Essays on the Political Economy of Development and Health

Akseer Hussain

Doctor of Philosophy

University of York

Economics

October 2022

Abstract

This thesis presents three essays on the political economy of development and health, using Pakistan as a study. Chapter 1 examines the effect of exposure to political violence in early life on domestic violence in married life. It also investigates the susceptible age brackets in early life that are critical in shaping adult behaviour. We collected data on domestic violence from Pakistan Demographic and Health Survey (PDHS), on political violence from British Forces Resettlement Services (BFRS) political violence dataset and Armed Conflict Location & Event Data Project (ACLED). Our findings suggest that woman's earlier exposure to political violence has no effect on perpetrating domestic violence but that the exposure of their husbands has a significant impact. The husbands' exposure to political violence at the age of 4 to 6 years are critical to shaping their minds toward domestic violence. However, results suggest that women's early exposure to political violence raises their likelihood of being victims of domestic violence by encouraging them to become more tolerant of domestic violence.

Chapter 2 examines the effect of electoral competition on local economic development and political leaders' ethnic favouritism in a democratised and decentralised country that has experienced several dictatorships, like Pakistan. We collected data on electoral competition from post-election reports provided by the Election Commission of Pakistan (ECP) and data on local economic development proxied with nighttime light emissions from 1992-2018. Results show that electoral competition promotes local economic development. Moreover, results show the evidence of reverse (negative) ethnic favouritism in Pakistan. Leaders discriminate against leaders' regions, which is even more the case in a mature democracy. However, in some cases, electoral motives drive leaders to target tight swing constituencies in their co-ethnic region.

Chapter 3 examines the effect of political violence and information disclosure about the fake vaccine campaign by the CIA to find Osama Bin Laden's family's DNA on child immunisation. We collected data on child immunisation from Pakistan Social and Living Standard Measurement Survey (PSLM), on the vote share of Islamist parties from the post-election reports provided by the ECP to measure the support for Islamist groups, and on political violence from the BFRS political violence dataset and ACLED. We applied the ordinary least square (OLS) and difference-in-differences (DiD) strategies. Our findings suggest that political violence adversely affects child immunisation. Moreover, the information disclosure about the fake vaccine campaign declines trust in vaccination and demand for child immunisation.

Contents

List of Tables

List of Figures

Acknowledgements

All gratitude, sincere praises, and thanks are to Allah, The Almighty God, for giving me courage to finish this project successfully.

I am particularly indebted to my academic supervisor, Dr Andrew Pickering, for his precious time, inspiration, knowledge, encouragement, support, and advice that contributed substantially to the completion of this thesis. I am deeply grateful to have had the chance to work with him.

Special thanks to my previous supervisor, Prof. Giacomo De Luca. I really appreciate his precious time to guide me, academic support, encouragement, advice and comments for the two first chapters of my thesis, particularly when I struggled with my research in my first year. I am also thankful to my thesis advisory panel members, Dr Anindya Bhattacharya, and Dr Matthias Flueckiger, for their constructive comments, insightful feedback, and helpful discussions.

I am also thankful to administrative staff at the Department of Economics and Related Studies, the University of York for their help and for providing me a proper environment to carry out my studies. I also extend my enormous thanks to my colleagues who were ready to support me in my studies.

I am also grateful to the Sukkur Institute of Business Administration University (SIBAU) and Prof. Nisar Ahmed Sidduqi (Late) for providing me financial support to pursue doctoral studies here at the University of York. I am also thankful to SIBAU's registrar, Prof. Zahid Hussain Khand, and vice chancellor, Prof. Syed Mir Muhammad Shah, for all their support and encouragement. I also want to say thanks to the officials of registrar office and finance office of SIBAU for their support during this journey.

Finally, I am deeply thankful to my family members, brothers, sisters and particularly my affectionate parents Muhammad Murad Solangi and Muhallan Khatoon (Late) for all their love and moral support during my research journey.

Author's Declaration

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

Akseer Hussain

York, October 2022

Introduction

This thesis comprises three chapters on the political economy of development and health, using data and context from a developing country, Pakistan. Chapter 1 contributes to the literature on the effects of political violence on domestic violence, focusing on identifying susceptible age brackets in early life that are critical in shaping adult behaviour. Chapter 2 contributes to the literature on the political economy of development by investigating how public resources are distributed at the local level under various political systems. It looks into local economic development proxied with nighttime light emissions at the electoral constituency level and leaders' ethnic favouritism associated with electoral competition under democracy. Chapter 3 contributes to the literature on the effects of political violence on child immunisation and vaccine skepticism. It investigates how political violence and information disclosure about fake vaccination campaigns conducted by Central Intelligence Agency (CIA) affect the child immunisation. Each Chapter is introduced in detail below.

Chapter 1 examines the effect of exposure to political violence in early life on domestic violence in married life. Exposure to political violence in early life makes individuals more violence-prone in adult life, shaping their attitudes, behaviours, and cultures (Couttenier et al., 2019, Gutierrez and Gallegos, 2016, Noe and Rieckmann, 2013). Various mechanisms explain why people tend to reproduce violence when they have either perpetrated or witnessed violence in the past: psychological trauma, a collapse of trust and moral values, well-being, and behavioural implications such as anxiety, depression, stress disorders, suicidal thoughts, loss of education attainment, prior victimisation and sense of revenge, and economic deprivation (Averdijk et al., 2016, Couttenier et al., 2019, Hamdan and Hallaq, 2021, Hui et al., 2019a, Leon, 2012, Peckins et al., 2012), to name a few.

Early-life exposure to violence at various ages has distinct consequences in later life. Psychology literature suggests some critical age brackets that determine adult behaviour: such as stages from infancy to adolescence are important for personality development and peer relationships (Schellenberg, 2000), early school years are important for developing a sense of collaboration with their peers (Cherry, 2018, van den Bos, 2013) and middle childhood is a time of global shifts in cognition, motivation, social behaviour and gender differences (Del Giudice, 2009, 2012, Del Giudice and Belsky, 2011, DelGiudice, 2018, Nelson et al., 2005). Moreover, exposure to violence in early life has different effects across gender; men behave violently and tend to show higher perceived threats, while

women do not behave aggressively but tend to self-blame, which causes hopelessness, anxiety and depression in girls (Cohn, 1991, Gavranidou and Rosner, 2003, Gjerde et al., 1988, Kerig, 1999, Nolen-Hoeksema et al., 1991).

Literature shows that exposure to political violence in early-life increases the likelihood of domestic violence in marital life (Ekhator-Mobayode et al., 2022, Gutierrez and Gallegos, 2016, Lafta and Hamid, 2021, Shemyakina and La Mattina, 2017, Stith et al., 2000, Svallfors, 2021). In addition, several mechanisms explain the role of males and females in domestic violence: exposure to political violence decreases women's autonomy and decision-making power while increasing men's controlling behaviour (Hui et al., 2019b); it increases domestic violence through sex ratios in the marriage market, giving more bargaining power to few-surviving men than women (La Mattina, 2017); loss of education which is a potential channel that facilitates the acceptance of domestic violence by women (La Mattina, 2017, Leon, 2012).

The results in chapter 1 show that women's exposure to political violence does not cause domestic violence. However, exposure of husbands at the age of 4 to 6 significantly increases domestic violence and emotional violence. Moreover, husbands' exposure to political violence at various age brackets increase their sexual violence against their wives. Our findings show that an increase by one standard deviation in the exposure to political violence and political violence against civilians of a husband between the ages 4 and 6 years would increase the probability of his future wife being subject to domestic violence by 1.2 percentage points and 1.4 percentage points, respectively and being subject to emotional violence by 1.4 percentage points and 1.7 percentage points, respectively. These are not negligible effects since the mean probability of domestic violence, and emotional violence in our sample is about 37% and 31%, respectively.

Moreover, an increase by one standard deviation in the exposure to violence and violence against civilians of husbands between the age of 10 and 12 years would increase her future wife's average probability of being subject to sexual violence by 1.7 percentage points. It is a significant effect, given that the sample mean probability of sexual violence is 4.5%. Several robustness checks support similar conclusions. Our findings suggest that policymakers prioritise initiatives that respond to and prevent domestic violence, especially in political violence-affected areas.

Chapter 2 examines the effect of electoral competition on the patterns of public resources distribution at the local level and political leaders' ethnic favouritism under different political systems. Countries have different developmental patterns under various political systems. Many studies claim that democracies improve the provision of public

goods, income redistribution, welfare (Acemoglu et al., 2019, Baum and Lake, 2003, Colagrossi et al., 2020, Franco et al., 2004, Khayouti et al., 2020, Ross, 2006), institutional efficiency and governance better than non-democracies (Arvate, 2013, Batzilis, 2019, Besley et al., 2010). Democratic accountability is improved by electoral competition (Batzilis, 2019). On the other hand, electoral competition drives the patterns of public resource distribution by politicians at the local level (Stromberg, 2008) by targeting the electorally competitive areas (Antoniades and Calomiris, 2020, Ma and McLaren, 2018, Muûls and Petropoulou, 2013, Stromberg, 2008). Pakistan has gone through several dictatorships and democratic regimes. We look at the different patterns of public goods distribution across democracy and dictatorship, stressing the role of electoral competition in democracy.

Next, we explore the political leaders' ethnic favouritism in resource distribution. Although no consensus has yet been established, the political economics literature shows two sets of mechanisms for ethnic favouritism. *One* mechanism is based on the "big man (woman)" theory of power (Francois et al., 2015), where the leader shares little power with other ethnic groups (Padró i Miquel, 2007). In such an environment, the ruler's co-ethnics are systematically favoured. In line with this view, numerous studies have found evidence of ethnic favouritism (Abman and Carney, 2020, De Luca et al., 2018, Franck and Rainer, 2012, Hodler and Raschky, 2014, Mueller et al., 2016). The studies have shown the presence of ethnic favouritism: in Malawi, politicians distributed more public goods to their segregated co-ethnic communities (Ejdemyr et al., 2018) and the President's co-ethnic groups gained more from the subsidised agricultural inputs scheme (Abman and Carney, 2020); the presence of ethnic favouritism in road constructions in Kenyan districts (Burgess et al., 2015); in education in sub-Saharan Africa (Franck and Rainer, 2012); and Hodler and Raschky (2014), De Luca et al. (2018) and Mueller et al. (2016) have shown an increase in nightlight emissions in the co-ethnic regions of the leader.

Another mechanism is based on the argument that even dictators are subject to constraints. Thus, leaders must share power with various ethnic groups to avoid coups or popular protest movements. In weak democracies and ethnically divided societies, the fear of being ousted by the people may lead rulers to transfer resources to opposition ethnic groups to retain power (Padró i Miquel, 2007). In the case of African countries, Arriola (2009) has noted that most leaders employ the method of buying off opponents and rewarding their supporters. Kramon and Posner (2013) have found no systematic targeting of the president's ethnic group in the cases of six African countries. However, in some cases, the president's ethnic group is even disadvantaged. For example, Kasara

(2007) has shown that the co-ethnics of the president pay more taxes than other ethnic groups in the African agricultural sector. André et al. (2018) have shown no systematic favour to the president's co-ethnic group in Benin.

Ethnic favouritism varies depending on the political regime. For example, according to Burgess et al. (2015), it diminishes with democratisation in the context of Kenya, due to the significant institutional constraints on the executives' activities (André et al., 2018, Mueller et al., 2016, van Hoorn and Rademakers, 2021). However, De Luca et al. (2018) show in a global sample of countries that ethnic favouritism persists even under democracy, sustained by electoral motives.

The ethnic composition of Pakistani society contributes to its diversity, such as Punjabi, Balochi, Sindhi, and Pukhtoon. However, the state adopted an authoritarian policy to consolidate its power and position, while ethnic groups responded by ethnic politics (Bursztyn et al., 2020, Hashmi and Saeed, 2020, Sharma, 2014). Pakistan has gone through several dictatorial and democratic regimes, with ethnic politics (Bursztyn et al., 2020, Gayer, 2012, Sharma, 2014) and political parties forming coalition governments (Nasir and Faqir, 2021). From 1992 to 2018, during our study period, Pakistan was ruled by two major political parties —Pakistan Peoples Party (PPP) and Pakistan Muslim League-Nawaz (PML(N)) at the national level— and one dictatorial regime, having leaders ethnicity as Punjabis and Sindhis. Following the related literature, we explore whether the political leader's ethnic favouritism is less prevalent under democracy.

According to Kramon and Posner (2013), most studies investigated ethnic favouritism using a single or specific set of policies as an outcome variable. Whereas, Hodler and Raschky (2014), De Luca et al. (2018) and Mueller et al. (2016) used nightlight emissions as a proxy for a broad measure of economic development. Our outcome variable is nighttime light emissions as a proxy for local economic development at an electoral constituency level, capturing the overall impact of various government policies.

Results in Chapter 2 suggest that constituencies that faced tight electoral competition —up to 2% of winning margin— have more distributive gains than non-competitive under democracy, having higher nighttime light intensity by around $9\%-11\%$, corresponding to an increase in local GDP of around $2.7\% - 3.4\%$. Constituencies that have remained swing up to 2% —tight swing— in at least two or three elections have higher nighttime light intensity than non-swing constituencies by $0.7\% - 16.4\%$, which corresponds to an increase in local GDP by $0.21\% - 5\%$. Our results show the evidence of reverse (negative) ethnic favouritism in Pakistan. Leaders discriminate against leaders' regions, which is even more the case in a mature democracy. However, in some cases,

electoral motives drive leaders to target tight swing constituencies in their co-ethnic region. The robustness analyses support similar conclusions.

Finally, we argue that an important implication of the results in chapter 2 is that the scope of partisanship depends on the utility loss voters suffer from lower levels of local economic development. If the utility loss is significant, and if the distribution of partisan preferences in a constituency is uneven, the constituency will be less competitive in the election, and politicians will provide fewer public goods.

Chapter 3 examines the effect of political violence and information disclosure about the fake vaccine campaign by the CIA on child immunisation. After September 11, 2001 attacks on the United States, the *War on Terror* amplified the political violence incidents also in Pakistan (Abbasi, 2013, Rabbi, 2012, Rogers, 2009). Political violence has several negative effects on economic access and activity, displacement, social stability, and health (Akresh et al., 2012, Brück et al., 2017, Minoiu and Shemyakina, 2014). Political violence negatively impacts health, particularly children's health, due to the age-specific nature of human capital investments (Akbulut-Yuksel, 2014). Related to healthcare, child immunisation is one of the most efficient and cost-effective public health interventions, preventing millions of deaths annually.[1] Political violence negatively affects child immunisation through a variety of channels: difficulty in accessing and destruction of healthcare facilities, displacement of families, increases fear of being injured or murdered while seeking treatment, and interruptions in cold chain and vaccine supplies (Cetorelli, 2015, Grundy and Biggs, 2019, Haushofer and Fehr, 2014, Kadir et al., 2018, Mathew et al., 2017, Meiqari et al., 2018, Ngo et al., 2020, Silwal et al., 2006). Political violence incidents increased after 2001 in Pakistan and interrupted child immunisation, causing a rise in vaccine-preventable diseases (VPD).

On the other hand, the leaders of the Tehrik-i-Taliban Pakistan (TTP) began spreading anti-vaccine propaganda because they suspected the CIA of spying on the vaccination campaign to locate Osama Bin Laden's family's DNA (Kennedy, 2016, 2017). As a result, TTP leaders began issuing edicts urging religious opposition to immunisations. They issued edicts such as polio vaccines are un-Islamic [2] and harmful to one's health,[3] getting treatment before an illness is not permissible in Islam (Roul, 2014), these vaccinations sterilise children, implying that Jews and Western countries are conspiring together to sterilise Muslim children,[4] the CIA conducts espionage through

[1] https://www.who.int/news-room/facts-in-pictures/detail/immunisation

[2] https://tribune.com.pk/story/392939/obstacles-for-immunisation-cleric-declares-jihad-against-polio-campaign

[3] https://www.dawn.com/news/1081820

[4] https://www.dawn.com/news/221282/peshawar-cleric-mounts-drive-against-polio-vaccin

vaccine campaigns and then launches drone attacks, killing hundreds of individuals while polio disease kills a few in millions.[5]

Following Bin Laden's assassination on May 2, 2011, just 20 days later, the chief doctor in the vaccination campaign was detained by Inter-Services-Intelligence (ISI) for collaborating with the CIA. The TTP leaders erupted in rage, claiming they were previously aware of the CIA's spying operation via a fake vaccine campaign. Meanwhile, articles on the fake vaccine campaign to capture Osama Bin Laden were published in *The Guardian newspaper* and *The New York Times Magazine* in July 2011.[6, 7] The information about the fake immunisation became public knowledge. Thus, in July 2011, the people of Pakistan learned that the CIA conducted a vaccine campaign as a smokescreen to capture Osama Bin Laden.

We exploit this setting to study how information disclosure about fake vaccine campaigns affects child immunisation. We apply OLS and DiD techniques on a combination of the household survey, political violence, and election data. Our results show that political violence and support for Islamist groups have a significant negative effect on child immunisation; a one standard deviation increase in political violence lowers the immunisation rates by 1.6 to 2.9 percentage points for the first dose of each vaccine and 1.5 to 2.8 percentage points for all recommended dosages of each vaccine. Moreover, one standard deviation increase in the support for Islamist groups is associated with declines in immunisation rates of 1.2 to 2 percentage points for the first dose of each vaccine, and 1.2 to 1.9 percentage points for all recommended dosages of each vaccine.

Results show that political violence incidents adversely affect child immunisation. Moreover, the information disclosure about the fake vaccine campaign negatively affects trust in vaccination and demand for child immunisation. We have run several robustness tests and the results support the main conclusion. For the attention of policymakers, we may argue that immunisation rates can be improved by increasing awareness of the impact of political violence on child immunisation; gaining trust through community participation by involving the elderly women's groups, religious leaders, and well-trained medical staff.

---

e

[5] https://casebook.icrc.org/case-study/health-care-pakistans-tribal-areas

[6] https://www.theguardian.com/world/2011/jul/11/cia-fake-vaccinations-osama-bin-ladens-dna

[7] https://slate.com/human-interest/2011/07/the-cia-s-fake-vaccination-program-in-pakistan-reveals-the-moral-bankruptcy-of-american-spooks.html

Chapter 1

Early-life exposure to political violence and domestic violence: Evidence from Pakistan *(Solo-authored chapter)*

1.1 Introduction

Political violence may not always end with clear outcomes, such as victory or a peace agreement; instead, it often ends in a state of limbo, with fighting just ceasing (Kreutz, 2010). Political violence is often persistent and escalates into war, and phenomena such as banditry, mass rape, forced population displacement, and massacres against civilians all have a long history (Call and Cousens, 2008, Couttenier et al., 2019, El-Bushra, 2017). Moreover, exposure to political violence makes individuals more violence-prone, shaping their attitudes, behaviours, and cultures (Couttenier et al., 2019, Gutierrez and Gallegos, 2016, Noe and Rieckmann, 2013). Various mechanisms explain why people tend to reproduce violence when they have either perpetrated or witnessed violence in the past: psychological trauma, a collapse of trust and moral values, well-being, and behavioural implications such as anxiety, depression, stress disorders, suicidal thoughts, loss of education attainment, prior victimisation and sense of revenge, economic deprivation (Averdijk et al., 2016, Couttenier et al., 2019, Hamdan and Hallaq, 2021, Hui et al., 2019a, Leon, 2012, Peckins et al., 2012, Wolfe et al., 2003), to name a few.

The seeds of violent behaviour are sown during prior violent encounters, which could have occurred years before (Averdijk et al., 2016). Psychology literature suggests some critical age brackets that determine adult behaviour. The stages from infancy to adolescence are important for personality development and peer relationships (Schellenberg, 2000). Early school years are important for developing a sense of collaboration with their peers (Cherry, 2018, van den Bos, 2013). Middle childhood is a time of global shifts in cognition, motivation, and social behaviour, as well as a broad spectrum of personality development, gender differences and psychopathology (Del Giudice, 2009, 2012, Del Giudice and Belsky, 2011, DelGiudice, 2018, Nelson et al., 2005).

Exposure to political violence in early-life has different effects across gender; men behave violently and tend to show higher perceived threats, while women do not behave aggressively but tend to self-blame, which causes hopelessness, anxiety and depression in women (Cohn, 1991, Gavranidou and Rosner, 2003, Gjerde et al., 1988, Kerig, 1999, Nolen-Hoeksema et al., 1991). Moreover, in developing countries, girls are regarded differently than boys, and as a result, females lag behind males in many areas (Duflo, 2012).

Literature shows that exposure to political violence in early-life increases the likelihood of domestic violence in marital life (Ekhator-Mobayode et al., 2022, Gutierrez and Gallegos, 2016, Lafta and Hamid, 2021, Shemyakina and La Mattina, 2017, Stith et al., 2000, Svallfors, 2021). Hui et al. (2019b) have argued that exposure to political violence decreases women's autonomy and decision-making power while increasing men's controlling behaviour. La Mattina (2017) has shown that exposure to genocide in Rwanda in 1994 significantly increased domestic violence through sex ratios in the marriage market, giving more bargaining power to few-surviving men in the marriage market than women; loss of education, due to political violent incidents, is a potential channel that facilitates the acceptance of domestic violence by women. Early childhood exposure to political violence results in permanent losses in human capital accumulation (Leon, 2012), it increases differences in education and earnings between partners. Domestic violence is more prevalent in couples where one partner has more education than the other (Cools and Kotsadam, 2017). Couples in which wife earns more than her husband are less satisfied with their marriage and are more likely to divorce (Bertrand et al., 2015). For literature review, see in the case of Peru (Gutierrez and Gallegos, 2016) and in Liberia (Kelly et al., 2018, 2021).

Domestic violence is a serious and growing issue in Pakistan (Fikree et al., 2005). In our sample, Pakistan Demographic and Health Survey (PDHS) data show that on average 37.4% of ever-married women experience domestic violence at any point in their marital life (see Table 1.1). In addition, the World Bank Report 2017 has documented that one in three married Pakistani women report facing violence by her husband.[1] The World Economic Forum-Global Gender Gap Index 2018 has ranked Pakistan on the second last number from the bottom.[2] The Women Peace and Security Index 2019-20 reported Pakistan on 164^{th} out of 167 countries.[3] On the other hand, the political violence is prevalent throughout with various intensities in Pakistan (see Figure 1.1). The Global

[1] http://blogs.worldbank.org/endpovertyinsouthasia/addressing-violence-against-women-pakistan-time-act-now

[2] http://www3.weforum.org/docs/WEF_GGGR_2020.pdf

[3] https://giwps.georgetown.edu/wp-content/uploads/2019/12/WPS-Index-2019-20-Report.pdf

Terrorism Index (GTI) 2020 report has ranked Pakistan on 7^{th} and GTI 2011 report on 2^{nd} number in the list of top 10 countries most impacted by terrorism.[4, 5] The Global Peace Index (GPI) 2020 report has ranked Pakistan on 152^{nd} out of 163 countries, and on second last number in South Asia region.[6]

In this chapter we analyse empirically the effect of early-life exposure to political violence on domestic violence, age brackets which are critical in shaping adult behaviour and in a couple whose exposure matters more in domestic violence, using data from Pakistan as a case.[7] To the best level of our knowledge, literature has more focused on the associations between woman's early-life exposure to political violence and her reporting of domestic violence. Our contribution is that in a couple, the husband's exposure to political violence is crucial that makes him violence-prone in marital life and increases the domestic violence to his wife. Exposure to political violence in earlier life has different effects across gender: it makes men violence-prone in marital life and women more tolerant/victim of domestic violence. We collected data from two waves of PDHS; 2012-13 and 2017-18, on the domestic violence-related variables of interest —previous waves of PDHS did not include the domestic violence module—, which includes 7772 successfully interviewed women. The data on political violence is taken from BFRS and Armed Conflict Location & Event Data Project (ACLED) from 1988 to 2018, and it is aggregated yearly at district level for merging with PDHS dataset. We decomposed political violence into two sub-categories: (i) *political violence against civilians*, it includes the events of terrorism, violence against civilians, remote violence, and assassinations, and (ii) *political violence*, it includes the events of all types of battles,[8] attack on state, and *political violence against civilians* (as described above).

We applied the ordinary least square (OLS) technique with the year of birth, survey, and district fixed effects. The outcome variable is —domestic violence, emotional violence, and sexual violence— a binary variable takes value 1 if the interviewee answered yes to the questions asked for particular type of domestic violence, and otherwise 0. The independent variables *political violence against civilians* and *political violence* are the main variables of interest, which are measured as a sum of events aggregated yearly per 1000 people at district level.

[4] https://visionofhumanity.org/wp-content/uploads/2020/11/GTI-2020-web-1.pdf

[5] https://reliefweb.int/sites/reliefweb.int/files/resources/2012-Global-Terrorism-Index-Report.pdf

[6] https://www.visionofhumanity.org/wp-content/uploads/2020/10/GPI_2020_web.pdf

[7] "Domestic violence" is used as an interchangeable term with "Intimate partner violence."

[8] (i) Battles, (ii) conventional attack on military/paramilitary/police/intelligent, (iii) military/paramilitary/police attack on non-state combatants, (iv) guerrilla attack on military/paramilitary/police/intelligence, and (v) military/paramilitary/police-Selective violence

Regression results show that women's exposure to political violence, and political violence against civilians do not matter in perpetrating domestic violence. However, including the husband's prior exposure at various ages as regressors in the regression models, we have found that husbands' exposure at the age of 4 to 6 years significantly increase domestic violence and emotional violence. Moreover, husbands' exposure to political violence and political violence against civilians at various age brackets in life increase the sexual violence on their wives.

Regression results show that an increase by one standard deviation in the exposure to political violence and political violence against civilians of husband between the ages 4 and 6 years would increase the probability of his future wife being subject to domestic violence by 1.2 percentage points and 1.4 percentage points, respectively. These are not negligible effects, as the mean probability of domestic violence in our sample is about 37%. An increase by one standard deviation in the exposure to political violence and political violence against civilians of husbands between the ages of 4 and 6 years would increase her future wife's probability of being subject to emotional violence by 1.4 percentage points and 1.7 percentage points, respectively. These are the significant effects, as in our sample, the mean probability of emotional violence is about 31%. Moreover, an increase by one standard deviation in the exposure to political violence and political violence against civilians of husbands between the age of 10 and 12 years would increase her future wife's probability of being subject to sexual violence by 1.7 percentage points. It is a significant effect, as in our sample, the mean probability of sexual violence is 4.5%. We have run several robustness tests, results support the main findings.

The rest of the chapter is organised as follow; Section (1.2) discusses the related literature, Section (1.3) presents the data sources and variable construction, Section (1.4) defines the empirical framework, Section (1.5) shows the results and discussions, and Section (1.6) concludes.

1.2 Literature Review

Exposure to political violence in early-life makes individuals more violence-prone in adult life (Couttenier et al., 2019). Miguel et al. (2011) have studied the behaviour of hundreds of football players in the European Professional League. The level of civil war in the player's native country is discovered to have a substantial positive link with his willingness to behave violently on the football pitch. Studies have shown that exposure to political violence as children increases the likelihood of domestic violence in marital life (Gutierrez

and Gallegos, 2016, Shemyakina and La Mattina, 2017, Stith et al., 2000). Exposure to political violence during childhood and adolescence have short and long-term health, well-being, and behavioural implications such as anxiety, depression, stress disorders, and suicide thoughts, as well as a higher incidence of domestic violence (Hamdan and Hallaq, 2021, Hui et al., 2019a, Peckins et al., 2012, Wolfe et al., 2003). La Mattina (2017) has shown that women's exposure to genocide in Rwanda in 1994 significantly increased domestic violence through sex ratios in the marriage market, giving more bargaining power to few-surviving men in the marriage market than women; and loss of education attainment which increases the probability of accepting domestic violence.

Guruge et al. (2017) have argued that men's power is challenged during war-times; thus, men use violence as a way to dominate women and regain their power. Children who are directly exposed to family violence (experience of violence) or indirectly (see or hear any type of violence) may establish norms regarding the appropriateness of violence in various situations. When children are exposed to violence as a problem-solving method at home, they are more likely to replicate it later in life (Kerley et al., 2010).

Psychology literature suggests critical age brackets that shape the adult behaviour. Schellenberg (2000) has suggested that each stage from infancy to adolescence is important for personality development and peer relationships. Cherry (2018) has suggested that early school years are important for learning and developing a sense of collaboration with the peers. Early to middle childhood is a time of global shifts in cognition, motivation, social behaviour, and a broad spectrum of personality development, gender differences, and psychopathology. This transition serves as a turning point in the progression of life strategies (Del Giudice, 2009, 2012, Del Giudice and Belsky, 2011). Middle childhood years are important in human development in which youngsters gain the skills, interests, and confidence to master and control their situation (DelGiudice, 2018, Nelson et al., 2005). On the other hand, Eccles (1999) has argued that the interval between middle childhood and early adolescence is a critical developmental phase that shapes one's sense of identity. Moreover, when children begin schooling, the influence of their peers is quite important (van den Bos, 2013).

The transitional period from childhood to adulthood is highly vulnerable to certain risks that may considerably impact health in the future. Stark et al. (2019) have argued that as children enter adolescence, inequitable gender norms become more established due to rapid hormonal changes and that exposure and experiences lead males and females to behave differently throughout adolescence and early adulthood (Lane et al., 2017). Individual development would be optimal if it reflected the diverse type of growth

that occurs during adolescence, a period of significant change in various areas such as biological and social development (Wagner, 1996). Inhelder and Piaget (1958) have argued that during early adolescence thinking shifts from a concrete to an abstract mode of functioning. Adolescents begin to think about multidimensional future-oriented, emotionally self-confident, and cooperate in relationships with family and friends when they reach the age of 18 (Wagner, 1996). From childhood to adulthood, the age brackets significantly impact the responsiveness to social influence (Altikulaç et al., 2019, Foulkes et al., 2018). This chapter examines early-life exposure to political violence in various age brackets, which are critical in shaping adult behaviour toward domestic violence.

Some studies have stated that exposure to violent incidents is associated differently across gender. For example, boys behave violently and tend to show higher perceived threats, while girls do not behave aggressively but tend to self-blame, which causes hopelessness, anxiety, and depression (Cohn, 1991, Gjerde et al., 1988, Kerig, 1999, Lane et al., 2017, Nolen-Hoeksema et al., 1991). Moreover, child-rearing practices and socialisation support make boys' behaviour active and girls' behaviour passive, fearfulness and internalising (Gavranidou and Rosner, 2003). Abdullahi and Kumar (2016) have argued that women better understand other's mental states and are more concerned about society's morality. As a result, it appears that women are more interested in providing nurturing assistance and more empathetic than men.

1.3 Data and variables

The main data are collected from three sources: data on political violence are collected from British Forces Resettlement Services (BFRS) dataset of political violence and Armed Conflict Location & Event Data Project (ACLED), and Pakistan Demographic and Health Survey (PDHS) provides data on domestic violence. In the case of Pakistan, the BFRS dataset records incident-level data on political violence from January 1988 to November 8, 2011, and the ACLED dataset records data from January 1, 2010, onwards. Our data on political violence for this chapter ranges from January 1988 to December 2018. As a result, BFRS data are collected from January 1988 to December 2009, and ACLED data are collected from January 2010 to December 2018. Both datasets provide information on the type of event, agents, event location, date, other characteristics of political violence, demonstrations and select politically relevant non-violent events. These datasets record the incidents at various administrative levels, i.e., country, province, divisional, district, tehsil (taluka) level, the event's location, and the date of occurrence. We constructed

political violence variables matching in BFRS and ACLED datasets based on the definition of events in the codebooks of these datasets. The data on political violence are splited into two sub-categories; (i) political violence against civilians, and (ii) political violence. The *political violence against civilians* variable includes the events of terrorism, violence against civilians, remote violence, and assassinations. The *political violence* variable includes the events of all types of battles,[9] attack on state, and *political violence against civilians* (as described above). Event types of political violence are defined in detail in the codebooks provided by the BFRS dataset and ACLED dataset.[10,11] The event types in both datasets are highly correlated based on overlapping time-period from Jan-2010 to Nov-2011 —for this time period we have data on political violence from both sources, BFRS and ACLED. For example, the correlation between *political violence* from ACLED and from BFRS is 0.842 and *political violence against civilians* from ACLED and BFRS is 0.856, it shows high correlation (see Appendix Table A1).

The BFRS and ACLED datasets provide data on political violence at the actual location of event occurrence. Political violence data are aggregated yearly at district level per 1000 people, for merging with PDHS dataset. Because, the PDHS records data at the district level as a lowest administrative unit. Data on population at district level are collected from Population Censuses of Pakistan. There are three censuses from 1981 to 2018; in 1981, in 1998 and 2017. Therefore, we calculate the annual population in each district through the annual average growth rate (AAGR) —which is also used in the population censuses.[12] We calculated population for newly created districts as a proportion from their parent districts.

The data on domestic violence are taken from the domestic violence module in PDHS from the two waves 2012-13 and 2017-18. PDHS is a nationally representative survey that interviews ever-married women between ages 15 to 49 years. It represents the population sample rather than collecting information only from abused women's shelters. This module records the data on domestic violence as a form of gender-based violence against women (see the PDHS 2012-13 and 2017-18 report).[13, 14]

[9] (i)Battles, (ii) conventional attack on military/paramilitary/police/intelligent, (iii) military/paramilitary/police attack on non-state combatants, (iv) guerrilla attack on military/paramilitary/police/intelligence, and (v) military/paramilitary/police-Selective violence

[10] https://esoc.princeton.edu/files/bfrs-political-violence-pakistan-dataset

[11] https://reliefweb.int/report/world/armed-conflict-location-event-data-project-acled-codebook-version-8-2017

[12]
$$AAGR = \left(\frac{Current\ Population\ census}{Previous\ Population\ census}\right)^{\frac{1}{Years}} - 1$$

[13] https://dhsprogram.com/pubs/pdf/FR290/FR290.pdf

[14] https://dhsprogram.com/pubs/pdf/FR354/FR354.pdf

The PDHS wave 2012-13 records the data on domestic violence in the chapter, namely PKIR62DT and wave 2017-18 in the chapter, namely PKIR71DT. One eligible ever-married woman is randomly selected from each family and asked questions about domestic violence. In this sample, 7772 women (seven thousand seven hundred and seventy-two) were successfully interviewed for the domestic violence module, whereas, PDHS 2012-13 interviewed 3687 and PDHS 2017-18 interviewed 4085 women. The PDHS 2012-13 does not include data on sexual violence.

The PDHS provides information on interviewees' permanent residency or visiting status but not their migration history. For example, the interviewee has lived in the same district since birth or has relocated from another district. For constructing the reliable measure of prior exposure to political violence, for the main analyses, we exclusively cover women who reported as permanent residents —since birth— in the respective district, which accounts for 7613 women.

The domestic violence module questionnaire includes a broader set of questions to explore if the respondent has been experiencing any domestic violence. During the interview, the woman is asked several questions for each sub-type of domestic violence. For exploring about the *"less severe physical violence"*, questions were asked; (i) push you, shake you, or throw something at you?, (ii) slap you?, (iii) punch you with his fist or with something that could hurt you?, and (iv) twist your arm or pull your hair? For exploring about *"severe physical violence"*, questions were asked; (i) kick you, drag you, or beat you up?, (ii) try to choke you or burn you on purpose?, and (iii) threaten or attack you with a knife, gun, or other weapon? For exploring about *"emotional violence"*, questions were asked; (i) say or do something to humiliate you in front of others?, (ii) threaten to hurt or harm you or someone you care about?, and (iii) insult you or make you feel bad about yourself? For exploring about *"sexual violence"*, questions were asked; (i) physically force you to have sexual intercourse with him when you did not want to?, (ii) physically force you to perform any other sexual act you did not want to?, and (iii) force you with threats or in any other way to perform sexual acts which you did not want to? From these all types of domestic violence, we construct three sub-categories. (i) *domestic violence:* which is the combination of less severe physical violence, severe physical violence, emotional violence and sexual violence; (ii) *emotional violence*, and (iii) *sexual violence.*

The outcome variables are; domestic violence, emotional violence and sexual violence. Each outcome variable is a binary variable that takes value 1 if a woman has ever experienced the particular type of domestic violence, otherwise takes value 0.

Our analyses include the set of control variables which are; respondent's current age, square term of respondent's current age, the difference of age between husband and wife, woman's age at first cohabitation, number of children up to five years of age in household, respondent's educational attainment, husband or partner's education level, husband or partner's alcohol drinking habits, and wealth index. The PDHS does not provides information on individuals' income, but it provides information on household's assets (such as televisions and bicycles, materials used for housing construction, and types of water access and sanitation facilities), a wealth index is calculated using a principal components technique. Wealth index is represented into five categories, i.e, poorest, poor, middle, richer, and richest.

To explore the critical age brackets that shape adult behaviour, this chapter investigates the impact of exposure to political violence in different age brackets, such as infant to toddlers, preschool age, middle childhood and early adolescence. Dr Maria Montessori defined child development concerning the various age groups, such as birth to three years, three to six years and six to nine years (Feez, 2009). Moreover, they mentioned that the most sensitive age bracket of child development is birth to six years, as in two sub-categories; gross and fine motor development birth to 2.5 years; and coordination of movement from 2.5 to 6 years of age.[15] Each age group has a specific kind of inner compulsion that motivates a child to explore objectives and relationships in the environment. Therefore, we construct the explanatory variables of interest, political violence, —in the regression equation written as *politicalviolence*— which captures the exposure to particular type of political violence, i-e, *political violence* and *political violence against civilians*, for each interviewed woman and her husband at various age brackets, i.e., with every three years of the interval from birth to early adolescence and a variable representing above fifteen years of age. We construct six age brackets into: birth or 0 to 3 years, 4 to 6 years, 7 to 9 years, 10 to 12 years, 13 to 15 years and above 15 years. The exposure to political violence in each bracket is constructed based on the date of birth of the respondent and her husband. If a respondent was born in 1996, for example, at the age 0-3 years the exposure to political violence was constructed from 1996 to 1998, at the age 4-6 years the exposure to political violence was constructed from 1999 to 2001, and so on.

[15] https://thistoddlerlife.com/montessori-sensitive-periods/

Figure 1.1: Political violence and political violence against civilians

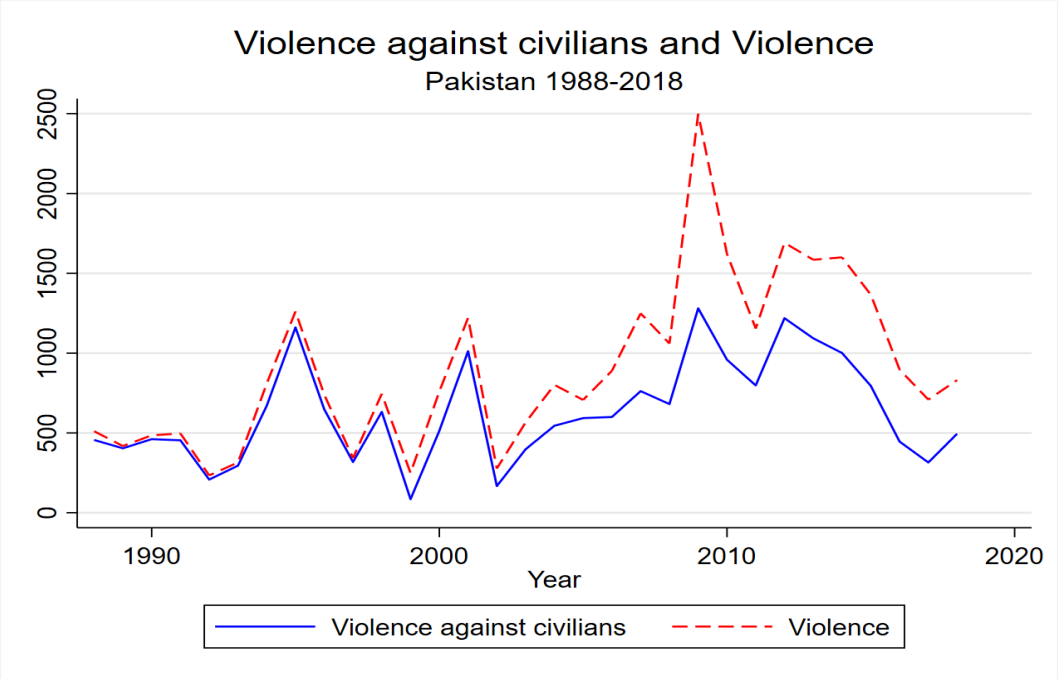
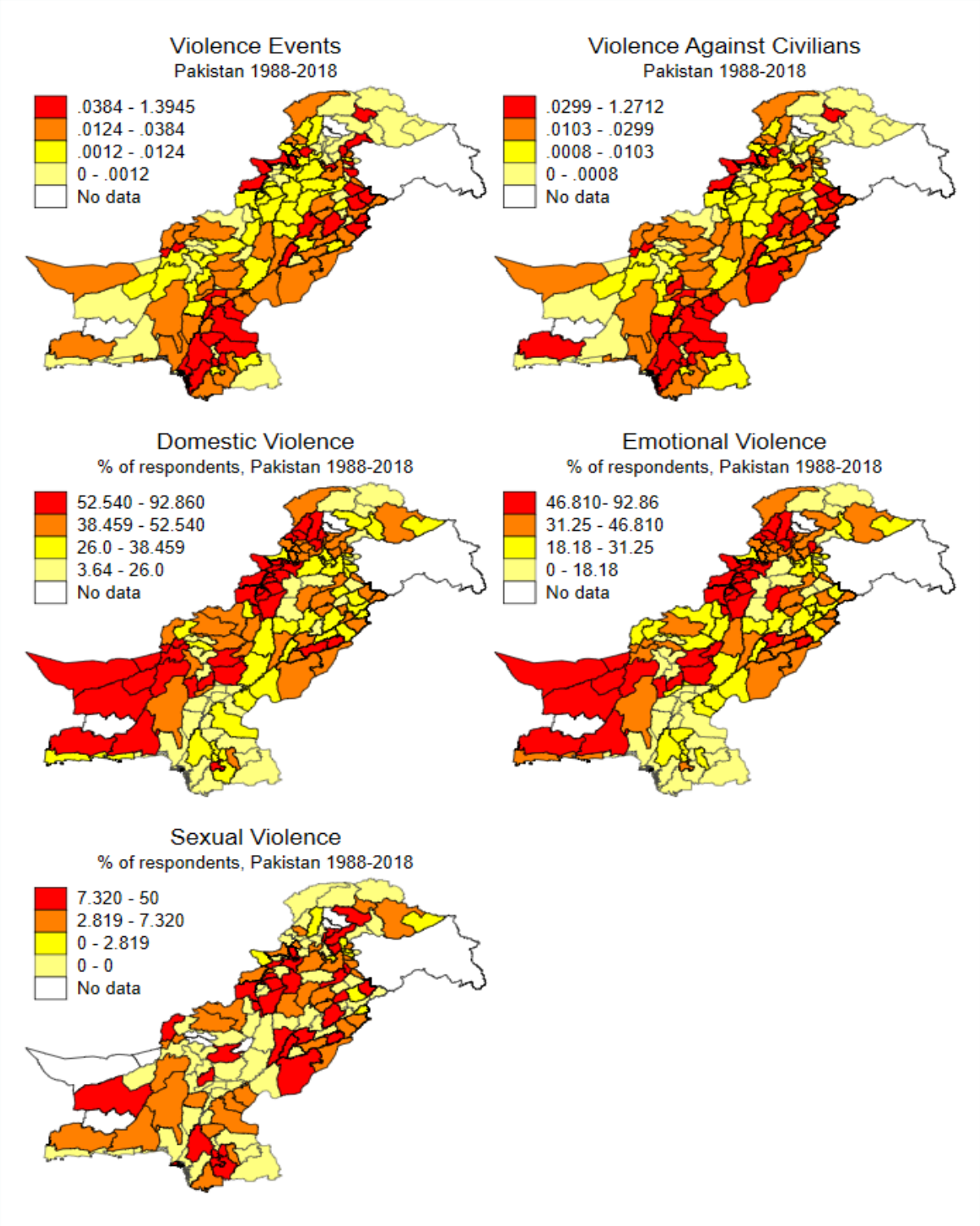


Figure 1.1 shows the political violence and political violence against civilians over time in Pakistan. The political violence events reached various intensities at different times from 1988 to 2018. Events of political violence, political violence against civilians and domestic violence are mapped in Figure 1.2. The maps of *political violence* and *political violence against civilians* show the number of events per 1000 people at the district level from 1988 to 2018. The maps of *domestic violence*, *emotional violence* and *sexual violence* show the percentage of respondents who have ever experienced the respective type of domestic violence. Generally, a positive relationship is observed between political violence, political violence against civilians and domestic violence. The respondents reported higher rates of domestic violence in the districts with more political violent incidents.

Figure 1.2: Political violence and domestic-violence



The descriptive statistics for all variables used in this chapter are shown in Table 1.1. It shows that in the sample on average 37.4% and 31% of women have experienced domestic violence and emotional violence, respectively, at any point in their life. The questions related to sexual violence were asked only in one wave (PDHS 2017-18), in the sample on average 4.5% of women have experienced sexual violence by their partner at any point in their life.

Table 1.1: Descriptive Statistics

Variable	Obs.	Mean	SD	Min.	Max.
Domestic violence:					
Domestic violence	7770	0.374	0.484	0	1
Emotional violence	7770	0.308	0.462	0	1
Sexual violence	4084	0.045	0.207	0	1
Exposure to political violence:					
Women's exposure at age 0-3	7772	0.004	0.021	0	0.566
Women's exposure at age 4-6	7772	0.006	0.027	0	0.566
Women's exposure at age 7-9	7772	0.009	0.035	0	0.736
Women's exposure at age 10-12	7772	0.013	0.047	0	1.288
Women's exposure at age 13-15	7772	0.017	0.057	0	1.288
Women's exposure at age above 15	7772	0.182	0.286	0	2.551
Husband's exposure at age 0-3	7509	0.002	0.015	0	0.498
Husband's exposure at age 4-6	7509	0.004	0.019	0	0.498
Husband's exposure at age 7-9	7509	0.006	0.027	0	0.770
Husband's exposure at age 10-12	7509	0.009	0.039	0	0.897
Husband's exposure at age 13-15	7509	0.012	0.045	0	0.897
Husband's exposure at age above 15	7509	0.199	0.300	0	2.552
Exposure to political violence against civilians:					
Women's exposure at age 0-3	7772	0.003	0.017	0	0.443
Women's exposure at age 4-6	7772	0.005	0.021	0	0.443
Women's exposure at age 7-9	7772	0.007	0.026	0	0.443
Women's exposure at age 10-12	7772	0.009	0.031	0	0.647
Women's exposure at age 13-15	7772	0.011	0.034	0	0.647
Women's exposure at age above 15	7772	0.119	0.192	0	1.486
Husband's exposure at age 0-3	7509	0.002	0.012	0	0.443
Husband's exposure at age 4-6	7509	0.003	0.015	0	0.443
Husband's exposure at age 7-9	7509	0.004	0.019	0	0.443
Husband's exposure at age 10-12	7509	0.006	0.027	0	0.443
Husband's exposure at age 13-15	7509	0.008	0.030	0	0.477
Husband's exposure at age above 15	7509	0.132	0.203	0	1.546
Controls:					
Respondent's current age	7772	33.199	8.270	15	49
Educational attainment	7772	1.586	1.936	0	5
Age at first cohabitation	7772	19.092	4.088	10	48
Number of children ≤ 5 in household	7772	1.209	1.250	0	13
Wealth index	7772	3.026	1.420	1	5
Husband/partner drinks alcohol	7770	0.050	0.218	0	1
Husband/partner's education level	7641	1.512	1.149	0	3
Partners age difference	7509	5.473	5.793	-17	79

Variable	Obs.	Mean	SD	Min.	Max.	Obs.	Mean	SD	Min.	Max.
For robustness tests:	Wife's education $\geq$ her husband					Husband's education $\geq$ his wife				
Domestic violence	4119	0.369	0.482	0	1	6893	0.378	0.485	0	1
Emotional violence	4119	0.306	0.461	0	1	6893	0.311	0.463	0	1
Sexual violence	2161	0.050	0.218	0	1	3605	0.046	0.209	0	1
	Wealth: for poor people					Wealth: for rich people				
Domestic violence	3134	0.437	0.496	0	1	4636	0.332	0.471	0	1
Emotional violence	3134	0.369	0.483	0	1	4636	0.268	0.443	0	1
Sexual violence	1737	0.051	0.221	0	1	2347	0.040	0.197	0	1

1.4 Empirical framework

To examine the impact of early-life exposure to political violence on domestic violence, we estimate the baseline regression model, following the study by Shemyakina and La Mattina (2017), as below:

$$DV_{idkt} = \alpha + \sum_{a=1}^{6} \beta_a politicalviolence_{jdka} + \delta_k + \gamma_d + \theta_t + \lambda X_i + \varepsilon_{idkt} \tag{1.1}$$

whereas, DV_{idkt} is a binary outcome variable representing marital violence, emotional violence, and sexual violence, for an individual i who was born in year k and was living in district d at the time of interview t. The $politicalviolence_{jdka}$ is considered into j categories whereas j contains two categories of political violence, i.e., *"political violence"* and *"political violence against civilians"*. The $politicalviolence_{jdka}$ takes the number of events per 1000 people occurred in district d when individuals born in year k were of the age a. The exposure to $politicalviolence_j$ is considered into six age brackets; birth to 3 years, 4 to 6 years, 7 to 9 years, 10 to 12 years, 13 to 15 years, and above 15 years. δ_k are the year of birth fixed effects (year of birth of woman and her husband),[16] it accounts for the time-invariant unobservable shocks for all the individuals born in the same year. γ_d are the district fixed effects that capture the time-invariant factors across the districts. θ_t is a year of survey fixed effects, it captures time effects and accounts for changes in spouse's behaviour in domestic violence that could occur over time. X_i is the set of controls that can affect the incidence of domestic violence. These controls are: difference of age between husband and wife; age at the time of first marriage; the number of children up to the age of five years in a household; wife's educational attainment as given in the PDHS, no education, incomplete primary, complete primary, incomplete secondary, complete secondary and higher education; husband's education level as given in the PDHs, no education, primary, secondary and higher education; husband's alcohol drinking habits, which may be a cause of unpleasant behaviour; and wealth index as given in PDHS, poorest, poor, middle, richer richest, that shows the financial status of the household.

