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THREE ESSAYS ON CONFLICT AND ECONOMIC PERFORMANCE IN FRAGILE COUNTRIES

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par

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1 General Introduction and Overview of the Chapters

The recent wave of conflict has seen an upward trend in many countries. After the 9/11 attack on world trade center in United States of America, the war against terrorism was initiated in Afghanistan. The devastating effects of war spread to the neighboring countries mainly to Pakistan. Other regions, like, Middle East and North Africa (MENA), other countries in African and Asian regions witnessed an increase in violent conflict in last two decades. Nearly one million people have directly died post 9/11 wars only in Afghanistan, Pakistan, Iraq, Syria, and Yemen (Crawford & Lutz, 2021).

The recent conflict, for instance in MENA region, is the outcome of public mistrust on government institutions and policies. So, it is important to understand the role of institutions in determining conflict. For this current wave of conflicts, driven by « supreme values »[1] in many Muslim countries, use of force may deter conflict in the short run but bad economic performance- a consequence of conflict- can again and again cause reemergence of conflict. This can lead the country to fall in « conflict trap » (Collier & Sambanis, 2002).

To help country out of conflict trap, conflict reduction should be followed by a good economic performance. So, it is important to determine factors that can help reduce conflict but also enhance the economic performance in fragile countries. For this purpose, this thesis attempts to determine institutional, economic, and social factors that can help reduce conflict. This thesis provides a comprehensive theoretical review and empirical analysis of the factors that contribute to armed conflict in fragile states.

[1] These values refer to one or more goals that are prioritized above all others and whose accomplishment is more important than any other value (Wilkens, 2011).

The rest of this chapter is organized as follows. Section 1.1 summarizes the Recent developments in conflict. section 1.2 and 1.3 summarizes the review of theoretical and empirical literature on conflict. Section 1.4 describes the literature on the nexus between conflict and economic performance. Section 1.5 presents the value addition in literature, and the last section provides the summaries of the three essays.

1.1 Recent Developments in Conflict

This section provides stylized facts about the recent wave of armed violence. We start our discussion with the case of Pakistan that we focus on in Chapter 2. Then we provide stylized facts about conflict in fragile developing countries that we study in Chapters 3 and 4.

On December 16, 2014, the world was horrified on the news of a terrorist attack in a school in Peshawar, a northwestern city of Pakistan. The attackers killed 150 people, among them at least 132 were children. This was one of many violent attacks in last two decades. Figure 1.1 show the trend of annual conflict-based incidents in Pakistan[2]. The negative trend in recent years illustrates that violent attacks have significantly reduced in Pakistan. However, to ensure the continuity on the path of development, policy makers should focus on the factors that can help defeat violent conflict in the long run.

[2] Chapter two of the thesis focuses on the case of Pakistan and provides in depth analysis.

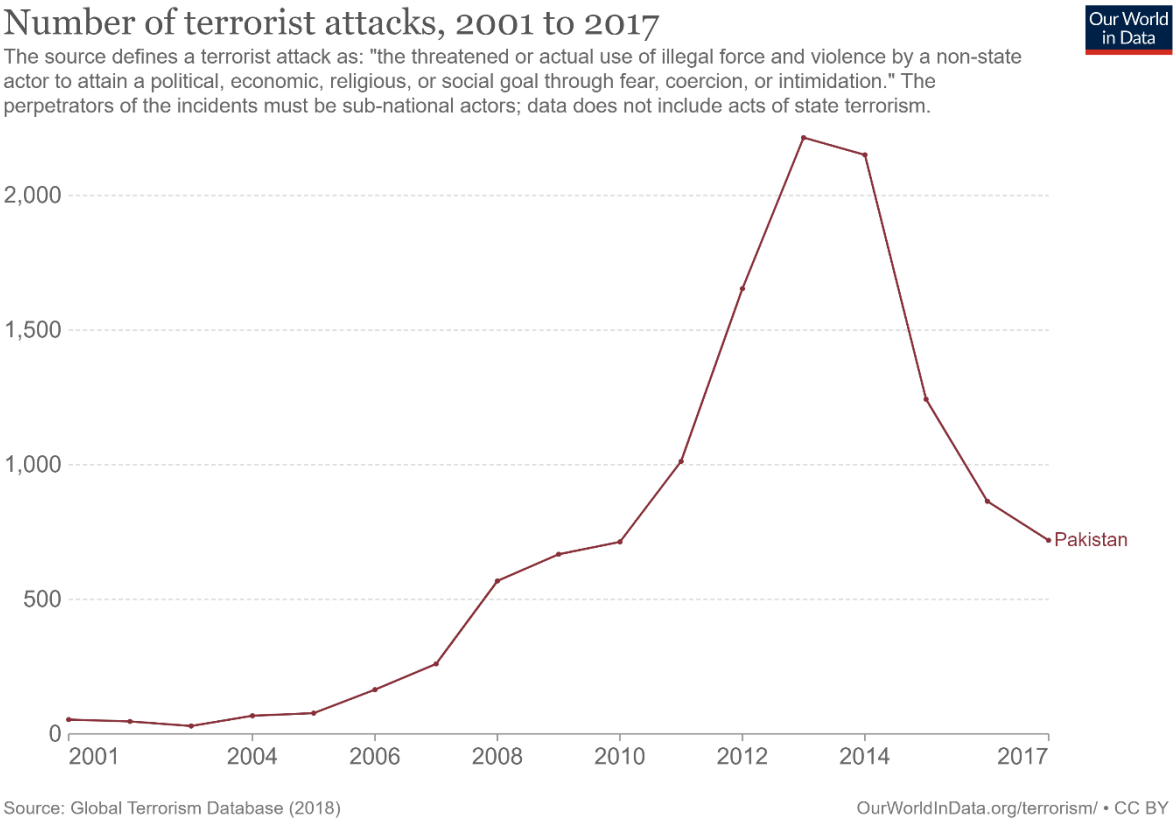

Figure 1.1 Number of Terrorist Attacks in Pakistan

Armed violence has increased in many developing countries. Over the past decade, the Uppsala Conflict Data Program (UCDP) has recorded an upward trend of active state-based conflicts[3]. The number of active state-based conflicts has reached the highest level in 2020 since 1946. Pettersson et al. (2019) argue that a recent number of conflicts match the peak of the early 1990s (as shown in figure 1.2). The increase in the number of armed conflicts in the early 90s was followed by a similar increase in the number of peace agreements. These peace agreements helped parties conclude conflict and achieve a stable and peaceful future worldwide.

Melander et al. (2016) argue that the end of the Cold war assisted in settling many longstanding conflicts. Eck et al. (2007) suggest that interest in conflict eradication and the

[3] A state-based conflict is a conflict between two parties, where at least one is the government.

absence of superpower rivalry reduced the number of armed conflicts after the end of the cold war. Pettersson et al. (2019) observe an increase in peace agreements over that period that resulted in reduction of violent conflict.

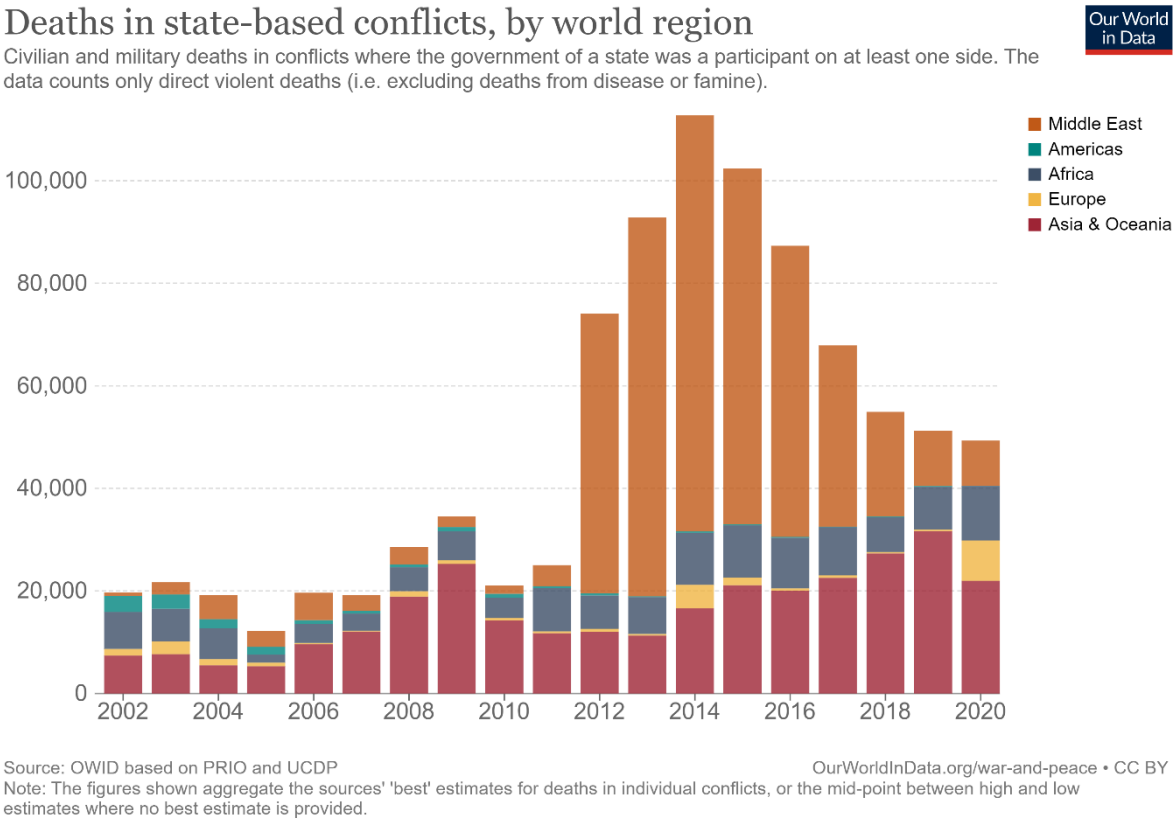

Figure 1.2 Deaths in State-Based conflicts, by World region

As a result, in the early 2000s, there was a continuous decline in the number of armed conflicts for almost a decade, which led to the assumption that we live in an increasingly peaceful world (as shown in figure 1.3). However, Since last decade the conflict has increased again in many countries. Figure 1.2 illustrates that the battle-related deaths have decreased since 2014 (mainly due to a significant decrease in conflict intensity in Iraq and Syria). Though the intensity of conflict has decreased in recent year, figure 1.3 show that the number of State based armed conflicts have increased to 56 in 2020 (Strand & Hegre, 2021).

Pettersson et al. (2019) conclude that the recent increase in civil conflicts has not been complemented by an increase in the number of peace agreements[4]. They provided three reasons for this increasing trend in several conflicts without peace agreements. Firstly, sustaining conflict after the end of the cold war was difficult, but recent conflicts have different dynamics and funding sources. Secondly, the recent conflict in many countries is carried out by radical and fundamental religious factions. Some have claimed parallel governments such as the Islamic State in Syria and Iraq or Tehreek Taliban Pakistan in some parts of Pakistan. Recently, although ISIS has been defeated in most of Syria and Iraq, its ideology has spread to other countries in Asia and Africa. The idea of implementing "supreme values", as mentioned in Bernholz (2004)[5], as well as the religious and ideological content of the conflict, can explain this spread. Thirdly, the internationalization of the conflicts[6] has complicated the peace process and speedy conclusion. The foreign intervention with their motives and objectives reduces the probability of a peace agreement between conflicting factions (Pettersson et al., 2021). This absence of peace agreements and increased armed conflicts can result in more human suffering and political and economic instability. Conflict causes substantial damage to countries through its destructive effects on, among others, growth, foreign direct investment, trade, infrastructure, economic and social public spending, and overall political and economic stability. These adverse effects on social, economic, and political indicators cause poverty in conflict-hit fragile countries which creates grievances and results in more civil strife (World Bank, 2018).

[4] See Petteresson et al. (2019) for more details on trends in peace agreements from 1975 to 2018.
[5] This concept is explained in next section.
[6] We observe this internationalization in state-based conflicts in Yemen, Syria, Iraq, Libya, Afghanistan for example.

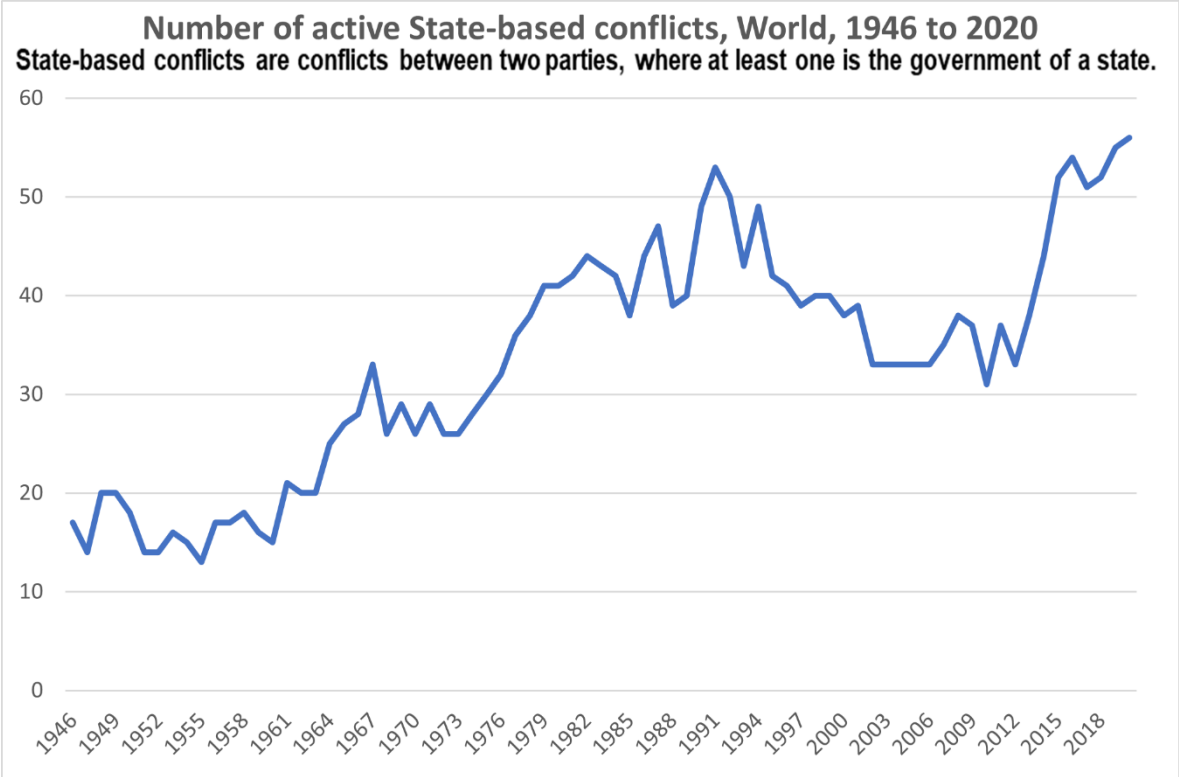

Figure 1.3 Number of Active State Based Conflict, 1946 -2019, Source Uppsala Conflict Data Program (UCDP) Database

Collier and Sambanis (2002) coined the term "conflict trap" after observing the repetitive pattern of conflicts in countries due to social, political, and economic damage caused by the prior conflict. Conflict in one country also creates political and economic instability in an entire region (Taydas et al., 2011). For instance, political instability in Afghanistan led to massive migration and created a refugee crisis in neighboring countries. The protests in Tunisia, demanding regime change, spread to many countries in the Middle East and North Africa region and started Arab Spring. Though protests in Tunisia may have triggered the Arab Spring, local country characteristics, like bad governance, political repression, environmental- degradation, might have increased the intensity of violence in these countries. For example, Kelley et al. (2015) show that drought in greater Fertile Crescent from 2007 to

2010 may have exacerbated conflict in Syria, a country characterized by unsustainable agricultural and environmental policies and bad governance.

1.2 Review of Conflict Theories

In this section we explain main theories on conflict. We start with the literature that use "modernization theory" in explaining violence. Then we discuss literature that use "neo-Malthusian" framework, "Greed and Grievances", "relative deprivation" theory, and theory of "supreme values" to describe conflict.

Sambanis (2002) suggest that economic modernization in some countries increases the probability of conflict onset. He argues that socio-economic changes can increase the groups' competition to control scarce resources. If control and distribution of resources are based on ethnic ties for example, it will incite grievance among the excluded groups and cause interethnic conflict. Neo-Malthusian framework also provides the link between resource scarcity and conflict. Urdal (2005) state that the primary focus of Neo-Malthusians is on the scarcity of resources that are necessary for food production. Homer-Dixon and Blitt (1998) suggest that in developing countries, the scarcity of resources on which a large population is highly dependent, can cause violent conflict (Urdal, 2005). Verpoorten (2012) presents the case of Rwandan genocide and argue that resource scarcity may encourage violence if triggered by local issues such as ethnic fractionalization and political impasse. She indicates that decline in per capita food production in 1980s was one of the main reasons that lead to genocide in early 90s. Couttenier and Soubeyran (2014) argue that in poor developing countries, climatic anomalies may cause scarcity of essential resources (food and fresh water for example) and increase the chances of violent conflict. Kelley et al. (2015) while focusing

on climate change show that drought in greater Fertile Crescent from 2007 to 2010 may have contributed to recent violence in Syria.

Caruso and Schneider (2011) suggest that the "immiserizing modernization" theory explains the positive impact of economic modernization on civil conflict. This theory is derived from Oslon's (1963) argument that rapid economic growth can create several social and political imbalances. Following Bhagwati (1958) [7], Oslon (1963) argues that rapid economic growth can increase the general price level, but wages will not adjust accordingly in the short run because of their sticky nature. Thus, decrease in purchasing power will create a grievance. Another reason lies in the labor demand patterns when countries make technological advances. Demand will shift towards more skilled workers, and as a result, unemployed, unskilled workers could be a destabilizing factor.

Collier and Hoeffler (2004) suggest that "rebellion may occur when forgone income is usually low". Fearon and Laitin (2003) argue that people choose conflict when they have favorable conditions, for example, rough terrain, high unemployment, weak political institutions, or high poverty. These favorable conditions (opportunities) lower conflict onset costs and allow the factions to recruit soldiers and sustain conflict for longer durations. The conflict in tribal areas in Pakistan bordering Afghanistan is one example, where less government control and rough terrain allowed insurgents to hide and carry on the insurrection for extended periods.

Wintrobe (2006) and Freytag et al. (2011) use individuals as rational choice-maker in their theoretical frameworks. Wintrobe (2006) suggests that people trade between solidarity and independence. He argues that a person can give up his autonomy to experience social cohesion. Following Wintrobe's theoretical framework, Freytag et al. (2011) argue that the

[7] Bhagwati (1958, 1968) first coined the term immiserizing growth and argues that economic growth in some cases could make a country worse off rather than improving the economy.

decision to support or become a terrorist depends on the tradeoff between material wealth and mental rewards. An increase in material wealth increases the opportunity cost of being part of a conflict. So, as a result, better economic conditions decrease the probability of conflict in an economy.

Insurgents also focus on political costs like severe punishment and loss of lives along with economic costs. The perception of weak institutions and no severe punishment can motivate potential insurgents to start armed conflict to meet their objectives. Conflict onset is a negative function of effective institutions (for example, independent judiciary) or military might. Timely military response and efficient (in time) judicial decisions can deter conflict. However, sometimes severe punishments can also positively influence conflict through the backlash effect.

As for the motivation of conflict, though Collier and Hoeffler (2004) decided on greed instead of grievances as the primary motivation behind conflict onset, Stewart (2008) gave the counterargument and chose grievances as the primary source behind armed conflicts. Greed can motivate organizers to start a rebellion. For example, abundance of natural resources in a country can have a positive impact on conflict. Olsson (2007) argue in his theoretical framework that abundance of natural resources (diamonds) can increase the chances of conflict. However, recruiting rebels for the cause may depend on the perception of government hostilities in public. Stewart (2008) hypothesizes that an increase in horizontal inequalities (economic, social, political, and cultural status) increases the probability of political mobilization. Stewart (2010) suggests that horizontal political inequality (political exclusion) is the most crucial factor behind the onset of the civil war. The separation of Bangladesh from Pakistan in 1971, the recent Kenyan crisis in 2007-08, the civil war in Syria, and political movements in Bahrain are many examples of civil unrest due to political exclusion. Political repression is also one of the primary sources of grievance (Collier &

Hoeffler, 2004). Political repression by authoritarian states was one of the main reasons behind the Arab Spring uprising in the MENA region. Political repression and exclusion are widespread in many countries. However, standing against the government for political rights is not very common. Along with economic and other social factors, it also depends on the percentage of the population receiving discrimination. If the population percentage is very small and the civil societies are not strong enough, people will migrate to other countries rather than choose violence.

Bernholz (2004) provided another cause for militancy in countries. He argues that conflict in countries is based on « supreme values ». For followers, « supreme values » are absolute truths and are preferred over anything. They are ready to sacrifice everything to implement these values. These ideologies demand that all people choose the 'right path' or face the consequences. In recent history, some Christian and Communism movements were based on « supreme values » (Bernholz, 2004). Currently, religious fundamentalists in many countries are using their brand of Islam and using illegal armed means to implement it on other sects and religions. These extreme ideologies are not purely religious doctrines but are extremely distorted to meet the groups' objectives (Black, 2001).

1.3 Review of Empirical Evidence on Determinants of Conflict:

In this section we provide with the existing empirical literature on the determinants of conflict. We start with the literature on the relationship between institutions and conflict. Next, we discuss the studies on the impact of income on conflict. Subsequently, we provide with the empirical literature on the impact of education and other social, economic and political variables on conflict.

Recently several studies have provided empirical evidence on the relationship between conflict and different social, economic, and political factors. In the previous section, a discussion on theoretical frameworks shows that conflict can result from greed, grievances, or/and « supreme values ». This indicates that motivation for armed conflict is not the same across countries. The reasons for the onset of conflict can be different, however, some common factors can help countries overcome the armed resistance and achieve peace.

The theoretical literature on conflict generally views insurgents as rational. In the context, governments can focus on variables that increase the opportunity costs for conflict. Recent empirical literature has shown that better living conditions, more equal economic opportunities, influential and trusted institutions, improved human development, satisfactory political rights, reliable political system, economic integration, and demographic variables can increase the opportunity cost of insurgency. Governments could improve these factors to a level where the perceived net benefits for a rational decision-maker would be negative. Freytag et al. (2011) also show that income can increase the conflict until an economy reaches a minimum threshold.

Adequate political institutions and good governance play an essential role in decreasing violence. Ross (1993), Newman (2007), and Piazza (2008) argue that strong institutions in an economy diminish the chances of violence. Effective institutions play a substantial role in reducing grievances and helping to stabilize economic indicators. This political and long-term economic stability increases trust and economic opportunities and decreases conflict. George (2018) implies that building reliable and trustworthy institutions are an effective counter-terrorism measure. For empirical evidence, Asongu et al. (2018) use governance variables from WGI and conclude that good governance is an essential factor in countering violence in African countries. Choi (2010) used the rule of law from the ICRG database and concluded that law and order significantly reduce domestic and international terrorism. Feridun and

Shahbaz (2010) and Asongu and Amankwah-Amoah (2016) used military expenditure to proxy law and order and showed that it negatively affects violence. Though the empirical literature on the role of institutions is limited, theoretically, it is a crucial policy factor that negatively influences conflict.

The empirical research on the effect of income and wealth (proxied mainly by GDP per capita) on conflict is inconclusive. On the one hand, Humphreys (2003), Collier and Hoeffler (2004), Azam and Delacroix (2006), Lai (2007), and Blomberg and Hess (2008) indicate that increase in income and wealth diminishes conflict in an economy. On the other hand, Plümper and Neumayer (2010), Krueger and Maleckova (2003), and Piazza (2011) show a positive impact of income on conflict. Lai (2007) and Freytag et al. (2011) reveal that the quadratic form of GDP per capita in regression shows a negative sign for the relation. They argue that an economy must achieve a certain threshold level of economic development to reduce conflict by increasing income. According to the rational choice framework, a substantial increase in income should increase the opportunity cost and thus decrease conflict. However, if the conflict results from « supreme values », where the followers are ready to sacrifice everything for their cause, an increase in income may also results in an increase in conflict.

Researchers have also used human development as the determinant for conflict. Empirical evidence for human development (mostly proxied by education) is inconsistent. A part of the research supports the negative impact of education on conflict. Collier and Hoeffler (2004), Bravo and Dias (2006), and Azam and Thelen (2008) reveal that human development reduces conflict. The rational choice framework also supports this relationship as higher education levels increase the opportunity costs of using illegal force by offering better economic opportunities to the public. Brockhoff et al. (2015) argue that education also positively impacts economic growth and reduces inequality. Thus, it increases the costs of recruiting and

retaining rebels. Even if the conflict is based on « supreme values », Ghosh et al. (2017) argue that education can help develop critical thinking and reduce radicalism.

On the contrary, Brockhoff et al. (2015) give a counterargument supporting the positive impact of education on conflict. They hypothesize that when the economies have unfavorable economic, political, social, and demographic conditions, education may promote the onset of conflict[8]. When education does not translate into better economic opportunities and extremist organizations offer better economic and mental rewards, people participate in conflict to improve their living standards. Krueger and Maleckova (2003) and Bueno (2005) also argue that extremist groups may prefer to recruit educated people as this can enhance the success probability of their activities and promotes a better public image. Educated people also contribute to a better strategy to achieve desired goals. They know more about the limits of the governments and can effectively propagate their narrative through different channels. Empirical evidence provided by Testas (2004), Berrebi (2007), and Brockhoff et al. (2015) support this positive relationship between human development (proxied by education) and terrorism. Krueger and Maleckova (2003) also provided micro evidence for this positive relationship.

Empirical studies have also used voice and accountability, political rights, civil liberties, and democratic accountability, among other proxies or time dummies, to analyze the impact of political values and systems on conflict. The relationship between these variables is mixed. For instance, Eyerman (1998) and Li (2005) show the negative relationship between democracy and violence, which means that when the country offers more political rights and democratic values, people will not rebel. In democracies, political inclusion and participation decrease grievances among the public. Citizens may use political channels to address their grievances or issues they face. On the contrary, Li and Schaub (2004) and Weinberg and

[8] For more details about how education promotes terrorism, see Brockhhoff et al. (2015)

Eubank (1998) reveal that democracies face more terrorist attacks than autocracies. They argue that in democracies, people have more political rights and ease of movement. It is easier for a terrorist organization to use and mobilize resources to instigate violence and propagate their narrative to influence and recruit rebels.

When countries encounter a rotation of democratic and non-democratic political systems, the trust level in political institutions decreases. An unstable political environment creates a power vacuum and leaders use illegal force to fill it. Tudoroiu (2007) argues that the rose, orange, and tulip democratic revolutions between 2003-2005 failed because of weak civil societies. He posits that *"the supposedly democratic revolutions proved to be little more than a limited rotation of ruling elites within undemocratic political systems".* One can observe that countries with a long history of uninterrupted democratic systems and values are more developed and face fewer civil wars. It shows that to have a negative impact of a democratic political system on violence, democracies may need to cross a threshold time without any military or undemocratic intervention.

Empirical evidence on the impact of globalization (measured mainly by trade openness or FDI/GDP) also states mixed results. Kurrild-Klitgaard et al. (2006) and Blomberg and Hess (2008) show a negative impact of openness on conflict and argue that it creates economic opportunities and reduces grievances. However, Wintrobe (2006) and Freytag et al. (2011) reveal a positive relationship between these variables and argue that globalization increases violence as people take economic reforms as a threat or risk of losing economic advantages.

Along with these variables, researchers also use population, population density, social-economic conditions, funding from diasporas, an abundance of natural resources, rough terrain, ethnic and religious fractionization, and primary good exports as explanatory variables for conflict.

1.4 Review on Economic Consequences of Conflict:

Along with deaths, injuries, and severe psychological sufferings, armed conflicts in a country cause a significant negative impact on economic variables. Several studies have discussed the economic costs of conflict. Cerra and Saxena (2008) reveal that political and economic crisis has a significant negative impact on economic growth. Conflict creates an uncertain economic and political situation and decreases domestic and foreign investment, exports, tourism, and other essential economic activities; thus, these channels negatively impact GDP (Gaibulloev & Sandler, 2008). Conflict also causes an increase in military expenditures, thus leading to low spending on developmental expenditure. This again results in a negative relationship between conflict and economic growth (Loayza et al., 1999).

Imai and Weinstein (2000) argue that conflict negatively affects economic growth by reducing investment and fiscal balance. They suggest that the destruction of existing capital stock from conflict increases the depreciation costs and reduces domestic investment, thus causing a decrease in capital stock and its growth. They also hypothesize that civil conflict in an economy increases the budget deficit, thus creating an unstable macroeconomic framework and decreasing economic growth. Expenditure on health and education and public investments in infrastructure are essential to enhance growth in developing countries. However, Gaibulloev and Sandler (2008) suggest that in a conflict-hit country, an increase in government expenditure on security crowds-out growth-enhancing developmental expenditures. Collier et al. (2003) reveal that people opt to save and invest in foreign countries during the conflict. This capital flight decreases economic growth and employment rate and reduces the opportunity costs for rebellion. Abadie and Gardeazabal (2008) reveal that conflict increases uncertainty, resulting in a decrease in net foreign direct investments (FDI). Conflict in neighboring countries can also have a negative effect through an increase in

refugees, security spending, and economic and political instability. Though there are many channels through which uncertain political and economic environments destroy overall economic growth. Our focus for this study is on the impact of armed conflict on FDI.

There is not much empirical research on how risk of conflict deters FDI. For developing countries, Foreign Direct investment is an essential source of savings. (Gaibulloev and Sandler, 2008). So, it is vital to study the impact of armed conflict on foreign direct investment in developing economies. Abadie and Gardeazabel (2008) suggest that one reason for less FDI in conflict-ridden economies is the uncertain political environment as it reduces the future expected returns for the investors. Another related issue is the formation of parallel governments in the country. When the conflict escalates, rebels control significant parts of the country (like in Afghanistan, Syria, Iraq, Libya, Yemen) and form parallel governments. Complexity in forecasting who will control the central government and what will be the economic policies for globalization and foreign investors also increases the uncertainty about future profitability. As a result, investors prefer to wait (to reduce sunk cost) or invest in a comparatively peaceful country (time value of money). Abadie and Gardaeazabal (2003), Bandyopadhyay et al. (2012), and Enders et al. (2006) revealed that an increase in conflict triggers uncertainty and reduces foreign direct investment. They suggest that investors opt for stable countries with less violence.

1.5 Value Added of the Thesis

The goal of our work is to understand what factors can help governments mitigate the recent wave of conflicts. In this thesis, we carry out an empirical analysis to determine the nexus between conflict and economic, social, and political indicators. We study and review

theoretical frameworks and empirical evidence that explain the onset of the conflict and highlight factors that can help mitigate it. This thesis offers an in-depth theoretical review and empirical analysis of the factors that determine violent conflict. We put emphasis on fragile developing countries for our analysis as the overall economic situation in fragile countries is deteriorating. A conflict trap can cause more damage in those economies through destructing economic progress, increasing grievances in public, and then triggering conflicts again.

Our research is the first attempt to analyze social, economic, and institutional determinants of conflict for Pakistan and Fragile countries. The role of human development, economic reforms, and democratic values, in particular, have not yet been studied in the case of Pakistan. Our research in these areas provides the country with new perspectives. Another distinctive feature of the second chapter is the use of the annual number of conflict-related incidents processed from the Global Terrorism Database (GTD, 2018) as a proxy for internal conflict.

For the third chapter, we analyzed the determinants of conflict in fragile countries. Along with using explanatory variables from existing literature, we added "Time for Enforcing Contracts" from doing business as a proxy for the effective judiciary in the conflict literature.[9] Another unique aspect of our research is the use of Fixed Effect Poisson estimator and Control Function (CF) approach, which aim to address issues related to count data and potential endogeneity in our regressions.

For the fourth chapter, we investigate the role of political and macroeconomic instability on economic performance (proxied by FDI). Our main motivation is to highlight factors that policymakers can use to reduce the likelihood of a country falling into a conflict trap. We assess macroeconomic uncertainty using three indicators of the real effective exchange rate,

[9] Using this proxy helps in two ways. Firstly, a positive relation shows that countries with strong institutions face less violence. Secondly, it shows that timely punishment has a deterrence or amplification effect.

two calculated using the CERDI method (one for all traded products, another for non-oil products, and one from IFS (2018)). The goal of using different datasets to measure exchange rate uncertainty is to contribute to the ongoing debate about the relationship between exchange rate uncertainty and FDI. Another distinctive feature of our work is the use of internal conflict and governance as FDI determinants for developing countries. We thoroughly examined the role of individual and aggregate governance and institutional factors (drawn from the World Governance Indicators (WGI) and the International Country Risk Guide (ICRG)) in attracting FDI in the host country.

The empirical analysis in the thesis follows several existing theoretical frameworks. To explain the relationship between conflict and economic explanatory variables, this thesis relies on conflict theories[10] which elucidate the impact of, among others, income and wealth (Fearon & Laitin, 2003; Collier & Hoeffler, 2004; Freytag et al., 2011), human development (Brockhoff et al., 2015; Ghosh et al., 2017), institutions (Newman, 2007; Piazza, 2008; Asongu et al., 2018) and political structure (Eyerman, 1998; Winberg, 1998).

1.6 Overview of the Chapters

This thesis consists of four chapters and a general conclusion. The first chapter provides the facts and figures to highlight the importance of studying the nexus between conflict and economic performance. It also offers a comprehensive theoretical and empirical review to identify the factors that can help mitigate conflict in fragile countries. We follow this theoretical and empirical background for the next two chapters to identify the factors affecting conflict in fragile countries.

[10] See Olson, 1963; Becker, 1968; Gur, 1970; Eyerman, 1998; Winberg, 1998; Dezhbakhsh et al., 2003; Fearon & Laitin, 2003; Collier & Hoeffler, 2004; Bernholz, 2004; Wintrobe, 2006; Bravo & Dias, 2006; Kurrild-Kitgaard et al., 2006; Newman, 2007; Lai, 2007; Stewart; 2008; Piazza, 2008; Basuchoudhary & Shughart, 2010; Enders et al., 2011; Freytag et al., 2011; Caruso & Schneider, 2011; Brockhoff et al., 2015.

Chapter two of the thesis focuses on the empirical evidence for the nexus between conflict, growth, and human development for Pakistan. Conflict has existed in Pakistan for as long as the country has existed. After the partition of subcontinent between India and Pakistan in 1947, around one million people were killed due to religious tensions. Then the perception of unfair division of land lead to several battles between India and Pakistan. Other regional developments, such as the 1971 secession of Bangladesh from Pakistan (in which around half a million people died in civil war), the wars in Afghanistan in 1979-89 and 1996-2001, and the US-led war on terror after 2001, have also affected the political, economic, and social situation of the country.

Since late 1970s internal conflict has increased in Pakistan. Many people died because of armed violence on ethnic, religious, sectarian, and nationalist grounds. Recently, the Pakistani Taliban insurgency posed new challenges following the 2001 war on terrorism. Since the war in Afghanistan, armed conflict has become increasingly costly for Pakistan, both in terms of casualties and economic costs. Conflict-related incidents increased from 109 in 2000 to 1,177 in 2016. During this time, more than 50,000 people were killed due to conflict. For economic consequences of conflict in Pakistan, problems such as unemployment, poverty, inequality, corruption, uncertainty, illiteracy, poor health and living conditions, and internal displacement have worsened (Easterly, 2001; Ali, 2010).

To our knowledge, it is the first comprehensive attempt to identify factors that can influence conflict in Pakistan. In particular, the impact of human development, economic reforms, and democracy on conflict have not yet been studied. We use the annual number of conflict-based incidents from the Global terrorism database as the proxy for conflict in Pakistan.

For explanatory variables, we took GDP per capita (as a proxy for income and wealth) and primary enrolment ratio (as a proxy for human capital) from national sources, military expenditure (as a proxy for law and order), trade openness (as a proxy for economic reforms) from World Development Indicators (WDI), and political freedom (civil and political rights) from Freedom House database.

For our time series analysis, we begin with the unit root tests to determine the stationary level of all variables. We use Augmented Dickey-Fuller (ADF), and Phillip-Perron (PP) tests for this purpose, and the results of both tests state that variables are nonstationary at different levels. All variables are non-stationary at level except the trade openness which is stationary at 10 % significant level. This allowed us to use Autoregressive Distributed Lag (ARDL) bound testing cointegration technique to analyze the relationship between these variables. ARDL approach determines both short and long-run dynamics of the model.

The findings reveal that income is positively associated with conflict in both the short and long run. This positive relationship can be explained by the theory of immesirizing modernization (see Caruso and Schneider, 2011) or the theory of « supreme values » (see Bernholz, 2004). In the long-run increase in both human capital and military expenditure reduces conflict. This show that investment in human capital and law and order can be used as policy tools to mitigate armed conflict in Pakistan. Democracy has a negative impact on armed conflict in Pakistan. The statistics on the conflict-based incident in Pakistan also show that conflict increases many folds in democratic eras. In Pakistan political system is a rotation between democratic and military rule. Although democracies reduce grievances through political inclusion, for Pakistan this does not appear to be the case. We suggest that an inverse relationship between democratic values and conflict requires that democracies should continue for a long time without interruption.

For the validity and reliability of the estimates, we use the Breusch-Godfrey serial correlation test and the Breusch-Pagan-Godfrey test for heteroscedasticity as diagnostic tests. Our findings reveal that the null hypothesis of these tests is not rejected and that the residuals in the estimates do not undergo serial correlation and are homoscedastic. The CUSUM and CUSUMSQ tests are used to ensure the long-term stability of the model coefficients. The results indicate that the plots (blue line) are within the 5 percent significance level's critical bound. This demonstrates that the estimated error correction model coefficients are all stable and can be used to make policy recommendations.

In Chapter 3 of current thesis, we investigate the factors that can help reduce conflict in fragile countries. The Uppsala Conflict Data Program (UCDP) has observed an increase in global violence over the last decade. Armed conflicts have increased from 33 in 2006 to 54 in 2019. The number of terrorist attacks peaked in 2014, when more than 100,000 people were killed (Allansson et al., 2017). In addition to human suffering, civil strife has a devastating effect on economic factors. As a result, while extreme poverty is decreasing globally, it is increasing in conflict-affected countries (World Bank, 2018). According to the World Bank (2018), poor social, economic, and political conditions in fragile countries increase the risk of instability, and if left unchecked, nearly half of the world's poor will live in fragile countries facing conflict by 2030. Pettersson et al. (2019) suggest that this expansion of armed conflict around the world will cause more harm in near future.

This makes these countries ideal for examining the mechanisms at work in the rise of violence. To identify factors that can reduce conflict in these states, we focus on institutional, social, and economic as main explanatory factors for conflict. The conflict-based annual incidents from the Global Terrorism Database serve as our dependent variable. We Followed Enders et al. (2011) to construct our dependent variable as proxy for domestic conflict. We

distinguished domestic incidents from transnational incidents by excluding incidents in which one of the victims was of a different nationality than the country in which they occurred.

Our main interest explanatory variable is institutions (proxied by efficient judiciary and aggregate governance). In theoretical motivation of Chapter 3, we discuss the importance of judicial efficiency in reducing conflict using cost and benefit framework. We discuss the role of timely justice and punishment in increasing deterrence, and thus increasing opportunity cost of conflict. Along with the role of institutions, we also comprehensively analyze other social and economic determinants of violence. We empirically run our model for four groups of countries from 2004 to 2017: i) Total fragile countries, ii) Muslim Fragile countries, iii) States affected by major conflicts, and iv) Fragile economies with more than one main religion. We study these different fragile country panels to enhance our insight into the factors and mechanisms of armed conflict. For instance, if the conflict is driven by religious fundamentalism, an increase in education and wealth may show different results from fragile countries where violence is fueled by inequality or poverty. So, policy variables to mitigate conflict may differ in these countries.

Our dependent variable contains only non-negative integer values, so we use Fixed effect Poisson regression with robust standard errors to address the issues related to count data models. Alternatively, we re-estimate our models using two step control function approach to deal with the possible endogeneity problem in the model. In our baseline model, we explain conflict by the variable "efficient judiciary" as a proxy for deterrence and institutions from doing business, the log of GDP per capita and trade openness from national and international sources, Mean year of education from United Nations Data Portal (UNDP) as a proxy for human capital, and democratic accountability as a proxy for democracy from ICRG database.

Our findings state that countries with efficient judiciary and higher income have fewer violent incidents. These findings suggest that strengthening institutions, particularly the justice system, could be an effective way to reduce conflict in fragile developing countries. The threat of punishment increases the opportunity cost of violence. If the legal system punishes in a timely manner, the population will be less likely to resort to violence, and rebels will be less likely to prolong the conflict. Our findings for income as an explanatory variable show that low income is positively associated with violence. When poverty is high, the use of violence becomes more likely because the opportunity cost of using illegal force and recruiting rebels is low. Thus, improving general living standard appears to be a policy variable that governments could use to reduce violence in fragile developing countries. On the other hand, an increase in education, economic integration, and population causes a surge in conflict. It can be thought that fragile countries should improve the economic and institutional conditions of the population to reap the benefits of higher education and political reforms. For political structure, our results are insignificant for most of our specifications.

A more detailed assessment reveals intriguing differences between our country groups. Our results for different panels show that the impact of income is more significant for countries with more than one main religion and in Muslim countries. This suggests that public policies aimed at improving peoples' living standards may be more effective in these fragile countries. Improvements in justice efficiency are more strongly linked to a reduction in violence in Muslim countries than in other groups. This is significant because some of the countries in this group may be less involved in long-term and high-intensity violence than the countries afflicted by major conflicts. Our findings suggest that improving the judicial system and, more broadly, institutions could help to prevent the escalation of violence in these fragile countries, which have a poor governance environment in comparison to the other groups. The education variable has substantial results for two kinds of countries: overall fragile countries

and countries affected by major conflicts. This could be linked to the fact that ethnic tensions (as well as religious tensions in some groups) constitute a major issue in most of our fragile countries. In this case, education could serve insurgents groups by encouraging certain segments of the population to engage in violence. In terms of political liberalization, democratic experiences appear to be a source of increased violence in the most of our fragile developing countries, apart from countries with more than one main religion, possibly because some countries in this group have historically had a relatively long presence of democratic institutions.

For robustness tests, we also use aggregate governance as a proxy for role of institutions. We also use additional variables in our specifications to control for income inequality, natural resources, and ethnic and religious tensions. we re-estimated our model on a sample incorporating less fragile countries and on a sample of more fragile countries (whose score is higher than 80). This sensitivity analysis, which includes different panels of countries with different levels of fragility, confirms our results from baseline specification. The findings for all these regressions reveal that results for our key variables are consistent and can be used for policy implications.

For the fourth chapter, we investigate the role of political and macroeconomic instability on economic performance (proxied by FDI). Our main motivation is to understand channels through which strong institutions and good governance can have an indirect impact on conflict. We believe that conflict reduction should be followed by strong economic performance to help the country escape the conflict trap. As a result, it is critical to identify factors that can help reduce conflict while also improving economic performance.

For FDI as the dependent variable, we took Governance (variables from World Governance Indicators (WGI) and ICRG), real effective exchange rate uncertainty (self-

calculated), risk of internal conflict (from ICRG), mean year of schooling (as proxy for human capital from UNDP), GDP growth and infrastructure (from WDI) as explanatory variables. For our panel data analysis, number of countries is 44 to 49 for different specifications and the time period is from 2004 to 2018. It is stated that we use the GARCH method to calculate the real effective exchange rate volatility. The construction of variable with GARCH requires no missing values. As a result, developing countries with missing values were excluded from the sample.

We calculated real effective exchange rate for developing countries using the CERDI method[11]. We then followed Diallo (2013) and calculated real effective exchange rate volatility (REERV) using GARCH (1,1) and contributed to the debate on the impact of exchange rate volatility on FDI. To investigate the impact of institutions and governance on economic performance, we used 4 governance variables from ICRG database and five from World Governance Indicators (WGI). We use different specifications to see the individual impact of these governance indicators in attracting FDI. We also created two aggregate proxies for governance (one for ICRG database and one for WGI) using principal component analysis (PCA) and analyzed the impact of overall good governance on FDI.

The inclusion of a lagged dependent variable in our specification causes an endogeneity problem because it becomes correlated with differenced error terms. As a result, the Ordinary Least Squares (OLS) estimator is unsuitable for our empirical analysis. The Generalized Method of Moments (GMM) approach developed by Arellano and Bover (1995) and Blundell and Bond (1998) has been extensively used in recent literature to deal with the endogeneity issue. The GMM estimator is efficient for data with large cross sections and short time periods (Blundell and Bond, 1998). To validate that our model has proper specification, we

[11] We are very grateful to Martine Bouchut, Computer Scientist at CERDI, and Dr.Diallo Ibrahima Amadou for helping us calculate this series.

use the Hansen J-test of over-identifying restrictions and Arellano and Bond (1991) tests for serial correlation.

For all specifications, the number of instruments is less than number of cross sections as suggested by Roodman (2009) to avoid issues linked with the instrument proliferation. The p-values for Hansen J-test are greater than 0.05 and confirms that instruments used in our specifications can be considered valid. As the Hansen J statistics accepts the null hypothesis of over-identifying restrictions. The results for serial correlation tests also has p-values greater than 0.05, so we accepts the null hypothesis of no autocorrelation of the second order. This demonstrates that the diagnostic test results support the model specifications.

Both proxies for governance have a significant positive impact on FDI, which means that FDI increases when a country improves the quality of its institutions. For the individual impact of governance variables, the coefficient value of control of corruption and law and order was higher, which shows that developing countries should take measures to reduce corruption and enhance law and order to attract FDI. Our findings reveal a significant negative impact of internal conflict on FDI. In the case of REERV, our findings support the production flexibility argument. Our results show that firms prefer investing in a country as a substitution for exports when facing exchange rate uncertainty.

2 Chapter 2 - Conflict, Growth, and Human Development: An Empirical Analysis of Pakistan[12]

Abstract of Chapter 2

This chapter uses the Autoregressive Distributed Lag (ARDL) Bound Testing cointegration approach to study the long-term relationship between internal conflict, economic growth, and human development in Pakistan from 1978-to 2016. We show that education could help reduce conflict in the country by providing better opportunities and reducing radicalization. We also show a positive contribution of public order to the reduction of conflicts, which would justify the anti-terrorist policy pursued by the country. Nevertheless, it does not seem that economic reforms and income growth help to reduce internal conflicts in Pakistan. This result could illustrate a situation where economic reforms and globalization, in particular, would be perceived as a threat, and economic growth would help finance political and social unrest. Political rights and civil liberties do not seem to reduce conflict either, and periods of democratization have more often seen a resurgence of violence. Pakistan could be caught in a low development trap, with conflict being a key variable to consider before being able to reap the benefits of the country's reforms.

Keywords: Conflict, Economic Growth, Human Development, Pakistan.
JEL classification : C22, D74, O10.

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2.1 Introduction

In the first decades after independence, Pakistan's economy proliferated and had good economic prospects (World Bank, 2002). However, due to complex geopolitical and socio-economic conditions, Pakistan has been confronted with several distinct but interrelated conflict situations.

The history of conflict in Pakistan is as old as the country's existence. The legacy of the partition of India and the two wars in 1947 and 1965 is seen in unresolved conflict situations, such as in Kashmir, but also in the Khyber Pakhtunkhwa and Baluchistan (see map in the appendix). Other regional developments, such as the 1971 secession of Bangladesh from Pakistan, the wars in Afghanistan in 1979-89 and 1996-2001, and the US-led war on terror after 2001, have also affected the political, economic, and social situation of the country (Waseem, 2011).

