

**Violence in Society:
Role of Formal and Informal Institutions**



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Pakistan Institute of Development Economics
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*A Research Dissertation submitted to the Pakistan Institute of Development Economics (PIDE),
Islamabad, in partial fulfillment of the requirement for the award of the degree of Master of
Philosophy in Economics*

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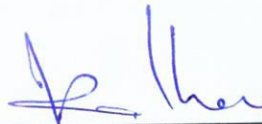
CERTIFICATE

This is to certify that this thesis entitled: **“Violence in Society: Role of Formal and Informal Institutions”** submitted by Ms. Sadia Sherbaz is accepted in its present form by the Department of Economics, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree of **Master of Philosophy in Economics**.


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Dedicated to *My Family*

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Sadia Sherbaz

List of Abbreviations

2SLS:	Two Stage Least Square
COW:	Correlates of War
CSP:	Center for Systemic Peace
DPI:	Database of Political Institutions
GDP:	Gross Domestic Product
GMM:	Generalized Method of Moments
GTD:	Global Terrorism Database
LIML:	Limited Information Maximum Likelihood
MID:	Militarized Interstate Disputes
MEPV:	Major Episodes of Political Violence
MLE:	Maximum Likelihood Estimation
OLS:	Ordinary Least Squares
PCA:	Principal Components Analysis
PRIO:	Peace Research Institute in Uppsala and Oslo
UN:	United Nations
UNODC:	United Nations Office on Drugs and Crime
USA:	United States of America
WVS:	World Values Survey

Abstract

Formal and informal institutions emerge to constrain socially undesirable behavior emanating from interactions between individual and groups. Violence is one of such undesirable aspect of human interaction. Violence affects economy by deterring investment and destruction of infrastructure but its influence spills over many other aspects of national existence. This research aims to assess the role played by formal and informal institutions in mitigation or exacerbation of violence and to evaluate if incorporation of informal institutions affects the relationship between formal institutions and violence. Both political and societal violence is considered. Using cross-country data from over 70 nations, instrumental variable regression is carried out to assess the impact of formal and informal institutions on various forms of violence. The results indicate that for political violence as a whole, ethnic violence, terrorism and homicides, informal institutions are more efficient in decreasing violence and also make formal institutions more effective, while civil war, inter-state wars and gender-based violence are more effectively prevented by formal institutional constraint, however, in the absence of informal institutions the formal institution become ineffective in mitigating violence.

Keywords: Informal Institutions, Formal Institutions, Political Violence, Societal Violence

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Chapter 1

Introduction

Violence is a prevailing problem that plagues both developed and developing countries. Implications of violence are many and multifaceted. It affects economy by deterring investment and destruction of infrastructure but its influence spills over many other aspects of national existence (Toole and Waldman, 1993). Violence and atrocities associated with it have led to forced displacement of millions of people and in recent history has created a severe refugee crisis. It has resulted in wars for secession, spread of pandemics, and long term psychological trauma in nation's youth and even emergence of new forms of violence (Blomberg and Hess, 2006; Weidmann and Zurcher, 2013). Owing to the economic and humanitarian cost associated with it, violence is undesirable in all its forms, even in cases where it may be deemed unavoidable e.g. defense.

Since the World War II there have been attempts at preventing violent conflicts at the global scale. The establishment of United Nations (UN) in 1945, end of colonization and emergence of a more connected and open world were expected to end both international and domestic violent conflict. Internally, acceptance for a more active role of a democratically elected government and formal institutionalization of gender, ethnic and racial equalities was again expected to reduce grievances among various groups in the country. However, the data reflects a very different picture. According to the Marshall (2010) the world have seen 101 incidents of civil war, over 60 inter-state conflicts and a little over 3000 instances of ethnic violence since 1946. LaFree (2010) records more than a hundred thousand terrorist attacks worldwide since 1970s. This may be suggestive of the failure of domestic and international formal institutions in mitigation of violence.

This does not mean that the post-World War 2 institutional transformation has not been instrumental in reducing the damage done by violence. According to UN Office on Drugs and Crime (UNODC), in most of the Western European countries incidents homicides have declined significantly (UNODC, 2013). While in the developing countries there has been a noted increase in gender-based violence. Number of battle deaths has actually decreased significantly since 1946 (Secretariat, 2015). However, civilian casualties have increased considerably, with civilians now comprising 90% of war-related deaths. Further, the nature of violent conflict has changed substantially over time and the contemporary wars are less of a problem of inter-state relationship than a problem within states (Pederson, 2002).

This is indicative of the possibility of a link between institutions and violence, its onset and intensity.