[16] As husband's year of birth (hYoB) is not given in the domestic violence. Therefore, we calculate hYoB = (year of interview - husband's current age)

1.5 Results and Discussion

1.5.1 Baseline results

Estimation results are based on the regression equation (1.1). In each table of regression results, all columns include the fixed effects, i.e., year of birth, survey, and district fixed effects. In addition, column (1) includes no controls; column (2) adds in wife related controls, such as educational attainment and age at the time of first marriage. Column (3) adds in husband related controls, such as husband's education level and husband's alcohol drinking habits. Moreover, column (4) adds in household controls, such as difference of age between husband and wife, number of children up to 5 years in the house, and wealth index.

In Table 1.2, in Panel A, the regression results show that women's exposure to political violence throughout their life does not affect domestic violence. The coefficients are not significant statistically in all the columns. However, in Panel B, the women's exposure to political violence against civilians at the age of 4 to 6 years positively affects domestic violence. Estimates are partially significant statistically in columns (3) and (4) at the 10 percent level. Results in Table 1.3 and Table 1.4, in Panel A, and Panel B show that women's exposure to political violence and political violence against civilians throughout their life have no effect on emotional violence and sexual violence, coefficient estimates are not significant statistically.

Our findings suggest that women's exposure to political violence in their earlier life do not have a significant effect on domestic violence. As literature shows that exposure to violence in early-life has heterogenous effect as a function of gender for shaping the adult behaviour; men behave violently and tend to show higher perceived threats, while women do not behave aggressively but tend to self-blame, which causes hopelessness, anxiety and depression in women (Cohn, 1991, Gavranidou and Rosner, 2003, Gjerde et al., 1988, Kerig, 1999, Nolen-Hoeksema et al., 1991). Exposure to political violence decreases women's autonomy and decision-making power while increasing men's controlling behaviour (Hui et al., 2019b) and the loss of education during political violence may facilitate the women's acceptance of domestic violence (La Mattina, 2017). Our findings are in line with literature.

[16]To facilitate the interpretation we use standardized regression coefficient, i.e,

$$Standardized\ regression\ coefficient = \beta_i \times \frac{Standard\ deviation\ of\ X_i}{Standard\ deviation\ of\ Y}$$

Table 1.2: Effect of exposure to political violence and political violence against civilians on domestic violence

Dependent variable: Domestic violence	(1)	(2)	(3)	(4)
Panel A:				
Women's exposure to viol at age 0-3	-0.044	0.058	0.089	0.082
	(0.263)	(0.278)	(0.267)	(0.286)
Women's exposure to viol at age 4-6	0.029	0.080	0.110	0.125
	(0.337)	(0.339)	(0.306)	(0.304)
Women's exposure to viol at age 7-9	-0.372	-0.274	-0.168	-0.126
	(0.335)	(0.333)	(0.294)	(0.289)
Women's exposure to viol at age 10-12	-0.173	-0.078	0.027	0.031
	(0.168)	(0.172)	(0.152)	(0.159)
Women's exposure to viol at age 13-15	-0.139	-0.031	0.008	0.033
	(0.195)	(0.194)	(0.173)	(0.176)
Women's exposure to viol at age above 15	-0.179	-0.085	-0.019	-0.000
	(0.175)	(0.177)	(0.154)	(0.155)
Panel B:				
Women's exposure to vac at age 0-3	0.053	0.176	0.183	0.215
	(0.235)	(0.243)	(0.260)	(0.257)
Women's exposure to vac at age 4-6	0.412	0.454	0.436*	0.451*
	(0.277)	(0.278)	(0.243)	(0.240)
Women's exposure to vac at age 7-9	-0.304	-0.177	-0.088	-0.055
	(0.380)	(0.368)	(0.333)	(0.330)
Women's exposure to vac at age 10-12	-0.162	-0.052	0.020	0.035
	(0.168)	(0.166)	(0.160)	(0.160)
Women's exposure to vac at age 13-15	0.086	0.213	0.219	0.253
	(0.210)	(0.210)	(0.197)	(0.201)
Women's exposure to vac at age above 15	-0.113	-0.008	0.036	0.053
	(0.163)	(0.164)	(0.153)	(0.152)
Wife controls		✓	✓	✓
Husband controls			✓	✓
Household controls				✓
Year of Birth, Survey, District FE	✓	✓	✓	✓
Observations	7611	7611	7479	7341
R^2	0.144	0.156	0.175	0.183
Clusters	146	146	146	146

Notes: The results are estimated using OLS. Standard errors are clustered at the district level * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Wife controls*: respondent's current age, square term of the respondent's current age, educational attainment, and age at first cohabitation. *Husband controls*: husband/partner's education level, and husband/partner's alcohol drinking habits. *Household controls*: difference of age between husband and wife, number of children 5 years of age and under in household and wealth index. FE = fixed effects.

[16] *viol* stands for political violence and *vac* stands for political violence against civilians, these are measured as per 1000 of people per at district level.

Table 1.3: Effect of exposure to political violence and political violence against civilians on emotional violence

Dependent variable: Emotional Violence	(1)	(2)	(3)	(4)
Panel A:				
Women's exposure to viol at age 0-3	0.018	0.094	0.119	0.126
	(0.326)	(0.335)	(0.326)	(0.335)
Women's exposure to viol at age 4-6	-0.311	-0.274	-0.252	-0.227
	(0.302)	(0.306)	(0.279)	(0.277)
Women's exposure to viol at age 7-9	-0.392	-0.318	-0.226	-0.199
	(0.405)	(0.404)	(0.366)	(0.357)
Women's exposure to viol at age 10-12	-0.209	-0.134	-0.036	-0.019
	(0.174)	(0.174)	(0.155)	(0.162)
Women's exposure to viol at age 13-15	-0.191	-0.108	-0.078	-0.053
	(0.231)	(0.227)	(0.205)	(0.206)
Women's exposure to viol at age above 15	-0.207	-0.134	-0.077	-0.057
	(0.207)	(0.204)	(0.181)	(0.181)
Panel B:				
Women's exposure to vac at age 0-3	0.040	0.137	0.138	0.179
	(0.329)	(0.333)	(0.347)	(0.339)
Women's exposure to vac at age 4-6	-0.041	-0.008	-0.035	-0.007
	(0.280)	(0.282)	(0.251)	(0.252)
Women's exposure to vac at age 7-9	-0.292	-0.192	-0.116	-0.103
	(0.458)	(0.446)	(0.410)	(0.407)
Women's exposure to vac at age 10-12	-0.279	-0.191	-0.119	-0.095
	(0.199)	(0.189)	(0.179)	(0.184)
Women's exposure to vac at age 13-15	-0.030	0.070	0.065	0.104
	(0.233)	(0.227)	(0.217)	(0.218)
Women's exposure to vac at age above 15	-0.177	-0.093	-0.056	-0.037
	(0.212)	(0.207)	(0.194)	(0.195)
Wife controls		✓	✓	✓
Husband controls			✓	✓
Household controls				✓
Year of Birth, Survey, District FE	✓	✓	✓	✓
Observations	7611	7611	7479	7341
R^2	0.152	0.162	0.180	0.186
Clusters	146	146	146	146

Notes: The results are estimated using OLS. Standard errors are clustered at the district level * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Wife controls*: respondent's current age, square term of the respondent's current age, educational attainment, and age at first cohabitation. *Husband controls*: husband/partner's education level, and husband/partner's alcohol drinking habits. *Household controls*: difference of age between husband and wife, number of children 5 years of age and under in household and wealth index. FE = fixed effects.

Table 1.4: Effect of exposure to political violence and political violence against civilians on sexual violence

Dependent variable: Sexual Violence	(1)	(2)	(3)	(4)
Panel A:				
Women's exposure to viol at age 0-3	-0.079	-0.051	-0.050	-0.043
	(0.167)	(0.171)	(0.176)	(0.182)
Women's exposure to viol at age 4-6	0.131	0.146	0.119	0.130
	(0.209)	(0.209)	(0.191)	(0.193)
Women's exposure to viol at age 7-9	-0.141	-0.115	-0.078	-0.065
	(0.107)	(0.108)	(0.104)	(0.107)
Women's exposure to viol at age 10-12	0.030	0.055	0.099	0.104
	(0.145)	(0.147)	(0.155)	(0.156)
Women's exposure to viol at age 13-15	-0.043	-0.016	-0.005	0.005
	(0.100)	(0.102)	(0.110)	(0.112)
Women's exposure to viol at age above 15	-0.031	-0.006	0.005	0.014
	(0.099)	(0.101)	(0.108)	(0.112)
Panel B:				
Women's exposure to vac at age 0-3	-0.103	-0.067	-0.052	-0.039
	(0.240)	(0.245)	(0.244)	(0.249)
Women's exposure to vac at age 4-6	0.212	0.218	0.121	0.132
	(0.324)	(0.319)	(0.227)	(0.231)
Women's exposure to vac at age 7-9	-0.196	-0.169	-0.140	-0.126
	(0.159)	(0.159)	(0.149)	(0.151)
Women's exposure to vac at age 10-12	-0.026	0.005	0.047	0.050
	(0.196)	(0.201)	(0.211)	(0.210)
Women's exposure to vac at age 13-15	0.028	0.060	0.063	0.075
	(0.133)	(0.135)	(0.137)	(0.140)
Women's exposure to vac at age above 15	-0.048	-0.020	-0.017	-0.008
	(0.117)	(0.121)	(0.128)	(0.132)
Wife controls		✓	✓	✓
Husband controls			✓	✓
Household controls				✓
Year of Birth, Survey, District FE	✓	✓	✓	✓
Observations	4000	4000	3877	3876
R^2	0.072	0.075	0.091	0.092
Clusters	141	141	141	141

Notes: The results are estimated using OLS. Standard errors are clustered at the district level * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Wife controls*: respondent's current age, square term of the respondent's current age, educational attainment, and age at first cohabitation. *Husband controls*: husband/partner's education level, and husband/partner's alcohol drinking habits. *Household controls*: difference of age between husband and wife, number of children 5 years of age and under in household and wealth index. FE = fixed effects.

Studies have shown that exposure to political violence in early-life increases likelihood of domestic violence in marital life (Ekhator-Mobayode et al., 2022, Gutierrez and Gallegos, 2016, Lafta and Hamid, 2021, Shemyakina and La Mattina, 2017, Stith et al., 2000, Svallfors, 2021) and it shapes the adult behaviour differently across men and women (Cohn, 1991, Gavranidou and Rosner, 2003, Gjerde et al., 1988, Kerig, 1999, Nolen-Hoeksema et al., 1991). We observed no significant effect of women's earlier exposure to political violence on domestic violence, as results show in Table 1.2 to Table 1.4. As a result, we replicate the regressions based on equation (1.1), replacing women's prior political violence exposure with their husband's prior political violence exposure. The estimation results are reported in appendix Table A9 to Table A11, which show that a husband's prior exposure to political violence has a significant impact on his wife's reporting of domestic violence. Next, we run regressions based on equation (1.1) where we also include husband's exposure to political violence at different ages as additional regressors, demonstrating that, in a couple, whose prior exposure to political violence matters more in domestic violence.

Table 1.5 shows that husbands' exposure to political violence at the age of 4 to 6 years increases the domestic violence in their marital life. In columns (1) to (4), the coefficient estimates are positive and statistically significant at 1 percent and 5 percent levels. In column (4) —full specification model— one standard deviation increases in husbands' exposure to political violence it increases domestic violence by 0.025 standard deviations. In other words, an increase by one standard deviation in the exposure to political violence of a husband between the age 4 and 6 years would increase the probability of his future wife being subject to domestic violence by 1.2 percentage points.

Table 1.6 shows the positive relationship between women and their husbands' exposure to political violence against civilians and domestic violence. In column (4) —full specification model— one standard deviation increase in the women's exposure to political violence against civilians at the age of 4 to 6 years increases the domestic violence by 0.026 standard deviations, coefficient estimates are statistically significant at 10 percent level. Whereas, in column (4), one standard deviation increases in husbands' exposure to political violence against civilians at the age of 4 to 6 years, increasing domestic violence by 0.0296 standard deviations, coefficient estimates are statistically significant at 1 percent level. Moreover, women's exposure to political violence against civilians at the age of 10 to 12 years and 13 to 15 years also increase domestic violence, however, its magnitude is

[16]The coefficient estimates are interpreted in terms of SD and percentage points as below;
$\beta_i \times Standard\ Deviation\ of\ X_i \times 100$

lesser than the exposure at the age of 4 to 6 years. In other words, according to coefficient estimates in column (4), an increase by one standard deviation in the exposure to political violence against civilians of husbands between 4 and 6 years of age would increase the probability of his future wife being subject to domestic violence by 1.4 percentage points. These are not negligible effects since the mean probability of domestic violence in our sample is about 37%.

Results in Table 1.6 show that women's exposure to political violence against civilians at the age 4-6 years and 10-12 years have a positive effect on domestic violence. We might interpret these findings in a number of ways, including the "violence begets violence" hypothesis. While she is being abused, she may react fiercely, or repeatedly argue with her husband on household matters trigger him to be provoked and aggressive (Buriro et al., 2020) and her husband may use violence as a tool to control her. Couttenier et al. (2019) have shown that early-life exposure to political violence shapes adult behaviour violence-prone. Although, men commit violent acts considerably more frequently than women, the negligible part of violence is perpetrated by women (Freeman, 1999), according to a meta-analysis by Archer (2002) around one-third of the perpetrators were women in domestic violence incidents. Our findings are in line with the literature that prior exposure to political violence shapes adult behaviour violence-prone.

Table 1.7 shows the effect of exposure to political violence on emotional violence. The women's exposure to political violence throughout their life has no effect on emotional violence. The coefficient estimates are not significant statistically. However, husbands' exposure to political violence at the age of 4 to 6 years increases emotional violence. In column (4), one standard deviation increase in the husbands' exposure to political violence increases emotional violence towards their wife by 0.030 standard deviations. The coefficient estimates are statistically significant at 1 percent level. In other words, according to the coefficient estimates in column (4), an increase by one standard deviation in the exposure to political violence of a husband between the ages of 4 and 6 years would increase the probability of her future wife being subject to emotional violence by 1.4 percentage points.

Table 1.8 shows that women's exposure to political violence against civilians has no effect on emotional violence. However, husbands' exposure at the age 0 to 3 and 4 to 6 years have a significant positive effect on emotional violence. In column (4), one standard deviation increase in husbands' exposure at the age of 4 to 6 years increases emotional violence by 0.036 standard deviations. In other words, according to the coefficient estimates in column (4), an increase by one standard deviation in the exposure to political

violence against civilians of husbands between the ages 4 and 6 years would increase the probability of her future wife being subject to emotional violence by 1.7 percentage points. These are the significant effects as in the sample, the mean of emotional violence is about 31%.

Table 1.5: Effect of exposure to political violence on domestic violence

Dependent variable: Domestic violence	(1)	(2)	(3)	(4)
Women's exposure to viol at age 0-3	0.070	0.169	0.148	0.157
	(0.270)	(0.274)	(0.270)	(0.285)
Husband's exposure to viol at age 0-3	0.369	0.334	0.307	0.234
	(0.522)	(0.543)	(0.594)	(0.595)
Women's exposure to viol at age 4-6	0.190	0.237	0.234	0.224
	(0.405)	(0.407)	(0.395)	(0.407)
Husband's exposure to viol at age 4-6	0.655**	0.570**	0.613**	0.639***
	(0.263)	(0.259)	(0.243)	(0.240)
Women's exposure to viol at age 7-9	-0.093	-0.006	0.024	0.048
	(0.393)	(0.394)	(0.394)	(0.395)
Husband's exposure to viol at age 7-9	0.060	0.042	0.079	0.091
	(0.225)	(0.220)	(0.222)	(0.229)
Women's exposure to viol at age 10-12	0.117	0.203	0.246	0.238
	(0.231)	(0.228)	(0.218)	(0.233)
Husband's exposure to viol at age 10-12	0.020	0.008	0.044	0.037
	(0.213)	(0.208)	(0.205)	(0.208)
Women's exposure to viol at age 13-15	0.114	0.212	0.223	0.230
	(0.249)	(0.244)	(0.238)	(0.246)
Husband's exposure to viol at age 13-15	0.099	0.044	0.073	0.068
	(0.224)	(0.232)	(0.226)	(0.223)
Women's exposure to viol at age above 15	0.075	0.155	0.176	0.177
	(0.233)	(0.233)	(0.229)	(0.238)
Husband's exposure to viol at above 15	0.075	0.051	0.079	0.090
	(0.156)	(0.154)	(0.149)	(0.150)
Wife controls		✓	✓	✓
Husband controls			✓	✓
Household controls				✓
Year of Birth, Survey, District FE	✓	✓	✓	✓
Observations	7351	7351	7341	7341
R^2	0.157	0.171	0.185	0.192
Clusters	146	146	146	146

Notes: The results are estimated using OLS. Standard errors are clustered at the district level * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Wife controls*:respondent's current age, square term of the respondent's current age, educational attainment, and age at first cohabitation.*Husband controls*:husband/partner's education level, and husband/partner's alcohol drinking habits.*Household controls*: difference of age between husband and wife, number of children 5 years of age and under in household and wealth index. FE = fixed effects. Year of Birth FE includes both woman and her husband's year of birth.

Table 1.6: Effect of exposure to political violence against civilians on domestic violence

Dep: var: Domestic violence	(1)	(2)	(3)	(4)
Women's exposure to vac at age 0-3	0.206	0.320	0.275	0.316
	(0.256)	(0.252)	(0.272)	(0.271)
Husband's exposure to vac at age 0-3	0.481	0.453	0.473	0.384
	(0.577)	(0.590)	(0.623)	(0.626)
Women's exposure to vac at age 4-6	0.597*	0.633**	0.608*	0.605*
	(0.303)	(0.313)	(0.308)	(0.317)
Husband's exposure to vac at age 4-6	1.073***	0.936***	0.941***	0.956***
	(0.324)	(0.339)	(0.317)	(0.325)
Women's exposure to vac at age 7-9	0.056	0.175	0.190	0.205
	(0.439)	(0.422)	(0.433)	(0.441)
Husband's exposure to vac at age 7-9	0.189	0.159	0.157	0.143
	(0.324)	(0.315)	(0.321)	(0.333)
Women's exposure to vac at age 10-12	0.297	0.387*	0.390*	0.384*
	(0.221)	(0.208)	(0.213)	(0.227)
Husband's exposure to vac at age 10-12	-0.072	-0.092	-0.042	-0.038
	(0.257)	(0.251)	(0.250)	(0.251)
Women's exposure to vac at age 13-15	0.438**	0.545***	0.538**	0.542**
	(0.211)	(0.208)	(0.207)	(0.212)
Husband's exposure to vac at age 13-15	0.018	-0.020	0.005	-0.022
	(0.252)	(0.263)	(0.254)	(0.252)
Women's exposure to vac at age above 15	0.204	0.295	0.301	0.299
	(0.205)	(0.205)	(0.208)	(0.219)
Husband's exposure to vac at age above 15	0.141	0.101	0.121	0.128
	(0.216)	(0.213)	(0.206)	(0.208)
Wife controls		✓	✓	✓
Husband controls			✓	✓
Household controls				✓
Year of Birth, Survey, District FE	✓	✓	✓	✓
Observations	7351	7351	7341	7341
R^2	0.157	0.171	0.185	0.192
Clusters	146	146	146	146

Notes: The results are estimated using OLS. Standard errors are clustered at the district level * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Wife controls*:respondent's current age, square term of the respondent's current age, educational attainment, and age at first cohabitation.*Husband controls*:husband/partner's education level, and husband/partner's alcohol drinking habits.*Household controls*: difference of age between husband and wife, number of children 5 years of age and under in household and wealth index. FE = fixed effects. Year of Birth FE includes both woman and her husband's year of birth.

Table 1.7: Effect of exposure to political violence on emotional violence

Dep: var: Emotional Violence	(1)	(2)	(3)	(4)
Women's exposure to viol at age 0-3	0.138	0.208	0.183	0.186
	(0.322)	(0.323)	(0.329)	(0.344)
Husband's exposure to viol at age 0-3	0.550	0.525	0.498	0.443
	(0.490)	(0.500)	(0.541)	(0.539)
Women's exposure to viol at age 4-6	-0.080	-0.044	-0.050	-0.061
	(0.370)	(0.375)	(0.368)	(0.380)
Husband's exposure to viol at age 4-6	0.729**	0.666**	0.704***	0.725***
	(0.297)	(0.278)	(0.264)	(0.255)
Women's exposure to viol at age 7-9	-0.102	-0.036	-0.013	0.003
	(0.479)	(0.481)	(0.483)	(0.483)
Husband's exposure to viol at age 7-9	0.056	0.037	0.063	0.074
	(0.239)	(0.235)	(0.241)	(0.248)
Women's exposure to viol at age 10-12	0.103	0.172	0.208	0.199
	(0.251)	(0.246)	(0.239)	(0.253)
Husband's exposure to viol at age 10-12	0.118	0.105	0.133	0.129
	(0.246)	(0.243)	(0.237)	(0.236)
Women's exposure to viol at age 13-15	0.057	0.132	0.138	0.141
	(0.301)	(0.295)	(0.293)	(0.301)
Husband's exposure to viol at age above 15	0.124	0.077	0.098	0.095
	(0.247)	(0.253)	(0.247)	(0.244)
Women's exposure to viol at age above 15	0.020	0.082	0.097	0.095
	(0.267)	(0.265)	(0.264)	(0.272)
Husband's exposure to viol at above 15	0.194	0.174	0.196	0.205
	(0.193)	(0.190)	(0.184)	(0.182)
Wife controls		✓	✓	✓
Husband controls			✓	✓
Household controls				✓
Year of Birth, Survey, District FE	✓	✓	✓	✓
Observations	7351	7351	7341	7341
R^2	0.168	0.179	0.191	0.197
Clusters	146	146	146	146

Notes: The results are estimated using OLS. Standard errors are clustered at the district level * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Wife controls*:respondent's current age, square term of the respondent's current age, educational attainment, and age at first cohabitation.*Husband controls*:husband/partner's education level, and husband/partner's alcohol drinking habits.*Household controls*: difference of age between husband and wife, number of children 5 years of age and under in household and wealth index. FE = fixed effects. Year of Birth FE includes both woman and her husband's year of birth.

Table 1.8: Effect of exposure to political violence against civilians on emotional violence

Dep: var: Emotional Violence	(1)	(2)	(3)	(4)
Women's exposure to vac at age 0-3	0.194	0.285	0.234	0.263
	(0.371)	(0.361)	(0.397)	(0.399)
Husband's exposure to vac at age 0-3	0.891*	0.867*	0.884*	0.816*
	(0.476)	(0.481)	(0.492)	(0.489)
Women's exposure to vac at age 4-6	0.259	0.291	0.263	0.257
	(0.307)	(0.316)	(0.318)	(0.328)
Husband's exposure to vac at age 4-6	1.193***	1.086***	1.091***	1.105***
	(0.339)	(0.328)	(0.319)	(0.314)
Women's exposure to vac at age 7-9	0.118	0.212	0.223	0.230
	(0.531)	(0.514)	(0.524)	(0.529)
Husband's exposure to vac at age 7-9	0.089	0.060	0.050	0.037
	(0.293)	(0.285)	(0.287)	(0.293)
Women's exposure to vac at age 10-12	0.212	0.287	0.285	0.278
	(0.304)	(0.286)	(0.295)	(0.311)
Husband's exposure to vac at age 10-12	0.085	0.058	0.101	0.105
	(0.319)	(0.314)	(0.310)	(0.307)
Women's exposure to vac at age 13-15	0.326	0.410	0.401	0.403
	(0.282)	(0.275)	(0.281)	(0.287)
Husband's exposure to vac at age 13-15	0.083	0.050	0.067	0.046
	(0.301)	(0.313)	(0.301)	(0.296)
Women's exposure to vac at age above 15	0.124	0.196	0.197	0.192
	(0.267)	(0.261)	(0.269)	(0.280)
Husband's exposure to vac at age above 15	0.311	0.277	0.292	0.297
	(0.260)	(0.258)	(0.250)	(0.249)
Wife controls		✓	✓	✓
Husband controls			✓	✓
Household controls				✓
Year of Birth, Survey, District FE	✓	✓	✓	✓
Observations	7351	7351	7341	7341
R^2	0.169	0.179	0.192	0.197
Clusters	146	146	146	146

Notes: The results are estimated using OLS. Standard errors are clustered at the district level * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Wife controls*:respondent's current age, square term of the respondent's current age, educational attainment, and age at first cohabitation.*Husband controls*:husband/partner's education level, and husband/partner's alcohol drinking habits.*Household controls*: difference of age between husband and wife, number of children 5 years of age and under in household and wealth index. FE = fixed effects. Year of Birth FE includes both woman and her husband's year of birth.

Our results are in line with the literature that shows men's prior exposure to political violence shapes their behaviour violently in adult life, that increases the likelihood of domestic violence towards the women (Cohn, 1991, Gavranidou and Rosner, 2003, Gjerde et al., 1988, Kerig, 1999, Nolen-Hoeksema et al., 1991). Through a variety of channels, exposure to political violence increases the probability of men being a perpetrator in domestic violence; such as women loses the autonomy and decision-making power, while increasing the controlling behaviour of men (Hui et al., 2019b); and the loss of education during political violence may facilitate the women's acceptance of domestic violence (La Mattina, 2017). Early-life exposure to political violence results in a loss of education and economic opportunity, particularly for women, increasing their economic reliance on men. Women who do not possess enough economic resources to live and leave the violent intimate relationship are highly dependent economically on their husband/partner, making them subject to increased controlling behavior and higher risk of domestic violence (Alonso-Borrego and Carrasco, 2017, Antai, 2011).

Table 1.9 shows the effect of exposure to political violence on sexual violence. Women's exposure to political violence throughout their life has no effect on sexual violence. However, husband's exposure to political violence at the age 7 to 9, 10 to 12 and above 15 years of age significantly increase the sexual violence to their wives. In column (4) —full specification model— one standard deviation increase in the husband's exposure to political violence at the age of 7 to 9, 10 to 12 years and above 15 years of age increases the sexual violence to their wives by 0.075, 0.099 and 0.546 standard deviations, respectively. Coefficient estimates are statistically significant at 1 and 5 percent levels. In other words, according to the coefficient estimates in column (4), one standard deviation increases in exposure to political violence of husbands between the age of 10 and 12 years leads to an increase in the probability of sexual violence on her wife by 1.7 percentage points. It is a significant effect, given that in the sample, the overall probability of sexual violence is 4.5%.

Table 1.10 shows the effect of exposure to political violence against civilians on sexual violence. Women's exposure to political violence against civilians has no effect on sexual violence. However, husbands' exposure to political violence against civilians at the age of 7 to 9 and above throughout their life make them sexually violent to their wives. In column (4), one standard deviation increases in husbands' exposure to political violence against civilians at the age 7 to 9, 10 to 12, 13 to 15, and above 15 years increasing the sexual violence to their wives by 0.083, 0.074, 0.057 and 0.513 standard deviations, respectively. Coefficient estimates are statistically significant at the 10 percent level.

Our findings suggest that exposure to political violence of husbands significantly increase the sexual violence to their wives, which are in line with literature. As early-life exposure to political violence shapes adult behaviour violence-prone (Couttenier et al., 2019) and it increases men's controlling behaviour on their wives (Hui et al., 2019b). Studies have shown a positive link between men's controlling behaviour and sexual violence (Antai, 2011, Gage and Hutchinson, 2006). Rape and other forms of sexual violence against women are more common in patriarchal society, according to Hadi (2017), because they allow men to display and maintain their dominance and power over women. Kalra and Bhugra (2013) have argued that sexual violence is more likely to occur in cultures that promote perceptions of male supremacy and women's social and cultural inferiority.

Table 1.9: Effect of exposure to political violence on sexual violence

Dep: var: Sexual Violence	(1)	(2)	(3)	(4)
Women's exposure to viol at age 0-3	-0.124	-0.090	-0.106	-0.101
	(0.169)	(0.171)	(0.184)	(0.190)
Husband's exposure to viol at age 0-3	0.362	0.352	0.336	0.324
	(0.221)	(0.220)	(0.221)	(0.226)
Women's exposure to viol at age 4-6	-0.053	-0.038	-0.034	-0.029
	(0.143)	(0.143)	(0.146)	(0.148)
Husband's exposure to viol at age 4-6	0.254	0.248	0.273	0.279
	(0.237)	(0.237)	(0.235)	(0.234)
Women's exposure to viol at age 7-9	-0.247*	-0.225*	-0.208	-0.198
	(0.134)	(0.132)	(0.135)	(0.138)
Husband's exposure to viol at age 7-9	0.566**	0.569**	0.574**	0.576**
	(0.256)	(0.257)	(0.257)	(0.258)
Women's exposure to viol at age 10-12	-0.021	0.003	0.029	0.029
	(0.122)	(0.123)	(0.128)	(0.130)
Husband's exposure to viol at age 10-12	0.439***	0.441***	0.438***	0.436***
	(0.156)	(0.157)	(0.153)	(0.155)
Women's exposure to viol at age 13-15	-0.119	-0.094	-0.088	-0.083
	(0.107)	(0.106)	(0.110)	(0.113)
Husband's exposure to viol at age 13-15	0.241	0.239	0.246	0.247
	(0.198)	(0.201)	(0.200)	(0.202)
Women's exposure to viol at age above 15	-0.116	-0.094	-0.084	-0.079
	(0.093)	(0.094)	(0.098)	(0.103)
Husband's exposure to viol at age above 15	0.371**	0.373**	0.376**	0.377**
	(0.183)	(0.185)	(0.182)	(0.184)
Wife controls		✓	✓	✓
Husband controls			✓	✓
Household controls				✓
Year of Birth, Survey, District FE	✓	✓	✓	✓
Observations	3879	3879	3876	3876
R^2	0.098	0.101	0.112	0.113
Clusters	141	141	141	141

Notes: The results are estimated using OLS. Standard errors are clustered at the district level * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Wife controls*:respondent's current age, square term of the respondent's current age, educational attainment, and age at first cohabitation.*Husband controls*:husband/partner's education level, and husband/partner's alcohol drinking habits.*Household controls*: difference of age between husband and wife, number of children 5 years of age and under in household and wealth index. FE = fixed effects. Year of Birth FE includes both woman and her husband's year of birth.

Table 1.10: Effect of exposure to political violence against civilians on sexual violence

Dep: var: Sexual Violence	(1)	(2)	(3)	(4)
Women's exposure to vac at age 0-3	-0.202	-0.164	-0.169	-0.158
	(0.281)	(0.283)	(0.303)	(0.310)
Husband's exposure to vac at age 0-3	0.533*	0.535*	0.518*	0.504
	(0.308)	(0.309)	(0.305)	(0.311)
Women's exposure to vac at age 4-6	-0.076	-0.068	-0.079	-0.071
	(0.183)	(0.185)	(0.188)	(0.191)
Husband's exposure to vac at age 4-6	0.396	0.387	0.399	0.397
	(0.333)	(0.334)	(0.330)	(0.332)
Women's exposure to vac at age 7-9	-0.333	-0.308	-0.298	-0.286
	(0.233)	(0.231)	(0.237)	(0.239)
Husband's exposure to vac at age 7-9	0.921*	0.923*	0.904*	0.899*
	(0.490)	(0.487)	(0.499)	(0.501)
Women's exposure to vac at age 10-12	-0.047	-0.024	-0.008	-0.012
	(0.173)	(0.175)	(0.182)	(0.184)
Husband's exposure to vac at age 10-12	0.557*	0.566*	0.558**	0.556*
	(0.284)	(0.288)	(0.282)	(0.285)
Women's exposure to vac at age 13-15	-0.089	-0.061	-0.060	-0.055
	(0.156)	(0.153)	(0.159)	(0.161)
Husband's exposure to vac at age 13-15	0.384*	0.390*	0.393*	0.392*
	(0.221)	(0.226)	(0.222)	(0.227)
Women's exposure to vac at age above 15	-0.144	-0.119	-0.115	-0.111
	(0.122)	(0.121)	(0.130)	(0.135)
Husband's exposure to vac at age above 15	0.523*	0.527*	0.524**	0.523*
	(0.265)	(0.268)	(0.264)	(0.266)
Wife controls		✓	✓	✓
Husband controls			✓	✓
Household controls				✓
Year of Birth, Survey, District FE	✓	✓	✓	✓
Observations	3879	3879	3876	3876
R^2	0.098	0.101	0.111	0.112
Clusters	141	141	141	141

Notes: The results are estimated using OLS. Standard errors are clustered at the district level * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Wife controls*:respondent's current age, square term of the respondent's current age, educational attainment, and age at first cohabitation.*Husband controls*:husband/partner's education level, and husband/partner's alcohol drinking habits.*Household controls*: difference of age between husband and wife, number of children 5 years of age and under in household and wealth index. FE = fixed effects. Year of Birth FE includes both woman and her husband's year of birth.

1.5.2 Heterogeneous/Robustness test

1.5.2.1 Duration of exposure to political violence

It is possible that in three years age brackets, there were individuals who had all of their exposure to political violent events in total of three years or few months in three years. The exact number of political violence exposure in same age brackets could have various time-spread for different individuals. There is a possibility that the duration of exposure to political violence to individuals in earlier life could alter their behaviour in adult life. Therefore, we have considered measuring the number of months of exposure to political violence in each age bracket. However, our analysis shows no significant difference, see in the appendix Table A2.

1.5.2.2 Intensity of exposure to political violence

The intensity of exposure to political violence is measured as the "exposure to political violence related fatalities" —caused at least one fatality. The data on fatalities is likely to be very noisy, and the results need to be interpreted cautiously. However, results suggest that the exposure to the intensity of political violence is less important than the overall exposure to political violence in shaping adult behaviour violently on marital life, see in appendix Table A3.

1.5.2.3 Difference of education between partners

Early childhood exposure to political violence results in permanent losses in human capital accumulation (Leon, 2012), it increases differences in education and earnings between partners. Cools and Kotsadam (2017) have argued that domestic violence is more prevalent in couples where one partner has more education than the other. Bertrand et al. (2015) have argued that couples in which wife earns more than the husband are less satisfied with their marriage and are more likely to divorce. Srinivasan and Bedi (2007) have argued that an increase in woman's income and education challenges a husband's authority, threatens prevailing gender norms and leads to increasing domestic violence. La Mattina (2017) has shown that the loss of education, due to political violent incidents, is a potential channel that facilitates the acceptance of domestic violence by women. Therefore, we examine the differences in partners education on domestic violence.

Wife has the same or higher education than her husband: We want to see the effect of exposure to political violence on domestic violence for women who are

equally or higher educated than their husbands. In the appendix, Table A4 shows that a husband's exposure to political violence against civilians between the ages of 4 and 6 years significantly increases the probability of domestic violence to his future wife, though she is equally or more educated than him.

Husband has the same or higher education than his wife: The exposure to political violence and political violence against civilians of husbands between the ages 4 and 6 years significantly increase the probability of domestic violence to their future wives, even if husband is equally or more educated than his wife, see in appendix Table A5. Our findings are in line with literature that shows the effect of partner's differences in education and earnings on domestic violence (Bertrand et al., 2015, Cools and Kotsadam, 2017, La Mattina, 2017, Srinivasan and Bedi, 2007).

We run the robustness tests based of the difference of education between partners by introducing the interaction terms with education in eq.(1.1) —wife's exposure to political violence at particular age bracket × wife's education. The variable $wife's\ education$ is a dummy variable that equals 1 if wife has same or higher education than her husband. Similarly, the interaction terms are introduced for a husband having education higher than his wife. Results for the wife has same of higher education than her husband are presented in the appendix Table A6. In column (4) the coefficient estimates on $Wife's\ exposure\ at\ age\ 4-6$ and its interaction term with *wife edu* show no effect of wife's same or higher education than her husband on domestic violence. These findings are in line with the results in the appendix Table A4. Results in the appendix Table A7 show that husband having higher education than their wife has no effect on reducing perpetrating domestic violence on his wife.

We run the regressions to test complementarity of early experience of political violence of women and their husbands with an interaction between these explanatory variables. Results are presented in the appendix Table A8. Broadly, results show that husbands exposure to political violence has a positive effect on perpetrating domestic violence.

1.6 Conclusion

This chapter contributes to the two sets of literature. First, this chapter contributes to studies that link political violence exposure during early-life to adult behaviour, attitudes and beliefs (Couttenier et al., 2019, Gutierrez and Gallegos, 2016, La Mattina, 2017, Noe and Rieckmann, 2013). Second, this chapter contributes to the literature on

the determinants of attitude toward and experiences of domestic violence in developing countries, like Pakistan (Ekhator-Mobayode et al., 2022, Gutierrez and Gallegos, 2016, Lafta and Hamid, 2021, Shemyakina and La Mattina, 2017, Stith et al., 2000, Svallfors, 2021). We examine the effect of a woman's and her husband's exposure to political violence during early-life on woman's experience of domestic violence.

The descriptive statistics in Table 1.1 show that domestic violence is prevalent, 37.4 percent of ever married women have experienced domestic violence at least once in their lives. Our findings suggest that women's earlier exposure to political violence and political violence against civilians do not have a significant effect on domestic violence but that the exposure of their husbands have a significant impact. Our findings show that exposure to political violence and political violence against civilians have varying impacts on gender. Men are more likely to act violently in adulthood, whereas women are more likely to act passively. Our findings are in line with previous studies that exposure to political violence has varied effects on men and women (Abdullahi and Kumar, 2016, Cohn, 1991, Gavranidou and Rosner, 2003, Gjerde et al., 1988, Hui et al., 2019b, Kerig, 1999, Lane et al., 2017, Nolen-Hoeksema et al., 1991). The husband's exposure to political violence and political violence against civilians at the age of 4 to 6 years are critical to shaping their minds towards domestic violence. This chapter found that husband's exposure to political violence and political violence against civilians has a role in domestic violence incidents, while women's exposure makes them tolerant and victims of domestic violence.

Chapter 2

Local economic development under different political systems: Evidence from Pakistan *(Solo-authored chapter)*

2.1 Introduction

The political economics literature identifies that political systems and political competition are important factors in economic growth. Countries achieve higher GDP growth and spend more on welfare provisions under democratic rule than non-democratic rules (Acemoglu et al., 2019, Colagrossi et al., 2020, Khayouti et al., 2020, Ross, 2006). Democracies encourage economic growth by expanding the provision of public goods, raising income growth, promoting pro-business policies, and improving institutional efficiency and governance (Arvate, 2013, Batzilis, 2019, Besley et al., 2010). Democratic accountability is improved by electoral competition (Batzilis, 2019). The intensity of electoral competition among politicians is often used to determine the level of democracy, high competition being considered a sign of a more democratic society (Alfano and Baraldi, 2016). When electoral competition is based on a policy to improve welfare of people through the provision of public goods, it increases income and promotes growth policies (Arvate, 2013, Besley et al., 2010, Bueno de Mesquita et al., 2001, Ghosh, 2010, Leonida et al., 2015). High electoral competition raises the value of marginal constituencies, resulting in more public goods being provided to those constituencies (Lindberg and Weghorst, 2010, Persico et al., 2011).

Electoral outcomes influence the redistribution of resources. Politicians allocate resources often disproportionately to core and swing (voters) areas. The core voters vote consistently for the same party, and swing voters vote based on the evaluative performance of a candidate or the party (Profeta, 2007, Weghorst and Lindberg, 2013). Political candidates allocate more resources in electorally competitive areas to optimise their chances of winning while reaching out to those whose votes might determine the electoral outcome (swing constituencies) (Antoniades and Calomiris, 2020, Ma and McLaren, 2018, Muûls and Petropoulou, 2013, Stromberg, 2008). Therefore, swing constituencies are at

the epicentre of electoral competition and gain more from policy favours and redistribution (Robinson and Torvik, 2009, Stokes et al., 2013). Swing constituencies have more distributive gains, for literature review, see in case of Sweden (Johansson, 2003), in case of USA (Antoniades and Calomiris, 2020, Ma and McLaren, 2018, Muûls and Petropoulou, 2013, Stromberg, 2008).

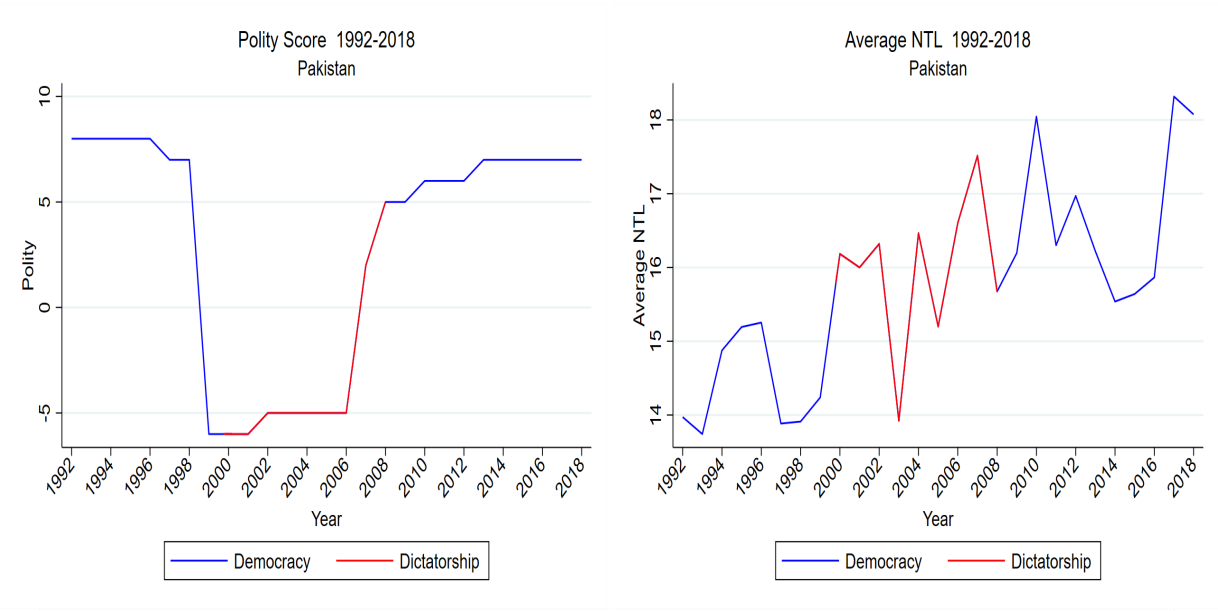
Pakistan has gone through several dictatorships and democratic regimes (as discussed in detail in Section 2.3). Studies have shown that democracies improve welfare of the poor (Baum and Lake, 2003, Franco et al., 2004), by providing more public goods and income redistribution than non-democracies (Acemoglu et al., 2019, Colagrossi et al., 2020, Khayouti et al., 2020, Ross, 2006). We look at the different patterns of public goods distribution across democracy and dictatorship, stressing the role of electoral competition in democracy by investigating the following hypothesis:

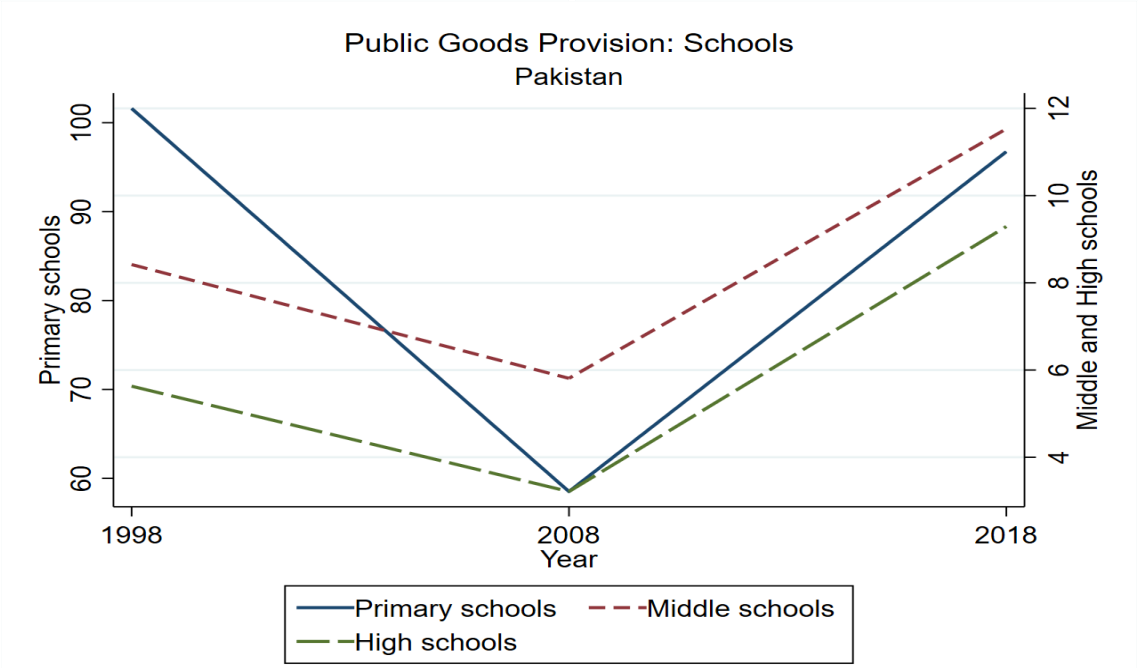
Hypothesis 1: Electoral constituencies with more intense competition have a higher level of local economic development under democracy.

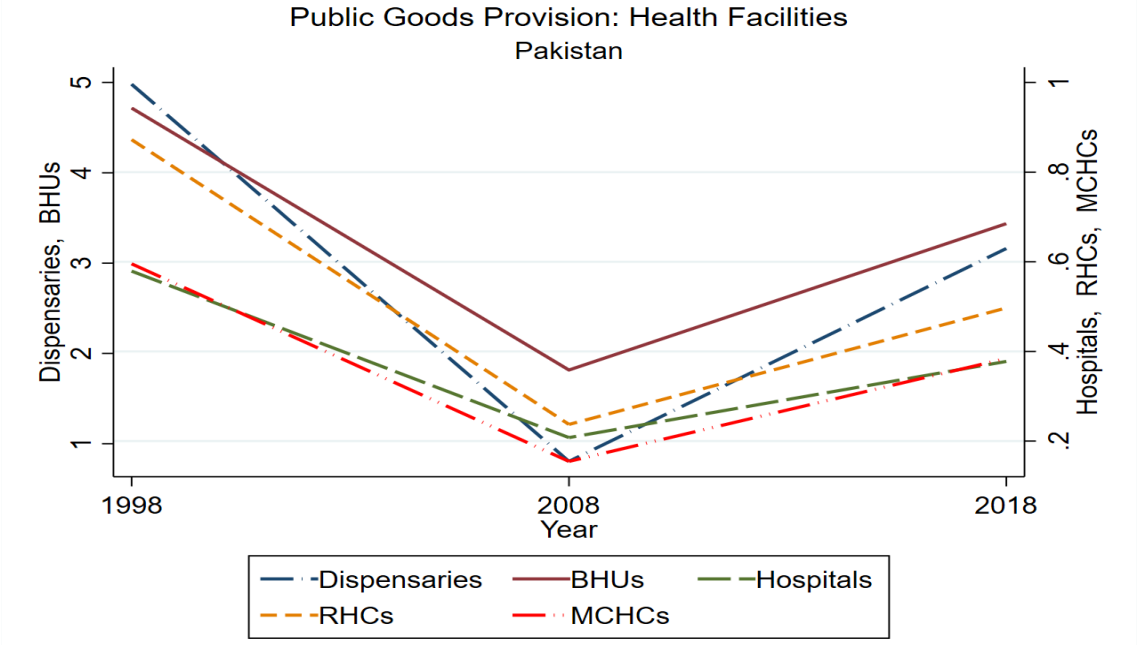
Hypothesis 2: Swing constituencies have higher distributive gains under democracy.