Pakistan's internal situation has increasingly suffered in particular from sectarian and ethnic violence between its diverse populations (Ahmar, 2007). The increase in the sectarian division was observed in the late 1970s and early 1980s due to internal political changes and fears that the Islamic revolution in Iran would lead to Shiite control of the country (Abbas, 2010). The military regime that came to power in 1977 pursued a policy of Islamization that resulted in a separation between Sunnis and Shiites on the one hand and between different Sunni groups on the other hand. Tensions between Sunnis and Shiites further worsened because of Pakistan's support for Iraq in its war against Iran. The relationship continued to deteriorate with Pakistan's support for the Taliban in Afghanistan in the 1990s and despite the withdrawal of support for the Taliban in 2001 after joining the North Atlantic Treaty Organization's (*NATO*) intervention. More recently, the growing conflict in the Middle East has fueled sectarian groups on both sides and intensified violence in the country. As a result, violence between

different religious groups has increased since 2012, with perpetrators including the Taliban and the Islamic State-affiliated groups in Iraq and Sham (ISIS) (Rafiq, 2014).

Due to religious differences, nearly 1,000,000 people were killed after the division of the subcontinent in 1947. In the civil war in East Pakistan (later became Bangladesh), about 500,000 more people died. More recently, lives have been lost due to sectarian and religious differences. At the same time, the Pakistani Taliban insurgency created new problems after the 2001 war with Afghanistan. Since then, terrorism and the war against terrorism have been increasingly costly for Pakistan, both in terms of casualties and economic costs. The number of conflict-based incidents increased from 109 in 2000 to 1,177 in 2016.[13] In total, more than 50,000 people died of terrorism during this period, and the economic cost is estimated at about US$ 120 billion[14].

Many countries have faced violent conflict in recent times, and many researchers have tried to understand what triggers these conflicts (World Bank, 2011). Collier (2007) states: "Seventy-three percent of the bottom billion people have recently been through a civil war or are still in one". Stewart (2002) notes that most economies in the bottom percentile of human development have been confronted with civil wars over the last three decades. The author further states that countries with low GNP per capita are more likely to experience conflict. Ostby (2008) confirms that poverty, inequalities, and dependence on natural resources account for much of the world's conflicts. Caruso and Schneider (2011) add that a lack of economic opportunities can lead to distress, hatred, and grievances in certain sections of the population that result in violence. Collier and Hoeffler (2004) state that lousy government policies can result in conflicts by increasing grievance among the population. They show that

[13] See the Global Terrorism Database (GTD, 2018) for Pakistan

[14] https://www.peaceinsight.org/conflicts/pakistan/
https://www.peaceinsight.org/en/locations/pakistan/?location=pakistan&theme=preventing-violent-extremism
Peace insight is published by peace direct, a charity-based organization that funds peacebuilding organizations in conflict hit areas.

a higher level of GDP per capita and education, and other human development factors lead to fewer conflicts.[15]. The authors also define four familiar sources of grievance: (i) Religious and ethnic hatred, (ii) Economic inequality, (iii) Political exclusion (iv) Political repression.

Another explanation of the causes of conflict lies in Caruso and Schneider's (2011) theory of "immiserizing modernization". Following Bhagwati (1958) [16], Olson (1963) developed the theoretical foundation of this argument. Economic growth can change the distribution of wealth in a country, with some groups losing out. This can lead to grievances that terrorist organizations can use. This implies that conflicts can arise even in the presence of economic growth. In addition, even though the increase in income affects the entire population without increasing inequalities, unchanged relative poverty can still fuel grievances.

Bernholz (2004) describes the ideological content of inevitable conflicts through the concept of "supreme values". These values refer to one or more objectives that are preferred to all others and whose realization comes before any other value (Wilkens, 2011). If the grievance concerns problems other than poverty, such as injustice or unequal treatment of certain regions, ethnic groups, religions, or population groups – as in Pakistan (Abbas, 2010; Ahmar, 2007; Rafiq, 2014) – the increase in wealth can raise the resources of the terrorist organizations, and therefore their conflict-based activities.

In Pakistan, the conflicts have caused enormous damage to the already fragile economy. Hussain (1999) argues that, until 1973, the civil service structure was merit-based without political interferences. Easterly (2001) in his work on growth without development in Pakistan, argues that politicizing the civil services resulted in weak institutions and poor public service delivery. For Easterly, poor institutions and bad governance are the main

[15] On all these issues, see also Stewart (2002), Berrebi (2007), and Vincent (2009). In Pakistan, more specifically, see Malik (2009) and (2011). In Nepal, see Murshed and Gates (2005).

[16] Bhagwati (1958, 1968) first coined the term immiserizing growth and argues that economic growth in some cases could make a country worse off rather than improving the economy.

reasons for Pakistan's low economic and human development that fueled grievance and conflict in the country. Other factors of low development can be seen in (among others) the rotation between democratic and military rules[17], paradigm shifts in economic policies (Chaudhary and Abe, 1999), political changes in neighboring countries (Cheema, 1988, and Hilali, 2002), and low investment in infrastructure and human development (Qureshi, 2009).

Today, problems such as poverty, inequality, unemployment, political and economic uncertainty, corruption, illiteracy, poor health and living conditions, internal displacement, extremism, and radicalism have worsened due to the persistent situation of conflict in the country (Easterly, 2001; Ali, 2010). In monetary terms, the government spends much of its budget on defense and other dispute resolution mechanisms, leaving little room for development spending (Gupta et al, 2004). As a result, infrastructure is severely degraded and social spending, especially on education and health, is very low (Akram and Khan, 2007; Benz, 2012)[18]. During the Soviet-Afghan War, and after September 2001, the international community (especially the United States) provided considerable financial assistance. This aid provided short-term help to manage the budget deficit. However, it did not offer a real solution to the problems of the economy.[19] This is why the question of how to reduce conflicts is important to consider if the country is to find the path of development for its people.

This study explores the link between internal conflict, economic growth, and human development in Pakistan over the period 1978 to 2016. Because of its involvement in conflict resolution, the government of Pakistan does not have much room to invest in social issues. Although police and defense spending is designed to combat violence, investments in human development may lower the risk of conflict by reducing grievances among populations.

[17] See Easterly (2001) p 25 for further details

[18] See also "Public Financing of Education in Pakistan and Agenda for Education Budget 2016-17", Institute of Social and Policy Sciences (I-SAPS), Islamabad, for expenses in education.

[19] https://tribune.com.pk/story/135156/myth-vs-reality-us-aid-to-pakistan-dwarfed-by-economic-cost-of-war-business/

Educated people are also less likely to fight because they can use their reasoning to form their own opinions. They can also use their knowledge to improve their economic and social Conditions (Berrebi, 2007).

In the empirical part of this study, we show that education could help to reduce long-term conflicts in Pakistan. We find that defense spending could also contribute to this. These findings are essential in the context of the limited financial resources of the Pakistan government. It is also the first time to our knowledge that these costs have been validated by data for Pakistan.

Another contribution of our research is to expand the explanatory factors of internal conflicts. The roles of income and economic reform, in particular, have not yet been examined for Pakistan. The same applies to political freedom and civil liberties. Our research in these areas gives new perspectives for the country. Another particularity of our work lies in using the annual number of conflict-based domestic incidents processed from the Global Terrorism Database (GTD, 2018) as a proxy for internal conflict.

Finally, the question of the long-term cost of conflict in terms of development and growth is another issue that has not been studied before for this country. Conflicts can be detrimental to long-term growth through various mechanisms studied in the literature, such as a low level of health (Siriwardhana and Wickramage, 2014), education (Islam et al, 2016), and infrastructure (Imai and Weinstein, 2000)[20] linked to the conflict itself (destruction of facilities, dysfunction of public services, decrease in public and private investment and the public trust), as well as the crowding out of the corresponding public expenditure by those to fight against violence, as developed by Gaibulloev and Sandler (2008) and Loayza et al (1999). Islam et al (2016) for example show the negative long-term impact of conflict on education, earning, and health for Cambodia. They suggest that this negative impact, on education, in particular, has an adverse

[20] Imai and Weinstein (2000) deal more generally with the economic costs of conflicts.

effect on labor productivity and economic development in the long run. In the literature, this situation has been described as leading to a "conflict trap", as in Collier and Sambanis (2002), in which a country faces repetitive insurgencies due to the detrimental effects of past conflicts on both economic and political factors.

This chapter is organized as follows. Section 2 explores existing theoretical and empirical literature on conflict. In Section 3 we introduce our model of internal conflicts, human development, and growth. We also define the variables used in the analysis and the sources of data. Section 4 highlights the methodological aspects related to short- and long-term dynamic estimates. Section 5 presents the results of the empirical analysis. The last section concludes with our main findings and policy recommendations.

2.2 Review of Literature:

Literature on the genesis of conflict has focused on socio-economic (Azam and Delacroix, 2006; Piazza, 2011), political (Eyerman, 1998; Li and Schaub, 2004), and institutional (Newman, 2007; Choi,2010; Asongu et al, 2018) determinants of conflict.

The empirical evidence on the relationship between income (mostly proxied by GDP per capita) and armed conflict is mixed. Blomberg and Hess (2008), Azam and Delacroix (2006), Lai (2007), and Collier and Hoeffler (2004), show that income and wealth have a negative impact on conflict. Theoretically, this negative relationship between income and conflict is backed by the rational choice framework which states that better economic conditions increase the opportunity costs of conflict (Fearon and Laitin, 2003; Collier and Hoeffler, 2004; Freytag et al, 2011). On the contrary, Piazza (2011), Plümper and Neumayer (2010), and Krueger and Maleckova (2003) reveal that GDP per capita has a positive impact on

violence. Theory of immesirizing modernization or theory of "supreme values" (see Bernholz, 2004) may explain this positive relationship. In addition, Freytag et al (2011) and Lai (2007) show that unless an economy reaches a certain threshold level, an increase in GDP per capita increases conflict in an economy. To reap the benefits of an increase in income, an economy must achieve a level where perceived economic costs are at least equal to expected benefits.

Empirical research on the impact of human development on conflict onset is also inconclusive. On the one hand, Azam and Thelen (2008), Bravo and Dias (2006), and Collier and Hoeffler (2004) conclude that human development has a negative influence on armed conflict. On the other hand, Empirical evidence provided by Testas (2004), Berrebi (2007), Brockhoff et al (2015) show a positive relationship between education and conflict. Ghosh et al (2017) posit that education provides the basic means to enhance critical thinking and can be used as a policy tool to reduce extremism. Under the rational choice framework, education increases the opportunity cost of violence by providing better economic opportunities. Education reduces poverty and inequality thus increases the opportunity cost of recruiting rebels (Brockhoff et al, 2015).

Brockhoff et al (2015) also provided a counterargument and posit that education may even increase conflict when the economies have adverse social, economic, and political conditions. To improve their living standards, people can choose illegal activities if education does not provide better economic opportunities. Extremist organizations offer better economic options to recruit educated people. Bueno (2005) argues recruiting educated people promotes a better public image of the organization and also increases the success rate of carrying out illegal activities[21].

[21] Also see Krueger and Maleckova (2003) for micro evidence of the positive relationship between education and conflict

Trade openness as a proxy for economic reforms and globalization has also been used in the empirical literature. Blomberg and Hess (2008) and Kurrild-Klitgaard et al (2006) reveal that more trade openness is associated with fewer conflict-based incidents in an economy. They argue that trade openness offers better economic alternatives and increases the opportunity cost for the conflict. However, Wintrobe (2006) and Freytag et al (2011) show a positive relationship between openness and conflict and argue that people take globalization as a threat rather than an opportunity.

In the empirical literature, the role of institutions has also been used as an important determinant of violence. Asongu et al (2018) and Choi (2010) show that good governance in an economy reduces armed conflict. George (2018) suggests that creating strong institutions is an effective counterterrorism strategy. To study the impact of law and order on violence, Asongu and Amankwah-Amoah (2016) and Feridun and Shahbaz (2010) use military expenditure as a proxy for law and order and reveal that it reduces conflict. The increase in military expenditures signals that the government will use force to punish culprits thus increases the opportunity cost of conflict. Good governance also reduces uncertainty, and that long-term stability also increases opportunity costs through improving economic conditions.

To proxy democracy, empirical studies have used political rights, civil liberties, and democratic accountability. The impact of democracy on conflict is also inconclusive. Eyerman (1998) shows that democracies face less violence because it allows political inclusion and gives people more chance to reduce grievances through using political channels. On the other hand, Li and Schaub (2004) and Weinberg and Eubank (1998) show that violent incidents increase in democratic eras. They argue that more political rights and civil liberties allow extremist organizations to easily mobilize resources to achieve their goals.

Wintrobe (2006) argues that insurgents are rational and select efficient ways to achieve their goals. Policymakers should improve the factors that can increase the opportunity cost of

participating in a conflict. Empirical evidence shows that better economic conditions, human development, trustworthy institutions, and political and social variables influence conflict and governments should improve these variables to a level where costs should equal benefits.

2.3 Presentation of the Model and the Variables

2.3.1 The Model

The equations used to investigate the relationship between internal conflit, economic growth, and human development are as follows:

$$Conf_t = \alpha + \alpha_1 GDPc_t + \alpha_2 Edu_t + \alpha_3 Open_t + \alpha_4 Military_t + \alpha_5 PolFree_t + \mathcal{E}_t \quad \text{Eq (1)}$$

$$GDPc_t = \beta + \beta_1 Conf_t + \beta_2 Edu_t + \beta_3 Open_t + \beta_4 Military_t + \beta_5 PolFree_t + \mathcal{E}_t \quad \text{Eq (2)}$$

Where *Conf* is the logarithm of our proxy for internal conflict, *GDPc* the logarithm of GDP per capita, *Edu* the primary gross enrollment ratio, *Open* the trade openness indicator, *Military* the military expenditure as a percentage of GDP, and *PolFree* is the political freedom variable. $\mathcal{E}$ is the error term, *t* the time dimension, α, α_1 to α_5 and β, β_1 to $\beta 5$ the parameters to be estimated. Although the object of our work is the explanation of conflicts in Pakistan, we also ask the question of the direction of the relationship between conflict and growth, which we explore through the estimation of a second equation (Eq2) (see sections 2.3.5).

2.3.2 The Variables

This section presents the variables that we use to estimate our model. We begin by explaining our dependent variable (annual conflict-based incidents). Then we explain the relationship between our explanatory variables and the dependent variable.

2.3.2.1 Annual Conflict-Based Incidents as Proxy for Internal Conflict

In previous studies, different conflict variables have been used, e.g. the likelihood of a civil war, the frequency of conflict, the conflict-related deaths and injuries, the damage to physical capital, property, and infrastructure. This study uses the log of the number of conflict-based incidents per year from the Global Terrorism Database (GTD, 2016) designated by *Conf* (see descriptive statistics in Table 2.7 in the Appendix).

Although extensive literature on conflict has emerged over time, fewer studies are based on GTD data, while the database provides very detailed information on many aspects of conflict (Krieger & Meierrieks, 2011; Berkebile, 2017). The advantage of GTD in our case is to provide information about the number of violent events and therefore give more precise information on the conflict than the dummy variables or probabilities used in many studies (Humphreys (2003; Collier & Hoeffler, 2004; Caruso & Schneider, 2011)[22]. This variable also provides additional information compared to, for example, the variable "number of people killed" variable (as in Malik, 2011) because the GTD variable measures the frequency of the disruptive effect of the conflict and, therefore, the ability of the rebels to act and destabilize the regime in power.

Berkebile (2017) also states that, in comparison to other databases, GTD provides more information on the time and geographical coverage, in addition to the type of violent incidents. For time series analysis, for instance, one of the most widely used cross-national databases, the International Terrorism Attributes of Terrorist Events (ITERATE) dataset[23], is dedicated to transnational terrorism only. Another interesting source, the RAND Database of Worldwide Terrorism Incidents (RDWTI) which collects data on both transnational and

[22] Collier and Hoeffler (2004) and Hess (2003) define, for example, their variable of conflict as a dummy which takes the value 1 when there are at least 1000 deaths per year (25 combat deaths per year in the case of Miguel et al., 2004) Humphreys (2003) as the probability of a civil war, and Caruso and Schneider (2011) as the number of people killed. Malik (2011), however, choose the number of violent attacks as its proxy of conflict.

[23] https://library.duke.edu/data/sources/iterate

domestic terrorism, provides limited coverage (data are available from 1968 to 2009 only, and few variables are monitored). Similarly for Pakistan, the Armed Conflict Location and Event Data Project (ACLED) offers data on conflict-based incidents since 2011 only.

In fact, the many sources available today show, most of the time, a reduced geographical or temporal coverage, or a limited type of variables (see also the ICT's Incidents and Activists Database[24] or the MIPT Terrorism Knowledge Base[25]). Thus, GTD is a relatively better option for our time series analysis, as it has collected a lot of conflict data from many different sources since 1970.

In the GTD codebook, conflict-based incidents are defined as "the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation"[26]. Findley and Young (2011) also use this variable as an indicator of terrorism.

2.3.2.2 GDP per Capita as Proxy for Revenues and Wealth

GDP per capita is our measure of economic wealth. Data are from the State Bank of Pakistan (SBP, 2018). The study uses the log of the variable in real terms, denoted *GDPc* (see descriptive statistics in Table 2.7 of the Appendix).

Empirical evidence on the impact of wealth on internal conflict is mixed. Humphreys (2003) indicates that low resources increase the probability of civil wars. Collier and Hoeffler (2004) also show that the impact of low resources may be to increase conflict. However, Caruso and Schneider (2011) find a positive relationship between the increase in income and the number of people killed in conflict-based incidents. Freytag et al. (2010) show that per capita income positively impacts conflict until a country passes a threshold income level.

[24] https://www.ict.org.il/Articles.aspx?WordID=25#gsc.tab=0

[25] https://franklin.library.upenn.edu/catalog/FRANKLIN_9941455883503681

[26] Global Terrorism Database (GDT, 2017) Codebook: Inclusion Criteria and Variables.

Shahbaz (2012) also confirms that GDP per capita is positively related to increased conflict. In the case of Pakistan, where religious extremism is one of the leading forces behind conflict-based incidents, a positive impact on internal conflicts could also be found.[27]

2.3.2.3 Primary Enrolment Ratio as Proxy for Human Capital

Freytag et al. (2010) use the average number of years of schooling of the population over 15 as an indicator of human capital. Collier and Hoeffler (2004) select the gross secondary schooling rate as an explanatory variable for their conflict variable. Because long-term education data are not available for Pakistan, in this study, we calculate the gross primary enrollment rate from the Pakistan Economic Survey (PES, 2016)[28]. The variable is designated *Edu* (see Table 2.7 in the Appendix).

A negative coefficient of *Edu* in the conflict equation would mean that more education increases the opportunity cost of violence. Human capital is also an essential explanatory variable for economic development. Ramirez (1998) and Barro (2001) reveal the positive impact of education on growth. In line with this literature, the impact of education could be negative on conflict and positive on growth.

2.3.2.4 Military Expenditures as Proxy for Deterrence

This study examines the impact of military spending, a non-development expense, on the dynamics of internal conflict and growth in Pakistan. Collier and Hoeffler (2006) argue that according to the "signaling model", a surge in military spending in post-conflict situations increases the chances of further conflict because high military expenditure signals to the rebels that government is not seriously interested in peace. Feridun and Shahbaz (2010) and

[27] since the 1980s, Pakistan has faced religious-based conflict where extremist groups use violence to force their religious ideologies; For further details, see Ahmar (2007), Baqai (2011), and Khan (2015)

[28] For our calculation, we use the UNESCO Institute for Statistics (UIS) Primary education's school age definition (http://uis.unesco.org/country/PK) and construct our gross primary enrolment ratio following this definition. We collected the data on primary enrolment from various editions of Pakistan Economic Survey (PES) and divided it by the population ages 5-9 (which is the official school age for Primary education in Pakistan).

Asongu and Amankwah-Amoah (2016) believe, however, that increased military spending reduces conflict-based activities, thus confirming the effectiveness of military spending. Bodea et al (2016) state that an increase in military expenditure decreases conflict in countries with abundant natural resources. They argue that the negative relationship between military expenditure and conflict depends on wealth from natural resources. This shows that strong military power increases the opportunity cost of conflict and creates a deterrence effect. Knight et al (1996) show a negative impact of military expenditure on economic growth. Gupta et al (2004) point out that this negative relationship is due to low spending on development.

In Pakistan, Increased military spending is therefore expected to reduce conflict, but also long-term growth due to the crowding-out effect on development spending. A negative sign for both variables is thus expected. The study uses WDI (2016) data on military expenditure as a percentage of GDP. The variable is designated as *Military* (see Table 7 of the Appendix).

2.3.2.5 Trade Openness as a Proxy for Economic Reforms

We use trade openness as an indicator of economic reform and integration into the global economy. Trade openness is considered a factor of growth. Empirical evidence confirms the positive impact of trade openness on various indicators of economic activity (Sachs et al., 1995; Frankel & Romer, 1999; Dollar & Kraay, 2003). Trade openness can also be a factor in modernizing the economy. In both cases, it might be thought that the new opportunities created by trade openness discourage internal conflict (Blomberg & Hess, 2008). However, Freytag et al. (2010) find a positive impact that shows that globalization could increase conflict if perceived as a threat of loss of income. Wintrobe (2006) confirms the positive relationship between economic integration and terrorism. This scenario is similar to that developed by Caruso and Schneider (2011) in their theory of “immiserizing modernization". New grievances may arise if some groups lose out because of the reforms.

Trade openness could therefore increase growth, but its impact on conflict is uncertain. Our study attempts to verify its effect on Pakistan. We use the ratio of exports plus imports to GDP (in real terms), designated *Open*. Data are from WDI (2018) (see Table 2.7 of the Appendix).

2.3.2.6 Political Freedom as Proxy for Democracy

We use the variable Political Freedom, from Freedom House (2018), as an indicator of democracy to explain both growth and internal conflict in Pakistan (see Table 2.7 in the Appendix). Li and Schaub (2004) argue that in democratic countries, because of political rights and civil liberties, it is easy for terrorists to engage in conflict-based activities. Eubank and Winberg (1998) confirm that terrorism occurs more often in democracies than in more authoritarian regimes. In the case of Pakistan, internal conflicts have been much more frequent during democratic periods than periods of military rule.[29]. Eyerman (1998), however, finds a positive relationship between democracy and the absence of violence.

Concerning economic activity, Acemoglu et al. (2014) find higher growth in democratic countries than in less democratic ones. They use a combination of various indicators, such as Political Freedom and Polity IV, as a proxy for democracy.

The variable Political Freedom is a combination of political rights and civil liberty, designated *PolFree*[30]. A high value indicates low freedom and vice versa. In line with one part of the literature, we hypothesized a negative relationship between Political Freedom with the conflict variable and the growth variable for Pakistan.

[29] Data from Global Terrorism Database. (GDT, 2018) state that during two military rules (1978-1988 and 2000-2008), 107 conflict-based incidents on average occurred per year. However, during democratic rule (1989-1999 and 2009-2016), this number was 639 on average.

[30] The variable ranges from 1 to 7, with 1 for the highest degree of freedom and 7 for the lowest. We constructed the variable by adding the indices of political rights and civil liberty and dividing by 2. Online data is available at https://freedomhouse.org/report-types/freedom-world

2.4 Estimation of the Model: Methodological Aspects

2.4.1 The Autoregressive Distributed Lag (ARDL) Bound Testing Approach

This study uses the Autoregressive Distributed Lag (ARDL) Bound Testing cointegration technique developed by Pesaran et al. (2001) to investigate the long- and short-term dynamics between internal conflict, growth, and human development in Pakistan. The bounds test is used to determine the existence of a long-run relationship between the variables. To reject the null hypothesis of no long-term relationship, the F-stat must be higher than a critical upper bound value at 5 % significant level. If the value of the F-stat lies between the critical lower and upper bound values, the significance and sign of the error correction term in the model determine the long-run relationship.

The ARDL methodology can be applied regardless of whether the variables are stationary at the level I(0), at the first difference I(1), or a combination of both. This approach is effective for small samples.[31]. It also allows the capture of short-term adjustments without losing the long-term information.

Before testing the existence of a long-term relationship, it is necessary to determine the order of integration of the variables. Although the ARDL method can be applied even if the variables are not integrated in the same order, the computed F-statistics are not valid in the presence of I(2) variables (Ouattara, 2004). We use both Augmented Dickey-Fuller (ADF), and Phillip-Perron (PP) tests to check the stationary assumption of the data. For both approaches, the null hypothesis states that except for trade openness, all other variables are integrated of order 1 (I(1)). Trade openness is stationary at 10% significant level.

[31] The Johansen and Juselius (1990) approach for cointegration analysis requires that the variables must be cointegrated in the same order and that there must be a big sample.

2.4.2 The Short-Run Dynamics

The ARDL representation of the equation of Conflict Equations (1) is as follows:

$$\Delta Conf_t = \alpha + \sum_{i=1}^{p_0} \alpha_0 \Delta Conf_{t-i} + \sum_{i=0}^{p_1} \alpha_1 \Delta Gdpc_{t-i} + \sum_{i=0}^{p_2} \alpha_2 \Delta Edu_{t-i} + \sum_{i=0}^{p_3} \alpha_3 \Delta Open_{t-i} + \sum_{i=0}^{p_4} \alpha_4 \Delta Military_{t-i} + \sum_{i=0}^{p_5} \alpha_5 \Delta PolFree_{t-i} + \gamma_1 Gdpc_{t-1} + \gamma_2 Edu_{t-1} + \gamma_3 Open_{t-1} + \gamma_4 Military_{t-1} + \gamma_5 PolFree_{t-1} + \varepsilon_t \quad \text{Eq (1a)}$$

We also estimate the short-run dynamics of Equation 2 (Eq2a) in a second time, as explained in sections 2.3.2.

$$\Delta Gdpc_t = \beta + \sum_{i=1}^{p_0} \beta_0 \Delta Gdpc_{t-i} + \sum_{i=0}^{p_1} \beta_1 \Delta Conf_{t-i} + \sum_{i=0}^{p_2} \beta_2 \Delta Edu_{t-i} + \sum_{i=0}^{p_3} \beta_3 \Delta Open_{t-i} + \sum_{i=0}^{p_4} \beta_4 \Delta Military_{t-i} + \sum_{i=0}^{p_5} \beta_5 \Delta PolFree_{t-i} + \delta_1 Conf_{t-i} + \delta_2 Edu_{t-1} + \delta_3 Open_{t-1} + \delta_4 Military_{t-1} + \delta_5 PolFree_{t-1} + \epsilon_t \quad \text{Eq (2a)}$$

where Δ is the first difference operator, *pi*, the number of lags, *t*, the time dimension, and ε_t, the error term. *Conf*, *GDPc*, *Edu*, *Open*, $Military$ and $PolFree$ are as defined in section 2.3.3. The αi and βi explain the short-run dynamics and the δi *and* γi describe the long-run relationship.

2.4.3 The Long-Term Relationship

To check the presence of a long-term relationship, we use the bound testing procedure based on the Wald-test (F-statistic) of the hypothesis of no cointegration (H0) against the hypothesis of cointegration (H1) between the variables, denoted as:

H0: γ i = 0 there is no cointegration (no long-term relationship) between the variables

H1: γ i ≠ 0 the variables are cointegrated

Two critical values are given by Pesaran et al. (2001) for this test. Cointegration between the variables exists if the value of the calculated F-statistics is higher than the upper bound value of the test. In that case, H0 can be rejected. If the F-statistics value is lower than the lower

bound value, H0 cannot be rejected. In that case, there is no long-term relationship between the variables. However, if the value lies between the upper and the lower bound value, the result is inconclusive, and the presence of a long-term relationship is decided by the value of the error correction term.

2.4.4 Error Correction

When the long-term relationship is validated by the data, an error correction version of the model can be applied. The error correction model (*ECM*) of our two equations can be written as follows:

$$\Delta Conf_t = \alpha + \sum_{i=1}^{p_0} \alpha_0 \Delta Conf_{t-i} + \sum_{i=0}^{p_1} \alpha_1 \Delta Gdpc_{t-i} + \sum_{i=0}^{p_2} \alpha_2 \Delta Edu_{t-i} + \sum_{i=0}^{p_3} \alpha_3 \Delta Open_{t-i} + \sum_{i=0}^{p_4} \alpha_4 \Delta Military_{t-i} + \sum_{i=0}^{p_5} \alpha_5 \Delta PolFree_{t-i} + \mathfrak{n}_1 ECT_{t-1} + \epsilon_t$$

Eq (1b)

$$\Delta Gdpc_t = \beta + \sum_{i=1}^{p_0} \beta_0 \Delta Gdpc_{t-i} + \sum_{i=0}^{p_1} \beta_1 \Delta Conf_{t-i} + \sum_{i=0}^{p_2} \beta_2 \Delta Edu_{t-i} + \sum_{i=0}^{p_3} \beta_3 \Delta Open_{t-i} + \sum_{i=0}^{p_4} \beta_4 \Delta Military_{t-i} + \sum_{i=0}^{p_5} \beta_5 \Delta PolFree_{t-i} + \mathfrak{n}_2 ECT_{t-1} + \epsilon_t$$

Eq (2b)

where the variables and parameters to be estimated are as defined in previous sections, ECT_{t-1} , the error correction term, is the residual of the estimated cointegration model (Eq 1 and Eq2), and $\mathfrak{n}_{1,2}$, the coefficients of *ECT*, the speed of adjustment back to the long-term equilibrium after a short-term shock. These coefficients should be negative and significant for the model to converge in the long term. This is the case in particular when the bound test concludes to cointegration and the presence of a long-term relationship.

2.4.5 The Relation Between Growth and Conflict

The direction of the relationship between conflict and GDP per capita can be tested through the error correction terms of the ARDL version of the *Conflict* and *GDPc* equations (Eq 1b and Eq 2b). If this term is not significant or positive, then there is no long-term relationship

between the two variables: conflict does not explain growth, and/or growth does not explain the conflict in the long run.

2.4.6 Diagnostic Tests

Several diagnostic and stability tests can be performed to ensure the proper fit of the model. Pesaran and Pesaran (1997) recommend using Cumulative sum (CUSUM) and Cumulative sum of squares (CUSUMSQ) to test the stability of the long- and short-term coefficients. These tests require that the statistical result falls between the significance level of 5% critical bounds.

We also use several diagnostic tests: the Breusch-Godfrey and the Breusch-Pagan-Godfrey tests, to examine respectively the serial correlation and the heteroskedasticity associated with the estimated model.

To select the optimal lag length for each variable, the ARDL approach estimates (p + 1) k number of regressions, where p is the maximum number of lags and k is the number of variables in the model. The number of lags is selected on the basis of the Akaike Information Criteria (AIC). The time period for analysis is 1978 to 2016.

2.5 Results of the Estimations

In this section, we present our results. We start with the unit root test to check for the stationarity of the data. In section 2.5.2, we explain the results of our ARDL model for our conflict equation. In subsections 2.5.2.1 and 2.5.2.2 we discuss the results for short run and long run dynamics of our model. In our last sections we present the results for diagnostics tests to validate our findings.

2.5.1 Testing for Unit Roots

This study uses the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests, as suggested by Enders (1995), to check the stationarity of the variables.[32]. For both tests, all variables are non-stationary at level but stationary at the first difference level, except *Open* which is stationary at level (see Tables 2.1 and 2.2). As none of the variables is integrated at order 2 or above, we can use the ARDL Bound Testing procedure for long-term prediction.

Table 2.1 ADF Unit Root Tests

	Level		*First Difference*	
Variable	t-Statistic	Prob.	t-Statistic	Prob.
Conf	-1.56	0.49	-6.68	0.00
GDPc	-0.61	0.86	-6.58	0.00
Edu	-0.29	0.92	-6.21	0.00
Open	-2.69	0.09	-7.30	0.00
Military	-0.36	0.91	4.71	0.00
FreePol	-2.37	0.16	-6.18	0.00

Table 2.2: PP Unit Root Tests

	Level		**First Difference:**	
Variable	t-Statistic	Prob.	t-Statistic	Prob.
Conf	-1.31	0.61	-15.0	0.00
GDPc	-0.64	0.85	-7.54	0.00
Edu	-0.10	0.96	-6.54	0.00
Open	-2.71	0.08	-7.30	0.00
Military	-0.58	0.86	4.71	0.00
FreePol	-2.59	0.10	-6.19	0.00

2.5.2 The ARDL Bound Test Estimations of the Equation of Conflict

Table 2.3 presents the results of the bound testing procedure when conflict is the dependent variable. The F-statistics calculated value is higher than the upper bound value at the 1% significance level. Therefore, we can reject the null hypothesis of no cointegration and infer that there is a long-term relationship between the variables.

[32] The optimal lags (k) for conducting the ADF test were determined by AIC (Akaike Information Criteria).

Table 2.3: Bound Testing Results

Bound Testing Results

Null Hypothesis: No long-term relationships

Test Statistic	**Value**
F-statistic	6.19

Critical Value Bounds

Critical values	1 %	2.5 %	5 %	10 %
Lower bounds I(0)	3.06	2.7	2.39	2.08
Upper bounds I(1)	4.15	3.73	3.38	3

2.5.2.1 The Short-Run Dynamics of the Equation of Conflict

Table 2.4 presents the results of estimating the short-term dynamics of the ARDL model where *conflict* is the explained variable (Eq 1b). The error correction term (*ECT*) coefficient is negative and statistically significant at the 1% level. This suggests that the error–correction model (*ECM*) is valid and that the model returns to equilibrium in the long term after a short-term shock. Narayan and Smyth (2006), Samargandi et al. (2015), and Abbas et al. (2019) explain that the coefficient value of the error correction term should be negative, statistically significant, and within the range of 0 – -2. Narayan and Smyth (2006) and Abbas et al. (2019) argue that an estimated value between -1 and -2 shows that, on average, conflict shocks over the course of a year adjust towards equilibrium during the following year by slight overshooting.

Table 2.4: Error Correction Model (ECM) Estimates
Dependent Variable: ***Conf***

Regressors	Coefficient	Std. Error	t-Statistic	Prob.
Δ (Military)	0.49	0.53	0.92	0.37
Δ (Military (-1))	2.12***	0.63	3.35	0.00
Δ (Military (-2))	-1.08**	0.42	-2.61	0.02
Δ (Open)	0.08	0.05	1.6	0.13
Δ (Open (-1))	-0.19***	0.05	-3.81	0.00
Δ (Open (-2))	-0.11**	0.05	-2.35	0.03
Δ (GDPc)	13.15***	3.06	4.3	0.00
Δ (GDPc (-1))	9.82**	3.28	2.99	0.01
Δ (Edu)	-10.19**	3.66	-2.79	0.01
Δ (Edu (-1))	16.01***	3.57	4.49	0.00
Δ (PolFree)	-0.59**	0.23	-2.52	0.02
Δ (PolFree (-1))	0.52*	0.29	1.77	0.09
Δ (PolFree (-2))	0.83**	0.26	3.18	0.01
ECT (-1)	-1.09***	0.16	-7.55	0.00

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively

Table 2.4 also presents the short-term explanatory factors of the conflicts in Pakistan. Military expenditure (*Military*) has a significant negative coefficient for the second lag of the variable, which means that the fight against conflict shows a certain efficiency in the short term. Trade openness (*Open*) also has a significant negative sign for the first and second lags of the variable. This result could mean that by opening up new opportunities, economic reforms—reduce frustration among people, leading to fewer reasons for conflict. Short-term estimates also indicate that an increase in per capita income tends to fuel conflict, with the *GDPc* coefficient being positive and significant. This result is in line with the conclusions of Caruso and Schneider (2011) based on the theory of "immiserizing modernization" It may also be linked to the country's large amount of foreign funds to fight (or support) terrorism. Education (*Edu*) and political freedom (*PolFree*) both have a significant negative coefficient in level form and a significant positive for the lagged values. The reason for this positive short-term coefficient for education (*Edu*) maybe that investment in human capital takes time to show its effects. For political freedom (PolFree), the results indicate that democracy could reduce conflicts in the short term.

2.5.2.2 The Long-Term Relationship of Conflict

Table 2.5 presents the long-term estimates of the ARDL procedure. All the coefficients are statistically significant at the 1% or 5% level. The table shows the long-term factors of internal conflict in Pakistan. The results show that a 1% increase in military expenditure (*Military*) would reduce the number of conflict-based incidents by 1%. This finding confirms that military activities can reduce conflicts and maintain order in the long run.

In contrast to the short-term dynamics, the results also highlight a positive relationship between trade openness (*Open*) and internal conflict. The long-term coefficient suggests that a 1% increase in trade openness would result in a 0.28% increase in the number of conflict-based incidents, which confirms the findings of Freytag et al. (2010) and Wintrobe (2006). A reason for this positive impact may also be that, with increased economic integration, high-cost industries (relative to international competitors) may suffer. This may lead to grievances, which may, in turn, fuel internal conflicts.

Table 2.5: ARDL Long-Term Estimates
Dependent Variable: *Conf*

Regressor	Coefficient	Std. Error	t-Statistic	Prob.
Military	-1.01**	0.29	-3.42	0.00
Open	0.28**	0.08	3.66	0.00
GDPc	5.88**	2.4	2.45	0.02
Edu	-10.96**	5.13	-2.14	0.04
PolFree	-1.96***	0.29	-6.66	0.00
Constant	-41.4*	21.2	-1.95	0.07

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively

The long-term relationship between GDP per capita and internal conflicts is also found to be positive. The results indicate that a 1% increase in GDP per capita would lead to a 5.8% increase in the number of conflict-based incidents. Our finding, which is consistent with Shahbaz (2012), confirms the result of the short-term dynamics. As Caruso and Schneider (2011) explain, an increase in wealth will not automatically translate into a reduction in conflict, especially if the motivation to fight is not poverty, as is the case in Pakistan.

In contrast to the short-term dynamics, the education variable (*Edu*) shows a significant long-term negative relationship with the conflict variable. The estimated coefficient value indicates that a 1% increase in gross primary enrollment would reduce the number of conflict-based incidents by 0.10%. This result, consistent with Collier and Hoeffler (2004), confirms that the benefit of education may take time to be seen. Freytag et al. (2010) explain that, for terrorists, the mental reward (life in paradise, becoming a martyr) is more important than the material reward. Wilkens (2011) finds that suicide attacks are committed mainly by very young people in Pakistan and Afghanistan. Our results suggest that investing in education would help children avoid becoming involved in terrorist activities. More generally, education would give people the tools they need to make their judgments and get better jobs.

The results also indicate that, unlike the short-term dynamics, political freedom (*PolFree*) is negatively associated with conflict in the long term. This would mean that weak political rights lead to less conflict in the case of Pakistan. This finding is similar to Eubank and Winberg (1998) and Li and Schaub (2004). In fact, Pakistan has experienced more internal conflicts in democratic periods than in autocratic periods[33]. It can be argued that when democracy prevails in a fragile and conflict-ridden country like Pakistan, it gives the extremists more freedom of press, movement, and expression, thus reducing their organizational costs. Conflicts and terrorism can be controlled in a democracy through a mechanism of strict application of law and order. Unfortunately, this is not the case in Pakistan.

2.5.3 Diagnostic Tests

The Breusch-Godfrey series correlation test and the Breusch-Pagan-Godfrey test for heteroscedasticity were used for the validity and reliability of the estimates. The results for both tests are given in Table 2.6.

[33] See Global Terrorism Database. (GDT, 2018).

Table 2.6: Diagnostic Tests

Breusch-Godfrey Serial Correlation LM Test			
Observations * R-squared	5.42	Prob. Chi-Square (3)	0.14
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
Observations *R-squared	18.88	Prob. Chi-Square (19)	0.46

Table 2.6 shows that the probability of serial correlation and heteroskedasticity tests is greater than 0.05. This indicates that the null hypothesis is accepted and that the residuals in the estimates are homoscedastic and do not undergo serial correlation.

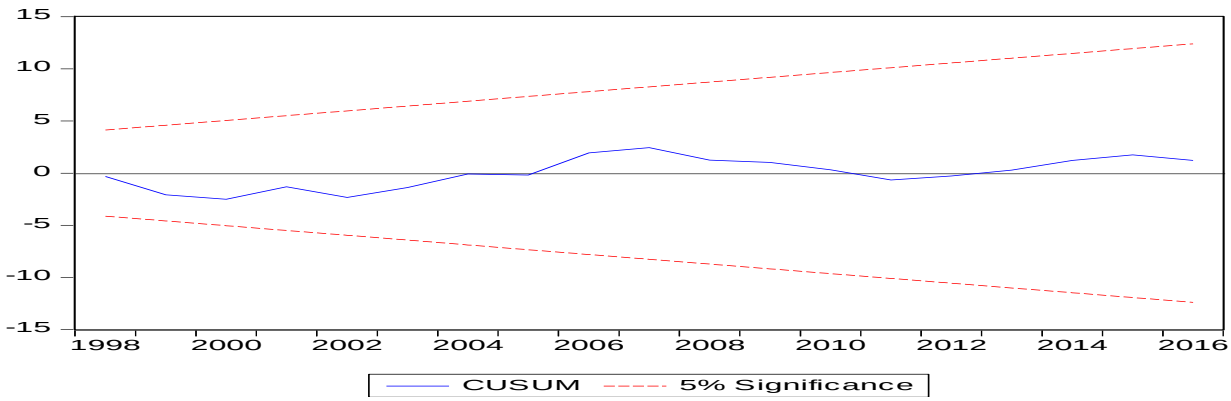

Figure 2.1: Plot of Cumulative Sum of Recursive Residual

To verify the long-term stability of the model coefficients, we use the CUSUM and CUSUMSQ tests. The results imply that the plots (blue line) are within the critical bound of the 5% significance level. This shows that all the estimated error correction model coefficients are stable and can be used for policy recommendations.

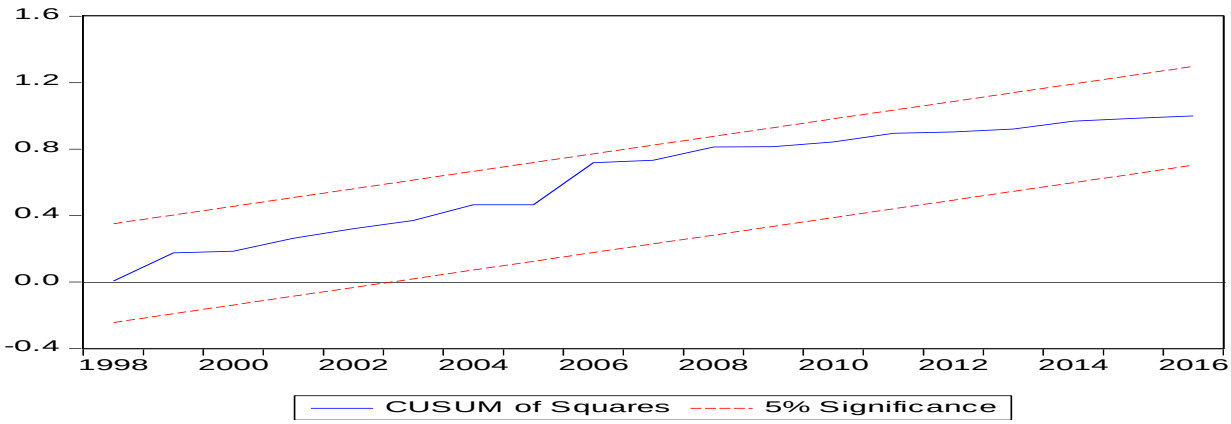

Figure 2.2: Plot of Cumulative Sum of Square of Recursive Residual

2.5.4 The Relation Between Growth and Conflict

The direction of the relation between GDP per capita and the conflict variable can be deduced from the estimation of the growth equation (Eq 2b). The results show that, in the long term, the model does not converge to an equilibrium determined by conflict. As shown in Table 2.8 of the Appendix, the ECT coefficient in the error correction representation is positive. This finding indicates that conflict is not part of the long-term equilibrium of GDP per capita. It is GDP per capita that explains the conflict in the long run in Pakistan (Eq 1b and Table 2.4), and not conflict that contributes to the country's long-term growth. In other words, although conflicts seem to stimulate growth in the short term (see Table 2.8), perhaps because of the importance of external funds made available to stakeholders to fight (or support) terrorism, this impact does not seem to last. It does not seem to affect (neither positively nor negatively) the country's long-term growth performance.

This finding is confirmed when estimating the long-term coefficients of the GDP equation (Eq 2a), which is not significant for the conflict variable. This result may mean that Pakistan's long-term dynamics are due to a long period of conflict and political instability, highlighting the need for a stable environment to see the results of economic, political, and social reforms. Pakistan may be caught in a low-growth trap, where conflict is the key variable to address before embarking on better policies. This conclusion can be extended to short-term dynamics since almost none of the explanatory variables of the GDP equation seem to show a stable relationship with the country's performance (see Table 2.8).

2.6 Conclusion of Chapter 2

In this chapter, we use the Autoregressive Distributed Lag (ARDL) Bound Testing cointegration approach to study the long-term relationship between internal conflict,

economic growth, and human development in Pakistan over the period 1978-to 2016. We show that human capital is a factor in mitigating conflicts in the country. This finding highlights that education could contribute to a more stable and prosperous economy by providing better opportunities and reducing radicalization. This result contrasts with the high defense spending of the Pakistani government, whose spending on education has been meager (Benz, 2016). Our findings also show a long-term contribution of law and order (as measured by military expenditure) to reducing internal conflicts. This result justifies the government's counter-terrorism policy, as shown by Feridun and Shahbaz (2010).

On the contrary, it appears that wealth and economic reforms do not reduce internal conflicts in Pakistan because long-term GDP per capita and trade openness positively impact the number of conflict incidents. These findings are similar to Freytag et al. (2010), who showed that globalization contributes to conflicts when perceived as a threat by part of the population. Ismail and Amjad (2014) also justify the positive impact of per capita GDP on conflict through the "immiserizing modernization theory", which argues that economic growth can fuel political and social unrest. Political rights and civil liberties do not seem to reduce conflict in Pakistan either because democratic periods have seen a resurgence of violence. This result could mean that respect for public order is a priority in a fragile and unstable country like Pakistan before restoring democracy.

Concerning the direction of the link between conflict and growth, it would seem that the relationship moves from GDP per capita to internal conflict, which would mean that conflicts do not contribute (positively or negatively) to the economy's long-term growth. Per capita GDP also is not sensitive to economic reforms, education, military spending, or political rights and civil liberties. None of these variables appears to be significant in the long term. This could mean that Pakistan is caught in a low development trap because of a long-lasting

conflict situation. Internal conflict is the key variable to address before seeing the benefits of reforming the economy.

2.7 Appendix of Chapter 2

Table 2.7: Descriptive Statistics

Variables	Conf (log)	Edu (%)	Open (%)	PolFree (%)	Military (%)	Gdpc (log)
Mean	3.94	72.7	29.7	4.8	5.5	10.09
Median	3.97	71.4	29.7	4.5	6.0	10.09
Maximum	7.70	98.8	39.1	6.0	7.6	10.63
Minimum	0.00	49.1	22.9	3.0	3.3	9.51
Std. Dev.	2.28	16.5	3.3	0.8	1.5	0.36
Skewness	-0.10	0.1	0.2	-0.1	-0.2	-0.04
Kurtosis	1.95	1.6	3.5	2.4	1.4	1.71
Jarque-Bera	2.05	3.8	0.9	0.7	4.6	2.99
Probability	0.36	0.2	0.6	0.7	0.1	0.22

Table 2.7 shows the descriptive statistics of all variables. Our data set consists of 39 annual observations from 1978 to 2016. For a normal distribution, skewness is zero, and the expected value for kurtosis is 3. All variables are negatively skewed except *Edu* and *Open*, as they are right-skewed. Kurtosis analysis shows that only *Open* is leptokurtic, while all other variables are platykurtic. Jarque-Bera test (JB) states that the residuals are normal as the probability of the JB test for all variables is higher than 0.05.

