0.47 *** | (0.08) | -0.01 | (0.01) | -1.39% | 0.48 *** | (0.08) | 101.34% | 0.00 | (0.00) | 0.05% |
| China (B-S-J-G) | 6.88 | 6.79 | 0.09 | (0.06) | 0.01 | (0.00) | | 0.08 | (0.06) | | 0.00 | (0.00) | |
| Colombia | 8.09 | 7.69 | 0.39 *** | (0.06) | 0.00 | (0.00) | -0.01% | 0.39 *** | (0.06) | 99.84% | 0.00 | (0.00) | 0.17% |
| Croatia | 8.22 | 7.62 | 0.60 *** | (0.06) | 0.00 | (0.01) | -0.62% | 0.60 *** | (0.06) | 99.94% | 0.00 | (0.01) | 0.68% |
| Czech Republic | 7.37 | 6.72 | 0.64 *** | (0.07) | 0.00 | (0.00) | 0.36% | 0.64 *** | (0.07) | 100.10% | 0.00 | (0.01) | -0.46% |
| Estonia | 7.74 | 7.28 | 0.46 *** | (0.06) | 0.00 | (0.00) | 0.16% | 0.46 *** | (0.06) | 99.81% | 0.00 | (0.00) | 0.03% |
| Finland | 8.25 | 7.50 | 0.75 *** | (0.05) | 0.00 | (0.00) | 0.01% | 0.75 *** | (0.05) | 99.93% | 0.00 | (0.00) | 0.07% |
| France | 7.85 | 7.40 | 0.45 *** | (0.05) | 0.00 | (0.00) | 0.44% | 0.46 *** | (0.05) | 100.53% | 0.00 | (0.01) | -0.97% |
| Greece | 7.22 | 6.59 | 0.64 *** | (0.06) | 0.00 | (0.00) | -0.15% | 0.64 *** | (0.06) | 99.80% | 0.00 | (0.00) | 0.35% |
| Hong Kong | 6.54 | 6.45 | 0.08 | (0.07) | 0.00 | (0.00) | | 0.07 | (0.07) | | 0.01 | (0.01) | |
| Hungary | 7.54 | 6.79 | 0.75 *** | (0.09) | -0.02 | (0.02) | -2.53% | 0.75 *** | (0.09) | 100.07% | 0.02 | (0.01) | 2.47% |
| Iceland | 8.28 | 7.35 | 0.92 *** | (0.07) | 0.00 | (0.00) | -0.11% | 0.93 *** | (0.07) | 100.52% | 0.00 | (0.00) | -0.42% |
| Ireland | 7.59 | 7.03 | 0.57 *** | (0.05) | 0.00 | (0.00) | -0.45% | 0.56 *** | (0.06) | 98.99% | 0.01 | (0.01) | 1.46% |
| Latvia | 7.46 | 7.29 | 0.16 ** | (0.06) | 0.00 | (0.00) | -0.23% | 0.16 ** | (0.06) | 99.57% | 0.00 | (0.00) | 0.67% |
| Luxembourg | 7.77 | 6.99 | 0.78 *** | (0.06) | 0.00 | (0.01) | 0.44% | 0.78 *** | (0.06) | 100.27% | -0.01 | (0.01) | -0.71% |
| Mexico | 8.33 | 8.21 | 0.12 * | (0.05) | 0.00 | (0.00) | 2.35% | 0.12 * | (0.05) | 102.60% | -0.01 | (0.00) | -4.95% |
| Peru | 7.56 | 7.42 | 0.14 * | (0.07) | -0.01 | (0.01) | -3.99% | 0.14 * | (0.07) | 100.14% | 0.01 | (0.01) | 3.86% |
| Poland | 7.52 | 6.86 | 0.66 *** | (0.07) | 0.00 | (0.00) | 0.01% | 0.66 *** | (0.07) | 99.99% | 0.00 | (0.00) | 0.01% |
| Portugal | 7.62 | 7.12 | 0.49 *** | (0.05) | 0.00 | (0.00) | 0.25% | 0.50 *** | (0.05) | 101.24% | -0.01 | (0.01) | -1.49% |
| Qatar | 7.52 | 7.31 | 0.21 *** | (0.05) | 0.00 | (0.00) | -1.07% | 0.21 *** | (0.05) | 102.40% | 0.00 | (0.00) | -1.33% |
| Russia | 7.91 | 7.60 | 0.31 *** | (0.07) | 0.00 | (0.00) | -0.65% | 0.31 *** | (0.07) | 99.76% | 0.00 | (0.00) | 0.88% |
| Slovakia | 7.76 | 7.17 | 0.59 *** | (0.07) | 0.00 | (0.00) | 0.01% | 0.59 *** | (0.07) | 99.98% | 0.00 | (0.00) | 0.01% |
| Slovenia | 7.61 | 6.72 | 0.89 *** | (0.08) | 0.00 | (0.01) | 0.39% | 0.89 *** | (0.08) | 99.48% | 0.00 | (0.01) | 0.13% |
| South Korea | 6.58 | 6.10 | 0.48 *** | (0.07) | 0.00 | (0.00) | 0.14% | 0.48 *** | (0.07) | 99.42% | 0.00 | (0.01) | 0.44% |
| Spain | 7.60 | 7.23 | 0.36 *** | (0.06) | 0.00 | (0.00) | 0.00% | 0.36 *** | (0.06) | 100.00% | 0.00 | (0.00) | 0.00% |
| Switzerland | 8.03 | 7.39 | 0.65 *** | (0.06) | 0.00 | (0.00) | 0.59% | 0.65 *** | (0.06) | 100.28% | -0.01 | (0.01) | -0.87% |
| Taiwan | 6.74 | 6.45 | 0.29 *** | (0.05) | 0.00 | (0.00) | 0.58% | 0.29 *** | (0.05) | 98.68% | 0.00 | (0.00) | 0.75% |
| Thailand | 7.74 | 7.71 | 0.03 | (0.06) | -0.01 | (0.01) | | 0.03 | (0.06) | | 0.01 | (0.01) | |
| Turkey | 6.42 | 5.83 | 0.58 *** | (0.10) | 0.00 | (0.01) | 0.28% | 0.58 *** | (0.10) | 99.99% | 0.00 | (0.01) | -0.28% |
| UAE | 7.46 | 7.21 | 0.25 *** | (0.06) | 0.00 | (0.01) | 1.87% | 0.24 *** | (0.07) | 98.84% | 0.00 | (0.01) | -0.70% |
| United States | 7.66 | 7.06 | 0.59 *** | (0.06) | 0.00 | (0.00) | 0.01% | 0.59 *** | (0.06) | 100.00% | 0.00 | (0.00) | -0.01% |