Institutions are thought of as constraints on behavior that may be considered socially undesirable. They are the means by which individuals form opinions regarding and in response to the behavior of other people (North *et al.*, 2006). These constraints can be both formal and informal. Formal institutions comprise of constraints on government behavior enforced by legislature or constitution. Informal institutions, on the other hand, are constraints in form of norms, culture, and customs that are not designed or enforced by government (Williamson, 2009). Informal institutions are product of socially transmitted knowledge and inherited values. These are part of the heritage also called culture. Daily interactions of the individuals are for the most part defined and governed by informal institutions. Institutions, both formal and informal, emerge to constrain and limit socially undesirable behavior emanating from interactions between individual and between groups.

Violence is one of such undesirable aspect of human interaction and has varying implications for the development of the society (Williamson, 2009). In addition to its costs in terms of economy and development, the individuals who engage in violence stand to incur substantial personal costs. These costs may be economic or non-economic. The economic costs may include destruction or loss of property, forgone wages, and employment opportunities. Non-economic costs may include legal ramifications; with severity varying according to the gravity of the crime, injury, psychological trauma and even death. At the same time benefits of violence may be personal or group specific, including, economic benefits accruing to winning groups through nepotism or expropriation from the losing side, ability to extract rents though influencing government policy and ideological victory (Waters, *et al.*, 2004). The data indicates violence remains prevalent and endemic. Thus we can assert that in most of these cases the expected benefits from acts of violence exceed costs.

While cultural values do play a role in instigating episodes of domestic violence and crime, its onset mostly is an outcome of circumstance and context. Political violence, defined as acts of aggression and hostility driven by the aspirations for affecting change in the government that includes revolutions, civil war, ethnic unrest and terrorism, on the other hand is deemed as a direct outcome of country's economic, social and political structure.

For human societies to prosper violence has to be contained and prevented. This requires establishment and sustaining a social order that limits and curtails violence. In his

theory of institutional change, North (1991) explains that formal and informal institutions evolve together through the activities of formal and informal social groups¹. This indicates the presence of a link between formal and informal institutions. Brinks (2003) posited that democracies fail to root out violence when informal norms contradict formal institutions.

Therefore, it is important to incorporate formal and informal institutions separately when assessing the relationship between institutions and violence. Further this relationship is dependent on the nature of link between formal and informal institutions. This research aims to assess the role played by formal and informal institutions in mitigation or exacerbation of violence and to evaluate if incorporation of informal institutions affects the relationship between formal institutions and violence. The literature points out same formal institutional frameworks tend to effect varying types of violence differently. In some cases democratic and open institutions fail to mitigate violence, if anything they may instigate certain types of violence. This may be attributable to the absence of supporting informal institutions. This also signifies that each type of violence has to be studied separately.

1.1. Hypotheses

The study tests the following hypotheses:

- a) Informal institutions encapsulating values of trust, respect, tolerance and freedom reduce the chances of violence.
- b) Formal institutions that constrain the executive's power to expropriate leads to decline in likelihood of violence.
- c) Formal institutions become more effective in mitigating violence when supported by complementary informal institutions.

1.2. Objectives of the Study

The main objectives of the study are:

- To assess the impact of formal and informal institutions on violence.
- To determine if the influence of formal institutions changes due to incorporation of informal institutions.
- To evaluate the effect of formal institutions on violence in the absence of informal institutions.

¹ These social groups include households, firms, ethnic communities, and governments

1.3.Data and Methodology

In order to carry out the research I have constructed the variables of formal and informal institutions separately. Using the data from various rounds of World Value Survey, the methodology given by Williamson (2009) has been adopted for constructing the indicator for informal institutions. The indicator for formal institutions is constructed by adapting, in part, the methodology given by Gleaser *et. al*, (2004). For investigating the issue I have considered two types of violence, namely, societal violence and political violence. The indicators for formal and informal institutions are constructed for 89 countries. In order to maintain institutional integrity the time period chosen is 1991 to 2015. Interaction and ratio terms between formal and informal institutions are incorporated to account for how informal institutions affect the relationship between formal institutions and violence. Instrumental variable estimation technique is used to cater for the issue of endogeneity.

1.4.Significance of the Study

The existing literature seldom explicitly explores the relationship between institutions and violence. Easterly (2001) has explored the impact of institutional quality on ethnic violence but the paper only explored ethnic violence and the only cultural aspect studied was ethnolinguistic fractionalization. This is the case with most of the literature. Informal constraints have not been studied in the context of violence in any form. Although formal institutional framework is presented by a number of indicators but how they react in the presence or absence of informal constraints has remained unexplored. This study is expected to add to the existing analysis by using explicit indicators of informal constraint instead to just compositional and distributive aspect of diversity. Further, this study also analyses how formal and informal institutions interact with each other when affecting the incidence of violence. This will add to our understanding of the relationship between institutions and violence.