Table 2.8 Error Correction Model (ECM) Estimates

Dependent Variable: ***Gdpc***

Regressors	Coefficient	Std. Error	t-Statistic	Prob.
Δ (Gdpc (-1))	-0.37***	0.12	-2.99	0.00
Δ (Conf)	0.01**	0.0	2.47	0.02
Δ (Conf (-1))	0.02***	0.004	4.27	0.00
Δ (Military)	-0.08***	0.01	-6.12	0.00
Δ (Military (-1))	-0.01	0.02	-0.73	0.47
Δ (Military (-2))	0.07***	0.01	4.77	0.00
Δ (Open)	-0.01***	0.00	-3.89	0.00
Δ (Open(-1))	0.00*	0.00	1.85	0.08
Δ (Edu)	-0.15	0.12	-1.32	0.20
Δ (Edu(-1))	-0.28**	0.01	-2.86	0.01
Δ (Edu(-2))	0.30***	0.09	3.25	0.00
Δ (PolFree)	0.04***	0.01	4.75	0.00
Δ (PolFree (-1))	0.03***	0.01	3.25	0.00
ECT (-1)	0.13***	0.02	8.92	0.00

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively

Table 2.A.1: List of Variables and Their Sources

Variables	Sources	Names of variables
Annual Number of conflict-based incidents	Global terrorism database (GTD)	Confl
Log of GDP per capita	State Bank of Pakistan (SBP)	Gdpc
gross primary enrollment rate	Self-calculated – Pakistan Economic Survey	Edu
Trade openness	World Development Indicators	Open
Military expenditure as percentage of GDP	WDI	Military
Political Freedom	Freedom House database	PolFree

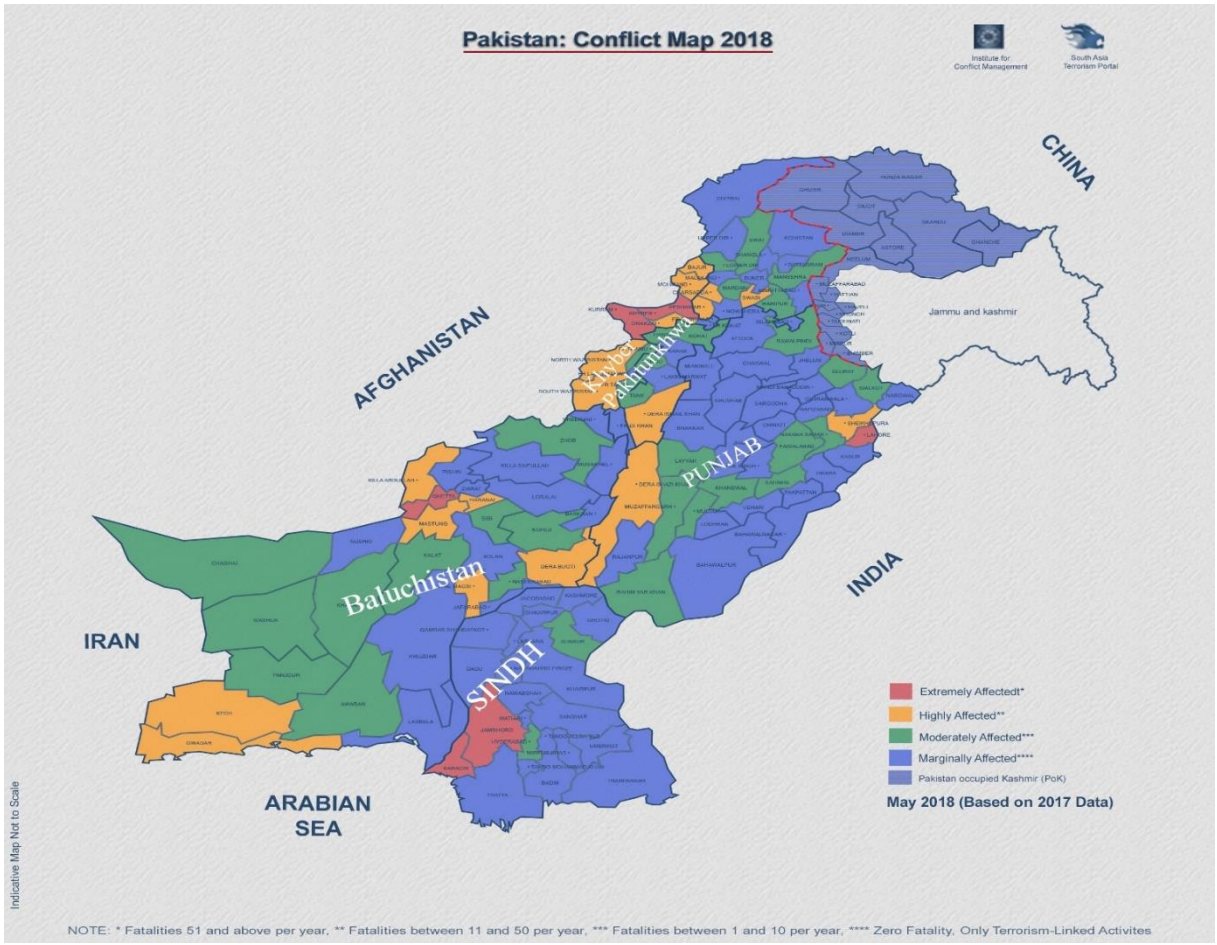

Figure 2.3 Source: South Asian Terrorism Portal (SATP)

3 Chapter 3 - Economic, Social, and Institutional Determinants of Internal Conflict in Fragile Developing Countries[34]

Abstract of Chapter 3

This chapter uses fixed-effect Poisson regressions (FEPR) with robust standard errors and instrumental variables (IV) to study the economic, social, and institutional determinants of internal conflicts in 58 fragile developing countries from 2004 to 2017. We show that effective institutions (measured alternatively by judicial efficiency and governance) and higher incomes could help reduce conflict in fragile countries. In contrast, trade reform does not seem to mitigate violence in these countries. Education and democratic institutions could also fuel conflict in some cases. These results imply that education and trade liberalization do not have the expected effects in fragile countries, which should first improve their social, economic, and institutional situation before-benefiting from economic reform and education. It may also be the case for political reforms, as democratic experiences seem to lead to increased violence in some countries in our sample.

Keywords: Conflict, Fragile Countries, Institutions, Economic Reforms, Education, Democracy,
JEL classification : C23, D74, O10

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3.1 Introduction

Over the past decade, the Uppsala Conflict Data Program (UCDP) has recorded an upward trend of violence in the world. The number of armed conflicts increased from 33 in 2006 to 49 in 2016.[35] The number of terrorist activities reached a peak in 2014, with the death of more than 100,000 people that year (Allansson et al., 2017). In addition to human suffering, civil strife causes considerable damage to economies due to its adverse effects on, among others, infrastructure, public spending, political stability, foreign direct investment, trade, and growth. As a result, while extreme poverty declines worldwide, it increases in fragile countries affected by conflicts (World Bank, 2018). Conflicts also destabilize neighboring countries, with political instability in a country threatening the entire region's stability (Teydas et al., 2011). Civil unrest in Syria, for example, has led many other states and international organizations to participate directly in the conflict. If left unchecked, nearly half of the world's poor will live in fragile countries facing conflict situations by 2030 (World Bank, 2018), and the expansion of conflict around the world will cause more harm to populations (Pettersson et al., 2019).

Several studies have suggested that armed violence occurs most of the time in fragile countries with poor social, economic, and political conditions (World Bank, 2011 and 2018). Collier (2007) states that "seventy-three percent of the bottom billion people have recently been through a civil war or are still in one". Newman (2007), Piazza (2008), and George (2018) argue that bad governance and weak institutions also increase the probability of violent attack occurrence. Stewart (2002) notes that most of the economies with the lowest level of human development have been confronted with civil wars over the last three decades. Ostby

[35] UCDP defines armed conflict as "A state-based armed conflict is a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in one calendar year".

(2008) shows that poverty, inequality, and dependence on natural resources are at the root of most conflicts in the world. Lai (2007) states that low-income levels and high-income inequality are positively associated with terrorism. Countries with fragile political conditions are also more vulnerable to domestic violence. Coggins (2015) found that political collapse positively correlates with armed conflicts. Piazza (2008) confirms that it is easier for extremist groups to establish their organizations in failed states.

This study explores the impact of institutions on the domestic conflict in fragile developing countries. This study focuses on the efficient judiciary as an interest explanatory variable for conflict in fragile developing countries. We also explain the social and economic determinants of conflict along with institutions. Due to poor economic, social, and political conditions, fragile developing countries are particularly exposed to the risk of instability (World Bank, 2011 and 2018). It makes these countries fertile ground for studying the mechanisms at work in the emergence of violence. Therefore, we have aimed to understand better the factors explaining this violence so that governments can reduce this source of instability.

We use robust fixed effect (FE) Poisson estimators for empirical analysis. While most studies use Negative Binomial Regressions (NBR) in the case of count data (see Krieger & Meierrieks, 2011 for a synthesis), our use of the Fixed Effect Poisson estimator is well adapted and originality of our approach (See also section 3.3.4 for a more detailed discussion). The use of instrumental variables (IV) is another originality of our research which aims to address the possible endogeneity problems underlying our regressions.

Another particularity of our work lies in using the Global Terrorism Database (GTD),[36] as well as in the choice of our conflict variable. Although extensive literature on conflict has emerged over time, fewer studies are based on GTD data, while these provide very detailed

[36] https://www.start.umd.edu/data-tools/global-terrorism-database-gtd. See Enders et al. (2011), Piazza (2011), Brockhoff et al. (2015), Choi and Piazza (2016), and Ghatak and Gold (2017) for details on the GTD variables and database (see also 4.4.1).

information on many aspects of conflict (Krieger and Meierrieks, 2011; Berkebile, 2017. See also section 3.3.3 for more discussion).

The rest of the chapter is organized as follows. Section 3.2 summarizes the existing literature on conflict. Based on the literature, section 3.3 summarizes our theoretical framework and reasons that motivate violence in fragile countries. Section 3.4 describes our samples, justifies the methodological aspects, presents our conflict model, and justifies the variables used in the analysis and the data sources. Section 3.5 presents the results of the empirical analysis and the robustness tests for our various specifications. The last section concludes with our main findings and policy recommendations.

3.2 Determinants of Conflicts: A Review of the Literature

In this section, we provide a short review of existing literature on the determinants of conflict. We start with assessing theoretical and empirical literature on the relationship between political institutions and conflict. We then briefly review the recent research papers that explain the impact of significant economic and social determinants of conflict.

George (2018) argues that building strong and trustworthy institutions is an effective counter-terrorism strategy. Newman (2007) and Piazza (2008) also conclude that strong institutions are essential in reducing violence. Asongu et al. (2016) use governance variables from world governance indicators (WGI) and reveal that good governance can reduce violence in the African region. They use principal components to group governance variables on economic (regulatory quality and government effectiveness), Institutional (control of corruption and the rule of law), and political (voice and accountability and political stability) basis. Their results reveal that political stability (from political governance) and the rule of law (from institutional

governance) are the most important factors in reducing violence in Africa. Choi (2010) also shows that rule of law is a vital determinant in eradicating conflict.

Recent literature also focuses on the impact of the political system on conflict (Eyerman, 1998; Eubank & Winberg, 1998; Li, 2005; Enders & Sandlers, 2006). Choi (2010) shows that the impact of democratic values on conflict is controversial. Ross (1993), Eyerman (1998), and Li (2005) show a negative relationship between democracy and conflict. They argue that democratic values offer a political platform to everyone. So, it reduces grievances, and people prefer ballots instead of violence to express their dissatisfaction. Contrary to this, Eubank and Winberg (1998) show a positive relationship between democratic regimes and conflict. They argue that democracies host a relatively more significant number of terrorist organizations than authoritarian regimes because the former has a structural mandate to protect entrenched rights and liberties.

The impact of income and wealth on violence also yields mixed results. Collier and Hoeffler (2004) argue that "rebellion can occur when lost income is low" The empirical evidence provided by Li and Schaub (2004), Collier and Hoeffler (2004), and Li (2005) show that an increase in GDP per capita reduces violence in an economy. Blomberg and Hess (2008) also reveal a negative relationship between GDP per capita and domestic violence. This negative relationship implies that when people have enhanced living standards and better prospects, the opportunity cost of violence increases. Fearon and Laitin (2003) argue that worse economic alternatives allow organizations to recruit young men to participate in insurgencies. Freytag et al. (2011) in their microeconomic model of individual choice between material wealth and mental rewards, suggest that, if the economic opportunity cost of using illegal force is high, people will not choose violence.

However, economic growth and wealth are not always a source of peace and non-violence in fragile countries, as Caruso and Schneider (2011) explain in their theory of "immiserizing

modernization" When growth changes the distribution of wealth, as Olson (1963) described, it can lead to social and political unrest fueled by groups of people who lose from the change. Krueger and Maleckova (2003), Plümper and Neumayer (2010), Caruso and Schneider (2011), and Piazza (2011) show a positive impact of income on conflict. On the other hand, Li (2007) and Freytag et al. (2011) argue that an economy must pass a threshold level of income per capita to have a negative impact on violence. Their use of quadratic per capita income support this hypothesis.

Human development is also an essential determinant of conflict (Brockhoff et al., 2015; Bravo & Dias, 2006); Azam & Thelen, 2008). Empirical evidence for human development is also inconsistent (Brockhoff et al., 2015). Bravo and Dias (2006) and Azam and Thelen (2008) reveal that human development reduces conflict. Ghosh et al. (2017) argue that education can help develop critical thinking and reduce radicalism. On the contrary, Brockhoff et al. (2015) gave a counterargument supporting the positive impact of education on conflict. They hypothesize that when the economies have unfavorable economic, political, social, and demographic conditions, education may even promote the onset of conflict.[37]. Krueger and Maleckova (2003) and Bueno (2005) argue that Extremist groups may prefer to recruit educated people as this can enhance the success probability of their activities and promote a better public image. Empirical evidence provided by Testas (2004), Berrebi (2007), and Brockhoff et al. (2015) support this positive relationship between human development (proxied by education) and terrorism. Krueger and Maleckova (2003) also provided micro evidence for this positive relationship.

If perceived as a threat, economic reforms may lead to civil unrest, as Freytag et al. (2011) explained for globalization. Wintrobe (2006) and Freytag et al. (2011) show a positive relationship between trade openness and violence variables. They argue that globalization

[37] For more details about how education promotes terrorism, see Brockhhoff et al. (2015)

increases violence as people take economic reforms as a threat or risk of losing economic advantages. On the other hand, Kurrild-Klitgaard et al. (2006) and Blomberg and Hess (2008) show a negative impact of openness and argue that it creates economic opportunities and reduces grievances.

Lujala (2010) and Farzanegan et al. (2018) show that the abundance of natural resources increases the risk of internal violence. Collier and Hoeffler (2004) also argue that natural resources provide opportunities that increase net benefits for armed groups. They further postulate that the relationship between natural resources and conflict is not monotonous, as the abundance of natural resources provides financial resources for governments to fight the rebellion. They further describe that ethnic and religious diversification and income inequality can be factors of grievances that contribute to the outbreak of conflict. Gur (1970) confirms that when individuals feel economically disadvantaged, they may be willing to fight to change their situation. More generally, when inequalities create grievances among the poor, recruiting them to fight the government in the hope of a better life becomes easy for extremist organizations. Due to poor economic, social, and political conditions, fragile developing countries are particularly exposed to the risk of instability (World Bank, 2011 and 2018). It may be thought that governments counter these risks by improving the population's standard of living. Freytag et al. (2011) and Burgoon (2006) show that public spending and social protection policies reduce violence by improving socio-economic conditions. George (2018) suggests that an effective counter-terrorism measure in failed states is to build reliable institutions. Along with building strong institutions, in particular efficient judiciary, providing better living conditions for citizens, equal opportunities to generate wealth, investing in human development, and political rights, could also help governments decrease the people's grievances. It could also increase the opportunity cost and risk of violence, thus isolating the extremists from their supporters.

As we show in this section, researchers have used economic, social, and political variables to understand the factors that can reduce conflict. However, for most variables, the empirical research provides mixed results. For instance, the impact of the overall political system on conflict is inconclusive. In the case of governance, some recent studies have empirically analyzed the impact of overall governance variables on conflict by using principal component analysis (PCA). One can argue that studying sub-features of political systems and governance can provide more information in this regard. For this reason, this study focuses on the efficient judiciary as an explanatory interest variable for conflict. To our knowledge, existing literature on conflict has not focused on the impact of an efficient justice system on armed violence in fragile developing countries. This study intends to fill this gap by using an efficient judiciary as an explanatory interest variable for conflict in fragile countries. We argue that many developing countries have structural barriers that hinder the efficiency of the judicial system. However, even if the overall judicial system is not efficient, at least judicial cases related to a conflict should conclude on a priority basis. In the following section, we provide theoretical justifications to justify our argument and explain the importance of judicial efficiency as an essential factor in reducing conflict.

3.3 Econometric Framework

In this section, we build our econometric framework. We begin by discussing how institutional quality and especially judicial efficiency can be linked to the surge of violence. These drivers will give our interest variable. Then, we present the countries included in our sample and then proceed with the variables.

3.3.1. Conflict Motivation: Focus on the Institutions

First, we built up the case for judicial efficiency as an essential factor in reducing violence using the cost and benefit framework. Then we discuss other theoretical frameworks ("immiserizing modernization", "supreme values") as additional justification for our control variables.

The motivation for using illegal force can be studied using the cost-benefit analysis framework (Caplan, 2006). Human actions are based on the "calculation of risk, cost, and incentive" (Teydas et al., 2011). Becker (1968) argues that individuals commit crimes if the expected benefits outweigh the costs. Wintrobe (2006) assumes that extremists are rational and choose the best way to achieve their goals. In the case of conflict, the expected benefits of violence include a redistribution of power, recognition, and wealth; the costs include a reduction in resources and sanctions (Frey & Luechinger, 2003; Harrisson, 2006; Teydas et al., 2011).

Sanctions can be legal or military. LaFree et al. (2009) state that these sanctions can have two contradictory effects on violence: a "deterrent" effect or an "amplification" effect. Deterrence models assume that the threat or imposition of a sanction changes the behavior of individuals. According to Nagin and Paternoster (1993), deterrence works when the expected benefits of illegal actions are lower than the expected costs. LaFree et al. (2009) define two types of deterrence: "specific" deterrence, which dissuades individuals from repeating their actions, and "general" deterrence, which discourages members of society from opting for a given action for fear of possible sanctions. Dezhbakhsh et al. (2003) confirm that the probability of arrest, conviction, or execution significantly decreases the crime rate.

On the contrary, Higson-Smith (2002) puts forward the idea that conflict may worsen due to government sanctions. This is the case, for example, when extremists use the public's

potential for sympathy to recruit new members or when opponents become more radicalized by sanctions. Sherman (1993) explains that deterrence or amplification effects depend on how offenders accept sanctions. If they do not consider them legitimate, it will create new grievances. The hostile reaction to sanctions may be "specific" when offenders view the sanctions as unfair and continue using illegal force, or "general" when society considers the sanctions unjustified and then supports activists. If the legal system is ineffective in society and the activists consider the sentence illegitimate, they can seek support from the general public to legitimize their actions. People who have grievances and do not trust the legal system may also find it legitimate to achieve justice by force.

As we discussed earlier, the main objective of punishment is to create specific and general deterrence. However, it is challenging to achieve deterrence if there is a general mistrust of the legal system, and the punishment can have a worse outcome. The main reason for the mistrust is the delay injustice. If the justice system takes much time to decide—- the case loses relevance, and sometimes people consider the verdict unfair – this leads to the amplification effect of punishment.

For judicial decisions, the impact of timeliness on the perception of fairness has been studied in several studies (Heise, 1999: Sourdin, 2009: Sourdin and Burstyner, 2014: Melcarne et al., 2021). The legal maxim "justice delayed is justice denied" – attributed to former British Prime Minister William E. Gladstone—- has enthused the reforms trying to improve the judiciaries' performances worldwide (Melcarne et al., 2021). Court decisions with shorter disposition time provide many advantages: reduces litigation costs, improves quality[38], increases the impact of specific and general deterrence, and develop overall public trust on the judicial system. Sourdin (2009) shows that case disposition time has a negative correlation with the

[38] with time evidence spoils, memories fade, witnesses die – See Heise (1999) for more details

perception of fairness. Melcarne et al. (2021) empirically show that judicial delay has a negative impact on the quality of justice.

Delayed justice can provide benefits to the criminals and help them evade justice. Those who fight against governments are influential and can go to any length to avoid sanctions. Delay in justice may allow the terrorists to use more violence and force to bargain with the government or to change the outcome of judicial cases. This judicial inefficiency decreases the opportunity cost of crime and may allow people to join militant groups and commit violent crimes as they believe they can evade punishment. So, an efficient justice system is essential to increase general deterrence, keep the public away from joining a terrorist organization, and reduce conflict. Some may argue that Courts cannot afford to decide quickly because of so many structural delays. However, we believe that in the case of violent conflict–- which can cause immense human suffering and sometimes economic collapse–- speedy justice is a viable option, and an efficient judiciary can increase the opportunity cost of conflict.

Concerning the cost and benefit analysis of the use of force, Freytag et al. (2011) focus on the trade-off between loss of material wealth (the opportunity cost of illegal actions) and mental reward (the benefit of armed dissent). They suggest that if the opportunity cost of terror (such as the likelihood of sanctions or loss of income) outweighs the benefit, people will choose to preserve their material wealth rather than the mental reward of violent action. On the other hand, in the case of poverty or a slowdown in economic activity, as the relative price of material wealth decreases, citizens will opt for conflict more easily, seeing it as a means of imposing a change and seeking a mental reward.

This may also be the case after economic reforms. Caruso and Schneider (2011), in their theory of "immiserizing modernization" explain that reforms can lead to a decrease in the wealth of some stakeholders, which can lead to more conflicts because of the lower opportunity cost of violence for these categories. Wintrobe (2006) confirms that trade reforms

and globalization, in particular, can be seen as a threat to loss of income for the part of the population. By limiting the economic opportunities of the affected population and reducing the opportunity cost of violence, economic reforms can create grievances against the government, thus increasing the risk of civil unrest (Harrison, 2006). Violence in these cases can also be seen as a way to resist change. However, Blomberg and Hess (2008) and Kurrild-Klitgaard et al. (2006) find an inverse relationship between trade reform and conflict, making reform an opportunity rather than a threat, reducing violence, and promoting development. More generally, adverse socio-economic conditions can lead to violence by making conflicts more profitable because of potential positive spin-offs, particularly regarding the redistribution of wealth, and low direct costs, including the low cost of recruiting opponents.

Bernholz (2004) describes the ideological content of certain conflicts through the concept of "supreme values". These values refer to one or more objectives that are preferred above all others and whose achievement is more important than any other value (Wilkens, 2011). Black (2001) suggests that these extreme beliefs (e.g., religious) are based on deeply inculcated doctrines to achieve the goals of extremist groups (Wintrobe, 2006). Bernholz (2004) states that people with "supreme values" may want to implement these values by force. In this case, if the grievance concerns problems other than poverty, for instance, injustice or unequal treatment of certain regions, ethnic groups, or religions.[39], an increase in wealth increases the resources for extremist organizations and rebels' activities. Wintrobe (2006) adds that terrorist activities are based on a compromise between "autonomy" and "solidarity". A person can give up his beliefs (autonomy) to experience social belonging and solidarity.

Our empirical model fits within this framework, as presented in section 3.3.4.

[39] See Huntington (1996), Piazza (2008), Basuchoudhary and Shughart (2010), Krueger and Maleckova (2003), or Kurrild-Kligaard et al. (2006) for the political, ethnic, and institutional causes of conflict.

3.3.2. Geographical Coverage: The "Fragile States"

This study focuses on fragile developing countries issued from the Fund for Peace (FFP) database that publishes annually a Fragile States Index (FSI). This index is a ranking of 178 countries based on the quantification of different pressures the countries face. The FSI is calculated from 12 key qualitative and quantitative indicators (political, social, and economic) from various public sources.[40].

We worked on a sample of 58 fragile countries, available from 2004 to 2017, for which the index was higher than the value of 70, which corresponds to a high degree of fragility.[41]. The unavailability of data led us to exclude certain fragile countries from our samples.[42] In our fixed-effect analysis, countries with 0 violent activities were also excluded. Geographically, our dataset is divided into 21 African countries, 13 MENA countries, 9 Asian countries,11 Latin American countries, and 4 European countries.

We analyze the development of conflict activities from 2004 to 2017 for four different groups of fragile developing countries: (i) total sample of fragile countries, (ii) fragile Islamic countries, (iii) Fragile countries with more than one important religion[43], and (iv) Countries affected by major conflicts[44] (see the list of countries in Table 3.A.2 in the Appendix). As explained in the introduction, our choice to work on different categories of countries was

[40] The Economic part of the FSI has structured around three areas: (i) Economic Decline and Poverty, (ii) Uneven Development, and (iii) Human Flight and Brain Drain. The Social component is organized around two topics: (i) Demographic Pressures and (ii) Refugees and Internally Displaced Persons (IDPs). The Political part is designed around three subjects: (i) State Legitimacy, (ii) Public Services, and (iii) Human Rights and the Rule of Law. The Cohesion component is structured around three lines: (i) Security Apparatus, (ii) Factionalized Elites, and (iii) Group Grievance. FSI also comprises an External Intervention dimension which considers the "influence of external actors in the functioning of a state."See https://fragilestatesindex.org/data/

[41] The Fund for Peace (FFP) defines 10 levels of fragility according to the FSI score: Very high alert (above 110); High alert (between 100 to 110); Alert (90 to 100); High warning (80 to 90); Elevated warning (70 to 80); Warning (60 to 70); More stable (40 to 60); Very stable:(30 to 40); Sustainable (20 to 30); Very sustainable (less than 20).

[42] For instance, Afghanistan, the Central Republic of Africa, Somalia, Chad, Haiti, Guinea Bissau, Eritrea, and South Sudan.

43 Countries where more than 10% of people belong to a different religious group

[44] Countries have had at least five conflict-related incidents per year for at least half of the period studied.

motivated by the desire to refine our understanding of the mechanisms of violence. In Muslim countries, for example, conflicts may have religious content. In this case, increasing wealth or education may not have the same effects on violence as in countries where unrest is fueled by poverty or an uneven distribution of wealth. We can think in the latter case that an increase in income, a policy of redistribution, better access to education, health, and, more generally, a higher level of development would contribute to reducing social dissatisfaction, therefore, conflict. If the reason for the violence is not economic but religious, an increase in income or education can, on the contrary, fuel the conflict.

3.3.3. The Variables

This section presents the variables that we use to estimate our model. We commence by explaining our dependent variable (annual conflict-based incidents). Then we explain the relationship between our primary interest variable (efficient judiciary) and the dependent variable. After that, we explain our control variables in groups.

3.3.3.1. The Dependent Variable: $Confl$

We have processed our proxy for internal conflict, the annual conflict-based domestic incidents, from the Global Terrorism Database (GTD, 2018). GTD contains information on cross-national terrorist events from 1970 to 2017. Unlike many other databases, GTD systematically covers both transnational and domestic incidents. GTD also contains a large number of variables that can be manipulated by researchers, making it possible to deal with a wide range of research questions, in addition to transparent coding[45]. In the empirical literature, as mentioned in the introduction, GTD has been used less than other databases,

[45] For each incident, information is available for at least 45 variables (more than 120 for the most recent years).

although it provides more information on the use of violence (Krieger & Meierrieks, 2011; Berkebile, 2017). [46] [47]

The advantage of GTD in our case has been to access the number of violent events, which constitutes more precise information on the frequency of the conflict than dummy variables or probabilities used in many studies (Collier & Hoeffler, 2004; Humphreys (2003; Caruso & Schneider, 2011). This variable also provides additional information compared to, for example, the variable "number of people killed" because it measures the frequency of the disruptive effect of the conflict and, therefore, the ability of the rebels to act and destabilize the power in place.

Another advantage linked to the use of GTD has been to isolate the domestic component of conflicts, which is by far the most common (between 80% and 90% of total attacks in the world), but the least studied because of a lack of cross-national data, of the transnational component in particular (Enders et al., 2011; Berkebile, 2017). Therefore, the high precision of the explained variable allowed in our case a better perception and explanation of the causes of violence in the countries studied.

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[46] Collier and Hoeffler) (2004) and Hess (2003), for example, define their variable of conflict as a dummy which takes the value 1 when there are at least 1000 deaths per year (25 combat deaths per year in the case of Miguel, 2004), Humphreys (2003) as the probability of a civil war, and Caruso and Schneider (2011) as the number of people killed. Malik (2011), however, choose the number of violent attacks as its proxy of conflict.

[47] One of the most widely used cross-national databases, the International Terrorism Attributes of Terrorist Events (ITERATE) dataset, is dedicated to transnational terrorism only (https://library.duke.edu/data/sources/iterate). Another interesting source, the RAND Database of Worldwide Terrorism Incidents (RDWTI), which collects a lot of data on terrorism both transnational and domestic, provides limited coverage as well (data are available from 1998 to 2009 only, and few variables are monitored).

Temporal coverage is also limited in the case of the Armed Conflict Location and Event Data Project (ACLED), for which data is mostly not available before 2015, except for African countries for which information dates back to 1997: https://acleddata.com/acleddatanew/wp-content/uploads/dlm_uploads/2019/01/ACLED_Country-and-Time-Period-coverage_updMay2021.pdf.

Thus, the many sources available today show limited geographic coverage, duration or type of variables (see also the ICT's Incidents and Activists Database: https://www.ict.org.il/Articles.aspx?WordID=25#gsc.tab=0), or the MIPT Terrorism Knowledge Base: https://franklin.library.upenn.edu/catalog/FRANKLIN_9941455883503681).

The conflict-based incidents in the GTD codebook are defined as "the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation" To be included in the database, incidents must (i) be intentional, (ii) result in a certain level of violence or an immediate threat of violence against property and / or people (iii) be perpetrated by subnational actors. Attack types are also listed as: assassination, hijacking, kidnapping, barricade incident, bombing/explosion, unknown armed assault, unarmed assault, and facility/infrastructure attack.

To construct our conflict variable, we included the incidents that meet the following criteria: (i) the act was aimed at attaining a political, economic, religious, or social goal; (ii) there is evidence of an intention to coerce, intimidate, or convey some other message to a larger audience (or audiences) than the immediate victims; (iii) the action was outside the context of more general warfare activities.

Following Enders et al. (2011), we isolated domestic incidents from transnational incidents by eliminating events where the nationality of one of the victims was different from the country where they occurred. The time for the annual data is from 2004 to 2017 (see Table 3.A.1 for data sources and Tables 3.A.1.1 to 3.A.1.4 for descriptive statistics in the Appendix).

3.3.3.2. The Interest Variables: Effective Judiciary and Governance as Proxies for Deterrence and Institutions: *Contracts and Gov*

Countries with fragile institutions are vulnerable to violence (Ross 1993, Basuchoudhary and Shughart 2010). It is easier for extremist groups to operate in countries where institutions are weak (Newman, 2007, Piazza, 2008). People who have grievances and do not trust the institutions may also find it legitimate to use force. If the justice system is adequate and the penalties are perceived as fair, the threat of punishment can change the behavior of

individuals. Freytag et al. (2011) state that the possibility of punishment is a cost to insurgents. Dezhbakhsh et al. (2003) confirm that the likelihood of punishment decreases crime in a country. George (2018) shows that in failed states building reliable institutions is a counter-terrorism measure.

We use the "Time for Enforcing Contracts" variable from the "Doing Business" database as an indirect indicator of the ineffectiveness of the judiciary. If the judiciary punishes promptly, the population will be reluctant to use violence. On the other hand, if the justice system is ineffective and extremists may not be punished, it is easier to continue using illegal force. If the justice system in a country is effective and citizens trust its decisions, it will deter violent activities. This study expects a positive impact of the judicial ineffectiveness variable on conflict.

For robustness, we test the broader impact of governance on the frequency of conflicts. To do this, we use principal component analysis to generate an aggregated indicator from variables (Gov) from the ICRG database (see the methodology developed in Aysan et al., 2007). These variables are (i)"control of corruption", (ii)"investment profile", (iii)"public order" and (iv)"quality of bureaucracy". We use principal component analysis to create the aggregate governance variable. A higher value of these variables means better governance and institutions. Therefore, a negative impact on conflict is expected in the estimations (see Table 3.A.1 for data sources and Tables 3.A.1.1 to 3.A.1.4 for descriptive statistics in the Appendix).

3.3.3.3.Other Control Variables

We define different groups of control variables. In the first group, we discuss other institutional variables such as democratic accountability and ethnic and religious tensions. 2nd

group contains GDP per capita as proxy for income and wealth. 3rd and 4th groups contain social and geographical variables.

Other Institutional Indicators: Democratic Accountability *(Demo)*, Ethnic Tension *(EthenTens)*, and Religious Tension *(ReligTens)*

We use democratic accountability, ethnic tensions, and religious tensions to control political dynamics. The impact of the political regime on violence and civil unrest in a country is another dimension whose empirical evidence is contradictory. Some of the literature emphasizes that democratic regimes allow people to express their demands and be heard, thereby reducing the grievances they may have towards the government. This is the case of Eyerman (1998) and Li (2005), who highlight a positive relationship between democracy and the absence of violence. However, other authors point out that it is easier and cheaper for extremists to engage in violent activities when they enjoy more civil liberties and political rights. For instance, Li and Schaub (2004) and Rizvi and Véganzonès-Varoudakis (2019) note an increase in violence in fragile countries during democratic periods. Eubank and Winberg (1998) find that terrorism occurs more often in democracies than in authoritarian regimes. Li (2005) and Muller (1985) demonstrate a non-linear relationship between political repression and the use of illegal force.

In this study, we use the Democratic Accountability variable of the International Country Risk Guide (ICRG) as an indicator of the type of regime (Howell, 2011). A high value of the variable indicates more democratic institutions and vice-versa (see Table 3.A.1 for data sources and Tables 3.A.1.1 to 3.A.1.4 for descriptive statistics in the Appendix). In line with one part of the literature, we expect a positive relationship of this variable with the one of conflict.

Ethnic and religious differences are two other issues explored in the conflict literature. Several studies have used ethnic diversity as an explanatory variable for violence. Montalvo

and Reynal-Queral (2005) develop that countries with more ethnic polarization are more likely to face internal conflicts. Horowitz (1985) considers that both very homogeneous and very heterogeneous countries can face less violence. Fearon and Laitin (2003) also point out that countries with more diversity face less violence because minority groups can share political platforms through alliances and coalitions. Collier and Hoeffler (2004) hypothesize that if political loyalties are ethnically based, the likelihood of conflict increases when an ethnic group has a small majority.

Empirically, Fearon and Laitin (2003) show that ethnic fragmentation has no significant impact on conflict. Collier and Hoeffler (2004) use different indicators of ethnic diversity in their grievance model and highlight the positive impact of ethnic dominance on violence. Danzell et al. (2019) find that ethnic polarization increases the risks of internal conflict in a country. Basuchoudhary and Shughart (2010) use ethnic tensions from the ICRG database and conclude that these tensions increase conflict.

Regarding religious differences, Collier and Hoeffler (2004) develop that, like ethnic diversity, a more heterogeneous population based on religion faces less conflict. Bandyopadhyay and Younas (2011) use religious fragmentation as an explanatory variable of conflict and stress that countries with greater religious diversity experience less violence. However, Collier and Hoeffler (2004) and Abadie (2006) find an insignificant impact of religious fragmentation on conflict.

In the empirical part of this study, we use ethnic and religious tensions from the ICRG database as control variables in our conflict model. The ICRG data for ethnic and religious tensions range from 0 to 6, where higher values indicate lower tensions (see Table 3.A.1 for data sources and Tables 3.A.1.1 to 3.A.1.4 for descriptive statistics in the Appendix). Following one part of the literature, we expect a negative relationship of these variables with

the one of conflict, which would show that a decrease in ethnic and religious tensions would decrease violence.

Economic Indicators: Per Capita Gross Domestic Product *(GDPc)*

We use GDP per capita to proxy income and wealth as an economic control variable. The empirical evidence for the impact of income and wealth on internal conflict yields mixed results. Some of the literature finds poverty and low income a cause of violence. Humphreys (2003) indicates that low resources increase the likelihood of civil wars. Collier and Hoeffler (2004) show that low incomes increase domestic conflict. By contrast, Caruso and Schneider (2011) find a positive relationship between increased income and the number of people killed in conflict-based incidents. Freytag et al. (2011) and Shahbaz (2012) confirm that there is a positive correlation between increasing GDP per capita and increased violence. Piazza (2008), however, does not find a significant association between the two variables. Freytag et al. (2011) and Lai (2007) show on their side that the use of the quadratic form of GDP per capita inverts the sign of the relation.

GDP per capita is our measure of income and wealth. The data comes from WDI (2017). We collect data from national sources and other international institutions for missing values for some countries. The study uses the logarithm of the variable in real terms (see Table 3.A.1 for data sources and Tables 3.A.1.1 to 3.A.1.4 for descriptive statistics in the Appendix). In line with one part of the literature, we expect a negative influence of this variable on our variable of conflict.

Social Indicators: Human capital *(H)*, Inequality *(Inequal)*, and Population *(pop)*

Human development might be seen as a way to reduce violence. Higher human development can limit the risk of conflict by reducing people's grievances (Bravo & Dias, 2006; Kurrild-Kitgaard et al., 2006). Educated people may also be less likely to choose illegal force because they can use their reasoning to form their own opinion. This is especially true in the case of

illegal actions based on "supreme values" where education can help develop critical thinking and reject extremism (Ghosh et al., 2017). Educated people can also use their knowledge to improve their economic and social situation (Berrebi, 2007). Advances in education thus increase the opportunity cost of conflict by providing better opportunities for people (Freytag et al., 2011).

At the empirical level, Hamilton and Hamilton (1983) note that illiteracy is positively correlated with armed violence. Collier and Hoeffler (2004) and Azam and Thelen (2008) highlight the negative impact of education on conflict. However, Brockhoff et al. (2015), Berrebi (2007), Testas (2004), and Nasir et al. (2011) show a positive relationship between education and the use of illegal force. People may consider joining opponents' organizations if career path returns are below expectations (Krueger, 2008).

We use the average number of years of schooling of the population aged 25 or older from the United Nations Development Program (UNDP) to proxy for human capital. Alternatively, we use The Penn World Tables (PWT) human capital indicator as a robustness test of our results. [48] (see Table 3.A.1 for data sources and Tables 3.A.1.1 to 3.A.1.4 for descriptive statistics in the Appendix). In accordance with part of the literature, we expect that education provides people with more economic opportunities that increase the opportunity cost of using illegal force and a level of knowledge that encourages them not to choose violence. A negative sign is therefore expected in the regressions.

Another social indicator is the unequal distribution of wealth which can increase grievances among the population and fuel conflict. In his theory of relative deprivation, Gurr (1970), for example, argues that people assess their economic situation in relation to that of others and describes a positive relationship between income inequality and violence. In the literature,

[48] The Penn World Tables (PWT) human capital indicator is generated from the rate of return to education and the average years of schooling in the country from Barro and Lee (2013) updated http://www.barrolee.com/ (see Feenstra et al. 2015)

relatively unfavorable economic conditions are thus generally described as leading to increased frustration and conflict.

The empirical literature also illustrates this positive link between income inequalities and conflicts. Krieger and Meierrieks (2019) show that these inequalities increase violence in their sample of countries. They also highlight that countries that redistribute more, experience fewer internal conflicts. In his study, Piazza (2011) also finds that greater income inequality increases the likelihood of violence. However, some authors struggle to validate this link, such as Kurrild-Klitgaard et al. (2006), who do not demonstrate the significant impact of income inequalities on the conflict in their model.

For inequalities, we use the richest 10% share of pre-tax national income from the World Inequality Database (WID) (see Table 3.A.1 for data sources and Tables 3.A.1.1 to 3.A.1.4 for descriptive statistics in the Appendix). In line with the literature, we expect a positive correlation of this variable with our conflict indicator.

We also study the impact of the size of a country's population as a control variable on the development of conflicts in that country. Krueger and Maleckova (2003), Burgoon (2006), Freytag et al. (2011), Piazza (2008), and Richardson (2011) point out that more populous countries tend to face more violence. Gaibulloev and Sandler (2019) and Taydas et al. (2011) argue that it is difficult for governments to manage, serve, and respond to the demands of all stakeholders in the case of large populations due in part to great diversity. We expect a positive relationship between population and conflict in our samples of fragile countries following this literature. We use population and population density variables from WDI (2017) in logarithm alternatively (see Table 3.A.1 for data sources and Tables 3.A.1.1 to 3.A.1.4 for descriptive statistics in the Appendix).

Trade Openness and Natural Resources: Trade Openness *(Open)* and Natural Resource Rent *(NatRes)*

The influence of economic reforms on violence is another dimension studied in the literature. The impact of trade liberalization and globalization has been the subject of discussion. Trade liberalization can be a factor in the growth and modernization of the economy (Frankel & Romer, 1999; Dollar & Kraay, 2003). New opportunities created by trade can reduce the population's discontent and increase the opportunity cost of violence, thus reducing the risk of civil unrest. Blomberg and Hess (2008) and Kurrild-Klitgaard et al. (2006) find an inverse relationship between trade openness and the use of illegal force, which would confirm that reforms can help reduce violence.

However, another part of the literature emphasizes the destabilizing effect of economic reforms. Caruso and Schneider (2011) state that reforms can reduce the wealth of some stakeholders. Freytag et al. (2011) and Wintrobe (2006) confirm that globalization can be seen as a threat to part of the population. In this case, reforms can lead to political and social unrest fueled by groups of people who lose or fear losing because of change (Harrison, 2006; Gaibulloev & Sandler, 2019).

In this study, we use the ratio of exports plus imports to GDP (in real terms) as a proxy for trade reform and globalization. Although some countries may be structurally open due to their size (small countries vs. large countries), geographical location (presence of the sea, for example, vs. landlocked countries), or wealth in natural resources, various authors use trade openness as a proxy for trade reform, especially in the case of developing countries because of lack of other reliable proxies. In the conflict literature this is the case with Blomberg and Hess (2008), Kurrild-Klitgaard et al. (2006), Wintrobe (2006), and Freytag et al. (2011), for example. Following the empirical literature, we also use trade openness as a proxy for

economic integration. The data come from national and international sources (see Table 3.A.1 for data sources and Tables 3.A.1.1 to 3.A.1.4 for descriptive statistics in the Appendix).

A country with abundant natural resources offers financial resources to each party to support or fight the conflict. On the one hand, natural resources provide valuable funding for governments to control insurgencies (Collier & Hoeffler, 2004). On the other hand, natural resources can attract rebellion, as the financial gains from controlling these resources increase the potential benefits of an outcome in favor of the conflict.

Collier and Hoeffler (2004) use exports of primary goods to GDP as an indicator of natural resources and find a significant non-monotonic relationship with conflict. They conclude that the availability of financing, through the possible extortion of these assets, makes rebellion more feasible and attractive. Lujala (2010) and Farzanegan et al. (2018) also show that the abundance of natural resources increases the risk of internal violence.

In the empirical part of this study, we use the natural resource rents from the World Development Indicators (WDI) as a control variable to proxy a country's natural resources (see Table 3.A.1 for data sources and Tables 3.A.1.1 to 3.A.1.4 for descriptive statistics in the Appendix). Following the literature, we expect a positive impact of this variable on the one of conflict.

3.3.4. Some Stylized Facts

The descriptive statistics (Tables 3.A.1.1 to 3.A.1.4 in Appendix) show that, on average, our sample for major conflict has the most terrorism-based incidents. Fragile countries with more than one religion have, on average least conflict-based incidents per year as it includes some countries[49] which were relatively peaceful during the time duration of our analysis. The lowest mean values are for Latin American countries on the geographical distribution of

[49] For instance, Cameroon, Mozambique, Ghana, Uganda, Viet Nam

countries, and the highest mean values are for the Asian region. In the Asian region, the countries that belong to South Asia face most terrorist incidents. African countries are relatively stable in our regional panel, except for the Democratic Republic of Congo, Ethiopia, Kenya, Nigeria, and Sudan.

The proxy for deterrence shows that those countries where conflict is a significant concern take, on average more days to resolve issues legally relative to other groups. It can decrease the opportunity cost of crime as punishment may not create general deterrence. The main motive of punishment is to create general deterrence. However, the legal case loses its relevance with time, and the public might not follow the case. Even in the end, if the legal system punishes the criminal, it may not create the desired outcome. It shows that countries that take more time to resolve legal issues must improve their legal institution to increase the opportunity cost of terrorism.

On geographical grounds, like our dependent variable, the highest mean value for judicial inefficiency is also for Asian countries, with South Asian countries taking the most days to conclude a legal case. For the African and MENA region, countries that take fewer days to conclude legal cases also have a smaller number of annual conflict-based incidents. There are some exceptions; for instance, Angola takes, on average, the most days in the African region. However, she has less violence for our time consideration. Angola has been stable since 2002 when the 27-year-long civil war ended. However, judicial inefficiency can cause political issues in the future.

The mean per capita income again shows the lowest values for the countries with more than one religion. Most of the countries in this group have lower GDP per capita for the duration of our analysis. For instance, Burkina Faso, Democratic Republic of Congo, Ethiopia, Mozambique, Sierra Leone, Tanzania, and Uganda have low GDP per capita per year from 2004 to 2017. The other three groups have similar averages for GDP per capita.

Surprisingly, on average, countries with conflict as a major issue have the highest mean year of education among our country panels. Our literature review shows that an increase in education leads to more information about civil rights and political injustice. In recent times, people stood for their civil rights in many countries and changed the political system.[50]. However, in some countries, the ruling parties did not respond well to the protestors' demands, which led to violent conflict and civil wars in some countries.

For democratic accountability, the mean values show that countries with diverse religions are more democratic, and the group of Muslim countries relatively are less democratic. This suggests that the probability of violence in Muslim countries is higher relative to other groups. For instance, in most of the MENA countries, the protestors could not change the political system, and there is still a high chance that these countries may face civil unrest again in the future.[51].

3.3.5. The Model and the Estimator

Based on our literature review and presentation of variables. We intend to estimate the following model:

$$Confl_{it} = \alpha_0 + \alpha_2 (Contracts_{it}) + \alpha_1 (GDPc_{it}) + + \alpha_3 (Inequal_t) + \alpha_4 (H_{it}) + \alpha_5 (Open_{it}) + \alpha_6 (Demo_{it}) + \alpha_7 (Pop_{it}) + \alpha_8 (EthnTens_{it}) + \alpha_9 (ReligTens_{it}) + \alpha_{10} (NatRes_{it}) + \varepsilon_t \quad \text{Eq (1)}$$

Where *Confl* is the count data variable for measuring conflict, *GDPc* is the logarithm of real GDP per capita, $Inequal_t$ is the measure of income inequalities, *Contracts* is the proxy for judicial effectiveness, *H* is the human capital index, *Open* is the indicator of trade openness, *Demo* the proxy for democratic institutions, *Pop* the logarithm of population, $EthnTens_{it,}$ *and* $ReligTens_{it}$ the variables for ethnics and religious tensions, and $NatRes_{it}$ the natural resources

[50] For instance, Arab Spring.

[51] Recently, the ease of connectivity through social media has made it easier to propagate information to the masses and start movements for civil rights.

indicator. e. i is the cross-sections index, t the time dimension, and $\mathcal{E}$ the error term. $\alpha 0$ to $\alpha 6$ are the parameters to estimate.

Since we have the annual number of conflict-based domestic incidents from the Global Terrorism Database (GTD) as a proxy for violence, this implies that our dependent variable is a non-negative integer (count data)[52]. We use Fixed Effect Poisson Regressions (FEPR) with robust standard errors to address the issues related to count data. Poisson estimators are particularly suitable in the case of rare events, which correspond well to our situation. Many empirical researchers have used Poisson regression or Negative Binomial Regression (NBR) for count data models (see Krieger and Meierrieks, 2011, for a synthesis).[53] Berrebi and Ostwald (2011) suggest that while NBR offers potential efficiency gains, the consistent estimates provided by Poisson regression are more valuable than efficiency. Wooldridge (1999) confirms that Poisson regression with fixed effects is robust and consistent for count data models. Although the problem of underdispersion/overdispersion when applying Poisson regression has been highlighted in various studies, FEPR has been preferred to NBR by several authors for these reasons (Guimaraes, 2008; Berrebi & Ostwald, 2013; Ranson, 2014; Gardeazabal & Sandler, 2015; Lee & Eck, 2021)[54]. We also choose FEPR with clustered standard errors, which allows us to estimate our model with robust standard errors (Simcoe, 2008; Santos Silva & Tenreyro, 2009). These standard errors are robust to clustering, over/underdispersion, arbitrary heteroscedasticity, and arbitrary serial correlation, as explained in Wooldridge (1999) and repeated by Berrebi and Ostwald (2011)[55].