Hypothesis 1 focuses on the effect of electoral competition in the previous election on the local economic development proxied by nighttime light, while hypothesis 2 focuses on the electoral constituencies that remained swing in at least 2 or 3 elections out of 5 held under democracy. To the best of our knowledge, mainly literature has documented the evidences of resources re-distribution under political systems, i.e., the public goods provisions are higher under democracy than dictatorship. This chapter contributes to the political economics literature by investigating how resources are distributed at the local levels (electoral constituency level) under various political systems (democracy and dictatorship) followed by electoral competition, particularly in case of developing country like Pakistan. Figure 2.1 shows higher nighttime light emissions and higher public goods provisions, i.e, number of schools and health facilities, under democracy than dictatorship. This chapter investigates how resources are redistributed at local level that improve local economic development —at electoral constituency level— followed by electoral competition.

Figure 2.1: Polity, average NTL and public goods provision







Next, we explore the political leader's ethnic favouritism in resource distribution. Although no consensus has yet been established, the political economics literature shows two sets of mechanisms for ethnic favouritism. *One* mechanism based on the "big man (woman)" theory of power (Francois et al., 2015), where leader shares little power with other ethnic groups (Padró i Miquel, 2007). In such an environment, the ruler's co-ethnics are systematically favoured, in line with this view, numerous studies have found evidence of ethnic favouritism (Abman and Carney, 2020, De Luca et al., 2018, Ejdemyr et al., 2018, Franck and Rainer, 2012, Hodler and Raschky, 2014, Mueller et al., 2016). In Malawi, politicians distributed more public goods to segregated co-ethnic communities in their electoral districts (Ejdemyr et al., 2018) and the President's co-ethnic groups gained more from the subsidised agricultural inputs scheme (Abman and Carney, 2020). Burgess et al. (2015) have shown the presence of ethnic favouritism in road constructions in Kenyan districts. Franck and Rainer (2012) have found an evidence of ethnic favours in education in sub-Saharan Africa. Hodler and Raschky (2014), De Luca et al. (2018) or Mueller et al. (2016) have shown an increase in nightlight emissions in the co-ethnic regions of the leader.

Another mechanism is based on the argument that even dictators are subject to constraints, thus they must share power with various ethnic groups in order to avoid coups or popular protest movements. When societies are ethnically divided and institutions are weak, the fear of being ousted by the people may lead rulers to transfer resources to opposition ethnic groups as a means of retaining power (Padró i Miquel, 2007). In case of African countries, Arriola (2009) has noted that most leaders employ the method of buying off opponents and reward their supporters, while Francois et al. (2015) have shown that the ruler does not exclude other ethnic groups from the cabinet, as a result, public policies may consider all ethnic groups. Although leaders would prefer to share exclusively with their co-ethnic groups, they are unable to do so without fear of losing power. Kramon and Posner (2013) have found no systematic targeting of the president's ethnic group in the cases of six African countries. However, in some cases, the president's ethnic group is even disadvantaged. Dixit and Londregan (1996) have argued that politicians may adopt a strategy of efficiently taxing their core constituents and utilising the proceeds to buy the support of more distant groups if the taxing advantaged dominates. Kasara (2007) has shown that the co-ethnics of the president pay more taxes than other ethnic groups in the agricultural sector in Africa, and André et al. (2018) have shown in case of Benin that a president does not systematically favour his own ethnic group but rather must share power in order to survive. Moreover, in democratic settings, it is commonly established

that politicians favour swing voters and may not favour their core supporters since they would vote for them in any case (see Dixit and Londregan (1996); Lindbeck and Weibull (1987); Dahlberg and Johansson (2002); Diaz-Cayeros (2008)).

Ethnic favouritism varies depending on the political regime. However, it diminishes with democratisation (Burgess et al., 2011, 2015), a phenomenon attributable to the significant institutional constraints on the executives' activities (André et al., 2018, Burgess et al., 2015, Mueller et al., 2016, van Hoorn and Rademakers, 2021). However, De Luca et al. (2018) have shown that ethnic favouritism persists even under democracy, sustained by electoral motives. Ethnic favouritism is more likely to occur in nations with weak political institutions and low education levels (Hodler and Raschky, 2014, Mueller, 2020). Franck and Rainer (2012) have found that ethnic favouritism is less prevalent in countries with one dominant religion.

The ethnic composition of Pakistani society contributes to its diversity, such as Punjabi, Blochi, Sindhi, and Pukhtoon. The state adopted an authoritarian policy to consolidate its power and position, while ethnic groups responded by ethnic politics (Bursztyn et al., 2020, Hashmi and Saeed, 2020, Sharma, 2014). In case of developing countries, like Pakistan, when the basic needs have not yet been served by the politicians, voters in a democracy may not be appealed to on the basis of public policy but may be persuaded on the basis of their ethnicity, such as regional identity, tribe, language, or religion (Akhtar, 2013). Pakistan has gone through several dictatorial and democratic regimes, with ethnic politics (Bursztyn et al., 2020, Gayer, 2012, Sharma, 2014) and political parties forming coalition governments (Nasir and Faqir, 2021). During our study period from 1992 to 2018, Pakistan has been ruled by two political parties —PPP and PML(N) at national level— and one dictatorial regime, having leaders ethnicity as Punjabis and Sindhis. Following the related literature, we explore the ethnic favouritism by investigating the following hypothesis;

Hypothesis 3: Political leader's ethnic favouritism is less prevalent under democracy.

This chapter contributes in the literature on the ethnic favouritism under weak democracies and ethnically divided societies where leader transfers resources to opposition ethnic group in order to retain power. Our other contribution is that even under strong evidence of reverse (negative) ethnic favouritism leader targets the tight swing constituencies within their ethnic region.

According to Kramon and Posner (2013), most studies investigated ethnic favouritism using a single or specific set of policies as an outcome, whereas Hodler and

Raschky (2014), De Luca et al. (2018) or Mueller et al. (2016) used nightlight emissions as a proxy for a broad measure of economic development. We use nighttime light emissions as a proxy to local economic development at an electoral constituency level, capturing the overall impact of various government policies. Though specific economic factors (such as government transfers) would have been of interest in this analysis, such data are not available at the electoral constituency level. The nighttime light data used in this chapter were collected by National Oceanic and Atmospheric Administration (NOAA), Defense Meteorological Satellite Program's Operational Linescane System (DMSP/OLS) on an annual basis from 1992 to 2013, while the data from 2014-2018 were provided by the Suomi National Polar-orbiting Partnership satellite's Visible Infrared Imaging Radiometer Suite (Suomi NPP/VIIRS). The data on election-related variables were collected from the post-election reports provided by Election Commission of Pakistan (ECP).[1]

In this chapter, the unit of observation is the electoral constituency in general elections for national and provincial assemblies. Electoral constituencies for the national assembly and provincial assemblies were expanded to 272 and 577 in 2002, from 207 and 460, respectively. The election data of newly formed constituencies are computed from their parent constituencies. This chapter uses annual nighttime light emissions at the constituency level from 1992-2018, consisting of 7344 and 15579 observations at the national and provincial assemblies, respectively. The main variables of interest are the electoral competition, nighttime light intensity, and ethnic favouritism.

All regressions include constituency-level fixed effects to control time-invariant electoral constituency-level characteristics and year-fixed effects to control constituency-wide changes over time. Our findings suggest that electoral competition promotes local economic development. We interpret these results as evidence that swing constituencies have more distributive gains than non-swing under democracy. Our results show the evidence of reverse (negative) ethnic favouritism in Pakistan, however leaders' regions are discriminated against by leaders, and this is even more the case in democracy. The baseline estimates show an increase in nighttime light intensity by around $9\% - 11\%$ in electorally competitive constituencies than non-competitive constituencies, corresponding to an increase in local GDP of around $2.7\% - 3.4\%$. Constituencies that have remained swing in at least two or three elections have higher nighttime light intensity than non-swing constituencies by $0.7\% - 16.4\%$, which corresponds to an increase in local GDP by $0.21\% - 5\%$. The robustness checks support the similar conclusions.

We also collected data on public goods provisions, i.e., number of primary, middle,

[1] https://www.ecp.gov.pk/

and high schools; and number of health facilities such as hospitals, dispensaries, basic health units, rural health centres, and mother and child health welfare centres at the district level per 1000 people. However, the data on these facilities are not available for all the districts for the whole sample. Therefore, we have run the regressions based on possible available data on schools and health facilities at the district level, results are in line with main conclusions.

The remainder of this chapter is organised as follows: Section (2.2) discusses related literature, Section (2.3) provides background on the political system of Pakistan, Section (2.4) presents data sources and variables construction, Section (2.5) defines the empirical framework, Section (2.6) shows the empirical findings and discussion, and Section (2.7) concludes.

2.2 Literature Review

When political competition is based on a policy to improve welfare of people through the provision of public goods, it increases income and promotes growth policies (Arvate, 2013, Besley et al., 2010, Bueno de Mesquita et al., 2001, Ghosh, 2010, Leonida et al., 2015). The intensity of electoral competition is often used to determine the level of democracy, with high competition being considered a sign of a more democratic society (Alfano and Baraldi, 2016). Chhibber and Nooruddin (2004) have shown that two-party competition boosts the supply of public goods more than the multiparty competition. On the other hand, Cleary (2007) has shown that political competition does not improve the provision of public goods in Mexican municipalities and Obikili (2019) has shown that politically competitive municipalities in South Africa have lower levels of economic growth.

Electoral outcomes influence the redistribution of resources. Politicians allocate resources often disproportionately to core and swing (voter) constituencies. The core voters vote consistently for the same party, and swing voters vote based on the evaluative performance of a candidate or the party (Profeta, 2007, Weghorst and Lindberg, 2013). Swing voters are not ideologically committed to a political party, and their voting behaviour is comparatively mature and gain more from policy favours and redistribution (Lindberg and Morrison, 2005, Robinson and Torvik, 2009).

Swing states are crucial in winning elections (Antoniades and Calomiris, 2020). High electoral competition raises the value of marginal constituencies, resulting in more public goods being provided to those constituencies (Lindberg and Weghorst, 2010, Persico et al., 2011). Johansson (2003) has shown that municipalities were granted large grants in

Sweden. Stromberg (2008) has argued that in the United States presidential candidates allocate resources among states based on electoral outcomes. The incumbent pays more campaign visits to politically competitive states to convince swing voters in the upcoming election. Resultantly, swing states have more distributive gains. In the case of the 2008 US presidential election, Antoniades and Calomiris (2020) have shown that swing states punished the incumbent for contractions in their benefits. The authors engage in an extended analysis of the presidential elections from 1996 to 2012 to argue that voters only react to contractions, not expansions, and reactions are similar to both the Democratic and Republican parties. Ma and McLaren (2018) have shown that in the United States electoral competition leads to welfare maximisation with a particular emphasis on voters in swing states and that tariff structures are systematically skewed toward industries in swing states. Trade policies are more likely to benefit industries located in swing states (Muûls and Petropoulou, 2013).

By allocating a more significant share of public goods, political parties target swing constituencies (Das and Maiorano, 2019, Stokes et al., 2013). When an election is drawing near, incumbents spend disproportionately more in swing constituencies for re-election purposes (Anaman et al., 2019, Joanis, 2011, Stromberg, 2008). On the other hand, Cox (2009) has argued that there is a significant distinction between targeting marginal constituencies and marginal voters within a constituency: a political party may target a marginal constituency and then devote resources to their core voters within that constituency. Targeting core voters is a strategy of turnout buying (Nichter, 2008).

The literature has also documented the impact of ethnic diversity and divisions on economic growth. Easterly and Levine (1997) have argued that ethnic diversity has a particularly severe impact on economic performance in Sub-Saharan Africa, which has several devastating ethnic conflicts in recent years and is the world's most ethnically diverse and poorest region. Francois et al. (2015) have investigated how political leaders in ethnically diverse Sub-Saharan African nations boost their chances of remaining in power by sharing the advantages of office and replacing their ministers regularly. They claim that these policies cause many ethnically diverse Sub-Saharan African countries' low performance. Hjort (2014) has shown that ethnic diversity harms workers' productivity. Alesina et al. (2016) have found that inequality between ethnographic regions is negatively related to overall economic prosperity in the country. Miguel and Gugerty (2005) have suggested in case of Kenya that ethnic diversity is associated with lower primary school funding, worse school facilities, and poor water well maintenance. Churchill and Smyth (2017) have argued that ethnic diversity is positively associated with poverty. Fragmented

societies have the lower public goods (Alesina and Ferrara, 2005, Glennerster et al., 2013).

La Porta et al. (1999) have shown that ethnolinguistically homogeneous nations have better governments than heterogeneous ones. According to Alesina and Zhuravskaya (2011), higher ethnic and linguistic segregation levels are linked to significantly poorer government quality. Ethnic fractionalization is viewed as a critical obstacle to economic growth since it reduces the quality of governance and increases political instability, both of which have a negative direct impact on economic performance (Alesina et al., 2003, Karnane and Quinn, 2019, Koziuk et al., 2020, Papyrakis and Mo, 2014).

The literature has documented a mix evidence on political leaders' ethnic favouritism. Some studies have shown that political leaders redistribute resources based on ethnic favouritism. Abman and Carney (2020) and Ejdemyr et al. (2018) have shown that politicians in Malawi offer the more significant provision of public goods to the segregated coethnic groups in their electoral districts. Franck and Rainer (2012) have argued that ethnic favouritism is widespread in Sub-Saharan Africa. De Luca et al. (2018) have found robust evidence of preferential policies by political leaders towards their ethnographic regions on a global level. Burgess et al. (2015) have found the evidence of ethnic favouritism on road construction in the coethnic districts of the incumbent president in Kenya; however, this favouritism diminishes with democratisation. André et al. (2018) have argued that constraints on executives created by democracy seemingly prevented ethnically targeted public policies. Mueller et al. (2016) have shown that ethnic favouritism is muted when strong institutional constraints are present at the country level.

On the other hand some studies have shown that political leaders do not favour their co-ethnic groups, instead they favour opposition ethnic groups in order to remain in power (Padró i Miquel, 2007). In case of African countries, Arriola (2009) has noted that most leaders employ this method to buy off opponents and reward their supporters, while Francois et al. (2015) have shown that the ruler does not exclude other ethnic groups from the cabinet. As a result, public policies may consider all ethnic groups. Although leaders would prefer to share exclusively with their co-ethnic groups, they are unable to do so without fear of losing power. Kramon and Posner (2013) point out that most studies measure ethnic policies using a single policy dimension (usually a specific sort of public good); however, they look at four different types of outcomes in six African countries and find no systematic targeting of the president's ethnic group. In some cases, the president's ethnic group is even disadvantaged. Dixit and Londregan (1996) argued that parties may adopt a strategy of efficiently taxing their core constituents and utilising the proceeds to buy the support of more distant groups if the taxing advantaged dominates. Kasara

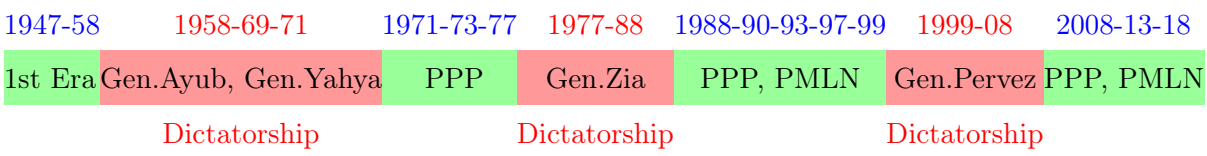
(2007) has shown that the co-ethnics of the president pay more taxes than other ethnic groups in the agricultural sector in Africa, and André et al. (2018) have shown in case of the Benin, that president does not systematically favor his own ethnic group but rather must share power in order to survive. In democratic settings, it is commonly established that politicians favor swing voters and may not favor their core supporters since they would vote for them in any case (see Dixit and Londregan (1996); Lindbeck and Weibull (1987) Dahlberg and Johansson (2002); Diaz-Cayeros (2008)).

2.3 Background and Political System in Pakistan

Pakistan has experienced democratic rules and several dictatorial regimes. The military coups took power from 1958 to 1971, 1977 to 1988, and 1999 to 2008, in total ruled for 32 years of the 72 years from 1947 to 2020 (Gill, 2010, Taha, 2012). Political instability is one of the most serious problems of Pakistan (Kiran, 2012), that has severely damaged economic growth (Taha, 2012). Due to frequent dictatorial take over, Pakistani people are exposed to ineffective civil administration (Shah, 2011).

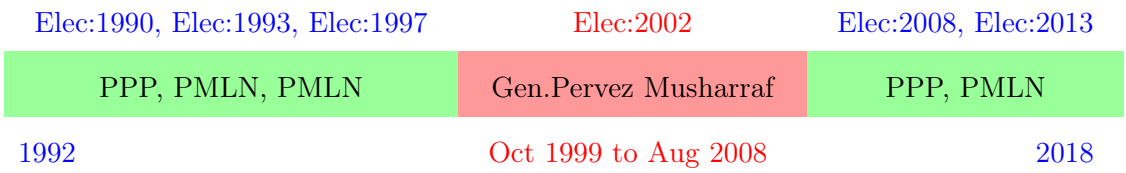
The Pakistani society is ethnically diverse such as Punjabi, Blochi, Sindhi, and Pukhtoon. The state adopted an authoritarian policy to consolidate its power and position, while ethnic groups responded by ethnic politics (Bursztyn et al., 2020, Hashmi and Saeed, 2020, Sharma, 2014). Being a developing country, the provision of public goods to serve basic needs at local level is still far from adequate, thus voters in a democracy may not be appealed to on the basis of public policy but may be persuaded on the basis of their ethnicity, such as regional identity, tribe, language, or religion (Akhtar, 2013). Therefore ethnic politics is promoted by politicians for their electoral gains (Baig, 2008, Gayer, 2012, Mufti and Jalalzai, 2021, Verkaaik, 2004).

Recent growth patterns favour provinces disproportionately, which has exacerbated regional dissent (Hameed, 2018). Additionally, Pakistan's dispute with Afghanistan in the west (Mamoon, 2019) and conflict with India over Kashmir in the east has supported forming a siege mentality that encourages military supremacy and militant extremism (Vira and Cordesman, 2011). Military personnel, both retired and serving, has a considerable influence on political and economic decisions (Shuja, 2007), even under civil government (Shah, 2011, Taha, 2012). These factors have facilitated military authoritarianism on many occasions in Pakistan (Gill, 2010, Vira and Cordesman, 2011), as shown in the timeline below, whereas green color represents the democracy and red color represents dictatorship;



During the years of political instability, the country's development pattern has been unstable (Gill, 2010). Military rule influenced political processes and increased tensions between provinces, especially between Punjab and non-Punjabi provinces (on ethnic grounds) (Hameed, 2018, Leake, 2015). The structure of Pakistani society is divided into elite, middle, lower-middle, and socially excluded groups. It is one of the primary factors of politico-economic developments in the country (Taha, 2012). Pakistan has struggled with ethnic politics as a multi-ethnic country (Akhtar, 2013, Hashmi and Saeed, 2020). Punjabis and Muhajir [2] influence important political and military institutions (De Luca et al., 2018, Gayer, 2012, Shuja, 2007, Verkaaik, 2016). The impression of non-participation in decision-making in ethnically diverse communities leads to mistrust, lack of confidence, and suspicion on the part of minority ethnic groups. This perception is created to benefit of the elite classes of diverse ethnic groups, which has been happened in Pakistan during the military regimes (Taha, 2012). Pakistan's ruling elite is made up of a small number of people who control all professions in the country (Mamoon, 2019).

The timeline below depicts the number of general elections, democratic and dictatorial regimes that occurred during our study period. Pakistan has been exposed to democratic and dictatorial regimes; there were four leaders during our study period; namely Benazir Bhutto, Nawaz Sharif, Pervez Musharraf, and Asif Zardari. In October 1999, General Pervez Musharraf deposed Prime Minister Nawaz Sharif and ruled up to August 2008, as shown in timeline below;



[1]PPP stands for Pakistan Peoples Party. PMLN stands for Pakistan Muslim League (Nawaz Sharif).
[2]Urdu speaking-Muslim immigrants from India.

2.4 Data and variables

In this chapter, the unit of observation is the electoral constituency level of National and Provincial assemblies. The nighttime light intensity (*Light*) is used as a proxy for measuring local economic development at the electoral constituency level from 1992 to 2018. *Light* is widely used as a proxy for measuring local economic activity.[3] Data on *Light* are collected from the National Oceanic and Atmospheric Administration (NOAA), the Defense Meteorological Satellite Program's Operational Linescane System (DMSP/OLS) on an annual basis from 1992 to 2013, and the data for the period 2014 to 2018 is collected from the Suomi National Polar-orbiting Partnership satellite's Visible Infrared Imaging Radiometer Suite (Suomi NPP/VIIRS).

Bennett and Smith (2017) and Wu and Wang (2019) have noticed some differences between DMSP/OLS and NPP/VIIRS datasets on nighttime light emissions. Taking into account the discrepancies in the *Light* data provided by DMSP/OLS and Suomi NPP/VIIRS, Li et al. (2020) created the global DMSP/OLS nighttime light time-series dataset from 1992 to 2018 by harmonising the inter-calibrated *Light* DMSP/OLS and simulating it like *Light* observations from the NPP/VIIRS dataset.[4] We collected data on *Light* from DMSP/OLS for 1992-2013 and a harmonised dataset generated by Li et al. (2020) for 2014-2018 —nighttime light data from both sources show the similar trends over time, see in appendix Figure B3. Using geographic information system (GIS) software, we calculate the nighttime light intensity yearly at each electoral constituency of the national and provincial assemblies from 1992 to 2018. We use average nighttime stable light, which NOAA defines as light free of cloud coverage, northern or southern lights, and other ephemeral lights or background noise. The outcome variable satellite

[3] *Light* emissions are widely used as a proxy for economic activities at national and subnational level (Asher and Novosad, 2017, Campante and Yanagizawa-Drott, 2018, Chen and Nordhaus, 2011, Doll et al., 2006,?, Dorji et al., 2019, Ghosh et al., 2010, Henderson et al., 2012, Tselios and Stathakis, 2020, Weidmann and Schutte, 2017, Wu et al., 2018, Xia et al., 2020). The *Light* intensity is used to account for the forestry and agriculture along with land cover (Keola et al., 2015), the demographic and socioeconomic urban dynamics (Ma et al., 2015), impact of large-scale natural disasters on economic development (Klomp, 2016), and various intensities of development (Shortland et al., 2013, Small et al., 2011). De Luca et al. (2018) use *Light* intensity to capture a broad range of preferential policies targeted to ethnic based political favouritism. Mohan and Strobl (2017) use *Light* to assess the short term economic impact of tropical storms. Amare et al. (2020) use *Light* to measure the impact of urbanization on child nutritional outcomes. Due to capacity and cost constraints, many less developed countries do not publish datasets of the entire SNA on a regular basis (Keola et al., 2015). Some studies, especially in the case of emerging and developing economies, have raised concerns about potential serious measurement flaws in growth figures (Andersson et al., 2019, Henderson et al., 2012, Johnson et al., 2013, Nordhaus, 2006) The nighttime light emission is particularly useful for measuring socioeconomic factors at national and subnational administrative units where official statistics are either unavailable or of poor quality (Bennett and Smith, 2017, Weidmann and Schutte, 2017).

[4] Annual geotiff files for all these years are available on (`https://doi.org/10.6084/m9.figshare.9828827.v2`)

nighttime light ($Light_{ct}$) is based on the average nighttime light intensity of the pixels in electoral constituency c in year t.

The distribution of $Light_{ct}$ is right-skewed, and therefore it is used in logarithmic transformation. A small constant of 0.01 is added in $Light_{ct}$ before taking the logarithm to avoid losing obsevations (Baskaran et al., 2015, Bruederle and Hodler, 2018, Hodler and Raschky, 2014, Michalopoulos and Papaioannou, 2013). $Light_{ct}$ is the logarithm of average nighttime light intensity. The literature has shown a strong link between nighttime Light and GDP. Henderson et al. (2012) have calculated GDP growth with nighttime light growth and estimate the best fit elasticity to be around 0.3, and they have used this estimated coefficient of elasticity to link nighttime light intensity to the GDP at the sub-national level in case of fifteen Sub-Saharan African countries, starting with a 100-kilometre buffer of coastlines, cities, and at the local level. Hodler and Raschky (2014) have confirmed the linear relationship between GDP and nighttime light intensity, with an elasticity of approximately 0.3, and they have used it to link nighttime light intensity to GDP at the subnational/regional (38427 regions) level in 126 countries. De Luca et al. (2018) have used this elasticity coefficient around 0.3 at the regional level and estimated coefficients are interpreted in terms of GDP. In the case of Pakistan, this chapter also finds associated patterns over time between the nighttime light emissions and real GDP per capita growth from 1992 to 2018, see Figure B2 in the appendix. Figure B1 in the appendix shows the nighttime light intensity among national and provincial assemblies constituencies over time.

The data on electoral variables are collected from post-election reports by the Election Commission of Pakistan.[5] From 1990 to the present, Pakistan has held seven general elections (Oct-1990, Oct-1993, Feb-1997, Oct-2002, Feb-2008, May-2013 and July-2018). *Light* data is available from 1992 to 2018; therefore, data on election-related variables are collected from six general elections in Pakistan (from 1990 to 2013). Between 1990 and 1997, three general elections were held, with 207 and 460 electoral constituencies for the national assembly and provincial assemblies, respectively. In 1998, the fifth national population census, the first in 17 years, necessitated the delimitation of electoral constituencies to account for the significant increase in population between 1981 and 1998.[6] Therefore, the ECP delimited constituencies in 2002 under the Delimitation of Constituencies Act, 1974.[7] The new constituency boundaries extended the national assembly into 272 and provincial assemblies into 577 electoral constituencies.

[5] https://www.ecp.gov.pk/
[6] https://www.pbs.gov.pk/content/population-census
[7] https://www.ecp.gov.pk/default.aspx

The electoral competition —based on elected seats 272 and 577 in the national and provincial assemblies, respectively— is the primary variable of interest. The electoral data of newly formed constituencies is calculated as a proportion of voters in their parent constituencies in the general election held in 2002. Data on election-related variables such as each contesting candidate's votes (for all contesting candidates in constituency c), registered voters, polled voters, valid votes, and rejected votes are collected at the electoral constituency level.

The *winning margin* is a measure of electoral competition. It is defined as the difference between vote shares of the winning candidate and the runner-up candidate (candidate with second-highest vote count) in constituency c at each election. The *winning margin* is widely used to measure the electoral or political competition between contesting candidates or political parties (Alfano and Baraldi, 2016, Arvate, 2013, Becker et al., 2009, Caramani, 2003, Cleary, 2007, De Feo and De Luca, 2017, Gavoille and Verschelde, 2017, Obikili, 2019, Su et al., 2020, Wagner, 2017). The winning margin in period t is based on the previous general election conducted; therefore, this variable is labelled as *lagged winning margin* (Stromberg, 2008). One of the advantages of using previous general elections is that it minimizes the chances of reverse causality between electoral competition and $Light_{ct}$, so the activities of the incumbent government cannot affect past electoral competition (Rezki et al., 2020). The winning margin (in short $margin_{ct}$) is calculated as below:

$$margin_{ct} = \frac{v^{w}_{ct} - v^{r}_{ct}}{vv^{tot}_{ct}}$$

whereas v^{w}_{ct} is the winning candidate's votes at constituency c in election time t, v^{r}_{ct} is the runner-up candidate's votes in constituency c in election time t, and vv^{tot}_{ct} is the total valid votes in constituency c in election time t. The total valid votes are equal to the total polled votes minus rejected votes at the constituency level in any particular election.

A smaller winning margin signifies more intense electoral competition. Therefore, we construct dummy variables to capture the intensity of electoral competition at the constituency level with winning margins of up to 2%, 5%, and 10%. A dummy variable takes value 1 if the winning margin was up to 2% in constituency c in the previous general

[7]In some constituencies candidate won unopposed, these were, in general election (GE) 1990; PB-24(old PB-19), in GE-1993; PS-35(old PS-29), PS-43(old PS-35), in GE-1997; PB-32(old PB-26), PS-61(old PS-55), and, in GE-2008; PP-141.
The results of some constituencies in GE-2008 (i-e PB-9, PK-59, PK-81, PK-92) were not available either in the post reports by ECP or on electionpakistan.com (https://electionpakistan.com/election-results/18/?assembly=5&election=4165), therefore these results are taken from the urdupoint.com (https://www.urdupoint.com/politics/general-election-2008.html).

election, otherwise equal to 0; and similarly for winning margin at 5% and 10%.

During our study period, there were five general elections held under democratic conditions in Pakistan (October 1990, October 1993, February 1997, February 2008, and May 2013). We construct a variable *swing* that shows if a constituency remained competitive at a particular winning margin at least in two or three elections. Therefore, we construct dummy variables for constituencies that were swing up to 2%, 5%, and 10% in at least two elections and at least three out of five elections held under democracy. A *swing*2% is represented with a dummy variable equal to 1 for a constituency that has remained competitive at a winning margin of 2% at least in two elections or in three elections, otherwise equal to 0, thus it is a time-invariant variable, and similarly for *swing*5% and *swing*10%.

By creating a variable *Leader*, we can indicate whether the ethnographic region i (Balochistan, KPK, Sindh, and Punjab) is the ethnic homeland (birthplace of the leader, permanent residential house, ancestral home) of the current political leader. The *Leader* (president or prime minister whose party is a ruling party) is equal to 1 if the political leader is from the ethnographic region i of Pakistan and in power throughout time t. For example, the *Leader* is equal to 1 for Punjab when a Punjabi leader is in power, the *Leader* is equal to 1 for Sindh when a Sindhi leader is in power, and 0 otherwise.

We used polity2 to capture local economic development in Pakistan across a range of governing authority attributes, from absolute autocracies to functional democracies. The data on Polity2 are collected from the *Polity V* project [8] by the Integrated Network for Societal Conflict Research (INSCR), which is associated with the Center for Systemic Peace (CSP). The polity score measures governing power on a scale of -10 to $+10$ points, ranging from strongly autocratic to highly democratic. The CSP/INSCR reported that polity scores could be used to classify governing regimes with autocracies scoring -10 to -6, anocracies scoring -5 to $+5$, and democracies scoring $+6$ to $+10$.[9] Therefore, the *Polity score* enables us to construct a variable, *Democracy*, equal to 1 if the *Polity score* is above $+5$ in year t, and 0 otherwise.

In the appendix, we also use the Herfindahl–Hirschmann index (HHI) of concentration to measure the electoral competition among the contesting candidates in electoral constituencies (Alfano and Baraldi, 2016). HHI is usually used to measure the competition among firms in an industry. It extends from 0 (perfect competition) to 1 (monopoly).

[8] www.systemicpeace.org/inscrdata.html
[9] https://www.systemicpeace.org/polityproject.html

We also collected data on public goods provisions, i.e., the number of primary, middle, and high schools; and the number of health facilities such as hospitals, dispensaries, basic health units, rural health centres, and mother and child health welfare centres per 1000 people at the district level. We collected this data from the Development Statistics provided by the provincial bureau of statistics. The data on these facilities are not available yearly from 1992 to 2018 at the district level. However, the data on schools and health facilities are available at the district level; for Punjab province from 2002, Sindh from 2007, Khyber Pakhtunkhwa from 2012, and Balochistan's data on schools from 2008,[10] and health facilities from 2013 onwards. In addition, we collected data for the year 1998 on these facilities from Pakistan's Population Census 1998 District-level reports.[11] We compute the proportion of these facilities for the newly created districts between 1998 and 2008 from their parent districts. We construct a variable *schools* by combining the primary, middle, and high schools per 1000 people at the district level, and the variable *health facilities* by combining hospitals, dispensaries, rural health centres, basic health units, and mother and child health welfare centres per 1000 people at the district level. For the analyses, we use the data on public goods provisions in 1998 at the provincial electoral constituency level for the elections conducted in 1990, 1993, and 1997, public goods provisions in 2008 for the election in 2002, public goods provision in 2013 for the election conducted in 2008, and public goods provision yearly from 2013 to 2018 for the election conducted in 2013. Therefore, we have run robustness checks on *schools* and *health facilities* as outcome variables at the district level. Results support the main conclusions.

The Table 2.3 shows descriptive statistics of all the variables used in this chapter. The number of observations are 7344 and 15579 for the national assembly and provincial assemblies, respectively. In Figure 2.2, the first two maps represent the electoral constituencies at the national and provincial assembly levels, whether these swing in at least one election, two elections, or three out of five democratic elections. The remaining four maps depict the average change in nighttime light in national and provincial constituencies under democratic and dictatorial regimes. It suggests that the swing constituencies have a higher nighttime light intensity. Appendix Figure B4 shows the nighttime light intensity at swing constituencies before and after a period of dictatorship. It shows that swing constituencies have more distributive gains under democracy. In appendix Figure B5, we show for the same area the level of detail of our nighttime light

[10] http://aserpakistan.org/document/learning_resources/2014/State_of_School_Education.pdf

[11] http://111.68.102.42:8080/xmlui/handle/123456789/14584

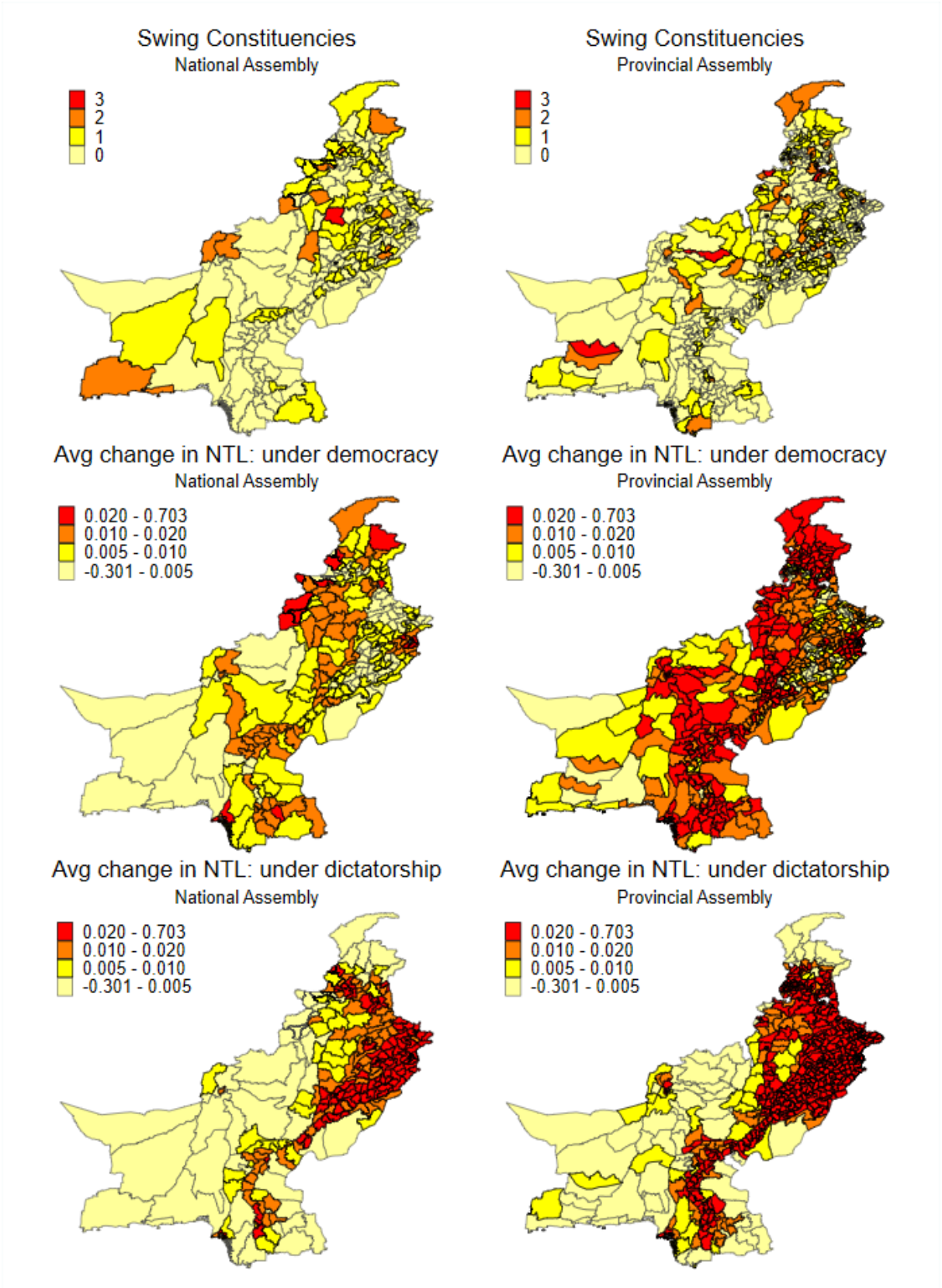
pixels next to the electoral constituencies.

Table 2.3: Descriptive Statistics

	Obs.	Mean	SD	Min	Max
National Assembly:					
Nighttime light	7344	15.782	19.13	0	63
Winning margin 2%	7344	0.074	0.26	0	1
Winning margin 5%	7344	0.183	0.39	0	1
Winning margin 10%	7344	0.352	0.48	0	1
Swing2% at least in 2 elec	7344	0.048	0.21	0	1
Swing5% at least in 2 elec	7344	0.243	0.43	0	1
Swing10% at least in 2 elec	7344	0.603	0.49	0	1
Swing2% at least in 3 elec	7344	0.004	0.06	0	1
Swing5% at least in 3 elec	7344	0.051	0.22	0	1
Swing10% at least in 3 elec	7344	0.305	0.46	0	1
Leader	7344	0.355	0.48	0	1
Polity	7344	3.074	5.62	-6	8
Mature Democracy (Polity>5)	7344	0.593	0.49	0	1
Provincial Assembly:					
Nighttime light	15579	16.238	19.44	0	63
Winning margin 2%	15579	0.082	0.27	0	1
Winning margin 5%	15579	0.194	0.40	0	1
Winning margin 10%	15579	0.373	0.48	0	1
Swing2% at least in 2 elec	15579	0.066	0.25	0	1
Swing5% at least in 2 elec	15579	0.234	0.42	0	1
Swing10% at least in 2 elec	15579	0.539	0.50	0	1
Swing2% at least in 3 elec	15579	0.009	0.09	0	1
Swing5% at least in 3 elec	15579	0.052	0.22	0	1
Swing10% at least in 3 elec	15579	0.272	0.45	0	1
Leader	15579	0.343	0.47	0	1
Polity	15579	3.074	5.62	-6	8
Mature Democracy (Polity>5)	15579	0.593	0.49	0	1

[11]Swing constituencies are those who swing at 2% on winning margin. Avg change in NTL is the average change in *nighttime light* per 10,000 registered voters in constituency c.

Figure 2.2: Swing constituencies and average change in NTL



2.5 Empirical framework

To analyse the effect of electoral competition on local economic development at the electoral constituency level, the baseline model can be written as below:

$$Light_{ct} = \beta margin_{ct-1} + \alpha_c + \delta_t + \varepsilon_{ct} \tag{2.1}$$

The outcome variable $Light_{ct}$ represents the nighttime light intensity of constituency c in year t. The main variable of interest, $margin_{ct-1}$, is a binary variable equal to 1 if the victory margin in the previous election is no more than 2 percent, otherwise equates to 0 (similarly, for a victory margin of up to 5 percent and 10 percent) at constituency c. The α_c controls for constituency fixed effects, δ_t is the year fixed effects, and ε_{ct} is the standardized error term clustered at electoral constituency level. In this chapter, the OLS specification is used, any observational study is likely to suffer from omitted variable bias or unobserved heterogeneity. Therefore, fixed effects (FE) estimation is a way forward, where FE can take care of unobserved time-invariant heterogeneity.

The coefficient of interest is β in eq (2.1), which captures the effect of electoral competition on $Light_{ct}$. Our hypothesis 1 is that electoral constituencies with more intense competition have a higher local economic development under democracy. So in eq (2.1), running this specification for five elections held under democratic conditions, we expect $\beta > 0$, which shows the positive relationship between electoral competition in the previous election and $Light_{ct}$. Because the general election in 2002 held under a dictatorial regime, resource distributions may not have been based on electoral competition.

To analyse the distributive gains of swing constituencies under each political system, the baseline model can be written as below:

$$Light_{ct} = \lambda swing_c^i \times polity_t + \psi_c + \theta_t + \epsilon_{ct} \tag{2.2}$$

where $swing_c^i$ is the constituency c remains swing at winning margin i in at least two or three elections. It is represented with a dummy variable equal to 1 if constituency c is swings at 2 percent at least in two or three elections out of 5 elections held under democracy, otherwise equal to 0 (similarly for 5 percent and 10 percent). The constituency c is considered as a swing if it has remained competitive at particular winning margin (2%, 5%, or 10%) in at least two or three elections. Thus the variable $swing_c^i$ is a time-invariant variable for constituency c. The variable $polity_t$ is the polity2 from polity

V project, contains polity score in year t which shows the political regimes. Interaction term $swing_c^i \times polity_t$ shows the distributive gains of swing constituencies under political regimes. ψ_c controls for constituency fixed effects, θ_t is the year fixed effects, and ϵ_{ct} is the standardized error term clustered at electoral constituency level.

The coefficient of interest is λ in eq (2.2), it represents the distributive gains of constituencies that remained swing in at least two or three elections under political regimes. Our hypothesis 2 is that swing constituencies have higher distributive gains under democracy. So in eq (2.2), we expect $\lambda > 0$, which shows the positive relationship between swing constituencies and $Light_{ct}$.

To see how elected leaders in government exhibit ethnic favouritism towards their ethnographic regions, the baseline equation can be written as below:

$$Light_{ct} = \gamma Leader_{ct-1} + \phi_c + \eta_t + \nu_{ct} \tag{2.3}$$

whereas the variable $Leader_{ct-1}$ is a binary variable equal to 1 if the leader's ethnic affiliation coincides with constituency c in year $t-1$ when in power. Constituency fixed effects ϕ_c controls for time-invariant factors across the electoral constituencies, η_t is the year fixed effects, and ν_{ct} is the standardized error term clustered at the electoral constituency level.

The coefficient of interest is γ in eq (2.3), which measures the effect of *Leader* on *Light*. Our hypothesis 3 is that, ethnic favouritism is less prevalent under democracy. The literature shows that ethnic favouritism is widely prevalent (Abman and Carney, 2020, De Luca et al., 2018, Ejdemyr et al., 2018, Franck and Rainer, 2012). In eq (2.3), running this specification on all six elections, we expect $\gamma > 0$, the positive sign of the coefficient implies that constituency c has more *Light* given that constituency c is from the ethnographic region of the *Leader* (when being in power) in year t. On the other hand, studies have argued that ethnic favouritism varies under different political regimes and vanishes under democracy due to institutional constraints on the executives' activities (André et al., 2018, Burgess et al., 2011, 2015, Mueller et al., 2016, van Hoorn and Rademakers, 2021). Therefore, in eq (2.3), interacting leader with the level of democracy, we expect $\gamma < 0$, the negative sign of the coefficient implies that constituency c has less *Light* given that constituency c is from the ethnographic region of the *Leader* (when in power) under democratic conditions. In other words, it shows that ethnic favouritism is less prevalent under democracy.

We also combine these specification strategies to examine distributive gains and

ethnic favouritism at the level of electoral constituencies. This chapter uses $Light_{ct}$ data annually from 1992 to 2018. It has been pointed out that night light shows a strong path dependency (Shortland et al., 2013). Considering this, we also run dynamic regression models. In each specification given above, the $Light_{t-1}$ is added on the right hand side (as a regressor) to run the dynamic regressions. The results are presented in Appendix Table B14 to Table B17. In addition, we have run the regressions for public goods provisions such as schools and health facilities as outcome variables, and results are presented in Appendix Table B18 to Table B21. These results are in line with the main conclusions.

2.6 Results and Discussion

2.6.1 Baseline results

Hypothesis 1: Electoral constituencies with more intense competition have a higher level of local economic development under democracy

The regression results in Table 2.4 show the relationship between the intensity of electoral competition and local economic development. The first three columns represent the national assembly, and the last three columns represent the provincial assemblies. Each column has a specification that includes the constituency-fixed effects and year-fixed effects. The positive and statistically significant coefficients on *lagged winning margin i*, (β), in eq (2.1) suggest higher economic development in electorally competitive constituencies than non-competitive constituencies.

In Table 2.4 in columns (1) and (4), the estimated coefficients of interest (as in eq (2.1)) are 0.086 and 0.107, and are statistically significant at 5% and 10% levels. These results show an increase in the nighttime light intensity by $100(exp(\beta) - 1)\%$. It suggests that electorally competitive constituencies have higher nighttime light intensity than non-competitive constituencies by around 9% and 11%. Following the studies of De Luca et al. (2018), Henderson et al. (2012), Hodler and Raschky (2014), assuming an elasticity of around 0.3 at the electoral constituency level implies that the increase in nighttime light intensity by $9\% - 11\%$ corresponds to an increase in local GDP of $2.7\% - 3.4\%$, which is a sizeable effect. Results show the positive link between electoral competition and local economic development. These findings are supported with the robustness tests and confirm our hypothesis 1. These results are in line with the literature such as Arvate (2013) has shown in case of Brazil that electoral competition increases the provision

of public goods, i.e, education and health. Rezki et al. (2020) have shown in case of Indonesian districts that higher political competition increases the number of community health centres and primary schools, as well as the proportion of non-agricultural revenue relative to total income. Ghosh (2010) has shown in case of Indian states that higher political competition leads to an increase in state's per capita income and growth, and Besley et al. (2010) have shown a positive link between political competition and income growth.

Table 2.4: Constituency swing 2%, 5%, 10%.

	National Assembly			**Provincial Assemblies**		
Dep:Var: $Light_{ct}$	(1)	(2)	(3)	(4)	(5)	(6)
Lagged Winning Margin 2%	0.086*			0.107**		
	(0.050)			(0.042)		
Lagged Winning Margin 5%		0.082***			0.032	
		(0.031)			(0.023)	
Lagged Winning Margin 10%			0.087***			0.021
			(0.024)			(0.017)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	7344	7344	7344	15579	15579	15579
R Square	0.938	0.938	0.938	0.941	0.940	0.940
Clusters	272	272	272	577	577	577

Standard errors in parentheses. SE clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Hypothesis 2: Swing constituencies have higher distributive gains under democracy

Table 2.5 reports the results of national assembly constituencies that remained swing at the winning margins of up to 2%, 5%, and 10% in at least two elections and at least three out of five elections held under democratic conditions. The variable $swing2\%$ in at least two or three elections (similarly for $swing5\%$ and $swing10\%$) is a time-invariant variable. In Panel A, the variable $swing_c^i$ represents a constituency c that remained swing at margin i in at least two or three elections is made to interact with $polity_t$ as shown in equation (2.2). The positive and statistically significant coefficients on $swing_c^i \times polity_t$, λ, in eq (2.2) suggests that swing constituencies have more distributive gains than non-swing under democracy. Column (4) shows that constituencies with a tight swing in at least three elections have higher distributive gains. Equation (2.2) suggests that the coefficient of interest λ increases the intensity of nighttime light in constituency c by $100(exp(\lambda) - 1)\%$. Hence, coefficient estimates 0.010 in column (4) suggests an increase in $Light_{ct}$ by 1%, which corresponds to an increase in local GDP by 0.3%.

In emerging democracies, elected leaders have fewer constraints, but in mature democracies, institutions are more potent and put more restrictions on political leaders' activities (Addison and Baliamoune-Lutz, 2006). Early stages of democratisation are much more prone to severe violent conflict than autocracies or mature democracies

(Goldstone and Ulfelder, 2004). Democracy matters when it is a mature democracy, hence after polity>5. In Panel B, in column (4) the estimated coefficient of interest on the interaction terms $Swing_c^i \times polity > 5$ is 0.152. The eq (2.2) estimates 0.152, suggesting an increase in nighttime light intensity by 16.4%, which corresponds to an increase in local GDP by around 5%, for constituencies with a 2% swing in at least three elections. This shows that under mature democracies, swing constituencies have higher distributive gains.

Table 2.6 reports the results of provincial assembly constituencies that swing up to 2%, 5%, and 10% in at least 2 elections and at least 3 elections out of 5 held under democratic conditions. The coefficient estimate of interest is λ as in eq (2.2). In Panel A, in column (1) the coefficient estimate of interest is 0.007, which suggests an increase in $light_{ct}$ of 0.7% in constituencies that swing at 2% in at least 2 elections under democratic conditions, which corresponds to an increase in GDP of 0.21%. In Panel B, in column (1), the coefficient estimate of interest is 0.107, which suggests an increase in $light_{ct}$ of 11% in constituencies that swing at 2% in at least 2 elections, which corresponds to an increase in GDP of 3.4% under mature democracy.