Note: when the effect of the school-related related factor in students' LS is positive, positive endowment values indicate that the education policy related factor increases the gender gap in LS while negative values indicate the opposite effect. When the effect of the school-related factor in students' LS is negative, positive endowment values indicate that the education policy related factor benefits girls over boys (i.e. reduces the gender gap in LS) while negative values indicate the opposite effect. Results as the % of the gender gap are not reported for those countries where the gender gap in life satisfaction is not statistically significant

Table A2.27. Blinder-Oaxaca analysis of the gender gap life satisfaction for attending a school which practices ability grouping between classes

| | Mean LS | | Gender gap in LS | | Composition of the gender gap in LS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Endowment share | | | Unexplained share | | | Interaction | | |
| | Boys | Girls | b | SE | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS | b | SE | % of the gender gap in LS |
| Austria | 7.96 | 7.10 | 0.85 *** | (0.06) | 0.00 | (0.01) | -0.21% | 0.84 *** | (0.06) | 98.19% | 0.02 | (0.01) | 2.02% |
| Bulgaria | 7.62 | 7.19 | 0.43 *** | (0.07) | 0.01 | (0.01) | 1.62% | 0.42 *** | (0.07) | 98.96% | 0.00 | (0.01) | -0.58% |
| Chile | 7.61 | 7.15 | 0.46 *** | (0.08) | -0.01 | (0.01) | -1.35% | 0.46 *** | (0.08) | 100.44% | 0.00 | (0.01) | 0.92% |
| China (B-S-J-G) | 6.88 | 6.78 | 0.09 | (0.06) | 0.00 | (0.00) | | 0.09 | (0.06) | | 0.00 | (0.00) | |
| Colombia | 8.09 | 7.70 | 0.40 *** | (0.06) | 0.00 | (0.00) | 0.48% | 0.39 *** | (0.06) | 99.62% | 0.00 | (0.00) | -0.10% |
| Croatia | 8.22 | 7.62 | 0.60 *** | (0.06) | 0.00 | (0.00) | -0.17% | 0.61 *** | (0.06) | 100.21% | 0.00 | (0.00) | -0.04% |
| Czech Republic | 7.37 | 6.72 | 0.65 *** | (0.07) | 0.00 | (0.00) | 0.13% | 0.64 *** | (0.07) | 99.79% | 0.00 | (0.00) | 0.08% |
| Estonia | 7.73 | 7.27 | 0.46 *** | (0.06) | 0.00 | (0.00) | 0.00% | 0.46 *** | (0.06) | 99.80% | 0.00 | (0.00) | 0.20% |
| Finland | 8.25 | 7.50 | 0.75 *** | (0.05) | 0.00 | (0.00) | 0.02% | 0.75 *** | (0.05) | 100.00% | 0.00 | (0.00) | -0.02% |
| France | 7.85 | 7.40 | 0.46 *** | (0.05) | 0.00 | (0.00) | 0.02% | 0.46 *** | (0.05) | 99.95% | 0.00 | (0.00) | 0.03% |
| Greece | 7.22 | 6.59 | 0.64 *** | (0.06) | 0.00 | (0.00) | 0.16% | 0.64 *** | (0.06) | 99.94% | 0.00 | (0.00) | -0.10% |
| Hong Kong | 6.54 | 6.46 | 0.08 | (0.07) | 0.00 | (0.00) | | 0.08 | (0.07) | | 0.00 | (0.01) | |
| Hungary | 7.54 | 6.80 | 0.74 *** | (0.09) | 0.00 | (0.01) | -0.33% | 0.74 *** | (0.09) | 99.98% | 0.00 | (0.01) | 0.35% |
| Iceland | 8.29 | 7.36 | 0.93 *** | (0.07) | 0.00 | (0.00) | 0.43% | 0.93 *** | (0.07) | 100.09% | 0.00 | (0.00) | -0.52% |
| Ireland | 7.59 | 7.03 | 0.56 *** | (0.05) | 0.00 | (0.00) | -0.21% | 0.56 *** | (0.05) | 100.56% | 0.00 | (0.01) | -0.35% |
| Latvia | 7.46 | 7.30 | 0.16 ** | (0.06) | 0.00 | (0.00) | 0.00% | 0.16 ** | (0.06) | 99.67% | 0.00 | (0.01) | 0.33% |
| Luxembourg | 7.78 | 6.99 | 0.79 *** | (0.06) | -0.01 | (0.01) | -1.12% | 0.79 *** | (0.06) | 100.80% | 0.00 | (0.01) | 0.32% |
| Mexico | 8.32 | 8.21 | 0.11 * | (0.05) | 0.00 | (0.00) | -0.26% | 0.11 * | (0.05) | 100.46% | 0.00 | (0.00) | -0.20% |
| Peru | 7.56 | 7.42 | 0.14 * | (0.07) | 0.00 | (0.00) | -1.43% | 0.14 | (0.07) | 97.04% | 0.01 | (0.01) | 4.39% |
| Poland | 7.52 | 6.84 | 0.68 *** | (0.07) | 0.00 | (0.00) | -0.09% | 0.68 *** | (0.07) | 99.89% | 0.00 | (0.00) | 0.19% |
| Portugal | 7.61 | 7.13 | 0.49 *** | (0.05) | 0.00 | (0.00) | -0.06% | 0.49 *** | (0.05) | 100.06% | 0.00 | (0.00) | 0.00% |
| Qatar | 7.52 | 7.31 | 0.21 *** | (0.05) | 0.00 | (0.00) | -0.11% | 0.21 *** | (0.05) | 100.59% | 0.00 | (0.00) | -0.48% |
| Russia | 7.91 | 7.60 | 0.31 *** | (0.07) | 0.00 | (0.00) | -0.37% | 0.31 *** | (0.07) | 100.02% | 0.00 | (0.00) | 0.34% |
| Slovakia | 7.77 | 7.18 | 0.59 *** | (0.07) | 0.00 | (0.01) | -0.66% | 0.60 *** | (0.07) | 100.79% | 0.00 | (0.01) | -0.12% |
| Slovenia | 7.61 | 6.72 | 0.89 *** | (0.08) | 0.00 | (0.00) | 0.04% | 0.90 *** | (0.08) | 100.17% | 0.00 | (0.00) | -0.21% |
| South Korea | 6.59 | 6.12 | 0.47 *** | (0.07) | 0.00 | (0.00) | -0.01% | 0.47 *** | (0.07) | 99.77% | 0.00 | (0.01) | 0.24% |
| Spain | 7.60 | 7.24 | 0.36 *** | (0.06) | 0.00 | (0.00) | 0.38% | 0.36 *** | (0.06) | 99.57% | 0.00 | (0.00) | 0.05% |
| Switzerland | 8.04 | 7.38 | 0.65 *** | (0.06) | 0.00 | (0.00) | -0.48% | 0.65 *** | (0.06) | 100.22% | 0.00 | (0.00) | 0.26% |
| Taiwan | 6.74 | 6.45 | 0.28 *** | (0.05) | 0.00 | (0.00) | 0.00% | 0.28 *** | (0.05) | 100.03% | 0.00 | (0.00) | -0.04% |
| Thailand | 7.74 | 7.70 | 0.03 | (0.06) | 0.00 | (0.00) | | 0.03 | (0.06) | | 0.00 | (0.00) | |
| Turkey | 6.42 | 5.83 | 0.59 *** | (0.10) | 0.00 | (0.01) | 0.17% | 0.58 *** | (0.10) | 98.27% | 0.01 | (0.02) | 1.56% |
| UAE | 7.45 | 7.20 | 0.25 *** | (0.06) | 0.00 | (0.01) | -0.17% | 0.25 *** | (0.07) | 100.87% | 0.00 | (0.02) | -0.70% |
| United States | 7.66 | 7.07 | 0.59 *** | (0.06) | 0.00 | (0.00) | 0.13% | 0.59 *** | (0.06) | 99.85% | 0.00 | (0.00) | 0.02% |