[52] For more details on count data regression, see Cameron and Trivedi (2013)

[53] See George (2018); Piazza (2008) for Negative Binomial Regression.

[54] Gourieroux et al. (1984) and Wooldridge (1999) explain that the Poisson estimator (with robust standard errors) does not make any assumptions about the distribution of the errors,

[55] Regressions using the Negative Binomial Regression (NBR) method were also performed for our analysis. The results are consistent with those obtained with fixed effect Poisson regressions (FEPR) and are available upon request.

Following Silva and Tenreyro (2006), we also perform Ramsey's (1969) RESET[56]to verify the adequacy of our model[57]. The results of the test show that our model is not misspecified, and there is no omitted variable bias.

Moreover, the question of a possible endogeneity of the explanatory variables of conflicts (growth or income in particular) has been raised by some authors (Ajide and Alimi, 2021; Krieger and Meierrieks, 2019, for example). However, most of the time, the literature pays little attention to this question and alternately explains conflicts (Collier & Hoeffler, 2004; Kurrild-Klitgaard et al., 2006; Caruso & Schneider, 2011; Freytag et al. Al, 2011; Piazza, 2008 and 2011, among others), or the impact of conflicts on other variables, income in particular (Abadie and Gardeazabal, 2003 and 2008; Crain & Crain, 2006; Gaibulloev and Sandler, 2008 and 2011, for example).

This study addresses the possible endogeneity issue underlying our regressions by re-estimating our initial specifications using the two-step control function (CF) approach. It is not possible to capture the fixed effects in the instrumental variable Poisson Regression (IVPR). Wooldridge (2015) illustrates that the control function (CF) is an efficient instrumental variable (IV) meant to answer endogeneity. In the first stage of the control function approach, we explain the endogenous variable (the GDP per capita in our case) by all explanatory variables plus the instrument (i.e., the lag form of the endogenous variable). This allows us to predict the residuals of this first-stage equation. In the second stage, along with our explanatory variables of conflict, we also control for the residuals of the first equation in our fixed effect Poisson regression with robust standard error. The control function (CF)

[56] Regression Equation Specification Error Test

[57] To perform the test, Silva and Tenreyro (2006) construct an additional regressor $(x'b)^2$, where the bi represents the vector of the estimated factors, and the xi is obtained from the data in memory. The null hypothesis of absence of misspecification (i.e., the non-significance of this additional regressor) corresponds to a coefficient equal to 0.

approach has now been used in numerous empirical studies (see, for example, Ajide and Alimi, 2021; Dreher et al., 2021; Hou, 2021; Kim et al., 2021; Dreher et al., 2019)

Finally, as a robustness check and to answer a possible selection bias of our samples, we re-run our regressions on the entire FFP sample of 88 developing countries with a dummy variable for each of our groups. We also re-estimated our model on a sample of less fragile countries, totaling a fragility score higher than 60, and on a sample of more fragile countries, whose score is higher than 80.

3.4 Estimations Results

In this section, we present our results. We have a baseline model for the total sample (Table 3.1). For robustness, we present the 3 Subsamples defined previously and then two other samples of less or more fragile countries (with the same subsamples distinction). We estimated our models with Robust Fixed Effect Poisson Regression (FEPR) and Instrumental Variables FEPR.

In the first subsection, we explain the main results generally. In section 3.5.1, we discuss the results according to the sub-samples specificities, where we explain differences in results for our sub-samples. Section 3.5.2 discusses the role of additional control variables that we added in spec.2 to spec.5. In our last sub-section, we explain the results for less fragile countries (totaling a fragility index higher than 60) and a sample of more fragile countries (whose score is higher than 80) as a part of our robustness check.

Table 3.1 presents the results for the total sample of developing countries, Table 3.2 for the Islamic countries, Table 3.3 for the countries affected by major conflicts, and Table 3.4 for the countries with more than one main religion. In our baseline model, Spec.1 and Spec.1 (iv)) consists of our main estimators. Then we add one control variable for additional specification

to expand our analysis spec.2 to spec.5. For each specification, we give the results respectively for simple and instrumental variables (IV) fixed effects Poisson regressions (FEPR). We also present in the Appendix the regressions on the entire sample of 88 developing countries incorporating the dummy variables corresponding to each of our groups (see Tables 3.A.3.1 to 3.A.3.4 in the Appendix). The results are consistent between the two sets of regressions. We also estimated our model for relatively less fragile countries (Appendix 6) and more fragile countries (Appendix 7) in our estimations for sensitivity analysis and generalization.

3.4.1. Main Results:

For almost all specifications, estimators, and groups of countries, ineffectiveness of the justice system, low income, and size of the population are positively linked to domestic conflicts in our sample of fragile developing countries. These results indicate that an effective way to reduce conflict in fragile developing countries could be to improve institutions, especially the justice system. This finding is consistent with LaFree et al. (2009) and Dezhbakhsh et al. (2003), who confirm the dissuasive effect of the threat of sanctions. According to Freytag et al. (2011), the possibility of government sanction increases the opportunity cost and risk of violence. If the legal system punishes in a timely manner, the population will be reluctant to resort to violence, and rebels will be reluctant to continue the conflict. More generally, our results indicate that developing countries with fragile institutions seem more vulnerable to violence (as seen in Ross 1993, and Basuchoudhary and Shughart 2010) because our findings are unchanged from our aggregate governance indicator, which more broadly represents institutions (see Tables 3.A.4.1 to 3.A.4.4 and 3.A.5.5 to 3.A.5.8 in the Appendix).

Our results also corroborate the findings of Humphreys (2003), Collier and Hoeffler (2004), Lai (2007), and Ostby (2008), who show that low incomes are positively associated with violence. When poverty is high, disadvantaged people can develop grievances against their

government. In this case, the use of violence is more likely since the opportunity cost of illegal force and the cost of recruiting rebels are low. Improving incomes seems thus a policy variable that governments could use to reduce violence in fragile developing countries.

With regard to the population size variable, our results are in line with those of Gaibulloev and Sandler (2019) and Taydas et al. (2011). They show that fragile countries with significant populations are more exposed to violence. The use of population density does not change our conclusions (see Tables 3.A.5.1 to 3.A.5.8 in the Appendix).

Our education, trade liberalization, and democratic accountability results are less stable than those obtained for population, institutions, and incomes. Trade liberalization does not seem to be related to the variable of conflict, except in the case of countries with more than one religion for some specifications (see Table 3.4 and Table 3.A.3.4 in the Appendix)[58]. Also, the sign of the coefficient of the trade openness variable varies according to the specifications, although not significant.

Nevertheless, education and democratic institutions appear to be more regularly associated with violence. Our results show, in particular, a positive relationship between the variables of education and democratic accountability with that of conflict. The impact of these factors on violence has been discussed in the literature. Our findings indicate that education in fragile developing countries may not translate into an opportunity to improve living conditions or strengthen critical thinking against terrorism, as in Berrebi (2007) and Brockhoff et al. (2015). In a country with adverse social, economic, and political conditions, education can increase frustration if the situation of educated people does not improve, especially since they are more aware of the limits of their government.

[58] See also Tables A.4.4, A.4.8, A.5.4, and A.5.8 in the Appendix.

This conclusion can be extrapolated to democracy**,** which gives more voices to discontented groups, thereby increasing violence, as in Eubank and Winberg (1998) and Li and Schaub (2004). This means that when some fragile developing countries go from authoritarianism to democracy, they can face more civil unrest**.** Democracy also does not seem to allow for conflict resolution and a reduction in violence in most of our groups (as in Eyerman, 1998, and Li, 2005), which leaves open the question of the impact of improving democratic institutions on violence.

As for trade liberalization, our finding does not allow us to discriminate between the two options described in the literature. Trade reforms do not seem to be seen more as an opportunity to improve people's prospects and incomes (as in Blomberg and Hess (2008) and Kurrild-Klitgaard et al. (2006)) than as a threat of loss of income or worsening inequalities (as in Freytag et al. (2011) and Wintrobe (2006)), except in countries with more than one religion in some cases (see Table 3.4 and Table 3.A.3.4 in the Appendix).

Thus, improving the level of education and liberalizing trade may not have the desired effects in fragile developing countries, which most probably should first improve the social, economic, and institutional conditions of their population before benefiting from economic reforms and education. This may also be the case with political reforms in countries where our democratic accountability variable seems to increase violence.

3.4.2. The Sub-Samples Specificities

A more detailed analysis shows interesting differences between our groups of countries. Although relatively stable in most groups and specifications, the relationship of the conflict variable to that of income seems stronger in countries with more than one main religion (and to a lesser extent in Muslim countries, see Tables 3.2 and 3.4). This is an interesting finding indicating that public policies aimed at improving people's incomes and living conditions

could be more effective in these particularly poor and fragile developing countries (see Table 3.A.1.4).

The results are relatively similar for the population size variable, whose relationship with the conflict variable is stronger for this group as well (see Table 3.4 and Table 3.A.3.4 in the Appendix). This may be because several highly populated countries belong to this group (see Table 3.A.1.4), illustrating the difficulties faced by governments in meeting the needs of a large and diverse population.

The results are more diverse for the judicial system. The improvement in the efficiency of justice is more strongly related to the decrease in violence in Muslim countries than in the other groups (see Table 3.2 and Table 3.A.3.2 in the Appendix). This is interesting because some countries in this group may be less involved in long-term and high-intensity violence than those in the group of countries affected by major conflicts (see Tables 3.A.1.2 and 3.A.1.3 in the Appendix). Improving the judicial system, incomes, and, more generally, the institutions could prevent the escalation of violence in these fragile countries characterized by a relatively poor governance environment compared to the countries of the other groups (see Table 3.A.1.2 in the Appendix). As for countries with more than one main religion, the results are more challenging to interpret because they vary according to the specification. However, the efficiency of justice may also play an essential role in reducing violence in some cases (see Table 3.4 and Table 3.A.3.4 in the Appendix).

The results for the education variable are more constant from one specification to another and significant mainly for two groups (total fragile countries and countries affected by major conflicts, see Tables 3.1 and 3.3). This may be related to the fact that ethnic tensions (and religious tensions in some groups) are an important factor in most of our fragile countries. In this case, education could serve the cause of terrorists by allowing certain segments of the population to be more involved in violence. Although education does not appear to fuel

violence in Muslim countries and countries with more than one main religion, these findings should be viewed with caution. In fact, human capital seems to participate in the escalation of violence in Muslim countries when one considers the Penn World Tables (PWT) proxy.[59]. Likewise, education seems to participate in the upsurge of conflicts in countries with several main religions in one specification as well (see Table 3.4 and Table 3.A.3.4 in the Appendix)[60].

The results are also different for trade liberalization, whose effect on violence is never significant, except in countries with more than one main religion (in some specifications). This could mean that the governments of these countries should pay more attention to economic reforms so as not to destabilize already vulnerable populations further, although this result seems relatively weak. Violence in the other groups does not appear to be exacerbated by the changes brought about by trade reforms.

As for political liberalization, democratic experiences seem to be a source of increased violence in most of our fragile developing countries (as in Eubank and Winberg (1998) and Li and Schaub (2004)), except in the group of countries with more than one main religion, perhaps because some countries in this group have historically experienced the relatively long presence of democratic institutions (see Table 3.A.1.4 in the Appendix). The strong disorganization and the social, political, ethnic, or religious polarization in most of the countries affected by conflicts probably do not allow them to benefit from the political reforms which would allow the parties in their presence to express their demand, dialogue, and find solutions to their differences. These experiments, which give voice to insurgents and result in an upsurge in violence, should probably occur in more stabilized political and social contexts.

[59] Results are available upon request.

[60] See also Tables 3.A.4.4, 3.A.4.8, 3.A.5.4, and 3.A.5.8 in the Appendix

3.4.3. The Role of the Other Control Variables

Apart from the role of the population size, which is significant in explaining conflicts in our fragile developing countries and which we have commented on previously, the role of our other control variables does not seem to be validated, in a general and robust way, by the data. The ethnic tensions variable seems to participate in the dynamics of conflicts only in the non-instrumented specification for the total sample and that of the countries affected by major conflicts, which weakens the result. In a single configuration, that of countries with more than one main religion, characterized by a comparatively higher level of religious and ethnic tensions (see Table 3.A.1.4 in the Appendix), its role seems robust.

The same conclusion can be drawn for income inequalities, religious tensions, and natural resources whose role is never demonstrated, except in the case of this group of countries also characterized by a comparatively higher level of inequalities (see Table 3.A.1.4. in the Appendix) in several specifications. This result nonetheless highlights, once again, the specificity of these fragile countries whose conflict dynamics seem to follow a somewhat different path from that of the average for other fragile developing countries. Inequalities on one side, ethnic and religious tensions, the role of which has been highlighted in violence by many authors (Collier & Hoeffler, 2004; Basuchoudhary & Shughart, 2010; Bandyopadhyay & Younas, 2011; Danzell et al., 2019) on the other side, seem critical dimensions that governments could take into account in order to reduce the violence in these countries.

However, our more general results do not seem to validate the role of inequalities, particularly studied by Krieger and Meierrieks (2019) and Piazza (2011) for example, nor of natural resources, which part of the literature has also highlighted (notably Collier and Hoeffler, 2004, Lujala, 2010, or Farzanegan et al., 2018) in the violence of our sample of fragile countries.

Table 3.1: Fixed Effect Poisson Regression for Total Fragile Countries

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contracts	1.353*	1.403*	1.344*	1.395*	1.213	1.239	1.000	1.036	1.412	1.524
	(0.766)	(0.824)	(0.763)	(0.821)	(0.783)	(0.877)	(0.908)	(1.018)	(0.990)	(1.114)
Lgdpc	-1.164***	-1.148***	-1.163***	-1.147***	-1.090***	-1.045***	-0.974***	-0.885***	-0.181	0.268
	(0.315)	(0.305)	(0.322)	(0.315)	(0.320)	(0.310)	(0.294)	(0.279)	(0.626)	(0.755)
Edu	0.758***	0.680***	0.790***	0.722***	0.790***	0.707***	0.767***	0.656***	0.752**	0.615**
	(0.173)	(0.183)	(0.207)	(0.217)	(0.213)	(0.226)	(0.215)	(0.228)	(0.295)	(0.286)
Open	-0.320	-0.216	-0.283	-0.178	0.133	0.367	0.262	0.434	0.569	0.959
	(0.999)	(0.977)	(1.044)	(1.011)	(0.973)	(1.036)	(1.052)	(1.073)	(1.355)	(1.499)
Demo	0.113**	0.092	0.114**	0.094	0.104	0.106*	0.105*	0.126**	0.128**	0.170***
	(0.057)	(0.062)	(0.056)	(0.060)	(0.064)	(0.064)	(0.059)	(0.062)	(0.053)	(0.065)
lPop	4.318***	4.317***	4.253***	4.227***	4.142***	4.168***	3.851***	3.814***	2.807***	2.305**
	(0.697)	(0.599)	(0.729)	(0.652)	(0.628)	(0.555)	(0.561)	(0.503)	(1.009)	(1.051)
Inequal			-1.211	-1.719	-1.035	-1.571	-1.045	-1.590	-3.041	-3.709
			(6.345)	(6.353)	(5.994)	(6.182)	(5.972)	(6.196)	(5.929)	(6.050)
EthnTens					-0.453**	-0.562	-0.393**	-0.441	-0.439**	-0.602*
					(0.223)	(0.384)	(0.199)	(0.366)	(0.173)	(0.318)
ReligTens							-0.277	-0.374	-0.094	-0.156
							(0.259)	(0.345)	(0.231)	(0.288)
NatRes									-0.012	-0.018
									(0.018)	(0.019)
Res		-0.149		-0.144		-0.177		-0.211		-0.909
		(0.231)		(0.227)		(0.228)		(0.195)		(0.664)
RESET	0.941	0.996	0.969	0.887	0.839	0.924	0.911	0.855	0.592	0.628
Obs	812	754	812	754	812	754	812	754	795	738
Groups	58	58	58	58	58	58	58	58	57	57

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of the population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *Pop* the logarithm of the population from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country-fixed effects.

Table 3.2: Fixed Effect Poisson Regression for Muslim Fragile Countries

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contracts	2.425***	2.459***	2.824***	2.884***	2.705***	2.885***	2.456**	2.756**	2.640**	2.835**
	(0.806)	(0.872)	(0.928)	(1.010)	(0.910)	(1.024)	(1.025)	(1.184)	(1.058)	(1.165)
Lgdpc	-1.251***	-1.199***	-1.192***	-1.139***	-1.145***	-1.139***	-1.009***	-0.930***	-0.383	-0.085
	(0.268)	(0.288)	(0.274)	(0.297)	(0.283)	(0.307)	(0.266)	(0.291)	(0.879)	(0.937)
Edu	0.591	0.530	0.487	0.428	0.480	0.428	0.409	0.283	0.565	0.427
	(0.400)	(0.429)	(0.430)	(0.459)	(0.425)	(0.486)	(0.439)	(0.526)	(0.520)	(0.557)
Open	-0.082	-0.120	-0.211	-0.256	-0.071	-0.259	0.335	-0.022	0.821	0.443
	(1.134)	(1.090)	(0.960)	(0.942)	(0.960)	(1.105)	(1.135)	(1.181)	(2.278)	(2.405)
Demo	0.158**	0.134*	0.218***	0.207**	0.211***	0.207**	0.220***	0.242**	0.224**	0.251**
	(0.064)	(0.074)	(0.078)	(0.096)	(0.077)	(0.095)	(0.083)	(0.100)	(0.099)	(0.115)
lPop	4.431***	4.319***	4.468***	4.381***	4.424***	4.380***	4.215***	3.998***	2.698**	2.443*
	(0.920)	(0.854)	(0.900)	(0.877)	(0.854)	(0.923)	(0.812)	(0.920)	(1.327)	(1.285)
Inequal			-18.081	-17.331	-17.659	-17.331	-17.550*	-17.499	-17.321*	-17.272
			(11.793)	(11.424)	(11.197)	(11.415)	(10.588)	(10.788)	(10.297)	(10.577)
EthnTens					-0.213	0.003	-0.140	0.517	-0.220*	0.170
					(0.216)	(0.686)	(0.189)	(0.732)	(0.117)	(0.519)
ReligTens							-0.361	-0.666	-0.126	-0.362
							(0.296)	(0.432)	(0.248)	(0.291)
NatRes									-0.017	-0.016
									(0.021)	(0.021)
Res		-0.129		-0.094		-0.093		-0.161		-0.459
		(0.244)		(0.215)		(0.220)		(0.171)		(0.410)
RESET	0.450	0.447	0.898	0.976	0.947	0.973	0.704	0.721	0.238	0.275
Obs	350	325	350	325	350	325	350	325	336	312
Groups	25	25	25	25	25	25	25	25	24	24

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of the population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *Pop* the logarithm of the population from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country-fixed effects.

Table 3.3: Fixed Effect Poisson Regression for Fragile Countries Affected by Major Conflicts

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contracts	1.511*	1.606*	1.501*	1.597*	1.362*	1.441	1.151	1.236	1.618	1.773
	(0.801)	(0.846)	(0.799)	(0.846)	(0.822)	(0.907)	(0.971)	(1.066)	(1.077)	(1.203)
Lgdpc	-1.180***	-1.157***	-1.178***	-1.155***	-1.098***	-1.047***	-0.989***	-0.887***	-0.072	0.419
	(0.308)	(0.301)	(0.317)	(0.312)	(0.317)	(0.305)	(0.291)	(0.280)	(0.684)	(0.804)
Edu	0.750***	0.664***	0.792***	0.717***	0.788***	0.697***	0.766***	0.644***	0.715**	0.557*
	(0.179)	(0.194)	(0.214)	(0.229)	(0.222)	(0.241)	(0.225)	(0.245)	(0.317)	(0.311)
Open	-0.441	-0.372	-0.399	-0.332	0.030	0.223	0.150	0.286	0.379	0.718
	(1.062)	(1.028)	(1.102)	(1.054)	(1.024)	(1.090)	(1.099)	(1.122)	(1.389)	(1.580)
Demo	0.122**	0.106	0.123**	0.109*	0.113*	0.122*	0.113*	0.141**	0.143**	0.197***
	(0.061)	(0.068)	(0.060)	(0.066)	(0.068)	(0.069)	(0.063)	(0.067)	(0.058)	(0.069)
lPop	4.195***	4.173***	4.108***	4.056***	3.992***	4.002***	3.728***	3.657***	2.635**	2.064*
	(0.658)	(0.526)	(0.692)	(0.594)	(0.589)	(0.514)	(0.529)	(0.495)	(1.049)	(1.137)
Inequal			-1.497	-2.046	-1.300	-1.870	-1.290	-1.866	-3.438	-4.191
			(6.539)	(6.560)	(6.170)	(6.374)	(6.146)	(6.391)	(6.101)	(6.252)
EthnTens					-0.464*	-0.567	-0.413*	-0.458	-0.459**	-0.641
					(0.246)	(0.438)	(0.219)	(0.417)	(0.189)	(0.390)
ReligTens							-0.250	-0.354	-0.104	-0.193
							(0.266)	(0.357)	(0.250)	(0.313)
NatRes									-0.010	-0.017
									(0.018)	(0.020)
Res		-0.111		-0.104		-0.141		-0.175		-0.824
		(0.206)		(0.201)		(0.196)		(0.159)		(0.581)
RESET	0.922	0.890	0.810	0.781	0.986	0.834	0.772	0.748	0.681	0.649
Obs	308	286	308	286	308	286	308	286	294	273
Groups	22	22	22	22	22	22	22	22	21	21

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of the population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *Pop* the logarithm of the population from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, *EthnTens and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Table 3.4: Fixed Effect Poisson Regression for Fragile Countries with more than One Main Religion

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contracts	2.967	2.478	2.290	1.940	2.983	2.611	5.498*	5.049	6.996**	6.314**
	(2.589)	(2.460)	(2.833)	(2.843)	(2.761)	(2.756)	(3.019)	(3.337)	(3.207)	(3.017)
Lgdpc	-1.529***	-1.500***	-1.397***	-1.382***	-1.164***	-1.139***	-0.775***	-0.772***	1.183	0.687
	(0.085)	(0.096)	(0.100)	(0.142)	(0.086)	(0.097)	(0.091)	(0.093)	(1.236)	(1.416)
Edu	0.724***	0.713***	0.244	0.298	0.151	0.200	0.385	0.478	0.270	0.338
	(0.266)	(0.265)	(0.347)	(0.416)	(0.331)	(0.392)	(0.339)	(0.367)	(0.224)	(0.233)
Open	1.852	1.626	0.968	0.949	1.100	1.056	2.649**	2.692**	5.594**	5.680***
	(1.629)	(1.818)	(1.730)	(2.010)	(1.235)	(1.401)	(1.096)	(1.234)	(2.208)	(2.116)
Demo	-0.154	-0.149	0.027	0.009	-0.067	-0.089	-0.008	-0.022	-0.204	-0.130
	(0.450)	(0.459)	(0.475)	(0.504)	(0.433)	(0.453)	(0.345)	(0.360)	(0.364)	(0.467)
lPop	8.302***	7.641***	9.569***	8.873***	10.13***	9.423***	8.132***	7.325***	7.177***	7.140***
	(2.892)	(2.709)	(2.969)	(2.827)	(3.021)	(2.928)	(2.561)	(2.530)	(1.495)	(1.774)
Inequal			6.753**	5.801	6.336**	5.446	3.837	2.530	-5.007	-5.272
			(3.225)	(3.921)	(3.058)	(3.930)	(2.968)	(3.355)	(5.637)	(5.997)
EthnTens					-1.264***	-1.467***	-0.589	-0.775*	-0.747**	-0.947***
					(0.487)	(0.513)	(0.404)	(0.403)	(0.323)	(0.302)
ReligTens							-2.128***	-2.186***	-0.827*	-0.820*
							(0.470)	(0.460)	(0.482)	(0.454)
NatRes									-0.059*	-0.058*
									(0.031)	(0.034)
Res		-0.108		-0.180		-0.144		0.135		3.213
		(0.133)		(0.178)		(0.095)		(0.125)		(3.582)
RESET	0.000	0.000	0.007	0.008	0.006	0.004	0.528	0.534	0.094	0.122
Obs	224	208	224	208	224	208	224	208	210	195
Groups	16	16	16	16	16	16	16	16	15	15

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of the population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *Pop* the logarithm of the population from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$*and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

3.4.4. The Other Robustness Checks

As robustness tests, we re-estimated our model on a sample incorporating less fragile countries (totaling a fragility index higher than 60) and on a sample of more fragile countries (whose score is higher than 80). This sensitivity analysis, which includes different panels of countries with different levels of fragility, confirms our results. Most of our explanatory

variables are significant and have the same sign as our initial estimates, which shows the robustness of our initial findings (see tables 3.A.6.1 to 3.A.6.8 and 3.A.7.1 to 3.A.7.8 in the Appendix).

A certain number of specificities are nevertheless interesting to highlight. We particularly note that the populations of the most fragile countries are more sensitive to an increase in their income than in the case of less fragile countries. In each of our subgroups, the estimated coefficient of the per capita GDP variable is higher than in our initial regressions. This constitutes an interesting result in terms of economic policy insofar as an improvement in the standard of living of the populations would contribute more to a de-escalation of violence in these particularly fragile developing countries. Another interesting result concerns the impact of demographic pressure, which would also be felt more in this group of most fragile countries. Therefore, countries that are both more fragile and more populous seem more prone to escalating violence.

About our sub-groups, it would appear that the most fragile Muslim countries are particularly vulnerable to political reforms, inequalities, and religious tensions, which would require the authorities to take great care and precautions in setting up policies. Political freedom seems to give even more voice in the case of these countries to extremists who instrumentalize religion in a context of already strong religious tensions. As for the fight against inequalities, on the other hand, it could offer, at the same time as the general improvement of the standard of living, a more efficient lever than in the less fragile Muslin countries to answer the frustrations and the demands of the populations, which would at the same time contribute to the de-escalation of violence.

This last conclusion could be extrapolated to our most fragile countries with more than one main religion, for which inequalities and the standard of living of populations also seem to be a particularly effective lever in the fight against violence. An interesting result concerning

these countries could also be to be able to play more than in the other groups on political reforms. We have already pointed out that the presence of countries with a more democratic tradition could explain that political freedoms do not seem to contribute, according to our previous estimates, to the escalation of violence in this group of countries. For the most fragile of them, it would seem from our new findings that democratic institutions could even help resolve tensions and, therefore, conflicts, although our results must be taken with caution because of fewer observations entering this new set of regressions.

As for our sample, which incorporates less fragile countries, our results do not seem significantly different from those obtained from our initial sample.

3.5 Conclusion of Chapter 3

This chapter uses Fixed Effect Poisson Regression (FEPR) with robust standard errors and instrumental variables (IV) to study the social, economic, and institutional determinants of conflict in 58 fragile developing countries divided into four groups. We explore different reasons for conflict in fragile countries and analyze different theories and empirical determinants.

We show that poverty and weak institutions (weak judicial system and, more generally, bad governance) are two crucial dimensions positively related to violence in our samples of fragile countries. These results are consistent with those of Collier and Hoeffler (2004), Lai (2007), and Ostby (2008), who show that low incomes are positively associated with civil conflict. When poverty is high, disadvantaged people are especially likely to resort to violence since the opportunity cost of using force and the cost of recruiting extremists are low. Our results are also consistent with those of LaFree et al. (2009) and Dezhbakhsh et al. (2003), who confirm the deterrent effect of the threat of sanctions. According to Freytag et al. (2011),

effective justice increases the opportunity cost and the risk of violence. Analysis of aggregate governance indicators (as a proxy for institutions) also shows that strong institutions reduce conflict.

On the other hand, education, trade liberalization, and democratic accountability do not help reduce violence in fragile developing countries. Our proxy variables show a positive relationship with conflict in the case of education and democratic institutions furthermore. These results confirm Berrebi (2007) and Brockhoff et al. (2015). They show that education in fragile countries can increase frustration if the situation of educated people does not improve, especially since they are more aware of the limits of their government. This conclusion can be extrapolated to democratic institutions, giving more means of expression to the discontented and the extremists, thus increasing the violence, as shown by Eubank and Winberg (1998) and Li and Schaub (2004). Our results imply that education and democratic reforms do not have the desired effects in fragile developing countries, which would probably first have to improve their population's social, economic, and institutional conditions before benefiting from political freedom and education. This can be the case for economic reforms since our indicator of trade openness does not seem related to conflict reduction.

Although this general pattern works reasonably well for most of our country groups, some groups experience somewhat different situations. This is the case for countries with more than one major religion, where the improvement of incomes and the efficiency of the justice system, on the one hand, the reduction of economic inequalities at the same time as ethnic and religious tensions, on the other hand, appear to be more effective in reducing violence than in other groups. For inequalities and income levels, this is mainly the case for the most fragile of them. These are interesting findings that governments could take into account to reduce the escalation of violence in these particularly fragile developing countries. Muslim countries also appear to be particularly sensitive to the deterrent effect of sanctions and, to a lesser extent, to

the improvement of income, notably in the most fragile of them as for inequalities, which, for governments, could be effective means of combating violence. However, countries with more than one main religion seem sensitive to the destabilizing effect of trade liberalization for vulnerable populations, and Muslim countries, particularly the most fragile ones, to that democratic improvement. When implementing political and economic reforms, these issues should also be considered to not fuel violence in these countries.

Conflicts in fragile developing countries cause great suffering for people and delays in development. If nothing is done, the World Bank (2018) predicts that by 2030 nearly half of the world's poor will live in fragile developing countries facing conflict situations. This study highlights some tools that governments could probably use to limit violence in their countries. Improving people's standard of living and restoring strong and reliable institutions are measures that could bear fruit in most fragile countries. These results are in line with the work of Burgoon (2006) and Freytag et al. (2011), who show that public spending and social protection policies can reduce violence, and George (2018), who suggests that in failed states, an effective counter-terrorism measure is to build reliable institutions. On the other hand, the question of the role of education, democratic institutions, and economic reforms is more complex to deal with in fragile states. If in the short term, these instruments do not seem to reduce conflicts and violence in the countries concerned, except in the case of the most fragile countries with more than one main religion where democratic institutions seem to help, it may be thought that the priority of fragile developing countries is to provide their populations with a stable economic, political, and institutional environment before these populations can benefit from more progressive reforms.

3.6 Appendices of Chapter 3

To include more information, we add 8 Appendixes here. Appendix 1 contains a list of variables and their sources, along with descriptive statistics of 4 groups of countries. Appendix 2 states the names of countries that were included in regressions. Appendix 3 presents the regression results on the whole samples of developing countries incorporating dummy variables corresponding to each of our country groups. Appendix 4 shows the results for the aggregate governance variable as a main explanatory variable. Appendix 5 and Appendix 6 depict the results for population density (in place of the population) with contracts and governance as the main explanatory variables. Appendix 6 presents results for regressions including less fragile countries, where the fragility index is higher than 60. Appendix 7 includes the results for more fragile countries relative to our baseline model. Lastly, Appendix 8 provides information on the principal component analysis for the governance variable.

3.6.1 Appendix 1

Table 3.A.1: List of Variables and their Sources

Variables	Sources	Names of variables
Annual Number of conflict-based incidents	Global terrorism database (GTD)	Confl
Time for Enforcing Contracts	Doing Business Database	Contracts
Log of GDP per capita	World Development Indicators (WDI)	GDPc
Governance	ICRG database	Gov
Top 10% share of pre-tax national income	World Inequality Database (WID)	Inequal
Mean year of education and human capital	From UNDP database and Penn World Table	H
Trade openness	World Development Indicators	Open
Democratic Accountability	ICRG	Demo
Population and population density	World Development Indicators	Pop
Ethnic and religious tensions	ICRG database	EthnTens and ReligTens
Natural Resources	World Development Indicators	NatRes

Table 3.A.1.1: Descriptive Statistics

Total Fragile Countries

Variables	Obs	Mean	Std. Dev.	Min	Max	Measurement Unit
Conflict	812	78.81	280.4	0.00	3367	Annual number of incidents
Contracts	812	1.86	0.84	0.62	4.00	Years
Gov	812	0.00	1.28	-4.13	2.96	PCA
Lgdpc	812	7.68	1.05	5.66	9.98	Log
Edu	812	6.49	2.62	1.30	12.30	Average
H	714	2.1	0.53	1.12	3.40	Index
Open	812	0.58	0.30	0.12	2.21	% of GDP
Demo	812	3.38	1.37	0.04	6.00	Average
Inequal	812	0.48	0.06	0.32	0.65	Ratio
lPop	812	17.07	1.39	13.52	21.05	Log
ReligTens	812	3.51	1.16	1.00	6.00	Average
EthnTens	812	4.01	1.41	0.83	6.00	Average
NatRes	799	12.14	13.59	0.00	67.92	% of GDP

Table 3.A.1.2: Descriptive Statistics

Fragile Muslim Countries

Variable	Obs	Mean	Std. Dev.	Min	Max	
Conflict	350	134.79	398.54	0.00	3367	Annual number of incidents
Contracts	350	1.78	0.70	0.65	3.95	years
Gov	350	0.00	1.38	-3.01	3.13	PCA
Lgdpc	350	7.72	1.09	5.66	9.98	Log
Edu	350	5.55	2.71	1.30	10.80	Average
H	294	1.91	0.47	1.12	2.87	Index
Open	350	0.52	0.21	0.12	1.23	% of GDP
Demo	350	3.13	1.29	0.04	5.50	Average
Inequal	350	0.47	0.05	0.34	0.58	Ratio
lPop	350	17.11	1.13	15.17	19.39	Log
ReligTens	350	3.44	1.23	1.00	6.00	Average
EthnTens	350	3.20	1.31	0.83	5.50	Average
NatRes	340	15.04	15.98	0.00	67.92	% of GDP

Table 3.A.1.3: Descriptive Statistics

Fragile Countries affected by major conflict

Variable	Obs	Mean	Std. Dev.	Min	Max	
Conflict	308	200.52	427.57	0.00	3367	Annual number of incidents
Contracts	308	2.16	0.94	0.73	3.96	years
Gov	308	0.00	1.33	-3.16	2.71	PCA
Lgdpc	308	7.82	0.99	5.66	9.61	Log
Edu	308	6.54	2.37	1.60	12.00	Average
H	280	2.12	0.49	1.16	3.40	Index
Open	308	0.46	0.18	0.12	1.18	% of GDP
Demo	308	3.49	1.40	0.50	6.00	Average
Inequal	308	0.48	0.05	0.38	0.58	Ratio
lPop	308	17.82	1.23	15.17	21.02	Log
ReligTens	308	3.05	1.29	1.00	6.00	Average
EthnTens	308	3.03	1.32	0.83	5.50	Average
NatRes	298	13.59	15.66	0.00	67.92	% of GDP

Table 3.A.1.4: Descriptive Statistics

Fragile Countries with more than One Main Religion

Variable	Obs	Mean	Std. Dev.	Min	Max	
Conflict	224	66.21	166.75	0.00	929	Annual number of incidents
Contracts	224	1.88	0.85	1.10	3.96	years
Gov	224	0.00	1.35	-3.23	2.61	PCA
Lgdpc	224	7.00	0.91	5.66	9.09	Log
Edu	224	5.62	2.32	1.30	11.00	Average
H	224	1.91	0.49	1.12	2.90	Index
Open	224	0.51	0.34	0.17	2.21	% of GDP
Demo	224	3.59	1.46	1.00	6.00	Average
Inequal	224	0.50	0.05	0.41	0.65	Ratio
lPop	224	17.55	1.36	15.17	21.02	Log
ReligTens	224	3.73	1.49	1.00	6.00	Average
EthTens	224	3.09	1.12	1.00	5.00	Average
NatRes	214	9.81	7.10	0.00	28.57	% of GDP

3.6.2 Appendix 2

Table 3.A.2: List of Countries

Total countries		**Countries with more than one main religion**	**Countries affected by major conflicts**	**Muslim countries**
Algeria	Madagascar	Burkina Faso	*Algeria*	Algeria
Angola	Mali	Cameroon	*Bangladesh*	Azerbaijan
Azerbaijan	Mexico	Demo Rep. of Congo	Colombia	Bangladesh
Bangladesh	Moldova	Ethiopia	Demo Rep. of Congo	Burkina Faso
Belarus	Morocco	Ghana	*Egypt*	Egypt Arab Rep.
Bolivia	Mozambique	India	India	Gambia
Burkina Faso	Nicaragua	Indonesia	*Indonesia*	Guinea
Cameroon	Niger	Kenya	*Iran*	Indonesia
China	Nigeria	Lebanon	*Iraq*	Iran Islamic Rep.
Colombia	Pakistan	Mozambique	Kenya	Iraq
Demo Rep. of Congo	Paraguay	Nigeria	*Lebanon*	Jordan
Dominican Rep.	Philippines	Sierra Leone	*Libya*	Lebanon
Ecuador	Rep. of Congo	Sri Lanka	*Mali*	Libya
Egypt Arab Rep.	Russia	Syria	*Nigeria*	Mali
Ethiopia	Saudi Arabia	Tanzania	*Pakistan*	Morocco
Gabon	Senegal	Togo	Philippines	Niger
Ghana	Sierra Leone	Uganda	Russia	Nigeria
Guatemala	Sri Lanka	Vietnam	Sri Lanka	Pakistan
Guinea	Sudan		*Sudan*	Saudi Arabia
Guyana	Syrian Arab Rep.		*Syria*	Senegal
Honduras	Tanzania		*Turkey*	Sierra Leone
India	Tunisia		*Yemen*	Sudan
Indonesia	Turkey			Syria
Iran Islamic Rep.	Uganda			Tunisia
Iraq	Ukraine			Turkey
Jordan	Venezuela			Yemen Rep.
Kenya	Vietnam			
Lebanon	Yemen Rep.			
Libya	Zimbabwe			

3.6.3 Appendix 3

Regressions on the Whole Sample of Developing Countries

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.3.1: Fixed Effect Poisson Regression for Total Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contracts	-0.895	-0.981	-0.774	-0.867	-1.235	-1.204	-1.218	-1.209	-1.166	-1.083
	(0.787)	(0.910)	(0.582)	(0.699)	(0.968)	(0.898)	(1.003)	(0.937)	(0.965)	(0.852)
ContrFrag	2.247**	2.385*	2.119**	2.263**	2.448**	2.444**	2.218	2.245	2.578*	2.618*
	(1.099)	(1.219)	(0.960)	(1.070)	(1.245)	(1.246)	(1.353)	(1.375)	(1.382)	(1.378)
lgdpc	1.965**	1.694	1.865**	1.606	2.613***	2.741**	1.847	2.319	2.208	3.197*
	(0.934)	(1.218)	(0.934)	(1.253)	(0.969)	(1.367)	(1.488)	(1.613)	(1.649)	(1.763)
lgdpcFrag	-3.13***	-2.867**	-3.027***	-2.777**	-3.703***	-3.816***	-2.821*	-3.239**	-2.389	-3.149*
	(0.986)	(1.202)	(0.988)	(1.235)	(1.021)	(1.334)	(1.516)	(1.595)	(1.764)	(1.680)
Edu	0.251*	0.155	0.248	0.153	0.334**	0.234	0.324**	0.227	0.294*	0.133
	(0.151)	(0.170)	(0.160)	(0.176)	(0.158)	(0.196)	(0.154)	(0.186)	(0.159)	(0.212)
EduFrag	0.508**	0.525**	0.542**	0.570**	0.456*	0.474*	0.443*	0.430	0.457	0.499
	(0.230)	(0.220)	(0.261)	(0.260)	(0.265)	(0.280)	(0.265)	(0.285)	(0.335)	(0.325)
Open	0.251	-0.009	0.277	0.021	0.633	0.492	0.480	0.428	0.233	0.112
	(1.720)	(1.857)	(1.684)	(1.822)	(1.516)	(1.799)	(1.665)	(1.824)	(1.515)	(1.713)
OpenFrag	-0.571	-0.204	-0.560	-0.195	-0.500	-0.121	-0.218	0.010	0.336	0.843
	(1.989)	(2.099)	(1.981)	(2.085)	(1.801)	(2.079)	(1.969)	(2.120)	(2.032)	(2.280)
Demo	0.338***	0.304**	0.336***	0.302**	0.261**	0.278**	0.244**	0.265**	0.239**	0.275**
	(0.122)	(0.123)	(0.119)	(0.123)	(0.126)	(0.126)	(0.121)	(0.127)	(0.119)	(0.124)
DemoFrag	-0.224*	-0.211	-0.222*	-0.208	-0.157	-0.171	-0.139	-0.139	-0.111	-0.106
	(0.135)	(0.140)	(0.131)	(0.138)	(0.142)	(0.143)	(0.134)	(0.142)	(0.130)	(0.140)
Inequal			-2.021	-1.703	-4.491	-4.076	-3.485	-3.506	-3.810	-3.391
			(4.163)	(3.678)	(4.145)	(3.811)	(3.974)	(3.715)	(4.138)	(3.921)
IneqFrag			0.810	0.046	3.456	2.581	2.440	1.995	0.769	-0.198
			(7.589)	(7.372)	(7.287)	(7.304)	(7.173)	(7.272)	(7.230)	(7.391)
lPop	5.315**	5.662**	5.336**	5.680**	4.205	4.603	4.194	4.515	5.268**	5.914**
	(2.354)	(2.442)	(2.388)	(2.463)	(2.561)	(2.839)	(2.574)	(2.840)	(2.170)	(2.360)
PopFrag	-0.996	-1.323	-1.083	-1.430	-0.063	-0.405	-0.343	-0.665	-2.461	-3.499
	(2.455)	(2.513)	(2.496)	(2.548)	(2.637)	(2.892)	(2.635)	(2.882)	(2.393)	(2.586)
EthnTens					-0.263***	-0.233*	-0.187	-0.196	-0.211	-0.234
					(0.065)	(0.136)	(0.132)	(0.154)	(0.151)	(0.172)
EthTenFrag					-0.190	-0.327	-0.207	-0.244	-0.228	-0.363
					(0.232)	(0.407)	(0.239)	(0.395)	(0.230)	(0.358)
ReligTens							-0.167	-0.105	-0.108	-0.003
							(0.146)	(0.087)	(0.190)	(0.120)
RelTenFrag							-0.110	-0.264	0.014	-0.176
							(0.297)	(0.348)	(0.299)	(0.311)
NatRes									0.047	0.056
									(0.040)	(0.035)
NatResFrag									-0.059	-0.073*
									(0.043)	(0.040)
Res		-0.492		-0.480		-0.583		-0.692		-1.564
		(0.741)		(0.741)		(0.743)		(0.638)		(1.135)
Obs	1,185	1,107	1,185	1,107	1,185	1,107	1,185	1,107	1,168	1,091
Groups	88	88	88	88	88	88	88	88	87	87

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *Pop* the logarithm of population from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, *EthnTens*,*and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.3.2: Fixed Effect Poisson Regression for Muslim Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contracts	-0.848	-0.976	-1.299	-1.482	-1.722	-1.860	-1.575	-1.805	-1.541	-1.899
	(1.120)	(1.194)	(0.928)	(1.009)	(1.236)	(1.283)	(1.099)	(1.243)	(1.116)	(1.334)
ContrFrag	3.273**	3.456**	4.123***	4.387***	4.427***	4.766***	4.032***	4.557***	4.181***	4.713***
	(1.379)	(1.470)	(1.312)	(1.416)	(1.535)	(1.637)	(1.503)	(1.707)	(1.538)	(1.770)
Lgdpc	-0.282	-0.397	-0.437	-0.620	-0.425*	-0.572*	-0.486*	-0.598	-0.783	-1.136
	(0.280)	(0.320)	(0.276)	(0.472)	(0.225)	(0.343)	(0.250)	(0.397)	(0.851)	(0.910)
lgdpcFrag	-0.969**	-0.787*	-0.755*	-0.507	-0.720**	-0.553	-0.523	-0.315	0.400	1.001
	(0.388)	(0.404)	(0.389)	(0.542)	(0.361)	(0.437)	(0.366)	(0.479)	(1.224)	(1.163)
Edu	0.185	0.099	0.097	-0.015	0.181	0.063	0.120	0.051	0.183	0.094
	(0.197)	(0.174)	(0.224)	(0.195)	(0.243)	(0.219)	(0.242)	(0.219)	(0.187)	(0.175)
EduFrag	0.406	0.413	0.390	0.429	0.298	0.349	0.289	0.214	0.383	0.319
	(0.446)	(0.458)	(0.485)	(0.498)	(0.490)	(0.532)	(0.501)	(0.571)	(0.552)	(0.573)
Open	0.397	0.480	0.119	0.142	0.349	0.461	0.042	0.350	-0.074	0.202
	(1.039)	(1.101)	(0.994)	(1.035)	(1.028)	(1.187)	(1.117)	(1.200)	(1.087)	(1.180)
OpenFrag	-0.479	-0.625	-0.330	-0.415	-0.420	-0.731	0.293	-0.382	0.896	0.222
	(1.538)	(1.547)	(1.382)	(1.400)	(1.406)	(1.620)	(1.593)	(1.679)	(2.524)	(2.684)
Demo	0.163*	0.121	0.128	0.066	0.037	-0.021	0.068	-0.002	0.053	-0.008
	(0.089)	(0.106)	(0.108)	(0.127)	(0.106)	(0.163)	(0.113)	(0.164)	(0.134)	(0.161)
DemoFrag	-0.006	0.017	0.090	0.145	0.174	0.232	0.152	0.246	0.171	0.262
	(0.110)	(0.131)	(0.133)	(0.160)	(0.131)	(0.190)	(0.140)	(0.192)	(0.166)	(0.199)
Inequal			3.791**	4.728***	3.578	4.257**	4.556***	4.596**	5.008**	5.937**
			(1.912)	(1.804)	(2.188)	(2.105)	(1.714)	(1.949)	(2.163)	(2.442)
IneqFrag			-21.872*	-22.011*	-21.236*	-21.534*	-22.107**	-22.004**	-22.328**	-23.083**
			(11.947)	(11.525)	(11.409)	(11.554)	(10.726)	(10.904)	(10.522)	(10.840)
lPop	9.038***	9.451***	9.131***	9.726***	8.397***	9.136***	8.504***	9.025***	8.765***	9.897***
	(1.745)	(1.390)	(1.769)	(1.439)	(1.832)	(1.483)	(1.841)	(1.490)	(2.003)	(1.898)
PopFrag	-4.607**	-5.113***	-4.663**	-5.327***	-3.973**	-4.733***	-4.290**	-5.001***	-6.067**	-7.487***
	(1.973)	(1.662)	(1.985)	(1.714)	(2.021)	(1.785)	(2.012)	(1.786)	(2.402)	(2.269)
EthnTens					-0.230**	-0.199	-0.149	-0.174	-0.140	-0.144
					(0.113)	(0.181)	(0.160)	(0.187)	(0.156)	(0.179)
EthTenFrag					0.017	0.194	0.009	0.693	-0.080	0.298
					(0.244)	(0.707)	(0.248)	(0.755)	(0.195)	(0.552)
ReligTens							-0.388***	-0.383**	-0.407***	-0.410**
							(0.114)	(0.186)	(0.120)	(0.200)
RelTenFrag							0.028	-0.295	0.282	0.018
							(0.317)	(0.471)	(0.275)	(0.360)
NatRes									0.004	-0.016
									(0.053)	(0.056)
NatResFrag									-0.021	-0.000
									(0.057)	(0.060)
Res		-0.210		-0.157		-0.163		-0.226		-0.792
		(0.280)		(0.239)		(0.244)		(0.192)		(0.630)
Obs	1,185	1,107	1,185	1,107	1,185	1,107	1,185	1,107	1,168	1,091
Groups	88	88	88	88	88	88	88	88	87	87

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *Pop* the logarithm of population from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, *EthnTens*,*and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.3.3: Fixed Effect Poisson Regression for Fragile Countries Affected by Major Conflicts

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contracts	-0.532	-0.465	-0.626	-0.585	-0.894	-0.822	-0.660	-0.760	-0.107	-0.194
	(0.838)	(0.793)	(0.850)	(0.836)	(1.027)	(0.970)	(0.993)	(0.984)	(0.886)	(0.810)
ContrFrag	2.043*	2.071*	2.127*	2.180*	2.256*	2.255*	1.812	1.972	1.725	1.905
	(1.159)	(1.149)	(1.166)	(1.181)	(1.316)	(1.320)	(1.388)	(1.443)	(1.394)	(1.420)
Lgdpc	-0.272	-0.304	-0.274	-0.308	-0.261	-0.278	-0.357*	-0.334	-0.400	-0.581
	(0.200)	(0.241)	(0.202)	(0.236)	(0.191)	(0.212)	(0.183)	(0.227)	(0.998)	(1.189)
lgdpcFrag	-0.908**	-0.846**	-0.904**	-0.840**	-0.837**	-0.764**	-0.632*	-0.546	0.329	0.726
	(0.367)	(0.358)	(0.376)	(0.363)	(0.370)	(0.331)	(0.344)	(0.335)	(1.211)	(1.277)
Edu	0.799**	0.595	0.826*	0.629	0.922**	0.736	0.688	0.636	0.666	0.560
	(0.394)	(0.367)	(0.441)	(0.414)	(0.464)	(0.462)	(0.506)	(0.453)	(0.553)	(0.411)
EduFrag	-0.049	0.063	-0.034	0.080	-0.134	-0.046	0.078	0.000	0.049	0.014
	(0.432)	(0.415)	(0.490)	(0.474)	(0.515)	(0.523)	(0.554)	(0.518)	(0.638)	(0.509)
Open	0.709	0.597	0.670	0.531	0.874	0.833	0.411	0.705	1.929	2.551
	(1.019)	(1.307)	(0.948)	(1.218)	(0.926)	(1.314)	(1.186)	(1.373)	(1.623)	(2.065)
OpenFrag	-1.150	-0.988	-1.069	-0.883	-0.844	-0.628	-0.261	-0.437	-1.550	-1.973
	(1.472)	(1.666)	(1.454)	(1.613)	(1.381)	(1.708)	(1.618)	(1.772)	(2.136)	(2.595)
Demo	0.204***	0.153	0.198***	0.145	0.142*	0.103	0.167*	0.114	0.135**	0.045
	(0.064)	(0.103)	(0.073)	(0.111)	(0.083)	(0.143)	(0.087)	(0.145)	(0.068)	(0.150)
DemoFrag	-0.082	-0.045	-0.075	-0.035	-0.029	0.020	-0.053	0.028	0.007	0.146
	(0.088)	(0.124)	(0.095)	(0.130)	(0.107)	(0.161)	(0.108)	(0.160)	(0.089)	(0.168)
Inequal			2.428	3.090	0.923	1.439	3.551	2.581	2.184	1.478
			(6.941)	(6.586)	(7.288)	(6.332)	(6.482)	(6.126)	(5.822)	(5.106)
IneqFrag			-3.925	-5.061	-2.223	-3.233	-4.841	-4.380	-5.622	-5.600
			(9.536)	(9.283)	(9.549)	(8.975)	(8.932)	(8.845)	(8.433)	(8.109)
lPop	5.949**	6.991**	5.858**	6.851**	5.490*	6.520**	5.737**	6.435**	4.387	5.066*
	(2.811)	(2.719)	(2.852)	(2.760)	(2.976)	(2.975)	(2.926)	(2.899)	(2.939)	(2.682)
PopFrag	-1.754	-2.824	-1.751	-2.799	-1.498	-2.515	-2.009	-2.777	-1.751	-2.903
	(2.887)	(2.766)	(2.935)	(2.819)	(3.034)	(3.017)	(2.973)	(2.937)	(3.121)	(2.866)
EthnTens					-0.160**	-0.131	-0.037	-0.083	-0.073	-0.115
					(0.067)	(0.113)	(0.097)	(0.116)	(0.083)	(0.112)
EthTenFrag					-0.304	-0.433	-0.376	-0.369	-0.386*	-0.491
					(0.255)	(0.451)	(0.240)	(0.431)	(0.206)	(0.400)
ReligTens							-0.384***	-0.325**	-0.361***	-0.383**
							(0.120)	(0.158)	(0.111)	(0.178)
RelTenFrag							0.133	-0.032	0.257	0.185
							(0.292)	(0.393)	(0.274)	(0.361)
NatRes									-0.109*	-0.132*
									(0.059)	(0.075)
NatResFrag									0.099	0.118
									(0.062)	(0.077)
Res		-0.195		-0.190		-0.230		-0.258		-1.166
		(0.250)		(0.248)		(0.253)		(0.214)		(0.785)
Obs	1,185	1,107	1,185	1,107	1,185	1,107	1,185	1,107	1,168	1,091
Groups	88	88	88	88	88	88	88	88	87	87

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *Pop* the logarithm of population from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.3.4: Fixed Effect Poisson Regression for Fragile Countries with more than One Main Religion.