Table 2.7 reports the results on public goods provisions (schools and health facilities) for provincial assembly constituencies that swing up to 2%, 5%, and 10% in at least 2 elections and at least 3 elections out of 5 held under democratic conditions. The coefficient estimate of interest is λ as in eq (2.2) —here the outcome variables are schools and health facilities. Results show that electorally competitive constituencies have more public goods provisions than non-competitive constituencies under democracy. Moreover, under mature democracy the electorally competitive constituencies have even more public goods provisions. The coefficient estimates are statistically significant.

Results in Table 2.5, Table 2.6 and Table 2.7 are consistent with the robustness tests and confirm our hypothesis 2. These results are in line with the literature such as Johansson (2003) has found that swing municipalities are given larger grants than other municipalities in Sweden. Gupta and Mukhopadhyay (2016) have shown that the national rural employment guarantee scheme funds were allocated more to the swing areas in Rajasthan by Indian National Congress. Ward and John (1999) have shown that the UK government granted more funds to local governments with marginal constituencies.

Table 2.5: National assembly: Constituency swing

	at least 2 elections			at least 3 elections		
Dep:Var: Light_{ct}	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Swing2%×*Polity*	0.008			0.010***		
	(0.011)			0.001)		
Swing5%×*Polity*		0.003			-0.000	
		(0.003)			(0.007)	
Swing10%×*Polity*			0.001			0.003
			(0.002)			(0.002)
Panel B						
Swing2%×*Polity* > 5	0.200			0.152***		
	(0.145)			(0.013)		
Swing5%×*Polity* > 5		0.089**			0.107	
		(0.044)			(0.103)	
Swing10%×*Polity* > 5			0.046*			0.066*
			(0.024)			(0.036)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	7344	7344	7344	7344	7344	7344
R Square	0.938	0.938	0.938	0.938	0.938	0.938
Clusters	272	272	272	272	272	272

Standard errors in parentheses. SE clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.6: Provincial assembly: Constituency swing in at least 2 and 3 elections

	at least 2 elections			at least 3 elections		
Dep:Var: Light_{ct}	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Swing2%×*Polity*	0.007*			0.004		
	(0.004)			(0.005)		
Swing5%×*Polity*		0.003			0.009*	
		(0.002)			(0.004)	
Swing10%×*Polity*			0.000			0.000
			(0.001)			(0.002)
Panel B						
Swing2%×*Polity* > 5	0.107*			0.101		
	(0.057)			(0.086)		
Swing5%×*Polity* > 5		0.065**			0.154**	
		(0.028)			(0.062)	
Swing10%×*Polity* > 5			0.029			0.031
			(0.019)			(0.023)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	15579	15579	15579	15579	15579	15579
R Square	0.940	0.940	0.940	0.940	0.941	0.940
Clusters	577	577	577	577	577	577

Standard errors in parentheses, clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.7: Public goods provisions: Constituency swing at least in 2 and 3 elections

	at least 2 elections			at least 3 elections		
Dep:Var: **Schools**	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Swing2%×*Polity*	0.042**			0.132*		
	(0.019)			(0.070)		
Swing5%×*Polity*		0.025***			0.064***	
		(0.009)			(0.024)	
Swing10%×*Polity*			0.027***			0.029***
			(0.005)			(0.008)
Panel B						
Swing2%×*Polity* > 5	0.281**			0.900*		
	(0.136)			(0.508)		
Swing5%×*Polity* > 5		0.158***			0.399**	
		(0.060)			(0.163)	
Swing10%×*Polity* > 5			0.146***			0.171***
			(0.036)			(0.053)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	6347	6347	6347	6347	6347	6347
R^2	0.810	0.810	0.810	0.811	0.811	0.810
Clusters	577	577	577	577	577	577
Dep:Var:**Health Facilities**						
Panel A						
Swing2%×*Polity*	0.004**			0.013*		
	(0.002)			(0.008)		
Swing5%×*Polity*		0.003***			0.005**	
		(0.001)			(0.002)	
Swing10%×*Polity*			0.002***			0.002***
			(0.0005)			(0.001)
Panel B						
Swing2%×*Polity* > 5	0.025**			0.091*		
	(0.012)			(0.053)		
Swing5%×*Polity* > 5		0.017***			0.031**	
		(0.005)			(0.013)	
Swing10%×*Polity* > 5			0.014***			0.014***
			(0.003)			(0.004)
Year, Constituency FE	✓	✓	✓	✓	✓	Yes
Observations	6347	6347	6347	6347	6347	6347
R^2	0.775	0.776	0.776	0.776	0.776	0.775
Clusters	577	577	577	577	577	577

Standard errors in parentheses, clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Hypothesis 3: Political leader's ethnic favouritism is less prevalent under democracy

Table 2.8 reports the results for national and provincial assemblies constituencies investigating ethnic favouritism. Each column has a specification that includes the constituency-fixed effects and year-fixed effects. The coefficient γ in eq (2.3) shows a negative sign and is statistically significant, suggesting that there is less *Light* in constituency c which is from the political leader's ethnographic region in year t. In column (2) an interaction term $Leader \times Polity$ is added, in column (3) an interaction term $Leader \times Swing2\%$ is added, in column (4) an interaction term $Swing2\% \times Polity$ is added, in column (6) an interaction term $Leader \times Polity > 5$ is added, in column (7) an interaction term $Swing2\% \times Polity > 5$ is added in the models to investigate ethnic

favouritism by a political leader towards constituencies of their ethnographic region and the distributive gains of constituencies that remained swing at least in three elections under political regimes. Similarly we have run the regressions for the constituencies that remained swing at least in three elections at the margin of 5% and 10% and results are presented in Table 2.9 and Table 2.10.

Table 2.8 to Table 2.10 indicate that the coefficient estimates of *Leader* in all columns in Panel A and Panel B are negative and statistically significant at 1% level, suggesting that there is reverse (negative) ethnic favouritism. We interpret these results in line with the available literature related to ethnic favouritism. As in Pakistan, political parties form the coalition government (Nasir and Faqir, 2021) and the ruler does not exclude other ethnic groups from the cabinet (André et al., 2018, Francois et al., 2015). When the society is ethnically divided and institutions are weak, like Pakistan, the fear of being ousted by the people may lead rulers to transfer more resources to opposition ethnic groups as a means of retaining power (Padró i Miquel, 2007). Therefore, leader may employ a method of buying off opponents and allocate more to opposition ethnic groups in order to retain the power (Arriola, 2009). Kramon and Posner (2013) have found no systematic targeting of the president's ethnic group in cases of six African countries, however, in some cases, the president's ethnic group is even disadvantaged. Moreover, in democratic settings, it is commonly established that politicians favour swing voters and may not favour their core supporters since they would vote for them in any case (Dahlberg and Johansson, 2002, Diaz-Cayeros, 2008). Politicians may adopt the strategy of employing tax on their co-ethnics for buying the support of distant groups (Dixit and Londregan, 1996, Kasara, 2007). Furthermore, ethnic favouritism diminishes with democratisation (Burgess et al., 2011, 2015), a phenomenon attributable to the significant institutional constraints on the executives' activities (André et al., 2018, Burgess et al., 2015, Mueller et al., 2016, van Hoorn and Rademakers, 2021). Similarly, the leader in Pakistan might adopt a strategy to gain the support of opposition ethnic groups to retain power.

In Table 2.8, Panel A reports the results for the national assembly, and Panel B reports the results for provincial assemblies. Results in columns (2) on interaction term $Leader \times Polity$ show lower ethnic favouritism under democracy. In column (6) the estimates on interaction term $Leader \times Polity > 5$ present evidence that ethnic favouritism is less prevalent in mature democracy. Under mature democracy, the coefficient estimates on lesser ethnic favouritism are greater than in column (2). The coefficient estimates show a negative sign and are statistically significant at 1%. These findings support our

hypothesis 3, that ethnic favouritism is less prevalent under democracy. These results are in line with literature that shows the lower ethnic favouritism under democratic conditions (Burgess et al., 2011, 2015), due to the institutional constraints on leader's activities (André et al., 2018, Mueller et al., 2016, van Hoorn and Rademakers, 2021).

In columns (3), (5) and (8), the estimates on interaction term $Leader \times Swing2\%$ show evidence that tight swing constituencies have more *Light* given that these are from the leader's ethnographic region. The coefficient estimates show a positive sign and are statistically significant at 1% and 5%, however, in Panel B in column (8) coefficient estimates display a positive sign but are not statistically significant. These findings are consistent with robustness checks. This evidence shows that ethnic favouritism is prevalent in tight swing constituencies even under democratic conditions sustained by electoral motives, which is in line with the study by De Luca et al. (2018).

In columns (4), (5), (7) and (8) the coefficients on the interaction term $Swing2\% \times Polity$ and $Swing2\% \times Polity > 5$ show that tight swing constituencies have more distributive gains under democracy. The coefficient estimates are statistically significant at 1% in Panel A, but in Panel B, coefficient estimates show a positive sign and are not statistically significant. These results are in line with the literature that shows swing constituencies gain more than non-swing under democracy (Gupta and Mukhopadhyay, 2016, Johansson, 2003, Ward and John, 1999).

Table 2.9 and Table 2.10 report the results based on ethnic favouritism for the constituencies that remained swing up to 5% and 10% of winning margins in at least three elections of national assembly and provincial assemblies, respectively. Results in both tables on the coefficient estimates of *Leader* in all columns indicate reverse (negative) ethnic favouritism. The coefficient estimates show a negative sign and are statistically significant at 1%. In columns (4) and (6) the interaction term $Leader \times Swing10\%$ in both tables show the constituencies that remained swing up to 10% of winning margin from the ethnographic region of the leader have less *Light*. The coefficient estimates show a negative sign and are statistically significant at 5% and 10% levels. The constituencies that swing with wider margins are considered less competitive or less riskier for electoral gains. As politicians allocate more resources to respond to systematic electoral risk (Diaz-Cayeros, 2008). These findings are in line with literature; Kramon and Posner (2013) have found that in some cases the president's ethnic group is even penalized. Dixit and Londregan (1996) and Kasara (2007) have argued that politicians may adopt the strategy of levying taxes on their co-ethnics to buy the support of distant groups.

Table 2.8: Ethnic favouritism: Constituency swing up to 2% at least in 3 elections

Dep:Var: Light$_{ct}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A								
Leader	-0.119***	-0.086***	-0.119***	-0.119***	-0.119***	-0.015	-0.119***	-0.119***
	(0.016)	(0.012)	(0.016)	(0.016)	(0.016)	(0.017)	(0.016)	(0.016)
Leader×*Polity*		-0.009***						
		(0.002)						
Leader×*Swing*2%			0.218***		0.187***			0.158***
			(0.015)		(0.016)			(0.015)
Swing2%×*Polity*				0.013***	0.006***			
				(0.001)	(0.001)			
Leader×*Polity* > 5						-0.154***		
						(0.034)		
Swing2%×*Polity* > 5							0.196***	0.111***
							(0.011)	(0.007)
Year, Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	7344	7344	7344	7344	7344	7344	7344	7344
R Square	0.939	0.939	0.939	0.939	0.939	0.939	0.939	0.939
Clusters	272	272	272	272	272	272	272	272
Panel B								
Leader	-0.111***	-0.080***	-0.111***	-0.111***	-0.111***	-0.020	-0.111***	-0.111***
	(0.011)	(0.008)	(0.011)	(0.011)	(0.011)	(0.013)	(0.011)	(0.011)
Leader×*Polity*		-0.008***						
		(0.002)						
Leader×*Swing*2%			0.084***		0.070**			0.035
			(0.011)		(0.027)			(0.050)
Swing2%×*Polity*				0.003	0.003			
				(0.005)	(0.005)			
Leader×*Polity* > 5						-0.135***		
						(0.025)		
Swing2%×*Polity* > 5							0.096	0.092
							(0.087)	(0.092)
Year, Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	15579	15579	15579	15579	15579	15579	15579	15579
R Square	0.941	0.941	0.941	0.941	0.941	0.941	0.941	0.941
Clusters	577	577	577	577	577	577	577	577

SE in parentheses and clustered at constituency level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In Table 2.9 in columns (5) and (6), the interaction term $Swing10\% \times Polity$ show that constituencies that remained swing up to 10% of winning margin have more distributive gains in democratic conditions and even more under mature democracy. Coefficient estimates show a positive sign and are statistically significant, though the results in Table 2.10 show weak evidence. The higher the victory margin (e.g., 5%, 10%), the lower the competition, and the greater the likelihood that an electoral seat will become safe-heaven. As a result, the leader is reasonably confident in the electoral outcome, leading to less resource distribution.

In Table 2.10 column (3) in panel A and in Panel B, the coefficient estimates on the interaction terms $Leader \times Swing5\%$ show an evidence that constituencies that remained swing up to 5% in the ethnographic region of the leader have less distributive gains, the coefficient estimate show a negative sign and are statistically significant at 1% and 5% level. In column (2) in panel A and in Panel B, the interaction terms $Swing5\% \times Polity$ and $Swing5\% \times Polity > 5$ show evidence that constituencies swing at 5% have more distributive gains under democracy and even more the case under mature democracy. The coefficient estimate shows a positive sign and is statistically significant at 5% level.

Table 2.9: National assembly: Ethnic favouritism, Swing constituencies

Dep:Var: Light$_{ct}$	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Leader	-0.118***	-0.119***	-0.118***	-0.109***	-0.121***	-0.108***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Leader×*Swing*5%	-0.005		-0.005			
	(0.071)		(0.080)			
Swing5%×*Polity*		0.000	0.000			
		(0.007)	(0.007)			
Leader×*Swing*10%				-0.042*		-0.059**
				(0.024)		(0.029)
Swing10%×*Polity*					0.004*	0.005**
					(0.002)	(0.003)
Panel B						
Leader	-0.118***	-0.119***	-0.117***	-0.109***	-0.123***	-0.106***
	(0.016)	(0.016)	(0.015)	(0.016)	(0.016)	(0.015)
Leader×*Swing*5%	-0.005		-0.069			
	(0.071)		(0.092)			
Swing5%×*Polity* > 5		0.110	0.123			
		(0.101)	(0.111)			
Leader×*Swing*10%				-0.042*		-0.082**
				(0.024)		(0.034)
Swing10%×*Polity* > 5					0.086**	0.106***
					(0.035)	(0.040)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	7344	7344	7344	7344	7344	7344
R Square	0.939	0.939	0.939	0.939	0.939	0.939
Clusters	272	272	272	272	272	272

SE in parentheses and clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.10: Provincial assembly: Ethnic favouritism, Swing constituencies

Dep:Var: Light$_{ct}$	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Leader	-0.110***	-0.111***	-0.109***	-0.103***	-0.111***	-0.103***
	(0.011)	(0.011)	(0.011)	(0.010)	(0.011)	(0.010)
Leader×*Swing*5%	-0.054		-0.087**			
	(0.040)		(0.037)			
Swing5%×*Polity*		0.009**	0.010**			
		(0.004)	(0.005)			
Leader×*Swing*10%				-0.043**		-0.047**
				(0.022)		(0.023)
Swing10%×*Polity*					0.001	0.001
					(0.002)	(0.002)
Panel B						
Leader	-0.110***	-0.111***	-0.108***	-0.103***	-0.112***	-0.102***
	(0.011)	(0.011)	(0.011)	(0.010)	(0.011)	(0.010)
Leader×*Swing*5%	-0.054		-0.117***			
	(0.040)		(0.036)			
Swing5%×*Polity* > 5		0.155**	0.173***			
		(0.060)	(0.063)			
Leader×*Swing*10%				-0.043**		-0.059**
				(0.022)		(0.025)
Swing10%×*Polity* > 5					0.038	0.049*
					(0.023)	(0.025)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	15579	15579	15579	15579	15579	15579
R Square	0.941	0.941	0.941	0.941	0.941	0.941
Clusters	577	577	577	577	577	577

SE in parentheses and clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

2.6.2 Robustness test

2.6.2.1 Political business cycle

The literature on political business cycles shows that the incumbent government has an incentive to influence the economy before the election in order to enhance its chances of winning (Aidt et al., 2011, Heckelman and Berument, 1998, Hibbs, 1977, Ito, 1990, Nordhaus, 1975). In advance of elections, central banks are more likely to initiate expansionary monetary policies consistent with exchange rate stability than regular times (Dreher and Vaubel, 2009). Abrams and Iossifov (2006) have shown that the Federal Reserve induced the political-monetary cycle that coincides with the US presidential election cycle. In order to win the next election, incumbents apply several strategies. One viable tactic is to speed up efforts closer to election day to alter voters' perceptions. Before the election, the political representatives raise voting benefits in the hope of raising turnout and reducing support for opposition candidates (Anaman et al., 2019, De Luca et al., 2018, Martinez, 2019). The early opportunistic models (Nordhaus, 1975) predicted that growth would increase in the year and a half before each election, as incumbents promote economic growth to increase their chances of re-election. German-Soto and

Garza (2019) have argued that economic growth is higher in the final year than in the first year of an incumbent's tenure. As a result, this increase in incumbent's spending would exaggerate economic performance prior to the election. We want to see whether the total effect is determined by speedy spending close to the elections or is a more general mechanism operating throughout the politician's time in office. Therefore, we run the regressions by excluding the preceding year of the election from our sample. These results are similar to the main findings, see in appendix Table B1 to Table B6.

2.6.2.2 Nighttime light in urban constituencies

During the rapid urbanization, the nighttime light brightness is highly prevalent in urban areas and follows a quadratic pattern in large and very large cities (Ma et al., 2015). Urban areas have predominantly high nighttime light pixel values, so they could not sufficiently increase nighttime light variation (Zheng et al., 2020). In urban areas, the nighttime light intensity would remain stable or fluctuate slightly over time (Wu et al., 2013, Xie and Weng, 2016). The electoral constituencies in urban areas are illuminated artificially at night, and their corresponding nighttime light pixels are larger than the constituencies in rural areas (Shi et al., 2014). To exploit the variation in nighttime light emission in the electoral constituencies in rural areas as a proxy for local economic development, we exclude the constituencies in urban areas from the sample. The reason is that these pixels may already be at the top level and may not grow any further (Zheng et al., 2020). The nighttime light intensity ranges from 0-63 pixel values. Therefore, constituencies with average nighttime light emission above 50 pixels in at least three elections were considered urban constituencies. The results are shown in appendix Table B7 to Table B12. These results are similar to the main results.

2.6.2.3 Herfindahl-Hirschman Index

We have shown that electoral competition improves local economic development. An alternative measure of competitiveness is the Herfindahl-Hirschman Index (HHI) in the vote market (Alfano and Baraldi, 2016). The value of HHI ranges from 0 to 1, and it implies that the lower the value of HHI, the higher the competition and vice versa. Table B13 reports the results based on HHI for the national and provincial assemblies. In columns (1) and (5), HHI is a continuous variable ranging from 0 to 1. The remaining columns show the results based on various thresholds of HHI, which are represented with dummy variables. A dummy variable equals 1 if HHI is less than or equal to a threshold (i-e 0.15, 0.20, and 0.25). Each regression equation includes year fixed effects

and constituency fixed effects. Columns (3) and (4) show the evidence that electorally competitive constituencies have more distributive gains. Coefficient estimates show a positive sign and are statistically significant at 5%.

2.6.2.4 Dynamics of nighttime lights

This chapter also looks at the dynamics of nighttime light around electoral constituencies and $Light_{ct-1}$ as a regressor is added in the main specifications (Shortland et al., 2013). The results are shown in appendix Table B14 to Table B17. Based on dynamic models, these results are similar to the main findings.

2.6.2.5 Provision of Schools and Health facilities

Results for public goods provisions such as schools and health facilities as outcome variables are presented in appendix Table B18 to Table B21. These findings support similar conclusions.

2.7 Conclusion

This chapter examined the effect of electoral competition on public resources distribution at local level, and political leaders' ethnic favouritism under different political systems. The outcome variable is nighttime light as a proxy for local economic development, reflecting the aggregate distributional effect of a wide range of government policies. This chapter found a positive link between electoral competition and local economic development by using several specifications. The baseline estimates show an increase in nighttime light intensity by around $9\% - 11\%$ in electorally competitive constituencies than non-competitive constituencies, corresponding to an increase in local GDP of around $2.7\% - 3.4\%$. Constituencies that have remained swing in at least two or three elections have higher nighttime light intensity than non-swing constituencies by $0.7\% - 16.4\%$, which corresponds to an increase in local GDP by $0.21\% - 5\%$.

Our results show the evidence of reverse (negative) ethnic favouritism in Pakistan. Leaders' regions are discriminated against by leaders, and this is even more the case in mature democracy. However, in some cases, electoral motives drive leaders to target tight swing constituencies in their co-ethnic region. The robustness checks support the main conclusions. We may discuss few mechanisms for reverse ethnic favouritism. As in Pakistan, political parties form the coalition government (Nasir and Faqir, 2021) and the ruler does not exclude other ethnic groups from the cabinet (André et al., 2018,

Francois et al., 2015). In ethnically divided societies and those with weak institutions, like Pakistan, the fear of being ousted by popular protest may lead rulers to transfer more resources to opposition ethnic groups as a means of retaining power (Arriola, 2009, Padró i Miquel, 2007). As they know that their co-ethnics would vote for them in any case (Dahlberg and Johansson, 2002, Diaz-Cayeros, 2008). Therefore, leaders target the tight swing constituencies from their ethnographic regions for electoral gains. Moreover, under democratic conditions the ethnic favouritism diminishes (Burgess et al., 2011, 2015), a phenomenon attributable to the significant institutional constraints on the executives' activities (André et al., 2018, Burgess et al., 2015, Mueller et al., 2016, van Hoorn and Rademakers, 2021). Similarly, the leader in Pakistan might adopt any of (or a combination of) the strategies to gain the support of opposition ethnic groups to retain power.

Chapter 3

Political violence, propaganda against vaccines, and child immunisation in Pakistan *(Solo-authored chapter)*

3.1 Introduction

Across the globe, political violence incidents have escalated dramatically in recent decades.[1] After September 11, 2001 attacks on the United States, the *War on Terror* amplified the political violence incidents also in Pakistan (Abbasi, 2013, Rabbi, 2012, Rogers, 2009). Political violence has not only immediate consequences, but also have long-term impacts that influence several generations. Economic access and activity, health, and social stability can all be affected (Brück et al., 2017). Economic stress, health-related stress, and displacement are all kinds of political violence-induced victimizations that have more negative impacts on child health (Akresh et al., 2012, Minoiu and Shemyakina, 2014) due to the age-specific nature of human capital investments (Akbulut-Yuksel, 2014). It affects child health through a variety of mechanisms such as difficulty in accessing to appropriate nutrition and healthcare (Bundervoet et al., 2009, Minoiu and Shemyakina, 2012, Shemyakina, 2021, Tranchant et al., 2020).

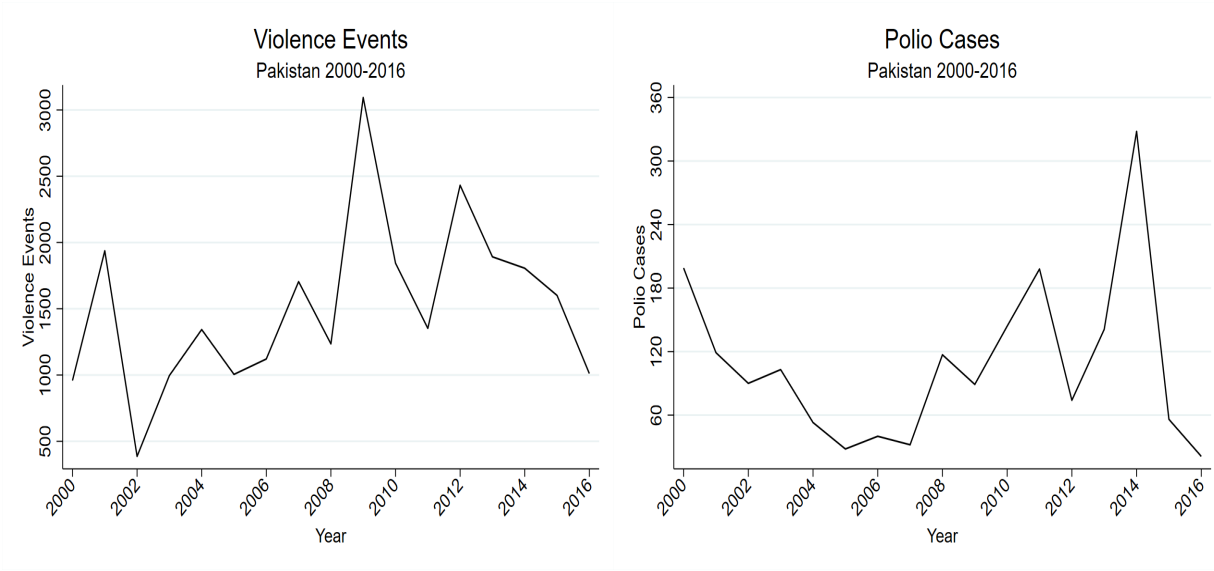
Child immunisation is one of the most efficient and cost-effective public health interventions, preventing millions of deaths per year.[2] Political violence negatively affects child immunisation through: difficulty in accessing healthcare (Mathew et al., 2017, Meiqari et al., 2018), interruptions in cold chain and vaccine supplies (Cetorelli, 2015, Silwal et al., 2006); destruction of healthcare facilities, attacks on children and health workers (Garenne et al., 1997, Grundy and Biggs, 2019, Kadir et al., 2018, McGavin et al., 2018, Naufal et al., 2020, Ngo et al., 2020, Silwal et al., 2006), displacement of families (Ngo et al., 2020), makes it more difficult for families to vaccinate their children (Naufal et al., 2020), increases fear of being injured or murdered while seeking treatment (Haushofer and Fehr, 2014, Kadir et al., 2018), lack of public trust and beliefs about vaccination campaigns (Martinez-Bravo and Stegmann, 2022, Norris et al., 2016).

[1] https://visionofhumanity.org/wp-content/uploads/2020/11/GTI-2020-web-1.pdf
https://ourworldindata.org/terrorism
Global Terrorism Index 2020 (Lopes et al., 2016)

[2] https://www.who.int/news-room/facts-in-pictures/detail/immunisation

Since 2002, the incidents of political violence have increased in Pakistan, and it has remained at a high level between 2006 and 2014, see in Figure 3.1. Political violence interrupts child immunisation, which causes a rise in vaccine-preventable diseases (VPD). Figure 3.1 shows the political violence events and polio cases over the period of time from 2000 to 2016 in Pakistan.

Figure 3.1: Political violence and polio cases



Moreover, the leaders of the Tehrik-i-Taliban Pakistan (TTP) began spreading anti-vaccine propaganda because they suspected the CIA of spying through the vaccination campaign in order to locate Osama Bin Laden's family's DNA (Kennedy, 2016, 2017). The CIA and the military's Joint Special Operations Command (JSOC) conducted drone attacks with varying degrees of secrecy and pre-planning in Northwest region of Pakistan.[3] As a result, Taliban began issuing edicts urging religious opposition to vaccination. They issued edicts such as polio vaccines are un-Islamic,[4] and harmful to one's health,[5] getting treatment before an illness is not permissible in Islam (Roul, 2014), these vaccinations sterilise children, implying that Jews and Western countries are conspiring together to sterilise Muslim children,[6] the CIA conducts espionage through vaccine campaigns and then launches drone attacks, killing hundreds of individuals while polio disease kills a few in millions.[7]

[2]The data on polio cases is taken from https://ourworldindata.org/polio

[3]https://civiliansinconflict.org/wp-content/uploads/2017/09/The_Civilian_Impact_of_Drones_w_cover.pdf

[4]https://tribune.com.pk/story/392939/obstacles-for-immunisation-cleric-declares-jihad-against-polio-campaign

[5]https://www.dawn.com/news/1081820

[6]https://www.dawn.com/news/221282/peshawar-cleric-mounts-drive-against-polio-vaccine

[7]https://casebook.icrc.org/case-study/health-care-pakistans-tribal-areas

Following Bin Laden's assassination on May 2, 2011, just 20 days later, the chief doctor in the vaccination campaign was detained by Inter-Services-Intelligence (ISI) for collaborating with US agents. The TTP leaders erupted in rage, claiming that they were previously aware of the CIA's spying operation through a fake vaccine campaign. So these immunisations are not for your health, they are only there to serve a purpose. Meanwhile, articles on the fake vaccine campaign to capture Osama Bin Laden were published in *The Guardian newspaper* and *The New York Times Magazine* in July 2011.[8,9] The information about the fake vaccine campaign became a piece of public knowledge. Thus, in July 2011 the people of Pakistan learned that the CIA conducted vaccine campaign as a smokescreen to capture Osama Bin Laden.

This chapter examines the effect of political violence and information disclosure about fake vaccine campaign on child immunisation in Pakistan. Immunisation has been predicted to provide a return on investment of US $44 for every dollar invested (Ozawa et al., 2016). The World Health Organization (WHO) gives recommendations on age-appropriate immunisation and intervals between vaccine doses, although the recommended vaccination schedule differs by country. Failure to follow these rules puts children at a higher risk of not finishing their schedule, extending illness vulnerability and potentially weakening herd immunity to VPD. Despite the numerous advantages of vaccinations, many children in Pakistan remain unvaccinated each year.

This chapter contributes to the empirical literature that shows the effects of exposure to political violence on health outcomes at various stages of life. A number of studies have explored this question and have shown a negative effect of exposure to political violence on health outcomes. For the literature review, see for example: in case of Palestine (Mansour and Rees, 2012); Eritrea and Ethiopia (Akresh et al., 2012); Korea (Lee, 2014); Mexico (Brown, 2018); Germany during world War-II (Akbulut-Yuksel, 2017), Zimbabwe (Shemyakina, 2021), and in the case of 53 developing countries (Le and Nguyen, 2020).

Our research differs from the above-mentioned studies in two ways. First, the majority of them have focused on long-term conflicts and wars, which are more likely to result in internal migration and displacement. This relocation might complicate the inference on the outcome of interest. Akresh et al. (2012) and Grossman et al. (2019) have addressed this concern by using data on the exact location of a child during the war. Our analysis excludes the Federally Administered Tribal Areas (FATA) and North and

[8] https://www.theguardian.com/world/2011/jul/11/cia-fake-vaccinations-osama-bin-ladens-dna

[9] https://slate.com/human-interest/2011/07/the-cia-s-fake-vaccination-program-in-pakistan-reveals-the-moral-bankruptcy-of-american-spooks.html

South Waziristan —active political violence areas— other areas did not have an ongoing active political violence throughout, which alleviates this concern. Second, we construct a broader measure of political violence, which includes all the types of events that could possibly interrupt the immunisation (we discuss this in detail in the data and variable section) (Grossman et al., 2019, Ioannidis et al., 2017).

While exploring the effect of information disclosure about fake vaccine campaign our research contributes to the literature on the factors that affect demand for healthcare in developing countries. Studies have shown that the main determinants of demand for health services are; price of health services, income, gender, awareness of the potential benefits of healthcare, and quality of services (Ali and Noman, 2013, O'Donnell, 2007). According to Das and Das (2003), the primary barriers in demand for vaccines in a village in India are awareness and price; however, parents are not opposed to vaccinations if delivered to their doorstep. Dupas and Miguel (2017) have argued that the widespread skepticism due to the lack of trust in the health care sector is one of the key issues of lowering the demand for vaccines. It is widely accepted that unvaccinated individuals are posing a public health risk to their communities. Despite what appears to be a broad consensus on the importance of trust in healthcare demand, literature documents limited empirical studies on this relationship (Sadaf et al., 2013). To the best of our knowledge, there is only research by Martinez-Bravo and Stegmann (2022) that has examined the effects of anti-vaccine propaganda campaigns on child immunisation rates. Following the study of Martinez-Bravo and Stegmann (2022), the scope of our study is extended in a number of ways: we focused on children born between 2002 and 2015, using five waves of PSLM survey; we constructed support for Islamist groups variable based on 35 parties' vote share —Islamist Parties— in three general elections held in 2002, 2008, and 2013; and the political violence is taken into account. Political violence is an important confounder which needs to be accounted for in this analysis, we control for important confounder factor —political violence— in our analyses.

We categorize the cohorts for vaccination into two groups: those born before Bin Laden's capture as non-exposed and those born after July 2011 —information disclosure— as fully exposed. Because information regarding fake vaccinations began to emerge shortly after Bin Laden's murder (but did not become widely known until July 2011), children born between May and July 2011 were considered partially exposed, thus omitted from our analysis. Our main data sources are: the Pakistan Social and Living Standard Measurement Survey (PSLM) provided data on child immunisation, the Election Commission of Pakistan (ECP) provided data on the vote share of Islamist parties, while

the BFRS Political violence and Armed Conflict Location and Event Data (ACLED) project provided data on political violence. We used the Ordinary Least Square (OLS) approach to explore the effect of political violence on vaccinations. To see the effect of information disclosure about fake vaccination, following Martinez-Bravo and Stegmann (2022), we used the difference-in-differences (DiD) strategy. Year and district-fixed effects are included in all regressions.

Regression results suggest that political violence and support for Islamist groups have significant negative effect on child immunisation; a one standard deviation increase in political violence lowers the immunisation rates by 1.6 to 2.9 percentage points for the first dosage of each vaccine and 1.5 to 2.8 percentage points for all recommended dosages of each vaccine. And a one standard deviation increase in the support for Islamist groups is associated with declines in immunisation rates of 1.2 to 2 percentage points for the first dosage of each vaccine, and 1.2 to 1.9 percentage points for all recommended dosages of each vaccine.

Moreover, regression results suggest that a mother's exposure to political violence during the third trimester of pregnancy has a considerable detrimental impact on her child's immunisation rates. It is linked to fear and the difficulty of accessing the health centre. There is some evidence that political violence has a greater impact on girls' vaccination rates than on boys'. In contrast, Islamist support has almost no effect on vaccination as a function of gender. In terms of birth order, there is some evidence that Islamist support has a less negative impact on the vaccination rates of the first child in the family. political violence, on the other hand, has no heterogeneous effect on immunisation as a function of birth order.

The remainder of the chapter is organized as follow. Section (3.2) discusses the related literature, section (3.3) presents the data sources and variable construction, section (3.4) defines the empirical framework, section (3.5) shows the results and discussion, and section (3.6) concludes.

3.2 Literature Review

3.2.1 Effect of political violence on child immunisation

Political violent incidents have not only short-term detrimental effects, but also have long-term effects that influence several generations. Economic and health-related stresses, and displacement are all kinds of conflict-induced victimizations that have a

negative impact on child health (Akresh et al., 2012, Brück et al., 2017, Minoiu and Shemyakina, 2014). Minoiu and Shemyakina (2012) have argued that in conflict affected areas the access to appropriate nutrition and healthcare are especially difficult. Co-administration of vaccinations, location, wealth index, and child age are all linked to the likelihood of receiving immunisations on time. These connections highlight the need of investing in initiatives that educate low-income people about the relevance of vaccination co-administration. Masters et al. (2018) have argued that despite Kenya's high vaccine coverage, timely vaccination was significantly lower, with consequences for the community's immunity and the possible spread of serious diseases among unvaccinated infants. Agadjanian and Prata (2003) have shown in the case of Angola the regional and ethnolinguistic differences in age-adequate immunisation (complete vaccination for age) and malnutrition levels as a result of the civil conflict. They discovered that children born and raised during wartime had lower levels of vaccination and suffered from chronic malnutrition. Garenne et al. (1997) have shown in the case of the Mozambique civil war that the strategy of perpetrators was to close or even destroy health centres and schools. During the civil war, immunisations were suspended in many areas. Cetorelli (2015) has shown in the case of Iraq that polio vaccination coverage tends to be lower in regions where conflict and disruption are prevalent. The loss of lives and property is the most apparent result of armed conflict. Political violence devastates and displaces local health services, potentially reducing families' capacity to vaccinate their children (Naufal et al., 2020).

Norris et al. (2016) have shown a positive relationship between political violence and polio incidence in Afghanistan. Silwal et al. (2006) have shown the effect of armed conflict on immunisation through difficulties in transportation of vaccines, personal safety, and restriction of movement in Nepal. Kadir et al. (2018) have argued that armed conflict damages infrastructures such as schools and health institutions. During attacks, militants target children and health workers. It increases obstacles to getting healthcare because people are afraid of being injured or murdered while seeking treatment. Meiqari et al. (2018) have shown that conflict in Syria destroyed the health system, displacement of health professionals and restricted access to healthcare.

Ekhator-Mobayode and Abebe Asfaw (2019) have argued that conflict affects child health through three channels. First, if economic operations are disrupted, household income/wealth, and hence consumption may suffer. Second, the loss or displacement of family members might limit the amount of time spent on time-consuming child health interventions. Third, militant attacks have the potential to disrupt public healthcare

delivery and limit access to critical preventative and curative services. Mathew et al. (2017) have argued that armed conflict affects immunisation in three ways, either directly or indirectly: knowledge and beliefs about vaccination, attitudinal barriers, and logistic barriers to the use of vaccination services, such as lack of access to health care, vaccination hesitancy, and insufficient information. Grossman et al. (2019) have discussed three possible mechanisms through which political violence may affect the child health outcome. The first is psychological stress, which reduces parental investment in a child's human capital; the second is a disruption in market activities, which causes malnutrition in children; and the third is infrastructure destruction, which may crowd out resources for economic development and health services, resulting in decreased healthcare by allocating more resources in defence against terrorist attacks (Eckstein and Tsiddon, 2004, Filmer et al., 2000, Jain et al., 2015, Llussá and Tavares, 2011).

Cetorelli (2015) has argued that military attacks destroy basic health services. It interrupts the cold chain and reduces vaccine supplies. Perpetrators seriously threatened the health workers, which put the already overburdened health system in danger. Akbulut-Yuksel (2014) has argued that armed conflicts produce large and aggregate shocks that have severe repercussions for a country, including deaths, displacement, damage of physical capital and public infrastructure, and slow economic growth. These conflicts have a particularly negative impact on children due to the age-specific nature of human capital investments. Literature documented the various channels through which conflict affects immunisation, such as through destruction of healthcare facilities and attacks on health workers (Grundy and Biggs, 2019, McGavin et al., 2018, Ngo et al., 2020), lack of public trust in vaccination campaigns (Norris et al., 2016), and displacement of families (Ngo et al., 2020).

Everist (2015) has argued that the conflict regions are difficult to access by health workers for child immunisation and vaccine hesitancy is an important factor of low immunisation rate. Individuals are more hesitant to visit healthcare units because of violent attacks at public places (Filmer et al., 2000). As higher stress exposure is linked to risk aversion (Haushofer and Fehr, 2014), following violent incidents, parents may be hesitant to take their children to basic medical care. Grossman et al. (2019) have argued that to minimize exposure to terrorism; people may prefer to obtain healthcare at smaller clinics closer to their homes, even if they are staffed by less experienced healthcare practitioners, and may skip follow-up care out of fear. Ngo et al. (2020) have argued that the frequency of violent conflicts globally appears to be at an all-time high, with disastrous consequences for vaccine coverage. Children who are exposed to political

violence are disproportionately impacted by vaccine-preventable diseases outbreaks. The insecurity related to the political violence in northwest region of Pakistan lowered the polio immunisation rates (Verma et al., 2018).

3.2.2 Taliban's propaganda against vaccines in Pakistan

The propaganda against anti-polio vaccination began in 2006 in Sawat and Malakand regions by Maulana Fazlullah, the banned organization Tehreek-e-Nafaz-e-Shariat-e-Mohammadi (TNSM) (Roul, 2014). They wanted enforcement of Islamic law and a conservative lifestyle. They were against entertainment, i.e., dance, music, television, and also preached against female education. He criticised polio eradication efforts through his illegal FM radio and Friday prayer sermons at the local mosques. He also stated that the polio eradication effort was part of a *"Jews and Christian's conspiracy to make Muslims infertile and stunt"*.[10] Pakistani Taliban issued an edict against female health workers that *"it is illegal for Muslim women to work for wages"* (Roul, 2014) and allowed sexual violence against female health workers who paid home visits as vaccinators (Din et al., 2012).

After a year in 2007, Maulana Fazlullah joined Tehrik-i-Taliban Pakistan (TTP) by merging TNSM into it and signed a peace deal with the KPK provincial government, which improved the situation in favour of immunisation, girls education, and law and order in the regions.[11] However, the situation worsened due to a prolonged army operation against the Pakistani Taliban in the region. In early 2009, the TTP returned to their initial campaigns against girls education and immunisation. TTP spokesperson Muslim Khan reiterated that *"the TTP opposes because polio vaccine causes infertility"*, and he also said that *"it is un-islamic to take a medicine before the disease"* (Roul, 2014).

In northwest region of Pakistan, the anecdotal evidence suggests that Taliban militants interrupted polio immunisation programs because they suspect the initiatives are being used as a cover for obtaining intelligence about the CIA drone targets. Taliban explain that the CIA launched a fake immunisation program to espionage Osama Bin Laden prior to his assassination (Kennedy, 2017). According to TTP spokesman Ehsanullah Ehsan, *"If they can convince us that these polio drops are Islamic and the spy agencies are not using it to kill our fighters, we would have no objection to any vaccination drive which is in the public interest"* (Roul, 2014).

[10] https://www.dawn.com/news/221282/peshawar-cleric-mounts-drive-against-polio-vaccine

[11] https://www.ctc.usma.edu/the-pakistani-talibans-campaign-against-polio-vaccination/

The CIA funded a fake vaccination program in the KPK province to obtain intelligence on Osama bin Laden (Ahmad et al., 2016, Kennedy, 2017, Rubenstein, 2015, Wassilak et al., 2014). Moulana Fazullah and his group were the first to label anti-polio efforts as a part of Western espionage against Muslims much before the CIA-sponsored immunisation program against hepatitis B, that was believed to have helped track down and kill Bin Ladin at his hideout in Abbottabad, in May 2011. In a judicial trial, Shakeel Afridi, the Pakistani doctor engaged in the fake vaccination scheme, was sentenced to 33 years in jail after being caught for assisting the CIA in the pursuit of Bin Ladin.[12] The CIA actions are likely to have increased the Taliban leadership suspicions about the vaccine programs in Pakistan.

Following the revelation of the fake vaccination program in July 2011 and subsequent admission by US Defense Secretary Leon Panetta about the role of US intelligence in the entire episode, an enraged Taliban vowed to avenge the deception and banned all legitimate vaccination programmes, including polio vaccination. Taliban imposed a ban on polio immunisation in 2012 and 2013 in North and South Waziristan (Ahmad et al., 2015), issuing edicts against it and carrying out attacks (see Declan Walsh, "Taliban Block Vaccinations in Pakistan").[13,14]

According to an edict issued by the Taliban in June 2012, *"polio agents might also be spies, as we have discovered in the case of Dr Shakeel Afridi"* (Kennedy, 2017). The Taliban leader in North Waziristan, Hafiz Gul Bahadur, ordered a ban on polio vaccines.[15] A few days before his call, in the rural Khan Pur Bagga Sher area of Muzaffargarh (located in southwestern Punjab Province), Maulvi Ibrahim Chisti declared the polio campaign *"un-Islamic"* and announced at the local mosque that *"jihad should be carried out against the visiting polio vaccination team"*.[16]

On the other hand, the Taliban provided a fresh reason for opposing the vaccination program this time. According to Gul Bahadur, the vaccination program should be stopped until the US stops drone attacks in Waziristan (Kennedy, 2017).[17] "Until the ongoing attack of the drones in Waziristan is stopped, the ban on polio drops will stay

[12] https://www.dawn.com/news/720716/shakil-afridi-sentenced-to-33-years-in-treason-case

[13] https://www.nytimes.com/2012/06/19/world/asia/taliban-block-vaccinations-in-pakistan.html

[14] https://www.ctc.usma.edu/the-pakistani-talibans-campaign-against-polio-vaccination/

[15] https://tribune.com.pk/story/394714/no-polio-drives-in-n-waziristan-unless-drone-strikes-stop-hafiz-gul-bahadur

[16] https://tribune.com.pk/story/392939/obstacles-for-immunisation-cleric-declares-jihad-against-polio-campaign

[17] https://casebook.icrc.org/case-study/health-care-pakistans-tribal-areas

imposed... Because [we] have nothing to gain from the compassion of such well-wishers [the Americans], who have spent billions of rupees on polio drops in the hopes of eliminating a disease that affects one or two persons in a million". "...Well-wishers [Americans] are carrying out drone operations in Waziristan with the support of their slaves [Pakistanis], resulting in the deaths of hundreds of innocent civilians. The constant (day and night) drones flying have made the inhabitants of Waziristan psychologically sick or unbalanced, and such cases are becoming more common. It is more terrible than having polio".[18] Indeed, these drone strikes were not without collateral damage and resulted in civilian fatalities, providing the Taliban with even more reason to connect the two issues.[19] TTP spokesperson Ehsanullah Ehsan said that "we would have no issue to any vaccination program if they can convince us that these polio drops are Islamic and that the spy agencies are not using them to murder our fighters" (Roul, 2014).[20]

Kakalia and Karrar (2016) argued that polio immunisation was periodically banned in the areas of militant strongholds. State-led anti-polio programs and workers became a target of Taliban militancy. The polio cases have risen in Pakistan. One of the main reasons for its expansion is the Pakistani Taliban's anti-polio propaganda campaign (Roul, 2014), widespread rumours that the polio vaccine was used to sterilise Muslim children (Kennedy, 2020), and fears among militants in northwest region of Pakistan that polio immunisation campaigns were used as a cover for spying activities (Kennedy, 2016, 2017).

It is possible that the conduct of a fake vaccination campaign before the assassination of Osama bin Laden raised fears among Islamist militants throughout the world that vaccination efforts are being used to gather intelligence (Kennedy, 2017). The external military and intelligence operations have created distrust among Pakistanis regarding vaccination campaigns (Shakeel et al., 2019, Wassilak et al., 2014). According to official statistics provided by the Pakistani government, vaccine refusal by families was responsible for more than 40% of the wild polioviruses (WPV) cases reported in 2014 (Shakeel et al., 2019). The main factors which caused polio reemergence were political instability, security risks, lower literacy level, and local religious beliefs (Saqib and Ahmad, 2014).

[18] https://casebook.icrc.org/case-study/health-care-pakistans-tribal-areas
[19] https://tribune.com.pk/story/133842/drone-strikekills-8-in-datta-khel
[20] https://www.dawn.com/news/1081820

3.3 Data and Variables

Our data sources are four primarily: *one* is the Pakistan Social and Living Standard Measurement (PSLM) survey, five waves 2006-07, 2008-09, 2010-11, 2012-13, and 2014-15. *Two*, the data on the vote share of Islamist parties at the electoral constituency level in three general elections held in 2002, 2008, and 2013 are collected from the post-election reports provided by the Election Commission of Pakistan (ECP).[21] *Three*, the data on political violence are collected from BFRS for the period of Jan 2002 to Dec 2009; and *four*, the data on political violence are collected from Armed Conflict Location & Event Data Project (ACLED) for the period from Jan-2010 to Dec-2015.

PSLM is a household survey designed by the Pakistan Bureau of Statistics to provide social and economic indicators at the district level. This survey contains individual-level data on the vaccination status of each child living in the household and data on household level social and economic indicators. For our analyses, we focus on the children born between 2002 to 2015 —from five waves of PSLM— which cover the events of interest. Children are geo-coded at the district level. Therefore, we focus on the 96 districts (see in Appendix Table C12), which are available in all the waves before and after our treatment time in four provinces of Pakistan —Punjab, Sindh, Khyber Pakhtunkhwa (KPK), and Balochistan— and Islamabad (capital territory).

Our baseline sample records the immunisation status of children born between 2002 and 2015 who were up to 59 months old at the time of interview. We construct the outcome variables from survey responses in the vaccination module of the PSLM survey. Our outcome variables are the indicators for the receipt of different doses of vaccines administered per age-adequate at the time of interview. The immunisation of a child comprises a series of vaccinations such as vaccines against poliomyelitis (Polio), Diphtheria-Tetanus-Pertussis (DPT), Hepatitis B (HB), Bacille-Calmette–Guerin (BCG) is given to protect against tuberculosis (TB), and measles. A child is considered fully immunised if all 11 recommended vaccines are administered (three doses of polio, three doses of DPT, three doses of HB, a BCG, and a measles).[22] From 2010 onwards, Pakistan's government have introduced the pentavalent (PENTA) vaccine (Diphtheria, Pertussis, Tetanus, Hemophilus Influenza B and Hepatitis B). We construct our outcome variables for DPT, HB, and measles doses from the pentavalent doses administered in relevant survey waves. Table 3.1 shows the child immunisation schedule in Pakistan.