Note: when the effect of the school-related related factor in students' LS is positive, positive endowment values indicate that the education policy related factor increases the gender gap in LS while negative values indicate the opposite effect. When the effect of the school-related factor in students' LS is negative, positive endowment values indicate that the education policy related factor benefits girls over boys (i.e. reduces the gender gap in LS) while negative values indicate the opposite effect. Results as the % of the gender gap are not reported for those countries where the gender gap in life satisfaction is not statistically significant

# Appendix 3: Tables of chapter 7

This appendix includes results by country of the analysis of interaction effects presented in chapter 7.

Table A3.1 Socioeconomic status, education policy relevant aspects and students' life satisfaction: interaction effects detailed by country (I)

| Education policy relevant factor | SES considered in the interaction | Results in countries where a statistically significant interaction is found: Country | Education policy relevant factor (direct effect) b | SE | Interaction b | SE |
|---|---|---|---|---|---|---|
| Index of schoolwork-related anxiety | Index of socioeconomic status (SES) | Thailand | -0.24*** | (0.04) | -0.11* | (0.05) |
| | Index of home possessions | Austria | -0.46*** | (0.05) | -0.08* | (0.04) |
| | | Iceland | -0.57*** | (0.06) | 0.10* | (0.05) |
| | | Slovakia | -0.39*** | (0.04) | 0.10* | (0.05) |
| | | United States | -0.43*** | (0.05) | 0.11** | (0.04) |
| | Index of parents' level of education | China (B-S-J-G) | -0.37*** | (0.04) | 0.11** | (0.04) |
| | | Thailand | -0.24*** | (0.05) | -0.15* | (0.06) |
| | Index of parents' occupational status | Austria | -0.47*** | (0.05) | -0.08* | (0.04) |
| | | Luxembourg | -0.38*** | (0.04) | -0.07* | (0.03) |
| | | Thailand | -0.23*** | (0.05) | -0.11* | (0.05) |
| | Index of family wealth | Croatia | -0.28*** | (0.05) | 0.09* | (0.03) |
| | | Ireland | -0.42*** | (0.04) | 0.08* | (0.04) |
| | | United States | -0.40*** | (0.05) | 0.11** | (0.04) |
| | Index of home educational resources | Czech Republic | -0.40*** | (0.04) | 0.08* | (0.03) |
| | | Iceland | -0.57*** | (0.06) | 0.11* | (0.05) |
| | | Latvia | -0.27*** | (0.05) | -0.11* | (0.05) |
| | | United States | -0.40*** | (0.05) | 0.10* | (0.05) |
| | Index of cultural possessions in the household | Austria | -0.46*** | (0.05) | -0.09** | (0.03) |
| | | South Korea | -0.57*** | (0.04) | 0.09* | (0.04) |
| Index of sense of belonging at school | Index of socioeconomic status (SES) | - | - | - | - | - |
| | Index of home possessions (MB) | Hong Kong | 0.06 | (0.04) | -0.10** | (0.04) |
| | | Croatia | 0.13** | (0.05) | 0.08* | (0.04) |
| | | Latvia | 0.13** | (0.04) | 0.05* | (0.03) |
| | Index of parents' level of education | Czech Republic | 0.00 | (0.04) | -0.08* | (0.04) |
| | | South Korea | 0.13* | (0.06) | -0.12** | (0.05) |
| | | Latvia | 0.14** | (0.04) | 0.07* | (0.04) |
| | Index of parents' occupational status | - | - | - | - | - |
| | Index of family wealth (MC) | Hong Kong | 0.06 | (0.04) | -0.12** | (0.04) |
| | | Latvia | 0.11** | (0.04) | 0.06* | (0.03) |
| | Index of home educational resources | Switzerland | 0.01 | (0.04) | -0.09* | (0.04) |
| | | France | 0.19*** | (0.05) | -0.14* | (0.06) |
| | | United States | 0.16** | (0.06) | -0.14** | (0.05) |
| | Index of cultural possessions in the household (MC) | Ireland | 0.19*** | (0.04) | -0.07* | (0.03) |
| | | Poland | 0.10* | (0.05) | 0.15* | (0.06) |
| Index of frequency of being bullied | Index of socioeconomic status (SES) | Austria | -0.19*** | (0.04) | 0.10* | (0.04) |
| | | Switzerland | -0.25*** | (0.05) | 0.13*** | (0.04) |
| | | Spain | -0.26*** | (0.03) | 0.12*** | (0.03) |
| | | Iceland | -0.30*** | (0.06) | 0.12* | (0.05) |
| | Index of home possessions (MB) | Spain | -0.25*** | (0.03) | 0.10*** | (0.03) |
| | | Poland | -0.30*** | (0.05) | 0.11* | (0.05) |
| | | China (B-S-J-G) | -0.17 | (0.04) | 0.07* | (0.04) |
| | Index of parents' level of education | Switzerland | -0.29*** | (0.04) | 0.11** | (0.04) |
| | | Spain | -0.24*** | (0.03) | 0.10** | (0.03) |
| | | Estonia | -0.18*** | (0.04) | 0.09** | (0.03) |
| | | Iceland | -0.32*** | (0.06) | 0.12** | (0.05) |
| | | South Korea | -0.07 | (0.06) | 0.13** | (0.05) |
| | | China (B-S-J-G) | -0.21*** | (0.04) | -0.10* | (0.04) |
| | Index of parents' occupational status | Spain | -0.23*** | (0.03) | 0.09** | (0.03) |
| | Index of family wealth (MC) | Austria | -0.19*** | (0.04) | 0.11* | (0.05) |
| | | Switzerland | -0.34*** | (0.05) | 0.10* | (0.05) |
| | | Spain | -0.24*** | (0.03) | 0.11*** | (0.03) |
| | | Luxembourg | -0.34 | (0.07) | 0.15** | (0.05) |
| | | Poland | -0.30*** | (0.05) | 0.11* | (0.05) |
| | | China (B-S-J-G) | -0.17*** | (0.04) | 0.08* | (0.04) |
| | Index of home educational resources | Finland | -0.28*** | (0.04) | 0.06* | (0.03) |
| | Index of cultural possessions in the household (MC) | Spain | -0.24*** | (0.04) | 0.08* | (0.04) |
| | | Slovakia | -0.33*** | (0.06) | 0.12* | (0.05) |