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contracts	1.190	1.310	1.658	1.737	1.470	1.723	1.382	1.586	1.365	1.627
	(0.875)	(0.923)	(1.073)	(1.111)	(1.119)	(1.165)	(1.145)	(1.223)	(1.166)	(1.254)
ContrFrag	1.777	1.184	0.632	0.188	1.513	0.858	4.117	3.111	5.631*	4.861
	(2.733)	(2.621)	(3.029)	(3.074)	(2.979)	(3.023)	(3.229)	(3.730)	(3.412)	(3.484)
Lgdpc	-0.365	-0.326	-0.456	-0.394	-0.446	-0.400	-0.356	-0.279	-0.305	0.085
	(0.630)	(0.697)	(0.644)	(0.702)	(0.655)	(0.695)	(0.625)	(0.599)	(0.634)	(0.746)
lgdpcFrag	-1.165*	-1.151*	-0.941	-0.978	-0.718	-0.728	-0.419	-0.497	1.487	0.789
	(0.635)	(0.674)	(0.652)	(0.681)	(0.661)	(0.680)	(0.632)	(0.608)	(1.389)	(1.533)
Edu	0.733**	0.611**	0.579*	0.484	0.609*	0.486	0.529	0.374	0.572	0.390
	(0.287)	(0.281)	(0.340)	(0.331)	(0.332)	(0.327)	(0.327)	(0.339)	(0.366)	(0.377)
EduFrag	-0.009	0.087	-0.335	-0.193	-0.458	-0.301	-0.143	0.024	-0.301	-0.020
	(0.391)	(0.381)	(0.486)	(0.519)	(0.469)	(0.503)	(0.471)	(0.499)	(0.429)	(0.448)
Open	-1.075	-1.031	-1.051	-1.042	-0.881	-1.030	-0.829	-0.940	-0.608	-0.654
	(0.969)	(1.024)	(0.826)	(0.878)	(0.837)	(0.939)	(0.866)	(0.956)	(1.153)	(1.281)
OpenFrag	2.926	2.618	2.019	1.962	1.982	2.036	3.479**	3.335**	6.202**	6.088**
	(1.895)	(2.090)	(1.918)	(2.158)	(1.492)	(1.670)	(1.397)	(1.536)	(2.491)	(2.654)
Demo	0.126***	0.112**	0.206***	0.201***	0.188***	0.200***	0.201***	0.230***	0.208**	0.248***
	(0.040)	(0.047)	(0.065)	(0.068)	(0.065)	(0.069)	(0.074)	(0.077)	(0.086)	(0.091)
DemoFrag	-0.280	-0.262	-0.179	-0.188	-0.255	-0.284	-0.209	-0.243	-0.412	-0.522
	(0.452)	(0.463)	(0.479)	(0.510)	(0.438)	(0.460)	(0.352)	(0.377)	(0.374)	(0.405)
Inequal			-15.702	-14.623	-15.250	-14.632	-15.017	-14.697	-14.954	-14.341
			(13.137)	(13.018)	(12.783)	(13.003)	(12.665)	(12.669)	(12.571)	(12.678)
IneqFrag			22.455*	20.575	21.586	20.296	18.854	17.997	9.946	9.749
			(13.527)	(13.561)	(13.143)	(13.543)	(13.008)	(13.092)	(13.777)	(14.215)
lPop	3.044***	3.125***	3.499***	3.529***	3.425***	3.537***	3.235***	3.306***	2.672**	2.441*
	(0.882)	(0.953)	(1.016)	(1.081)	(0.961)	(1.061)	(0.847)	(0.847)	(1.212)	(1.284)
PopFrag	5.257*	4.555	6.070*	5.385*	6.708**	5.940*	4.897*	4.241	4.505**	4.054**
	(3.023)	(2.860)	(3.138)	(3.035)	(3.170)	(3.128)	(2.697)	(2.702)	(1.924)	(1.988)
EthnTens					-0.142	-0.007	-0.102	0.044	-0.135	-0.003
					(0.094)	(0.125)	(0.105)	(0.123)	(0.100)	(0.122)
EthTenFrag					-1.123**	-1.457***	-0.487	-0.836**	-0.612*	-0.981***
					(0.496)	(0.524)	(0.417)	(0.424)	(0.338)	(0.343)
ReligTens							-0.258	-0.377	-0.195	-0.319
							(0.182)	(0.267)	(0.194)	(0.248)
RelTenFrag							-1.870***	-1.715***	-0.632	-0.560
							(0.504)	(0.516)	(0.519)	(0.518)
NatRes									-0.009	-0.012
									(0.018)	(0.019)
NatResFrag									-0.050	-0.054
									(0.035)	(0.037)
Res		-0.286		-0.247		-0.228		-0.142		-0.641
		(0.300)		(0.262)		(0.240)		(0.191)		(0.493)
Obs	1,185	1,107	1,185	1,107	1,185	1,107	1,185	1,107	1,168	1,091
Groups	88	88	88	88	88	88	88	88	87	87

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *Pop* the logarithm of population from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, *EthnTens*, *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

3.6.4 Appendix 4

Regressions with the Aggregated Indicator of Governance

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.4.1: Fixed Effect Poisson Regression for Total Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Gov	-0.276	-0.334**	-0.290*	-0.352**	-0.327**	-0.345**	-0.347**	-0.383**	-0.419**	-0.474**
	(0.194)	(0.167)	(0.176)	(0.163)	(0.154)	(0.156)	(0.165)	(0.172)	(0.176)	(0.190)
Lgdpc	-1.082***	-1.053***	-1.073***	-1.044***	-0.969***	-0.936***	-0.800***	-0.699**	0.200	0.686
	(0.304)	(0.282)	(0.316)	(0.298)	(0.307)	(0.292)	(0.310)	(0.311)	(0.621)	(0.698)
Edu	0.772***	0.697***	0.822***	0.758***	0.809***	0.738***	0.769***	0.657***	0.745***	0.604**
	(0.165)	(0.180)	(0.223)	(0.235)	(0.214)	(0.229)	(0.212)	(0.235)	(0.284)	(0.281)
Open	-0.244	-0.098	-0.175	-0.027	0.299	0.546	0.485	0.657	0.803	1.144
	(0.965)	(0.961)	(1.020)	(1.005)	(0.928)	(0.991)	(1.021)	(1.016)	(1.248)	(1.332)
Demo	0.148*	0.123	0.151*	0.128*	0.143*	0.139*	0.151**	0.176**	0.184***	0.233***
	(0.088)	(0.081)	(0.082)	(0.074)	(0.084)	(0.077)	(0.074)	(0.076)	(0.068)	(0.073)
lPop	4.369***	4.382***	4.269***	4.253***	4.176***	4.203***	3.799***	3.727***	2.526**	1.960
	(0.717)	(0.633)	(0.773)	(0.709)	(0.671)	(0.615)	(0.622)	(0.575)	(1.200)	(1.259)
Inequal			-2.003	-2.642	-1.857	-2.446	-1.915	-2.544	-4.367	-5.125
			(6.508)	(6.680)	(6.212)	(6.464)	(6.174)	(6.455)	(6.413)	(6.653)
EthnTens					-0.489**	-0.578	-0.418**	-0.423	-0.466***	-0.574*
					(0.217)	(0.383)	(0.198)	(0.383)	(0.172)	(0.319)
ReligTens							-0.351	-0.480	-0.210	-0.320
							(0.230)	(0.310)	(0.218)	(0.263)
NatRes									-0.013	-0.019
									(0.016)	(0.018)
Res		-0.116		-0.108		-0.140		-0.170		-0.927*
		(0.192)		(0.186)		(0.194)		(0.186)		(0.538)
RESET	0.405	0.366	0.398	0.377	0.325	0.442	0.511	0.478	0.058	0.025
Obs	812	754	812	754	812	754	812	754	795	738
Groups	58	58	58	58	58	58	58	58	57	57

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *Popd* the logarithm of population from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.4.2: Fixed Effect Poisson Regression for Muslim Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Gov	-0.349*	-0.438***	-0.437***	-0.507***	-0.466***	-0.506***	-0.531***	-0.643***	-0.674***	-0.759***
	(0.199)	(0.168)	(0.157)	(0.168)	(0.154)	(0.172)	(0.122)	(0.130)	(0.119)	(0.131)
Lgdpc	-1.234***	-1.190***	-1.169***	-1.140***	-1.076***	-1.129***	-0.812***	-0.757**	0.289	0.604
	(0.223)	(0.207)	(0.208)	(0.211)	(0.216)	(0.264)	(0.241)	(0.300)	(0.792)	(0.749)
Edu	0.839**	0.819**	0.791**	0.785**	0.757**	0.778*	0.596*	0.517	0.860*	0.715
	(0.326)	(0.348)	(0.347)	(0.358)	(0.344)	(0.431)	(0.354)	(0.463)	(0.444)	(0.478)
Open	0.341	0.514	0.327	0.480	0.568	0.508	1.306	1.066	2.029	1.822
	(0.967)	(0.969)	(0.878)	(0.899)	(0.904)	(1.124)	(0.948)	(1.068)	(1.661)	(1.760)
Demo	0.169**	0.134*	0.228***	0.196**	0.220***	0.197**	0.251***	0.276***	0.273***	0.313***
	(0.085)	(0.079)	(0.079)	(0.089)	(0.075)	(0.086)	(0.074)	(0.086)	(0.090)	(0.101)
lPop	4.248***	4.160***	4.247***	4.157***	4.243***	4.164***	4.023***	3.750***	1.498	1.216
	(0.914)	(0.873)	(0.892)	(0.849)	(0.849)	(0.928)	(0.703)	(0.819)	(1.328)	(1.113)
Inequal			-19.134	-18.053	-18.538	-18.032	-18.724	-18.882	-18.889*	-18.740
			(13.445)	(12.907)	(12.511)	(12.828)	(11.388)	(11.942)	(11.359)	(11.706)
EthnTens					-0.310	-0.037	-0.218	0.688	-0.359***	0.125
					(0.224)	(0.753)	(0.193)	(0.768)	(0.116)	(0.559)
ReligTens							-0.540**	-0.938***	-0.298	-0.598**
							(0.249)	(0.337)	(0.229)	(0.249)
NatRes									-0.025	-0.024
									(0.018)	(0.016)
Res		-0.038		0.018		0.015		-0.034		-0.557**
		(0.185)		(0.137)		(0.147)		(0.128)		(0.281)
RESET	0.450	0.141	0.056	0.016	0.031	0.018	0.095	0.009	0.000	0.000
Obs	350	325	350	325	350	325	350	325	336	312
Groups	25	25	25	25	25	25	25	25	24	24

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *Popd* the logarithm of population from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.4.3: Fixed Effect Poisson Regression for Fragile Countries Affected by Major Conflicts

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Gov	-0.218	-0.270	-0.233	-0.289*	-0.279*	-0.289*	-0.304*	-0.333*	-0.399**	-0.452**
	(0.201)	(0.168)	(0.184)	(0.165)	(0.160)	(0.157)	(0.176)	(0.183)	(0.184)	(0.197)
Lgdpc	-1.133***	-1.101***	-1.123***	-1.092***	-1.004***	-0.967***	-0.830***	-0.714**	0.307	0.856
	(0.293)	(0.269)	(0.304)	(0.285)	(0.298)	(0.281)	(0.315)	(0.330)	(0.673)	(0.737)
Edu	0.779***	0.701***	0.835***	0.770***	0.817***	0.741***	0.773***	0.652**	0.713**	0.546*
	(0.164)	(0.179)	(0.227)	(0.240)	(0.218)	(0.238)	(0.220)	(0.253)	(0.299)	(0.298)
Open	-0.378	-0.270	-0.306	-0.201	0.200	0.408	0.387	0.527	0.657	0.967
	(1.035)	(1.019)	(1.084)	(1.056)	(0.986)	(1.057)	(1.073)	(1.075)	(1.289)	(1.425)
Demo	0.140	0.121	0.144*	0.126*	0.139*	0.141*	0.148**	0.179**	0.189***	0.254***
	(0.089)	(0.081)	(0.083)	(0.075)	(0.084)	(0.077)	(0.073)	(0.077)	(0.068)	(0.075)
lPop	4.255***	4.241***	4.141***	4.092***	4.046***	4.045***	3.682***	3.570***	2.354*	1.690
	(0.691)	(0.566)	(0.749)	(0.654)	(0.632)	(0.561)	(0.573)	(0.528)	(1.223)	(1.305)
Inequal			-2.146	-2.808	-2.001	-2.594	-2.040	-2.671	-4.684	-5.504
			(6.631)	(6.803)	(6.325)	(6.575)	(6.292)	(6.576)	(6.551)	(6.788)
EthnTens					-0.513**	-0.609	-0.448**	-0.465	-0.506***	-0.657*
					(0.243)	(0.441)	(0.220)	(0.439)	(0.186)	(0.394)
ReligTens							-0.338	-0.476	-0.246	-0.393
							(0.239)	(0.332)	(0.228)	(0.281)
NatRes									-0.011	-0.017
									(0.017)	(0.019)
Res		-0.070		-0.061		-0.100		-0.136		-0.843*
		(0.166)		(0.158)		(0.159)		(0.142)		(0.451)
RESET	0.564	0.527	0.571	0.532	0.445	0.584	0.672	0.645	0.075	0.030
Obs	308	286	308	286	308	286	308	286	294	273
Groups	22	22	22	22	22	22	22	22	21	21

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *Popd* the logarithm of population from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.4.4: Fixed Effect Poisson Regression for Fragile Countries with more than One Main Religion

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Lgdpc	-1.385***	-1.327***	-1.291***	-1.270***	-1.089***	-1.055***	-0.757***	-0.746***	0.974	0.473
	(0.176)	(0.208)	(0.190)	(0.215)	(0.134)	(0.140)	(0.126)	(0.122)	(1.212)	(1.340)
Gov	-0.412	-0.572	-0.332	-0.458	-0.277	-0.393	-0.139	-0.230	0.108	0.076
	(0.425)	(0.474)	(0.406)	(0.485)	(0.355)	(0.444)	(0.277)	(0.391)	(0.268)	(0.360)
Edu	0.701***	0.706***	0.262	0.388	0.162	0.277	0.363	0.488	0.253	0.346
	(0.259)	(0.249)	(0.313)	(0.355)	(0.305)	(0.375)	(0.329)	(0.387)	(0.250)	(0.244)
Open	1.393	0.990	0.638	0.576	0.767	0.694	2.242**	2.234*	5.208**	5.256**
	(1.882)	(2.094)	(1.895)	(2.128)	(1.371)	(1.488)	(1.115)	(1.285)	(2.241)	(2.237)
Demo	-0.096	-0.121	0.061	-0.000	-0.018	-0.080	0.036	-0.009	-0.107	-0.050
	(0.450)	(0.461)	(0.448)	(0.485)	(0.411)	(0.435)	(0.347)	(0.379)	(0.387)	(0.461)
lPop	7.884***	7.016***	9.080***	8.048***	9.656***	8.630***	7.777***	6.838***	7.033***	6.951***
	(2.590)	(2.411)	(2.772)	(2.674)	(2.818)	(2.859)	(2.436)	(2.539)	(1.687)	(2.019)
Inequal			6.388**	4.604	6.270**	4.609	4.340	2.575	-3.435	-3.938
			(2.526)	(3.313)	(2.657)	(3.801)	(3.081)	(3.918)	(5.912)	(6.426)
EthnTens					-1.175**	-1.378***	-0.572	-0.764*	-0.718**	-0.904***
					(0.486)	(0.510)	(0.406)	(0.397)	(0.333)	(0.300)
ReligTens							-1.994***	-2.044***	-0.767	-0.813
							(0.477)	(0.433)	(0.566)	(0.554)
NatRes									-0.053*	-0.051
									(0.031)	(0.032)
Res		-0.011		-0.093		-0.074		0.139		3.231
		(0.099)		(0.132)		(0.100)		(0.153)		(3.393)
RESET	0.010	0.062	0.160	0.196	0.098	0.067	0.606	0.676	0.562	0.437
Obs	224	208	224	208	224	208	224	208	210	195
Groups	16	16	16	16	16	16	16	16	15	15

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *Popd* the logarithm of population from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

3.6.5 Appendix 5

Regressions with the Variables Density of Population and "Time for Enforcing Contracts"

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.5.1: Fixed Effect Poisson Regression for Total Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contracts	1.357*	1.423*	1.349*	1.414*	1.217	1.260	1.011	1.063	1.418	1.569
	(0.769)	(0.832)	(0.765)	(0.829)	(0.785)	(0.885)	(0.911)	(1.026)	(0.991)	(1.129)
Lgdpc	-1.165***	-1.152***	-1.163***	-1.150***	-1.090***	-1.049***	-0.977***	-0.894***	-0.187	0.254
	(0.314)	(0.302)	(0.322)	(0.311)	(0.320)	(0.306)	(0.292)	(0.275)	(0.623)	(0.747)
Edu	0.762***	0.683***	0.794***	0.725***	0.792***	0.709***	0.772***	0.661***	0.756**	0.620**
	(0.174)	(0.184)	(0.206)	(0.216)	(0.213)	(0.226)	(0.214)	(0.227)	(0.294)	(0.286)
Open	-0.325	-0.226	-0.288	-0.187	0.134	0.366	0.256	0.430	0.559	0.965
	(1.005)	(0.982)	(1.050)	(1.017)	(0.979)	(1.041)	(1.057)	(1.079)	(1.361)	(1.508)
Demo	0.114**	0.094	0.115**	0.095	0.105*	0.107*	0.105*	0.127**	0.129**	0.168***
	(0.056)	(0.061)	(0.055)	(0.059)	(0.063)	(0.063)	(0.058)	(0.062)	(0.053)	(0.065)
lPopd	4.251***	4.260***	4.187***	4.172***	4.084***	4.122***	3.799***	3.778***	2.776***	2.265**
	(0.697)	(0.600)	(0.722)	(0.645)	(0.621)	(0.548)	(0.556)	(0.500)	(1.004)	(1.048)
Inequal			-1.222	-1.694	-1.040	-1.534	-1.056	-1.562	-3.047	-3.685
			(6.337)	(6.339)	(5.983)	(6.165)	(5.964)	(6.180)	(5.923)	(6.031)
EthnTens					-0.456**	-0.568	-0.397**	-0.448	-0.441**	-0.608*
					(0.223)	(0.383)	(0.199)	(0.364)	(0.173)	(0.318)
ReligTens							-0.268	-0.364	-0.089	-0.154
							(0.260)	(0.348)	(0.230)	(0.288)
NatRes									-0.012	-0.018
									(0.018)	(0.019)
Res		-0.146		-0.141		-0.174		-0.205		-0.898
		(0.225)		(0.222)		(0.222)		(0.191)		(0.656)
RESET	0.903	0.904	0.998	0.956	0.846	0.979	0.944	0.960	0.499	0.610
Obs	812	754	812	754	812	754	812	754	795	738
Groups	58	58	58	58	58	58	58	58	57	57

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.5.2: Fixed Effect Poisson Regression for Muslim Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contracts	2.453***	2.499***	2.867***	2.934***	2.747***	2.931***	2.499**	2.800**	2.667**	2.873**
	(0.819)	(0.901)	(0.944)	(1.041)	(0.926)	(1.052)	(1.040)	(1.206)	(1.070)	(1.184)
Lgdpc	-1.252***	-1.200***	-1.192***	-1.139***	-1.145***	-1.137***	-1.013***	-0.935***	-0.404	-0.107
	(0.268)	(0.284)	(0.273)	(0.293)	(0.282)	(0.304)	(0.264)	(0.287)	(0.882)	(0.937)
Edu	0.584	0.522	0.473	0.414	0.465	0.413	0.400	0.277	0.555	0.422
	(0.405)	(0.435)	(0.435)	(0.465)	(0.430)	(0.491)	(0.439)	(0.526)	(0.522)	(0.559)
Open	-0.075	-0.121	-0.194	-0.247	-0.051	-0.240	0.338	-0.016	0.821	0.447
	(1.143)	(1.097)	(0.967)	(0.949)	(0.966)	(1.110)	(1.143)	(1.187)	(2.295)	(2.420)
Demo	0.160**	0.137*	0.221***	0.211**	0.214***	0.211**	0.222***	0.245**	0.225**	0.251**
	(0.064)	(0.074)	(0.079)	(0.096)	(0.077)	(0.095)	(0.083)	(0.100)	(0.099)	(0.115)
lPopd	4.393***	4.290***	4.453***	4.371***	4.413***	4.372***	4.198***	3.985***	2.735**	2.456*
	(0.923)	(0.863)	(0.907)	(0.888)	(0.860)	(0.937)	(0.817)	(0.927)	(1.346)	(1.306)
Inequal			-18.215	-17.422	-17.786	-17.420	-17.680*	-17.566	-17.412*	-17.323
			(11.656)	(11.294)	(11.058)	(11.272)	(10.482)	(10.683)	(10.244)	(10.534)
EthnTens					-0.215	-0.010	-0.143	0.497	-0.219*	0.164
					(0.216)	(0.686)	(0.189)	(0.735)	(0.116)	(0.519)
ReligTens							-0.350	-0.653	-0.123	-0.358
							(0.298)	(0.437)	(0.247)	(0.292)
NatRes									-0.017	-0.016
									(0.022)	(0.021)
Res		-0.128		-0.093		-0.094		-0.158		-0.445
		(0.238)		(0.210)		(0.214)		(0.168)		(0.405)
RESET	0.257	0.224	0.960	0.967	0.902	0.962	0.929	0.920	0.651	0.619
Obs	350	325	350	325	350	325	350	325	336	312
Groups	25	25	25	25	25	25	25	25	24	24

<u>*Note*</u>: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$*and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.5.3: Fixed Effect Poisson Regression for Fragile Countries Affected by Major Conflicts

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contracts	1.519*	1.625*	1.509*	1.616*	1.369*	1.462	1.166	1.264	1.626	1.817
	(0.803)	(0.854)	(0.800)	(0.852)	(0.824)	(0.913)	(0.972)	(1.073)	(1.076)	(1.216)
Lgdpc	-1.180***	-1.159***	-1.178***	-1.157***	-1.098***	-1.049***	-0.993***	-0.894***	-0.079	0.405
	(0.308)	(0.298)	(0.317)	(0.309)	(0.316)	(0.301)	(0.290)	(0.276)	(0.681)	(0.796)
Edu	0.753***	0.666***	0.795***	0.719***	0.790***	0.698***	0.770***	0.648***	0.719**	0.560*
	(0.181)	(0.196)	(0.214)	(0.229)	(0.222)	(0.241)	(0.224)	(0.244)	(0.316)	(0.311)
Open	-0.448	-0.382	-0.404	-0.341	0.031	0.222	0.144	0.282	0.369	0.723
	(1.067)	(1.033)	(1.108)	(1.059)	(1.030)	(1.095)	(1.104)	(1.128)	(1.395)	(1.589)
Demo	0.123**	0.108	0.124**	0.110*	0.114*	0.123*	0.114*	0.142**	0.143**	0.195***
	(0.060)	(0.067)	(0.059)	(0.065)	(0.067)	(0.069)	(0.062)	(0.066)	(0.058)	(0.070)
lPopd	4.128***	4.117***	4.043***	4.001***	3.937***	3.958***	3.678***	3.623***	2.613**	2.036*
	(0.656)	(0.526)	(0.683)	(0.584)	(0.579)	(0.505)	(0.523)	(0.491)	(1.042)	(1.130)
Inequal			-1.505	-2.028	-1.302	-1.838	-1.298	-1.841	-3.439	-4.164
			(6.532)	(6.550)	(6.162)	(6.361)	(6.140)	(6.378)	(6.096)	(6.233)
EthnTens					-0.467*	-0.573	-0.418*	-0.466	-0.460**	-0.646*
					(0.246)	(0.438)	(0.219)	(0.416)	(0.189)	(0.390)
ReligTens							-0.241	-0.343	-0.100	-0.190
							(0.267)	(0.359)	(0.249)	(0.313)
NatRes									-0.010	-0.017
									(0.018)	(0.020)
Res		-0.109		-0.103		-0.138		-0.171		-0.814
		(0.200)		(0.196)		(0.191)		(0.156)		(0.573)
RESET	0.946	0.949	0.823	0.794	0.981	0.874	0.880	0.871	0.720	0.729
Obs	308	286	308	286	308	286	308	286	294	273
Groups	22	22	22	22	22	22	22	22	21	21

<u>*Note*</u>: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$*and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.5.4: Fixed Effect Poisson Regression for Fragile Countries with more than One Main Religion

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contracts	2.966	2.486	2.288	1.954	2.981	2.621	5.492*	5.031	6.990**	6.161**
	(2.589)	(2.461)	(2.833)	(2.840)	(2.761)	(2.752)	(3.021)	(3.336)	(3.206)	(3.098)
Lgdpc	-1.529***	-1.502***	-1.397***	-1.386***	-1.164***	-1.142***	-0.775***	-0.769***	1.183	0.720
	(0.085)	(0.093)	(0.100)	(0.138)	(0.086)	(0.095)	(0.091)	(0.093)	(1.236)	(1.394)
Edu	0.724***	0.712***	0.243	0.298	0.150	0.200	0.385	0.477	0.269	0.335
	(0.267)	(0.265)	(0.347)	(0.415)	(0.331)	(0.392)	(0.339)	(0.367)	(0.224)	(0.234)
Open	1.853	1.626	0.968	0.948	1.101	1.055	2.649**	2.692**	5.594**	5.632***
	(1.629)	(1.819)	(1.731)	(2.011)	(1.234)	(1.401)	(1.096)	(1.235)	(2.209)	(2.117)
Demo	-0.154	-0.149	0.026	0.009	-0.067	-0.089	-0.008	-0.022	-0.204	-0.120
	(0.451)	(0.459)	(0.475)	(0.504)	(0.433)	(0.453)	(0.345)	(0.360)	(0.364)	(0.476)
lPopd	8.308***	7.652***	9.576***	8.891***	10.141***	9.439***	8.139***	7.321***	7.185***	7.178***
	(2.893)	(2.708)	(2.970)	(2.827)	(3.022)	(2.928)	(2.563)	(2.537)	(1.497)	(1.798)
Inequal			6.756**	5.848	6.339**	5.484	3.840	2.507	-5.004	-5.394
			(3.224)	(3.944)	(3.057)	(3.946)	(2.967)	(3.373)	(5.639)	(5.940)
EthnTens					-1.265***	-1.467***	-0.590	-0.776*	-0.747**	-0.937***
					(0.487)	(0.513)	(0.404)	(0.403)	(0.323)	(0.306)
ReligTens							-2.127***	-2.185***	-0.825*	-0.815*
							(0.470)	(0.460)	(0.481)	(0.455)
NatRes									-0.059*	-0.057*
									(0.031)	(0.034)
Res		-0.105		-0.175		-0.140		0.132		3.183
		(0.130)		(0.173)		(0.092)		(0.122)		(3.546)
RESET	0.737	0.581	0.093	0.083	0.199	0.241	0.227	0.348	0.198	0.346
Obs	224	208	224	208	224	208	224	208	210	195
Groups	16	16	16	16	16	16	16	16	15	15

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Regressions with the Variable Density of Population and the Aggregated Indicator of Governance

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.5.5 : Fixed Effect Poisson Regression for Total Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Gov	-0.284	-0.343**	-0.298*	-0.361**	-0.335**	-0.354**	-0.353**	-0.389**	-0.423**	-0.475**
	(0.195)	(0.167)	(0.177)	(0.164)	(0.155)	(0.157)	(0.167)	(0.173)	(0.175)	(0.189)
Lgdpc	-1.079***	-1.052***	-1.070***	-1.043***	-0.965***	-0.936***	-0.801***	-0.705**	0.193	0.666
	(0.305)	(0.280)	(0.316)	(0.296)	(0.307)	(0.289)	(0.309)	(0.307)	(0.620)	(0.692)
Edu	0.772***	0.697***	0.823***	0.759***	0.809***	0.737***	0.771***	0.660***	0.746***	0.607**
	(0.165)	(0.179)	(0.222)	(0.233)	(0.212)	(0.228)	(0.210)	(0.234)	(0.282)	(0.279)
Open	-0.244	-0.102	-0.173	-0.029	0.308	0.551	0.485	0.658	0.795	1.143
	(0.969)	(0.964)	(1.024)	(1.008)	(0.931)	(0.991)	(1.023)	(1.017)	(1.251)	(1.336)
Demo	0.150*	0.126	0.153*	0.131*	0.144*	0.142*	0.153**	0.177**	0.184***	0.231***
	(0.088)	(0.080)	(0.081)	(0.073)	(0.084)	(0.077)	(0.074)	(0.076)	(0.068)	(0.073)
lPopd	4.313***	4.339***	4.215***	4.213***	4.134***	4.172***	3.762***	3.706***	2.523**	1.944
	(0.705)	(0.624)	(0.757)	(0.694)	(0.654)	(0.602)	(0.608)	(0.563)	(1.180)	(1.242)
Inequal			-2.024	-2.635	-1.871	-2.426	-1.932	-2.525	-4.367	-5.099
			(6.505)	(6.669)	(6.205)	(6.448)	(6.169)	(6.439)	(6.405)	(6.635)
EthnTens					-0.492**	-0.583	-0.423**	-0.429	-0.467***	-0.577*
					(0.217)	(0.383)	(0.198)	(0.382)	(0.172)	(0.320)
ReligTens							-0.342	-0.472	-0.207	-0.322
							(0.230)	(0.310)	(0.217)	(0.262)
NatRes									-0.012	-0.019
									(0.017)	(0.018)
Res		-0.113		-0.105		-0.136		-0.165		-0.910*
		(0.185)		(0.179)		(0.187)		(0.180)		(0.531)
RESET	0.571	0.549	0.660	0.704	0.601	0.707	0.707	0.709	0.091	0.080
Obs	812	754	812	754	812	754	812	754	795	738
Groups	58	58	58	58	58	58	58	58	57	57

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.5.6: Fixed Effect Poisson Regression for Muslim Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Gov	-0.360*	-0.450***	-0.449***	-0.521***	-0.480***	-0.520***	-0.542***	-0.654***	-0.675***	-0.759***
	(0.200)	(0.167)	(0.156)	(0.167)	(0.153)	(0.171)	(0.122)	(0.129)	(0.118)	(0.130)
Lgdpc	-1.232***	-1.187***	-1.166***	-1.134***	-1.071***	-1.120***	-0.812***	-0.754**	0.260	0.559
	(0.222)	(0.203)	(0.205)	(0.205)	(0.213)	(0.260)	(0.238)	(0.297)	(0.796)	(0.749)
Edu	0.830**	0.806**	0.775**	0.766**	0.739**	0.757*	0.583*	0.504	0.842*	0.701
	(0.328)	(0.349)	(0.349)	(0.359)	(0.346)	(0.432)	(0.353)	(0.463)	(0.443)	(0.479)
Open	0.369	0.540	0.369	0.522	0.617	0.560	1.336	1.102	2.043	1.835
	(0.964)	(0.964)	(0.877)	(0.897)	(0.903)	(1.123)	(0.943)	(1.064)	(1.666)	(1.767)
Demo	0.173**	0.138*	0.232***	0.200**	0.224***	0.202**	0.254***	0.279***	0.273***	0.311***
	(0.085)	(0.079)	(0.079)	(0.089)	(0.075)	(0.086)	(0.074)	(0.086)	(0.090)	(0.100)
lPopd	4.234***	4.159***	4.262***	4.179***	4.267***	4.189***	4.036***	3.765***	1.600	1.315
	(0.902)	(0.872)	(0.893)	(0.857)	(0.852)	(0.939)	(0.708)	(0.826)	(1.341)	(1.146)
Inequal			-19.296	-18.192	-18.689	-18.163	-18.879*	-18.989	-18.943*	-18.772
			(13.332)	(12.795)	(12.384)	(12.695)	(11.292)	(11.839)	(11.315)	(11.674)
EthnTens					-0.314	-0.051	-0.222	0.670	-0.356***	0.133
					(0.224)	(0.755)	(0.193)	(0.771)	(0.116)	(0.558)
ReligTens							-0.533**	-0.929***	-0.299	-0.603**
							(0.247)	(0.337)	(0.228)	(0.247)
NatRes									-0.024	-0.024
									(0.018)	(0.016)
Res		-0.038		0.017		0.013		-0.032		-0.529*
		(0.179)		(0.132)		(0.141)		(0.124)		(0.283)
RESET	0.076	0.070	0.102	0.071	0.076	0.072	0.151	0.062	0.000	0.000
Obs	350	325	350	325	350	325	350	325	336	312
Groups	25	25	25	25	25	25	25	25	24	24

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, *EthnTens*$_i$*and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.5.7: Fixed Effect Poisson Regression for Fragile Countries Affected by Major Conflicts

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Gov	-0.225	-0.279*	-0.241	-0.298*	-0.288*	-0.298*	-0.310*	-0.339*	-0.403**	-0.452**
	(0.203)	(0.169)	(0.186)	(0.166)	(0.161)	(0.159)	(0.178)	(0.184)	(0.183)	(0.195)
Lgdpc	-1.130***	-1.099***	-1.120***	-1.090***	-1.000***	-0.965***	-0.831***	-0.718**	0.300	0.835
	(0.294)	(0.268)	(0.305)	(0.284)	(0.299)	(0.278)	(0.314)	(0.327)	(0.672)	(0.730)
Edu	0.780***	0.701***	0.836***	0.770***	0.816***	0.739***	0.774***	0.654***	0.713**	0.549*
	(0.164)	(0.179)	(0.226)	(0.239)	(0.217)	(0.237)	(0.219)	(0.253)	(0.298)	(0.296)
Open	-0.379	-0.274	-0.305	-0.202	0.209	0.416	0.388	0.529	0.650	0.967
	(1.039)	(1.022)	(1.088)	(1.060)	(0.988)	(1.058)	(1.075)	(1.076)	(1.291)	(1.429)
Demo	0.143	0.124	0.146*	0.129*	0.141*	0.144*	0.149**	0.181**	0.190***	0.252***
	(0.088)	(0.081)	(0.082)	(0.074)	(0.084)	(0.077)	(0.073)	(0.077)	(0.068)	(0.075)
lPopd	4.198***	4.195***	4.086***	4.049***	4.004***	4.013***	3.645***	3.548***	2.358**	1.688
	(0.678)	(0.558)	(0.732)	(0.638)	(0.615)	(0.548)	(0.559)	(0.517)	(1.201)	(1.288)
Inequal			-2.166	-2.812	-2.013	-2.581	-2.056	-2.657	-4.680	-5.472
			(6.628)	(6.796)	(6.318)	(6.562)	(6.288)	(6.563)	(6.541)	(6.767)
EthnTens					-0.517**	-0.615	-0.453**	-0.472	-0.507***	-0.659*
					(0.243)	(0.442)	(0.220)	(0.438)	(0.185)	(0.394)
ReligTens							-0.329	-0.468	-0.243	-0.394
							(0.238)	(0.331)	(0.227)	(0.281)
NatRes									-0.011	-0.017
									(0.017)	(0.019)
Res		-0.069		-0.060		-0.097		-0.131		-0.827*
		(0.160)		(0.152)		(0.152)		(0.137)		(0.444)
RESET	0.713	0.691	0.832	0.866	0.733	0.838	0.861	0.859	0.091	0.055
Obs	308	286	308	286	308	286	308	286	294	273
Groups	22	22	22	22	22	22	22	22	21	21

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.5.8: Fixed Effect Poisson Regression for Fragile Countries with more than One Main Religion

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Gov	-0.412	-0.572	-0.332	-0.457	-0.277	-0.393	-0.139	-0.231	0.109	0.068
	(0.425)	(0.474)	(0.406)	(0.485)	(0.356)	(0.444)	(0.278)	(0.391)	(0.268)	(0.356)
Lgdpc	-1.385***	-1.327***	-1.291***	-1.273***	-1.089***	-1.058***	-0.757***	-0.741***	0.974	0.514
	(0.176)	(0.206)	(0.190)	(0.213)	(0.134)	(0.140)	(0.127)	(0.124)	(1.213)	(1.321)
Edu	0.701***	0.706***	0.262	0.388	0.161	0.277	0.362	0.486	0.252	0.334
	(0.259)	(0.249)	(0.313)	(0.355)	(0.305)	(0.375)	(0.330)	(0.386)	(0.250)	(0.245)
Open	1.394	0.990	0.638	0.574	0.767	0.693	2.242**	2.237*	5.208**	5.238**
	(1.883)	(2.096)	(1.895)	(2.131)	(1.371)	(1.490)	(1.115)	(1.287)	(2.241)	(2.232)
Demo	-0.096	-0.121	0.060	-0.000	-0.018	-0.080	0.036	-0.010	-0.107	-0.042
	(0.450)	(0.461)	(0.448)	(0.486)	(0.411)	(0.435)	(0.347)	(0.379)	(0.387)	(0.468)
lPopd	7.890***	7.021***	9.087***	8.060***	9.664***	8.641***	7.785***	6.834***	7.041***	7.032***
	(2.591)	(2.413)	(2.773)	(2.677)	(2.819)	(2.863)	(2.437)	(2.548)	(1.689)	(2.064)
Inequal			6.391**	4.630	6.272**	4.631	4.343	2.547	-3.431	-4.024
			(2.526)	(3.330)	(2.657)	(3.822)	(3.081)	(3.946)	(5.913)	(6.406)
EthnTens					-1.176**	-1.378***	-0.573	-0.765*	-0.719**	-0.896***
					(0.486)	(0.510)	(0.406)	(0.397)	(0.333)	(0.302)
ReligTens							-1.994***	-2.042***	-0.765	-0.796
							(0.477)	(0.432)	(0.565)	(0.563)
NatRes									-0.053*	-0.050
									(0.031)	(0.032)
Res		-0.011		-0.090		-0.071		0.134		3.194
		(0.095)		(0.127)		(0.096)		(0.148)		(3.351)
RESET	0.493	0.298	0.070	0.059	0.204	0.272	0.319	0.427	0.823	0.960
Obs	224	208	224	208	224	208	224	208	210	195
Groups	16	16	16	16	16	16	16	16	15	15

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

3.6.6 Appendix 6

Regressions on the Sample of Less Fragile Countries (fragility score higher than 60)

Regressions with the Variables Density of Population and "Time for Enforcing Contracts"

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.6.1: Fixed Effect Poisson Regression for Total Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contract	1.199	1.256	1.195	1.257	1.067	1.113	0.874	0.939	1.271	1.369
	(0.768)	(0.846)	(0.766)	(0.849)	(0.790)	(0.907)	(0.898)	(1.024)	(0.975)	(1.097)
lgdpc	-1.258***	-1.209**	-1.247**	-1.190*	-1.168**	-1.045*	-1.025**	-0.827	-0.187	0.255
	(0.486)	(0.585)	(0.499)	(0.609)	(0.492)	(0.616)	(0.457)	(0.554)	(0.619)	(0.744)
Edu	0.798***	0.714***	0.829***	0.753***	0.826***	0.730***	0.798***	0.668***	0.766***	0.632**
	(0.189)	(0.214)	(0.216)	(0.234)	(0.223)	(0.244)	(0.225)	(0.237)	(0.292)	(0.283)
Open	-0.204	-0.049	-0.172	-0.017	0.236	0.529	0.345	0.570	0.650	1.040
	(1.043)	(1.036)	(1.074)	(1.057)	(0.992)	(1.065)	(1.061)	(1.094)	(1.319)	(1.441)
Demo	0.108*	0.086	0.108**	0.089	0.099	0.103*	0.100*	0.126**	0.125**	0.167***
	(0.057)	(0.061)	(0.055)	(0.058)	(0.064)	(0.062)	(0.057)	(0.059)	(0.052)	(0.064)
lPopd	4.356***	4.364***	4.284***	4.262***	4.162***	4.172***	3.850***	3.772***	2.783***	2.286**
	(0.743)	(0.680)	(0.788)	(0.757)	(0.682)	(0.666)	(0.594)	(0.585)	(0.999)	(1.042)
Inequal			-1.243	-1.730	-1.057	-1.601	-1.098	-1.681	-3.094	-3.743
			(6.359)	(6.380)	(6.001)	(6.196)	(5.979)	(6.203)	(5.887)	(6.013)
EthnTens					-0.461**	-0.588	-0.401**	-0.466	-0.449***	-0.618**
					(0.224)	(0.373)	(0.201)	(0.361)	(0.171)	(0.307)
ReligTens							-0.277	-0.396	-0.108	-0.170
							(0.244)	(0.314)	(0.229)	(0.288)
NatRes									-0.012	-0.019
									(0.018)	(0.019)
Res		-0.280		-0.287		-0.375		-0.448		-0.899
		(0.554)		(0.563)		(0.584)		(0.520)		(0.656)
RESET	0.935	0.796	0.831	0.688	0.938	0.757	0.847	0.758	0.588	0.6
Groups	65	65	65	65	65	65	65	65	64	64

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, *EthnTens*$_i$*and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.6.2: Fixed Effect Poisson Regression for Muslim Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contract	2.344***	2.361***	2.736***	2.763***	2.621***	2.759***	2.365**	2.630**	2.548**	2.722**
	(0.796)	(0.886)	(0.906)	(1.003)	(0.893)	(1.013)	(1.014)	(1.169)	(1.045)	(1.140)
lgdpc	-1.447***	-1.388**	-1.369***	-1.332**	-1.304***	-1.326**	-1.143***	-1.057**	-0.402	-0.103
	(0.489)	(0.588)	(0.469)	(0.571)	(0.476)	(0.561)	(0.436)	(0.476)	(0.855)	(0.925)
Edu	0.621	0.562	0.518	0.466	0.508	0.463	0.434	0.311	0.588	0.454
	(0.395)	(0.435)	(0.424)	(0.462)	(0.419)	(0.491)	(0.433)	(0.526)	(0.514)	(0.547)
Open	0.332	0.328	0.194	0.165	0.303	0.175	0.677	0.371	1.024	0.752
	(1.311)	(1.257)	(1.087)	(1.051)	(1.089)	(1.197)	(1.253)	(1.269)	(2.138)	(2.189)
Demo	0.154**	0.126*	0.213***	0.197**	0.206***	0.197**	0.215***	0.234**	0.219**	0.247**
	(0.064)	(0.073)	(0.076)	(0.094)	(0.075)	(0.092)	(0.081)	(0.097)	(0.098)	(0.114)
lPopd	4.691***	4.587***	4.705***	4.629***	4.638***	4.629***	4.387***	4.195***	2.684**	2.424*
	(1.059)	(0.993)	(0.967)	(0.935)	(0.903)	(0.942)	(0.803)	(0.896)	(1.312)	(1.268)
Inequal			-17.969	-17.180	-17.559	-17.177	-17.459*	-17.350*	-17.271*	-17.178*
			(11.562)	(11.126)	(10.983)	(11.105)	(10.370)	(10.513)	(10.178)	(10.396)
EthnTens					-0.219	-0.015	-0.143	0.484	-0.230**	0.090
					(0.212)	(0.655)	(0.188)	(0.730)	(0.113)	(0.505)
ReligTens							-0.373	-0.669	-0.142	-0.357
							(0.286)	(0.421)	(0.247)	(0.308)
NatRes									-0.018	-0.018
									(0.021)	(0.020)
Res		-0.141		-0.053		-0.055		-0.160		-0.457
		(0.525)		(0.432)		(0.435)		(0.344)		(0.413)
RESET	0.473	0.540	0.837	*0.869*	0.987	0.860	0.675	0.677	0.253	0.297
Groups	29	29	29	29	29	29	29	29	28	28