[21] https://www.ecp.gov.pk/

[22] https://www.pbs.gov.pk/sites/default/files/pslm/publications/PSLM_2014-15_National-Provincial-District_report.pdf

Table 3.1: Child immunisation schedule

Age of Child	Previous Schedule	New Schedule
At birth	BCG; Polio drops	BCG; Polio 0
6 weeks	DPT-I; Polio drops; HB-I	Pentavalent 1 + Polio 1
10 weeks	DPT-II; Polio drops; HB-II	Pentavalent 2 + Polio 2
14 weeks	DPT-III; Polio drops; HB-III	Pentavalent 3 + Polio 3
9 months	anti-measles vaccine	Measles 1
12-15 months		Measles 2

Source: PSLM 2014-2015 report

The PSLM survey records vaccination status with one of the options: (1) yes on the card (as verified on immunisation card by the enumerator); (2) yes (memory), based on parents recall; (3) no; (4) yes (through the campaign). In order to minimize the scope of misreporting, we only rely upon on-card vaccination status (Martinez-Bravo and Stegmann, 2022, Sheikh et al., 2011). Our outcome variable is an indicator variable that takes value 1 if a child received the vaccine and verified on immunisation card by enumerator, and zero otherwise. We consider a child immunised status based on the number of vaccines administered per age-adequate at the time of interview. For example, a child is two months old at the time of interview and has been administered four vaccines (BCG, Polio-I, DPT-I, HB-I) considered fully immunised.

We use data on control variables from the PSLM survey. These controls are: *mother's education*; *education of household head* these are categorical variables which show no education, incomplete primary, complete primary, incomplete secondary, complete secondary, and higher education; *mother's age*; *household head's age* these are a five years age brackets variable; *income of house* a house level income in the last year at the time of interview; *distance to the health institutions* in terms of travelling time from interviewee's house to the health facility; *lady health visits* is an indicator variable takes value 1 if lady health visited the house in last month at the time of the interview, and a *dummy for rural region* takes value one for the rural region in the district.

We collected electoral data at the provincial electoral constituency level (577 electoral constituencies) from three general elections held in 2002, 2008, and 2013, to construct the support for Islamist groups. The data provide the vote share at the electoral constituency level in each election, smaller than districts, names of all the contesting candidates, their respective political party affiliation, number of votes obtained by each candidate, the total number of valid votes, and number of registered voters. In addition, we locate the electoral constituencies within the districts by merging with the shape-files

of official delimitation of provincial constituency boundaries in 2002. These are the same constituencies in the 2008 and 2013 elections.[23]

Our measure of support for Islamist groups is the vote share of political parties whose names appeal to religious attention —Islamist Parties— we found 35 parties in three general elections held in 2002, 2008 and 2013. The names of these parties are given in the appendix Table C13. Since electoral constituencies are smaller than districts, we construct support for Islamist groups at the district level. We combine the vote-share of Islamist parties at the electoral constituency level and aggregate at the district level to merge with our main dataset —PSLM. Figure 3.4 represents the geographic distribution of district-level vote share of Islamist parties in each election.

For this chapter, we also collected yearly data on health facilities available at the district level from reports on Development Statistics provided by provincial bureau of statistics.[24,25] The data are not available for all the districts from 2002 to 2015, except Punjab province. For Sindh, KPK, and Balochistan province, data are available from 2007, 2009, and 2014, respectively. Therefore, we collected data on the number of dispensaries, rural health centres, basic health units, mother and child healthcare centres, and TB clinics at the district level for Punjab and Sindh provinces. We construct a variable *"health centres per 1000 people"* as a combination of all these centres available in a district in a specific year and standardised by population estimates.[26] The population data are collected from the population censuses of Pakistan.[27]

We collected data on political violence from BFRS and ACLED to account for the potential impact of political violence on vaccination. These datasets collect the dates, actors, event type, location, and fatalities of all reported political violence and protest events. These datasets record the event location at different administrative levels, i.e., country, province, divisional, district, tehsil (taluka), and the exact location of the event. The event types are; battles, remote violence, protest, riots, violence against civilians, attack on the state, terrorism, political violence, strategic development, and others. For this chapter, we construct the variable *violence* as a combination of battles, remote violence, violence against civilians, attack on the state, terrorism, political violence, and

[23] https://data.humdata.org/dataset/provincial-regional-constituency-boundaries-pakistan

[24] http://www.bos.gop.pk/developmentstat

[25] http://sapphirecs.net/clients/sbos/category/publications/

[26] We use data on health centres as mentioned on the reporting date in the reports of development statistics e.g, in the report of 2004 it is mentioned on data tables "As on 01-01-2004", we used this data for the children who born in year 2003, and in the report of 2017 it is mentioned on data tables "As on 01-01-2016", we used this data for the children who born in year 2015, and like-wise. Data on Health units for Islamabad are collected from "Pakistan Statistical year book, 2010 and 2019".

[27] https://www.pbs.gov.pk/content/population-census

others. To merge with the household data, we aggregate the data on *political violence* at the district level monthly and yearly. One of the specifications aims to explore the impact of fear of political violence on immunisation by measuring the exposure of political violence of mothers in the last trimester of pregnancy. To capture the variation in population density, we construct *violence per 1000 people* at the district level. Figure 3.2 shows the political violence events and number of fatalities due to political violence in Pakistan over the time from 2000 to 2016.

Figure 3.2: Political violence and fatalities

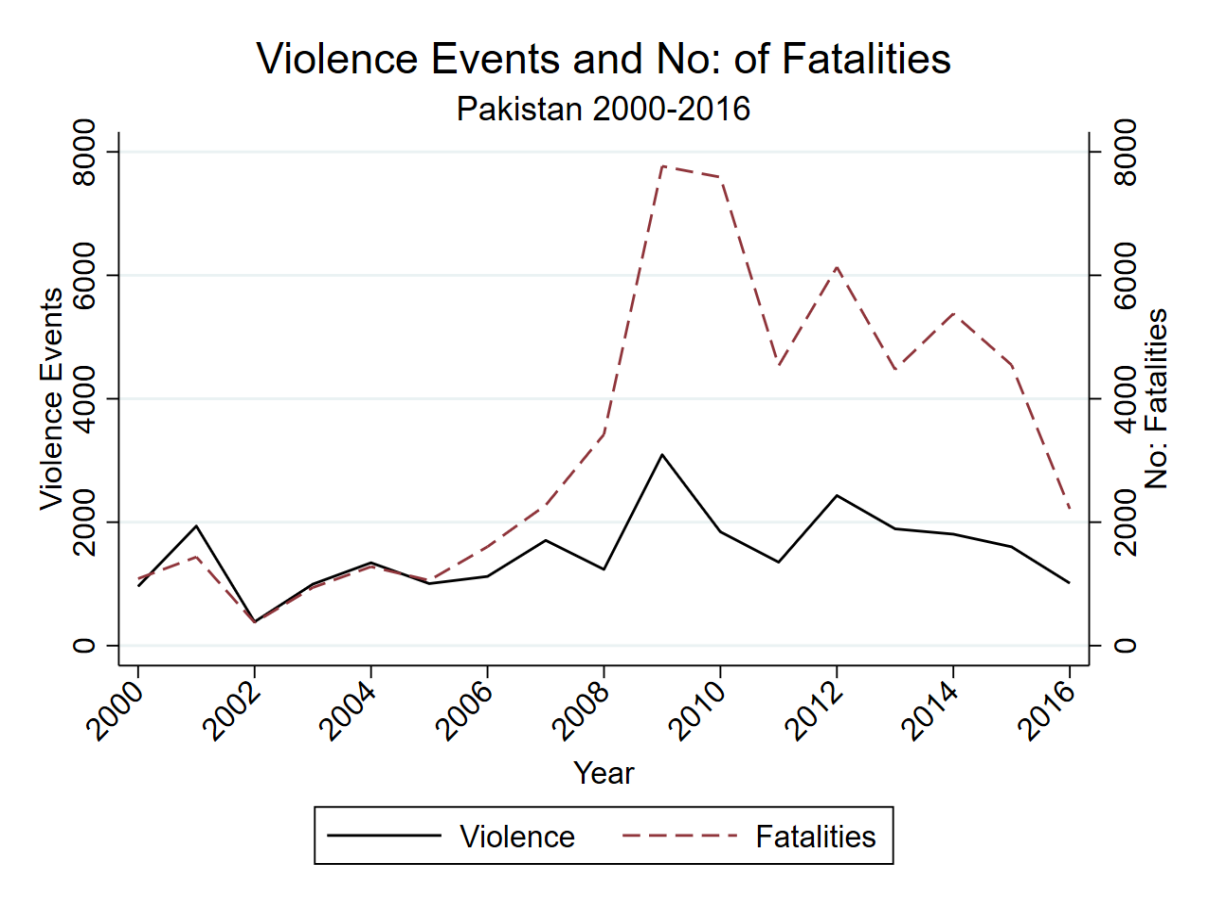


Figure 3.3 maps the variables of interest at the district-level administrative boundaries. It shows the average vote share of Islamist parties in three general elections held in 2002, 2008, and 2013; political violence events per 1000 people from 2001 to 2015; full immunisation and partial immunisation of children born between 2002 and 2015. These maps show the lower immunisation rates in the district with higher Islamist support and higher political violence. Figure 3.4 shows the vote share of Islamist parties in each election.

The descriptive statistics in Table 3.2 show that the mean number of children who had the first dose of a vaccine against polio is 0.340, the first dose of a vaccine against

DPT is 0.365, the first dose of a vaccine against HB is 0.347, a vaccine against TB is 0.327, and a vaccine against measles is 0.327. The mean number of children who had the first dose of each vaccine is 0.310, and the mean number of children who had all doses of each vaccine or were fully immunised is 0.295.

Figure 3.3: Vote share of Islamist parties, political violence and vaccines take-up

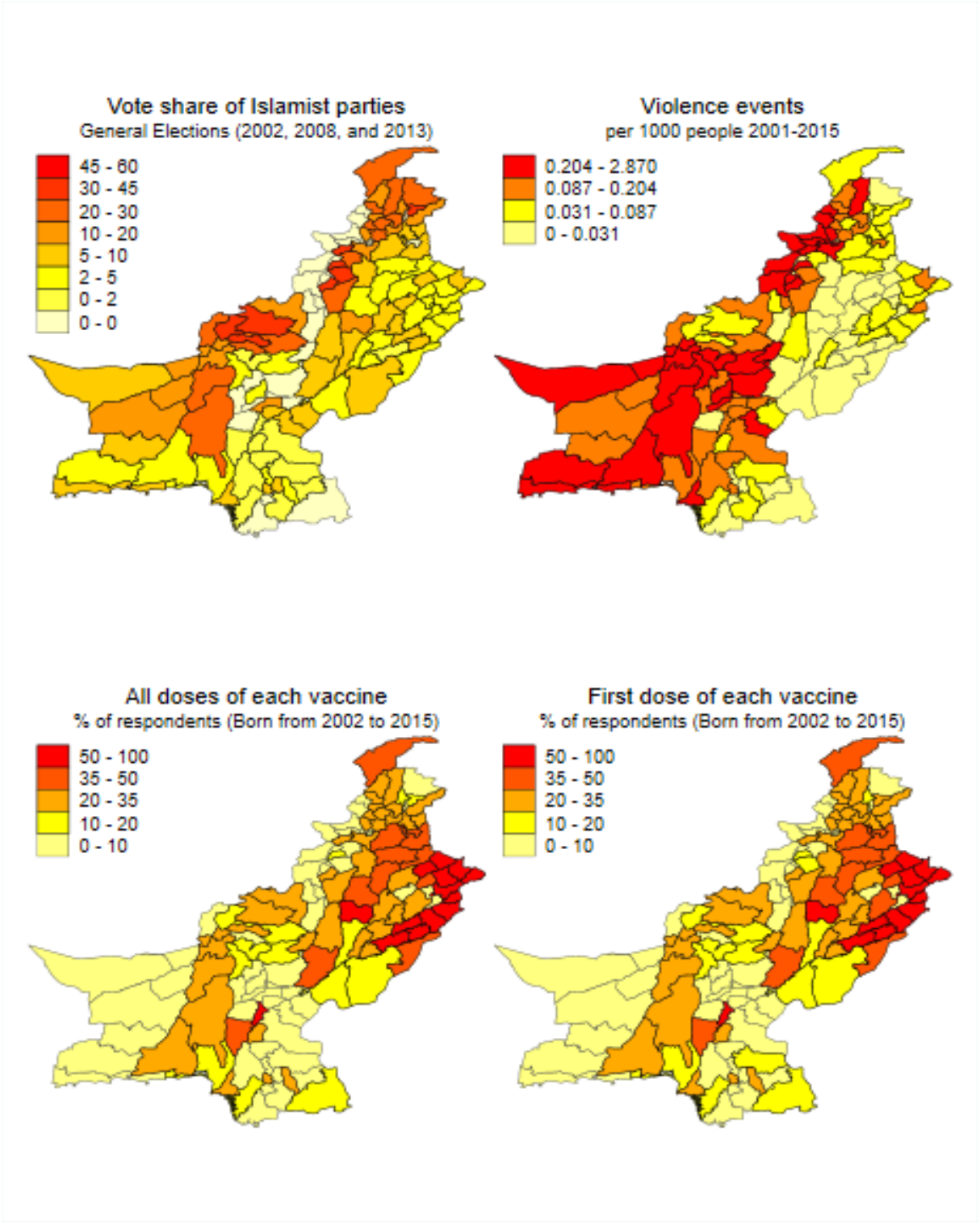
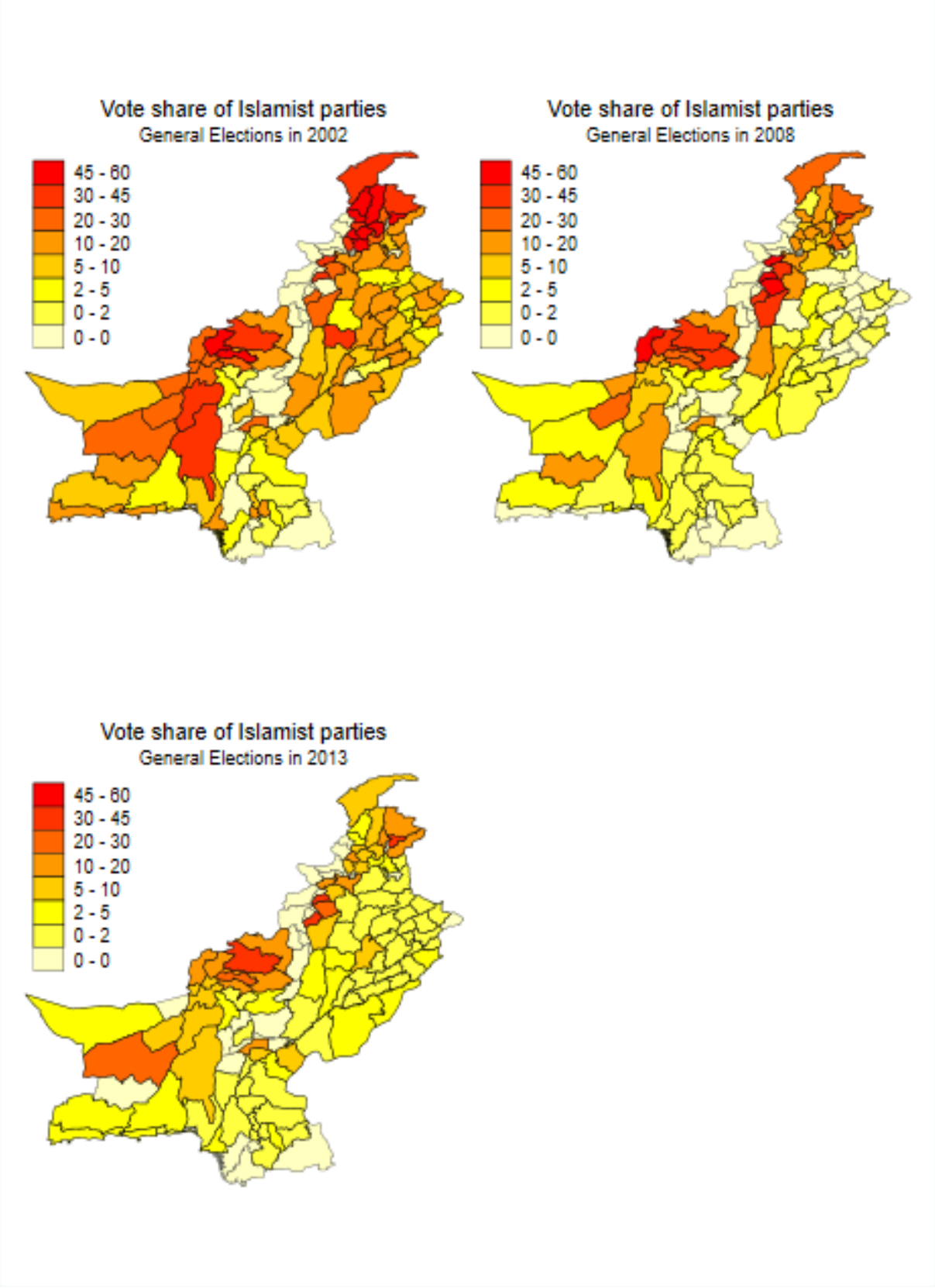


Figure 3.4: Vote share of Islamist parties in general elections at district-level



The legend of the figure represents the vote share of Islamist parties in percentage.

Table 3.2: Descriptive Statistics

	Obs.	Mean	SD	Min.	Max.
Dependent variables					
Polio first dose	251417	0.340	0.47	0	1
DPT first dose	247086	0.365	0.48	0	1
HB first dose	247084	0.347	0.48	0	1
BCG	251415	0.371	0.48	0	1
Measles	221682	0.327	0.47	0	1
First dose of each vaccine	251415	0.310	0.46	0	1
Polio all doses	239913	0.321	0.47	0	1
DPT all doses	239913	0.344	0.48	0	1
HB all doses	239912	0.328	0.47	0	1
All doses of each vaccine	251415	0.295	0.46	0	1
Independent variables / controls					
Children's year of birth	270964	2007.75	3.22	2002	2015
Dummy for Post July 2011	270964	0.193	0.39	0	1
Vote share of Islamist parties in SD	270964	0.793	0.99	0	4.73
Vote share of Islamist parties in %	270964	11.086	13.92	0	54.66
Violence events per 1000 people in SD	270964	0.243	0.59	0	10.75
Violence events per 1000 people	270964	0.009	0.03	0	0.75
Mother's education in categories	270964	0.909	1.44	0	5
Mother's age bracket	270964	3.636	1.35	1	7
Household head's education in categories	270964	1.569	1.62	0	5
Household head's age bracket	270964	5.872	2.45	1	10
Log of income of House	270964	11.319	2.31	0	17.40
Travelling time to Health instit: in categories	270964	1.076	1.22	0	5
Lady health visits	270935	0.488	0.50	0	1
Dummy for rural region	270964	0.581	0.49	0	1
Health centres per 1000 people	153238	0.051	0.02	0.01	0.19

Table 3.3: Correlation matrix

	Isl_{SD}	$Viol_{1k_{SD}}$	M_{edu}	M_{age}	HH_{edu}	HH_{age}	Income	Dist: HI	LHV
$Viol_{1k_{SD}}$	0.034								
M_{edu}	-0.143	-0.070							
M_{age}	-0.016	-0.014	-0.102						
HH_{edu}	-0.062	-0.021	0.439	-0.002					
HH_{age}	0.088	-0.004	0.088	0.088	-0.182				
Income	-0.054	-0.005	0.152	-0.046	0.156	0.147			
Dist: HI	0.111	0.075	-0.284	0.012	-0.192	-0.054	-0.137		
LHV	-0.166	-0.123	0.071	-0.003	0.059	-0.004	0.137	-0.143	
Rural	0.075	0.005	-0.220	0.010	-0.137	-0.019	-0.217	0.258	-0.015

[27]The vaccination status is verified on the immunisation card. Partially exposed children are excluded from the sample.

3.4 Empirical framework

This chapter examines the effect of political violence and information disclosure about fake vaccination campaign on child immunisation in Pakistan. To estimate the relationship between political violence and children's vaccination status, we use the Ordinary Least Square (OLS) regression, as shown in eq. (3.1) below:

$$Y_{ijtm} = \alpha_t + \gamma_j + \beta politicalviolence_j + \delta X_i + \varepsilon_{ijtm} \tag{3.1}$$

whereas Y_{ijtm} is a dummy variable that captures the vaccination status of child i, living in district j and born in month-year t, and interviewed at age m; α_t are the year of birth fixed effects, which control for all the factors that are common to all the children who born in the same year such as improvement in health system over time, or nation-wide economic growth; γ_j are the district fixed effects, which control for time-invariant factors across the districts such as climate, religiosity, or geography; $politicalviolence_j$ is the number of political violence events per 1000 people in $district_j$ in $year_t$, this is our main variable of interest. We define this measure in terms of standard deviations to facilitate the interpretations of the magnitudes. X_i represents the set of controls: mother's education, mother's age, household head's education, household head's age, household income, distance (travelling time) to the health facility, visits of lady health worker, and a dummy for rural regions; and ε_{ijtm} is the error term clustered at the birth year and district level. The presence of rich controls enhances our confidence that the remaining variation covered by our primary variable of interest $politicalviolence_j$ accurately reflects the effect on child immunisation. We also explore whether exposure to political violence while pregnant dissuades mothers from taking their newborns to receive critical vaccination regimes. To analyse the effect of a mother's exposure to political violence during pregnancy on child immunisation, we construct a window of one month, two months, and three months of political violence exposure in the last trimester of pregnancy. Then, we run the specification as in eq.(3.1).

Talibans were spreading news and issuing edicts against vaccines, as they had suspicious of espionage by the CIA through the vaccination drive. The targeted man, Osama-bin-Ladin, was assassinated on 02-May-2011. After 20 days, Dr Shakeel Afridi —the lead doctor in vaccination drive— was allegedly arrested for finding Bin Laden.[28] In July 2011, *The Guardian newspaper* and *The New York Times Magazine* disclosed

[28] https://www.bbc.co.uk/news/world-asia-49960979#:~:text=Dr%20Afridi%20was%20taken%20into,late%20forties%20at%20the%20time.

the CIA's information about a fake vaccination drive to obtain the DNA from Bin-Laden's family.[29, 30] We consider the children born before May 2011 as non-exposed to this information disclosure, children born between May and July 2011 as partially exposed, and children born after July 2011 as fully exposed to this information disclosure.

To analyse the effect of information disclosure about the fake vaccination campaign on child immunisation in Pakistan, we follow the study by Martinez-Bravo and Stegmann (2022) in estimating the baseline difference-in-differences (DiD) specification with birth year and district-fixed effects. We eliminate partially exposed children from the sample to offer a clear comparison, and the equation is written as below:

$$Y_{ijtm} = \psi_t + \theta_j + \lambda\, post_t Islamistsupport_j + \eta X_i + \epsilon_{ijtm} \tag{3.2}$$

whereas Y_{ijtm} is a dummy variable that captures the vaccination status of child i, living in district j and born in month-year t, and interviewed at age m; ψ_t are the year of birth fixed effects, which control for all the factors that are common to all the children who born in the same year such as improvement in the health system over time, or nation-wide economic growth; θ_j are the district fixed effects, which control for time-invariant factors across the districts such as climate, religiosity, or geography; $post_t$ takes value 1 for fully exposed children to the information disclosure about fake vaccination drive —born after July 2011— and 0 otherwise —born before May 2011—; $Islamistsupport_j$ is the district-specific measure of treatment intensity. It is measured as a vote share of Islamist parties in the 2002, 2008, and 2013 elections. One may say that support for Islamist groups might have endogenously reacted to the information disclosure about the fake vaccine campaign. Hence, as a robustness test, we have run the regressions on Islamist support only in a general election that was held in 2002. We define this measure as standard deviations of the vote share of Islamist parties to facilitate the interpretation of the coefficient estimates. X_i represents the set of controls: political violence, mother's education, mother's age, household head's education, household head's age, household income, distance (travelling time) to the health facility, visits of lady health worker, and a dummy for rural regions; and ϵ_{ijtm} is the error term clustered at birth-year-district level. The presence of rich controls increases our confidence that the remaining variation represented by our interaction term $post_t Islamistsupport_j$ accurately captures the effect of information disclosure on child immunisation. Our fundamental hypothesis is that, in

[29] https://www.theguardian.com/world/2011/jul/11/cia-fake-vaccinations-osama-bin-laden-dna

[30] https://slate.com/human-interest/2011/07/the-cia-s-fake-vaccination-program-in-pakistan-reveals-the-moral-bankruptcy-of-american-spooks.html

the absence of information about the fake vaccination drive, the cross-cohort evolution of vaccination rates in districts with different intensities of Islamist support would have been similar.

Heterogenous Effects

By Gender: We examine whether our baseline results are heterogeneous due to the child's gender. As the edicts or statements in propaganda against vaccines by the TTP were; *"Jews and Christian's conspiracy to make Muslims infertile and stunt"*,[31] TTP spokesperson Muslim Khan reiterated that *"the TTP opposes because polio vaccine causes infertility"*, in particular for girls (Martinez-Bravo and Stegmann, 2022, Roul, 2014). Therefore, we expect that *political violence* and $Islamistsupport$ would have declined immunisation rates more significantly for girls. We empirically investigated this effect of gender by adding an interaction term $politicalviolence_j \times female$, in Eq (3.1); and by adding triple interaction term $post_t \times Islamistsupport_j \times female$, in Eq (3.2), where $female$ is a dummy variable takes value 1 if the child is a girl, and otherwise 0.

By Birth-order: We examine whether our baseline results are heterogeneous due to the child's birth order. Numerous studies have shown that first-born children have higher cognitive and non-cognitive skills, receive more education, and earn more than their later-born siblings. There is also a link between birth order and parental behaviour, as first-born children receive more attention and cognitive stimulation in early childhood. Differences in parental behaviour, not biological differences, appear to be driving the negative link between birth order and human capital outcomes (Black et al., 2018, Esposito et al., 2020, Havari and Savegnago, 2022, Hotz and Pantano, 2015, Kristensen and Bjerkedal, 2007, Lehmann et al., 2018, Pavan, 2016, Pruckner et al., 2021, Stanton et al., 2014). Pruckner et al. (2021) have found substantial differences in parental health investment based on birth order. Children born earlier are more likely to undergo preventative medical exams, have higher rates of vaccinations, and visit the health facility more frequently. Therefore, we expect that *political violence* and $Islamist_{support}$ would have declined in immunisation rates lesser for a first-born child in the family. We have empirically investigated this effect by adding an interaction term $politicalviolence_j \times firstChild$, in Eq (3.1); and by adding triple interaction term $post_t \times Islamistsupport_j \times firstChild$, in Eq.(3.2), where $firstChild$ is a dummy variable takes value 1 if child is a first-born in a family, and otherwise 0.

[31] https://www.dawn.com/news/221282/peshawar-cleric-mounts-drive-against-polio-vaccine

3.5 Results and Discussion

3.5.1 Base line results

3.5.1.1 Effect of political violence on immunisation

The results are represented based on OLS regression as in eq (3.1). All columns present the $\hat{\beta}$ coefficients when the dependent variables are the indicators of whether a child as per age-eligibility has received the recommended vaccines. We expect $\hat{\beta}$ with a negative sign in eq (3.1), as political violence reduces immunisation through various channels. In Table 3.4 all the estimates are with negative sign and statistically significant at 1% and 5% levels: one standard deviation increase in the political violence is associated with the decline in vaccination rates of 1.6 percentage points for the vaccine against polio, 2.8 percentage points for the DPT, 2.9 percentage points for the HB, 2.7 percentage points for the BCG, and 2.8 percentage points for the measles. Column (6) shows that for one standard deviation increase in political violence, children are 1.6 percentage points less likely to have received the first dose of all five vaccines (Polio, DPT, HB, BCG, and Measles). These declines in vaccines take-ups are significant in magnitudes.

The OLS regression estimates in Table 3.5 show the effect of political violence on receiving all dosages of each vaccine. All the estimates are negative and statistically significant at 1% and 5% levels: one standard deviation increase in the political violence is associated with the decline in receiving of recommended dosages of each vaccine rates of 1.5 percentage points for the vaccine against polio, 2.7 percentage points for the DPT, and BCG; and 2.8 percentage points for the HB, and measles. Column (6) shows that for one standard deviation increase in political violence, children are 1.6 percentage points less likely to have received the all recommended dosages of each vaccine, i.e., 11 vaccines (three doses of each Polio, DPT,and HB; and a BCG, and a Measles). These declines in vaccines take-ups are significant in magnitudes. Our findings are in line with the literature, which have found negative effects of political violence on child immunisation (see, Ngo et al. (2020), Cetorelli (2015) and Grundy and Biggs (2019)).

Table 3.4: Effect of political violence on vaccines take-up: First dose of each vaccine

	Polio1	DPT1	HB1	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Violence	-0.016**	-0.028***	-0.029***	-0.027***	-0.028***	-0.016**
	(0.007)	(0.008)	(0.008)	(0.008)	(0.009)	(0.007)
Mother's education	0.020***	0.021***	0.021***	0.021***	0.021***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.013***	-0.013***	-0.011***	-0.014***	-0.008***	-0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.010***	0.013***	0.012***	0.013***	0.012***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.004***	0.005***	0.004***	0.005***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.004***	-0.004***	-0.003***	-0.004***	-0.001	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.015***	-0.019***	-0.018***	-0.019***	-0.017***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	0.001	0.007	0.012**	0.006	0.015***	0.008
	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)
Dummy for rural region	-0.004	-0.005	-0.002	-0.004	-0.013***	-0.003
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	258193	253857	253855	258191	228459	258191
R^2	0.204	0.215	0.215	0.215	0.212	0.191
Clusters	1323	1298	1298	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child. The sample includes children born between 2002 and 2015. The dependent variables are indicator variables that take value 1 if the first dose of each vaccine is received, 0 otherwise. The main variable of interest is that political violence per 1000 people is defined in standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

[31] In regression results tables, Violence stands for Political violence

Table 3.5: Effect of political violence on vaccines take-up: All doses of each vaccine

	Polio	DPT	HB	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Violence	-0.015**	-0.027***	-0.028***	-0.027***	-0.028***	-0.016**
	(0.007)	(0.008)	(0.008)	(0.008)	(0.009)	(0.007)
Mother's education	0.021***	0.021***	0.021***	0.021***	0.021***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.010***	-0.009***	-0.007***	-0.014***	-0.008***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.010***	0.012***	0.011***	0.013***	0.012***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.004***	0.004***	0.004***	0.005***	0.004***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.002***	-0.002***	-0.001	-0.004***	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.014***	-0.017***	-0.017***	-0.019***	-0.017***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	0.006	0.013**	0.018***	0.006	0.015***	0.013**
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.005)
Dummy for rural region	-0.006	-0.010**	-0.007	-0.004	-0.013***	-0.006
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	246686	246686	246685	258191	228459	258191
R^2	0.202	0.210	0.208	0.215	0.212	0.184
Clusters	1258	1258	1258	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child. The sample includes children born between 2002 and 2015. The dependent variables are indicator variables that take value 1 if the child has received all dosages of each vaccine, 0 otherwise. The main variable of interest is that political violence per 1000 people is defined in standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Literature has documented various mechanisms through which political violence affects child health, one of them is the fear of political violence. In developing economies, a substantial proportion of the population lives in rural areas; they may have to travel further for health facilities (Filmer et al., 2000). The violent events were unanticipated. Unexpected violent episodes enhance feelings of insecurity, uncertainty, increased stress and depression, all of which are associated with risk aversion behaviour (Brown et al., 2019, Haushofer and Fehr, 2014, He and Hong, 2015, Hoang and Le, 2021, Jakiela and Ozier, 2019, Leahy et al., 2012). Therefore, parents may be hesitant to take their children to receive essential medical treatments after a violent incident. To reduce the exposure to political violence, individuals may seek health treatment in smaller clinics run by less experienced healthcare personnel closer to their homes. They may delay follow-up healthcare out of fear. Finally, individuals may be less likely to obtain primary healthcare, such as vaccinations against preventable diseases, implying the quality and quantity of treatment received.

Exploring the effect of political violence on child immunisation, one possible mechanism is stress and anxiety, with deteriorating security making it more costly for parents to risk taking their young children to local health facilities. Pakistan has a sparse healthcare infrastructure, and in some instances, parents may have to travel substantial distances to reach the nearest medical facility (Grossman et al., 2019).

We want to see if being exposed to political violence while pregnant makes mothers are less likely to take their babies to get critical vaccinations. Given the immunisation schedule by WHO, as in Table 3.1, the vaccines against Polio and TB are recommended to be administered soon after birth, and the first dose of DPT and HB at the age of 6 weeks. Therefore, we construct windows of political violence exposure of 1 month, 2 months, and 3 months before the child's birth to measure the mother's exposure to political violence during pregnancy (Grossman et al., 2019).

Table 3.6 shows the results of the effect of mother's political violence exposure in a relevant window on the child's vaccines take-up. All the estimates are with a negative sign and statistically significant. The coefficient estimates show that a 1 standard deviation increase in violent events before birth leads to a decrease in vaccination rates between 0.05 and 0.08 percentage points for BCG, and between 0.03 and 0.06 percentage points for polio. In Table 3.7 the coefficient estimates show that a 1 standard deviation increase in violent events before birth leads to a decrease in vaccination rates between 0.05 and 0.08 percentage points for DPT and between 0.06 and 0.09 percentage points for HB. The effect of political violence exposure before the birth of a child is lesser on polio vaccine

take-up because polio vaccines are administered at the doorstep of the household. Our findings are in line with the study by Grossman et al. (2019).

Table 3.6: Effect of political violence exposure before birth on vaccines take-up: First dose of each vaccine

	BCG			**Polio**		
	1 month	2 months	3 months	1 month	2 months	3 months
Violence exposure in relevant	-0.008**	-0.006***	-0.005***	-0.006*	-0.004*	-0.003*
window before birth	(0.004)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
Mother's education	0.021***	0.021***	0.021***	0.020***	0.020***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.014***	-0.014***	-0.014***	-0.013***	-0.013***	-0.013***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.013***	0.013***	0.013***	0.011***	0.011***	0.011***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.005***	0.005***	0.005***	0.004***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.004***	-0.004***	-0.004***	-0.005***	-0.005***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.019***	-0.019***	-0.019***	-0.015***	-0.015***	-0.015***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	0.006	0.006	0.006	0.001	0.001	0.001
	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)
Dummy for rural region	-0.004	-0.004	-0.004	-0.004	-0.004	-0.004
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	258191	258191	258191	258193	258193	258193
R^2	0.215	0.215	0.215	0.204	0.204	0.204
Clusters	1323	1323	1323	1323	1323	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child. The sample includes children born between 2002 and 2015. The dependent variables are indicator variables that take value 1 if the child has received a BCG vaccine and first dose of polio vaccine, 0 otherwise. The main variable of interest is that political violence per 1000 people is defined in terms of standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 3.7: Effect of political violence exposure before birth on vaccines take-up: First dose of each vaccine

	DPT			**HB**		
	1 month	2 months	3 months	1 month	2 months	3 months
Violence exposure in relevant	-0.008**	-0.006***	-0.005***	-0.009**	-0.007***	-0.006***
window before birth	(0.004)	(0.002)	(0.002)	(0.004)	(0.002)	(0.002)
Mother's education	0.021***	0.021***	0.021***	0.021***	0.021***	0.021***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.013***	-0.013***	-0.013***	-0.010***	-0.010***	-0.011***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.013***	0.013***	0.013***	0.012***	0.012***	0.012***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.005***	0.005***	0.005***	0.004***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.004***	-0.004***	-0.004***	-0.003***	-0.003***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.019***	-0.019***	-0.019***	-0.018***	-0.018***	-0.018***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	0.008	0.008	0.008	0.012**	0.012**	0.012**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Dummy for rural region	-0.005	-0.005	-0.005	-0.002	-0.002	-0.002
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	253857	253857	253857	253855	253855	253855
R^2	0.215	0.215	0.215	0.215	0.215	0.215
Clusters	1298	1298	1298	1298	1298	1298

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child. The sample includes children born between 2002 and 2015. The dependent variables are indicator variables that take value 1 if the child has received the first dose of DPT and HB vaccines, 0 otherwise. The main variable of interest is that political violence per 1000 people is defined in terms of standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

3.5.1.2 Effect of information disclosure about fake vaccine campaign on immunisation

The estimation results are based on the DiD strategy as in eq (3.2). For this strategy, we exclude the partially exposed cohorts —children born between May and July 2011— from our sample. All columns show the $\hat{\lambda}$ coefficients when the dependent variables are the indicators of whether a child per age-eligibility has received the recommended vaccines. We expect $\hat{\lambda}$ with a negative sign in Eq (3.2), as the exposure to the information disclosure about the fake vaccination campaign would have reduced the trust in vaccines, thus declining vaccination rates. Results in Table 3.8 show the effect of information disclosure about the fake vaccination campaign on receiving recommended first dosage of each vaccine. In all the columns estimates are negative and statistically significant. A 1 standard deviation increase in the support for Islamist groups is associated with the decline in vaccination rates of 2.0 percentage points for the vaccine against polio, 1.7 percentage points for the DPT, 1.9 percentage points for the HB, 1.5 percentage points for the BCG, and 1.2 percentage points for the measles. Column (6) shows that for a 1 standard deviation increase in the support for Islamist groups, children are 1.8 percentage points less likely to have received the first dose of all five vaccines (Polio, DPT, HB, BCG, and Measles). These declines in vaccines take-ups are large in magnitude.

Table 3.9 shows the effect of information disclosure about the fake vaccination campaign on receiving all recommended dosages of each vaccine. All the coefficient estimates are negative and statistically significant. A 1 standard deviation increase in the support for Islamist groups is associated with the decline in vaccination rates of 1.9 percentage points for all the recommended dosages of a vaccine against polio, 1.4 percentage points for the DPT, and 1.6 percentage points for the HB. Column (6) shows that for a 1 standard deviation increase in the support for Islamist groups, children are 1.5 percentage points less likely to have received all dosages of each vaccine, i.e., 11 vaccines (three doses of each Polio, DPT, and HB; and a BCG, and a Measles). These declines in vaccines take-ups are large in magnitude. Our findings are in line the study by Martinez-Bravo and Stegmann (2022). We have also run the regressions by controlling the supply side of health services —the number of health centres per 1000 people— our results are similar to the main findings, see in Appendix Table C1. One may say about the endogeneity of support for Islamist groups might have caused due to the information disclosure of phoney vaccine campaign. Hence, as a robustness test, we have run the regressions on Islamist support only in a general election that was held in 2002. Results

support the main conclusions, see in appendix Table C2 and Table C3.

Table 3.8: Effect of Islamist support on vaccines take-up: First dose of each vaccine

	Polio1	DPT1	HB1	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Post×Islamist$_{support}$	-0.020***	-0.017***	-0.019***	-0.015**	-0.012*	-0.018***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)
Violence	-0.016**	-0.026***	-0.028***	-0.026***	-0.026***	-0.016**
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)
Mother's education	0.020***	0.021***	0.021***	0.021***	0.021***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.013***	-0.013***	-0.011***	-0.014***	-0.008***	-0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.011***	0.013***	0.012***	0.013***	0.012***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.004***	0.005***	0.004***	0.005***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.005***	-0.004***	-0.003***	-0.004***	-0.001	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.015***	-0.019***	-0.018***	-0.019***	-0.017***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	-0.000	0.006	0.010*	0.005	0.013**	0.007
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)
Dummy for rural region	-0.007	-0.007	-0.004	-0.006	-0.016***	-0.005
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	251388	247057	247055	251386	221659	251386
R^2	0.202	0.213	0.213	0.212	0.210	0.189
Clusters	1323	1298	1298	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child. The sample includes children born between 2002 and 2015. We exclude children born between May and July 2011. The dependent variables are indicator variables that take value 1 if the child has received the first dose of each vaccine, 0 otherwise. The *Post* is an indicator take value 1 if child born after July 2011, 0 otherwise. The political violence per 1000 people is defined interms of standard deviations. The main variable of interest, our proxy of support for Islamist groups, is defined in terms of standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 3.9: Effect of Islamist support on vaccines take-up: All doses of each vaccine

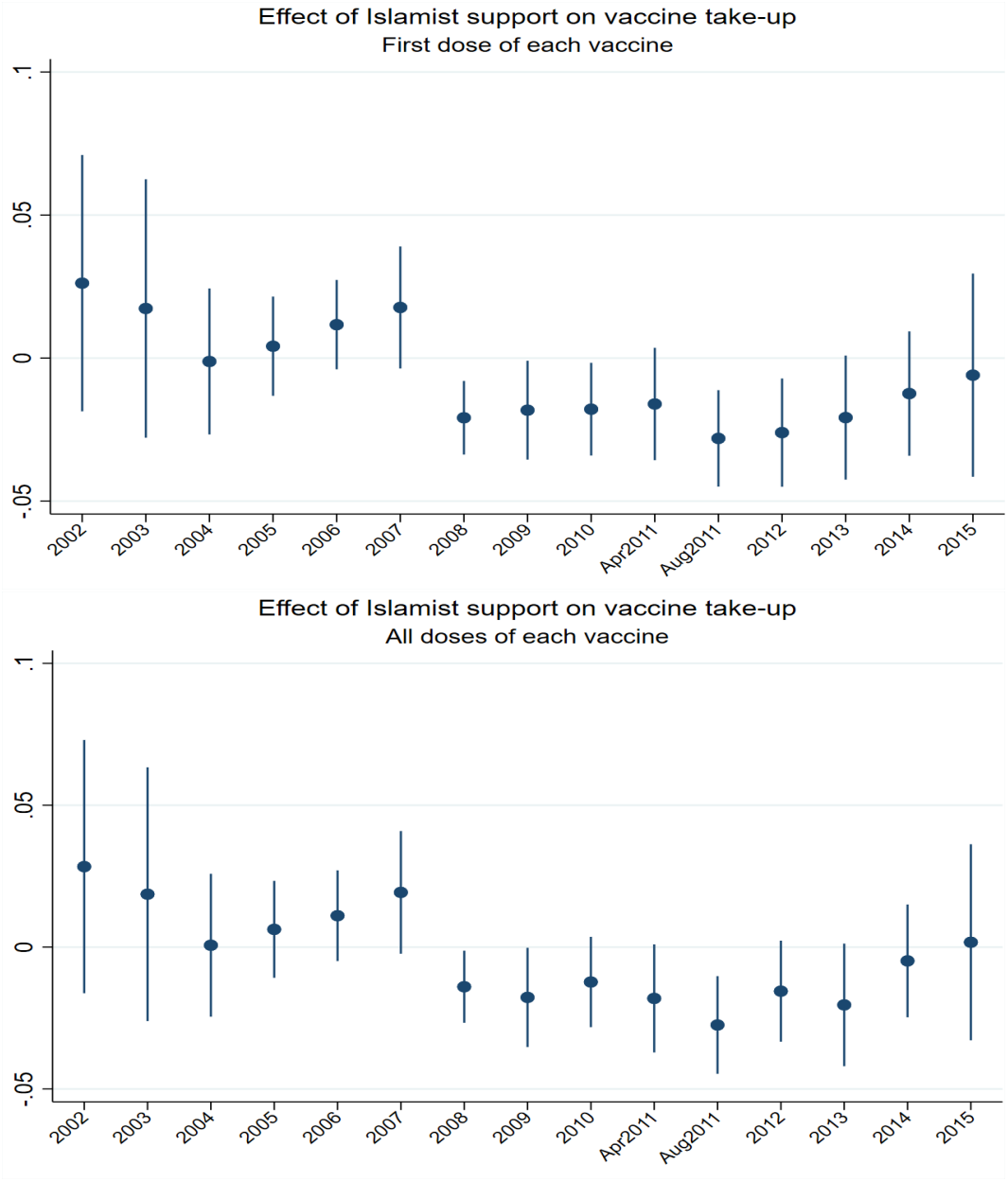
	Polio	DPT	HB	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Post×Islamist$_{support}$	-0.019***	-0.014**	-0.016***	-0.015**	-0.012*	-0.015***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.005)
Violence	-0.014*	-0.025***	-0.026***	-0.026***	-0.026***	-0.015**
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)
Mother's education	0.021***	0.021***	0.021***	0.021***	0.021***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.010***	-0.009***	-0.007***	-0.014***	-0.008***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.010***	0.012***	0.012***	0.013***	0.012***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.004***	0.004***	0.004***	0.005***	0.004***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.002***	-0.002***	-0.001	-0.004***	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.014***	-0.017***	-0.016***	-0.019***	-0.017***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	0.005	0.011**	0.016***	0.005	0.013**	0.012**
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.005)
Dummy for rural region	-0.009**	-0.012***	-0.009**	-0.006	-0.016***	-0.009**
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	239886	239886	239885	251386	221659	251386
R^2	0.200	0.208	0.206	0.212	0.210	0.182
Clusters	1258	1258	1258	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child. The sample includes children born between 2002 and 2015. We exclude children born between May and July 2011. The dependent variables are indicator variables that take value 1 if the child has received all recommended dosages of each vaccine, 0 otherwise. The *Post* is an indicator take value 1 if the child born after July 2011, 0 otherwise. The political violence per 1000 people is defined in terms of standard deviations. The main variable of interest, our proxy of support for Islamist groups, is defined in terms of standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

3.5.1.3 Event-study setup

We also apply the event study set-up to look into the effects of Islamist support on vaccines take-up as shown in the Figure 3.5 below. As it is mentioned earlier that we have constructed the measure of Islamist support based on the vote share of Islamic parties. There were three general elections held during our study period, i.e, 2002, 2008 and 2013. As the partially exposed cohort —May to July 2011— is excluded, thus Apr2011 and Aug2011 are mentioned in the following figures. The information disclosure in July 2011 about fake vaccine campaign has negatively affected the vaccines take-up rates. These results supports the main conclusions.

Figure 3.5: Event-study setup: coefficient estimates plots



3.5.2 Heterogeneous Effects

3.5.2.1 By Gender

In appendix Table C4, our baseline results based on political violence incidents are heterogenous as a child's gender. Our outcome variable is an indicator that takes value 1 if a child has received the first dose of a respective vaccine and 0 otherwise. In columns (2), (4) and (5) the coefficient estimates of an interaction term $violence_j \times female$ are with a negative sign and statistically significant at 10 % level. It shows that the decline in immunisation rates are larger for girls than boys. In appendix, in Table C5 our outcome variable is an indicator that takes value 1 if a child has received all recommended dosages of a respective vaccine and 0 otherwise. In columns (2) to (5) the coefficient estimates of an interaction term $violence_j \times female$ are negative and statistically significant at 5% and 10% levels. Our results show the decline in vaccination rates larger for girls.

Appendix Table C6 and Table C7 show whether the disclosure of information regarding fake vaccination had distinct effects on girls and boys. Our outcome variable is an indicator that takes value 1 if a child has received the first dose of a respective vaccine and 0 otherwise. The coefficient estimates of an interaction term $post_t \times Islamistsupport_j \times female$, are negative in all columns, but statistically significant only in columns (1) at 10 % level. It shows the decline in immunisation rates of polio vaccines are larger for girls than boys. However, in appendix Table C7 the coefficient estimates are negative and statistically insignificant in all columns, which suggest no distinct effect on gender.

As per the edicts issued by TTP leader, i.e, *"Jews and Christian's conspiracy to make Muslims infertile and stunt"* in particular for girls (Roul, 2014).[32] Our findings show the evidence that decline in immunisation rates are larger for girls, which are in line with the study by Martinez-Bravo and Stegmann (2022).

3.5.2.2 By Birth-order

Appendix Table C8 and Table C9 show whether our baseline results based on violent incidents are heterogeneous due to the child's birth order. The coefficient estimates of $violence_j \times FirstChild$ —an interaction term— are with a negative sign and statistically insignificant. We did not find substantial evidence that political violence affects vaccines take-up distinctly for birth orders. Appendix Table C10 shows that whether the disclosure

[32] https://www.dawn.com/news/221282/peshawar-cleric-mounts-drive-against-polio-vaccine

of information regarding fake vaccination had distinct effects on the birth order. Our outcome variable is an indicator that takes value 1 if a child has received the first dose of a respective vaccine and 0 otherwise. The coefficient estimates of an interaction term $post_t \times Islamistsupport_j \times FirstChild$, are with a positive sign in all columns and statistically significant in columns (2), (3), and (4) at 5% and 10 % levels. It shows a lower decline in immunisation rates for a first-born in the family. Moreover, in appendix Table C11 we find similar evidence for a first-born child in the family to receive all recommended dosages of each vaccine.

Our results are in line with the literature that shows a link between birth order and parental behaviour, as first born children receive more attention (Black et al., 2018, Esposito et al., 2020, Havari and Savegnago, 2022, Hotz and Pantano, 2015, Lehmann et al., 2018, Pavan, 2016). Children born earlier are more likely to undergo preventative medical exams, have higher rates of vaccinations, and visit the health facility more frequently (Pruckner et al., 2021).