1.5. Organization

The introduction is followed by extensive review of relevant literature pertaining to the issue being investigated. Chapter 3 presents the conceptual framework for explaining the relationship between institutions and violence. Chapter 4 deals with model, variable construction and data analysis. Chapter 5 discusses estimation and its results in detail. Finally, the study is concluded and policy recommendations are made accordingly.

Chapter 2

Violence and Institutions: Survey of Literature

2.1. Introduction

Violence takes a variety of forms, i.e. civil and international wars, ethnic violence, terrorism and genocide etc. Each of these forms of violence is affected by the institutional structure of the country. Democratic institutions have been deemed as the predominant recourse for mitigation of violence. It makes government more accountable, hence most of the grievances that can result in violent conflict are catered for and the opposition is given nonviolent platforms and venues for expressing their displeasure and seeking their interests (Eubank and Wienber, 1994). Collier and Rohner (2008) believe that this “accountability effect” may be offset by limitations that democratic institutions impose on the government’s ability to maintain peace and security through suppression of potentially violent dissidence. To overcome such a possibility a democratic government may have to violate its own mandate and this action may further the chance of violence. There are various factors that may be responsible for the “technical regression in repression” (Collier and Rohner, 2008) and the resulting violence. Some researchers relate this with economic development (Collier and Rohner, 2008; Collier and Hoeffler, 1998; Garfinkel and Skarperdes, 2000; Blomberg *et al.*, 2004a), some relate it with cultural factors and indigenous divisions (Christin and Hug, 2006; Easterly, 2001; Montalvo and Reynal-Querol, 2005; Saideman *et al.*, 2002) and some with quality of formal institutions themselves.

This chapter presents the empirical research carried out on the relationship between institutions and violence. The first part of the chapter presents survey of the literature pertaining to different types of political violence, followed by review of studies carried out on societal violence.

2.2. Institutions and Political Violence

There is overwhelming evidence that strong and open formal institutions ensure prosperity and security. To this end democracy has been considered as the key to the mitigation of violence. However, in depth analysis of developing countries reveals that in most of these countries the formal democratic and political institutions are incomplete, non-coherent and there is lack the rule of law. This has resulted in violence perpetrated by private individuals, groups and state actors. Political violence is define as violence perpetrated by

individual or groups to achieve some political objectives that may include changes in government, geographical secession, changes in government policy or simply getting a particular cause noticed by media and the world. For my research I have taken four distinct types of political violence, namely, international war, civil war, ethnic violence and terrorism. This section discusses the literature that exists on the relationship between institutions and each type of political violence individually.

2.2.1. Inter-state Violence

In case of inter-state wars institutions have to be studied in dyads. Evidence suggests that it is extremely rare that two democracies would go to wars against each other (Lemke and Reed, 1996). Lemke and Reed (1996) give three explanations for democracies' ability to maintain inter-state peace and harmony. Normative view postulates that institutional similarity indicates common mechanisms for conflict resolution which puts the members of the dyad in a better position for avoiding inter-state violence. Informational explanation asserts that democratic institutions allow the state to make credible commitments even in foreign relations as state would be held accountable by the public in case of an international dispute. The preferences explanation posits that democracies seldom have any reason of violent conflict since democracies reflect public satisfaction with the status quo and hence similar foreign policy preferences. Further, having similar preferences democratic states seldom has a reason to challenge each other. Using logistic regression for assessing the impact of joint democracy and joint satisfaction of status quo on the incidence of war between the members of a dyad, the authors concluded that joint satisfaction with status quo and similar democratic institutions have a detrimental effect on the probability of war.

Mesquita *et al.* (1999) are of the view that when faced with a potential aggression democratic leaders are more inclined to allocate extra resources for defense as compared with autocrats. This can be attributed to the idea that the leader with larger winning coalition has to put in more effort in national defense and tends to behave more strategically than the autocrats. The not only make democracies an unattractive target for invader but also make it less likely for democracies to initiate an armed conflict unless it can be reasonably confident about winning. Both these factors lead to fewer democracies engaging in inter-state wars. Further, when democracies do engage in wars they tend to be less destructive or severe in terms of lives lost (Rummel, 1995). Schultz (1999) uses data for militarized disputes from 1816 to 1980 and constructs a logistic model for testing the probability that the target state

will respond with violence to a challenge by the other state in the dyad. This likelihood is low when the other state is a democracy. This result gives credence to view that since democratic governments are in a better position to make credible commitment and threats, any nation targeted by a democracy is less likely to respond in violence lest the situation escalates.