Table A3.2. Socioeconomic status, education policy relevant aspects and students' life satisfaction: interaction effects detailed by country (II)

| Education policy relevant factor | SES considered in the interaction | Results in countries where a statistically significant interaction is found: Country | Education policy relevant factor (direct effect) b | SE | Interaction b | SE |
|---|---|---|---|---|---|---|
| Index of feeling unfairly treated by teachers | Index of socioeconomic status (SES) | Iceland | -0.06 | (0.05) | 0.10* | (0.05) |
| | | Thailand | -0.05 | (0.06) | -0.12** | (0.04) |
| | Index of home possessions | - | - | - | - | - |
| | Index of parents' level of education | Iceland | -0.07 | (0.05) | 0.12** | (0.04) |
| | | Thailand | -0.02 | (0.08) | -0.12* | (0.05) |
| | Index of parents' occupational status | Greece | -0.22*** | (0.05) | 0.10* | (0.05) |
| | Index of family wealth | Greece | -0.23*** | (0.05) | 0.09* | (0.04) |
| | | Ireland | -0.27*** | (0.04) | 0.11** | (0.04) |
| | | Slovenia | -0.21*** | (0.04) | 0.09* | (0.04) |
| | Index of home educational resources | Switzerland | -0.10* | (0.05) | 0.09* | (0.04) |
| | Index of cultural possessions in the household | UAE | -0.17*** | (0.05) | -0.10** | (0.04) |
| | | Mexico | -0.14** | (0.05) | 0.09* | (0.04) |
| Index of feeling emotionally supported by parents | Index of socioeconomic status (SES) | Switzerland | 0.44*** | (0.06) | -0.11* | (0.05) |
| | | Finland | 0.48*** | (0.03) | -0.12*** | (0.03) |
| | | Croatia | 0.66*** | (0.04) | -0.09* | (0.04) |
| | | Iceland | 0.31*** | (0.06) | -0.09* | (0.05) |
| | Index of home possessions | Finland | 0.48*** | (0.03) | -0.09** | (0.03) |
| | | Iceland | 0.30*** | (0.05) | -0.18*** | (0.05) |
| | | Poland | 0.69*** | (0.05) | -0.12* | (0.05) |
| | Index of parents' level of education | Bulgaria | 0.56*** | (0.07) | 0.15* | (0.07) |
| | | France | 0.50*** | (0.07) | -0.09* | (0.05) |
| | | Latvia | 0.35*** | (0.05) | -0.08* | (0.04) |
| | | Slovenia | 0.63*** | (0.04) | -0.08** | (0.03) |
| | | Taiwan | 0.57*** | (0.04) | -0.08* | (0.03) |
| | Index of parents' occupational status | Finland | 0.47*** | (0.03) | -0.11** | (0.04) |
| | Index of family wealth | Austria | 0.48*** | (0.04) | -0.07* | (0.03) |
| | | Finland | 0.47*** | (0.04) | -0.09* | (0.04) |
| | Index of home educational resources | Estonia | 0.61*** | (0.05) | -0.15*** | (0.04) |
| | | Finland | 0.46*** | (0.04) | -0.10*** | (0.03) |
| | | Croatia | 0.61*** | (0.05) | -0.09* | (0.04) |
| | | Ireland | 0.35*** | (0.04) | -0.14*** | (0.03) |
| | | Iceland | 0.30*** | (0.05) | -0.13** | (0.05) |
| | | China (B-S-J-G) | 0.57*** | (0.05) | -0.11** | (0.03) |
| | | Slovakia | 0.51*** | (0.04) | 0.12* | (0.05) |
| | Index of cultural possessions in the household | Poland | 0.67*** | (0.05) | -0.14** | (0.05) |
| | | China (B-S-J-G) | 0.56*** | (0.06) | -0.09* | (0.04) |
| Index of academic competence | Index of socioeconomic status (SES) | Luxembourg | -0.13* | (0.05) | 0.11** | (0.04) |
| | | Slovenia | -0.18*** | (0.05) | 0.12** | (0.05) |
| | Index of home possessions | Greece | -0.14* | (0.06) | 0.15** | (0.05) |
| | | Latvia | -0.05 | (0.05) | 0.08* | (0.04) |
| | Index of parents' level of education | Slovenia | -0.15*** | (0.04) | 0.11** | (0.04) |
| | Index of parents' occupational status | Luxembourg | -0.10 | (0.05) | 0.10* | (0.04) |
| | | Peru | -0.07 | (0.06) | -0.11* | (0.05) |
| | | Slovenia | -0.15*** | (0.04) | 0.13** | (0.05) |
| | | Taiwan | -0.09* | (0.04) | 0.07* | (0.04) |
| | Index of family wealt | Greece | -0.11 | (0.06) | 0.15** | (0.05) |
| | | China (B-S-J-G) | -0.32*** | (0.05) | -0.08* | (0.04) |
| | Index of home educational resources | Greece | -0.18** | (0.06) | 0.08* | (0.04) |
| | | Iceland | -0.05 | (0.05) | -0.11* | (0.05) |
| | | Slovakia | -0.18*** | (0.05) | 0.15** | (0.05) |
| | Index of cultural possessions in the household | Luxembourg | -0.09 | (0.05) | 0.08* | (0.03) |
| | | Slovakia | -0.17** | (0.05) | 0.13* | (0.05) |