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, *EthnTens*$_i$*and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.6.3: Fixed Effect Poisson Regression for Fragile Countries Affected by Major Conflicts

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contract	1.505*	1.602*	1.498*	1.602*	1.360	1.457	1.149	1.262	1.616	1.770
	(0.809)	(0.879)	(0.809)	(0.885)	(0.837)	(0.949)	(0.979)	(1.099)	(1.076)	(1.202)
lgdpc	-1.224**	-1.193**	-1.211**	-1.170*	-1.119**	-1.004	-0.977**	-0.769	-0.066	0.427
	(0.505)	(0.603)	(0.520)	(0.631)	(0.514)	(0.638)	(0.482)	(0.586)	(0.685)	(0.803)
Edu	0.764***	0.678***	0.805***	0.727***	0.798***	0.696***	0.770***	0.629**	0.723**	0.565*
	(0.200)	(0.231)	(0.225)	(0.250)	(0.235)	(0.263)	(0.238)	(0.260)	(0.316)	(0.310)
Open	-0.309	-0.191	-0.273	-0.162	0.152	0.405	0.254	0.442	0.504	0.862
	(1.113)	(1.092)	(1.137)	(1.103)	(1.044)	(1.120)	(1.109)	(1.144)	(1.351)	(1.513)
Demo	0.119**	0.103	0.120**	0.106*	0.112*	0.122*	0.112*	0.146**	0.142**	0.197***
	(0.061)	(0.067)	(0.059)	(0.064)	(0.068)	(0.068)	(0.062)	(0.064)	(0.057)	(0.069)
lPopd	4.254***	4.250***	4.157***	4.118***	4.025***	4.022***	3.722***	3.607***	2.618**	2.042*
	(0.726)	(0.628)	(0.774)	(0.723)	(0.661)	(0.639)	(0.577)	(0.591)	(1.038)	(1.131)
Inequal			-1.529	-2.046	-1.331	-1.903	-1.362	-1.979	-3.505	-4.236
			(6.562)	(6.608)	(6.183)	(6.402)	(6.161)	(6.415)	(6.062)	(6.212)
EthnTens					-0.481*	-0.609	-0.426*	-0.495	-0.476**	-0.674*
					(0.248)	(0.426)	(0.222)	(0.413)	(0.186)	(0.375)
ReligTens							-0.263	-0.391	-0.110	-0.196
							(0.250)	(0.327)	(0.248)	(0.313)
NatRes									-0.011	-0.017
									(0.018)	(0.020)
Res		-0.173		-0.182		-0.286		-0.361		-0.828
		(0.488)		(0.499)		(0.525)		(0.462)		(0.578)
RESET	0.826	0.759	0.710	0.657	0.950	0.733	0.722	0.692	0.713	0.673
Groups	23	23	23	23	23	23	23	23	22	22

<u>*Note*</u>: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, *EthnTens*$_i$*and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.6.4: Fixed Effect Poisson Regression for Fragile Countries with more than One Main Religion

Variables	**Spec.1**	**Spec.1(iv)**	**Spec.2**	**Spec.2(iv)**	**Spec.3**	**Spec.3(iv)**	**Spec.4**	**Spec.4(iv)**	**Spec.5**	**Spec.5(iv)**
Contract	1.832	1.696	1.410	1.328	1.840	1.595	3.349	2.700	4.835	3.948
	(2.367)	(2.330)	(2.480)	(2.545)	(2.501)	(2.543)	(4.025)	(4.513)	(4.148)	(4.247)
lgdpc	-2.124***	-1.796***	-1.995***	-1.726***	-1.630***	-1.432***	-1.051***	-1.088***	1.108	0.559
	(0.317)	(0.347)	(0.254)	(0.268)	(0.232)	(0.210)	(0.218)	(0.184)	(1.162)	(1.377)
Edu	1.022***	0.897***	0.632**	0.596*	0.486*	0.463	0.576**	0.695**	0.364	0.435*
	(0.266)	(0.258)	(0.290)	(0.334)	(0.274)	(0.310)	(0.273)	(0.316)	(0.242)	(0.241)
Open	2.742***	2.783**	2.017*	2.246	1.919**	2.013*	2.991***	2.993***	5.436***	5.485***
	(1.048)	(1.202)	(1.190)	(1.437)	(0.926)	(1.142)	(1.042)	(1.155)	(1.898)	(1.792)
Demo	-0.185	-0.209	-0.037	-0.092	-0.087	-0.123	0.002	0.011	-0.166	-0.088
	(0.406)	(0.409)	(0.420)	(0.447)	(0.390)	(0.411)	(0.326)	(0.342)	(0.357)	(0.455)
lPopd			5.504**	4.555	5.277**	4.542	3.492	2.069	-5.159	-5.362
			(2.461)	(3.493)	(2.595)	(3.740)	(2.926)	(3.385)	(5.268)	(5.713)
Inequal	8.062***	7.663***	9.015***	8.531***	9.335***	8.763***	7.457***	6.482***	6.634***	6.630***
	(2.896)	(2.696)	(2.922)	(2.786)	(2.841)	(2.730)	(2.380)	(2.313)	(1.381)	(1.725)
EthnTens					-1.149***	-1.279***	-0.527	-0.678*	-0.685**	-0.868***
					(0.434)	(0.406)	(0.381)	(0.384)	(0.323)	(0.297)
ReligTens							-2.052***	-2.233***	-0.957**	-0.968**
							(0.477)	(0.535)	(0.471)	(0.444)
NatRes									-0.051*	-0.049
									(0.029)	(0.033)
Res		-1.552***		-1.598***		-1.214***		0.795*		3.380
		(0.288)		(0.325)		(0.214)		(0.423)		(3.508)
RESET	0.004	0.05	0.042	0.145	0.014	0.040	0.432	0.502	0.188	0.248
Groups	20	20	20	20	20	20	20	20	19	19

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, *EthnTens*$_i$*and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Regressions with the Variable Density of Population and the Aggregated Indicator of Governance

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (Confl)

Table 3.A.6.5 : Fixed Effect Poisson Regression for Total Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Gov	-0.263	-0.330**	-0.278	-0.352**	-0.316**	-0.348**	-0.340**	-0.393**	-0.416**	-0.471**
	(0.196)	(0.162)	(0.177)	(0.161)	(0.153)	(0.154)	(0.166)	(0.171)	(0.177)	(0.191)
lgdpc	-1.161**	-1.076**	-1.136**	-1.036*	-1.015**	-0.880	-0.797*	-0.546	0.197	0.678
	(0.476)	(0.524)	(0.491)	(0.561)	(0.479)	(0.566)	(0.481)	(0.572)	(0.620)	(0.695)
Edu	0.804***	0.721***	0.851***	0.778***	0.835***	0.749***	0.787***	0.653***	0.753***	0.615**
	(0.174)	(0.195)	(0.225)	(0.237)	(0.215)	(0.232)	(0.216)	(0.234)	(0.281)	(0.278)
Open	-0.123	0.073	-0.063	0.134	0.394	0.707	0.551	0.781	0.907	1.261
	(1.011)	(1.019)	(1.046)	(1.044)	(0.938)	(1.012)	(1.019)	(1.027)	(1.220)	(1.287)
Demo	0.142	0.120	0.146*	0.127*	0.139*	0.141*	0.148**	0.180**	0.182***	0.231***
	(0.089)	(0.080)	(0.082)	(0.071)	(0.084)	(0.074)	(0.073)	(0.074)	(0.067)	(0.072)
lPopd	4.405***	4.407***	4.294***	4.255***	4.176***	4.166***	3.762***	3.613***	2.521**	1.952
	(0.758)	(0.705)	(0.828)	(0.815)	(0.725)	(0.731)	(0.680)	(0.709)	(1.188)	(1.248)
Inequal			-2.029	-2.710	-1.893	-2.544	-2.022	-2.767	-4.400	-5.134
			(6.505)	(6.717)	(6.218)	(6.495)	(6.186)	(6.489)	(6.363)	(6.602)
EthnTens					-0.496**	-0.606	-0.424**	-0.448	-0.477***	-0.595*
					(0.216)	(0.369)	(0.198)	(0.374)	(0.169)	(0.310)
ReligTens							-0.354	-0.509*	-0.218	-0.323
							(0.216)	(0.282)	(0.215)	(0.259)
NatRes									-0.013	-0.019
									(0.016)	(0.018)
Res		-0.286		-0.299		-0.388		-0.469		-0.921*
		(0.456)		(0.464)		(0.489)		(0.442)		(0.536)
RESET	0.510	0.506	0.531	0.544	0.408	0.546	0.572	0.522	0.064	0.028
Groups	65	65	65	65	65	65	65	65	64	64

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.6.6 : Fixed Effect Poisson Regression for Muslim Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Gov	-0.342*	-0.439***	-0.430***	-0.505***	-0.459***	-0.504***	-0.526***	-0.646***	-0.676***	-0.763***
	(0.200)	(0.160)	(0.150)	(0.160)	(0.143)	(0.163)	(0.113)	(0.126)	(0.117)	(0.124)
lgdpc	-1.408***	-1.327***	-1.318***	-1.274***	-1.191***	-1.247***	-0.875**	-0.771*	0.276	0.602
	(0.467)	(0.489)	(0.415)	(0.458)	(0.415)	(0.468)	(0.414)	(0.434)	(0.786)	(0.760)
Edu	0.855***	0.837**	0.806**	0.804**	0.769**	0.792*	0.605*	0.523	0.865**	0.722
	(0.317)	(0.343)	(0.338)	(0.351)	(0.335)	(0.421)	(0.347)	(0.452)	(0.436)	(0.471)
Open	0.718	0.929	0.680	0.861	0.861	0.901	1.525	1.363	2.218	2.088
	(1.124)	(1.117)	(0.979)	(0.995)	(0.996)	(1.181)	(1.006)	(1.098)	(1.560)	(1.612)
Demo	0.167*	0.131*	0.225***	0.191**	0.218***	0.194**	0.249***	0.275***	0.272***	0.314***
	(0.087)	(0.078)	(0.077)	(0.087)	(0.074)	(0.083)	(0.072)	(0.083)	(0.089)	(0.099)
lPopd	4.497***	4.379***	4.466***	4.355***	4.412***	4.356***	4.111***	3.828***	1.513	1.206
	(1.106)	(1.082)	(1.025)	(0.989)	(0.968)	(0.998)	(0.781)	(0.847)	(1.293)	(1.091)
Inequal			-19.010	-17.889	-18.443	-17.855	-18.665*	-18.733	-18.862*	-18.676
			(13.171)	(12.599)	(12.287)	(12.496)	(11.192)	(11.685)	(11.217)	(11.504)
EthnTens					-0.314	-0.067	-0.219	0.643	-0.366***	0.061
					(0.217)	(0.713)	(0.191)	(0.751)	(0.113)	(0.539)
ReligTens							-0.552**	-0.949***	-0.312	-0.597**
							(0.235)	(0.329)	(0.224)	(0.254)
NatRes									-0.025	-0.026
									(0.017)	(0.016)
Res		-0.126		-0.026		-0.038		-0.137		-0.552*
		(0.405)		(0.310)		(0.318)		(0.276)		(0.287)
RESET	0.473	0.199	0.081	0.070	0.048	0.068	0.116	0.023	0.000	0.000
Groups	29	29	29	29	29	29	29	29	28	28

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.6.7: Fixed Effect Poisson Regression for Fragile Countries Affected by Major Conflicts

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Gov	-0.211	-0.268	-0.228	-0.291*	-0.276*	-0.297*	-0.307*	-0.353*	-0.397**	-0.450**
	(0.204)	(0.164)	(0.186)	(0.164)	(0.159)	(0.155)	(0.177)	(0.181)	(0.186)	(0.199)
lgdpc	-1.173**	-1.123**	-1.145**	-1.080*	-1.000**	-0.885	-0.764	-0.501	0.310	0.863
	(0.490)	(0.533)	(0.507)	(0.572)	(0.494)	(0.578)	(0.507)	(0.613)	(0.676)	(0.739)
Edu	0.791***	0.712***	0.845***	0.776***	0.822***	0.735***	0.767***	0.622**	0.720**	0.554*
	(0.178)	(0.200)	(0.231)	(0.245)	(0.223)	(0.244)	(0.226)	(0.256)	(0.298)	(0.297)
Open	-0.244	-0.096	-0.184	-0.039	0.308	0.583	0.471	0.667	0.785	1.121
	(1.085)	(1.080)	(1.114)	(1.097)	(0.994)	(1.076)	(1.068)	(1.082)	(1.259)	(1.373)
Demo	0.137	0.118	0.141*	0.125*	0.138	0.144*	0.149**	0.190**	0.188***	0.254***
	(0.090)	(0.080)	(0.083)	(0.072)	(0.084)	(0.074)	(0.071)	(0.074)	(0.067)	(0.074)
lPopd	4.318***	4.306***	4.188***	4.132***	4.060***	4.032***	3.632***	3.437***	2.350*	1.672
	(0.758)	(0.660)	(0.832)	(0.783)	(0.708)	(0.692)	(0.654)	(0.686)	(1.211)	(1.297)
Inequal			-2.188	-2.864	-2.064	-2.700	-2.194	-2.945	-4.740	-5.540
			(6.646)	(6.868)	(6.344)	(6.628)	(6.321)	(6.636)	(6.513)	(6.749)
EthnTens					-0.531**	-0.657	-0.460**	-0.505	-0.524***	-0.694*
					(0.243)	(0.428)	(0.220)	(0.431)	(0.183)	(0.382)
ReligTens							-0.359	-0.530*	-0.253	-0.396
							(0.220)	(0.304)	(0.225)	(0.278)
NatRes									-0.012	-0.018
									(0.017)	(0.019)
Res		-0.147		-0.161		-0.276		-0.374		-0.844*
		(0.378)		(0.389)		(0.419)		(0.376)		(0.448)
RESET	0.655	0.642	0.678	0.658	0.504	0.644	0.711	0.659	0.084	0.633
Groups	23	23	23	23	23	23	23	23	22	22

<u>*Note*</u>: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.6.8: Fixed Effect Poisson Regression for Fragile Countries with more than One Main Religion

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Gov	-0.122	-0.178	-0.059	-0.063	-0.049	-0.070	0.006	-0.056	0.126	0.094
	(0.339)	(0.385)	(0.355)	(0.459)	(0.329)	(0.439)	(0.278)	(0.407)	(0.252)	(0.321)
lgdpc	-2.053***	-1.737***	-1.960***	-1.711***	-1.606***	-1.415***	-1.049***	-1.063***	0.970	0.456
	(0.377)	(0.424)	(0.341)	(0.391)	(0.283)	(0.300)	(0.279)	(0.272)	(1.163)	(1.362)
Edu	1.012***	0.901***	0.630**	0.599*	0.484*	0.468	0.559**	0.693*	0.340	0.428*
	(0.227)	(0.251)	(0.280)	(0.362)	(0.265)	(0.356)	(0.281)	(0.365)	(0.262)	(0.248)
Open	2.593**	2.608*	1.936	2.207	1.829*	1.940	2.886***	2.856**	5.310***	5.330***
	(1.278)	(1.504)	(1.345)	(1.536)	(1.035)	(1.192)	(1.015)	(1.183)	(1.894)	(1.816)
Demo	-0.145	-0.171	-0.009	-0.062	-0.052	-0.093	0.035	0.026	-0.114	-0.050
	(0.403)	(0.398)	(0.397)	(0.417)	(0.370)	(0.384)	(0.320)	(0.346)	(0.368)	(0.440)
lPopd	7.815***	7.349***	8.840***	8.385***	9.139***	8.572***	7.324***	6.286**	6.614***	6.554***
	(2.775)	(2.732)	(2.952)	(3.172)	(2.845)	(3.127)	(2.455)	(2.658)	(1.595)	(1.912)
Inequal			5.536**	4.563	5.402**	4.557	3.859	2.152	-4.023	-4.501
			(2.440)	(4.047)	(2.565)	(4.279)	(3.148)	(4.343)	(5.484)	(6.165)
EthnTens					-1.120**	-1.252***	-0.517	-0.667*	-0.665**	-0.842***
					(0.437)	(0.406)	(0.383)	(0.384)	(0.328)	(0.295)
ReligTens							-2.021***	-2.225***	-0.975*	-1.024**
							(0.489)	(0.567)	(0.518)	(0.494)
NatRes									-0.050*	-0.046
									(0.030)	(0.032)
Res		-1.458***		-1.584***		-1.187***		0.829		3.325
		(0.258)		(0.274)		(0.222)		(0.630)		(3.280)
RESET	0.007	0.034	0.043	0.079	0.013	0.012	0.423	0.503	0.582	0.496
Groups	20	20	20	20	20	20	20	20	19	19

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

3.6.7 Appendix 7

Regressions on the Sample of more Fragile Countries (fragility score higher than 80)

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.7.1 : Fixed Effect Poisson Regression for Total Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contract	0.801	0.624	0.810	0.648	0.685	0.597	0.488	0.480	1.285	1.253
	(1.360)	(1.536)	(1.417)	(1.604)	(1.501)	(1.778)	(1.650)	(1.899)	(1.763)	(2.009)
lgdpc	-1.498***	-1.467***	-1.495***	-1.457**	-1.426***	-1.413**	-1.270***	-1.173**	-0.441	-0.070
	(0.478)	(0.568)	(0.476)	(0.577)	(0.481)	(0.572)	(0.436)	(0.472)	(0.718)	(0.950)
Edu	0.819***	0.744***	0.828***	0.765**	0.834***	0.762**	0.824***	0.692**	0.813**	0.669*
	(0.259)	(0.283)	(0.294)	(0.310)	(0.300)	(0.311)	(0.317)	(0.310)	(0.356)	(0.344)
Open	0.722	0.777	0.730	0.791	0.861	0.880	1.201	0.958	1.813	1.707
	(1.187)	(1.107)	(1.272)	(1.166)	(1.299)	(1.357)	(1.434)	(1.426)	(1.935)	(2.002)
Demo	0.096*	0.061	0.096*	0.061	0.084	0.063	0.082	0.091*	0.118**	0.142**
	(0.053)	(0.051)	(0.054)	(0.051)	(0.061)	(0.047)	(0.052)	(0.052)	(0.048)	(0.071)
lPopd	4.647***	4.616***	4.626***	4.563***	4.500***	4.526***	4.111***	4.022***	2.719***	2.361*
	(0.683)	(0.625)	(0.651)	(0.632)	(0.610)	(0.609)	(0.475)	(0.486)	(1.016)	(1.244)
Inequal			-0.305	-0.751	-0.344	-0.815	-0.464	-0.867	-2.623	-3.209
			(6.749)	(6.674)	(6.532)	(6.737)	(6.473)	(6.767)	(6.420)	(6.768)
EthnTens					-0.275	-0.146	-0.209	0.269	-0.282	-0.191
					(0.228)	(0.714)	(0.211)	(0.849)	(0.174)	(0.672)
ReligTens							-0.355	-0.545	-0.138	-0.218
							(0.248)	(0.380)	(0.188)	(0.300)
NatRes									-0.019	-0.022
									(0.021)	(0.022)
Res		-0.222		-0.224		-0.239		-0.364		-0.820
		(0.591)		(0.595)		(0.601)		(0.524)		(0.792)
RESET	0.656	0.853	0.652	0.888	0.579	0.900	0.876	0.859	0.768	0.749
Groups	44	44	44	44	44	44	44	44	43	43

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.7.2: Fixed Effect Poisson Regression for Muslim Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contract	2.249	2.188	2.913*	2.884*	2.818*	3.089*	2.558	3.059	3.424**	3.490**
	(1.498)	(1.749)	(1.513)	(1.740)	(1.613)	(1.646)	(1.960)	(1.898)	(1.659)	(1.703)
lgdpc	-1.468***	-1.395**	-1.295***	-1.188**	-1.272***	-1.331**	-1.144**	-1.011**	-0.676	-0.846
	(0.491)	(0.608)	(0.465)	(0.579)	(0.474)	(0.540)	(0.463)	(0.470)	(1.039)	(1.089)
Edu	0.164	0.103	-0.083	-0.213	-0.051	-0.231	-0.080	-0.518	-0.074	-0.502
	(0.485)	(0.549)	(0.464)	(0.504)	(0.453)	(0.490)	(0.490)	(0.509)	(0.569)	(0.596)
Open	0.532	0.527	0.286	0.184	0.354	-0.191	0.719	-0.119	1.551	0.665
	(1.428)	(1.363)	(1.032)	(1.000)	(1.055)	(1.278)	(1.219)	(1.296)	(2.172)	(2.412)
Demo	0.195***	0.168**	0.285***	0.289**	0.276***	0.282**	0.279***	0.341***	0.314**	0.355**
	(0.070)	(0.085)	(0.088)	(0.116)	(0.089)	(0.117)	(0.094)	(0.118)	(0.128)	(0.143)
lPopd	5.754***	5.645***	5.885***	5.905***	5.784***	6.028***	5.491***	5.639***	4.191**	5.151***
	(1.161)	(1.060)	(0.923)	(0.820)	(0.811)	(0.800)	(0.722)	(0.770)	(1.707)	(1.820)
Inequal			-21.047**	-20.560**	-20.762**	-20.612**	-20.662**	-21.067**	-21.040**	-21.283**
			(10.521)	(10.062)	(10.146)	(10.402)	(9.582)	(9.430)	(8.442)	(8.576)
EthnTens					-0.114	0.473	-0.066	1.239*	-0.151	0.973
					(0.185)	(0.626)	(0.174)	(0.728)	(0.112)	(0.602)
ReligTens							-0.317	-0.811**	-0.050	-0.507*
							(0.257)	(0.397)	(0.226)	(0.264)
NatRes									-0.023	-0.014
									(0.021)	(0.022)
Res		-0.176		-0.176		-0.116		-0.301		-0.172
		(0.595)		(0.503)		(0.515)		(0.444)		(0.459)
RESET	0.244	0.178	0.529	0.299	0.434	0.320	0.735	0.610	0.478	0.828
Groups	17	17	17	17	17	17	17	17	16	16

<u>*Note*</u>: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, *EthnTens*$_i$*and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.7.3: Fixed Effect Poisson Regression for Fragile Countries Affected by Major Conflicts

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contract	1.031	0.865	1.051	0.904	0.912	0.872	0.695	0.756	1.671	1.703
	(1.541)	(1.708)	(1.622)	(1.805)	(1.734)	(1.989)	(1.914)	(2.090)	(2.037)	(2.278)
lgdpc	-1.457***	-1.431**	-1.452***	-1.418**	-1.375***	-1.387**	-1.216***	-1.133**	-0.291	0.130
	(0.507)	(0.595)	(0.507)	(0.608)	(0.513)	(0.608)	(0.467)	(0.504)	(0.852)	(1.195)
Edu	0.763***	0.687**	0.780**	0.715**	0.785**	0.713**	0.772**	0.635*	0.744**	0.580
	(0.282)	(0.311)	(0.310)	(0.335)	(0.315)	(0.333)	(0.333)	(0.333)	(0.379)	(0.375)
Open	0.707	0.675	0.720	0.689	0.838	0.743	1.193	0.816	1.641	1.375
	(1.324)	(1.201)	(1.402)	(1.245)	(1.422)	(1.467)	(1.563)	(1.529)	(2.053)	(2.189)
Demo	0.106*	0.076	0.106*	0.077	0.094	0.078	0.091	0.107**	0.131**	0.166**
	(0.058)	(0.057)	(0.059)	(0.058)	(0.066)	(0.051)	(0.057)	(0.054)	(0.051)	(0.075)
lPopd	4.675***	4.596***	4.637***	4.520***	4.498***	4.494***	4.124***	3.974***	2.695**	2.261
	(0.748)	(0.642)	(0.681)	(0.628)	(0.626)	(0.606)	(0.473)	(0.489)	(1.056)	(1.497)
Inequal			-0.505	-0.996	-0.554	-1.040	-0.658	-1.076	-3.049	-3.787
			(6.929)	(6.883)	(6.713)	(6.980)	(6.647)	(7.017)	(6.682)	(7.310)
EthnTens					-0.279	-0.093	-0.217	0.367	-0.291	-0.169
					(0.242)	(0.839)	(0.224)	(0.984)	(0.184)	(1.007)
ReligTens							-0.348	-0.562	-0.149	-0.264
							(0.253)	(0.412)	(0.201)	(0.348)
NatRes									-0.017	-0.019
									(0.021)	(0.023)
Res		-0.127		-0.131		-0.142		-0.270		-0.741
		(0.526)		(0.532)		(0.543)		(0.461)		(0.800)
RESET	0.810	0.927	0.822	0.959	0.728	0.960	0.961	0.945	0.914	0.780
Groups	15	15	15	15	15	15	15	15	14	14

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.7.4: Fixed Effect Poisson Regression for Fragile Countries with more than One Main Religion

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
Contract	6.908***	6.790***	6.119***	6.083**	6.189***	5.927**	7.568***	6.878**	8.097***	7.761**
	(1.871)	(1.841)	(2.234)	(2.481)	(2.152)	(2.364)	(2.827)	(3.114)	(3.031)	(3.199)
lgdpc	-2.054***	-1.715***	-1.879***	-1.593***	-1.646***	-1.481***	-1.224***	-1.249***	0.846	0.749
	(0.217)	(0.205)	(0.136)	(0.113)	(0.145)	(0.119)	(0.086)	(0.096)	(1.498)	(1.990)
Edu	0.569***	0.406*	0.073	-0.037	0.064	0.014	0.157	0.210	0.009	0.147
	(0.208)	(0.210)	(0.202)	(0.274)	(0.202)	(0.262)	(0.172)	(0.239)	(0.127)	(0.150)
Open	1.244	0.951	0.296	0.123	0.638	0.376	1.337**	1.023	3.363*	3.161
	(1.074)	(0.898)	(0.910)	(0.970)	(0.790)	(0.908)	(0.628)	(0.782)	(1.974)	(2.019)
Demo	-0.924***	-0.967***	-0.717**	-0.797**	-0.695**	-0.753**	-0.586***	-0.621***	-0.612**	-0.755**
	(0.281)	(0.284)	(0.335)	(0.351)	(0.309)	(0.330)	(0.228)	(0.240)	(0.245)	(0.380)
lPopd	12.586***	12.234***	13.802***	13.549***	13.562***	13.040***	11.822***	11.061***	10.032***	8.934***
	(2.050)	(1.900)	(1.855)	(1.781)	(1.836)	(1.824)	(1.045)	(1.194)	(2.110)	(2.841)
Inequal			6.629***	6.126**	5.884***	5.392**	4.640**	3.675	-3.411	-3.794
			(1.966)	(2.803)	(1.976)	(2.687)	(1.995)	(2.523)	(7.318)	(8.090)
EthnTens					-1.249*	-1.228*	-0.511	-0.731	-0.317	-0.616
					(0.638)	(0.713)	(0.444)	(0.511)	(0.344)	(0.408)
ReligTens							-1.601***	-1.534***	-0.675***	-0.698***
							(0.338)	(0.371)	(0.238)	(0.261)
NatRes									-0.036	-0.045
									(0.028)	(0.037)
Res		-1.659***		-1.820***		-1.348***		-0.099		-1.532
		(0.201)		(0.117)		(0.266)		(0.433)		(3.831)
RESET	0.048	0.019	0.901	0.545	0.979	0.449	0.525	0.959	0.040	
Groups	12	12	12	12	12	12	12	12	11	11

Note: *GDPc* is the logarithm of real GDP per capita, *Contracts* the Time for Enforcing Contracts variable from Doing Business, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, *EthnTens*$_i$*and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Regressions with the Aggregated Indicator of Governance

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.7.5: Fixed Effect Poisson Regression for Total Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
GOV	-0.278	-0.331**	-0.287	-0.347**	-0.319**	-0.345**	-0.375**	-0.440**	-0.458**	-0.515**
	(0.198)	(0.158)	(0.177)	(0.161)	(0.159)	(0.162)	(0.178)	(0.185)	(0.211)	(0.220)
lgdpc	-1.384***	-1.313***	-1.372***	-1.288***	-1.267***	-1.243**	-1.015**	-0.857*	-0.009	0.430
	(0.450)	(0.464)	(0.447)	(0.478)	(0.445)	(0.490)	(0.459)	(0.472)	(0.703)	(0.829)
Edu	0.802***	0.732***	0.833***	0.778***	0.837***	0.775***	0.818***	0.678**	0.807**	0.646*
	(0.230)	(0.242)	(0.287)	(0.301)	(0.288)	(0.300)	(0.298)	(0.303)	(0.344)	(0.332)
Open	0.845	1.011	0.880	1.051	1.069	1.142	1.580	1.351	2.215	2.055
	(0.910)	(0.868)	(1.015)	(0.953)	(1.055)	(1.207)	(1.079)	(1.160)	(1.440)	(1.550)
Demo	0.140*	0.103*	0.141*	0.105*	0.129	0.107*	0.140**	0.162**	0.188***	0.224***
	(0.083)	(0.062)	(0.080)	(0.060)	(0.082)	(0.056)	(0.069)	(0.064)	(0.063)	(0.070)
lPopd	4.715***	4.679***	4.645***	4.563***	4.508***	4.527***	3.976***	3.804***	2.276*	1.839
	(0.679)	(0.652)	(0.689)	(0.707)	(0.666)	(0.703)	(0.618)	(0.680)	(1.289)	(1.498)
Inequal			-1.052	-1.749	-1.193	-1.807	-1.564	-2.224	-4.140	-4.873
			(6.838)	(6.953)	(6.718)	(7.033)	(6.643)	(7.053)	(6.959)	(7.381)
EthnTens					-0.316	-0.140	-0.244	0.407	-0.330*	-0.073
					(0.227)	(0.692)	(0.218)	(0.845)	(0.194)	(0.699)
ReligTens							-0.454**	-0.721**	-0.266	-0.438*
							(0.204)	(0.281)	(0.176)	(0.244)
NatRes									-0.021	-0.023
									(0.018)	(0.019)
Res		-0.264		-0.268		-0.282		-0.432		-0.895
		(0.495)		(0.494)		(0.506)		(0.444)		(0.634)
RESET	0.289	0.334	0.272	0.345	0.254	0.361	0.471	0.238	0.095	0.022
Groups	44	44	44	44	44	44	44	44	43	43

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.7.6: Fixed Effect Poisson Regression for Muslim Fragile Countries

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
GOV	-0.272	-0.354*	-0.356**	-0.410**	-0.394**	-0.406**	-0.503***	-0.590***	-0.707***	-0.755***
	(0.215)	(0.182)	(0.180)	(0.196)	(0.175)	(0.195)	(0.126)	(0.159)	(0.136)	(0.122)
Lgdpc	-1.450***	-1.394***	-1.279***	-1.232***	-1.204***	-1.325***	-0.890**	-0.771**	0.201	0.346
	(0.407)	(0.410)	(0.315)	(0.346)	(0.326)	(0.365)	(0.346)	(0.311)	(0.981)	(0.938)
Edu	0.358	0.395	0.205	0.208	0.259	0.209	0.184	-0.171	0.596	0.249
	(0.466)	(0.520)	(0.459)	(0.488)	(0.423)	(0.496)	(0.393)	(0.420)	(0.707)	(0.690)
Open	0.730	0.998	0.564	0.738	0.770	0.518	1.588*	0.943	2.767*	2.443
	(1.229)	(1.222)	(0.961)	(1.022)	(1.001)	(1.306)	(0.965)	(1.134)	(1.492)	(1.567)
Demo	0.201***	0.158**	0.280***	0.251**	0.266***	0.245**	0.289***	0.348***	0.312**	0.369***
	(0.075)	(0.073)	(0.082)	(0.104)	(0.077)	(0.107)	(0.077)	(0.104)	(0.126)	(0.141)
lPopd	5.573***	5.381***	5.598***	5.478***	5.429***	5.535***	4.978***	5.037***	1.827	2.166
	(1.316)	(1.263)	(1.141)	(1.053)	(1.002)	(0.993)	(0.711)	(0.679)	(2.281)	(1.928)
Inequal			-21.611*	-20.537*	-21.143*	-20.596*	-21.498**	-21.994**	-22.432**	-22.365**
			(12.126)	(11.490)	(11.479)	(11.755)	(10.334)	(10.593)	(9.945)	(9.954)
EthnTens					-0.227	0.266	-0.167	1.222	-0.359***	0.295
					(0.177)	(0.686)	(0.177)	(0.790)	(0.099)	(0.631)
ReligTens							-0.538**	-1.076***	-0.299	-0.633**
							(0.234)	(0.359)	(0.220)	(0.264)
NatRes									-0.031*	-0.029*
									(0.018)	(0.016)
Res		-0.117		-0.073		-0.033		-0.232		-0.451
		(0.438)		(0.334)		(0.364)		(0.356)		(0.305)
RESET	0.244	0.150	0.058	0.002	0.028	0.002	0.103	0.001	0.000	0.001
Groups	17	17	17	17	17	17	17	17	16	16

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.7.7: Fixed Effect Poisson Regression for Fragile Countries Affected by Major Conflicts

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
GOV	-0.230	-0.271*	-0.240	-0.287*	-0.279*	-0.287*	-0.346*	-0.395**	-0.442**	-0.486**
	(0.203)	(0.156)	(0.182)	(0.161)	(0.162)	(0.160)	(0.187)	(0.191)	(0.221)	(0.229)
Lgdpc	-1.375***	-1.328***	-1.363***	-1.302***	-1.242***	-1.252**	-0.974**	-0.835	0.135	0.627
	(0.479)	(0.485)	(0.474)	(0.497)	(0.472)	(0.530)	(0.492)	(0.511)	(0.808)	(1.065)
Edu	0.753***	0.686**	0.786***	0.735**	0.789***	0.731**	0.766**	0.622*	0.741**	0.559
	(0.252)	(0.267)	(0.300)	(0.321)	(0.300)	(0.319)	(0.314)	(0.325)	(0.360)	(0.351)
Open	0.786	0.861	0.820	0.896	1.013	0.985	1.574	1.214	2.061	1.763
	(1.048)	(0.958)	(1.143)	(1.030)	(1.171)	(1.333)	(1.179)	(1.247)	(1.542)	(1.755)
Demo	0.137	0.105	0.138	0.107*	0.128	0.110*	0.139**	0.168**	0.191***	0.241***
	(0.086)	(0.065)	(0.084)	(0.063)	(0.084)	(0.056)	(0.068)	(0.066)	(0.064)	(0.076)
lPopd	4.758***	4.677***	4.683***	4.551***	4.528***	4.511***	3.999***	3.771***	2.243*	1.722
	(0.744)	(0.664)	(0.717)	(0.682)	(0.676)	(0.686)	(0.625)	(0.678)	(1.353)	(1.774)
Inequal			-1.059	-1.754	-1.239	-1.823	-1.634	-2.255	-4.435	-5.275
			(6.949)	(7.069)	(6.838)	(7.196)	(6.769)	(7.225)	(7.187)	(7.826)
EthnTens					-0.330	-0.139	-0.262	0.458	-0.363*	-0.130
					(0.242)	(0.830)	(0.231)	(0.986)	(0.209)	(1.077)
ReligTens							-0.461**	-0.748**	-0.305	-0.507*
							(0.210)	(0.321)	(0.186)	(0.293)
NatRes									-0.019	-0.021
									(0.019)	(0.021)
Res		-0.143		-0.149		-0.166		-0.326		-0.796
		(0.416)		(0.416)		(0.439)		(0.368)		(0.596)
RESET	0.428	0.463	0.409	0.452	0.358	0.450	0.605	0.302	0.108	0.021
Groups	15	15	15	15	15	15	15	15	14	14

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

Dependent Variable: Annual Number of Conflict-based Domestic Incidents (*Confl*)

Table 3.A.7.8: Fixed Effect Poisson Regression for Fragile Countries with more than One Main Religion

Variables	Spec.1	Spec.1(iv)	Spec.2	Spec.2(iv)	Spec.3	Spec.3(iv)	Spec.4	Spec.4(iv)	Spec.5	Spec.5(iv)
GOV	-0.179	-0.283*	-0.060	-0.029	0.045	0.027	0.002	-0.075	0.076	-0.048
	(0.232)	(0.164)	(0.262)	(0.178)	(0.204)	(0.163)	(0.203)	(0.260)	(0.220)	(0.264)
Lgdpc	-1.930***	-1.597***	-1.804***	-1.558***	-1.646***	-1.473***	-1.181***	-1.182***	0.499	0.585
	(0.210)	(0.213)	(0.210)	(0.165)	(0.202)	(0.160)	(0.175)	(0.147)	(1.857)	(2.315)
Edu	0.605***	0.458**	0.068	-0.055	0.063	-0.010	0.119	0.195	-0.018	0.136
	(0.205)	(0.216)	(0.222)	(0.314)	(0.233)	(0.311)	(0.211)	(0.319)	(0.194)	(0.199)
Open	0.896	0.466	0.015	-0.074	0.512	0.240	1.002	0.634	2.703	2.402
	(1.307)	(1.104)	(1.247)	(1.065)	(1.072)	(1.002)	(0.805)	(0.852)	(1.939)	(1.858)
Demo	-0.791**	-0.843***	-0.585	-0.666*	-0.561*	-0.627*	-0.480*	-0.536**	-0.470	-0.622
	(0.320)	(0.318)	(0.356)	(0.372)	(0.325)	(0.345)	(0.255)	(0.262)	(0.286)	(0.390)
lPopd	11.436***	10.897***	12.949***	12.902***	12.880***	12.532***	11.174***	10.285***	9.815***	8.382**
	(2.245)	(1.967)	(2.011)	(1.641)	(1.910)	(1.718)	(1.159)	(1.384)	(2.728)	(3.500)
Inequal			7.244***	6.890**	6.707***	6.287*	5.605**	4.253	-0.756	-2.007
			(2.256)	(3.457)	(2.402)	(3.446)	(2.641)	(3.828)	(8.831)	(9.619)
EthnTens					-1.187**	-1.196*	-0.471	-0.668	-0.319	-0.559
					(0.581)	(0.631)	(0.457)	(0.500)	(0.389)	(0.420)
ReligTens							-1.575***	-1.554***	-0.763	-0.892
							(0.434)	(0.464)	(0.542)	(0.546)
NatRes									-0.027	-0.035
									(0.026)	(0.031)
Res		-1.458***		-1.824***		-1.384***		-0.051		-1.697
		(0.258)		(0.165)		(0.289)		(0.579)		(3.906)
RESET	0.296	0.235	0.813	0.715	0.976	0.587	0.801	0.918	0.874	0.575
Groups	12	12	12	12	12	12	12	12	11	11

Note: *GDPc* is the logarithm of real GDP per capita, *Gov* the aggregate governance indicators from ICRG, *Edu* the average number of years of schooling of population aged 25 or older from UNDP, *Open* the ratio of exports plus imports to GDP from various national and international sources, *Demo* the Democratic Accountability variable from ICRG, *lpopd* the logarithm of population density from WDI, $Inequal_t$ the share of top 1 % pre-tax national income in total gdp from WID, $EthnTens_i$ *and ReligTens* the indicators of ethnics and religious tension respectively from ICRG, *NatRes* the natural resources rent from WDI. *Res* is the residual of the 1rst stage estimation of the two-step control function (CF) procedure. *Reset* is for RESET Test- P Values. Robust standard errors are given in parenthesis. Significance level: ***. **, * is less than 1%, 5% and 10% respectively. Estimations include country fixed-effects.

3.6.8 Appendix 8

The Aggregate Governance Indicator

Principal components/correlation

Table 3.A.8.1: Principal Component Analysis

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.627	0.675	0.407	0.407
Comp2	0.952	0.143	0.238	0.645
Comp3	0.809	0.196	0.202	0.847
Comp4	0.613	.	0.153	1.000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Comp4	Unexplained
Invfr	0.522	0.037	-0.751	0.403	0.000
Corfr	0.617	-0.048	0.005	-0.785	0.000
Lworfr	0.381	0.772	0.440	0.255	0.000
Bcfr	0.449	-0.633	0.493	0.395	0.000

With ***invfr*** : "Investment Profile," ***corfr*** "Control over Corruption," ***lworfr*** "Law and Order" and ***bcfr*** "Quality of Bureaucracy" (see Aysan et al, 2007). "Investment Profile" has three subcomponents: (i) contract viability/expropriation, (ii) profits repatriation, (iii) payment delays. "Control over Corruption" is an overall valuation of corruption within a country. "Law and Order" proxies impartial judiciary and overall observance of law. "Quality of Bureaucracy" shows how autonomous is bureaucracy to perform services without government pressure A higher value of these variables means a lower risk (ie a better governance). (See ICRG for more details on definitions and compositions of these variables)

4 Chapter 4 - Conflict, Exchange Rate Volatility, Institutions, and FDI in Developing Countries

Abstract of Chapter 4

This chapter uses the Generalized Method of Moments (GMM) with robust standard errors to study the role of conflict, macroeconomic uncertainty, and institutions on net FDI inwards in developing countries. We show that the risks of internal conflict in a country harm FDIs. We also establish that foreign investors are sensitive to exchange rate volatility, as measured by a GARCH specification, which proxies the macroeconomic uncertainty and favors investments over exports when this uncertainty is high. It also appears that trust in institutions, through good governance, encourages foreign companies to invest in a country. We also show that the size of the domestic market, proxied by the size of the population, and the growth potential of this market play a positive role in foreign investment decisions. On the other hand, trade openness does not seem to translate into an increase in FDI. Foreign companies seem to prefer to export rather than invest when trade barriers are lower.

Keywords: Conflict, Exchange Rate Uncertainty, Institutions, Foreign Direct Investment,

JEL classification: C26, F21, D74, O17, O24

4.1 Introduction

Along with remittances and Official Development Assistance (ODA), Foreign Direct Investment (FDI) represents a critical external financial flow for developing countries. Moosa (2002) explains that countries' motives to attract FDI are to increase their exports, substitute their imports, and reduce their balance of payment deficit. Inward FDI also brings positive change in the host countries through generating employment and positive spillovers on economic activity. It also has an indirect effect on economic diversification and stability, as the trust level of other investors increases with the level of foreign investments. Developing countries undertake policies to encourage foreign investors to invest in their economies.

Investors tend to invest in countries with low risks and operational costs, and a favorable economic environment that provides them with a competitive edge (Boateng et al., 2015). Fragile and conflict-hit countries offer comparatively better terms to attract foreign investors to compensate for the higher risk of an uncertain economic and political environment. These policies to enhance FDI, however, may not work. World Bank (2018) states that fragile countries represent a low share of global FDI. The decision of foreign companies to invest in a country depends on several options. Even if developing countries offer benefits to attract foreign investors, only some enjoy the lion's share of FDI.

Companies invest where they can maximize their profit. They rely on different techniques, such as the payback period[61], net present value (NPV)[62], or internal rate of returns (IRR),[63] to evaluate their investment returns before investing. Unsystematic risks and systematic risks also play a vital role in determining the cost of capital and future returns. Diversification can

[61] The notion of a payback period refers to the time duration an investment takes to reach the breakeven point.
[62] In capital budgeting, the net present value (NPV) is used to determine today's value of projected future returns. It is used to compare different projects by discounting their cash flows.
[63] In capital budgeting, the internal rate of returns refers to a discount rate where the net present value (NPV) is equal to zero

be used to minimize unsystematic risks. However, systematic risks, for instance, macroeconomic uncertainty and political instability, are unavoidable. For instance, if the exchange rate in a host country is volatile, forecasting returns and comparing investment opportunities for a foreign firm will be difficult. Recent literature on uncertain economic situations states that, even when NPV is positive, and the host country provides a better alternative for production than other countries, foreign companies will still hesitate to invest in countries with an uncertain economic and political environment (Rivoli and Salorio, 1996: de Brito and Sampayo (2005). Financial and country risks (political instability) are two main systematic risks that crucially contribute to uncertain situations. The nature and uncertainty of these unavoidable risks can induce firms to choose between exporting and investing.

A high chance of country risks like internal conflict, political instability, or poor governance can deter FDI in a country. As investments are irreversible, foreign investors can wait and see before investing in a politically fragile host country. In the case of financial risks, like volatility in exchange rates, foreign firms choose between exporting and investing. For exports, a volatile exchange rate can lead to higher notes payable or fewer notes receivable. Mainly, among firms, this exchange rate risk is managed through financial derivatives. However, though managed, high volatility may cause loss to one of the parties in the transaction. In high volatile situations, businesses are reluctant to go into future contracts as costs for hedging financial risks increase. Consequently, because of higher costs and risk to export, volatility in the exchange rate can lead to an increase in foreign investments, as developed by (Goldberg & Kolstad, 1994).

After a peaceful decade – after the end of the cold war in the early 90s – financial and political uncertainty has increased. We have seen a surge in macroeconomic uncertainty and conflict in many countries, and it has changed the dynamics of FDI.

As we stated, FDI brings many positive spillovers and benefits for developing and fragile countries. It is essential to study the relationship between political and economic instability and FDI for this time frame. This research paper seeks to fill this gap by comprehensively analyzing the role of macroeconomic uncertainty (proxied by real effective exchange rate uncertainty) and political instability (proxied by the risk of internal conflict and governance) on FDI for developing countries.

We measure macroeconomic uncertainty by using three indicators of the real effective exchange rate, two calculated using the CERDI method[64] (one for all traded products, another for non-oil products, and one taken from IFS (2018). The purpose of using three different datasets for exchange rate uncertainty is to check our results' robustness and add our input to the inconclusive debate on the relationship between Exchange rate uncertainty and FDI.

Another particularity of our work lies in using the risk of internal conflict and governance as FDI determinants for developing countries. We analyzed the individual and aggregate role of different governance and institutional factors in attracting FDI in the host country. For comprehensive analysis and robustness, we use governance variables[65] from World Governance Indicators (WGI) and International Country Risk Guide (ICRG) for our analysis.

The rest of the chapter is organized as follows. Section 4.2 summarizes the theoretical motivation and review of existing literature on FDI. Based on the literature, section 4.3 describes our samples, justifies the methodological aspects, presents our model of FDI, and justifies the variables used in the analysis and the data sources. Section 4.4 presents the results of the empirical analysis and the robustness tests for our various specifications. The last section concludes with our main findings and policy recommendations.

[64] For more details on the variables, see section 3.2
[65] For more details on the variables, see section 3.2

4.2 Determinants of FDI: Theoretical motivation and Review of Literature

FDI is the outcome of perspectives acceptable to a foreign company and its host country. Investment from a Multi-National Enterprise (MNE) is either horizontal or vertical FDI. Horizontal FDI is when firms invest in a country to produce nearby customers. It happens when there are trade barriers or when transportation cost is high. The motivation for vertical FDI is to utilize cheap factors of production in another country to decrease the total cost of production.

Investment is for the purpose of profit maximization. However, the irreversible nature of investment and the option for delaying the decision to invest make a choice sensitive to uncertainty. Firms do require information that helps them better forecast returns before investing. Forecasting returns for investment requires understanding both unsystematic risk and a country's market or economic situation (systematic risk). Though unsystematic risks are diversifiable, systematic risks are difficult to manage in an uncertain environment.

Recently, many pieces of research have focused on FDI determinants, especially on the impact of uncertainty on FDI flows in a country. Data from the last two years show a sharp decline in FDI flows worldwide. UNCTAD (2019) states that 27 % of this decline was due to developed countries (mainly because of large-scale repatriations from the United States of America). Figure 4.1 reveals that the developing countries show stable trends of FDI flows but have a small share in the global flows. To increase this share, understanding the perspective of investors is essential.