However, the new evidence indicates that it is less about the types of institutions (both economic and political) and more about similarity among institutions. Since the formal rules in a country determine its foreign policy preferences, two countries with similar institutions will find it easier to coordinate and hence will be less likely to engage in violent conflict (Souva, 2004). Institutional similarity decreases conflict by neutralizing to an extent the role of ideological disagreements. Denzau and North (1994) posit that common ethnic and religious attributes and cultural background result in a convergent mental model comprising of ideologies and institutions. When two nations have convergent mental models, they interpret the reality in the similar manner and will align with each other conveniently avoiding potential conflict. Werner (2000) is of the view that institutionally similar countries are less likely to experience ideological disagreement due to shared mental model which makes interaction and coordination less complicated. Further states with similar institutions tend to align with each other against states with different institutions (Werner and Lemke, 1997). Institutional similarity reduces the probability of conflict by deflating the benefits associated with conflict. Since the similarity of institutions reduces the benefits to the invader accrued from institutional restructuring, a state is less likely to be at war with a nation with similar institutional structure (Werner, 2000). Souva (2004) found that impact of political institutional correspondence is dependent on the effect of similarity in economic institutions. He found that economically developed democracies are less likely to experience militarized interstate conflict. Further, the dyads with similar institutions are less likely to be in conflict even if the institutions are not democratic. Along with political institutions the economic institutions also reduced the probability of interstate conflict.

2.2.2. Civil Wars

Civil wars are defined as those internal conflicts that result in more than 1000 battle deaths in a year. These conflicts have been faced by one third of all nations in the world (Blattman and Miguel, 2010). Bellows and Miguel (2006) are of the view that the onset of civil war irrevocably changes the local institutions. Using the household level data for different districts of Sierra Leone for 2004 and 2005 the authors construct a conflict index. The major

finding from this analysis was that civil war has led to greater political mobilization in the local populace, notably in terms of religiosity. The authors conclude that onset of civil war leads to changes in local institutional structure in such a way that people tend to align themselves with groups based on religion, ethnicity or ideology. This may result in emergence of dichotomies within the society and community making future conflict highly probable.

The relationship between civil war and institutions is complex in its nuances. Therefore, while civil war in itself alters institutions, the existing formal and informal institutions themselves affect the likelihood of occurrence of civil war. Walter (1997) suggests that civil wars are an outcome of commitment failure. One side in the conflict may have an incentive to renege on the commitment for maintaining peace, this places limits to the ability to achieve peaceful conflict resolution. Formal institutions ensure that commitments are honored. Therefore, nations where the formal institutions are weak and there are few checks on executive power face more violence. Political institutions like property rights and the rule of law are instrumental in enforcing commitments and compromise between competing groups (Garfinkel and Skaperdas, 2000). Walter (2004) elaborates that civil war may also be instigated due to the dearth of nonviolent and peaceful avenues for accomplishing change. The researcher is of the view that existence of strong political institutions provides nonviolent discourse to bring about change and mitigate this particular stimulus for violence. De Soysa (2002) carried out maximum likelihood analysis on approximately 138 countries over the entire post-Cold War in order to evaluate the neo-Malthusian claims that abundance of natural resources makes the country unstable. An interesting find in this work was that moderate ethnic homogeneity is more likely to result in civil war, while ethnically diverse countries face less risk. The study also determined that incomplete democratic institutions result in conflict, supporting the view that civil conflict is driven by opportunistic behavior taking advantage of institutional shortcomings. The author finished on the note that both formal and informal institutional factors have to be considered when explaining the incidences and motivations for civil war.

The efficacy of group dynamics in determining magnitude and likelihood of violence is explored by Blattman and Miguel (2010). The authors lay focus on non-cooperative theory of coalitions. This theory explores the role played by distribution mechanisms in determining the dynamics of a stakeholder group in the civil conflict. Each group in the conflict faces potential for violence on the issue of distribution of gains. The groups that have instituted a

low cost mechanism for distribution of gains become stable and more effective. The institutions that facilitate cooperation within a group may also mitigate the intergroup violence. The authors identify property rights as one such institution.