Table A3.3 Socioeconomic status, education policy relevant aspects and students' life satisfaction: interaction effects detailed by country (III)

| Education policy relevant factor | SES considered in the interaction | Results in countries where a statistically significant interaction is found | | | | |
|---|---|---|---|---|---|---|
| | | Country | Education policy relevant factor (direct effect) b | SE | Interaction b | SE |
| Index of ICT use at home for schoolwork | Index of socioeconomic status (SES) | - | - | - | - | - |
| | Index of home possessions | - | - | - | - | - |
| | Index of parents' level of education | Russia | 0.05 | (0.04) | 0.09* | (0.05) |
| | Index of parents' occupational status | - | - | - | - | - |
| | Index of family wealth | Slovenia | 0.02 | (0.05) | 0.09* | (0.05) |
| | | Taiwan | 0.00 | (0.04) | 0.06* | (0.03) |
| | Index of home educational resources | Spain | 0.12*** | (0.04) | -0.07* | (0.04) |
| | Index of cultural possessions in the household | - | - | - | - | - |
| Index of valuing cooperation | Index of socioeconomic status (SES) | France | 0.13** | (0.05) | -0.12* | (0.05) |
| | Index of home possessions | Spain | 0.19*** | (0.04) | -0.11** | (0.04) |
| | | Iceland | 0.22*** | (0.05) | -0.09* | (0.04) |
| | | Peru | 0.13* | (0.07) | -0.10* | (0.05) |
| | | Slovakia | 0.11** | (0.04) | 0.13* | (0.07) |
| | Index of parents' level of education | Peru | 0.19*** | (0.05) | -0.11* | (0.05) |
| | | United States | 0.23*** | (0.05) | -0.12* | (0.06) |
| | Index of parents' occupational status | Luxembourg | 0.19*** | (0.03) | -0.10* | (0.04) |
| | | Slovakia | 0.13** | (0.04) | 0.10* | (0.04) |
| | Index of family wealth | Czech Republic | 0.21*** | (0.04) | -0.08* | (0.04) |
| | | Spain | 0.18*** | (0.04) | -0.08* | (0.04) |
| | | Hungary | 0.17*** | (0.05) | 0.12* | (0.05) |
| | | Iceland | 0.22*** | (0.05) | -0.10* | (0.05) |
| | Index of home educational resources | Spain | 0.17*** | (0.04) | -0.10*** | (0.03) |
| | | Ireland | 0.23*** | (0.04) | -0.08* | (0.03) |
| | | Slovenia | 0.25*** | (0.04) | 0.08* | (0.04) |
| | Index of cultural possessions in the household | Bulgaria | 0.17** | (0.05) | 0.14* | (0.06) |
| | | Colombia | 0.19** | (0.06) | 0.16** | (0.06) |
| | | Spain | 0.18*** | (0.04) | -0.08* | (0.04) |
| | | Peru | 0.21*** | (0.05) | -0.09* | (0.04) |
| Having repeated a grade | Index of socioeconomic status (SES) | Luxembourg | 0.09 | (0.07) | -0.17* | (0.07) |
| | Index of home possessions | - | - | - | - | - |
| | Index of parents' level of education | South Korea | -0.20 | (0.27) | 0.46** | (0.17) |
| | Index of parents' occupational status | France | -0.15 | (0.13) | -0.22* | (0.11) |
| | Index of family wealth | Czech Republic | 0.08 | (0.31) | 0.45* | (0.23) |
| | | Estonia | -0.09 | (0.19) | 0.44* | (0.18) |
| | Index of home educational resources | United States | -0.15 | (0.20) | 0.35* | (0.15) |
| | Index of cultural possessions in the household | Peru | -0.01 | (0.13) | 0.24* | (0.12) |
| | | United States | -0.28 | (0.24) | 0.43** | (0.15) |

Table A3.4 Socioeconomic status, education policy relevant aspects and students' life satisfaction: interaction effects detailed by country (IV)

| | | Results in countries where a statistically significant interaction is found | | | | |
|---|---|---|---|---|---|---|
| | | | Education policy relevant factor (direct effect) | | Interaction | |
| Education policy relevant factor | SES considered in the interaction | Country | b | SE | b | SE |
| Index of truancy | Index of socioeconomic status (SES) | Chile | -0.12** | (0.05) | 0.08* | (0.04) |
| | | Ireland | -0.07 | (0.04) | 0.09* | (0.03) |
| | | Luxembourg | -0.09 | (0.05) | -0.08* | (0.03) |
| | Index of home possessions | Mexico | -0.08* | (0.04) | 0.10* | (0.04) |
| | Index of parents' level of education | Luxembourg | -0.1 | (0.05) | -0.10* | (0.04) |
| | | Slovakia | -0.12** | (0.04) | 0.10* | (0.04) |
| | Index of parents' occupational status | Bulgaria | -0.07 | (0.05) | 0.12* | (0.05) |
| | | Ireland | -0.07 | (0.04) | 0.08* | (0.04) |
| | | Turkey | -0.20** | (0.07) | 0.13* | (0.06) |
| | Index of family wealth | Austria | -0.13*** | (0.04) | 0.08* | (0.04) |
| | | Ireland | -0.08 | (0.04) | 0.08* | (0.04) |
| | | Mexico | -0.08 | (0.04) | 0.10* | (0.04) |
| | | Slovenia | -0.15*** | (0.04) | 0.09* | (0.04) |
| | Index of home educational resources | UAE | -0.07 | (0.04) | 0.12** | (0.05) |
| | | Mexico | -0.05 | (0.04) | 0.12** | (0.05) |
| | Index of cultural possessions in the household | France | -0.07 | (0.05) | -0.12*** | (0.03) |
| | | Iceland | -0.17*** | (0.05) | 0.09* | (0.04) |
| | | South Korea | -0.11* | (0.05) | -0.09* | (0.04) |
| School practices ability grouping within classes | Index of socioeconomic status (SES) | Bulgaria | -0.04 | (0.10) | 0.24* | (0.11) |
| | | Turkey | -0.2 | (0.17) | 0.24* | (0.11) |
| | Index of home possessions | Colombia | 0.11 | (0.10) | 0.17* | (0.09) |
| | | Turkey | -0.34 | (0.19) | 0.37** | (0.12) |
| | Index of parents' level of education | Hong Kong | 0.19* | (0.09) | -0.19** | (0.07) |
| | | Peru | 0.13 | (0.11) | 0.23* | (0.11) |
| | Index of parents' occupational status | France | 0.01 | (0.11) | 0.26** | (0.09) |
| | | Peru | 0.13 | (0.11) | 0.20* | (0.10) |
| | | Turkey | -0.32 | (0.19) | 0.21* | (0.10) |
| | Index of family wealth | Turkey | -0.24 | (0.18) | 0.44*** | (0.12) |
| | Index of home educational resources | - | - | - | - | - |
| | Index of cultural possessions in the household | Switzerland | 0.06 | (0.07) | 0.20* | (0.08) |
| | | Hungary | 0.14 | (0.09) | 0.20* | (0.08) |
| School practices ability grouping between classes | Index of socioeconomic status (SES) | Finland | -0.08 | (0.06) | 0.12* | (0.05) |
| | | Peru | 0.09 | (0.11) | 0.24** | (0.09) |
| | Index of home possessions | Finland | -0.09 | (0.06) | 0.14* | (0.07) |
| | Index of parents' level of education | Greece | -0.10 | (0.10) | -0.19* | (0.10) |
| | Index of parents' occupational status | Spain | 0.16* | (0.07) | 0.10* | (0.05) |
| | | France | 0.09 | (0.10) | 0.20* | (0.09) |
| | | Peru | 0.09 | (0.10) | 0.23** | (0.09) |
| | Index of family wealth | United States | -0.21 | (0.12) | 0.22* | (0.11) |
| | Index of home educational resources | Czech Republic | 0.06 | (0.08) | 0.16* | (0.07) |
| | Index of cultural possessions in the household | Finland | -0.1 | (0.07) | 0.12* | (0.05) |