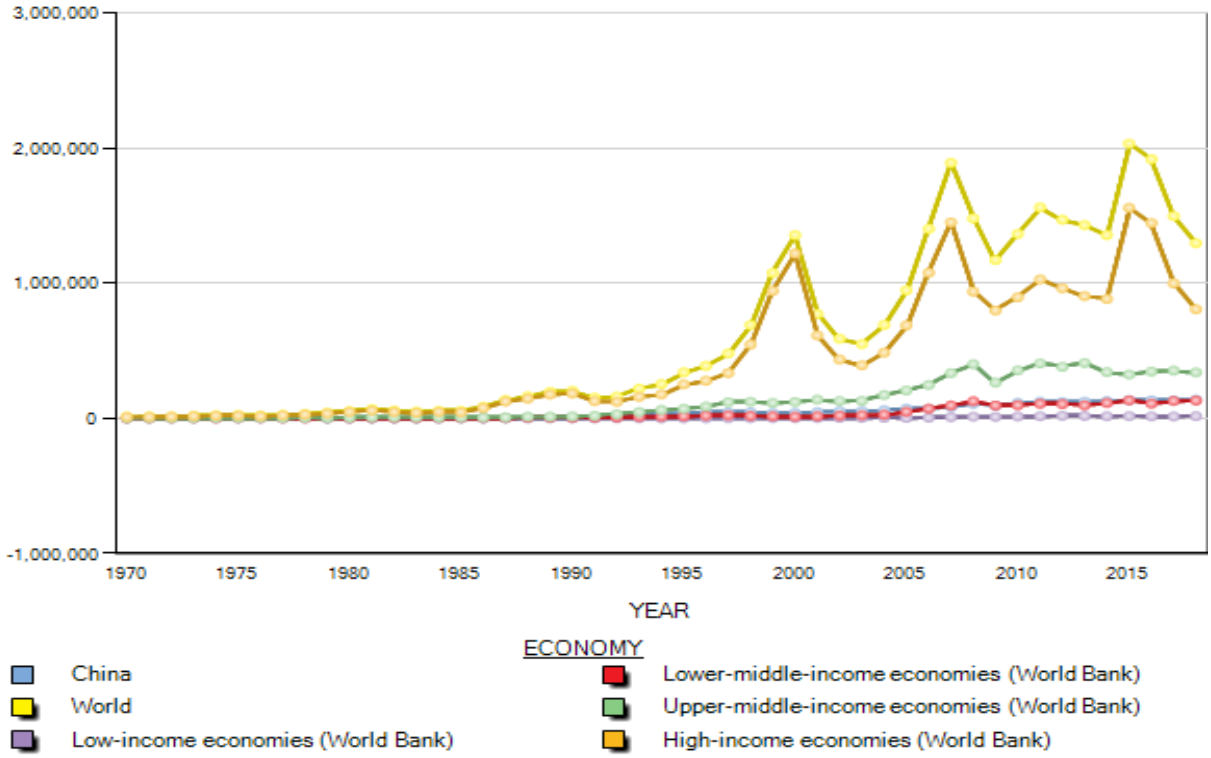

Figure 4.1 Evolution of Inward FDI Overtime

Source : https://unctadstat.unctad.org/

The exchange rate is an important explanatory factor of FDI. Froot and Stein (1991) suggest that when the host country's exchange rate depreciates, the wealth of the foreign investors increases relative to the host economy. It leads to an increase in FDI in the host country. Blonigen (1997) shows that currency depreciation in the host country increases acquisitions relative to the source country. He studied the FDI between Japan and the United States and revealed that, when the dollar was weak compared to the yen, investments from Japanese firms were high in the acquisition of firm-specific assets.

For the foreign investments based on exchange rate regimes, Aizenman (1994) gives a theoretical framework and proposes that fixed exchange rate regimes attract more FDI than flexible ones. Following this theoretical framework, Cushman and Vita (2017) use the

Propensity Score Matching (PSM) approach to understand the effect of exchange rate regimes (fixed or floating) on FDI. They use FDI net inflows as a dependent variable for 70 developing countries and conclude that fixed exchange rate regimes attract more FDI than floating ones (Abbott et al., 2012). This conclusion supports the argument that exchange rate volatility decreases FDI due to investors' risk aversion behavior (Cushman, 1985).

Pindyck (1993) states that investors must use their investment to generate profits; otherwise, it will be of little or no value because of sunk costs. Dixit and Pindyck (1994) reveal that the irreversibility and delaying factor (wait and see) makes investment decisions vulnerable to uncertainty. Abbas et al. (2019) suggest that irreversibility and uncertainty in a country increase the cost of doing business and reduce potential investment. Jabri et al. (2013) conclude that an uncertain environment (economic instability) decreases FDI.

Studies have used different economic indicators to capture macroeconomic uncertainty, i.e., inflation volatility, interest rate volatility, output volatility, trade openness volatility, and exchange rate volatility, among other factors. Aizenman and Marion (2004) use output per worker volatility, along with terms of trade and Consumer Price Index (CPI) volatility, to proxy for uncertainty. They reveal that uncertainty harms FDI and the impact is more significant on vertical relative to horizontal FDI. Cavallari and d'Addona (2013) indicate that interest rate and exchange rate volatility in host countries deter FDI.

Recent literature has used exchange rate volatility to measure uncertainty to determine the impact of macroeconomic uncertainty on FDI. Cushman (1985), Goldberg and Kolstad (1994), and Campa (1993) gave a theoretical explanation for the impact of exchange rate uncertainty on FDI. Theoretical arguments are divided into "risk aversion" and "production flexibility". In explaining the "risk aversion" argument, Goldberg and Kolstad (1994) argue that exchange rate uncertainty reduces the certainty equivalent (CE) expected exchange rate

levels. Since firms use CE levels in their expected profit functions, high exchange rate uncertainty brings additional risks and reduces the expected value of an investment, thus FDI. The logic behind the "production flexibility" argument is the hypothesis that the firms can adjust the use of the variable factors following the realization of a stochastic nominal or real shock. In that case, the price variability due to the uncertain exchange rates leads to uncertain expected profits, encouraging producers to invest in the host country. This is the case because the adjustment of the variable factors of production allows a firm to diversify the risk through investment in the host country. In line with the risk diversification hypothesis, firms choose FDI instead of exports to reduce the variability in their future profits due to the exchange rate uncertainty.

The existing empirical literature on the effects of exchange rate uncertainty on FDI is inconclusive and divided into the arguments of the irreversibility of investment and export substitution (Osinubi & Amaghionyeodiwe, 2009). Dixit's (1989) theory of real option explains that when a firm faces uncertainty and irreversibility of investment, obtaining more information is essential, which delays the investment decision. Campa (1993) concludes that high exchange rate uncertainty depresses current FDI as investors wait to obtain more information before investing in his real options theory. Hanusch et al. (2018) reveal that both short-term (1-year standard deviation) and long-term (5-year standard deviation) exchange rate volatility decreases FDI inflows. They also focused on the case study of South Africa relative to its peer group and suggested that a decline in exchange rate volatility increases the FDI in South Africa. Asamoah et al. (2016) use the difference GMM and System GMM to analyze the impact of macroeconomic uncertainty on FDI for sub-Saharan Africa. They use the GARCH model to capture exchange rate uncertainty and reveal that it depresses FDI flow.

On the other hand, Itagaki (1981) and Cushman (1985) highlight that an uncertain exchange rate can lead to a decline in exports, inducing firms to choose FDI as a substitute for

exports. In the same way, Goldberg and Kolstad (1994) find a positive relationship between exchange rate uncertainty and FDI. They develop that the correlation between uncertainty and export demand shocks causes the positive impact of uncertainty on FDI in risk-averse firms. Pain and Van (2003) also observe the positive impact of exchange rate volatility on FDI in most specifications. Takagi and Shi (2011), while focusing on the FDI of Japanese firms in 9 Asian economies, reveal that exchange rate volatility positively impacts FDI. They suggest that the exchange rate volatility encourages producers to invest in the host country as a substitute for exports. Lin et al. (2010) use GARCH (1 1) to measure exchange rate volatility. They conclude that exports substituting firms invest more in the host country when facing volatile exchange rates. They reveal, however, that the exchange rate volatility harms FDI for market-seeking firms[66]. Franco et al. (2010) do not confirm this result. They show the positive impact of exchange rate volatility on FDI for both resource-seeking and market-seeking firms.

The impact of institutions on FDI is another factor studied in the literature. Governance or institutional quality is also a crucial determinant of FDI in a country. Good governance, for example, can reduce the negative impact of macroeconomic uncertainty on FDI. On the opposite, unsatisfactory governance in the host country can reduce the reliability of future revenue estimates. Likewise, if a legal system in a country is partial and not reliable, it will not be able to protect copyrights, patents, or the private property of the firms. If the firm does not want to offer knowledge spillovers, it will not invest in countries with weak patents and copyrights. Corruption also hampers FDI in a country. Wei (2000) argues that the impact of corruption on FDI is more adverse than taxation. He suggests that with taxation, the total cost is known. However, the total cost is unknown when corruption is high. Political instability also discourages FDI, leading to an uncertain environment for the investors. If returns do not

[66] Authors explain exports-substituting firms as those which invest in foreign markets to substitute their exports and market-seeking firms as those which are not exporting to the foreign country but invest in creating a new market for their products.

include the price of the uncertain macroeconomic factors and bad governance, the firms will invest in countries where the predictability of their future returns is reliable.

Asamoah et al. (2016) show that institutional quality measured by Kraay et al. (2010) governance indicators have a positive relationship with FDI for sub-Saharan African countries. They also show that the interaction between institutional quality and exchange rate uncertainty reduces the adverse effect of macroeconomic uncertainty of FDI. They suggest that effective and strong institutions in a country reduce the deterring factors of FDI. Mengistu and Adhikary (2011) also focus on good governance as determining FDI inflows for 15 Asian economies. They used Kraay et al. (2010) governance indicators and applied Feasible General Least Square (FGLS) and Prais–Winston panel estimators to estimate their model. They conclude that all governance indicators show a significant relationship with FDI inflows other than regulatory authority and voice and accountability. They conclude that host countries attract more FDI if they have good governance.

Gok (2018) uses System GMM to analyze the impact of governance on FDI inflows for Advanced, Developing, and Least Developed Countries. He shows that good governance is an essential factor in attracting FDI (see also Gastanaga et al., 1998). The study also reveals that, along with governance, market growth (proxied by GDP growth), efficiency (human capital) and improvement in physical infrastructure are important determinants of FDI. Gok and Dogruel (2012) use the system GMM and also found a positive impact of governance indicators on FDI inflows.

Dogru (2012), on his side, uses governance indicators from Fraser Institute for 54 Upper Middle-income economies and reveals that governance has a positive relationship with FDI. Along with governance, they also found a significant relationship between macroeconomic variables (GDP, GDP per capita, trade openness, international country risk, and population

growth) and FDI. Ahmed and Ahmed (2014) use ARDL to examine the impact of institutions' quality on FDI in this country. They found that institution quality is an essential determinant of FDI inflows in Pakistan. They also used an interaction term between trade openness and institutional quality and found a significant positive impact on FDI inflows. They suggest that better institutional quality and reduction in trade barriers can enhance FDI in a developing country.

Faeth (2009) suggests that conflict (particularly terrorism) is a risk factor that decreases FDI. In the same vein, Sandler and Enders (2008) argue that a rise in terrorism diverts FDI to a safer country. Abadie and Gardeazabal (2008) develop that terrorism increases uncertainty and decreases the expected returns for investors. He suggests that investors can diversify the country's risk through capital mobility across countries if the world economy is satisfactorily open. He concludes that the terrorist risk decreases net FDI flows in conflict-hit countries. Enders and Sandler (1996) also argue that terrorist activities aimed at foreign interests can decrease net FDI. They posit that the impact of terrorism on FDI is more adverse to small economies than to developed countries. They argue that the large economies are less affected because of more diverse groups of foreign investors. Large economies also have adequate resources to counter terrorism efficiently. The authors use a VAR model and conclude that terrorism reduces net FDI in Spain and Greece.

Bandyopadhyay et al. (2012), on their side, use Feasible Generalized Least Squares (FGLS), Difference GMM and System GMM to estimate the impact of domestic and transnational terrorism on FDI (as a percentage of GDP) for a panel of 78 countries. They show that domestic and transnational terrorism decreases FDI in the host country. They also reveal that the interaction between terrorism and foreign aid mitigates the effect of terrorism on FDI. Powers and Choi (2012) focus on the impact of business and non-business-related transnational terrorism on FDI inwards. They use the terrorism data from ITERATE for 123

developing countries and conclude that business-related transnational terrorism decreases FDI. They also suggest that counter-terrorism measures in host countries to reduce business-related terrorism are helping to reassure foreign investors. Al-Khouri (2015) uses GMM to determine risk factors influencing FDI in the Middle East and North African (MENA) region. He used data on economic, political, and financial risks from The International Country Risk Guide (ICRG) database. The study shows that economic risk has a significant negative impact on FDI, whereas trade openness is positive. He also reveals that only law and order, investment profile, and ethnic tensions have a significant negative impact on FDI from political risks.

The role of infrastructure is another dimension studied in the literature. Wheeler and Mody (1992) suggest that sufficient infrastructure complements private investment in developing countries. Biyase and Rooderick (2018) use a two-stage panel Heckman Selection estimator to analyze FDI determinants in BRICS countries from 1990 to 2015. They conclude that GDP per capita and infrastructure positively impact FDI inflows for BRICS.

Sekkat and Véganzonès-Varoudakis (2007) show, on their side, that trade and exchange rate liberalization play a significant role as contributing factor to FDI. They use the Sachs-Warner indicator of trade and foreign exchange liberalization and show that it enhances FDI. Along with that, trade policy, black-market premium, and exchange rate volatility present a significant relationship with FDI. Jabri et al. (2013) use panel co-integration analysis to ascertain FDI determinants in MENA countries. They also show that trade openness and GDP growth have a positive relationship with FDI. In contrast, exchange rate volatility and inflation rate (as a proxy for economic instability) negatively impact. Khachoo and Khan (2012) usefully modified ordinary least squares (FMOLS) to identify FDI determinants in 32 developing countries. They conclude that the log GDP (as a proxy for market size), total reserves**,** and energy usage (as a proxy for infrastructure) positively impact FDI. They also

highlight that low wages in a host country increase FDI as results indicate a negative relationship between wages and FDI.

4.3 Presentation of the Model and the Variables

In the first subsection, we explain the model. Based on literature review, in section, 4.3.2 we discuss the variables and their significance. In our last section, we discuss the methodological aspects of our model.

4.3.1 The Model

The equation used to study the determinants of FDI for our panel data is as follows:

$$FDI_{it} = \alpha + \alpha_1 (FDI_{it-1}) + \alpha_2 (Conflict_{it}) + \alpha_3 (Gov_{it}) + \alpha_4 (ReerV_{it}) + \alpha_5 (GDPg_{it}) + \alpha_6 (Pop_{it}) + \alpha_7 (Infra_{it}) + \alpha_8 (H_{it}) + \alpha_9 (Open_{it}) + \alpha_{10} (PolStab_{it}) + \varepsilon_t$$

Where *FDI* is the log of foreign direct investment net inflows, *conflict* is the risk of conflict variable, *Gov* is the governance indicator, *ReerV* is the real effective exchange rate volatility, *GDPg* is the growth of real GDP per capita, and H is the human capital indicator, *Open* the trade openness proxy, *Infra* the infrastructure variable, *PolStab* the political stability indicator and *Pop* the logarithm of the population. *i* is the country index, *t* the time index, and ε the error term. α_0 to α_{10} are the parameters to estimate.

4.3.2 The Variables

This section presents the variables that we use to estimate our model. We commence by explaining our dependent variable (Foreign direct investment). Then we explain the relationship between our primary explanatory variables (real effective exchange rate

volatility, risk of internal conflict, and governance) and the dependent variable. After that, we explain our control variables in groups.

4.3.2.1 Foreign Direct Investment

We use the log of the net FDI inflows in dollars as our dependent variable. The data is from 2004 to 2018 and comes from WDI (2018). In recent studies, FDI has been measured through, among others, FDI/GDP, FDI/Population, net FDI inflows in dollars, or log of net FDI inflows. Following Li (2009), we chose the log of the net FDI inflows[67] in dollars instead of FDI/GDP, as we are interested in knowing what causes an increase in FDI inflows rather than the country's openness towards FDI. Some countries show a low FDI to GDP ratio but high net FDI inflows. This is the case in China, for example. Other countries indicate a high FDI to GDP ratio but a small share of net FDI inflows globally (as in Guyana in 2005). (see descriptive statistics in Table 4.A.1 in the Appendix).

4.3.2.2 The Interest Variables: Real Effective Exchange Rate Volatility, Risk of Conflict, and Governance

Exchange rate volatility is used to measure macroeconomic uncertainty. The research show mixed results on the impact of exchange rate uncertainty on FDI. Cushman (1985) argues that exchange rate volatility increases exports' costs, so firms prefer to invest rather than export to the country. However, the irreversible nature of investment can delay FDI as firms prefer to wait to get more information and make a better decision (Campa, 1993).

We use the real effective exchange rate volatility (REERV) as our measure for uncertainty. We introduce three indicators of the real effective exchange rate, two calculated as in (Diallo,

[67] To include divestments in our data, we followed Li (2009) and added a constant number (lowest value in our data) + 1 to convert negative values into positive numbers. For more details, see Li (2009). We also estimated our baseline model without adding the constant number, and the results were nearly the same.

2014), one for all traded products (REER), another one for non-oil products (REERhp)[68], and one is taken from IFS (2018) (REERimf). We calculate REER and REERhp as follows:

$$REER = \prod_{j=1}^{10} \left(\frac{e_j}{e_i} * \frac{p_i}{p_{j)}} \right)^{\omega_j}$$

Where e is the nominal bilateral exchange rate relative to the dollar and p the consumer price index, both from International Financial Statistics (IFS, 2018). i is for the country for which we measure the real effective exchange rate, j for the trading partners, and ω_j for the weightage of the j trading partner[69]. We use the first ten trading partners[70], to compute REER. Weightage for partner j is as follows:

$$\frac{\frac{Exports_j + Imports_j}{2}}{\sum_{j=1}^{10} \frac{Exports_j + Imports_j}{2}}$$

Finally, to estimate the real effective exchange rate volatility, we use GARCH[71] (1,1) from the ARCH family (see Bleaney and Greenaway, 2001). (see descriptive statistics in Table 4.A.1 in the Appendix).

We proxy political instability by the risk of conflict and governance variables. Busse and Hefeker (2007) use the risk of internal conflict and other political risk variables from the ICRG database as determinants of FDI. They argue that a high risk of conflict creates uncertainty, reducing foreign flows to an economy. Other researchers, like Abadie and

[68] Diallo (2014) argues that oil price volatility can increase the volatility of the real internal exchange rate of oil-exporting economies.

[69] The weightage is from BACI (2017), developed at CEPII. For weights, we took the 2008-2012 averages of the trading partners.

[70] Following the methodology developed at CERDI (Diallo, 2014), we selected only the first ten trading partners as these partners represent nearly 70% of the trade weights.

[71] The method to construct these variables is explained in Appendix.

Gardeazabal (2008), Sandler (1996), and Bandyopadhyay et al. (2012), also conclude that domestic or transnational terrorist activities have a negative impact on FDI.

Many researchers use the number of casualties or the annual number of terrorist-based incidents to measure conflict. However, Abadie and Gardeazabal (2008) suggest that terrorism risk rating is a more appropriate proxy to determine FDI. They argue that international investors utilize country risk ratings to ascertain risks for their investments. Assessing country risks requires a lot of resources and time. So, firms use risk ratings from reliable sources to decide to invest in a country. Therefore, we choose the risk of internal conflict[72] variable from ICRG-PRS (2018) as our explanatory variable of FDI. We expect that countries with more risk attract less FDI. As the ICRG indicator of internal conflict increases when the risk decreases, we expect a positive elasticity in the regressions. (See descriptive statistics in Table 4.A.1 in the Appendix).

Various empirical studies use Principal Component Analysis (PCA) to combine different indicators from Kaufmann et al. (2010) or the ICRG as a proxy for governance, as well as separate variables. Empirical evidence shows the positive impact of good governance on FDI in host countries (Gani,2007; Asamoah et al., 2016)

We use Kaufmann et al. (2010) and ICRG-PRS (2018) governance indicators as our proxies for governance alternatively. The five indicators of Kaufmann et al. (2010)[73] and the four indicators of ICRG[74] are tested separately in our regressions. We also generated two aggregated indicators from the two sources using the PCA methodology (see PCA results in

72 In the ICRG database, Internal Conflict is the sum of three sub-components a) Civil War/Coup Threat, b) Terrorism/Political Violence, and c) Civil Disorder. The highest value means the country has no conflict.

73 These indicators are (i) "control of corruption", (ii) "government effectiveness", (iii) "regulatory quality", (iv) "rule of law", and (v) "voice and accountability". Values for the variables range from -2.5 to 2.5 where ascend means a better governance.

74 These variables are (i) “control over corruption,” (ii) “investment profile,” (iii) “law and order,” and (iv) “quality of bureaucracy” (see Aysan et al., 2007). A higher value of these variables means a lower risk (i.e., better governance). (see ICRG for more details on definitions and compositions of these variables)

Table 4.A.12 and 4.A.13 in the Appendix. See also see descriptive statistics in Table 4.A.1). In line with the literature, we expect a positive relationship between our governance variables with FDI for our different sets of regressions. We also use political stability from World Governance Indicators (WGI) in our specifications. The value for this variable ranges from negative 2.5 to positive 2.5 where increase mean a stable political environment.

4.3.2.3 Other Control Variables

4.3.2.3.1 GDP Growth

We use the GDP growth rate from WDI (2018) to proxy future market potential in an economy (Kahai, 2004). GDP growth is an essential indicator for foreign companies as it captures the future growth capability of the market. If the growth rate is high in a country, the chances for the business to grow are also high. GDP growth also indicates the overall health of the economy. In line with the literature, we expect a positive impact of GDP growth on FDI. (see descriptive statistics in Table 4.A.1 in the Appendix).

4.3.2.3.2 Human Capital

Dunning (1988) and Lucas (1990) highlight that human capital enhances FDI in less developed countries. Noorbakhsh et al. (2001) and Rodriguez and Pallas (2008) show that human capital positively impacts FDI inwards.

Empirical studies have used educational level variables, health indicators (mortality rate and life expectancy especially), or economic indicators (GDP per capita, for example) to proxy human capital. We choose the Human Development Index (HDI) from UNDP as our proxy for countries' human capital. It includes life expectancy, educational level, and GDP growth. High human development means a healthy skilled labor force living in good economic conditions. We use, in addition, the mean years of schooling from UNDP as an alternative measure of human capital. We expect a positive relationship between our two

human capital indicators and FDI for our sample of countries. (see descriptive statistics in Table 4.A.1 in the Appendix).

4.3.2.3.3 Trade Openness

The influence of economic reforms on FDI is another dimension studied in the literature. Kandiero and Chitiga-Mabugu (2006) and Liargovas and Skandalis (2012) use trade openness for panel data and conclude that it positively impacts FDI. Economic reforms that lead to trade openness can show the countries' commitment to facilitating foreign investment. A high degree of trade openness can lead multinational companies to invest in a country to overcome exchange rate volatility, for example. However, high trade openness can also depress FDI as it will be easier for foreign firms to export rather than taking the risk of investing in the country. This argument aligns with the tariff jumping theory, where the firms choose to invest in a host country to overcome tariff barriers.

In this study, we use the ratio of exports plus imports to GDP (in real terms) as a proxy for trade reform. The data are from National and International sources (see descriptive statistics in Table 4.A.1 in the Appendix).

4.3.2.3.4 Infrastructure and Population

We introduce two other factors that can help explain FDI in developing countries. Good infrastructure is an essential dimension of the firms' decision to invest as it enhances the productivity of the investment. Asiedu (2004) explains that good infrastructure attracts FDI through facilitating production and reducing operational costs. In the empirical part, we proxy infrastructure alternatively by mobile phones subscriptions and fixed telephone lines per 1000 inhabitants. Both variables are from WDI (2018).

The population is another dimension that foreign investors can consider when deciding to invest. Aziz and Makkawi (2012) argue that countries with large populations are more

attractive for multinational enterprises as they offer a large market for their products and provide a sizable labor force. We take the population from WDI (2018).

Both population and infrastructure are supposed to show a positive relationship with FDI. (see descriptive statistics in Table 4.A.1 in the Appendix).

4.3.3 Estimation of the Model: Methodological Aspects

Our equation shows that we have endogenous explanatory variables. The inclusion of a lagged dependent variable generates the model dynamic and causes an endogeneity problem because it becomes correlated with differenced error terms (Baltagi, 2008). It makes the Ordinary Least Square (OLS) estimator an unsuitable estimation method for our empirical analysis. In recent literature, The GMM approach developed by Arellano and Bover (1995) and Blundell and Bond (1998) has been widely used to deal with the endogeneity problem.

We use the OLS estimator with fixed effects as our base model and the GMM estimator with weak instruments to address endogeneity. The GMM estimator is efficient for large sample sizes observed over short periods, which is our case (Blundell and Bond (1998). To avoid the problems associated with instrument proliferation, we followed the advice of Roodman (2009), who suggested that the number of instruments should be less than the number of cross sections (countries in our case). We use Hansen J-test of over-identifying restrictions, and tests for serial correlation by Arellano and Bond (1991) as diagnostics test to validate that our model has proper specification. The GMM estimator is efficient for large sample sizes observed over short periods, which is our case.

We use panel data for 44 to 49 developing countries[75], over the period 2004 -2018, for three-year averages in the case of the GMM estimator. Despite the desire to include all

[75] The number of countries in our specifications depend on the availability of data for real effective exchange rate. We calculated REER for 45 countries, and REERhp for 49. For REERIMF the data was available for 45

countries in the analysis, we had to limit the study to countries where data was available (see the list in the Appendix Section B). We choose the GARCH approach to measure the real effective exchange rate volatility. The use of the GARCH instrument requires data for all years. Countries with missing values were thus excluded from the sample.

For governance, we apply the Principal Component Analysis (PCA) methodology to our initial governance variables to assess the overall impact of the quality of institutions on FDI through an aggregate indicator. In the literature, the PCA methodology has been widely used to generate aggregate indicators to address the issue of multicollinearity when the regressions include several closely related variables (Roy, 2005; Han et al,. 2014; Emara & Chiu, 2016). We develop two proxies for aggregated governance. The first one consists of aggregating five governance indicators from WDI, the second one of 4 governance variables from the ICRG dataset (see results of the two PCA in Table 4.A.12 and Table 4.A.13 in Appendix).

4.4 Results and Discussion

We run different sets of regressions to understand the factors contributing to FDI in developing countries. Due to space limitations, we present here only selective results. Other results are presented for the robustness check in the Appendix. This is the case for regressions involving different proxies of our independent variables, the governance indicator in particular. Table 4.1 shows the results of the regressions, including our first indicator of macroeconomic uncertainty, the real effective exchange rate for all products (REER), calculated as in Diallo (2014). In the second set of regressions, we substitute to this indicator the real effective exchange rate for non-oil products (REERhp) (see results in Table 4.2). The last set of regressions incorporates the real effective exchange rate from IMF ((REERimf) (see results in Table 4.3).

countries. The list of countries is available in Appendix B.1 to B.3.

The number of instruments for all the specifications are less than the number of countries as recommended by Roodman (2009 a). We report p-values for Hansen J-test in last row of each table. It confirms that instruments used in our specifications can be considered valid as the Hansen J statistics accepts the null hypothesis of over-identifying restrictions as the p-values are greater than 0.05. The test for serial correlation – AR(1) and AR(2)–- accepts the null hypothesis of no autocorrelation of the second order. This shows that the results of diagnostic tests support the model specifications.

Table 4.1: GMM Regression for Governance Variables from WGI and REER (self calculated) as Main Explanatory Variables

Dependent Variable: log of Foreign Direct Investments (lFDI)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
lFDI (-1)	0.637***	0.608***	0.682***	0.679***	0.625***	0.750***
	(0.115)	(0.108)	(0.118)	(0.117)	(0.109)	(0.128)
Gov	0.402***					
	(0.107)					
Corruption		1.118***				
		(0.256)				
GovEff			0.806***			
			(0.209)			
RegQual				0.690***		
				(0.244)		
LawOrder					0.877***	
					(0.241)	
Voice						0.242
						(0.352)
REER	6.466**	6.284**	4.807*	5.757**	5.769*	-0.090
	(3.047)	(2.909)	(2.833)	(2.496)	(3.064)	(2.953)
Conflict	0.346**	0.437**	0.320**	0.221	0.388**	0.240
	(0.168)	(0.178)	(0.161)	(0.167)	(0.168)	(0.172)
GDPg	0.054	0.046	0.057*	0.058	0.050	0.075*
	(0.034)	(0.028)	(0.034)	(0.039)	(0.035)	(0.041)
Mys	0.007	0.024	-0.038	-0.013	0.037	0.054
	(0.063)	(0.056)	(0.063)	(0.064)	(0.063)	(0.058)
Open	-0.475*	-0.203	-0.340	-0.502*	-0.562*	-0.398*
	(0.263)	(0.272)	(0.251)	(0.260)	(0.297)	(0.237)
lMob	0.044	0.042	0.023	0.027	0.048	-0.006
	(0.169)	(0.171)	(0.148)	(0.160)	(0.179)	(0.159)
PolStab	-0.636	-0.798	-0.355	-0.154	-0.655	-0.327
	(0.509)	(0.492)	(0.475)	(0.486)	(0.522)	(0.602)
lPop	0.264***	0.420***	0.306***	0.244**	0.290***	0.151
	(0.094)	(0.104)	(0.093)	(0.099)	(0.105)	(0.137)
Constant	-1.763	-4.542	-2.268	-0.530	-2.164	-0.686
	(4.479)	(4.572)	(4.417)	(4.431)	(4.572)	(4.201)
Observations	169	169	169	169	169	169
Number of counnum	44	44	44	44	44	44
ar1p	0.0662	0.0629	0.0765	0.0733	0.0633	0.0767
ar2p	0.470	0.452	0.414	0.495	0.421	0.419
Hansenp	0.546	0.628	0.541	0.467	0.549	0.559

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.10. Here *lFDI* is the log of Foreign Direct Investment net inflows, *Gov* the governance indicator from WGI database, *Corruption, Geffect, Regqua, Law, and Voice* are control of corruption, government effectiveness, regulatory quality, the rule of law, and voice and accountability, *REER* the real effective exchange rate uncertainty variable, *Conflict* the risk of internal conflict proxy, *GDPg* the growth of the real GDP per capita, *Mys* the mean year of schooling, Open the trade openness proxy, *lMob* the log of the number of mobile phone subscriptions, *Polstab* the political stability indicator, *lPop* the log of the population respectively.

Table 4.2: GMM Regression for Governance Variables from WGI and REERhp (self calculated) as Main Explanatory Variables

Dependent Variable: log of Foreign Direct Investments (lFDI)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
lFDI (-1)	0.469***	0.426***	0.514***	0.552***	0.456***	0.573***
	(0.124)	(0.108)	(0.115)	(0.132)	(0.119)	(0.159)
Gov	0.473***					
	(0.178)					
Corruption		1.229***				
		(0.464)				
GovEff			0.857**			
			(0.352)			
RegQual				0.604*		
				(0.346)		
LawOrder					1.170***	
					(0.450)	
Voice						0.305
						(0.489)
REERhp	9.102***	6.932**	8.219**	11.374***	9.995**	8.947**
	(3.510)	(2.923)	(3.690)	(4.210)	(4.128)	(3.567)
Conflict	0.263*	0.299**	0.283*	0.224*	0.285*	0.203*
	(0.140)	(0.150)	(0.154)	(0.118)	(0.149)	(0.122)
GDPg	0.072	0.086	0.088	0.076	0.082	0.059
	(0.058)	(0.054)	(0.055)	(0.053)	(0.059)	(0.056)
Mys	0.021	0.076	0.036	0.026	0.041	0.025
	(0.069)	(0.055)	(0.070)	(0.055)	(0.070)	(0.065)
Open	-0.753***	-0.601**	-0.636**	-0.566**	-0.863***	-0.408
	(0.288)	(0.292)	(0.251)	(0.230)	(0.334)	(0.257)
lTel	-0.015	-0.052	-0.052	0.035	0.036	0.122*
	(0.101)	(0.101)	(0.124)	(0.079)	(0.093)	(0.066)
PolStab	-0.373	-0.338	-0.238	-0.227	-0.377	-0.458
	(0.409)	(0.385)	(0.367)	(0.360)	(0.395)	(0.472)
lPop	0.207	0.353*	0.203	0.166	0.293	0.009
	(0.178)	(0.191)	(0.175)	(0.167)	(0.213)	(0.221)
Constant	2.892	0.960	2.142	2.232	1.686	4.399
	(4.281)	(3.990)	(4.263)	(4.202)	(4.346)	(6.147)
Observations	187	187	187	187	187	187
Number of counnum	49	49	49	49	49	49
ar1p	0.0610	0.0656	0.0736	0.0645	0.0648	0.0573
ar2p	0.946	0.980	0.783	0.742	0.866	0.730
Hansenp	0.265	0.213	0.402	0.313	0.175	0.318

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.10

We use SYS- GMM for our analysis. Here *lFDI* is the log of Foreign Direct Investment net inflows, *Gov* the governance indicator from WGI database, *Corruption, Geffect, Regqua, Law, and Voice* are control of corruption, government effectiveness, regulatory quality, the rule of law, and voice and accountability, *REERhp* the real effective exchange rate uncertainty variable, *Conflict* the risk of internal conflict proxy, *GDPg* the growth of the real GDP per capita, *Mys* the mean year of schooling, Open the trade openness proxy, *lTel* the logarithm of the number of telephone subscriptions per 1000, *Polstab* the political stability indicator, *lPop* the log of the population respectively.

Table 4.3: GMM Regression for Governance Variables from WGI and REERimf as Main Explanatory Variables

Dependent Variable: log of Foreign Direct Investments (lFDI)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
lFDI (-1)	0.305	0.211	0.339	0.432**	0.353	0.614***
	(0.216)	(0.229)	(0.225)	(0.208)	(0.216)	(0.221)
Gov	0.576***					
	(0.182)					
Corruption		1.278***				
		(0.431)				
GovEff			0.963**			
			(0.374)			
RegQual				0.898***		
				(0.316)		
LawOrder					1.203***	
					(0.382)	
Voice						0.102
						(0.338)
REERimf	9.511*	9.070	9.927*	10.925**	10.018*	7.048
	(5.340)	(5.515)	(5.723)	(5.310)	(5.356)	(4.406)
Conflict	0.396**	0.438**	0.425**	0.445**	0.433**	0.379**
	(0.195)	(0.209)	(0.201)	(0.189)	(0.191)	(0.189)
GDPg	0.030	0.020	0.047	0.046	0.046	0.084***
	(0.034)	(0.041)	(0.034)	(0.031)	(0.031)	(0.029)
Mys	-0.062	0.031	-0.021	-0.030	0.001	0.023
	(0.082)	(0.080)	(0.081)	(0.082)	(0.077)	(0.087)
Open	-0.367	-0.320	-0.284	-0.245	-0.433	0.099
	(0.384)	(0.421)	(0.421)	(0.376)	(0.402)	(0.320)
lTel	-0.015	-0.070	-0.092	-0.077	-0.027	0.033
	(0.178)	(0.196)	(0.200)	(0.192)	(0.187)	(0.202)
PolStab	-0.533	-0.411	-0.137	-0.269	-0.470	-0.377
	(0.330)	(0.306)	(0.300)	(0.297)	(0.308)	(0.434)
lPop	0.446***	0.528***	0.488***	0.480**	0.467***	0.363*
	(0.170)	(0.180)	(0.185)	(0.194)	(0.176)	(0.210)
Constant	1.225	1.028	-0.249	-2.057	-0.364	-3.659
	(3.178)	(3.539)	(2.874)	(2.523)	(2.863)	(2.760)
Observations	174	174	174	174	174	174
Number of counnum	45	45	45	45	45	45
ar1p	0.101	0.120	0.157	0.132	0.105	0.106
ar2p	0.432	0.429	0.408	0.454	0.447	0.432
Hansenp	0.539	0.600	0.317	0.519	0.455	0.545

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.10

We use SYS- GMM for our analysis. Here *lFDI* is the log of Foreign Direct Investment net inflows, *Gov* the governance indicator from WGI database, *Corruption, Geffect, Regqua, Law, and Voice* are control of corruption, government effectiveness, regulatory quality, the rule of law, and voice and accountability, *REERimf* the real effective exchange rate uncertainty variable, *Conflict* the risk of internal conflict proxy, *GDPg* the growth of the real GDP per capita, *Mys* the mean year of schooling, Open the trade openness proxy, *lTel* the logarithm of the number of telephone subscriptions per 1000, *Polstab* the political stability indicator, *lPop* the log of the population respectively.

Our results state a positive and significant impact of lagged dependent variable which shows that FDI has a persistent effect (Saini & Singhania, 2018). The results show a positive impact of the internal conflict indicator (Conf) risk on FDI for most specifications. The low

risk of conflict in a country increases FDI inflows[76]. This result validates Sandler's (1996) and Busse and Hefeker's (2007) findings, who show that conflict in a country decreases foreign investment. Abadie and Gardeazabel (2008) suggest that uncertainty caused by conflict diminishes the future expected returns. When the risk of domestic conflict is high, it creates uncertain economic and political conditions. The issue of parallel governments and the struggle for control of territory (as seen recently in Libya, Syria, Yemen, and Iraq) is, from this point of view, a particular case that creates an uncertain political environment, where the predictability of who will win the conflict and what economic policies will be pursued contributes to the negative relationship between conflict and FDI. Another reason for this negative relationship is that governments rely on imports to overcome the output deficit (for example, the food shortage in Yemen). Policies will favor imports, and in uncertain times, foreign investors will favor exports rather than investment in a conflict-hit economy.

Our results also show that the real effective exchange rate (REER) volatility (for all proxies) presents a significant positive relationship with FDI. This finding supports the production flexibility hypothesis and contradicts the risk aversion argument. This result is consistent with Cushman (1985), Pain and Van (2003), and Goldberg and Kolstad (1994). They argue that when facing greater exchange rate uncertainty, multinational firms opt for investing in a country instead of exporting. This is also the case because the exchange rate depreciation of the host country also means a higher price for imported goods. As per the production flexibility argument, where the producer can adjust the variable factors following the price fluctuation, the exchange rate uncertainty will also increase FDI as a substitute for exports. From the host country's perspective, FDI is a crucial instrument to stabilize the exchange rate and a factor of growth, economic diversification, and job creation. Countries offer incentives and assurances to foreign companies to convince them to invest in their

[76] The risk of internal conflict variable is from the ICRG database. A positive sign shows that the lower the risk for internal conflict, the higher the FDI will be in the economy.

economy. Our results indicate that these incentives can offset the argument of "wait and see" linked to the irreversible nature of investment when facing macroeconomic uncertainty.

We use the Kaufmann et al. (2010) and ICRG indicators for governance. The results for our two aggregated proxies are positive and significant. These results are in line with the findings of Asamoah et al. (2016) and Mengistu and Adhikary (2011). The results for individual governance variables show that most of them positively impact FDI, with the highest effect of the Control of Corruption indicator in all specifications. As Wei (2000) argued, the impact of corruption on FDI is more adverse than taxation. In an economy where corruption is high, bribery and back-channel payments are on every step. The total cost for a business set up and running is high and mostly unknown. Other than that, our findings also indicate that Law and Order is an essential determinant of FDI. This shows that an independent judicial system and an efficient implementation of law provide a more secure environment for foreign investors. Only the Voice and Accountability indicator has no significant relationship with FDI among governance variables. Similar results are obtained for the specifications, including the ICRG governance variables instead (See tables 4.A.6 to 4.A.11 in Annex).

Our results also show a positive relationship between GDP growth with FDI, although not significant in several specifications, which emphasizes the investors' concerns about the future market potential of the economy. Most of the time, the population is also positively linked to FDI, which shows that the economies with large market sizes attract foreign investors. In our analysis, mean years of schooling and mobile phone subscriptions are mostly insignificant. We also use HDI from UNDP for human capital and fixed phone subscriptions for infrastructure as second proxies, and the results are very similar (See tables 4.A.6 to 4.A.11 in Annex).

As for trade openness[77], our findings support the tariff jumping argument that states that, in case of high tariffs (to reduce the volume of imports and lower the current account deficit), the foreign companies opt for FDI as exports become more expensive (see Franco et al., 2010). Blonigen et al. (2004) argue that when a foreign company offers a product at a lower price than the domestic industries, the host country can increase its tariffs to protect the local economy (as in antidumping duties, for example). To capture the domestic market and increase their profit, foreign firms have to choose to invest in the country rather than export. Our findings also mean that foreign firms choose exports instead of FDI when a country is open to trade and has low barriers.

4.5 Conclusion of Chapter 4

We used the Generalized Method of Moments (GMM) estimator with robust standard errors to study the impact of conflict, macroeconomic uncertainty (proxied by the exchange rate volatility), and governance on Foreign Direct Investment (FDI) in developing countries. We processed several real effective exchange rate (REER) volatility indicators using GARCH specification. We calculated the real effective exchange rate for total and non-oil products as in (Diallo, 2014). We also considered the real effective exchange rate from IMF as the third specification. In addition, we processed two proxies for governance, one using the WDI governance indicators and the second one the ICRG indicators. The time for our analysis runs from 2004 to 2018 with 3-year averages.

We show that the risk of conflict in an economy depresses FDI. This result reveals that political uncertainty caused by conflict reduces the future investment returns. This validates the findings of Sandler (1996), Busse and Hefeker (2007), and Abadie and Gardeazabel

[77] For some of the specifications in which we use real exchange volatility from IMF database the results are not significant for trade openness.

(2008), who suggest that conflict lessens FDI in an economy. In addition to uncertain future returns on investments and sunk costs, the issue of parallel governments, low development spending, and dependence on imports are likely to contribute to this negative relationship.

Our results also highlight the positive impact of REER volatility and good governance on foreign investments. These findings are consistent with Takagi and Shi (2011) and Pain and Van (2003), who suggest that exchange rate uncertainty encourages FDI to compensate for the drop in exports. Goldberg (2009) also suggests that, in the long run, the production flexibility argument is more convincing than the risk aversion one[78]. As for governance, our results are consistent with Asamoah et al. (2016) and Mengistu and Adhikary (2011), who conclude that good governance induces foreign companies to trust the institutions and invest. Our findings also show that, among the governance variables, investors are particularly interested in the control of corruption and the implementation of law and order, as these variables show the highest impact on FDI.

GDP growth and population are other factors that play a positive role in foreign investments. Our results are consistent with Mohamed and Sidiropoulos (2010) and Jimenez (2011), who show that high growth signals domestic market demand and future potential. For population, our results are in line with Akin (2009), who reveals that total population size (as a proxy for market size) and population of age 14-65 are positively linked to FDI. As for trade openness, the variable shows a negative relationship with FDI, which endorses the tariff jumping argument. In an open economy, firms prefer to export than invest.

FDI is vital to developing countries as it helps increase export, substitute imports, and improve the balance of payment. FDI likewise generates employment and enhances

[78] For more details on the production flexibility argument vs. risk aversion argument, section 2 (see also Goldberg, 2009).

productivity through positive spillovers. Along with that, FDI offers economic diversification and stability in an economy. To attract foreign companies, countries undertake policies to improve their economic environment. However, these policies may not work when the potential investors cannot assess the risks and predict the future returns of their investment. An uncertain political and economic environment can reduce the forecasting power of the investors who can choose to wait to get more information before investing. Our findings reveal that, in an economy where the risk of internal conflict is high or the governance is not efficient, FDI can be below. On the opposite, exchange rate uncertainty is more in favor of foreign investment. This positive relationship between REER volatility and FDI is driven by an export substitution strategy when revenues from exports become unpredictable due to exchange rate volatility. We believe that a firm-based analysis for industries that depend on importing raw materials might show different sensitivity to exchange rate uncertainty. We also believe that the time duration of our analysis is essential for the signs of the coefficient.

After the war on terrorism, the Arab Spring, and the uncertain political environment in developing countries, foreign investors focus more on the risks of internal conflict and good governance. These uncertain political developments also lead to volatile economic conditions. To stabilize the economic situation, developing countries offer advantages to foreign investors to mitigate these risks and favorable policies to attract FDI. These policies allow foreign companies to invest and earn high returns with less uncertainty.

We propose that future research should also put emphasis on a behavioral analysis of foreign investors' motivation (for both market seeking and vertical investments). It should analyze how foreign investors respond[79] to exchange rate uncertainty if export returns are

[79] Analysis based on risk-averse, risk-neutral, or risk-taking behaviors.

constant. It will allow us to gain a better understanding of the impact of uncertain exchange rates and political environments on FDI.

4.6 Appendix of Chapter 4

Table 4.A.1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
lFDI	765	17.47	2.37	0.00	23.97
Gov	885	0.00	2.06	-5.16	5.15
Corruption	894	-0.24	0.82	-1.78	2.24
GovEff	894	-0.25	0.84	-2.43	2.36
RegQual	893	-0.24	0.87	-2.58	2.17
LawOrder	904	-0.24	0.85	-2.49	1.83
Voice	898	-0.21	0.91	-2.24	1.55
REER	310	0.07	0.16	0.01	1.30
REERhp	320	0.07	0.15	0.01	1.30
REERimf	330	0.05	0.03	0.01	0.14
Conf	546	8.80	1.51	3.29	12.00
Gdpg	1,097	4.11	3.80	-15.49	47.21
Mys	831	7.31	2.83	1.30	12.80
Open	871	0.86	0.58	0.19	7.17
lTel	1,109	1.98	1.61	-4.66	4.87
lMob	1,106	4.07	0.98	-1.28	5.80
PolStab	902	-0.13	0.99	-3.27	1.94
lPop	1,043	16.12	2.79	10.90	22.32

lFDI is the log of foreign direct investment net inflows, ***GDPg*** the growth of the real GDP per capita, ***lPop*** the logarithm of the population, ***REER*** the real effective exchange rate, ***REERhp*** the real effective exchange rate without oil, ***REERimf*** the real effective exchange rate from IFS (2018), ***Conf*** the risk of internal conflict, ***Gov*** the governance indicator from WDI (WGI dataset), ***Mys*** the mean years of schooling, ***Open*** the trade openness proxy, ***lTel*** the fixed telephone lines per 1000 inhabitants, ***lMob*** the mobile phone subscriptions, ***PolStab*** the political stability indicator, ***Corruption***, ***GovEff***, ***RegQual***, ***LawOrder***, and ***Voice*** are control of corruption, government effectiveness, regulatory quality, rule of law, and government accountability from WGI respectively **(**see Kaufmann et al, 2010).