3.6 Conclusion

This chapter examined the effect of political violence and information disclosure about fake vaccination on child immunisation. Our sample includes children born between 2002 and 2015. The PSLM survey provided information on the child's date of birth, district of residence, parental and household-level characteristics. We collected data on political violence from the BFRS and ACLED project, the data provided on the exact location, type of event, and date. We aggregated political violence data at the district level to merge with the PSLM dataset for our analysis. Finally, we exploited the information disclosure about a fraudulent vaccine campaign by the CIA in Pakistan to capture the Osama Bin Laden, the chief of al-Qaeda, in 2011.

Our findings suggest a substantial decline in child immunisation rates due to political violence and information disclosure about fake vaccination campaign. Our analyses show that: one standard deviation increase in political violence lowers the immunisation rates by 1.6 to 2.9 percentage points for the first dose of each vaccine and 1.5 to 2.8 percentage points for all recommended dosages of each vaccine. Moreover, one standard deviation increase in the support for Islamist groups is associated with declines in immunisation rates of 1.2 to 2 percentage points for the first dose of each vaccine and 1.2 to 1.9 percentage points for all recommended dosages of each vaccine. The political violence declined the child immunisation rates (Cetorelli, 2015, Grundy and Biggs, 2019, Ngo et al., 2020).

Our results support the idea that political violence undermines child immunisation, likely through the channel of fear and difficulty accessing a health centre. We accounted for mother's exposure to political violence in the third trimester of pregnancy to capture this channel. Our findings suggest that a mother's exposure to political violence during the third trimester of pregnancy has a considerable detrimental impact on her child's immunisation rates (Grossman et al., 2019).

Our results show some evidence that political violence has a detrimental impact more on girls' vaccination rates than on boys'. In comparison, Islamist support has almost no heterogenous effect as a function of gender on vaccination. In terms of birth order, there is some evidence that Islamist support has a lesser negative impact on vaccination rates of first child in the family. On the other hand, political violence has no heterogeneous effect on immunisation as a function of birth order.

Conclusion

This thesis consists of three chapters on the political economy of development and health, using Pakistan as a case. Chapter 1 examined the effect of exposure to political violence in early life on domestic violence in married life and the age brackets in early life that are critical in shaping adult behaviour. Chapter 2 examined the effect of electoral competition on the patterns of public goods distribution at the local level and political leaders' ethnic favouritism in a democratised and decentralised country that has experienced several dictatorships, like Pakistan. Chapter 3 examines the effect of political violence and information disclosure about the fake vaccine campaign by the CIA on child immunisation. We utilize a diverse combination of research methods and data to make these chapters complete this thesis. We used several types of data, including cross-sectional and panel data, which are collected from population censuses, household surveys, satellite nighttime light emissions, post-election reports, and development statistics reports in this thesis. In the econometric framework, we used OLS and DiD techniques.

Chapter 1 examined the effect of exposure to political violence in early life on domestic violence in married life and the age brackets in early life that are critical in shaping adult behaviour. Using data on domestic violence from PDHS and data on political violence from BFRS political violence dataset and ACLED, our findings suggest that women's earlier exposure to political violence has no effect on perpetrating the domestic violence but that the exposure of their husbands has a significant impact. The husband's exposure to political violence at the age of 4 to 6 is critical to shaping their minds toward domestic violence. Moreover, findings suggest that women's early exposure to political violence raises the likelihood of being victims of domestic violence by encouraging them to become more tolerant of domestic violence.

Chapter 2 examines the local economic development and political leaders' ethnic favouritism followed by electoral competition in a democratised and decentralised country that has experienced several dictatorships, like Pakistan. Using data on electoral competition from post-election reports provided by the ECP and data on local economic development proxied with nighttime light emissions from 1992-2018, we show that electoral competition promotes local economic development. Moreover, results show the evidence of reverse (negative) ethnic favouritism in Pakistan. Leaders discriminate against leaders' regions, and this is even more the case in a mature democracy. However, in some cases, electoral motives drive leaders to target tight swing constituencies in their co-ethnic region.

Chapter 3 examines the effect of political violence and information disclosure about the fake vaccine campaign by the CIA to find Osama Bin Laden's family's DNA on child immunisation. Data are taken on child immunisation from PSLM, on the vote share of Islamist parties from the post-election reports provided by the ECP to measure the support for Islamist groups in terms of the vote share of Islamist parties, and on political violence from the BFRS political violence dataset and ACLED. We applied the OLS and DiD strategies. Our findings suggest that political violence adversely affects child immunisation. Moreover, the information disclosure about the fake vaccine campaign declines trust in vaccination and demand for child immunisation.

We can discuss implications and highlight the need to further explore in future research. In chapter 1, our findings suggest the importance of policymakers prioritising initiatives that respond to and prevent domestic violence, especially in political violence-affected areas. For future research, one can explore the association between parental exposure to political violence in earlier life or domestic violence and their children's social-emotional competence. Exposure to violence creates mental unrest that might affect parental patterns towards their children.

We argue that an important implication of the results in chapter 2 is that the scope of partisanship depends on the utility loss voters suffer from lower levels of local economic development. If the utility loss is significant, and if the distribution of partisan preferences in a constituency is uneven, the constituency will be less competitive in the election, and politicians will provide fewer public goods. Politicians might use alternative approaches of public goods provisions to get elected. One of the potential future research directions is looking at the association between electoral competition and social reconciliation at the local level under patronage politics as an alternative to public goods provision in the presence of weak institutions.

Chapter 3, for the attention of policymakers, we may argue that immunisation rates can be improved by increasing awareness of the impact of political violence on child immunisation, gaining trust through community participation by involving the older women's groups, religious leaders, and well-trained and compassionate medical staff. One of the potential future research directions is that one can look at the trust regained in vaccines. For example, one can look at the association between support for Islamist parties and the Covid-19 vaccine take-ups at the district level. However, data at the district level are not yet publicly accessible in Pakistan.

Appendix A: Appendix to Chapter 1

Table A1: Correlation matrix

	VAC_{ACLED}	Violence_{ACLED}
VAC_{BFRS}	0.856	
Violence_{BFRS}		0.842

Table A2: Effect of number of months of exposure to political violence on domestic violence

Dependent variable:	tviol (1)	emviol (2)	sexviol (3)	tviol (4)	emviol (5)	sexviol (6)
Women's exposure at age 0-3	0.001	0.001	-0.001	0.001	0.001	-0.001
	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
Husband's exposure at age 0-3	0.001	0.002	-0.001	0.000	0.003	0.000
	(0.002)	(0.002)	(0.001)	(0.003)	(0.002)	(0.002)
Women's exposure at age 4-6	0.002	0.001	-0.000	0.002	0.001	-0.000
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
Husband's exposure at age 4-6	0.003	0.001	-0.000	0.004*	0.002	-0.000
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
Women's exposure at age 7-9	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
Husband's exposure at age 7-9	-0.002	-0.003*	0.003**	-0.003	-0.004*	0.003***
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
Women's exposure at age 10-12	-0.001	-0.000	0.001	-0.000	-0.000	0.002
	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
Husband's exposure at age 10-12	0.003***	0.003***	-0.000	0.005***	0.004**	-0.000
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Women's exposure at age 13-15	0.002**	0.001	-0.001	0.003*	0.001	-0.002
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)
Husband's exposure at age 13-15	-0.001	-0.001	-0.000	-0.002	0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)
Women's exposure at age above 15	0.001*	0.000	-0.000	0.001	0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Husband's exposure at age above 15	0.000	0.000	0.000	0.000	0.001	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Violence	✓	✓	✓			
Violence against civilians				✓	✓	✓
Wife controls	✓	✓	✓	✓	✓	✓
Husband controls	✓	✓	✓	✓	✓	✓
Household controls	✓	✓	✓	✓	✓	✓
Year of Birth, Survey, District FE	✓	✓	✓	✓	✓	✓
Observations	7341	7341	3876	7341	7341	3876
R^2	0.193	0.197	0.113	0.193	0.197	0.113
Clusters	146	146	141	146	146	141

Standard errors in parentheses and SE clustered at district level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

[32] tviol = Total domestic violence. emviol = Emotional violence. sexviol = Sexual violence

Table A3: Effect of exposure to political violence related fatalities on domestic violence

Dependent variable:	tviol	emviol	sexviol	tviol	emviol	sexviol
	(1)	(2)	(3)	(4)	(5)	(6)
Women's exposure at age 0-3	-0.404	-0.421	-0.056	-0.247	-0.342	-0.345
	(0.525)	(0.522)	(0.192)	(0.552)	(0.661)	(0.356)
Husband's exposure at age 0-3	1.020*	0.768	0.253	0.453	-0.001	0.445
	(0.562)	(0.535)	(0.250)	(0.906)	(0.987)	(0.474)
Women's exposure at age 4-6	-0.043	-0.248	0.087	-0.014	-0.150	0.156
	(0.435)	(0.342)	(0.195)	(0.670)	(0.516)	(0.292)
Husband's exposure at age 4-6	0.757	0.333	0.207	0.669	-0.144	0.334
	(0.487)	(0.432)	(0.284)	(0.889)	(0.821)	(0.528)
Women's exposure at age 7-9	-0.016	-0.082	-0.102	0.220	0.122	-0.207
	(0.362)	(0.400)	(0.128)	(0.573)	(0.696)	(0.216)
Husband's exposure at age 7-9	0.286	-0.112	0.277	0.245	-0.701	0.691
	(0.406)	(0.422)	(0.259)	(0.833)	(0.875)	(0.604)
Women's exposure at age 10-12	-0.004	-0.039	-0.051	-0.138	-0.280	-0.215
	(0.330)	(0.332)	(0.129)	(0.505)	(0.539)	(0.182)
Husband's exposure at age 10-12	0.294	-0.026	0.388	0.097	-0.446	0.491
	(0.424)	(0.446)	(0.257)	(0.814)	(0.895)	(0.469)
Women's exposure at age 13-15	-0.003	-0.052	-0.074	0.048	-0.016	-0.154
	(0.334)	(0.339)	(0.127)	(0.483)	(0.531)	(0.194)
Husband's exposure at age 13-15	0.430	0.014	0.326	0.099	-0.630	0.609
	(0.401)	(0.429)	(0.252)	(0.780)	(0.874)	(0.474)
Women's exposure at age above 15	-0.000	-0.051	-0.067	0.031	-0.050	-0.180
	(0.336)	(0.337)	(0.127)	(0.488)	(0.532)	(0.187)
Husband's exposure at age above 15	0.368	-0.008	0.347	0.115	-0.567	0.568
	(0.409)	(0.430)	(0.252)	(0.793)	(0.877)	(0.475)
Violence related Fatalities	✓	✓	✓			
Violence against civilians related Fatalities				✓	✓	✓
Wife controls	✓	✓	✓	✓	✓	✓
Husband controls	✓	✓	✓	✓	✓	✓
Household controls	✓	✓	✓	✓	✓	✓
Year of Birth, Survey, District FE	✓	✓	✓	✓	✓	✓
Observations	7341	7341	3876	7341	7341	3876
R^2	0.192	0.197	0.111	0.192	0.197	0.112
Clusters	146	146	141	146	146	141

Standard errors in parentheses. SE clustered at district level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Wife has same or higher education than her husband: Effect of exposure to political violence on domestic violence

Dependent variable:	tviol	emviol	sexviol	tviol	emviol	sexviol
	(1)	(2)	(3)	(4)	(5)	(6)
Women's exposure at age 0-3	0.144	0.233	-0.101	0.005	0.078	-0.151
	(0.433)	(0.542)	(0.294)	(0.572)	(0.734)	(0.393)
Husband's exposure at age 0-3	0.305	0.545	0.231	0.399	0.826	0.392
	(0.512)	(0.530)	(0.305)	(0.610)	(0.673)	(0.423)
Women's exposure at age 4-6	0.169	0.280	0.026	0.318	0.418	0.067
	(0.493)	(0.355)	(0.150)	(0.462)	(0.337)	(0.185)
Husband's exposure at age 4-6	0.746**	0.826***	0.255	0.807*	1.074***	0.360
	(0.334)	(0.266)	(0.292)	(0.409)	(0.381)	(0.412)
Women's exposure at age 7-9	0.371	0.292	-0.176	0.516	0.500	-0.227
	(0.454)	(0.567)	(0.176)	(0.490)	(0.564)	(0.229)
Husband's exposure at age 7-9	-0.091	-0.283	0.516	-0.026	-0.219	0.741
	(0.254)	(0.250)	(0.330)	(0.324)	(0.343)	(0.508)
Women's exposure at age 10-12	0.543	0.412	-0.054	0.642	0.510	-0.085
	(0.365)	(0.432)	(0.174)	(0.419)	(0.514)	(0.271)
Husband's exposure at age 10-12	-0.339	-0.309	0.338	-0.292	-0.212	0.574
	(0.303)	(0.357)	(0.260)	(0.407)	(0.471)	(0.371)
Women's exposure at age 13-15	0.317	0.345	-0.044	0.366	0.428	-0.017
	(0.274)	(0.319)	(0.174)	(0.288)	(0.313)	(0.192)
Husband's exposure at age 13-15	-0.301	-0.298	0.204	-0.463	-0.363	0.273
	(0.299)	(0.266)	(0.222)	(0.404)	(0.408)	(0.334)
Women's exposure at age above 15	0.301	0.162	-0.078	0.330	0.196	-0.089
	(0.289)	(0.358)	(0.132)	(0.323)	(0.394)	(0.147)
Husband's exposure at age above 15	-0.150	0.054	0.300	-0.147	0.146	0.430
	(0.200)	(0.231)	(0.233)	(0.303)	(0.338)	(0.328)
Violence	✓	✓	✓			
Violence against civilians				✓	✓	✓
Wife controls	✓	✓	✓	✓	✓	✓
Husband controls	✓	✓	✓	✓	✓	✓
Household controls	✓	✓	✓	✓	✓	✓
Year of Birth, Survey, District FE	✓	✓	✓	✓	✓	✓
Observations	3937	3937	2112	3937	3937	2112
R^2	0.227	0.231	0.159	0.227	0.231	0.160
Clusters	146	146	139	146	146	139

Standard errors in parentheses

SE clustered at district level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Husband has higher education than his wife: Effect of exposure to political violence on domestic violence

Dependent variable:	tviol	emviol	sexviol	tviol	emviol	sexviol
	(1)	(2)	(3)	(4)	(5)	(6)
Women's exposure at age 0-3	0.755	1.137	0.403	2.192	2.256	0.139
	(1.271)	(0.990)	(0.464)	(1.629)	(1.437)	(1.051)
Husband's exposure at age 0-3	0.406	0.074	0.141	-0.584	0.034	0.738
	(1.346)	(1.153)	(0.416)	(2.158)	(1.777)	(0.783)
Women's exposure at age 4-6	0.935	-0.047	0.166	2.457**	0.009	-0.741
	(0.934)	(0.754)	(0.483)	(1.021)	(0.877)	(0.785)
Husband's exposure at age 4-6	1.441**	1.118*	0.168	1.042	0.200	-0.321
	(0.585)	(0.608)	(0.350)	(1.638)	(1.490)	(0.873)
Women's exposure at age 7-9	0.019	-0.006	0.005	-0.457	-0.472	-0.278
	(0.736)	(0.621)	(0.341)	(0.833)	(0.824)	(0.463)
Husband's exposure at age 7-9	0.980*	0.862	0.541	1.628	1.464	1.709**
	(0.497)	(0.536)	(0.351)	(1.144)	(1.181)	(0.848)
Women's exposure at age 10-12	0.209	0.230	0.272	-0.034	0.034	0.036
	(0.766)	(0.601)	(0.322)	(1.022)	(0.747)	(0.476)
Husband's exposure at age 10-12	0.796*	0.712*	0.461*	0.881	0.897	0.108
	(0.450)	(0.417)	(0.278)	(0.739)	(0.670)	(0.484)
Women's exposure at age 13-15	0.456	0.326	0.119	1.141	0.724	0.052
	(0.763)	(0.597)	(0.360)	(0.953)	(0.739)	(0.485)
Husband's exposure at age 13-15	1.040**	0.832*	0.123	0.941	0.873	0.636
	(0.464)	(0.481)	(0.307)	(0.647)	(0.708)	(0.457)
Women's exposure at age above 15	0.409	0.362	0.135	0.481	0.356	-0.038
	(0.757)	(0.579)	(0.326)	(0.950)	(0.661)	(0.395)
Husband's exposure at age above 15	0.839**	0.688	0.346	0.998*	0.812	0.563
	(0.420)	(0.416)	(0.249)	(0.595)	(0.591)	(0.341)
Violence	✓	✓	✓			
Violence against civilians				✓	✓	✓
Wife controls	✓	✓	✓	✓	✓	✓
Husband controls	✓	✓	✓	✓	✓	✓
Household controls	✓	✓	✓	✓	✓	✓
Year of Birth, Survey, District FE	✓	✓	✓	✓	✓	✓
Observations	3404	3404	1764	3404	3404	1764
R^2	0.221	0.230	0.163	0.223	0.230	0.164
Clusters	145	145	140	145	145	140

Standard errors in parentheses

SE clustered at district level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Interaction terms of couple's education:

Table A6: Wife has same or higher education than her husband: Effect of exposure to violence on domestic violence (interaction terms)

Dependent variable:	tviol (1)	emviol (2)	sexviol (3)	tviol (4)	emviol (5)	sexviol (6)
Wife's exposure at age 0-3	0.309	0.883	0.578	1.777	2.318	0.875
	(0.981)	(0.942)	(0.444)	(1.448)	(1.522)	(1.013)
Wife edu	-0.025	-0.011	0.014	-0.019	-0.007	0.012
	(0.020)	(0.019)	(0.011)	(0.020)	(0.018)	(0.011)
Wife's exposure at age 0-3×wife edu	-0.061	-0.613	-0.738	-1.651	-2.216	-1.101
	(1.054)	(1.035)	(0.498)	(1.443)	(1.560)	(1.008)
Husband's exposure at age 0-3	-0.526	-0.592	-0.232	-2.131	-1.198	0.402
	(1.224)	(1.089)	(0.516)	(1.874)	(1.613)	(0.684)
Husband's exposure at age 0-3×wife edu	1.176	1.457	0.595	2.971	2.379	0.164
	(1.367)	(1.261)	(0.470)	(2.091)	(1.843)	(0.698)
Wife's exposure at age 4-6	0.675	-0.074	0.339	2.332***	0.356	-0.534
	(0.705)	(0.398)	(0.441)	(0.741)	(0.628)	(0.726)
Wife's exposure at age 4-6×wife edu	-0.608	0.247	-0.298	-2.150***	-0.101	0.603
	(0.580)	(0.325)	(0.450)	(0.729)	(0.589)	(0.734)
Husband's exposure at age 4-6	0.299	0.158	-0.278	0.092	-0.335	-0.842
	(0.588)	(0.521)	(0.387)	(1.190)	(1.144)	(0.847)
Husband's exposure at age 4-6×wife edu	0.599	0.802	0.583	0.983	1.566	1.268
	(0.734)	(0.561)	(0.381)	(1.273)	(1.168)	(0.805)
Wife's exposure at age 7-9	-0.309	-0.160	0.209	-0.781	-0.623	0.145
	(0.484)	(0.458)	(0.347)	(0.679)	(0.728)	(0.577)
Wife's exposure at age 7-9×wife edu	0.651	0.461	-0.439	1.290**	1.142**	-0.425
	(0.448)	(0.384)	(0.383)	(0.540)	(0.522)	(0.611)
Husband's exposure at age 7-9	0.339	0.360	0.213	0.741	0.815	1.261
	(0.385)	(0.421)	(0.413)	(0.873)	(0.966)	(0.857)
Husband's exposure at age 7-9×wife edu	-0.168	-0.391	0.261	-0.480	-0.779	-0.511
	(0.437)	(0.392)	(0.442)	(0.856)	(0.951)	(0.806)
Wife's exposure at age 10-12	0.033	0.193	0.431	-0.192	0.169	0.425
	(0.454)	(0.351)	(0.274)	(0.703)	(0.501)	(0.316)
Wife's exposure at age 10-12×wife edu	0.533	0.255	-0.458*	0.808	0.285	-0.464
	(0.464)	(0.367)	(0.256)	(0.769)	(0.620)	(0.408)
Husband's exposure at age 10-12	0.281	0.313	0.046	0.202	0.411	-0.450
	(0.409)	(0.341)	(0.251)	(0.757)	(0.702)	(0.485)
Husband's exposure at age 10-12×wife edu	-0.377	-0.432	0.359	-0.218	-0.428	1.092*
	(0.524)	(0.388)	(0.383)	(0.862)	(0.717)	(0.588)
Wife's exposure at age 13-15	0.277	0.301	0.345	0.927	0.767	0.535
	(0.484)	(0.408)	(0.359)	(0.753)	(0.638)	(0.493)
Wife's exposure at age 13-15×wife edu	-0.019	-0.021	-0.449	-0.598	-0.420	-0.650
	(0.488)	(0.358)	(0.379)	(0.800)	(0.609)	(0.534)
Husband's exposure at age 13-15	0.362	0.261	-0.178	0.231	0.290	0.273
	(0.382)	(0.367)	(0.364)	(0.551)	(0.602)	(0.443)
Husband's exposure at age 13-15×wife edu	-0.402	-0.321	0.427	-0.324	-0.365	0.059
	(0.473)	(0.386)	(0.341)	(0.688)	(0.622)	(0.520)
Wife's exposure at age above 15	0.167	0.274	0.339	0.301	0.441	0.382
	(0.449)	(0.333)	(0.300)	(0.661)	(0.431)	(0.364)
Wife's exposure at age above 15×wife edu	0.105	-0.123	-0.440	-0.000	-0.270	-0.504
	(0.413)	(0.238)	(0.276)	(0.639)	(0.367)	(0.349)
Husband's exposure at age above 15	0.201	0.141	-0.042	0.162	0.111	0.049
	(0.353)	(0.297)	(0.282)	(0.579)	(0.494)	(0.378)
Husband's exposure at age above 15×wife edu	-0.092	0.130	0.420	0.012	0.270	0.485
	(0.423)	(0.249)	(0.286)	(0.648)	(0.375)	(0.361)
Violence	✓	✓	✓			
Violence against civilians				✓	✓	✓
Wife controls	✓	✓	✓	✓	✓	✓
Husband controls	✓	✓	✓	✓	✓	✓
Household controls	✓	✓	✓	✓	✓	✓
Year of Birth, Survey, District FE	✓	✓	✓	✓	✓	✓
Observations	7341	7341	3876	7341	7341	3876
R^2	0.193	0.198	0.114	0.194	0.198	0.115
Clusters	146	146	141	146	146	141

SE in parentheses, clustered at district level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

[32] *Wife edu* is a *wife's education* represented with a dummy variable that equals 1 if wife has same or higher education than her husband.

Table A7: Husband has higher education than his wife: Effect of exposure to violence on domestic violence (interaction terms)

Dependent variable:	tviol (1)	emviol (2)	sexviol (3)	tviol (4)	emviol (5)	sexviol (6)
Wife's exposure at age 0-3	0.248	0.270	-0.160	0.126	0.102	-0.225
	(0.285)	(0.388)	(0.291)	(0.372)	(0.556)	(0.397)
husb edu	0.025	0.011	-0.014	0.019	0.007	-0.012
	(0.020)	(0.019)	(0.011)	(0.020)	(0.018)	(0.011)
Wife's exposure at age 0-3×husb edu	0.061	0.613	0.738	1.651	2.216	1.101
	(1.054)	(1.035)	(0.498)	(1.443)	(1.560)	(1.008)
Husband's exposure at age 0-3	0.649	0.865*	0.364	0.840	1.181**	0.566
	(0.510)	(0.474)	(0.295)	(0.519)	(0.509)	(0.403)
Husband's exposure at age 0-3×husb edu	-1.176	-1.457	-0.595	-2.971	-2.379	-0.164
	(1.367)	(1.261)	(0.470)	(2.091)	(1.843)	(0.698)
Wife's exposure at age 4-6	0.067	0.172	0.041	0.182	0.254	0.069
	(0.399)	(0.305)	(0.134)	(0.403)	(0.313)	(0.190)
Wife's exposure at age 4-6×husb edu	0.608	-0.247	0.298	2.150***	0.101	-0.603
	(0.580)	(0.325)	(0.450)	(0.729)	(0.589)	(0.734)
Husband's exposure at age 4-6	0.898***	0.960***	0.305	1.075***	1.232***	0.426
	(0.322)	(0.262)	(0.278)	(0.379)	(0.344)	(0.386)
Husband's exposure at age 4-6×husb edu	-0.599	-0.802	-0.583	-0.983	-1.566	-1.268
	(0.734)	(0.561)	(0.381)	(1.273)	(1.168)	(0.805)
Wife's exposure at age 7-9	0.342	0.300	-0.230	0.509	0.519	-0.280
	(0.368)	(0.448)	(0.199)	(0.384)	(0.431)	(0.266)
Wife's exposure at age 7-9×husb edu	-0.651	-0.461	0.439	-1.290**	-1.142**	0.425
	(0.448)	(0.384)	(0.383)	(0.540)	(0.522)	(0.611)
Husband's exposure at age 7-9	0.171	-0.030	0.474	0.262	0.036	0.750
	(0.230)	(0.223)	(0.301)	(0.291)	(0.281)	(0.474)
Husband's exposure at age 7-9×husb edu	0.168	0.391	-0.261	0.480	0.779	0.511
	(0.437)	(0.392)	(0.442)	(0.856)	(0.951)	(0.806)
Wife's exposure at age 10-12	0.565**	0.448	-0.026	0.616**	0.454	-0.039
	(0.225)	(0.277)	(0.170)	(0.255)	(0.365)	(0.267)
Wife's exposure at age 10-12×husb edu	-0.533	-0.255	0.458*	-0.808	-0.285	0.464
	(0.464)	(0.367)	(0.256)	(0.769)	(0.620)	(0.408)
Husband's exposure at age 10-12	-0.096	-0.119	0.406	-0.016	-0.017	0.642*
	(0.291)	(0.315)	(0.270)	(0.306)	(0.346)	(0.387)
Husband's exposure at age 10-12×husb edu	0.377	0.432	-0.359	0.218	0.428	-1.092*
	(0.524)	(0.388)	(0.383)	(0.862)	(0.717)	(0.588)
Wife's exposure at age 13-15	0.258	0.280	-0.104	0.329	0.347	-0.116
	(0.214)	(0.261)	(0.155)	(0.240)	(0.271)	(0.188)
Wife's exposure at age 13-15×husb edu	0.019	0.021	0.449	0.598	0.420	0.650
	(0.488)	(0.358)	(0.379)	(0.800)	(0.609)	(0.534)
Husband's exposure at age 13-15	-0.040	-0.060	0.249	-0.093	-0.075	0.332
	(0.263)	(0.245)	(0.222)	(0.344)	(0.348)	(0.336)
Husband's exposure at age 13-15×husb edu	0.402	0.321	-0.427	0.324	0.365	-0.059
	(0.473)	(0.386)	(0.341)	(0.688)	(0.622)	(0.520)
Wife's exposure at age above 15	0.272	0.152	-0.101	0.301	0.171	-0.122
	(0.213)	(0.273)	(0.130)	(0.240)	(0.318)	(0.150)
Wife's exposure at age above 15×husb edu	-0.105	0.123	0.440	0.000	0.270	0.504
	(0.413)	(0.238)	(0.276)	(0.639)	(0.367)	(0.349)
Husband's exposure at age above 15	0.109	0.270	0.378	0.174	0.381	0.534
	(0.173)	(0.191)	(0.229)	(0.233)	(0.263)	(0.323)
Husband's exposure at age above 15 ×husb edu	0.092	-0.130	-0.420	-0.012	-0.270	-0.485
	(0.423)	(0.249)	(0.286)	(0.648)	(0.375)	(0.361)
Violence	✓	✓	✓			
Violence against civilians				✓	✓	✓
Wife controls	✓	✓	✓	✓	✓	✓
Husband controls	✓	✓	✓	✓	✓	✓
Household controls	✓	✓	✓	✓	✓	✓
Year of Birth, Survey, District FE	✓	✓	✓	✓	✓	✓
Observations	7341	7341	3876	7341	7341	3876
R^2	0.193	0.198	0.114	0.194	0.198	0.115
Clusters	146	146	141	146	146	141

SE in parentheses, clustered at district level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

[32] *husb edu* is a *husband's education* represented with a dummy variable that equals 1 if husband has higher education than his wife.

Table A8: Effect of exposure to political violence on domestic violence (interaction terms)

Dependent variable:	tviol (1)	emviol (2)	sexviol (3)	tviol (4)	emviol (5)	sexviol (6)
Wife's exposure at age 0-3	-0.059	0.016	-0.257	-0.375	-0.337	-0.478
	(0.333)	(0.371)	(0.286)	(0.414)	(0.477)	(0.456)
Husband's exposure at age 0-3	-0.219	0.038	-0.159	-1.086	-0.585	-0.184
	(0.794)	(0.718)	(0.376)	(0.984)	(0.942)	(0.556)
Wife's exposure at age 0-3	1.776	1.436	1.499	5.687**	5.052**	2.367
×Husband's exposure at age 0-3	(2.016)	(1.805)	(1.055)	(2.513)	(2.444)	(1.820)
Wife's exposure at age 4-6	0.090	-0.270	-0.072	0.505	0.033	-0.169
	(0.425)	(0.378)	(0.196)	(0.415)	(0.397)	(0.310)
Husband's exposure at age 4-6	0.696*	0.452	0.369	1.502***	1.108**	0.381
	(0.392)	(0.377)	(0.267)	(0.480)	(0.532)	(0.390)
Wife's exposure at age 4-6	0.199	1.555*	-0.189	-2.088	0.089	0.499
×Husband's exposure at age 4-6	(0.979)	(0.919)	(0.777)	(1.326)	(1.386)	(1.260)
Wife's exposure at age 7-9	0.081	0.009	-0.130	0.099	0.007	-0.201
	(0.383)	(0.452)	(0.129)	(0.519)	(0.588)	(0.162)
Husband's exposure at age 7-9	0.462	0.275	0.880**	0.480	-0.042	1.296
	(0.323)	(0.314)	(0.351)	(0.466)	(0.449)	(0.816)
Wife's exposure at age 7-9	-0.869*	-0.410	-0.805*	-0.572	1.044	-1.800
×Husband's exposure at age 7-9	(0.471)	(0.459)	(0.426)	(1.241)	(1.510)	(1.892)
Wife's exposure at age 10-12	0.075	0.056	-0.104	0.217	0.225	0.037
	(0.244)	(0.263)	(0.137)	(0.283)	(0.384)	(0.238)
Husband's exposure at age 10-12	0.018	0.093	0.360	0.101	0.422	0.831**
	(0.259)	(0.296)	(0.242)	(0.403)	(0.406)	(0.381)
Wife's exposure at age 10-12	0.287	0.271	0.329	-0.241	-1.029	-1.017
×Husband's exposure at age 10-12	(0.300)	(0.300)	(0.365)	(1.042)	(1.122)	(0.921)
Wife's exposure at age 13-15	0.255	0.107	-0.108	0.551**	0.308	-0.251
	(0.222)	(0.246)	(0.140)	(0.245)	(0.258)	(0.207)
Husband's exposure at age 13-15	0.339	0.187	0.268	0.378	0.148	-0.007
	(0.269)	(0.343)	(0.224)	(0.365)	(0.459)	(0.455)
Wife's exposure at age 13-15	-0.704	-0.158	0.024	-2.503*	-0.737	1.708
×Husband's exposure at age 13-15	(0.867)	(0.915)	(0.194)	(1.291)	(1.281)	(1.273)
Wife's exposure at age above 15	0.173	0.014	-0.097	0.258	-0.067	-0.169
	(0.257)	(0.261)	(0.122)	(0.333)	(0.342)	(0.168)
Husband's exposure at age above 15	0.158	0.231	0.410**	0.176	0.224	0.520*
	(0.193)	(0.225)	(0.186)	(0.245)	(0.292)	(0.268)
Wife's exposure at age above15	-0.038	0.004	-0.013	-0.081	0.124	-0.001
×Husband's exposure at age above15	(0.092)	(0.080)	(0.025)	(0.182)	(0.146)	(0.075)
Violence	✓	✓	✓			
Violence against civilians				✓	✓	✓
Wife controls	✓	✓	✓	✓	✓	✓
Husband controls	✓	✓	✓	✓	✓	✓
Household controls	✓	✓	✓	✓	✓	✓
Year of Birth, Survey, District FE	✓	✓	✓	✓	✓	✓
Observations	7341	7341	3876	7341	7341	3876
R^2	0.192	0.196	0.114	0.193	0.197	0.114
Clusters	146	146	141	146	146	141

SE in parentheses and clustered at district level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Husbands exposure to political violence on domestic violence:

Table A9: Effect of husband's exposure to political violence and political violence against civilians on domestic violence

Dependent variable: Domestic violence	(1)	(2)	(3)	(4)
Panel A:				
Husband's exposure to aviol at age 0-3	0.345	0.282	0.212	0.141
	(0.392)	(0.417)	(0.477)	(0.482)
Husband's exposure to aviol at age 4-6	0.673***	0.564**	0.587***	0.611***
	(0.242)	(0.236)	(0.220)	(0.222)
Husband's exposure to aviol at age 7-9	0.057	0.036	0.067	0.083
	(0.247)	(0.243)	(0.229)	(0.223)
Husband's exposure to aviol at age 10-12	0.030	0.027	0.068	0.061
	(0.209)	(0.206)	(0.204)	(0.206)
Husband's exposure to aviol at age 13-15	0.137	0.095	0.126	0.121
	(0.196)	(0.205)	(0.198)	(0.198)
Husband's exposure to aviol at above 15	0.090	0.071	0.099	0.110
	(0.155)	(0.154)	(0.149)	(0.150)
Panel B:				
Husband's exposure to vac at age 0-3	0.382	0.320	0.309	0.243
	(0.501)	(0.518)	(0.553)	(0.544)
Husband's exposure to vac at age 4-6	1.118***	0.941**	0.925***	0.949***
	(0.346)	(0.364)	(0.332)	(0.347)
Husband's exposure to vac at age 7-9	0.309	0.268	0.250	0.244
	(0.286)	(0.279)	(0.279)	(0.288)
Husband's exposure to vac at age 10-12	-0.002	-0.010	0.033	0.043
	(0.256)	(0.250)	(0.246)	(0.245)
Husband's exposure to vac at age 13-15	0.199	0.166	0.184	0.156
	(0.252)	(0.265)	(0.253)	(0.252)
Husband's exposure to vac at age above 15	0.171	0.135	0.156	0.160
	(0.215)	(0.215)	(0.208)	(0.211)
Wife controls		✓	✓	✓
Husband controls			✓	✓
Household controls				✓
Year of Birth, Survey, District FE	✓	✓	✓	✓
Observations	7351	7351	7341	7341
R^2	0.157	0.171	0.185	0.192
Clusters	146	146	146	146

Standard errors in parentheses

SE clustered at district level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A10: Effect of husband's exposure to political violence and political violence against civilians on emotional violence

Dependent variable: Emotional violence	(1)	(2)	(3)	(4)
Panel A:				
Husband's exposure to aviol at age 0-3	0.616*	0.566	0.499	0.447
	(0.369)	(0.383)	(0.429)	(0.431)
Husband's exposure to aviol at age 4-6	0.715***	0.632**	0.652***	0.672***
	(0.272)	(0.252)	(0.241)	(0.235)
Husband's exposure to aviol at age 7-9	-0.004	-0.027	-0.006	0.007
	(0.243)	(0.239)	(0.234)	(0.232)
Husband's exposure to aviol at age 10-12	0.137	0.131	0.164	0.159
	(0.245)	(0.242)	(0.238)	(0.237)
Husband's exposure to aviol at age 13-15	0.158	0.122	0.144	0.141
	(0.223)	(0.230)	(0.223)	(0.223)
Husband's exposure to aviol at above 15	0.200	0.184	0.206	0.214
	(0.190)	(0.188)	(0.182)	(0.180)
Panel B:				
Husband's exposure to vac at age 0-3	0.847*	0.797*	0.784*	0.735*
	(0.442)	(0.447)	(0.455)	(0.443)
Husband's exposure to vac at age 4-6	1.195***	1.058***	1.044***	1.065***
	(0.336)	(0.333)	(0.317)	(0.316)
Husband's exposure to vac at age 7-9	0.141	0.103	0.078	0.071
	(0.274)	(0.268)	(0.265)	(0.268)
Husband's exposure to vac at age 10-12	0.153	0.138	0.173	0.181
	(0.303)	(0.299)	(0.292)	(0.287)
Husband's exposure to vac at age 13-15	0.213	0.186	0.196	0.175
	(0.305)	(0.319)	(0.306)	(0.303)
Husband's exposure to vac at age above 15	0.319	0.288	0.303	0.306
	(0.258)	(0.259)	(0.251)	(0.250)
Wife controls		✓	✓	✓
Husband controls			✓	✓
Household controls				✓
Year of Birth, Survey, District FE	✓	✓	✓	✓
Observations	7351	7351	7341	7341
R^2	0.168	0.179	0.191	0.197
Clusters	146	146	146	146

Standard errors in parentheses

SE clustered at district level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A11: Effect of husband's exposure to political violence and political violence against civilians on sexual violence

Dependent variable: Sexual violence	(1)	(2)	(3)	(4)
Panel A:				
Husband's exposure to aviol at age 0-3	0.385*	0.374*	0.331	0.318
	(0.210)	(0.212)	(0.218)	(0.225)
Husband's exposure to aviol at age 4-6	0.291	0.280	0.300	0.305
	(0.234)	(0.235)	(0.234)	(0.235)
Husband's exposure to aviol at age 7-9	0.524**	0.528**	0.536**	0.540**
	(0.256)	(0.259)	(0.258)	(0.259)
Husband's exposure to aviol at age 10-12	0.443***	0.449***	0.452***	0.449***
	(0.151)	(0.153)	(0.151)	(0.152)
Husband's exposure to aviol at age 13-15	0.247	0.249	0.260	0.261
	(0.187)	(0.191)	(0.191)	(0.193)
Husband's exposure to aviol at age above 15	0.354**	0.358**	0.362**	0.364**
	(0.178)	(0.181)	(0.178)	(0.180)
Panel B:				
Husband's exposure to vac at age 0-3	0.525*	0.527*	0.501	0.491
	(0.301)	(0.306)	(0.308)	(0.314)
Husband's exposure to vac at age 4-6	0.430	0.407	0.414	0.414
	(0.344)	(0.345)	(0.339)	(0.339)
Husband's exposure to vac at age 7-9	0.858*	0.859**	0.836*	0.837*
	(0.436)	(0.434)	(0.443)	(0.445)
Husband's exposure to vac at age 10-12	0.530*	0.542*	0.538*	0.537*
	(0.278)	(0.284)	(0.279)	(0.281)
Husband's exposure to vac at age 13-15	0.418**	0.427**	0.434**	0.432**
	(0.206)	(0.211)	(0.207)	(0.212)
Husband's exposure to vac at age above 15	0.503**	0.511**	0.508**	0.508**
	(0.247)	(0.252)	(0.247)	(0.250)
Wife controls		✓	✓	✓
Husband controls			✓	✓
Household controls				✓
Year of Birth, Survey, District FE	✓	✓	✓	✓
Observations	3879	3879	3876	3876
R^2	0.098	0.101	0.111	0.112
Clusters	141	141	141	141

Standard errors in parentheses

SE clustered at district level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix B: Appendix to Chapter 2

Without preceding year of election

Table B1: Constituency swing 2%, 5%, and 10%

	National Assembly			Provincial Assemblies		
Dep:Var: Light_{ct}	(1)	(2)	(3)	(4)	(5)	(6)
Lagged Winning Margin 2%	0.104*			0.132***		
	(0.058)			(0.048)		
Lagged Winning Margin 5%		0.097***			0.042	
		(0.036)			(0.026)	
Lagged Winning Margin 10%			0.108***			0.025
			(0.028)			(0.019)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	5984	5984	5984	12694	12694	12694
R Square	0.930	0.931	0.931	0.933	0.932	0.932
Clusters	272	272	272	577	577	577

Standard errors in parentheses. SE clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B2: National assembly: Constituency swing.

	at least 2 elections			at least 3 elections		
Dep:Var: Light_{ct}	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Swing2%×*Polity*	0.012			0.014***		
	(0.013)			(0.001)		
Swing5%×*Polity*		0.004			0.004	
		(0.003)			(0.008)	
Swing10%×*Polity*			0.003			0.005*
			(0.002)			(0.003)
Panel B						
Swing2%×*Polity* > 5	0.272			0.195***		
	(0.177)			(0.017)		
Swing5%×*Polity* > 5		0.122**			0.173	
		(0.054)			(0.129)	
Swing10%×*Polity* > 5			0.074**			0.099**
			(0.030)			(0.044)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	5984	5984	5984	5984	5984	5984
R Square	0.931	0.930	0.930	0.930	0.930	0.930
Clusters	272	272	272	272	272	272

Standard errors in parentheses. SE clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B3: Provincial assembly: Swing constituency.

	at least 2 elections			**at least 3 elections**		
Dep:Var: Light_{ct}	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Swing2%×*Polity*	0.009*			0.005		
	(0.005)			(0.007)		
Swing5%×*Polity*		0.006**			0.013**	
		(0.002)			(0.006)	
Swing10%×*Polity*			0.003			0.003
			(0.002)			(0.002)
Panel B						
Swing2%×*Polity* > 5	0.142**			0.115		
	(0.070)			(0.105)		
Swing5%×*Polity* > 5		0.099***			0.215***	
		(0.035)			(0.078)	
Swing10%×*Polity* > 5			0.063***			0.067**
			(0.023)			(0.030)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	12694	12694	12694	12694	12694	12694
R Square	0.932	0.933	0.932	0.932	0.933	0.932
Clusters	577	577	577	577	577	577

SE in parentheses and clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B4: Ethnic favouritism, Swing constituencies.

Dep:Var: Light_{ct}	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A								
Leader	-0.128***	-0.086***	-0.129***	-0.128***	-0.129***	0.016	-0.128***	-0.129***
	(0.019)	(0.013)	(0.019)	(0.019)	(0.019)	(0.021)	(0.019)	(0.019)
Leader×*Polity*		-0.012***						
		(0.003)						
Leader×*Swing*2%			0.274***		0.231***			0.201***
			(0.017)		(0.018)			(0.015)
Swing2%×*Polity*				0.017***	0.008***			
				(0.001)	(0.001)			
Leader×*Polity* > 5						-0.222***		
						(0.043)		
Swing2%×*Polity* > 5							0.246***	0.130***
							(0.013)	(0.008)
Year, Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	5984	5984	5984	5984	5984	5984	5984	5984
R Square	0.931	0.932	0.931	0.931	0.931	0.932	0.931	0.931
Clusters	272	272	272	272	272	272	272	272
Panel B								
Leader	-0.122***	-0.080***	-0.122***	-0.122***	-0.122***	0.011	-0.122***	-0.122***
	(0.013)	(0.009)	(0.013)	(0.013)	(0.013)	(0.016)	(0.013)	(0.013)
Leader×*Polity*		-0.012***						
		(0.002)						
Leader×*Swing*2%			0.102***		0.083**			0.044
			(0.013)		(0.041)			(0.064)
Swing2%×*Polity*				0.004	0.004			
				(0.007)	(0.007)			
Leader×*Polity* > 5						-0.206***		
						(0.032)		
Swing2%×*Polity* > 5							0.109	0.104
							(0.105)	(0.112)
Year, Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	12694	12694	12694	12694	12694	12694	12694	12694
R Square	0.933	0.934	0.933	0.933	0.933	0.934	0.933	0.933
Clusters	577	577	577	577	577	577	577	577

SE in parentheses and clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B5: National assembly: Ethnic favouritism, constituency swing in at least 3 elections.

Dep:Var: Light_{ct}	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Leader	-0.128***	-0.128***	-0.127***	-0.119***	-0.131***	-0.117***
	(0.019)	(0.019)	(0.018)	(0.019)	(0.019)	(0.018)
Leader×$Swing5\%$	0.001		-0.021			
	(0.088)		(0.099)			
Swing5%×$Polity$		0.004	0.004			
		(0.008)	(0.009)			
Leader×$Swing10\%$				-0.039		-0.067*
				(0.028)		(0.034)
Swing10%×$Polity$					0.006**	0.007**
					(0.003)	(0.003)
Panel B						
Leader	-0.128***	-0.128***	-0.126***	-0.119***	-0.134***	-0.114***
	(0.019)	(0.018)	(0.018)	(0.019)	(0.019)	(0.018)
Leader×$Swing5\%$	0.001		-0.108			
	(0.088)		(0.117)			
Swing5%×$Polity > 5$		0.176	0.198			
		(0.127)	(0.140)			
Leader×$Swing10\%$				-0.039		-0.099**
				(0.028)		(0.042)
Swing10%×$Polity > 5$					0.122***	0.149***
					(0.044)	(0.051)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	5984	5984	5984	5984	5984	5984
R Square	0.931	0.932	0.932	0.931	0.932	0.932
Clusters	272	272	272	272	272	272

Standard errors in parentheses. SE clustered at constituency level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B6: Provincial assembly: Ethnic favouritism, constituency swing in at least 3 elections

Dep:Var: Light$_{ct}$	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Leader	-0.121***	-0.122***	-0.119***	-0.115***	-0.123***	-0.113***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.012)
Leader×*Swing*5%	-0.052		-0.102**			
	(0.051)		(0.046)			
Swing5%×*Polity*		0.013**	0.014**			
		(0.005)	(0.006)			
Leader×*Swing*10%				-0.042		-0.054*
				(0.026)		(0.028)
Swing10%×*Polity*					0.003	0.004*
					(0.002)	(0.002)
Panel B						
Leader	-0.121***	-0.122***	-0.118***	-0.115***	-0.124***	-0.111***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.012)
Leader×*Swing*5%	-0.052		-0.144***			
	(0.051)		(0.045)			
Swing5%×*Polity* >5		0.215***	0.240***			
		(0.076)	(0.079)			
Leader×*Swing*10%				-0.042		-0.073**
				(0.026)		(0.030)
Swing10%×*Polity* >5					0.076**	0.091***
					(0.030)	(0.033)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	12694	12694	12694	12694	12694	12694
R Square	0.933	0.933	0.934	0.933	0.933	0.933
Clusters	577	577	577	577	577	577

Standard errors in parentheses, clustered at constituency level
* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Without Urban Constituencies

Table B7: Constituency swing 2%, 5%, and 10%.

	National Assembly			**Provincial Assemblies**		
Dep:Var: Light$_{ct}$	(1)	(2)	(3)	(4)	(5)	(6)
Lagged Winning Margin 2%	0.087			0.113**		
	(0.054)			(0.046)		
Lagged Winning Margin 5%		0.088**		0.031		
		(0.034)			(0.025)	
Lagged Winning Margin 10%			0.095***			0.015
			(0.026)			(0.019)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	6372	6372	6372	13446	13446	13446
R Square	0.916	0.917	0.917	0.924	0.924	0.924
Clusters	236	236	236	498	498	498

Standard errors in parentheses, clustered at constituency level
* $p<0.10$, ** $p<0.05$, *** $p<0.01$

[32]We dropped the constituencies in which average nighttime light is above 50 in at least three elections.

Table B8: National assembly: Constituency swing in at least 2 and 3 elections.

	at least 2 elections			**at least 3 elections**		
Dep:Var: Light_{ct}	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Swing2%×*Polity*	0.008			0.010***		
	(0.011)			(0.001)		
Swing5%×*Polity*		0.002			-0.001	
		(0.003)			(0.007)	
Swing10%×*Polity*			0.001			0.002
			(0.002)			(0.002)
Panel B						
Swing2%×*Polity* > 5	0.192			0.143***		
	(0.146)			(0.015)		
Swing5%×*Polity* > 5		0.083*			0.098	
		(0.045)			(0.103)	
Swing10% *Polity>5			0.042			0.060
			(0.028)			(0.037)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	6372	6372	6372	6372	6372	6372
R Square	0.916	0.916	0.916	0.916	0.916	0.916
Clusters	236	236	236	236	236	236

Standard errors in parentheses, clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B9: Provincial assembly: Swing constituencies.

	at least 2 elections			**at least 3 elections**		
Dep:Var: Light_{ct}	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Swing2%×*Polity*	0.006			0.003		
	(0.004)			(0.005)		
Swing5%×*Polity*		0.003			0.008*	
		(0.002)			(0.004)	
Swing10%×*Polity*			-0.000			-0.000
			(0.002)			(0.002)
Panel B						
Swing2%×*Polity* > 5	0.099*			0.093		
	(0.057)			(0.086)		
Swing5%×*Polity* > 5		0.060**			0.146**	
		(0.029)			(0.062)	
Swing10%×*Polity* > 5			0.024			0.025
			(0.022)			(0.025)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	13446	13446	13446	13446	13446	13446
R Square	0.924	0.924	0.924	0.924	0.924	0.924
Clusters	498	498	498	498	498	498

Standard errors in parentheses, clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B10: Ethnic favouritism, constituency swing in at least 3 elections.