Table A3.5. Socioeconomic status, school type and students' life satisfaction: interaction effects detailed by country (I)

| Country | Index of socio-economic status (Model A) | | | | | | Index of home possessions (Model B) | | | | | | Index of parents' level of education (Model B) | | | | | | Index of parents' occupational status (Model B) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct effect | | Interaction (ref: pubic school) | | | | Direct effect | | Interaction (ref: pubic school) | | | | Direct effect | | Interaction (ref: pubic school) | | | | Direct effect | | Interaction (ref: pubic school) | | | |
| | | | Semi-private school | | Private school | | | | Semi-private school | | Private school | | | | Semi-private school | | Private school | | | | Semi-private school | | Private school | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | | | | | | | | | | | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | | | | 0.10 | (0.06) | | | -0.24* | (0.10) |
| Chile | | | | | | | | | | | | | | | | | | | | | | | | |
| China (B-S-J-G) | 0.17** | (0.05) | 0.29*** | (0.08) | 0.07 | (0.12) | 0.33*** | (0.05) | 0.19** | (0.08) | 0.20 | (0.14) | -0.03 | (0.05) | -0.27*** | (0.07) | -0.12 | (0.12) | | | | | | |
| Colombia | | | | | | | | | | | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | 0.21*** | (0.05) | -0.09 | (0.11) | -0.25** | (0.10) | 0.06 | (0.04) | -0.53** | (0.17) | 0.00 | (0.11) | | | | | | |
| Estonia | | | | | | | | | | | | | | | | | | | | | | | | |
| Finland | | | | | | | | | | | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | -0.02 | (0.06) | -0.22* | (0.10) | 0.08 | (0.20) | | | | | | |
| Greece | | | | | | | | | | | | | | | | | | | | | | | | |
| Hong Kong | | | | | | | | | | | | | | | | | | | | | | | | |
| Hungary | | | | | | | 0.13* | (0.06) | 0.17* | (0.08) | 0.19 | (0.14) | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | -0.03 | (0.05) | -0.02 | (0.08) | -0.25*** | (0.08) | | | | | | |
| Latvia | | | | | | | 0.20*** | (0.05) | -0.01 | (0.26) | 0.51* | (0.26) | | | | | | | | | | | | |
| Luxembourg | -0.01 | (0.05) | 0.24* | (0.11) | 0.03 | (0.10) | | | | | | | -0.07 | (0.05) | 0.09 | (0.12) | -0.39* | (0.17) | | | | | | |
| Mexico | | | | | | | | | | | | | | | | | | | | | | | | |
| Peru | | | | | | | 0.15* | (0.08) | -0.37*** | (0.11) | 0.02 | (0.14) | | | | | | | 0.08 | (0.07) | -0.42 | (0.22) | -0.24* | (0.10) |
| Poland | 0.06 | (0.04) | -0.21 | (0.25) | -0.37*** | (0.08) | | | | | | | -0.07 | (0.05) | -0.09 | (0.19) | -0.22*** | (0.06) | 0.01 | (0.04) | -0.17* | (0.09) | -0.14 | (0.33) |
| Portugal | | | | | | | | | | | | | | | | | | | | | | | | |
| Qatar | | | | | | | | | | | | | | | | | | | | | | | | |
| Russia | | | | | | | | | | | | | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | | | | | | | | | |
| South Korea | | | | | | | | | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | -0.06 | (0.05) | 0.08 | (0.09) | 0.37* | (0.16) | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | | | | | | | | | |
| Taiwan | | | | | | | | | | | | | 0.01 | (0.04) | -0.06 | (0.13) | -0.15* | (0.07) | | | | | | |
| Thailand | | | | | | | | | | | | | | | | | | | -0.13 | (0.07) | 0.44* | (0.21) | 0.23* | (0.09) |
| Turkey | 0.10 | (0.07) | 0.26*** | (0.07) | 0.70** | (0.27) | 0.25** | (0.08) | 0.03 | (0.09) | 0.34* | (0.16) | -0.12 | (0.07) | 0.66*** | (0.07) | 0.77*** | (0.15) | -0.06 | (0.07) | -0.24** | (0.08) | 0.25 | (0.21) |
| UAE | | | | | | | 0.44*** | (0.06) | 0.33 | (0.41) | -0.20* | (0.08) | -0.07 | (0.05) | 0.44*** | (0.13) | 0.05 | (0.09) | | | | | | |
| United States | | | | | | | | | | | | | | | | | | | | | | | | |

This table reports only results from countries with a statistically significant interaction