Table 4.A.2: List of Variables and Their Sources

Variables	Sources	Names of variables
Log of FDI in dollars	World Development Indicators (WDI)	lFDI
Governance (PCA)	World Governance Indicators (WGI)	Gov
Control of Corruption	WGI	Corruption
Government Effectiveness	WGI	GovEff
Regulatory Quality	WGI	RegQua
Law and Order	WGI	LawOrder
Voice and Accountability	WGI	Voice
Governance (PCA)	International Country Risk Guide (ICRG)	GovICRG
Corruption Control	ICRG	Corrup
Law and Order	ICRG	Lawardr
Bureaucracy Quality	ICRG	Bureau
Investment profile	ICRG	InvPro
Real Effective Exchange rate Volatility	Self-Calculated	REER
Real Effective Exchange rate Volatility without oil trade	Self-Calculated	REERhp
Real Effective Exchange rate Volatility from IFS (2018)	Collected data from IFS to calculate volatility	REERimf
Risk of internal conflict	ICRG	Conf
GDP growth	WDI	GDPg
Mean year of education and human Development Index	From UNDP database	Mys and HDI
Trade Openness	WDI	Open
Fixed Telephone lines per 1000 inhabitants	WDI	lTel
Mobile Phone subscriptions	WDI	lMob
Political Stability	WGI	PolStab
Log of population	WDI	lPop

List of Countries

Table 4.A.3: Countries List for REER

Albania	Croatia	Mongolia
Algeria	Cyprus	Morocco
Argentina	El Salvador	Niger
Azerbaijan	Gambia, The	Nigeria
Bahamas, The	Ghana	Peru
Bahrain	Guatemala	Poland
Bangladesh	Guinea	Romania
Belarus	Haiti	Russian Federation
Brazil	Honduras	South Africa
Brunei Darussalam	Hungary	Tanzania
Bulgaria	India	Togo
Burkina Faso	Kenya	Tunisia
Cameroon	Liberia	
Chile	Madagascar	
Costa Rica	Malawi	
Cote d'Ivoire	Malta	

Table 4.A.4: Countries list for REERhp

Albania	Dominican Republic	Malta
Algeria	El Salvador	Moldova
Argentina	Gambia, The	Mongolia
Armenia	Ghana	Morocco
Bahamas, The	Guatemala	Niger
Bahrain	Guinea	Oman
Bangladesh	Haiti	Pakistan
Belarus	Honduras	Paraguay
Brazil	Hungary	Peru
Bulgaria	India	Poland
Burkina Faso	Indonesia	Romania
Cameroon	Jamaica	South Africa
Chile	Kenya	Sri Lanka
Costa Rica	Liberia	Tanzania
Cote d'Ivoire	Madagascar	Togo
Croatia	Malawi	Tunisia
Cyprus		

Table 4.A.5: Countries for REERimf

Algeria	Gabon	Philippines
Armenia	Gambia, The	Poland
Bahamas, The	Ghana	Romania
Bahrain	Guinea	Russian Federation
Bolivia	Guyana	Saudi Arabia
Brazil	Hungary	Sierra Leone
Bulgaria	Indonesia	Singapore
Burkina Faso	Iran, Islamic Rep.	South Africa
Cameroon	Jamaica	Togo
Chile	Malawi	Tunisia
Colombia	Malaysia	Uganda
Congo, Dem. Rep.	Malta	Ukraine
Costa Rica	Mexico	Uruguay
Cote d'Ivoire	Morocco	
Croatia	Nicaragua	
Cyprus	Nigeria	

Table 4.A.6: GMM Regression for Governance Variables from ICRG and REERimf as Main Explanatory Variables with Mean Year of Schooling

Dependent Variable: log of Foreign Direct Investments (lFDI)

VARIABLES	(1)	(2)	(3)	(4)	(5)
lFdi (-1)	0.309*	0.457***	0.517***	0.525***	0.584***
	(0.169)	(0.145)	(0.197)	(0.115)	(0.163)
Govicrg	0.580***				
	(0.193)				
Corrup		0.750***			
		(0.286)			
Invpro			0.339***		
			(0.077)		
Bureau				0.479***	
				(0.145)	
Lawoder					0.482**
					(0.199)
REERimf	12.591**	4.849	7.370	5.472	2.831
	(6.145)	(5.320)	(4.797)	(4.196)	(4.599)
Conflict	0.277**	0.249**	0.255**	0.294***	0.148
	(0.112)	(0.103)	(0.102)	(0.090)	(0.148)
Gdpg	-0.012	-0.005	0.009	0.031	0.017
	(0.055)	(0.055)	(0.053)	(0.046)	(0.049)
Mys	-0.047	-0.005	-0.017	-0.020	-0.010
	(0.074)	(0.060)	(0.056)	(0.061)	(0.054)
Open	-0.644*	-0.377	-0.180	-0.305	-0.444*
	(0.386)	(0.326)	(0.283)	(0.299)	(0.245)
Lmob	0.373	0.102	0.205	0.230	0.248
	(0.342)	(0.273)	(0.256)	(0.269)	(0.274)
Lpop	0.320**	0.321**	0.429**	0.278**	0.230
	(0.152)	(0.133)	(0.177)	(0.111)	(0.146)
Constant	2.736	-0.123	-4.716**	-0.823	-0.292
	(3.658)	(3.057)	(2.380)	(2.337)	(2.957)
Observations	176	176	176	176	176
Number of counnum	45	45	45	45	45
ar1p	0.123	0.0849	0.105	0.122	0.0830
ar2p	0.282	0.191	0.361	0.387	0.422
Hansenp	0.394	0.311	0.380	0.272	0.399

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.10

We use SYS- GMM for our analysis. Here *lFDI* is the log of Foreign Direct Investment net inflows, *Govicrg* the governance indicator from ICRG database, *Corrup* the control over corruption, *Invpro* the investment profile, *Bureau* the bureaucracy quality, *Lawoder* the law and order, *REERimf* the real effective exchange rate uncertainty variable, *Conflict* the risk of internal conflict proxy, *GDPg* the growth of the real GDP per capita, *Mys* the mean year of schooling, *Open* the trade openness proxy, *lMob* the logarithm of the number of mobile subscriptions, *lPop* the log of the population respectively.

Table 4.A.7: GMM Regression for Governance vVariables from ICRG and REERimf as Main Explanatory Variables with Human Development Index

Dependent Variable: log of Foreign Direct Investments (lFDI)

VARIABLES	(1)	(2)	(3)	(4)	(5)
lFdi (-1)	0.311*	0.414***	0.499**	0.508***	0.563***
	(0.159)	(0.135)	(0.204)	(0.112)	(0.162)
Govicrg	0.570***				
	(0.203)				
Corrup		0.693***			
		(0.269)			
Invpro			0.321***		
			(0.082)		
Bureau				0.400***	
				(0.141)	
Lawoder					0.418**
					(0.188)
REERimf	12.112**	7.129	8.002*	6.331	3.885
	(5.474)	(4.640)	(4.778)	(4.061)	(4.276)
Conflict	0.248**	0.210**	0.229**	0.247***	0.133
	(0.107)	(0.091)	(0.092)	(0.077)	(0.136)
Gdpg	-0.003	0.024	0.024	0.053	0.036
	(0.054)	(0.050)	(0.050)	(0.040)	(0.047)
Hdi	-0.382	1.818*	0.664	1.265	1.047
	(1.716)	(1.104)	(1.325)	(1.195)	(1.285)
Open	-0.603	-0.355	-0.165	-0.257	-0.390
	(0.375)	(0.324)	(0.274)	(0.284)	(0.248)
lMob	0.287	-0.110	0.084	0.024	0.089
	(0.336)	(0.239)	(0.244)	(0.236)	(0.254)
lPop	0.327**	0.339**	0.432**	0.298**	0.251*
	(0.151)	(0.136)	(0.178)	(0.120)	(0.141)
Constant	3.073	0.218	-4.245*	-0.549	-0.188
	(3.997)	(3.039)	(2.487)	(2.429)	(2.790)
Observations	176	176	176	176	176
Number of counnum	45	45	45	45	45
ar1p	0.125	0.0983	0.113	0.127	0.0904
ar2p	0.315	0.235	0.401	0.416	0.426
Hansenp	0.459	0.404	0.308	0.445	0.445

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.10

We use SYS- GMM for our analysis. Here *lFDI* is the log of Foreign Direct Investment net inflows, *Govicrg* the governance indicator from ICRG database, *Corrup* the control over corruption, *Invpro* the investment profile, *Bureau* the bureaucracy quality, *Lawoder* the law and order, *REERimf* the real effective exchange rate uncertainty variable, *Conflict* the risk of internal conflict proxy, *GDPg* the growth of the real GDP per capita, *HDI* the human Development Index from UNDP dataportal, *Open* the trade openness proxy, *lMob* the logarithm of the number of mobile subscriptions, *lPop* the log of the population respectively.

Table 4.A.8: GMM Regression for Governance Variables from ICRG and REER (self calculated) as Main Explanatory Variables with Mean Year of Schooling

Dependent Variable: log of Foreign Direct Investments (lFDI)

VARIABLES	(1)	(2)	(3)	(4)	(5)
lFdi (-1)	0.524***	0.594***	0.616***	0.641***	0.411**
	(0.096)	(0.104)	(0.138)	(0.114)	(0.164)
Govicrg	0.421***				
	(0.130)				
corrup		0.386**			
		(0.182)			
Invpro			0.146**		
			(0.065)		
Bureau				0.152	
				(0.150)	
Lawoder					1.034**
					(0.491)
REER	6.887**	6.566**	5.156	4.103	8.049*
	(3.203)	(3.140)	(3.299)	(3.278)	(4.301)
Conflict	0.101	0.138	0.071	0.104	0.094
	(0.119)	(0.125)	(0.112)	(0.115)	(0.149)
Gdpg	0.009	0.027	0.020	0.032	-0.033
	(0.029)	(0.029)	(0.035)	(0.032)	(0.037)
Mys	0.020	0.008	0.033	0.002	0.014
	(0.046)	(0.034)	(0.042)	(0.036)	(0.058)
Open	-0.638**	-0.416***	-0.433**	-0.430**	-0.775*
	(0.262)	(0.153)	(0.188)	(0.169)	(0.413)
lTele	-0.010	0.091	0.049	0.100	-0.028
	(0.089)	(0.072)	(0.081)	(0.080)	(0.104)
lPop	0.204	0.206*	0.165	0.117	0.406
	(0.170)	(0.123)	(0.136)	(0.130)	(0.276)
Constant	3.810	1.142	1.763	2.844	-0.352
	(3.741)	(3.393)	(3.547)	(3.089)	(4.964)
Observations	167	167	167	167	167
Number of counnum	44	44	44	44	44
ar1p	0.0980	0.103	0.0878	0.0975	0.0636
ar2p	0.491	0.392	0.448	0.432	0.937
Hansenp	0.453	0.380	0.542	0.417	0.896

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.10

We use SYS- GMM for our analysis. Here *lFDI* is the log of Foreign Direct Investment net inflows, *Govicrg* the governance indicator from ICRG database, *Corrup* the control over corruption, *Invpro* the investment profile, *Bureau* the bureaucracy quality, *Lawoder* the law and order, *REER* the real effective exchange rate uncertainty variable, *Conflict* the risk of internal conflict proxy, *GDPg* the growth of the real GDP per capita, *HDI* the human Development Index from UNDP dataportal, *Open* the trade openness proxy, *lTele* the logarithm of the number of telephone subscriptions per 1000, *lPop* the log of the population respectively.

Table 4.A.9: GMM Regression for Governance Variables from ICRG and REER (self calculated) as Main Explanatory Variables with Human Development Index

Dependent Variable: log of Foreign Direct Investments (lFDI)

VARIABLES	(1)	(2)	(3)	(4)	(5)
lFdi (-1)	0.526***	0.565***	0.593***	0.622***	0.406**
	(0.107)	(0.109)	(0.148)	(0.130)	(0.175)
Govicrg	0.412***				
	(0.131)				
corrup		0.383**			
		(0.188)			
Invpro			0.145**		
			(0.066)		
Bureau				0.132	
				(0.182)	
Lawoder					1.024**
					(0.488)
REER	6.938**	6.724**	5.433	4.239	8.116*
	(3.240)	(3.238)	(3.448)	(3.451)	(4.293)
Conflict	0.111	0.136	0.084	0.101	0.100
	(0.118)	(0.122)	(0.105)	(0.112)	(0.148)
Gdpg	0.012	0.036	0.029	0.038	-0.029
	(0.030)	(0.032)	(0.038)	(0.037)	(0.037)
Hdi	0.443	0.945	1.332	0.608	0.473
	(1.146)	(0.985)	(1.157)	(1.290)	(1.537)
Open	-0.630**	-0.465***	-0.469**	-0.457***	-0.781*
	(0.260)	(0.175)	(0.204)	(0.177)	(0.427)
lTele	-0.015	0.052	0.009	0.075	-0.039
	(0.085)	(0.063)	(0.081)	(0.060)	(0.121)
lPop	0.210	0.193	0.165	0.110	0.405
	(0.165)	(0.124)	(0.134)	(0.126)	(0.273)
Constant	3.429	1.362	1.442	2.987	-0.498
	(3.650)	(3.303)	(3.344)	(2.883)	(5.032)
Observations	167	167	167	167	167
Number of counnum	44	44	44	44	44
ar1p	0.0879	0.0975	0.0831	0.0872	0.0671
ar2p	0.485	0.394	0.457	0.437	0.936
Hansenp	0.429	0.353	0.530	0.354	0.872

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.10

We use SYS- GMM for our analysis. Here *lFDI* is the log of Foreign Direct Investment net inflows, *Govicrg* the governance indicator from ICRG database, *Corrup* the control over corruption, *Invpro* the investment profile, *Bureau* the bureaucracy quality, *Lawoder* the law and order, *REER* the real effective exchange rate uncertainty variable, *Conflict* the risk of internal conflict proxy, *GDPg* the growth of the real GDP per capita, *HDI* the human Development Index from UNDP dataportal, *Open* the trade openness proxy, *ltele* the logarithm of the number of telephone subscriptions per 1000, *lPop* the log of the population respectively.

Table 4.A.10: GMM Regression for Governance Variables from ICRG and REERhp (self calculated) as Main Explanatory Variables with Mean Year of Schooling

Dependent Variable: log of Foreign Direct Investments (lFDI)

VARIABLES	(1)	(2)	(3)	(4)	(5)
lFdi (-1)	0.465***	0.513***	0.580***	0.553***	0.476***
	(0.102)	(0.118)	(0.142)	(0.106)	(0.125)
Govicrg	0.515**				
	(0.202)				
Corrup		0.405***			
		(0.154)			
Invpro			0.134		
			(0.107)		
Bureau				0.405*	
				(0.244)	
Lawoder					0.691**
					(0.342)
REERhp	8.474**	10.107***	9.507**	5.601	10.355***
	(3.729)	(3.562)	(3.992)	(4.620)	(3.059)
Conflict	0.183	0.173*	0.157	0.155	0.135
	(0.138)	(0.093)	(0.099)	(0.109)	(0.133)
Gdpg	0.082	0.081	0.085	0.083	0.086
	(0.059)	(0.053)	(0.055)	(0.057)	(0.060)
Mys	0.075	0.040	0.050	0.030	0.085
	(0.057)	(0.035)	(0.039)	(0.046)	(0.060)
Open	-0.749**	-0.515***	-0.403**	-0.627**	-0.765**
	(0.318)	(0.187)	(0.185)	(0.255)	(0.358)
lTele	-0.075	0.079	0.056	0.027	-0.011
	(0.112)	(0.063)	(0.073)	(0.091)	(0.102)
lPop	0.292	0.153	0.217	0.057	0.399
	(0.238)	(0.162)	(0.193)	(0.175)	(0.301)
Constant	2.028	2.412	0.181	4.106	-1.777
	(4.122)	(3.412)	(5.054)	(3.665)	(5.370)
Observations	187	187	187	187	187
Number of counnum	49	49	49	49	49
ar1p	0.0670	0.0659	0.0701	0.0715	0.0782
ar2p	0.694	0.611	0.619	0.646	0.807
Hansenp	0.248	0.306	0.286	0.382	0.395

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.10

We use SYS- GMM for our analysis. Here *lFDI* is the log of Foreign Direct Investment net inflows, *Govicrg* the governance indicator from ICRG database, *Corrup* the control over corruption, *Invpro* the investment profile, *Bureau* the bureaucracy quality, *Lawoder* the law and order, *REERhp* the real effective exchange rate uncertainty variable, *Conflict* the risk of internal conflict proxy, *GDPg* the growth of the real GDP per capita, *Mys* the mean year of schooling, *Open* the trade openness proxy, *ltele* the logarithm of the number of telephone subscriptions per 1000, *lPop* the log of the population respectively.

Table 4.A.11: GMM Regression for Governance Variables from ICRG and REERhp (self calculated) as Main Explanatory Variables with Human Development Index

Dependent Variable: log of Foreign Direct Investments (lFDI)

VARIABLES	(1)	(2)	(3)	(4)	(5)
lFdi (-1)	0.475***	0.496***	0.564***	0.551***	0.470***
	(0.108)	(0.117)	(0.144)	(0.110)	(0.134)
Govicrg	0.468**				
	(0.202)				
corrup		0.401***			
		(0.155)			
Invpro			0.127		
			(0.109)		
Bureau				0.376	
				(0.265)	
Lawoder					0.649*
					(0.342)
REERhp	8.376**	10.121***	9.473**	5.809	10.173***
	(3.860)	(3.807)	(4.164)	(4.830)	(3.259)
Conflict	0.213	0.182**	0.170*	0.166	0.167
	(0.133)	(0.090)	(0.096)	(0.106)	(0.133)
Gdpg	0.088	0.093*	0.096*	0.087	0.097*
	(0.057)	(0.051)	(0.053)	(0.056)	(0.056)
Hdi	1.568	1.715*	1.828*	0.836	2.333
	(1.315)	(0.940)	(1.065)	(1.154)	(1.510)
Open	-0.699**	-0.549***	-0.431**	-0.614**	-0.750**
	(0.294)	(0.193)	(0.185)	(0.241)	(0.355)
lTele	-0.064	0.032	0.016	0.021	-0.038
	(0.112)	(0.064)	(0.079)	(0.081)	(0.115)
lPop	0.319	0.165	0.231	0.077	0.424
	(0.233)	(0.147)	(0.184)	(0.160)	(0.307)
Constant	0.641	1.677	-0.608	3.430	-3.132
	(3.995)	(2.824)	(4.822)	(3.185)	(5.726)
Observations	187	187	187	187	187
Number of counnum	49	49	49	49	49
ar1p	0.0661	0.0640	0.0686	0.0682	0.0787
ar2p	0.671	0.601	0.618	0.639	0.771
Hansenp	0.299	0.294	0.302	0.341	0.449

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.10

We use SYS- GMM for our analysis. Here *lFDI* is the log of Foreign Direct Investment net inflows, *Govicrg* the governance indicator from ICRG database, *Corrup* the control over corruption, *Invpro* the investment profile, *Bureau* the bureaucracy quality, *Lawoder* the law and order, *REERhp* the real effective exchange rate uncertainty variable, *Conflict* the risk of internal conflict proxy, *GDPg* the growth of the real GDP per capita, *HDI* the human Development Index from UNDP dataportal, *Open* the trade openness proxy, *ltele* the logarithm of the number of telephone subscriptions per 1000, *lPop* the log of the population respectively.

Principal Component Analysis

Table 4.A.12 Principal Component Analysis for Governance (WGI)

Principal components/correlation

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	4.239	3.805	0.848	0.848
Comp2	0.434	0.240	0.087	0.935
Comp3	0.194	0.122	0.039	0.973
Comp4	0.072	0.012	0.015	0.988
Comp5	0.060	.	0.012	1.000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Comp4	Comp5	Unexplained
Corruption	0.459	-0.141	-0.616	0.385	0.491	0.000
GovEff	0.461	-0.352	0.128	0.409	-0.693	0.000
RegQual	0.452	-0.217	0.711	-0.098	0.484	0.000
LawOrder	0.469	-0.055	-0.296	-0.808	-0.192	0.000
Voice	0.390	0.898	0.107	0.148	-0.089	0.000

Corruption, GovEff, RegQual, LawOrder, and Voice are control of corruption, government effectiveness, regulatory quality, rule of law, and government accountability from WGI respectively (see Kaufmann et al, 2010).

Table 4.A.13: Principal Component Analysis Governance (ICRG)

Principal components/correlation

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	2.449	1.762	0.612	0.612
Comp2	0.688	0.250	0.172	0.784
Comp3	0.437	0.012	0.109	0.894
Comp4	0.425	.	0.106	1.000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Comp4	Unexplained
Invpro	0.527	-0.132	-0.804	0.240	0.000
corrupt	0.531	-0.109	0.117	-0.832	0.000
Lawoder	0.434	0.856	0.203	0.194	0.000
Bureau	0.501	-0.488	0.546	0.461	0.000

Invpro, corrupt, lawoder, bureau are investment profile, control over corruption, law and order, and quality of bureaucracy respectively (see ICRG PRS, 2018) for more details on definitions and compositions of these variables)

5 General Conclusion

In the late 90s and early 2000s, there was a continuous decline in the number of armed conflicts for more than a decade, which led to the assumption that we live in an increasingly peaceful world. However, in the last two decades, armed conflict has increased in many countries. The number of active state-based conflicts has reached the highest level in 2019 since 1946. Along with human suffering, civil unrest has destructive effects on economic performance and overall living standards in an economy. These violent conflicts increase poverty and increase the probability of a country falling into a conflict trap. So, it is crucial to understand the factors that can help mitigate the violence in an economy. Many political and economic factors have contributed to this surge in armed violence. This thesis investigates the theoretical and empirical determinants of conflict in developing fragile countries. The role of institutions, human development, and other economic factors are significant to understanding the dynamics of the surge in conflicts. The current thesis attempts to study factors that can help mitigate conflict and enhance economic performance.

The thesis consists of 3 main essays. The first essay is a case study on the determinants of armed conflict in Pakistan. 2nd essay explains the institutional, economic, and social determinants of conflict in fragile states. The last essay determines the impact of the role of political instability and macroeconomic uncertainty on economic performance (proxied by FDI).

5.1. The Main Results

In our first chapter, we explore the long-term determinants of conflict in Pakistan by using Autoregressive Distributed Lag (ARDL) Bound Testing cointegration approach. Our time

series analysis reveals that human development and law and order are essential factors that can help the government reduce conflict in Pakistan. On the other hand, our results show that wealth and openness to trade do not reduce violence in Pakistan. Political and civil liberties do not diminish conflict in Pakistan, as the country has seen a revival of violence during democratic periods. This finding could imply that a country like Pakistan must first see a long-term, uninterrupted democracy to involve all stakeholders in the political process.

The second chapter uses Fixed effect Poisson regression with robust standard errors and the Instrumental Variable approach to study the institutional, economic, and social determinants of conflict for fragile developing countries. We analyze the development of conflict activities from 2004 to 2017 for four different groups of fragile developing countries: (i) our total sample of fragile countries, (ii) Islamic fragile countries, (iii) Fragile countries with more than one important religion, (iv) Countries affected by major conflicts. Our theoretical part of the chapter shows that institutions (mainly efficient judiciary) can mitigate violence by improving public trust and generating deterrence. Our empirical analysis supports our theoretical motivation and reveals that weak institutions (inefficient judicial system and, more generally, bad governance) increase armed conflict in fragile states. Our results also show that our sample's GDP per capita also has a negative relationship with conflict. On the contrary, Education and democratic accountability do not help reduce violence in fragile developing countries. In the case of education and democratic institutions, our proxy variables show a positive relationship with conflict. We also use the sample of less fragile and more fragile countries for sensitivity analysis, and our results for key variables show similar signs.

The third chapter is our attempt to investigate the indirect channels through which governance and macroeconomic stability can reduce conflict in developing countries. We used the Generalized Method of Moments (GMM) estimator with robust standard errors to study the impact of political stability (proxied by governance and risk of internal conflict) and

macroeconomic uncertainty (proxied by the exchange rate volatility) on Foreign Direct Investment (FDI) in developing countries. GARCH was used to construct several real effective exchange rate (REER) volatility indicators. In addition, we use two governance proxies, one using the WDI governance indicators and the other using the ICRG indicators to check robustness. Our findings show that REER volatility positively impacts foreign investments, implying that, in the long run, the production flexibility argument is more compelling than the risk aversion one. In terms of governance, we conclude that good governance encourages foreign companies to trust the political institutions and invest in the country. Our findings also show that, among the governance variables, investors are particularly interested in corruption control and law and order implementation. These variables have the most significant impact on FDI. We also demonstrate that the risk of conflict in an economy reduces FDI.

5.2. Suggestions and Policy implications:

Conflicts in fragile developing countries cause significant human suffering and development delays. The World Bank (2018) predicts that if nothing is done, nearly half of the world's poor will be living in conflict-torn developing countries by 2030. Our dissertation focuses on some tools that governments could use to reduce violence in their respective countries. According to the analysis in this thesis, focusing on restoring strong and reliable institutions could yield results in most fragile countries. According to our findings, fragile developing countries should implement policies that increase public trust in institutions (particularly the judiciary) to deter conflict.

We suggest that in countries where armed conflict is a serious issue, an efficient judicial system, where courts take a shorter disposition time, is a viable option to increase the

opportunity cost of terrorism. Our findings also recommend that Policies aiming at improving people's standard of living will help mitigate conflict in developing countries. Our findings show that education and democratic reforms do not have the desired impact on conflict in fragile developing countries. This implies that countries should first provide their populations with a stable institutional, economic, and political environment before introducing more progressive reforms. Our third chapter shows that FDI is essential to developing countries for the economic stability in an economy. We recommend that governments should again focus on building strong institutions to enhance foreign investments. Implementation of policies aiming at controlling corruption and the implementation of law and order can increase the trust of foreign investment. We suggest that the positive spillovers from foreign direct investments will help achieve political and economic stability and reduce violence. Our results show a positive impact of real effective exchange rate volatility on FDI. However, if we use an aggregate variable for uncertainty, the variable negatively impacts foreign investments. Finally, we recommend that countries keep a stable political and macroeconomic environment if they want to improve economic performance and reduce violence.

5.3. Limitations and Future Recommendations:

The current thesis can also serve as a foundation for possible extensions and future research.

First, in case of conflict in Pakistan, a region-wise study could help the differences in severity and type of conflict in different regions. Another possibility is to conduct a behavioral study to understand the reasons for the general population's attitude towards government policies and institutions. This will allow governments to understand factors that cause hindrance in building strong trustworthy institutions. One can find and use other strong

instrumental variables to answer endogeneity issues for fragile states. The role of advancement of social media interaction and conflict could also be investigated in future. We could also use macroeconomic uncertainty as a central explanatory variable for conflict in future research. One can also extend the analysis of the role of institutions on different types of conflict-based incidents (for instance, incidents based on nationalism, religious fundamentalism, race, etc.) in developing countries. Finally, future research could also expand the analysis to study the impact of governance and macroeconomic uncertainty on other economic variables that can stabilize the economy and moderate mitigating violence.

6 Résumé de la Thèse en Français :

La récente vague de conflits armés a connu une tendance à la hausse dans de nombreux pays. Après l'attaque du 11 septembre 2001 contre le World Trade Center aux États-Unis d'Amérique, la guerre contre le terrorisme a été lancée en Afghanistan. Les effets dévastateurs de cette guerre se sont étendus aux pays voisins, principalement au Pakistan. Mais d'autres régions, comme le Moyen-Orient et l'Afrique du Nord (MENA), les pays d'Afrique et d'Asie ont également connu une augmentation des conflits au cours des deux dernières décennies. Près d'un million de personnes ont perdu la vie suite à ces guerres en Afghanistan, au Pakistan, en Irak, en Syrie et au Yémen (Crawford & Lutz, 2021).

Les conflits récents, par exemple dans la région MENA, peuvent être le résultat de la méfiance des citoyens envers les institutions et les politiques gouvernementales. Il est donc important de comprendre le rôle des institutions dans la détermination des conflits. En ce qui concerne la vague actuelle de conflits, celle-ci est aussi motivée par la notion de « valeurs suprêmes[80] » dans de nombreux pays musulmans. Le recours à la force peut dissuader le conflit à court terme, mais de mauvaises performances économiques (comme conséquence du conflit) peuvent entrainer la résurgence du conflit. Cela peut conduire le pays à tomber dans une « trappe à conflits » (conflict trap) comme développé par Collier & Sambanis (2002).

Pour aider un pays à sortir d'une trappe à conflits, la réduction des hostilités doit donc être suivie d'une bonne performance économique. Il est donc important de déterminer les facteurs qui peuvent aider à réduire les conflits, mais aussi à améliorer les performances économiques du pays. C'est dans cette perspective que cette thèse étudie les facteurs, économiques, sociaux et institutionnels qui peuvent aider à réduire les conflits. Cette thèse fournit ainsi un examen

[80] Ces valeurs font référence à un ou plusieurs objectifs qui sont prioritaires par rapport à tous les autres et dont l'accomplissement est plus important que toute autre valeur (Wilkens, 2011).

théorique et une analyse empirique détaillés des facteurs qui contribuent aux conflits armés dans les États les plus fragiles.

6.1 Aperçu des Chapitres:

Cette thèse se compose de quatre chapitres et d'une conclusion générale. Le premier chapitre fournit les faits stylisés qui soulignent l'importance d'étudier le lien entre conflits et performance économique. Il propose également un examen théorique et empirique afin d'identifier les facteurs qui peuvent contribuer à atténuer les conflits dans les pays fragilisés. Nous adoptons ce cadre théorique et empirique pour les deux chapitres qui suivent, ce afin d'identifier les facteurs pouvant affecterles conflits dans ces pays.

Le chapitre deux de la thèse étudie le lien entre conflit, croissance et développement humain au Pakistan. Les conflits existent au Pakistan depuis que le pays existe. Après la partition du sous-continent entre l'Inde et le Pakistan en 1947, environ un million de personnes ont été tuées en raison de tensions religieuses. La perception d'un partage inéquitable des terres a conduit par la suite à plusieurs conflits entre l'Inde et le Pakistan. D'autres événements régionaux, tels que la sécession du Bangladesh du Pakistan en 1971 (au cours de laquelle environ un demi-million de personnes ont perdu la vie), les deux guerres d'Afghanistan (1979-1989 et 1996-2001, et la guerre contre le terrorisme menée par les États-Unis après 2001, ont également eu d'importantes répercussions sur la situation politique, économique et sociale du pays.

Depuis la fin des années 1970, les conflits internes ont augmenté au Pakistan et de nombreuses personnes ont perdu la vie pour des raisons ethniques, religieuses, sectaires ou nationalistes. Plus récemment, l'insurrection des talibans pakistanais a posé de nouveaux défis après la guerre contre le terrorisme de 2001. Depuis la guerre en Afghanistan, les conflits armés sont plus nombreux et plus coûteux pour le Pakistan, tant en termes de victimes, que de

coûts économiques. Les incidents liés aux conflits sont passés de 109 en 2000 à 1177 en 2016. Durant cette période, plus de 50 000 personnes ont trouvé la mort en raison d'un conflit. Les conséquences économiques du conflit sont également multiples, notamment l'aggravation du chômage, de la pauvreté, des inégalités, de la corruption, de l'incertitude, de l'analphabétisme, des conditions de vie et de santé, et des déplacements internes de population (Easterly, 2001 ; Ali, 2010).

À notre connaissance, notre travail constitue la première tentative d'identifier de façon la plus complète possible les facteurs qui peuvent influencer les conflits au Pakistan. L'impact du développement humain, des réformes économiques et de la démocratie n'a en particulier pas encore été étudié. Nous utilisons le nombre annuel d'incidents liés à des conflits, tiré de la base de données Global Terrorism Database (GTD) sur le terrorisme mondial, comme mesure des conflits au Pakistan.

Nous expliquons notre variable de conflit par le PIB par habitant (en tant qu'indicateur du revenu et de la richesse), le taux de scolarisation primaire (comme approximation du capital humain), tous deux issus de sources nationales, les dépenses militaires (comme proxy de l'ordre public) l'ouverture commerciale (comme indicateur des réformes économiques) de la base de données World Development Indicators (WDI) de la Banque Mondiale, et les droits civils et politiques de la base Freedom House.

Pour notre analyse des séries chronologiques, nous commençons par des tests de racine unitaire afin de déterminer le niveau d'intégration de nos variables. Nous utilisons les tests de Dickey-Fuller augmenté (ADF) et de Phillip-Perron (PP) pour cela. Les résultats des deux tests indiquent que nos variables ne sont pas stationnaires, à l'exception de l'ouverture commerciale qui s'avère stationnaire au seuil de 10 %. Ce résultat nous permet d'utiliser la méthode ARDL (Modèle Auto-Régressif à Retards Distribués) pour analyser la relation entre nos variables. L'approche ARDL détermine la dynamique à court et à long terme du modèle.

Les résultats révèlent que le revenu est positivement associé au conflit, à la fois à court et à long terme. Cette relation positive peut être expliquée par la théorie de la « modernisation appauvrissante » (voir Caruso et Schneider, 2011) ou la théorie des « valeurs suprêmes » (voir Bernholz, 2004). Les résultats montrent aussi que, l'augmentation du capital humain et des dépenses militaires réduirait à long terme les conflits. L'investissement dans le capital humain et l'ordre public apparait ainsi comme un outil pour atténuer les conflits dans le pays. La démocratie en revanche montre un impact négatif sur les conflits. Au Pakistan, le système politique alterne entre régime démocratique et régime militaire. Or les statistiques sur les incidents liés aux conflits signalent que les conflits sont plus fréquents lors des périodes démocratiques. Bien que l'inclusion politique des régimes démocratiques permette généralement de réduire les griefs des citoyens,, cela ne semble pas être le cas au Pakistan. Nous suggérons que cette relation inverse entre valeurs démocratiques et conflit demande que les périodes démocratiques ne soient pas régulièrement interrompues.

Nous testons par ailleurs la validité et la fiabilité de nos estimations, par le test de corrélation sérielle de Breusch-Godfrey et d'hétéroscédasticité de Breusch-Pagan-Godfrey. Nos résultats révèlent que l'hypothèse nulle de ces tests n'est pas rejetée, ce qui signifie que les résidus de nos estimations ne montrent pas de corrélation sérielle et sont homoscédastiques. Nous utilisons également les tests CUSUM et CUSUMSQ afin de s'assurer de la stabilité à long terme des coefficients du modèle. Les résultats de ces tests montrent que les coefficients estimés du modèle de correction d'erreurs sont stables et peuvent être utilisés pour formuler des recommandations politiques.

Dans le chapitre 3 de la présente thèse, nous étudions les facteurs qui peuvent contribuer à réduire les conflits dans les pays fragiles. L'Uppsala Conflict Data Program (UCDP) révèle une augmentation de la violence mondiale au cours de la dernière décennie. Le nombre des conflits armés est passé de 33 en 2006 à 54 en 2019. Le nombre d'attaques terroristes a atteint

un pic en 2014, où plus de 100 000 personnes ont été tuées (Allansson et al., 2017). Outre la souffrance humaine, les conflits civils ont un effet dévastateur sur les économies. Or, si l'extrême pauvreté diminue bien à l'échelle mondiale, elle augmente dans les pays touchés par les conflits (Banque mondiale, 2018). Selon la Banque mondiale (2018), les mauvaises conditions sociales, économiques et politiques dans les pays fragiles augmentent le risque d'instabilité. Si rien n'est fait, près de la moitié des pauvres du monde vivront dans des pays fragiles confrontés à des conflits d'ici 2030. Pettersson et al. (2019) confirment que cette expansion des conflits armés dans le monde causera davantage de dommages dans un avenir proche.

C'est face à cet enjeu qu'il nous a paru pertinent de choisir les pays fragiles pour examiner les mécanismes à l'œuvre dans la montée de la violence. Pour identifier les facteurs susceptibles de réduire les conflits dans ces pays, nous avons concentré nos efforts sur les conditions institutionnelles, sociales et économiques comme facteurs explicatifs des conflits. A la suite d'Enders et al. (2011) nous avons choisi la variable « incidents annuels liés aux conflits » de la base de données mondiale sur le terrorisme (GDT) comme indicateur de conflit domestique et distingué les incidents domestiques des incidents transnationaux en excluant ceux pour lesquels l'une des victimes était d'une nationalité différente de celle du pays dans lequel ces incidents se sont produits.

Notre principale variable explicative est celle des institutions (représentées par le système judiciaire et plus généralement la gouvernance). Dans la motivation théorique du chapitre 3, nous discutons de l'importance de l'efficacité judiciaire dans la réduction des conflits par une approche « coûts-bénéfices ». Nous discutons du rôle de la justice et des sanctions comme facteur de dissuasion et coût d'opportunité du conflit. Outre le rôle des institutions, nous analysons d'autres déterminants, sociaux et économiques notamment, de la violence. Nous estimons économétriquement notre modèle de 2004 à 2017 pour quatre groupes de pays: i)

l'échantillon total de pays fragiles, ii) les pays musulmans de notre échantillon, iii) ceux touchés par des conflits majeurs, et iv) ceux ayant plus d'une religion principale. Nous étudions ces différents panels de pays fragiles pour améliorer notre compréhension des facteurs et des mécanismes des conflits armés. Par exemple, si le conflit est motivé par le fondamentalisme religieux, une augmentation de l'éducation et de la richesse peut donner des résultats différents que les pays où la violence est alimentée par l'inégalité ou la pauvreté. Ainsi, les variables politiques visant à atténuer les conflits peuvent différer d'un groupe de pays à l'autre.

Notre variable dépendante ne contenant que des valeurs entières non négatives, nous utilisons une régression de Poisson à effets fixes avec des erreurs standard robustes pour résoudre les problèmes liés aux modèles de données de comptage. Alternativement, nous ré-estimons notre modèle en utilisant une approche de fonction de contrôle à deux étapes pour traiter la question de l'endogénéité potentiellement engendrée par notre spécification. Dans le modèle de base, nous expliquons la variable de conflit par la variable "système judiciaire efficace", comme indicateur de dissuasion et de climat des affaires, le logarithme du PIB par habitant, l'ouverture commerciale, ces variables provenant de sources nationales et internationales, l'année moyenne d'éducation du portail de données des Nations Unies (PNUD) en tant qu'indicateur de capital humain, et la responsabilité démocratique de la base de données ICRG.

Nos résultats indiquent que les pays dotés d'un système judiciaire efficace et d'un revenu relativement élevé connaissent moins d'incidents violents. Ces résultats suggèrent que le renforcement des institutions, en particulier du système judiciaire, pourrait constituer un moyen efficace de réduire les conflits dans les pays en développement fragiles. La menace de punition augmente le coût d'opportunité de la violence. Si le système judiciaire sanctionne à temps, la population sera moins encline à recourir à la violence et les rebelles seront moins

susceptibles de prolonger le conflit. Nos résultats concernant le revenu montrent qu'un faible niveau de vie peut engendrer de la violence. Lorsque la pauvreté est élevée, le recours à la violence devient plus probable car le coût d'opportunité de l'utilisation de la force illégale et du recrutement de rebelles est faible. Ainsi, l'amélioration du niveau de vie semble être une variable que les gouvernements pourraient utiliser pour réduire la violence dans les pays en développement fragiles. A l'opposé, l'accroissement de l'éducation, de l'intégration économique et de la population entraîne une recrudescence des conflits. Ce résultat laisse à penser que les gouvernements des pays fragiles devraient d'abord améliorer les conditions économiques et institutionnelles de la population avant de récolter les bénéfices de l'augmentation du niveau d'éducation et des réformes de leur économie. Quant à notre variable politique, celle-ci n'est pas significative pour la plupart de nos spécifications.

Une étude plus détaillée révèle des différences intéressantes entre nos groupes de pays. Nos résultats montrent que l'impact du revenu est plus significatif pour les pays ayant plus d'une religion principale et les pays musulmans. Cela suggère que les politiques publiques visant à améliorer le niveau de vie des populations peuvent être plus efficaces dans ces pays fragiles. Par ailleurs, l'amélioration de l'efficacité de la justice est plus fortement liée à une réduction de la violence dans les pays musulmans que dans les autres groupes. Ce résultat est intéressant dans la mesure où certains pays de ce groupe sont moins touchés par une violence à long terme que les pays affectés par des conflits majeurs. On peut ainsi penser que l'amélioration du système judiciaire et, plus largement des institutions, pourrait contribuer à prévenir l'escalade de la violence dans ces pays fragiles qui présentent une gouvernance médiocre comparé aux autres groupes. La variable d'éducation présente des résultats pour deux types de pays : l'échantillon total de pays fragiles et ceux affectés par des conflits majeurs. Cela pourrait être lié au fait que les tensions ethniques (ainsi que les tensions religieuses dans certains groupes) constituent un problème majeur dans la plupart de nos pays

fragiles. Dans ce cas, l'éducation pourrait servir les groupes d'insurgés en encourageant certains segments de la population à s'engager dans la violence. Enfin, les expériences démocratiques semblent s'accompagner d'une violence accrue dans la plupart des pays de notre échantillon, à l'exception des pays ayant plus d'une religion principale, peut-être parce que certains pays de ce groupe présentent historiquement une tradition relativement longue d'institutions démocratiques.

Pour tester la robustesse de nos résultats, nous substituons la gouvernance au système judiciaire comme indicateur de qualité des institutions et introduisons des variables de contrôle supplémentaires, notamment l'inégalité des revenus, les ressources naturelles et les tensions ethniques et religieuses. Nous réestimons également notre modèle sur un échantillon de pays moins fragiles, de même que sur un échantillon de pays plus fragiles que notre échantillon initial. Cette analyse de sensibilité, qui inclut différents panels de pays de niveau de fragilité différents, confirme nos résultats. Nos variables clés sont donc cohérentes et peuvent être utilisés comme variables politiques.

Dans le quatrième chapitre, nous étudions le rôle de l'instabilité politique et macroéconomique sur la performance économique (représentée par les investissements directs étrangers, IDE). Notre principale motivation est de comprendre les canaux par lesquels des institutions fortes et une bonne gouvernance peuvent avoir un impact indirect sur les conflits. Nous pensons que la réduction des conflits doit être suivie d'une bonne performance économique pour aider un pays à sortir d'un piège de conflit. Par conséquent, il est essentiel d'identifier les facteurs qui peuvent contribuer à réduire les conflits tout en améliorant les performances économiques.

Nous expliquons l'IDE par la gouvernance (variables provenant des bases de données World Governance Indicators (WGI) et International Country Risck Group (ICRG), l'incertitude du taux de change effectif réel (auto-calculé), le risque de conflit interne (issu de

la base ICRG), le nombre moyen d'années d'études (en tant qu'indicateur de capital humain, calculé par le PNUD), la croissance du PIB et les infrastructures (tirés de la base de données WDI). Le nombre de pays de notre échantillon est de 44 à 49 selon les spécifications et la période étudiée 2004 - 2018. Nous utilisons un modèle GARCH pour calculer la volatilité du taux de change effectif réel, ce qui nécessite qu'il n'y ait pas de valeurs manquantes. Les pays en développement montrant des valeurs manquantes ont donc été exclus.

Nous avons calculé le taux de change effectif réel par la méthode développée au CERDI . Nous nous sommes ensuite inspirés de Diallo (2013) pour le calcul de la volatilité du taux de change effectif réel (REERV) à l'aide d'un modèle GARCH (1,1). L'impact des institutions sur la performance économique a été appréhendé à travers quatre variables de gouvernance de la base de données ICRG et cinq de la base WGI. Nous testons l'impact individuel de ces indicateurs sur les IDE, de même qu'un impact plus global à travers la création de deux indicateurs agrégés de gouvernance (le premier, à partir des données d'ICRG, le second, de celles de WGI) par la méthode de l'analyse en composantes principales (ACP).

L'inclusion d'une variable dépendante retardée dans notre spécification entraîne un problème d'endogénéité car celle-ci est corrélée avec les termes d'erreur. Par conséquent, l'estimateur des moindres carrés ordinaires (MCO) n'est pas adapté à notre analyse empirique. L'approche de la méthode des moments généralisés (GMM) développée par Arellano et Bover (1995) et Blundell et Bond (1998) a été largement utilisée dans la littérature récente pour traiter le problème de l'endogénéité. L'estimateur GMM est efficace pour les données dont la dimension individuelle est plus importante que la dimension temporelle (Blundell et Bond, 1998). Pour valider que notre modèle a une spécification correcte, nous utilisons le test J de Hansen pour les restrictions de suridentification et le test d'Arellano et Bond (1991) pour la corrélation sérielle.

Pour toutes les spécifications, le nombre d'instruments est inférieur au nombre de sections transversales, comme proné par Roodman (2009) pour éviter les problèmes liés à la prolifération des instruments. Les valeurs p du test J de Hansen sont supérieures à 0,05. Nous acceptons donc l'hypothèse nulle de restrictions de suridentification et confirmons que les instruments utilisés dans nos spécifications peuvent être considérés comme valides. Les résultats des tests de corrélation sérielle ayant également des valeurs p supérieures à 0,05, nous acceptons également l'hypothèse nulle d'absence d'autocorrélation de second ordre. Les résultats de ces tests de diagnostic soutiennent donc la spécification du modèle.

Nos deux indicateurs agrégés de gouvernance montrent un impact positif significatif sur les IDE, ce qui signifie que les IDE augmentent lorsqu'un pays améliore la qualité de ses institutions. En ce qui concerne l'impact individuel des variables de gouvernance, la valeur des coefficients des variables de corruption et d'ordre public est supérieure à celle des autres variables, ce qui montre que les pays en développement qui veulent attirer les capitaux étrangers devraient prendre des mesures pour réduire la corruption et améliorer l'ordre public. Nos résultats révèlent aussi un impact négatif significatif des conflits internes sur les IDE. Dans le cas de nos indicateurs de volatilité des taux de change réels (REERV), nos résultats confirment l'argument de « flexibilité de la production » : les entreprises préfèrent investir dans un pays plutôt qu'exporter face à l'incertitude du taux de change.

6.2 Suggestions et Implications Politiques:

Les conflits dans les pays en développement fragiles provoquent d'importantes souffrances humaines et pénalisent le développement économique. La Banque mondiale (2018) prévoit que si rien n'est fait, près de la moitié des pauvres de la planète vivront dans des pays en développement déchirés par des conflits d'ici 2030. Notre thèse se concentre sur certains outils que les gouvernements pourraient utiliser pour réduire la violence dans leurs pays respectifs. Selon l'analyse de cette thèse, se concentrer sur la restauration d'institutions fortes

et fiables pourrait donner des résultats dans la plupart des pays fragiles. Ainsi, les pays en développement fragiles devraient mettre en œuvre des politiques qui augmentent la confiance du public dans les institutions (en particulier le système judiciaire) afin de décourager les conflits.

Nous suggérons que les pays où les conflits armés sont importants mettent en place un système judiciaire efficace, où les tribunaux rendent leurs décisions rapidement, afin d'augmenter le coût d'opportunité du terrorisme. Nos résultats suggèrent également que les politiques visant à améliorer le niveau de vie des populations contribueraient à atténuer les conflits dans ces pays. En revanche, l'éducation et les réformes démocratiques ne semblent pas avoir l'impact souhaité sur les conflits. Cela pourrait signifier que les pays fragiles mettent en place un environnement économique, politique et institutionnel stable avant de récolter les fruits de réformes plus poussées.

Notre troisième chapitre s'attache aux IDE comme facteur essentiel de stabilité économique dans les pays en développement fragiles.. Nous recommandons également que les gouvernements se concentrent sur la mise en place d'institutions fortes afin d'accroître ces investissements. La mise en œuvre de politiques visant à contrôler la corruption et l'application de la loi et de l'ordre peut accroître la confiance pour attirer des investissements étrangers. Ces résultats sont importants du fait des retombées vraisemblablement positives des investissements directs étrangers sur la stabilité politique et économique, et donc la violence dans ces pays. Nos résultats montrent en outre un impact positif de la volatilité du taux de change effectif réel sur les IDE. Cependant, si nous utilisons une variable agrégée pour l'incertitude, la variable a un impact négatif sur les investissements étrangers. Pour conclure, nous recommandons aux pays en développement fragile de conserver un environnement politique et macroéconomique stable s'ils veulent améliorer leurs performances économiques et réduire la violence.

6.3 Limites et Recommandations Futures:

La thèse actuelle peut servir de base à d'éventuelles extensions et recherches futures.

Tout d'abord, dans le cas du conflit au Pakistan, une étude par région pourrait aider à déterminer les différences de sévérité et de type de conflit dans les différentes régions. Une autre possibilité serait de mener une étude comportementale de façon à mieux comprendre les raisons de l'attitude des populations envers les politiques et les institutions gouvernementales. Cela permettrait notamment aux gouvernements de comprendre les facteurs qui font obstacle à la mise en place d'institutions solides et dignes de confiance. Un prolongement de notre travail empirique pourrait également consister à rechercher d'autres variables instrumentales fortes de façon à répondre aux questions d'endogénéité de notre modèle explicatif. Le rôle de l'interaction croissante des médias sociaux dans la propagation des conflits pourrait aussi être étudié. Nous pourrions également utiliser l'incertitude macroéconomique comme une variable explicative centrale du conflit dans des recherches futures. L'analyse pourrait également être étendue au rôle des institutions sur les différents types d'incidents (les incidents basés sur le nationalisme, le fondamentalisme religieux ou la race notamment). Enfin, des recherches futures pourraient étudier l'impact de la gouvernance et de l'incertitude macroéconomique sur d'autres variables économiques qui stabiliseraient l'économie et atténueraient la violence.

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