Dep:Var: Light$_{ct}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A								
Leader	-0.154***	-0.110***	-0.155***	-0.154***	-0.155***	-0.025	-0.154***	-0.155***
	(0.021)	(0.016)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Leader×*Polity*		-0.011***						
		(0.003)						
Leader×*Swing*2%			0.223***		0.193***			0.167***
			(0.016)		(0.017)			(0.015)
Swing2%×*Polity*				0.013***	0.006***			
				(0.001)	(0.001)			
Leader×*Polity* > 5						-0.189***		
						(0.041)		
Swing2%×*Polity* > 5							0.195***	0.106***
							(0.012)	(0.008)
Year, Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	6372	6372	6372	6372	6372	6372	6372	6372
R Square	0.918	0.918	0.918	0.918	0.918	0.919	0.918	0.918
Clusters	236	236	236	236	236	236	236	236
Panel B								
Leader	-0.141***	-0.102***	-0.141***	-0.141***	-0.141***	-0.030*	-0.141***	-0.141***
	(0.014)	(0.011)	(0.014)	(0.014)	(0.014)	(0.016)	(0.014)	(0.014)
Leader×*Polity*		-0.010***						
		(0.002)						
Leader×*Swing*2%			0.090***		0.079***			0.048
			(0.012)		(0.028)			(0.050)
Swing2%×*Polity*				0.003	0.002			
				(0.005)	(0.005)			
Leader*Dummy_polity>5						-0.163***		
						(0.030)		
Swing2%×*Polity* > 5							0.083	0.078
							(0.087)	(0.092)
Year, Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	13446	13446	13446	13446	13446	13446	13446	13446
R Square	0.925	0.925	0.925	0.925	0.925	0.925	0.925	0.925
Clusters	498	498	498	498	498	498	498	498

Standard errors in parentheses, clustered at constituency level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B11: National assembly: Ethnic favouritism, constituency swing in at least 3 elections.

Dep:Var: Light$_{ct}$	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Leader	-0.154***	-0.154***	-0.154***	-0.147***	-0.155***	-0.145***
	(0.021)	(0.021)	(0.021)	(0.022)	(0.022)	(0.021)
Leader×*Swing*5%	0.001		0.005			
	(0.071)		(0.081)			
Swing5%×*Polity*		-0.001	-0.001			
		(0.007)	(0.007)			
Leader×*Swing*10%				-0.028		-0.043
				(0.027)		(0.032)
Swing10%×*Polity*					0.004	0.004*
					(0.002)	(0.003)
Panel B						
Leader	-0.154***	-0.154***	-0.152***	-0.147***	-0.157***	-0.142***
	(0.021)	(0.021)	(0.021)	(0.022)	(0.022)	(0.021)
Leader×*Swing*5%	0.001		-0.054			
	(0.071)		(0.092)			
Swing5%×*Polity* > 5		0.097	0.107			
		(0.101)	(0.111)			
Leader×*Swing*10%				-0.028		-0.063*
				(0.027)		(0.037)
Swing10%×*Polity* > 5					0.078**	0.094**
					(0.036)	(0.042)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	6372	6372	6372	6372	6372	6372
R Square	0.918	0.918	0.918	0.918	0.918	0.918
Clusters	236	236	236	236	236	236

Standard errors in parentheses, clustered at constituency level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B12: Provincial assembly: Ethnic favouritism, constituency swing in at least 3 elections.

Dep:Var: Light$_{ct}$	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Leader	-0.140***	-0.141***	-0.139***	-0.135***	-0.141***	-0.134***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Leader×*Swing*5%	-0.041		-0.071**			
	(0.036)		(0.035)			
Swing5%×*Polity*		0.008*	0.009*			
		(0.004)	(0.005)			
Leader×*Swing*10%				-0.032		-0.034
				(0.023)		(0.025)
Swing10%×*Polity*					0.000	0.001
					(0.002)	(0.002)
Panel B						
Leader	-0.140***	-0.141***	-0.138***	-0.135***	-0.142***	-0.132***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Leader×*Swing*5%	-0.041		-0.099***			
	(0.036)		(0.035)			
Swing5%×*Polity* >5		0.144**	0.160**			
		(0.060)	(0.063)			
Leader×*Swing*10%				-0.032		-0.045*
				(0.023)		(0.026)
Swing10%×*Polity* >5					0.031	0.040
					(0.024)	(0.027)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	13446	13446	13446	13446	13446	13446
R Square	0.925	0.925	0.925	0.925	0.925	0.925
Clusters	498	498	498	498	498	498

Standard errors in parentheses, clustered at constituency level
* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Table B13: Regression results-HHI.

	National Assembly				**Provincial Assemblies**			
Dep:Var: Light$_{ct}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HHI$_{continuous\ var}$	-0.109				0.008			
	(0.111)				(0.079)			
HHI$_{dummy}\leq 0.15$		0.267				0.265		
		(0.235)				(0.275)		
HHI$_{dummy}\leq 0.20$			0.358**				0.028	
			(0.149)				(0.076)	
HHI$_{dummy}\leq 0.25$				0.148**				-0.011
				(0.071)				(0.036)
Year, Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	7344	7344	7344	7344	15579	15579	15579	15579
R Square	0.938	0.938	0.939	0.938	0.940	0.941	0.940	0.940
Clusters	272	272	272	272	577	577	577	577

Standard errors in parentheses, clustered at constituency level
* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Table B14: Constituency swing 2%, 5%, and 10%.

	National Assembly			Provincial Assemblies		
Dep:Var: Light_{ct}	(1)	(2)	(3)	(4)	(5)	(6)
Light_{ct-1}	0.801***	0.800***	0.799***	0.811***	0.812***	0.812***
	(0.026)	(0.026)	(0.026)	(0.017)	(0.017)	(0.017)
Lagged Winning Margin 2%	0.035			0.039**		
	(0.023)			(0.016)		
Lagged Winning Margin 5%		0.038***			0.016**	
		(0.014)			(0.008)	
Lagged Winning Margin 10%			0.037***			0.008
			(0.010)			(0.006)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	7072	7072	7072	15002	15002	15002
R Square	0.973	0.973	0.973	0.975	0.975	0.975
Clusters	272	272	272	577	577	577

SE in parentheses, clustered at constituency level.

Table B15: Constituency swing in at least 3 elections.

	National Assembly						Provincial Assembly					
	at least 2 elections			at least 3 elections			at least 2 elections			at least 3 elections		
Dep:Var: Light_{ct}	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A												
Light_{ct-1}	0.802***	0.802***	0.802***	0.802***	0.803***	0.802***	0.812***	0.812***	0.812***	0.812***	0.812***	0.812***
	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Swing2%×*Polity*	0.007			0.005***			0.003			0.001		
	(0.005)			(0.001)			(0.002)			(0.004)		
Swing5%×*Polity*		0.002			0.004			0.002**			0.005*	
		(0.001)			(0.004)			(0.001)			(0.003)	
Swing10%×*Polity*			0.000			0.001			0.001			0.001
			(0.001)			(0.001)			(0.001)			(0.001)
Panel B												
Light_{ct-1}	0.801***	0.802***	0.802***	0.802***	0.803***	0.802***	0.812***	0.812***	0.812***	0.812***	0.811***	0.812***
	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Swing2%×*Polity* > 5	0.153*			0.080***			0.053*			0.041		
	(0.081)			(0.009)			(0.029)			(0.065)		
Swing5%×*Polity* > 5		0.062**			0.124*			0.045***			0.093***	
		(0.024)			(0.065)			(0.015)			(0.035)	
Swing10%×*Polity* > 5			0.030**			0.044**			0.032***			0.037***
			(0.014)			(0.020)			(0.010)			(0.013)
Year, Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	7072	7072	7072	7072	7072	7072	15002	15002	15002	15002	15002	15002
R Square	0.973	0.973	0.973	0.973	0.973	0.973	0.975	0.975	0.975	0.975	0.975	0.975
Clusters	272	272	272	272	272	272	577	577	577	577	577	577

SE in parentheses, clustered at constituency level. $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B16: Ethnic favouritism: Constituency swing 2%, in at least 3 elections.

Dep: Var: Light$_{ct-1}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A								
Light$_{ct-1}$	0.796***	0.795***	0.796***	0.796***	0.796***	0.794***	0.796***	0.796***
	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
Leader	-0.056***	-0.041***	-0.056***	-0.056***	-0.056***	0.001	-0.056***	-0.056***
	(0.008)	(0.006)	(0.008)	(0.008)	(0.008)	(0.010)	(0.008)	(0.008)
Leader×*Polity*		-0.004***						
		(0.001)						
Leader×*Swing*2%			0.123***		0.112***			0.096***
			(0.010)		(0.009)			(0.008)
Swing2%×*Polity*				0.006***	0.002***			
				(0.001)	(0.000)			
Leader×*Polity* > 5						-0.086***		
						(0.017)		
Swing2%×*Polity* > 5							0.100***	0.052***
							(0.009)	(0.005)
Year, Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	7072	7072	7072	7072	7072	7072	7072	7072
R^2	0.973	0.973	0.973	0.973	0.973	0.974	0.973	0.973
Clusters	272	272	272	272	272	272	272	272
Panel B								
Light$_{ct-1}$	0.807***	0.806***	0.807***	0.807***	0.807***	0.805***	0.807***	0.807***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Leader	-0.053***	-0.038***	-0.053***	-0.053***	-0.053***	0.001	-0.053***	-0.053***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.007)	(0.005)	(0.005)
Leader×*Polity*		-0.004***						
		(0.001)						
Leader×*Swing*2%			0.002		-0.001			-0.019
			(0.006)		(0.020)			(0.036)
Swing2%×*Polity*				0.001	0.001			
				(0.004)	(0.004)			
Leader×*Polity* > 5						-0.082***		
						(0.012)		
Swing2%×*Polity* > 5							0.039	0.041
							(0.065)	(0.068)
Year, Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	15002	15002	15002	15002	15002	15002	15002	15002
R Square	0.975	0.975	0.975	0.975	0.975	0.975	0.975	0.975
Clusters	577	577	577	577	577	577	577	577

Standard errors in parentheses, clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B17: Ethnic favouritism: Constituency swing at 5%, 10% in at least 3 elections.

	National Assembly						Provincial Assembly					
Dep:Var: Light_{ct}	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A												
Light_{ct-1}	0.796***	0.796***	0.796***	0.796***	0.796***	0.796***	0.807***	0.807***	0.806***	0.807***	0.807***	0.807***
	(0.026)	(0.026)	(0.026)	(0.026)	(0.025)	(0.025)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Leader	-0.056***	-0.056***	-0.056***	-0.050***	-0.057***	-0.050***	-0.052***	-0.053***	-0.052***	-0.049***	-0.053***	-0.048***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Leader×*Swing*5%	-0.000		-0.020				-0.031		-0.049**			
	(0.037)		(0.041)				(0.021)		(0.021)			
Swing5%×*Polity*		0.004	0.004					0.005*	0.006**			
		(0.004)	(0.004)					(0.003)	(0.003)			
Leader×*Swing*10%				-0.025**		-0.034**				-0.025**		-0.029***
				(0.012)		(0.014)				(0.010)		(0.011)
Swing10%×*Polity*					0.002*	0.003**					0.001	0.001
					(0.001)	(0.001)					(0.001)	(0.001)
Panel B												
Light_{ct-1}	0.796***	0.796***	0.796***	0.796***	0.795***	0.795***	0.807***	0.806***	0.806***	0.807***	0.807***	0.807***
	(0.026)	(0.025)	(0.025)	(0.026)	(0.025)	(0.025)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Leader	-0.056***	-0.056***	-0.055***	-0.050***	-0.059***	-0.048***	-0.052***	-0.053***	-0.052***	-0.049***	-0.054***	-0.047***
	(0.008)	(0.008)	(0.007)	(0.008)	(0.008)	(0.007)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Leader×*Swing*5%	-0.000		-0.071				-0.031		-0.068***			
	(0.037)		(0.050)				(0.021)		(0.019)			
Swing5%×*Polity* > 5		0.125**	0.138**					0.093***	0.104***			
		(0.064)	(0.068)					(0.034)	(0.035)			
Leader×*Swing*10%				-0.025**		-0.049***				-0.025**		-0.040***
				(0.012)		(0.017)				(0.010)		(0.012)
Swing10%×*Polity* > 5					0.053***	0.065***					0.040***	0.047***
					(0.019)	(0.021)					(0.013)	(0.014)
Year, Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	7072	7072	7072	7072	7072	7072	15002	15002	15002	15002	15002	15002
R Square	0.973	0.974	0.974	0.973	0.973	0.974	0.975	0.975	0.975	0.975	0.975	0.975
Clusters	272	272	272	272	272	272	577	577	577	577	577	577

Standard errors in parentheses, clustered at constituency level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Public goods provisions: Schools and Health facilities

Table B18: Public goods provisions: Constituency swing 2%, 5%, 10%.

Dep: Var:	Schools			Health Facilities		
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged Winning Margin 2%	0.051			0.003		
	(0.036)			(0.003)		
Lagged Winning Margin 5%		0.064**			0.005**	
		(0.026)			(0.002)	
Lagged Winning Margin 10%			0.058***			0.006***
			(0.021)			(0.002)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	6347	6347	6347	6347	6347	6347
R^2	0.809	0.810	0.810	0.774	0.774	0.775
Clusters	577	577	577	577	577	577

Standard errors in parentheses. SE clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B19: Ethnic favouritism in public goods provisions: Constituency swing up to 2% in at least 3 elections.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A	**Schools**							
Leader	-0.015	0.311***	-0.015	-0.015	-0.013	0.412***	-0.015	-0.013
	(0.011)	(0.027)	(0.011)	(0.011)	(0.010)	(0.041)	(0.011)	(0.011)
Leader×*Polity*		-0.062***						
		(0.006)						
Leader×*Swing*2%			-0.074***		-0.704**			-0.761**
			(0.010)		(0.310)			(0.343)
Swing2%×*Polity*				0.132*	0.142**			
				(0.070)	(0.069)			
Leader×*Polity* > 5						-0.597***		
						(0.062)		
Swing2%×*Polity* > 5							0.898*	1.034**
							(0.507)	(0.514)
Panel B	**Health Facilities**							
Leader	-0.009***	0.009***	-0.009***	-0.009***	-0.009***	0.016***	-0.009***	-0.009***
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)
Leader×*Polity*		-0.003***						
		(0.000)						
Leader×*Swing*2%			-0.008***		-0.072**			-0.077**
			(0.001)		(0.035)			(0.035)
Swing2%×*Polity*				0.013*	0.014*			
				(0.008)	(0.008)			
Leader×*Polity* > 5						-0.034***		
						(0.005)		
Swing2%×*Polity* > 5							0.090*	0.104**
							(0.052)	(0.052)
Year, Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	6347	6347	6347	6347	6347	6347	6347	6347
R^2	0.776	0.781	0.776	0.781	0.782	0.781	0.779	0.780
Clusters	577	577	577	577	577	577	577	577

Standard errors in parentheses, clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B20: Ethnic favouritism in public goods provisions: Swing 5% and 10% in at least 3 elec

Dep: Var: **Schools**	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Leader	-0.013	-0.015	-0.007	-0.005	-0.020*	0.007
	(0.011)	(0.011)	(0.010)	(0.010)	(0.011)	(0.009)
Leader×*Swing*5%	-0.081*		-0.293**			
	(0.042)		(0.143)			
Swing5%×*Polity*		0.064***	0.070***			
		(0.024)	(0.026)			
Leader×*Swing*10%				-0.053**		-0.141***
				(0.023)		(0.044)
Swing10%×*Polity*					0.029***	0.033***
					(0.008)	(0.009)
Panel B						
Leader	-0.013	-0.016	-0.007	-0.005	-0.019*	0.006
	(0.011)	(0.011)	(0.010)	(0.010)	(0.011)	(0.009)
Leader×*Swing*5%	-0.081*		-0.298*			
	(0.042)		(0.162)			
Swing5%×*Polity* > 5		0.400**	0.479**			
		(0.163)	(0.195)			
Leader×*Swing*10%				-0.053**		-0.140***
				(0.023)		(0.049)
Swing10%×*Polity* > 5					0.173***	0.217***
					(0.053)	(0.065)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	6347	6347	6347	6347	6347	6347
R^2	0.809	0.811	0.811	0.809	0.810	0.811
Clusters	577	577	577	577	577	577

Standard errors in parentheses, clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B21: Ethnic favouritism in public goods provisions: Swing 5% and 10% in at least 3 elec

Dep:Var: **Health Facilities**	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Leader	-0.009***	-0.009***	-0.008***	-0.008***	-0.009***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Leader×*Swing*5%	-0.002		-0.017*			
	(0.002)		(0.010)			
Swing5%×*Polity*		0.005**	0.005**			
		(0.002)	(0.002)			
Leader×*Swing*10%				-0.004***		-0.010***
				(0.001)		(0.003)
Swing10%×*Polity*					0.002***	0.003***
					(0.001)	(0.001)
Panel B						
Leader	-0.009***	-0.009***	-0.008***	-0.008***	-0.009***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Leader×*Swing*5%	-0.002		-0.018*			
	(0.002)		(0.011)			
Swing5%×*Polity* > 5		0.031**	0.036**			
		(0.013)	(0.014)			
Leader×*Swing*10%				-0.004***		-0.011***
				(0.001)		(0.003)
Swing10%×*Polity* > 5					0.015***	0.019***
					(0.004)	(0.005)
Year, Constituency FE	✓	✓	✓	✓	✓	✓
Observations	6347	6347	6347	6347	6347	6347
R^2	0.776	0.778	0.779	0.777	0.778	0.779
Clusters	577	577	577	577	577	577

Standard errors in parentheses, clustered at constituency level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix C: Appendix to Chapter 3

Controlling for Supply of health Services: Number of health centres per 1000 people at district level

Table C1: Effect of Islamist support and violence on vaccines take-up

	Islamist Support		**Violence**	
	(First dose)	(All doses)	(First dose)	(All doses)
Post×Islamist$_{support}$	-0.065***	-0.055***	-	-
	(0.022)	(0.021)		
Violence	-0.284***	-0.265***	-0.286***	-0.267***
	(0.062)	(0.060)	(0.063)	(0.061)
Mother's education	0.019***	0.018***	0.019***	0.018***
	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.008***	-0.005***	-0.008***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.008***	0.007***	0.008***	0.007***
	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.004***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
Log of income of House	-0.000	0.001*	0.000	0.001*
	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.015***	-0.015***	-0.015***	-0.015***
	(0.003)	(0.003)	(0.003)	(0.003)
Lady health visits	0.017**	0.023***	0.017**	0.023***
	(0.007)	(0.007)	(0.007)	(0.007)
Dummy for rural region	-0.005	-0.010**	-0.004	-0.008*
	(0.005)	(0.005)	(0.005)	(0.005)
Health centres per 1000 people	1.580*	1.440*	1.724**	1.608*
	(0.883)	(0.860)	(0.864)	(0.845)
Year FE	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes
Observations	145973	145973	150281	150281
R^2	0.213	0.205	0.216	0.207
Clusters	625	625	625	625

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child level. The sample includes children born between 2002 and 2015, in the first two columns we exclude children born between May and July 2011. The dependent variables are an indicator variables that take value 1 if the child has received the first dose of each vaccine, 0 otherwise. The outcome variable for all doses takes value 1 if a child has received all the recommended dosages of each vaccine, 0 otherwise. The *Post* is an indicator take value 1 if child born after July 2011, 0 otherwise. The main variables of interest, our proxy of support for Islamist groups and Violence per 1000 people are defined in terms of standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C2: Effect of Islamist Support in general election that held in 2002 on Vaccines take-up. First dose of each vaccine

	Polio1	DPT1	HB1	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Post×Islamist$_{supportGE2002}$	-0.008	-0.012*	-0.014**	-0.010	-0.019***	-0.009
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)
Violence	-0.016**	-0.027***	-0.028***	-0.027***	-0.027***	-0.016**
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)
Mother's education	0.020***	0.021***	0.021***	0.021***	0.021***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.013***	-0.013***	-0.011***	-0.014***	-0.008***	-0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.011***	0.013***	0.012***	0.013***	0.012***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.004***	0.005***	0.004***	0.005***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.005***	-0.004***	-0.003***	-0.004***	-0.001	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.015***	-0.019***	-0.018***	-0.019***	-0.017***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	-0.000	0.006	0.010*	0.004	0.013**	0.007
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)
Dummy for rural region	-0.006	-0.007	-0.004	-0.006	-0.016***	-0.005
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	251388	247057	247055	251386	221659	251386
R^2	0.201	0.213	0.213	0.212	0.210	0.189
Clusters	1323	1298	1298	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child level. The sample includes children born between 2002 and 2015, we exclude children born between May and July 2011. The dependent variables are an indicator variables that take value 1 if the child has received first dose of each vaccine, 0 otherwise. The *Post* is an indicator takes value 1 if child born after July 2011, 0 otherwise. All regressions are run on support for Islamist groups' vote share only in general election 2002, which is defined in terms of standard deviations. The political violence per 1000 people is defined interms of standard deviations.

Table C3: Effect of Islamist Support in general election that held in 2002 on Vaccines take-up. All doses of each vaccine

	Polio	DPT	HB	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Post×Islamist$_{supportGE2002}$	-0.012*	-0.015**	-0.017***	-0.010	-0.019***	-0.010
	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)	(0.006)
Violence	-0.014**	-0.026***	-0.027***	-0.027***	-0.027***	-0.015**
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)
Mother's education	0.021***	0.021***	0.021***	0.021***	0.021***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.010***	-0.009***	-0.007***	-0.014***	-0.008***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.010***	0.012***	0.011***	0.013***	0.012***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.004***	0.004***	0.004***	0.005***	0.004***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.002***	-0.002***	-0.001	-0.004***	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.014***	-0.017***	-0.017***	-0.019***	-0.017***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	0.005	0.011**	0.016***	0.004	0.013**	0.012**
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.005)
Dummy for rural region	-0.008**	-0.012***	-0.009**	-0.006	-0.016***	-0.008**
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	239886	239886	239885	251386	221659	251386
R^2	0.200	0.208	0.206	0.212	0.210	0.182
Clusters	1258	1258	1258	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child level. The sample includes children born between 2002 and 2015, we exclude children born between May and July 2011. The dependent variables are an indicator variables that take value 1 if the child has received first dose of each vaccine, 0 otherwise. The *Post* is an indicator takes value 1 if child born after July 2011, 0 otherwise. All regressions are run on support for Islamist groups' vote share only in general election 2002, which is defined in terms of standard deviations. The political violence per 1000 people is defined interms of standard deviations.

Table C4: Effect of violence on female child's vaccines take-up: First dose of each vaccine

	Polio1	DPT1	HB1	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Violence	-0.015**	-0.026***	-0.027***	-0.026***	-0.026***	-0.016**
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)
Violence × Female	-0.002	-0.004*	-0.004	-0.004*	-0.004*	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Mother's education	0.020***	0.021***	0.021***	0.021***	0.021***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.013***	-0.013***	-0.011***	-0.014***	-0.008***	-0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.010***	0.013***	0.012***	0.013***	0.012***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.004***	0.005***	0.004***	0.005***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.004***	-0.004***	-0.003***	-0.004***	-0.001	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.015***	-0.019***	-0.018***	-0.019***	-0.017***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	0.001	0.007	0.012**	0.006	0.015***	0.008
	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)
Dummy for rural region	-0.004	-0.005	-0.002	-0.004	-0.013***	-0.002
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	258193	253857	253855	258191	228459	258191
R^2	0.204	0.215	0.215	0.215	0.212	0.191
Clusters	1323	1298	1298	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child level. The sample includes children born between 2002 and 2015. The outcome variables are an indicator variables that take value 1 if the child has received first dose of each vaccine, 0 otherwise. The main variable of interest Violence per 1000 people is defined in terms of standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C5: Effect of political violence on female child's vaccines take-up: All doses of each vaccine

	Polio	DPT	HB	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Violence	-0.013*	-0.024***	-0.025***	-0.026***	-0.026***	-0.014**
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)
Violence × Female	-0.003	-0.005**	-0.005**	-0.004*	-0.004*	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Mother's education	0.021***	0.021***	0.021***	0.021***	0.021***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.010***	-0.009***	-0.007***	-0.014***	-0.008***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.010***	0.012***	0.011***	0.013***	0.012***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.004***	0.004***	0.004***	0.005***	0.004***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.002***	-0.002***	-0.001	-0.004***	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.014***	-0.017***	-0.017***	-0.019***	-0.017***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	0.006	0.013**	0.018***	0.006	0.015***	0.013**
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.005)
Dummy for rural region	-0.006	-0.010**	-0.007	-0.004	-0.013***	-0.006
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	246686	246686	246685	258191	228459	258191
R^2	0.202	0.210	0.208	0.215	0.212	0.184
Clusters	1258	1258	1258	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child level. The sample includes children born between 2002 and 2015. The outcome variables are an indicator variables that take value 1 if the child has received all the recommended dosages of each vaccine, 0 otherwise. The main variable of interest political violence per 1000 people is defined in terms of standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C6: Effect of Islamist support on female child's vaccines take-up: First dose of each vaccine

	Polio1	DPT1	HB1	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Post×Islamist$_{support}$	-0.017***	-0.014**	-0.016**	-0.012*	-0.010	-0.015**
	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)
Post×Islamist$_{support}$×Female	-0.007*	-0.006	-0.005	-0.005	-0.005	-0.006
	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)
Violence$_{1k\ SD}$	-0.016**	-0.026***	-0.028***	-0.026***	-0.026***	-0.016**
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)
Mother's education	0.020***	0.021***	0.021***	0.021***	0.021***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.013***	-0.013***	-0.011***	-0.014***	-0.008***	-0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.011***	0.013***	0.012***	0.013***	0.012***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.004***	0.005***	0.004***	0.005***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.005***	-0.004***	-0.003***	-0.004***	-0.001	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.015***	-0.019***	-0.018***	-0.019***	-0.017***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	-0.000	0.006	0.010*	0.005	0.013**	0.007
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)
Dummy for rural region	-0.007	-0.007	-0.004	-0.006	-0.016***	-0.005
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	251388	247057	247055	251386	221659	251386
R^2	0.202	0.213	0.213	0.213	0.210	0.189
Clusters	1323	1298	1298	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child level. The sample includes children born between 2002 and 2015, we exclude children born between May and July 2011. The dependent variables are an indicator variables that take value 1 if the child has received first dose of each vaccine, 0 otherwise. The *Post* is an indicator take value 1 if child born after July 2011, 0 otherwise. All regressions include all the double interaction terms: *Post* × *Female* and *Islamist*$_{support}$×*Female*. The political violence per 1000 people is defined interms of standard deviations. The main variable of interest, our proxy of support for Islamist groups is defined in terms of standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C7: Effect of Islamist support on female child's vaccines take-up: All doses of each vaccine

	Polio	DPT	HB	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Post×Islamist$_{support}$	-0.017***	-0.011*	-0.014**	-0.012*	-0.010	-0.012**
	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.006)
Post×Islamist$_{support}$×Female	-0.005	-0.006	-0.004	-0.005	-0.005	-0.005
	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)
Violence$_{1k\ SD}$	-0.014*	-0.025***	-0.026***	-0.026***	-0.026***	-0.015**
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)
Mother's education	0.021***	0.021***	0.021***	0.021***	0.021***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.010***	-0.009***	-0.007***	-0.014***	-0.008***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.010***	0.012***	0.012***	0.013***	0.012***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.004***	0.004***	0.004***	0.005***	0.004***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.002***	-0.002***	-0.001	-0.004***	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.014***	-0.017***	-0.016***	-0.019***	-0.017***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	0.005	0.011**	0.016***	0.005	0.013**	0.012**
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.005)
Dummy for rural region	-0.009**	-0.012***	-0.009**	-0.006	-0.016***	-0.009**
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	239886	239886	239885	251386	221659	251386
R^2	0.200	0.208	0.206	0.213	0.210	0.182
Clusters	1258	1258	1258	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child level. The sample includes children born between 2002 and 2015, we exclude children born between May and July 2011. The dependent variables are an indicator variables that take value 1 if the child has received all the recommended dosages of each vaccine, 0 otherwise. The *Post* is an indicator take value 1 if child born after July 2011, 0 otherwise. All regressions include all the double interaction terms: *Post* × *Female* and *Islamist*$_{support}$×*Female*. The political violence per 1000 people is defined interms of standard deviations. The main variable of interest, our proxy of support for Islamist groups is defined in terms of standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C8: Effect of political violence on first child's vaccines take-up: First dose of each vaccine

	Polio1	DPT1	HB1	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Violence	-0.014*	-0.025***	-0.026***	-0.025***	-0.022**	-0.013*
	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)	(0.008)
Violence × First Child	-0.003	-0.004	-0.004	-0.004	-0.009	-0.005
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Mother's education	0.021***	0.021***	0.022***	0.022***	0.021***	0.021***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.011***	-0.011***	-0.009***	-0.012***	-0.007***	-0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.010***	0.013***	0.012***	0.013***	0.012***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.003***	0.004***	0.004***	0.004***	0.003***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.004***	-0.003***	-0.002***	-0.004***	-0.000	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.015***	-0.019***	-0.018***	-0.019***	-0.017***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	0.004	0.010*	0.014**	0.009	0.016***	0.010**
	(0.005)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)
Dummy for rural region	-0.009**	-0.010**	-0.006	-0.009*	-0.016***	-0.006
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	258193	253857	253855	258191	228459	258191
R^2	0.208	0.219	0.217	0.219	0.213	0.193
Clusters	1323	1298	1298	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child level. The sample includes children born between 2002 and 2015. The outcome variables are an indicator variables that take value 1 if the child has received first dose of each vaccine, 0 otherwise. Each regression model includes every component of interaction term. The main variable of interest political violence per 1000 people is defined in terms of standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C9: Effect of political violence on first child's vaccines take-up: All doses of each vaccine

	Polio	DPT	HB	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Violence	-0.009	-0.021**	-0.022**	-0.025***	-0.022**	-0.008
	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)	(0.008)
Violence × First Child	-0.008	-0.009	-0.009	-0.004	-0.009	-0.011*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Mother's education	0.021***	0.021***	0.022***	0.022***	0.021***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.008***	-0.008***	-0.006***	-0.012***	-0.007***	-0.006***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.010***	0.012***	0.011***	0.013***	0.012***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.003***	0.003***	0.003***	0.004***	0.003***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.002***	-0.001**	-0.001	-0.004***	-0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.014***	-0.017***	-0.017***	-0.019***	-0.017***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	0.008	0.015***	0.019***	0.009	0.016***	0.014***
	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)
Dummy for rural region	-0.009**	-0.013***	-0.010**	-0.009*	-0.016***	-0.008**
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	246686	246686	246685	258191	228459	258191
R^2	0.204	0.212	0.209	0.219	0.213	0.185
Clusters	1258	1258	1258	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child level. The sample includes children born between 2002 and 2015. The outcome variables are an indicator variables that take value 1 if the child has received all the recommended dosages of each vaccine, 0 otherwise. Each regression model includes every component of interaction term. The main variable of interest political violence per 1000 people is defined in terms of standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C10: Effect of Islamist support on first child's vaccines take-up: First dose of each vaccine

	Polio1	DPT1	HB1	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Post×Islamist$_{support}$	-0.026***	-0.024***	-0.025***	-0.021***	-0.018**	-0.023***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)
Post × Islamist$_{support}$	0.011	0.015**	0.014*	0.013*	0.010	0.008
× First Child	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Violence$_{1k\ SD}$	-0.016**	-0.027***	-0.028***	-0.027***	-0.026***	-0.016**
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)
Mother's education	0.021***	0.021***	0.022***	0.022***	0.021***	0.021***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.011***	-0.011***	-0.009***	-0.012***	-0.007***	-0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.010***	0.013***	0.012***	0.013***	0.012***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.003***	0.004***	0.004***	0.004***	0.003***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.004***	-0.003***	-0.002***	-0.004***	-0.000	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.015***	-0.019***	-0.018***	-0.019***	-0.017***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	0.004	0.010*	0.014**	0.009	0.016***	0.010**
	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)
Dummy for rural region	-0.010**	-0.011**	-0.007	-0.010**	-0.018***	-0.008**
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	251388	247057	247055	251386	221659	251386
R^2	0.207	0.217	0.216	0.217	0.212	0.192
Clusters	1323	1298	1298	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child level. The sample includes children born between 2002 and 2015, we exclude children born between May and July 2011. The dependent variables are an indicator variables that take value 1 if the child has received first dose of each vaccine, 0 otherwise. The *Post* is an indicator take value 1 if child born after July 2011, 0 otherwise. All regressions include every component of interaction term, i.e, *Post,* $Islamist_{support}$*, First Child*, and all the double interaction terms: *Post* × *First Child* and $Islamist_{support}$× *First Child*. The political violence per 1000 people is defined interms of standard deviations. The main variable of interest, our proxy of support for Islamist groups is defined in terms of standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C11: Effect of Islamist support on first child's vaccines take-up: All doses of each vaccine

	Polio	DPT	HB	BCG	Measles	all vaccines
	(1)	(2)	(3)	(4)	(5)	(6)
Post × $\text{Islamist}_{support}$	-0.025***	-0.022***	-0.023***	-0.021***	-0.018**	-0.020***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.006)
Post × $\text{Islamist}_{support}$	0.011	0.015**	0.014**	0.013*	0.010	0.008
× First Child	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)
$\text{Violence}_{1k\ SD}$	-0.014**	-0.025***	-0.027***	-0.027***	-0.026***	-0.015**
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)
Mother's education	0.021***	0.021***	0.022***	0.022***	0.021***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Mother's age	-0.008***	-0.008***	-0.006***	-0.012***	-0.007***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Edu: household head	0.010***	0.012***	0.011***	0.013***	0.012***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age of head of House	0.003***	0.003***	0.003***	0.004***	0.003***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log of income of House	-0.002***	-0.001*	-0.001	-0.004***	-0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Distance to Health instit:	-0.014***	-0.017***	-0.016***	-0.019***	-0.017***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lady health visits	0.008	0.014***	0.019***	0.009	0.016***	0.014***
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.005)
Dummy for rural region	-0.012***	-0.015***	-0.011**	-0.010**	-0.018***	-0.011***
	(0.004)	(0.005)	(0.004)	(0.005)	(0.005)	(0.004)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	239886	239886	239885	251386	221659	251386
R^2	0.203	0.210	0.207	0.217	0.212	0.183
Clusters	1258	1258	1258	1323	1245	1323

Note: Standard errors in parenthesis clustered at the birth year and district levels. The unit of observation is the child level. The sample includes children born between 2002 and 2015, we exclude children born between May and July 2011. The dependent variables are an indicator variables that take value 1 if the child has received all the recommended dosages of each vaccine, 0 otherwise. All regressions include every component of interaction term, i.e, *Post,* $Islamist_{support}$*, First Child*, and all the double interaction terms: *Post* × *First Child* and $Islamist_{support}$× *First Child*. The political violence per 1000 people is defined interms of standard deviations. The main variable of interest, our proxy of support for Islamist groups is defined in terms of standard deviations. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C12: Name of the districts

S.No.	District	S.No.	District	S.No.	District
1	Abbottabad	33	Kachhi	65	Narowal
2	Attock	34	Kalat	66	Nasirabad
3	Awaran	35	Karachi City	67	Naushahro Feroze
4	Badin	36	Karak	68	Nowshera
5	Bahawalnagar	37	Kasur	69	Okara
6	Bahawalpur	38	Khairpur	70	Pakpattan
7	Bannu	39	Khanewal	71	Peshawar
8	Barkhan	40	Kharan	72	Pishin
9	Batagram	41	Khushab	73	Quetta
10	Bhakkar	42	Khuzdar	74	Rahim Yar Khan
11	Buner	43	Killa Abdullah	75	Rajanpur
12	Chakwal	44	Killa Saifullah	76	Rawalpindi
13	Charsadda	45	Kohat	77	Sahiwal
14	Chitral	46	Kohistan	78	Sanghar
15	Dadu	47	Kohlu	79	Sargodha
16	Dera Bugti	48	Lahore	80	Shaheed Benazirabad
17	Dera Ghazi Khan	49	Lakki Marwat	81	Shangla
18	Dera Ismail Khan	50	Larkana	82	Sheikhupura
19	Faisalabad	51	Las Bela	83	Shikarpur
20	Ghotki	52	Layyah	84	Sialkot
21	Gujranwala	53	Lodhran	85	Sibi
22	Gujrat	54	Loralai	86	Sukkur
23	Gwadar	55	Lower Dir	87	Swabi
24	Hafizabad	56	Malakand PA	88	Swat
25	Hangu	57	Mandi Bahauddin	89	Tank
26	Haripur	58	Mansehra	90	Tharparkar
27	Hyderabad	59	Mardan	91	Thatta
28	Islamabad	60	Mastung	92	Toba Tek Singh
29	Jacobabad	61	Mianwali	93	Upper Dir
30	Jaffarabad	62	Mirpur Khas	94	Vehari
31	Jhang	63	Multan	95	Zhob
32	Jhelum	64	Muzaffargarh	96	Ziarat

Table C13: Islamist parties in general elections 2002, 2008 and 2013

S.No.	Political Party Name
1	Allah-o-Akbar Tehreek
2	Islami Inqalab Party
3	Islami Tehreek Pakistan
4	Jamaat-e-Islami Pakistan
5	Jamait Ahle-Hadith Pakistan (Elahi Zaheer)
6	Jamat Alaye Kalam Ullah Furman-e-Rasool
7	Jamiat Ulama-e-Islam (Sami)
8	Jamiat Ulama-e-Islam Nazryati Pakistan
9	Jamiat Ulema-e-Islam (Fazl-ur-Rahman Group)
10	Jamiat Ulma-e-Pakistan (Niazi)
11	Jamiat Ulma-e-Pakistan (Noorani)
12	Majlis-e-Wahdat-e-Muslimeen Pakistan
13	Markazi Jamiat Ahl-e-Hadith Pakistan
14	Markazi Jamiat Al- Hadith (Sajid Mir)
15	Markazi Jamiat Mushaikh Pakistan
16	Markazi Jamiat Ulema-e-Pakistan (FK)
17	Mutahida Deeni Mahaz
18	Mutthida Majlis-e-Amal Pakistan (MMA)
19	Pakistan Islami Justice Party
20	Pakistan Muhammadi Party
21	Pakistan Sunni Tehreek
22	Tehreek Tabdili Nizam Pakistan
23	Sunni Ittehad Council
24	Pakistan Rah-e-Haq Party
25	Jannat Pakistan Party
26	Jamiat Ulema-e-Pakistan
27	Jamiat Ulema-e-Pakistan (Nifaz-e-Shariat)
28	Markazi Jamiat Ulema e Pakistan
29	Mutahidda Ulema Mashaikh Council of Pakistan
30	Nizam-e-Mustafa Party
31	Pakistan Shia Political Party
32	Tehreek-e-Emaan Pakistan
33	Tehreek-e-Hussainia Pakistan
34	Tehreek-e-Labbaik Islam
35	Tehreek-e-Khalaft Pakistan

Figure B1: Average NTL: National and provincial constituencies

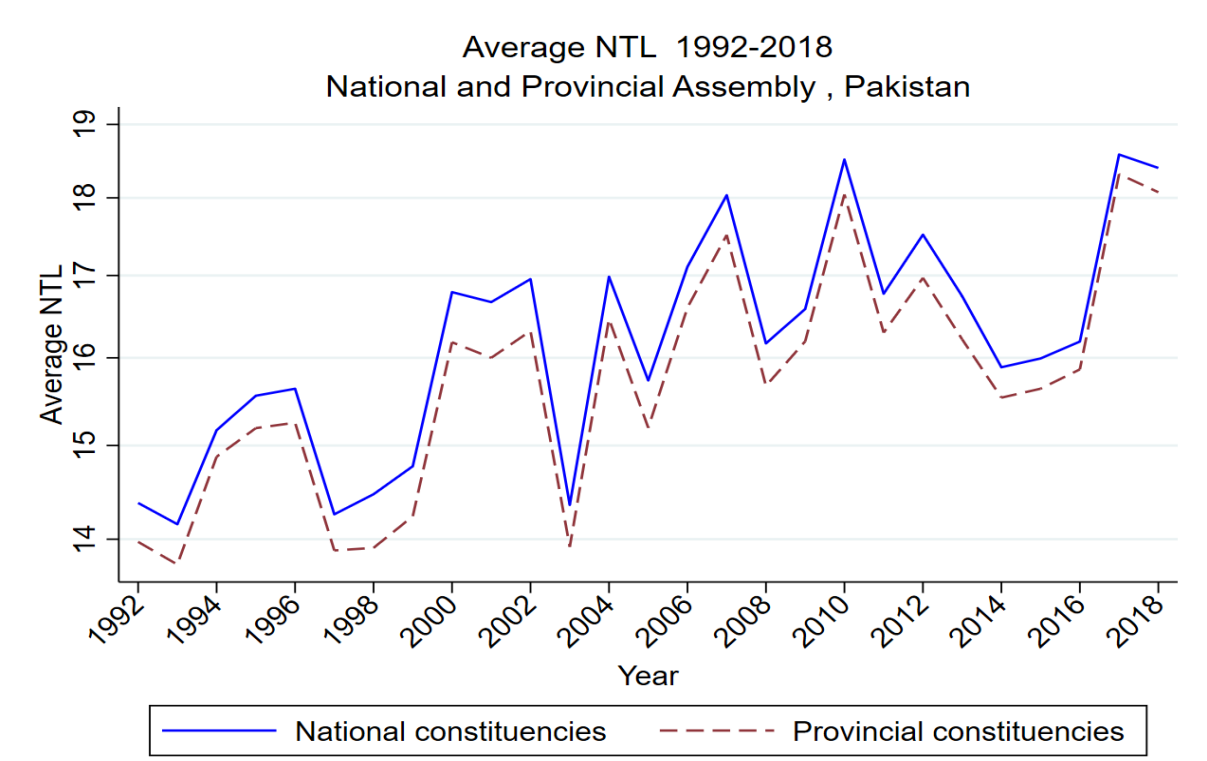
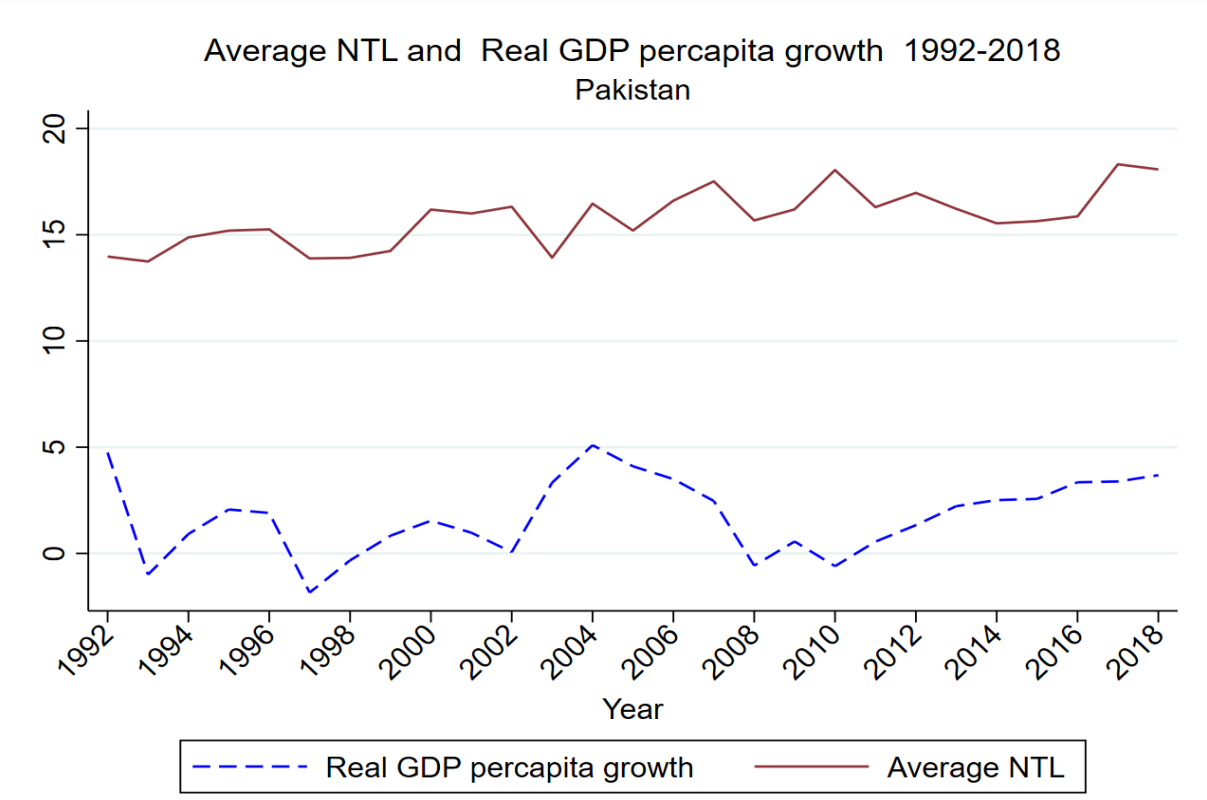
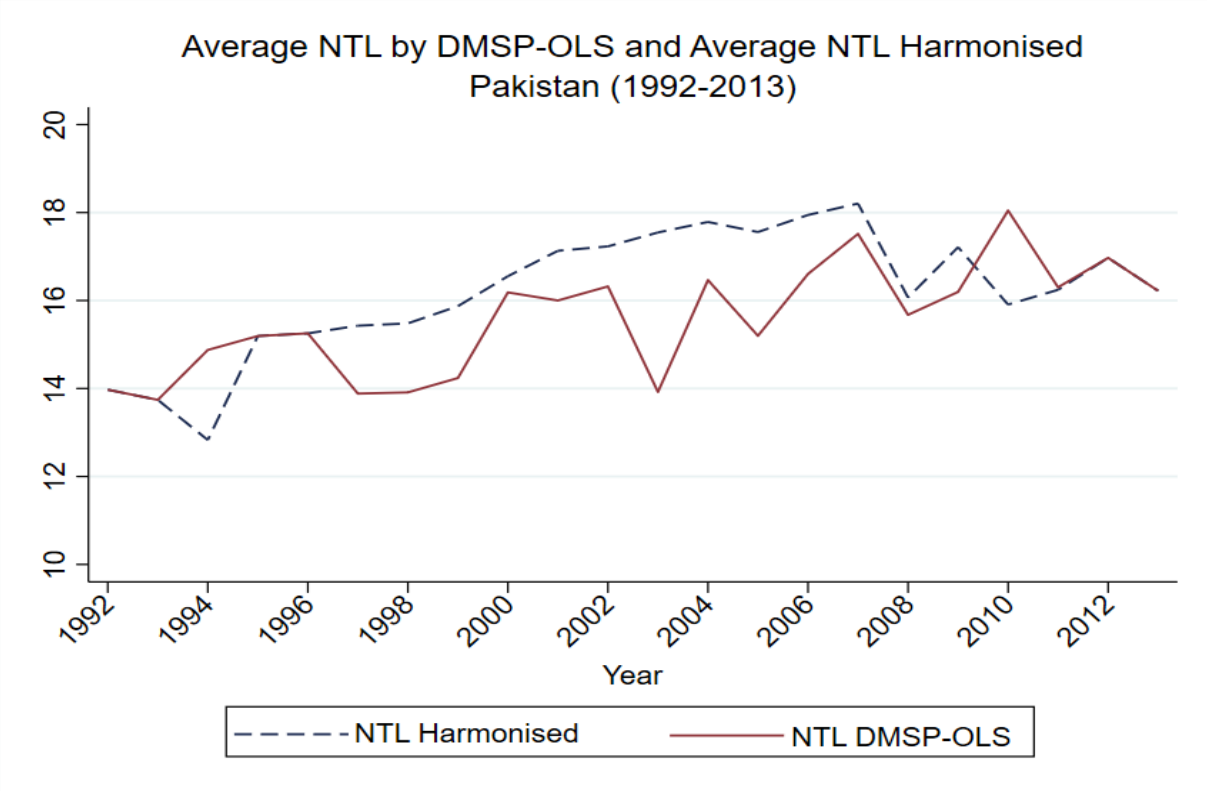


Figure B2: Average NTL and real GDP per capita growth.



[32]Real GDP per capita is taken from the *World Development Indicators (WDI) database* (calculated as GDP per capita at constant USD).

Figure B3: Average nighttime light



[32]Swing constituencies are swing at a 2% victory margin between the winner and runner-up candidate. Avg change in NTL is the average change in *nighttime light* per 10,000 registered voters in constituency *c*.

Figure B4: Swing constituencies and average change in NTL: Pre- and post-dictatorship.