Table A3.6. Socioeconomic status, school type and students' life satisfaction: interaction effects detailed by country (II)

| Country | Index of family wealth (Model C) | | | | | | Index of home educational resources (Model C) | | | | | | Index of cultural possessions in the household (Model B) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct effect | | Interaction (ref: pubic school) | | | | Direct effect | | Interaction (ref: pubic school) | | | | Direct effect | | Interaction (ref: pubic school) | | | |
| | | | Semi-private school | | Private school | | | | Semi-private school | | Private school | | | | Semi-private school | | Private school | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | | | | | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | | | |
| Chile | | | | | | | | | | | | | | | | | | |
| China (B-S-J-G) | 0.16** | (0.05) | 0.33*** | (0.08) | 0.21 | (0.11) | | | | | | | | | | | | |
| Colombia | | | | | | | | | | | | | | | | | | |
| Croatia | 0.14** | (0.04) | -0.32** | (0.11) | | | | | | | | | -0.06 | (0.05) | 0.52** | (0.18) | | |
| Czech Republic | | | | | | | 0.12** | (0.04) | 0.27* | (0.14) | -0.23*** | (0.05) | 0.02 | (0.04) | 0.07 | (0.11) | -0.30*** | (0.06) |
| Estonia | | | | | | | | | | | | | | | | | | |
| Finland | | | | | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | | | |
| Greece | | | 0.25*** | (0.06) | 0.10 | (0.20) | | | | | | | | | | | | |
| Hong Kong | | | | | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | | | |
| Latvia | 0.16*** | (0.04) | -0.27 | (0.32) | 0.47* | (0.24) | | | | | | | | | | | | |
| Luxembourg | | | | | | | 0.05 | (0.04) | 0.29** | (0.11) | -0.07 | (0.03) | -0.01 | (0.04) | 0.11 | (0.16) | 0.14* | (0.07) |
| Mexico | | | | | | | | | | | | | | | | | | |
| Peru | -0.12 | (0.06) | -0.42*** | (0.12) | 0.08 | (0.13) | 0.16** | (0.06) | -0.35*** | (0.10) | -0.05 | (0.12) | | | | | | |
| Poland | | | | | | | 0.13*** | (0.04) | -0.34* | (0.17) | 0.58 | (0.43) | | | | | | |
| Portugal | | | | | | | | | | | | | -0.01 | (0.04) | -0.28* | (0.12) | 0.06 | (0.11) |
| Qatar | | | | | | | | | | | | | -0.06 | (0.05) | -0.35*** | (0.10) | -0.03 | (0.06) |
| Russia | | | | | | | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | | | | | | | |
| Slovenia | 0.13** | (0.04) | -0.38** | (0.12) | | | | | | | | | | | | | | |
| South Korea | | | | | | | | | | | | | | | | | | |
| Spain | | | | | | | 0.12** | (0.04) | 0.14 | (0.23) | -0.29*** | (0.09) | 0.04 | (0.04) | -0.07 | (0.16) | -0.27** | (0.09) |
| Switzerland | | | | | | | 0.09 | (0.05) | 0.27 | (0.15) | -0.64** | (0.20) | -0.02 | (0.04) | 0.10 | (0.19) | -0.53* | (0.21) |
| Taiwan | | | | | | | | | | | | | | | | | | |
| Thailand | | | | | | | | | | | | | | | | | | |
| Turkey | 0.02 | (0.11) | -0.24* | (0.10) | 0.53** | (0.17) | | | | | | | 0.11 | (0.07) | 0.88*** | (0.07) | -0.03 | (0.09) |
| UAE | 0.46*** | (0.07) | -0.03 | (0.40) | -0.17* | (0.08) | | | | | | | | | | | | |
| United States | | | | | | | | | | | | | | | | | | |

This table reports only results from countries with a statistically significant interaction

Table A3.7. Direct and interaction effects of socioeconomic status and school peers' socioeconomic status on students' life satisfaction (I)

| Country | Index of socio-economic status (Model A) | | | | | | Index of home possessions (Model B) | | | | | | Index of parents' level of education (Model B) | | | | | | Index of parents' occupational status (Model B) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct effects | | | | Interaction | | Direct effects | | | | Interaction | | Direct effects | | | | Interaction | | Direct effects | | | | Interaction | |
| | Student level | | School peers level | | | | Student level | | School peers level | | | | Student level | | School peers level | | | | Student level | | School peers level | | | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | 0.05 | (0.05) | 0.21* | (0.09) | 0.00 | (0.08) | | | | | | | -0.04 | (0.05) | 0.27* | (0.01) | 0.11 | (0.15) | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | | | | | | | | | |
| Chile | | | | | | | | | | | | | 0.10 | (0.07) | -0.26* | (0.12) | -0.04 | (0.07) | | | | | | |
| China (B-S-J-G) | | | | | | | 0.41*** | (0.06) | -0.20* | (0.10) | -0.01 | (0.05) | | | | | | | -0.07 | (0.06) | -0.18 | (0.11) | 0.16* | (0.08) |
| Colombia | 0.11* | (0.05) | -0.23** | (0.07) | 0.08 | (0.04) | 0.15* | (0.07) | -0.18 | (0.11) | 0.10** | (0.04) | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | 0.00 | (0.04) | -0.17 | (0.11) | 0.13* | (0.06) | 0.03 | (0.04) | -0.18* | (0.08) | 0.01 | (0.08) |
| Finland | | | | | | | | | | | | | -0.04 | (0.04) | -0.22* | (0.10) | 0.10 | (0.09) | | | | | | |
| France | | | | | | | | | | | | | | | | | | | | | | | | |
| Greece | 0.09 | (0.05) | -0.31** | (0.10) | 0.01 | (0.07) | | | | | | | 0.08 | (0.05) | -0.25* | (0.11) | 0.03 | (0.08) | | | | | | |
| Hong Kong | | | | | | | | | | | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | | | | | | | | | |
| Iceland | | | | | | | 0.17*** | (0.05) | -0.07 | (0.13) | -0.35* | (0.17) | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | 0.02 | (0.05) | 0.10 | (0.13) | 0.18* | (0.09) | | | | | | |
| Luxembourg | 0.04 | (0.05) | -0.19* | (0.08) | 0.28*** | (0.07) | | | | | | | -0.02 | (0.04) | -0.08 | (0.11) | 0.21* | (0.10) | -0.04 | (0.05) | -0.09 | (0.08) | 0.20 | (0.06) |
| Mexico | | | | | | | | | | | | | | | | | | | -0.03 | (0.05) | -0.19* | (0.09) | 0.10 | (0.07) |
| Peru | | | | | | | | | | | | | | | | | | | | | | | | |
| Poland | | | | | | | | | | | | | | | | | | | | | | | | |
| Portugal | 0.07 | (0.05) | -0.20** | (0.07) | 0.02 | (0.06) | | | | | | | -0.03 | (0.04) | -0.20** | (0.08) | -0.04 | (0.07) | -0.03 | (0.04) | -0.18* | (0.08) | -0.06 | (0.06) |
| Qatar | | | | | | | | | | | | | 0.01 | (0.04) | -0.31* | (0.13) | 0.09 | (0.07) | | | | | | |
| Russia | | | | | | | | | | | | | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | | | | | | | | | | | | | |
| Slovenia | -0.03 | (0.04) | -0.26** | (0.09) | 0.10 | (0.08) | | | | | | | | | | | | | | | | | | |
| South Korea | 0.10* | (0.04) | -0.33** | (0.13) | 0.09 | (0.08) | 0.18** | (0.06) | -0.41** | (0.14) | 0.06 | (0.08) | -0.02 | (0.08) | -0.41** | (0.15) | 0.11 | (0.14) | | | | | | |
| Spain | | | | | | | | | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | | | | | | | | | |
| Taiwan | 0.15*** | (0.03) | 0.01 | (0.08) | -0.13* | (0.05) | 0.21*** | (0.04) | 0.10 | (0.09) | -0.15* | (0.06) | | | | | | | | | | | | |
| Thailand | | | | | | | | | | | | | | | | | | | 0.06 | (0.07) | -0.40* | (0.17) | 0.25* | (0.12) |
| Turkey | | | | | | | | | | | | | -0.05 | (0.07) | -0.75** | (0.26) | 0.15 | (0.15) | | | | | | |
| UAE | | | | | | | 0.16*** | (0.04) | 0.22* | (0.10) | 0.05 | (0.06) | 0.01 | (0.05) | -0.39** | (0.14) | 0.07 | (0.06) | | | | | | |
| United States | | | | | | | | | | | | | | | | | | | | | | | | |