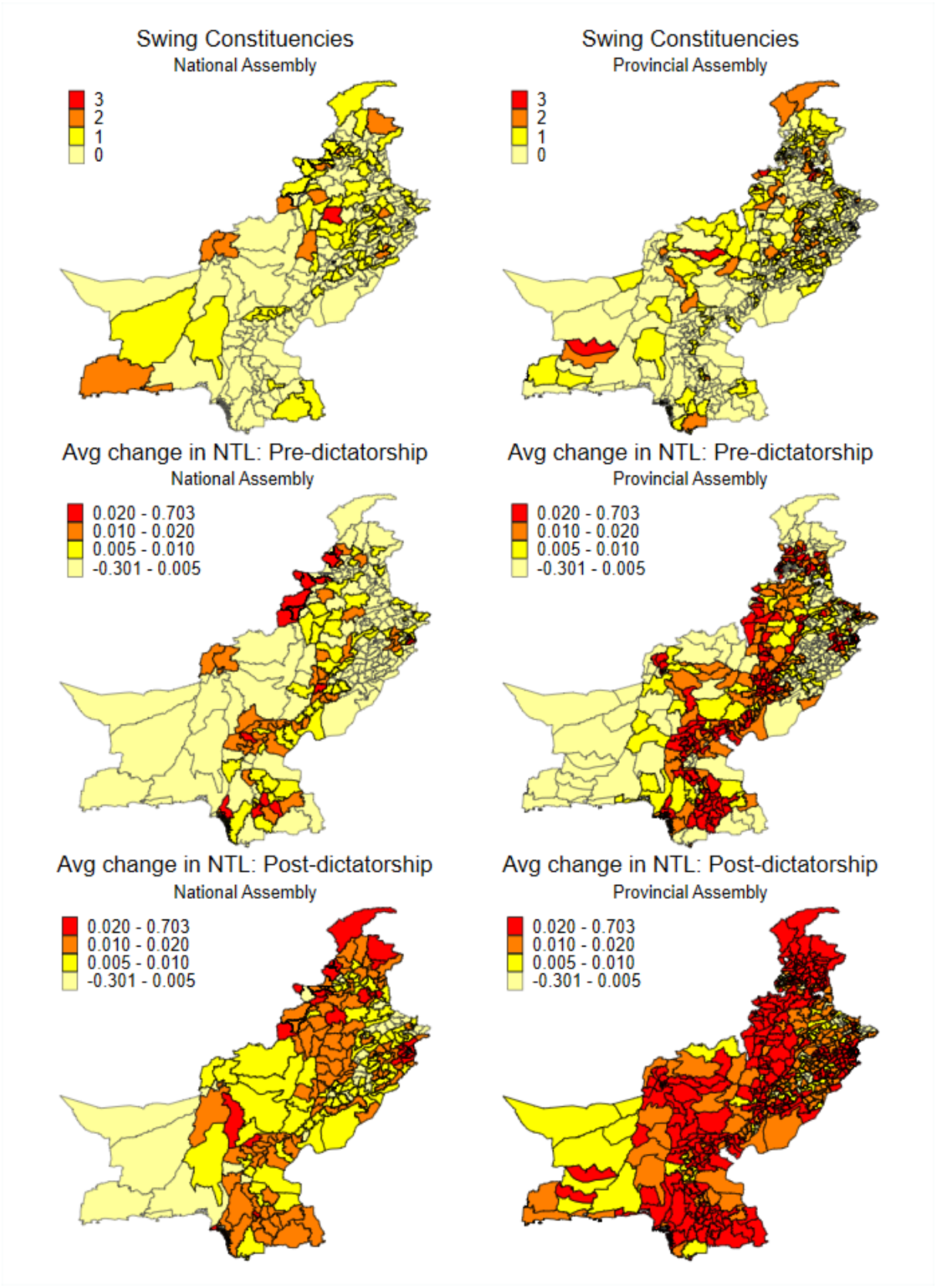


Figure B5: Provincial assembly constituencies and nighttime light pixels

Bibliography

Abbasi, N. M. (2013). Impact of terrorism on Pakistan. *Strategic Studies*, 33(2):33–68.

Abdullahi, I. A. and Kumar, P. (2016). Gender differences in prosocial behaviour. *The International Journal of Indian Psychology*, 3(4):171–175.

Abman, R. and Carney, C. (2020). Agricultural productivity and deforestation: Evidence from input subsidies and ethnic favoritism in malawi. *Journal of Environmental Economics and Management*, 103:102342.

Abrams, B. A. and Iossifov, P. (2006). Does the fed contribute to a political business cycle? *Public Choice*, 129(3):249–262.

Acemoglu, D., Naidu, S., Restrepo, P., and Robinson, J. A. (2019). Democracy does cause growth. *Journal of Political Economy*, 127(1):47–100.

Addison, T. and Baliamoune-Lutz, M. (2006). Economic reform when institutional quality is weak: The case of the maghreb. *Journal of Policy Modeling*, 28(9):1029–1043.

Agadjanian, V. and Prata, N. (2003). Civil war and child health: regional and ethnic dimensions of child immunization and malnutrition in angola. *Social science & Medicine*, 56(12):2515–2527.

Ahmad, S. O., Bux, A. S., and Yousuf, F. (2015). Polio in pakistan's north waziristan. *The Lancet Global Health*, 3(1):e15.

Ahmad, S. O., Yousuf, F., Bux, A. S., and Abu-Zaid, A. (2016). Pakistan: the final frontier for global polio eradication.

Aidt, T. S., Veiga, F. J., and Veiga, L. G. (2011). Election results and opportunistic policies: A new test of the rational political business cycle model. *Public Choice*, 148(1):21–44.

Akbulut-Yuksel, M. (2014). Children of war the long-run effects of large-scale physical destruction and warfare on children. *Journal of Human Resources*, 49(3):634–662.

Akbulut-Yuksel, M. (2017). War during childhood: The long run effects of warfare on health. *Journal of Health Economics*, 53:117–130.

Akhtar, N. (2013). Ethnic politics and political process in pakistan. *Pakistaniaat: A Journal of Pakistan Studies*, 5(3).

Akresh, R., Lucchetti, L., and Thirumurthy, H. (2012). Wars and child health: Evidence from the eritrean–ethiopian conflict. *Journal of Development Economics*, 99(2):330–340.

Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S., and Wacziarg, R. (2003). Fractionalization. *Journal of Economic Growth*, 8(2):155–194.

Alesina, A. and Ferrara, E. L. (2005). Ethnic diversity and economic performance. *Journal of Economic Literature*, 43(3):762–800.

Alesina, A., Michalopoulos, S., and Papaioannou, E. (2016). Ethnic inequality. *Journal of Political Economy*, 124(2):428–488.

Alesina, A. and Zhuravskaya, E. (2011). Segregation and the quality of government in a cross section of countries. *American Economic Review*, 101(5):1872–1911.

Alfano, M. R. and Baraldi, A. L. (2016). Democracy, political competition and economic growth. *Journal of International Development*, 28(8):1199–1219.

Ali, K. J. and Noman, A. (2013). Determinants of demand for health care in bangladesh: an econometric analysis. In *3rd Asia-Pacific Business Research Conference*.

Alonso-Borrego, C. and Carrasco, R. (2017). Employment and the risk of domestic violence: does the breadwinner's gender matter? *Applied Economics*, 49(50):5074–5091.

Altikulaç, S., Bos, M. G. N., Foulkes, L., Crone, E. A., and van Hoorn, J. (2019). Age and gender effects in sensitivity to social rewards in adolescents and young adults. *Frontiers in Behavioral Neuroscience*, 13:171.

Amare, M., Arndt, C., Abay, K. A., and Benson, T. (2020). Urbanization and child nutritional outcomes. *The World Bank Economic Review*, 34(1):63–74.

Anaman, K. A., Bukari, G. A., et al. (2019). Political economy analysis of the macroeconomic impact of national elections in ghana during the fourth republican era, 1992 to 2016. *Applied Economics and Finance*, 6(3):28–44.

Andersson, M., Hall, O., and Archila, M. F. (2019). How data-poor countries remain data poor: Underestimation of human settlements in burkina faso as observed from nighttime light data. *ISPRS International Journal of Geo-Information*, 8(11):498.

André, P., Maarek, P., Tapo, F., et al. (2018). Ethnic favoritism: Winner takes all or power sharing? evidence from school constructions in benin. *Manuscript. Université de Cergy-Pontoise. https://ideas. repec. org/p/ema/worpap/2018-03. html*.

Antai, D. (2011). Controlling behavior, power relations within intimate relationships and intimate partner physical and sexual violence against women in nigeria. *BMC Public Health*, 11(1):1–11.

Antoniades, A. and Calomiris, C. W. (2020). Mortgage market credit conditions and us presidential elections. *European Journal of Political Economy*, page 101909.

Archer, J. (2002). Sex differences in physically aggressive acts between heterosexual partners: A meta-analytic review. *Aggression and Violent Behavior*, 7(4):313–351.

Arriola, L. R. (2009). Patronage and political stability in africa. *Comparative Political Studies*, 42(10):1339–1362.

Arvate, P. R. (2013). Electoral competition and local government responsiveness in brazil. *World Development*, 43:67–83.

Asher, S. and Novosad, P. (2017). Politics and local economic growth: Evidence from india. *American Economic Journal: Applied Economics*, 9(1):229–73.

Averdijk, M., VAN GELDER, J.-L., Eisner, M., and Ribeaud, D. (2016). Violence begets violence... but how? a decision-making perspective on the victim–offender overlap. *Criminology*, 54(2):282–306.

Baig, N. (2008). *From mohallah to mainstream: The MQM's transformation from an ethnic to a catch-all party*. PhD thesis.

Baskaran, T., Min, B., and Uppal, Y. (2015). Election cycles and electricity provision: Evidence from a quasi-experiment with indian special elections. *Journal of Public Economics*, 126:64–73.

Batzilis, D. (2019). Electoral competition and corruption: Evidence from municipality audits in greece. *International Review of Law and Economics*, 59:13–20.

Baum, M. A. and Lake, D. A. (2003). The political economy of growth: democracy and human capital. *American Journal of Political Science*, 47(2):333–347.

Becker, J., Peichl, A., and Rincke, J. (2009). Politicians' outside earnings and electoral competition. *Public Choice*, 140(3-4):379.

Bennett, M. M. and Smith, L. C. (2017). Advances in using multitemporal night-time lights satellite imagery to detect, estimate, and monitor socioeconomic dynamics. *Remote Sensing of Environment*, 192:176–197.

Bertrand, M., Kamenica, E., and Pan, J. (2015). Gender identity and relative income within households. *The Quarterly Journal of Economics*, 130(2):571–614.

Besley, T., Persson, T., and Sturm, D. M. (2010). Political competition, policy and growth: theory and evidence from the us. *The Review of Economic Studies*, 77(4):1329–1352.

Black, S. E., Grönqvist, E., and Öckert, B. (2018). Born to lead? the effect of birth order on noncognitive abilities. *Review of Economics and Statistics*, 100(2):274–286.

Brown, R. (2018). The mexican drug war and early-life health: the impact of violent crime on birth outcomes. *Demography*, 55(1):319–340.

Brown, R., Montalva, V., Thomas, D., and Velásquez, A. (2019). Impact of violent crime on risk aversion: Evidence from the mexican drug war. *Review of Economics and Statistics*, 101(5):892–904.

Brück, T., Justino, P., and Martin-Shields, C. P. (2017). Conflict and development: Recent research advances and future agendas.

Bruederle, A. and Hodler, R. (2018). Nighttime lights as a proxy for human development at the local level. *PLoS One*, 13(9):e0202231.

Bueno de Mesquita, B., Morrow, J. D., Siverson, R. M., and Smith, A. (2001). Political competition and economic growth. *Journal of Democracy*, 12(1):58–72.

Bundervoet, T., Verwimp, P., and Akresh, R. (2009). Health and civil war in rural burundi. *Journal of Human Resources*, 44(2):536–563.

Burgess, R., Jedwab, R., Miguel, E., Morjaria, A., and i Miquel, G. P. (2011). Ethnic favoritism. *Unpublished ms.*

Burgess, R., Jedwab, R., Miguel, E., Morjaria, A., and Padró i Miquel, G. (2015). The value of democracy: evidence from road building in kenya. *American Economic Review*, 105(6):1817–51.

Buriro, A. A., Khoso, P. A., and Khatoon, Z. (2020). Men's perception about domestic violence in rural sindh, pakistan. *Liberal Arts and Social Sciences International Journal (LASSIJ)*, 4(2):331–344.

Bursztyn, L., Callen, M., Ferman, B., Gulzar, S., Hasanain, A., and Yuchtman, N. (2020). Political identity: Experimental evidence on anti-americanism in pakistan. *Journal of the European Economic Association*, 18(5):2532–2560.

Call, C. T. and Cousens, E. M. (2008). Ending wars and building peace: International responses to war-torn societies. *International Studies Perspectives*, 9(1):1–21.

Campante, F. and Yanagizawa-Drott, D. (2018). Long-range growth: economic development in the global network of air links. *The Quarterly Journal of Economics*, 133(3):1395–1458.

Caramani, D. (2003). The end of silent elections: the birth of electoral competition, 1832-1915. *Party Politics*, 9(4):411–443.

Cetorelli, V. (2015). The impact of the iraq war on neonatal polio immunisation coverage: a quasi-experimental study. *J Epidemiol Community Health*, 69(3):226–231.

Chen, X. and Nordhaus, W. D. (2011). Using luminosity data as a proxy for economic statistics. *Proceedings of the National Academy of Sciences*, 108(21):8589–8594.

Cherry, K. (2018). Erik erikson's stages of psychosocial development. *Retrieved Juny*, 5:2018.

Chhibber, P. and Nooruddin, I. (2004). Do party systems count? the number of parties and government performance in the indian states. *Comparative Political Studies*, 37(2):152–187.

Churchill, S. A. and Smyth, R. (2017). Ethnic diversity and poverty. *World Development*, 95:285–302.

Cleary, M. R. (2007). Electoral competition, participation, and government responsiveness in mexico. *American Journal of Political Science*, 51(2):283–299.

Cohn, L. D. (1991). Sex differences in the course of personality development: A meta-analysis. *Psychological Bulletin*, 109(2):252.

Colagrossi, M., Rossignoli, D., and Maggioni, M. A. (2020). Does democracy cause growth? a meta-analysis (of 2000 regressions). *European Journal of Political Economy*, 61:101824.

Cools, S. and Kotsadam, A. (2017). Resources and intimate partner violence in sub-saharan africa. *World Development*, 95:211–230.

Couttenier, M., Petrencu, V., Rohner, D., and Thoenig, M. (2019). The violent legacy of conflict: evidence on asylum seekers, crime, and public policy in switzerland. *American Economic Review*, 109(12):4378–4425.

Cox, G. W. (2009). 13 swing voters, core voters, and distributive politics. *Political Representation*, 342.

Dahlberg, M. and Johansson, E. (2002). On the vote-purchasing behavior of incumbent governments. *American Political Science Review*, 96(1):27–40.

Das, J. and Das, S. (2003). Trust, learning, and vaccination: a case study of a north indian village. *Social science & Medicine*, 57(1):97–112.

Das, U. and Maiorano, D. (2019). Post-clientelistic initiatives in a patronage democracy: The distributive politics of india's mgnrega. *World Development*, 117:239–252.

De Feo, G. and De Luca, G. D. (2017). Mafia in the ballot box. *American Economic Journal: Economic Policy*, 9(3):134–67.

De Luca, G., Hodler, R., Raschky, P. A., and Valsecchi, M. (2018). Ethnic favoritism: An axiom of politics? *Journal of Development Economics*, 132:115–129.

Del Giudice, M. (2009). Sex, attachment, and the development of reproductive strategies. *Behavioral and Brain Sciences*, 32(1):1–21.

Del Giudice, M. (2012). Fetal programming by maternal stress: insights from a conflict perspective. *Psychoneuroendocrinology*, 37(10):1614–1629.

Del Giudice, M. and Belsky, J. (2011). The development of life history strategies: Toward a multi-stage theory. *The Evolution of Personality and Individual Differences*, pages 154–176.

DelGiudice, M. (2018). Middle childhood: An evolutionary-developmental synthesis. In *Handbook of Life Course Health Development*, pages 95–107. Springer, Cham.

Diaz-Cayeros, A. (2008). Electoral risk and redistributive politics in mexico and the united states. *Studies in Comparative International Development*, 43(2):129–150.

Din, I. U., Mumtaz, Z., and Ataullahjan, A. (2012). How the taliban undermined community healthcare in swat, pakistan. *Bmj*, 344.

Dixit, A. and Londregan, J. (1996). The determinants of success of special interests in redistributive politics. *the Journal of Politics*, 58(4):1132–1155.

Doll, C. N., Muller, J.-P., and Morley, J. G. (2006). Mapping regional economic activity from night-time light satellite imagery. *Ecological Economics*, 57(1):75–92.

Dorji, U., Siripanpornchana, C., Surasvadi, N., Plangprasopchok, A., and Thajchayapong, S. (2019). Exploring night light as proxy for poverty and income inequality approximation in thailand. In *TENCON 2019-2019 IEEE Region 10 Conference (TENCON)*, pages 1082–1087. IEEE.

Dreher, A. and Vaubel, R. (2009). Foreign exchange intervention and the political business cycle: A panel data analysis. *Journal of International Money and Finance*, 28(5):755–775.

Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic Literature*, 50(4):1051–79.

Dupas, P. and Miguel, E. (2017). Impacts and determinants of health levels in low-income countries. In *Handbook of Economic Field Experiments*, volume 2, pages 3–93. Elsevier.

Easterly, W. and Levine, R. (1997). Africa's growth tragedy: policies and ethnic divisions. *The Quarterly Journal of Economics*, 112(4):1203–1250.

Eccles, J. S. (1999). The development of children ages 6 to 14. *Future of Children*, 9(2):30–44.

Eckstein, Z. and Tsiddon, D. (2004). Macroeconomic consequences of terror: theory and the case of israel. *Journal of Monetary Economics*, 51(5):971–1002.

Ejdemyr, S., Kramon, E., and Robinson, A. L. (2018). Segregation, ethnic favoritism, and the strategic targeting of local public goods. *Comparative Political Studies*, 51(9):1111–1143.

Ekhator-Mobayode, U. E. and Abebe Asfaw, A. (2019). The child health effects of terrorism: evidence from the boko haram insurgency in nigeria. *Applied Economics*, 51(6):624–638.

Ekhator-Mobayode, U. E., Hanmer, L. C., Rubiano-Matulevich, E., and Arango, D. J. (2022). The effect of armed conflict on intimate partner violence: Evidence from the boko haram insurgency in nigeria. *World Development*, 153:105780.

El-Bushra, J. (2017). Why does armed conflict recur, and what has gender got to do with it?

Esposito, L., Kumar, S. M., and Villaseñor, A. (2020). The importance of being earliest: birth order and educational outcomes along the socioeconomic ladder in mexico. *Journal of Population Economics*, pages 1–31.

Everist, L. (2015). The impact of vaccine hesitancy on the polio vaccine in south asia.

Feez, S. (2009). *Montessori and early childhood: A Guide for Students*. Sage.

Fikree, F. F., Razzak, J. A., and Durocher, J. (2005). Attitudes of pakistani men to domestic violence: a study from karachi, pakistan. *Journal of Men's Health and Gender*, 2(1):49–58.

Filmer, D., Hammer, J. S., and Pritchett, L. H. (2000). Weak links in the chain: a diagnosis of health policy in poor countries. *The World Bank Research Observer*, 15(2):199–224.

Foulkes, L., Leung, J. T., Fuhrmann, D., Knoll, L. J., and Blakemore, S.-J. (2018). Age differences in the prosocial influence effect. *Developmental Science*, 21(6):e12666.

Franck, R. and Rainer, I. (2012). Does the leader's ethnicity matter? ethnic favoritism, education, and health in sub-saharan africa. *American Political Science Review*, pages 294–325.

Franco, Á., Álvarez-Dardet, C., and Ruiz, M. T. (2004). Effect of democracy on health: ecological study. *Bmj*, 329(7480):1421–1423.

Francois, P., Rainer, I., and Trebbi, F. (2015). How is power shared in africa? *Econometrica*, 83(2):465–503.

Freeman, R. B. (1999). The economics of crime. *Handbook of Labor Economics*, 3:3529–3571.

Gage, A. J. and Hutchinson, P. L. (2006). Power, control, and intimate partner sexual violence in haiti. *Archives of Sexual Behavior*, 35(1):11–24.

Garenne, M. L., Coninx, R., and Dupuy, C. (1997). Effects of the civil war in central mozambique and evaluation of the intervention of the international committee of the red cross. *Journal of Tropical Pediatrics*, 43(6):318–323.

Gavoille, N. and Verschelde, M. (2017). Electoral competition and political selection: An analysis of the activity of french deputies, 1958–2012. *European Economic Review*, 92:180–195.

Gavranidou, M. and Rosner, R. (2003). The weaker sex? gender and post-traumatic stress disorder. *Depression and Anxiety*, 17(3):130–139.

Gayer, L. (2012). Political turmoil in karachi: Production and reproduction of ordered disorder. *Economic and Political Weekly*, pages 76–84.

German-Soto, V. and Garza, C. G. (2019). Political-business cycle and capital formation in mexico, 1993.1-2016.4.

Ghosh, S. (2010). Does political competition matter for economic performance? evidence from sub-national data. *Political Studies*, 58(5):1030–1048.

Ghosh, T., L Powell, R., D Elvidge, C., E Baugh, K., C Sutton, P., and Anderson, S. (2010). Shedding light on the global distribution of economic activity. *The Open Geography Journal*, 3(1).

Gill, J. (2010). Political instability and economic development: Pakistan time-series analysis. *International Research Journal of Finance and Economics*, (56).

Gjerde, P. F., Block, J., and Block, J. H. (1988). Depressive symptoms and personality during late adolescence: Gender differences in the externalization-internalization of symptom expression. *Journal of abnormal Psychology*, 97(4):475.

Glennerster, R., Miguel, E., and Rothenberg, A. D. (2013). Collective action in diverse sierra leone communities. *The Economic Journal*, 123(568):285–316.

Goldstone, J. A. and Ulfelder, J. (2004). How to construct stable democracies. *The Washington Quarterly*, 28(1):7–20.

Grossman, D., Khalil, U., and Ray, A. (2019). Terrorism and early childhood health outcomes: Evidence from pakistan. *Social Science & Medicine*, 237:112453.

Grundy, J. and Biggs, B.-A. (2019). The impact of conflict on immunisation coverage in 16 countries. *International Journal of Health Policy and Management*, 8(4):211.

Gupta, B. and Mukhopadhyay, A. (2016). Local funds and political competition: evidence from the national rural employment guarantee scheme in india. *European Journal of Political Economy*, 41:14–30.

Guruge, S., Ford-Gilboe, M., Varcoe, C., Jayasuriya-Illesinghe, V., Ganesan, M., Sivayogan, S., Kanthasamy, P., Shanmugalingam, P., and Vithanarachchi, H. (2017). Intimate partner violence in the post-war context: Women's experiences and community leaders' perceptions in the eastern province of sri lanka. *PLoS One*, 12(3):e0174801.

Gutierrez, I. A. and Gallegos, J. V. (2016). The effect of civil conflict on domestic violence: the case of peru.

Hadi, A. (2017). Patriarchy and gender-based violence in pakistan. *European Journal of Social Science Education and Research*, 4(4):289–296.

Hamdan, S. and Hallaq, E. (2021). Prolonged exposure to violence: Psychiatric symptoms and suicide risk among college students in the palestinian territory. *Psychological Trauma: Theory, Research, Practice, and Policy*, 13(7):772.

Hameed, M. (2018). The politics of the china[U+2015]pakistan economic corridor. *Palgrave Communications*, 4(1):1–10.

Hashmi, D. and Saeed, R. (2020). Ethnic politics: An issue to national integration (the case of pakistan). *South Asian Studies*, 29(1).

Haushofer, J. and Fehr, E. (2014). On the psychology of poverty. *science*, 344(6186):862–867.

Havari, E. and Savegnago, M. (2022). The intergenerational effects of birth order on education. *Journal of Population Economics*, 35(1):349–377.

He, T.-S. and Hong, F. (2015). Exposure to risk and risk aversion: A laboratory experiment. *Available at SSRN 2401438*.

Heckelman, J. C. and Berument, H. (1998). Political business cycles and endogenous elections. *Southern Economic Journal*, pages 987–1000.

Henderson, J. V., Storeygard, A., and Weil, D. N. (2012). Measuring economic growth from outer space. *American Economic Review*, 102(2):994–1028.

Hibbs, D. A. (1977). Political parties and macroeconomic policy. *American Political Science Review*, 71(4):1467–1487.

Hjort, J. (2014). Ethnic divisions and production in firms. *The Quarterly Journal of Economics*, 129(4):1899–1946.

Hoang, T. X. and Le, N. V. (2021). Natural disasters and risk aversion: Evidence from vietnam. In *Natural Resources Forum*. Wiley Online Library.

Hodler, R. and Raschky, P. A. (2014). Regional favoritism. *The Quarterly Journal of Economics*, 129(2):995–1033.

Hotz, V. J. and Pantano, J. (2015). Strategic parenting, birth order, and school performance. *Journal of Population Economics*, 28(4):911–936.

Hui, N. et al. (2019a). Political conflict and domestic violence in nigeria. Technical report, Henley Business School, Reading University.

Hui, N. et al. (2019b). Political conflict and domestic violence in nigeria. Technical report.

Inhelder, B. and Piaget, J. (1958). *The growth of logical thinking from childhood to adolescence: An essay on the construction of formal operational structures*, volume 22. Psychology Press.

Ioannidis, J. P., Stanley, T. D., and Doucouliagos, H. (2017). The power of bias in economics research.

Ito, T. (1990). The timing of elections and political business cycles in japan. *Journal of Asian Economics*, 1(1):135–156.

Jain, A. K., Sathar, Z. A., and Haque, M. u. (2015). The constraints of distance and poverty on institutional deliveries in pakistan: Evidence from georeference-linked data. *Studies in Family Planning*, 46(1):21–39.

Jakiela, P. and Ozier, O. (2019). The impact of violence on individual risk preferences: evidence from a natural experiment. *Review of Economics and Statistics*, 101(3):547–559.

Joanis, M. (2011). The road to power: partisan loyalty and the centralized provision of local infrastructure. *Public Choice*, 146(1-2):117–143.

Johansson, E. (2003). Intergovernmental grants as a tactical instrument: empirical evidence from swedish municipalities. *Journal of Public Economics*, 87(5-6):883–915.

Johnson, S., Larson, W., Papageorgiou, C., and Subramanian, A. (2013). Is newer better? penn world table revisions and their impact on growth estimates. *Journal of Monetary Economics*, 60(2):255–274.

Kadir, A., Shenoda, S., Goldhagen, J., Pitterman, S., et al. (2018). The effects of armed conflict on children. *Pediatrics*, 142(6).

Kakalia, S. and Karrar, H. H. (2016). Polio, public health, and the new pathologies of militancy in pakistan. *Critical Public Health*, 26(4):446–454.

Kalra, G. and Bhugra, D. (2013). Sexual violence against women: Understanding cross-cultural intersections. *Indian Journal of Psychiatry*, 55(3):244.

Karnane, P. and Quinn, M. A. (2019). Political instability, ethnic fractionalization and economic growth. *International Economics and Economic Policy*, 16(2):435–461.

Kasara, K. (2007). Tax me if you can: Ethnic geography, democracy, and the taxation of agriculture in africa. *American Political Science Review*, 101(1):159–172.

Kelly, J. T., Colantuoni, E., Robinson, C., and Decker, M. R. (2018). From the battlefield to the bedroom: a multilevel analysis of the links between political conflict and intimate partner violence in liberia. *BMJ Global Health*, 3(2):e000668.

Kelly, J. T., Colantuoni, E., Robinson, C., and Decker, M. R. (2021). Quantifying the ripple effects of civil war: how armed conflict is associated with more severe violence in the home. *Health and Human Rights*, 23(1):75.

Kennedy, J. (2016). Why have the majority of recent polio cases occurred in countries affected by islamist militancy? a historical comparative analysis of the political determinants of polio in nigeria, somalia, pakistan, afghanistan and syria. *Medicine, Conflict and Survival*, 32(4):295–316.

Kennedy, J. (2017). How drone strikes and a fake vaccination program have inhibited polio eradication in pakistan: an analysis of national level data. *International Journal of Health Services*, 47(4):807–825.

Kennedy, J. (2020). Vaccine hesitancy: a growing concern. *Pediatric drugs*, 22(2):105–111.

Keola, S., Andersson, M., and Hall, O. (2015). Monitoring economic development from space: using nighttime light and land cover data to measure economic growth. *World Development*, 66:322–334.

Kerig, P. K. (1999). Gender issues in the effects of exposure to violence on children. *Journal of Emotional Abuse*, 1(3):87–105.

Kerley, K. R., Xu, X., Sirisunyaluck, B., and Alley, J. M. (2010). Exposure to family violence in childhood and intimate partner perpetration or victimization in adulthood: Exploring intergenerational transmission in urban thailand. *Journal of Family Violence*, 25(3):337–347.

Khayouti, S., Kiss, H. J., and Horn, D. (2020). Patient democracies? *Available at SSRN 3540729*.

Kiran, N. (2012). Political stability in pakistan: regionalism and role of cabinet (1947-1958). *Pakistan Vision*, 13(1):207.

Klomp, J. (2016). Economic development and natural disasters: A satellite data analysis. *Global Environmental Change*, 36:67–88.

Koziuk, V., Hayda, Y., Dluhopolskyi, O., and Kozlovskyi, S. (2020). Ecological performance: ethnic fragmentation versus governance quality and sustainable development.

Kramon, E. and Posner, D. N. (2013). Who benefits from distributive politics? how the outcome one studies affects the answer one gets. *Perspectives on Politics*, 11(2):461–474.

Kreutz, J. (2010). How and when armed conflicts end: Introducing the ucdp conflict termination dataset. *Journal of Peace Research*, 47(2):243–250.

Kristensen, P. and Bjerkedal, T. (2007). Explaining the relation between birth order and intelligence. *Science*, 316(5832):1717–1717.

La Mattina, G. (2017). Civil conflict, domestic violence and intra-household bargaining in post-genocide rwanda. *Journal of Development Economics*, 124:168–198.

La Porta, R., Lopez-de Silanes, F., Shleifer, A., and Vishny, R. (1999). The quality of government. *The Journal of Law, Economics, and Organization*, 15(1):222–279.

Lafta, R. K. and Hamid, G. R. (2021). Domestic violence in time of unrest, a sample from iraq. *Medicine, Conflict and Survival*, 37(3):205–220.

Lane, C., Brundage, C. L., and Kreinin, T. (2017). Why we must invest in early adolescence: Early intervention, lasting impact. *Journal of Adolescent Health*, 61(4):S10–S11.

Le, K. and Nguyen, M. (2020). Armed conflict and birth weight. *Economics & Human Biology*, 39:100921.

Leahy, R. L., Tirch, D. D., and Melwani, P. S. (2012). Processes underlying depression: Risk aversion, emotional schemas, and psychological flexibility. *International Journal of Cognitive Therapy*, 5(4):362–379.

Leake, E. (2015). The struggle for pakistan: A muslim homeland and global politics by ayesha jalal. *Canadian Journal of History*, 50(1):196–198.

Lee, C. (2014). In utero exposure to the korean war and its long-term effects on socioeconomic and health outcomes. *Journal of Health Economics*, 33:76–93.

Lehmann, J.-Y. K., Nuevo-Chiquero, A., and Vidal-Fernandez, M. (2018). The early origins of birth order differences in children's outcomes and parental behavior. *Journal of Human Resources*, 53(1):123–156.

Leon, G. (2012). Civil conflict and human capital accumulation the long-term effects of political violence in perú. *Journal of Human Resources*, 47(4):991–1022.

Leonida, L., Patti, D. M. A., Marini, A., and Navarra, P. (2015). Political competition and economic growth: A test of two tales. *Economics Letters*, 135:96–99.

Li, X., Zhou, Y., Zhao, M., and Zhao, X. (2020). A harmonized global nighttime light dataset 1992–2018. *Scientific Data*, 7(1):1–9.

Lindbeck, A. and Weibull, J. W. (1987). Balanced-budget redistribution as the outcome of political competition. *Public Choice*, 52(3):273–297.

Lindberg, S. I. and Morrison, M. K. (2005). Exploring voter alignments in africa: core and swing voters in ghana. *Journal of Modern African Studies*, pages 565–586.

Lindberg, S. I. and Weghorst, K. R. (2010). Are swing voters instruments of democracy or farmers of clientelism? evidence from ghana. *Evidence from Ghana*.

Llussá, F. and Tavares, J. (2011). Which terror at which cost? on the economic consequences of terrorist attacks. *Economics Letters*, 110(1):52–55.

Lopes, A. M., Machado, J. T., and Mata, M. E. (2016). Analysis of global terrorism dynamics by means of entropy and state space portrait. *Nonlinear Dynamics*, 85(3):1547–1560.

Ma, T., Zhou, Y., Zhou, C., Haynie, S., Pei, T., and Xu, T. (2015). Night-time light derived estimation of spatio-temporal characteristics of urbanization dynamics using dmsp/ols satellite data. *Remote Sensing of Environment*, 158:453–464.

Ma, X. and McLaren, J. (2018). A swing-state theorem, with evidence. Technical report, National Bureau of Economic Research.

Mamoon, D. (2019). A brief history of pakistan's democratic journey. *Turkish Economic Review*, 6(1):28–43.

Mansour, H. and Rees, D. I. (2012). Armed conflict and birth weight: Evidence from the al-aqsa intifada. *Journal of Development Economics*, 99(1):190–199.

Martinez, L. R. (2019). How much should we trust the dictator's gdp growth estimates? *Available at SSRN 3093296*.

Martinez-Bravo, M. and Stegmann, A. (2022). In vaccines we trust? the effects of the cia's vaccine ruse on immunization in pakistan. *Journal of the European Economic Association*, 20(1):150–186.

Masters, N. B., Wagner, A. L., Carlson, B. F., and Boulton, M. L. (2018). Vaccination timeliness and co-administration among kenyan children. *Vaccine*, 36(11):1353–1360.

Mathew, G., Johnson, A. R., Thimmaiah, S., Kumari, R., and Varghese, A. (2017). Barriers to childhood immunization among women in an urban underprivileged area of bangalore city, karnataka, india: a qualitative study. *Int J Community Med Public Health*, 3(6):1525–30.

McGavin, Z. A., Wagner, A. L., Carlson, B. F., Power, L. E., Eboreime, E., and Boulton, M. L. (2018). Childhood full and under-vaccination in nigeria, 2013. *Vaccine*, 36(48):7294–7299.

Meiqari, L., Hoetjes, M., Baxter, L., and Lenglet, A. (2018). Impact of war on child health in northern syria: the experience of médecins sans frontières. *European Journal of Pediatrics*, 177(3):371–380.

Michalopoulos, S. and Papaioannou, E. (2013). Pre-colonial ethnic institutions and contemporary african development. *Econometrica*, 81(1):113–152.

Miguel, E. and Gugerty, M. K. (2005). Ethnic diversity, social sanctions, and public goods in kenya. *Journal of Public Economics*, 89(11-12):2325–2368.

Miguel, E., Saiegh, S. M., and Satyanath, S. (2011). Civil war exposure and violence. *Economics & Politics*, 23(1):59–73.

Minoiu, C. and Shemyakina, O. (2012). Child health and conflict in côte d'ivoire. *American Economic Review*, 102(3):294–99.

Minoiu, C. and Shemyakina, O. N. (2014). Armed conflict, household victimization, and child health in côte d'ivoire. *Journal of Development Economics*, 108:237–255.

Mohan, P. and Strobl, E. (2017). The short-term economic impact of tropical cyclone pam: an analysis using viirs nightlight satellite imagery. *International Journal of Remote Sensing*, 38(21):5992–6006.

Mueller, H., Tapsoba, A., et al. (2016). Access to power, political institutions and ethnic favoritism. Technical report.

Mueller, S. D. (2020). High-stakes ethnic politics. In *The Oxford Handbook of Kenyan Politics*.

Mufti, M. and Jalalzai, F. (2021). The importance of gender quotas in patriarchal and clientelistic polities: The case of pakistan. *Journal of Women, Politics & Policy*, 42(2):107–123.

Muûls, M. and Petropoulou, D. (2013). A swing state theory of trade protection in the electoral college. *Canadian Journal of Economics*, 46(2):705–724.

Nasir, M. and Faqir, K. (2021). A critical analysis of coalition politics in pakistan a case study of.

Naufal, G., Malcolm, M., Diwakar, V., et al. (2020). Violent conflict and vaccinations: Evidence from iraq. Economic Research Forum (ERF).

Nelson, E. E., Leibenluft, E., McClure, E. B., and Pine, D. S. (2005). The social re-orientation of adolescence: a neuroscience perspective on the process and its relation to psychopathology. *Psychological Medicine*, 35(2):163–174.

Ngo, N. V., Pemunta, N. V., Muluh, N. E., Adedze, M., Basil, N., and Agwale, S. (2020). Armed conflict, a neglected determinant of childhood vaccination: some children are left behind. *Human Vaccines & Immunotherapeutics*, 16(6):1454–1463.

Nichter, S. (2008). Vote buying or turnout buying? machine politics and the secret ballot. *American Political Science Review*, pages 19–31.

Noe, D. and Rieckmann, J. (2013). Violent behaviour: The effect of civil conflict on domestic violence in colombia. Technical report, Courant Research Centre: Poverty, Equity and Growth-Discussion Papers.

Nolen-Hoeksema, S., Girgus, J. S., and Seligman, M. E. (1991). Sex differences in depression and explanatory style in children. *Journal of Youth and Adolescence*, 20(2):233–245.

Nordhaus, W. D. (1975). The political business cycle. *The Review of Economic Studies*, 42(2):169–190.

Nordhaus, W. D. (2006). Geography and macroeconomics: New data and new findings. *Proceedings of the National Academy of Sciences*, 103(10):3510–3517.

Norris, A., Hachey, K., Curtis, A., and Bourdeaux, M. (2016). Crippling violence: Conflict and incident polio in afghanistan. *PLoS One*, 11(3):e0149074.

Obikili, N. (2019). The impact of political competition on economic growth: Evidence from municipalities in south africa. *South African Journal of Economics*, 87(1):3–21.

O'Donnell, O. (2007). Access to health care in developing countries: breaking down demand side barriers. *Cadernos De Saude Publica*, 23:2820–2834.

Ozawa, S., Clark, S., Portnoy, A., Grewal, S., Brenzel, L., and Walker, D. G. (2016). Return on investment from childhood immunization in low-and middle-income countries, 2011–20. *Health Affairs*, 35(2):199–207.

Padró i Miquel, G. (2007). The control of politicians in divided societies: The politics of fear. *The Review of Economic Studies*, 74(4):1259–1274.

Papyrakis, E. and Mo, P. H. (2014). Fractionalization, polarization, and economic growth: identifying the transmission channels. *Economic Inquiry*, 52(3):1204–1218.

Pavan, R. (2016). On the production of skills and the birth-order effect. *Journal of Human Resources*, 51(3):699–726.

Peckins, M. K., Dockray, S., Eckenrode, J. L., Heaton, J., and Susman, E. J. (2012). The longitudinal impact of exposure to violence on cortisol reactivity in adolescents. *Journal of Adolescent Health*, 51(4):366–372.

Persico, N., Pueblita, J. C., and Silverman, D. (2011). Factions and political competition. *Journal of Political Economy*, 119(2):242–288.

Profeta, P. (2007). Political support and tax reforms with an application to italy. *Public Choice*, 131(1-2):141–155.

Pruckner, G. J., Schneeweis, N., Schober, T., and Zweimüller, M. (2021). Birth order, parental health investment, and health in childhood health care utilization. *Journal of Health Economics*, 76:102426.

Rabbi, F. (2012). War against terrorism and its repercussions for pakistan. *Pakistan Journal of History and Culture*, 33(2):71–90.

Rezki, J. F. et al. (2020). Political competition and economic performance: Evidence from indonesia. *Institute for Economic and Social Research*.

Robinson, J. A. and Torvik, R. (2009). The real swing voter's curse. *American Economic Review*, 99(2):310–15.

Rogers, P. (2009). Global security after the war on terror. *Oxford Research Group. org http://oxfordresearchgroup. org. uk/publications/briefing_papers/global_security_after_war_terror# main. Accessed November*, 28:2009.

Ross, M. (2006). Is democracy good for the poor? *American Journal of Political Science*, 50(4):860–874.

Roul, A. (2014). The pakistani taliban's campaign against polio vaccination. *CTC Sentinel, August*, 27.

Rubenstein, L. S. (2015). Global health and security in the age of counterterrorism. *Journal of the Royal Society of Medicine*, 108(2):49–52.

Sadaf, A., Richards, J. L., Glanz, J., Salmon, D. A., and Omer, S. B. (2013). A systematic review of interventions for reducing parental vaccine refusal and vaccine hesitancy. *Vaccine*, 31(40):4293–4304.

Saqib, M. and Ahmad, S. M. (2014). Root causes of low female literacy in fata pakistan:(a case study of jalozai camp). *International Journal of Academic Research in Business and Social Sciences*, 4(3):457.

Schellenberg, R. C. (2000). Aggressive personality: When does it develop and why?

Shah, A. (2011). The most dangerous place: Pakistan's past, pakistan's future. *World Affs.*, 174:79.

Shakeel, S. I., Brown, M., Sethi, S., and Mackey, T. K. (2019). Achieving the end game: employing "vaccine diplomacy" to eradicate polio in pakistan. *BMC Public Health*, 19(1):1–8.

Sharma, A. (2014). Ethnic politics in pakistan: Rise of jiy-e-sindh movement. *International Journal of Humanities and Social Science Invention*, 3(10):65–66.

Sheikh, S., Ali, A., Zaidi, A. K., Agha, A., Khowaja, A., Allana, S., Qureshi, S., and Azam, I. (2011). Measles susceptibility in children in karachi, pakistan. *Vaccine*, 29(18):3419–3423.

Shemyakina, O. N. (2021). Political violence and child health: Results from zimbabwe. *Economics & Human Biology*, 42:101010.

Shemyakina, O. N. and La Mattina, G. (2017). Domestic violence and childhood exposure to armed conflict: Attitudes and experiences. In *PAA 2017 Annual Meeting*. PAA.

Shi, K., Huang, C., Yu, B., Yin, B., Huang, Y., and Wu, J. (2014). Evaluation of npp-viirs night-time light composite data for extracting built-up urban areas. *Remote Sensing Letters*, 5(4):358–366.

Shortland, A., Christopoulou, K., and Makatsoris, C. (2013). War and famine, peace and light? the economic dynamics of conflict in somalia 1993–2009. *Journal of peace Research*, 50(5):545–561.

Shuja, S. (2007). Pakistan: islam, radicalism and the army. *International Journal on World Peace*, pages 25–35.

Silwal, R. C., Jimba, M., Poudyal, A. K., Poudel, K. C., and Wakai, S. (2006). Improving immunization services under the armed conflict in rural nepal. *Public health*, 120(9):805–808.

Small, C., Elvidge, C. D., Balk, D., and Montgomery, M. (2011). Spatial scaling of stable night lights. *Remote Sensing of Environment*, 115(2):269–280.

Srinivasan, S. and Bedi, A. S. (2007). Domestic violence and dowry: Evidence from a south indian village. *World Development*, 35(5):857–880.

Stanton, M. A., Lonsdorf, E. V., Pusey, A. E., Goodall, J., and Murray, C. M. (2014). Maternal behavior by birth order in wild chimpanzees (pan troglodytes) increased investment by first-time mothers. *Current Anthropology*, 55(4):483–489.

Stark, L., Seff, I., Hoover, A., Gordon, R., Ligiero, D., and Massetti, G. (2019). Sex and age effects in past-year experiences of violence amongst adolescents in five countries. *PLoS One*, 14(7):e0219073.

Stith, S. M., Rosen, K. H., Middleton, K. A., Busch, A. L., Lundeberg, K., and Carlton, R. P. (2000). The intergenerational transmission of spouse abuse: A meta-analysis. *Journal of Marriage and Family*, 62(3):640–654.

Stokes, S. C., Dunning, T., Nazareno, M., and Brusco, V. (2013). *Brokers, voters, and clientelism: The puzzle of distributive politics*. Cambridge University Press.

Stromberg, D. (2008). How the electoral college influences campaigns and policy: the probability of being florida. *American Economic Review*, 98(3):769–807.

Su, Z., Pezzola, A., Fidalgo, A., and Cao, X. (2020). Electoral competition, party system fragmentation, and air quality in mexican municipalities. *Environmental Politics*, pages 1–21.

Svallfors, S. (2021). Hidden casualties: The links between armed conflict and intimate partner violence in colombia. *Politics & Gender*, pages 1–33.

Taha, S. (2012). Political instability explains political economy of pakistan: A retrospective analysis. *International Journal of Economics Business and Management Studies*, 1(2):50–59.

Tranchant, J.-P., Justino, P., and Müller, C. (2020). Political violence, adverse shocks and child malnutrition: Empirical evidence from andhra pradesh, india. *Economics & Human Biology*, 39:100900.

Tselios, V. and Stathakis, D. (2020). Exploring regional and urban clusters and patterns in europe using satellite observed lighting. *Environment and Planning B: Urban Analytics and City Science*, 47(4):553–568.

van den Bos, W. (2013). Neural mechanisms of social reorientation across adolescence. *Journal of Neuroscience*, 33(34):13581–13582.

van Hoorn, A. and Rademakers, R. (2021). Decentralization and local ethnic favoritism: Micro-level panel evidence from indonesia. *Available at SSRN 3822945*.

Verkaaik, O. (2004). *Migrants and militants: fun and urban violence in Pakistan*. Princeton University Press.

Verkaaik, O. (2016). Violence and ethnic identity politics in karachi and hyderabad. *South Asia: Journal of South Asian Studies*, 39(4):841–854.

Verma, A. A., Jimenez, M. P., Tangermann, R. H., Subramanian, S., and Razak, F. (2018). Insecurity, polio vaccination rates, and polio incidence in northwest pakistan. *Proceedings of the National Academy of Sciences*, 115(7):1593–1598.

Vira, V. and Cordesman, A. H. (2011). Pakistan: Violence vs. stability. *A national net assessment. Washington: CSIS*.

Wagner, A. (2017). A micro perspective on political competition: Electoral availability in the european electorates. *Acta Politica*, 52(4):502–520.

Wagner, W. G. (1996). Optimal development in adolescence: What is it and how can it be encouraged? *The Counseling Psychologist*, 24(3):360–399.

Ward, H. and John, P. (1999). Targeting benefits for electoral gain: Constituency marginality and the distribution of grants to english local authorities. *Political Studies*, 47(1):32–52.

Wassilak, S. G., Oberste, M. S., Tangermann, R. H., Diop, O. M., Jafari, H. S., and Armstrong, G. L. (2014). Progress toward global interruption of wild poliovirus transmission, 2010–2013, and tackling the challenges to complete eradication. *The Journal of Infectious Diseases*, 210(suppl_1):S5–S15.

Weghorst, K. R. and Lindberg, S. I. (2013). What drives the swing voter in africa? *American Journal of Political Science*, 57(3):717–734.

Weidmann, N. B. and Schutte, S. (2017). Using night light emissions for the prediction of local wealth. *Journal of Peace Research*, 54(2):125–140.

Wolfe, D. A., Crooks, C. V., Lee, V., McIntyre-Smith, A., and Jaffe, P. G. (2003). The effects of children's exposure to domestic violence: A meta-analysis and critique. *Clinical Child and Family Psychology Review*, 6(3):171–187.

Wu, J., Wang, Z., Li, W., and Peng, J. (2013). Exploring factors affecting the relationship between light consumption and gdp based on dmsp/ols nighttime satellite imagery. *Remote Sensing of Environment*, 134:111–119.

Wu, K. and Wang, X. (2019). Aligning pixel values of dmsp and viirs nighttime light images to evaluate urban dynamics. *Remote Sensing*, 11(12):1463.

Wu, R., Yang, D., Dong, J., Zhang, L., and Xia, F. (2018). Regional inequality in china based on npp-viirs night-time light imagery. *Remote Sensing*, 10(2):240.

Xia, C., Yeh, A. G.-O., and Zhang, A. (2020). Analyzing spatial relationships between urban land use intensity and urban vitality at street block level: A case study of five chinese megacities. *Landscape and Urban Planning*, 193:103669.

Xie, Y. and Weng, Q. (2016). Updating urban extents with nighttime light imagery by using an object-based thresholding method. *Remote Sensing of Environment*, 187:1–13.

Zheng, Q., Weng, Q., and Wang, K. (2020). Correcting the pixel blooming effect (pibe) of dmsp-ols nighttime light imagery. *Remote Sensing of Environment*, 240:111707.