This table reports only results from countries where either school peers mean level or the interaction effect are statistically significant.

Table A3.8. Direct and interaction effects of socioeconomic status and school peers' socioeconomic status on students' life satisfaction (II)

| Country | Index of family wealth (Model C) | | | | | | Index of home educational resources (Model C) | | | | | | Index of cultural possessions in the household (Model C) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Direct effects | | | | Interaction | | Direct effects | | | | Interaction | | Direct effects | | | | Interaction | |
| | Student level | | School peers level | | | | Student level | | School peers level | | | | Student level | | School peers level | | | |
| | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE | b | SE |
| Austria | | | | | | | 0.05 | (0.04) | 0.14 | (0.13) | 0.26* | (0.11) | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | | | |
| Chile | | | | | | | | | | | | | | | | | | |
| China (B-S-J-G) | 0.22*** | (0.05) | -0.23* | (0.10) | 0.02 | (0.05) | | | | | | | | | | | | |
| Colombia | 0.12 | (0.08) | -0.12 | (0.11) | 0.10* | (0.05) | | | | | | | | | | | | |
| Croatia | | | | | | | 0.11** | (0.04) | -0.28* | (0.14) | 0.05 | (0.13) | -0.00 | (0.05) | -0.37* | (0.15) | 0.02 | (0.09) |
| Czech Republic | | | | | | | 0.13** | (0.04) | 0.00 | (0.12) | 0.28** | (0.11) | | | | | | |
| Estonia | | | | | | | 0.23*** | (0.04) | 0.06 | (0.11) | -0.26* | (0.11) | | | | | | |
| Finland | | | | | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | | | |
| Greece | | | | | | | | | -0.35* | (0.14) | -0.11 | (0.11) | | | - | (0.13) | 0.00 | (0.11) |
| Hong Kong | | | | | | | | | | | | | | | | | | |
| Hungary | | | | | | | 0.08 | (0.05) | 0.24 | (0.15) | 0.07* | (0.03) | | | | | | |
| Iceland | | | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | -0.02 | (0.04) | -0.04 | (0.10) | 0.20** | (0.08) |
| Mexico | | | | | | | 0.25*** | (0.06) | -0.14 | (0.11) | -0.21** | (0.07) | | | | | | |
| Peru | | | | | | | | | | | | | | | | | | |
| Poland | | | | | | | | | | | | | | | | | | |
| Portugal | | | | | | | | | | | | | | | | | | |
| Qatar | | | | | | | 0.24*** | (0.04) | - | (0.14) | 0.04 | (0.08) | | | | | | |
| Russia | | | | | | | 0.21*** | (0.05) | -0.10 | (0.14) | 0.39* | (0.17) | | | | | | |
| Slovakia | | | | | | | 0.18*** | (0.05) | -0.16 | (0.14) | 0.16* | (0.08) | -0.00 | (0.04) | -0.16 | (0.15) | 0.18* | (0.09) |
| Slovenia | | | | | | | | | | | | | | | | | | |
| South Korea | 0.12* | (0.06) | -0.36* | (0.15) | 0.06 | (0.11) | 0.13 | (0.05) | -0.35* | (0.15) | 0.01 | (0.13) | -0.03 | (0.06) | -0.45** | (0.15) | 0.03 | (0.13) |
| Spain | | | | | | | 0.14*** | (0.04) | -0.33** | (0.12) | 0.18 | (0.11) | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | | | |
| Taiwan | 0.10** | (0.03) | 0.09 | (0.10) | -0.20* | (0.09) | | | | | | | | | | | | |
| Thailand | | | | | | | | | | | | | | | | | | |
| Turkey | 0.13 | (0.11) | -0.20 | (0.20) | 0.14* | (0.07) | 0.25** | (0.08) | -0.27 | (0.21) | - | (0.07) | | | | | | |
| UAE | 0.40*** | (0.05) | -0.05 | (0.11) | 0.15* | (0.07) | | | | | | | -0.06 | (0.04) | -0.31* | (0.14) | 0.00 | (0.10) |
| United States | | | | | | | | | | | | | | | | | | |

This table reports only results from countries where either school peers mean level or the interaction effect are statistically significant.

# Abbreviations

| | |
|---|---|
| ESCS | Economic, Social and Cultural Status |
| ESPAD | European School Project on Alcohol and other Drugs |
| EU | European Union |
| HBSC | Health Behaviour in School-aged Children |
| ICC | Intra-class correlation |
| ICCS | International Civic and Citizenship Education Study |
| ISCED | International Standard Classification of Education |
| ISCI | International Society for Child Indicators |
| LR | Likelihood ratio |
| LS | Life Satisfaction |
| OECD | Organisation for Economic Co-operation and Development |
| PIRLS | International Reading Literacy Study |
| PISA | Programme for International Student Assessment |
| SWB | Subjective well-being |
| TIMSS | Trends in International Mathematics and Science Study |
| UAE | United Arab Emirates |
| UK | United Kingdom |
| US | Unite States |
| VPC | Variance partition coefficient |

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