According to Fearon and Laitin (2003) non-state violence specialists are able to survive in presence of weak governance. The authors identify poor financing, corruption, political divisions and disconnect from masses as the factors that result in a weak and ineffective political institutions. The authors access the data of 161 countries from 1945 to 1999. The logit regression analysis found the formal political institutions proxied by existence of democracy do not affect the likelihood of onset of civil war. This outcome is confirmed by Collier *et al* (2004) for the duration of civil war for the years 1960 to 2000. The analysis is carried out by using Maximum Likelihood Estimation (MLE) technique for a hazard model depicting transition from war to peace.

Collier and Hoeffler (2004) argue that rebellion can be explained by existence of acute grievances namely, ethnic or religious discontent, economic inequality, political exclusion and repression signifying the role of both formal and informal institutions. To this end the researchers accessed the data from 1960-1999 and arranged that in 5 year episodes. Using start of civil war as dependent variable the researchers employed logit estimation to estimate opportunity as well as grievance models. Opportunity models try to ascertain the role of economic incentives (potential rent) in instigation of civil war. In the grievance model democracy as indicator for political institutions was incorporated. The results are contrary to Fearon and Laitin (2003) findings i.e. democracy was significantly reducing the chances of onset of civil war. This particular research gives the evidence that onset of civil war is less likely in the presence of strong political institutions.

Similar outcome is evident in the study by Reynol-Querol (2005), which assesses the relationship between inclusiveness and social conflict. The author is of the view that conflict is costly and all stakeholder groups would avoid it if the interests are not too widely divergent. That is only possible in the presence of consensual or inclusive formal institutions. The author regresses the onset of civil war for 138 countries against not only democracy but also a measure of inclusiveness measured by incorporating the variable of “checks and balances” from the Database of Political Institutions (DPI). The results depict that democracy may not be effective in preventive civil wars. However, when inclusiveness indicators were incorporated in the model, it was found that mid-level democracies have a higher risk of

facing civil war as compared to pure democracies or pure autocracies. The author concluded that low levels of inclusiveness result in higher likelihood of civil war. Vreeland (2008) corroborates and extends this analysis by investigating the impact of different components of polity on the onset of civil war. It was suggested that pure democracies provides avenues for peaceful conflict resolution while pure autocracies maintain peace by suppressing political dissidents. However, semi-democracies or anocracies tend to allow organized dissention and are ineffective in facilitating nonviolent collective movement. In this situation the dissidents view violence as the most viable recourse and may instigate conflict. To capture various elements of anocracy the author constructed a dummy for anocracy. Additionally, the indices for regulation of political participation and competitiveness of political participation were incorporated in the model in order to ascertain how these variables affect the onset of civil war. Political regulation was found to be negative and significant in explaining the onset of civil war, while political competition and anocracy were found to be playing an important role in increasing the prospect of civil war.

Besley and Presson (2008) have found a baffling relationship between democracy and political violence. The authors start with the argument that strong and consensual political institutions increase the spending on public good leading to the reduction in the value associated with power. The incumbent or the ruling elite are able to command a smaller share of government revenues, taking away the opposition's incentive of incurring the cost of perpetrating violent civil conflict. Using the Correlates of War (COW) and Peace Research Institutions in Uppsala (UCDP) and Oslo (PRIO) the researchers constructed the variable for prevalence of violence as average years that each country has been in conflict from 1960 to 1997 for 124 countries. There results show that the dummy for democracy leads to increase in probability of conflict, signifying a couple of notable possibilities. According to the researchers democracy might be a poor proxy for consensual institutions or the relationship between democracy and conflict cannot be captured in a linear model. When the dummy for democracy is replaced by the dummy for parliamentary democracy the effect on prevalence of civil war becomes negative but insignificant. When converted to panel data impact of democracy on incidence of conflict remained significant and negative. These results signify the importance of the role played by formal political institutions in mitigating and control of civil wars. Corroborating the aforementioned findings, Goldstone *et al.* (2010) posit that formal political institutions to be the most robust predictor of civil war. Using data of onset of civil wars from 1955 to 2003, the study suggests that factional democracies in which

competition is restricted and political participation is repressed face a high risk of war. Further, nonfactional partial democracies do not affect the probability of occurrence of civil war. Discriminatory state activities were also found to be playing a significant role in instigating civil war.

An alternative perspective is presented by Bates (2008) that institutions that extend the ruling elite's time horizon will reduce the cost of expropriation, however, the same institutions incentivize the ruling elite to support and maintain political order. The author gives example of African states where the international pressure to democratize led to increase in disorder. Democratization due to international pressures in Africa reduced the time horizon of the ruling elites and in the absence of institutional checks they resorted to predation and violence. In the same vein, while analyzing civil war in West Africa, Sawyer (2004) suggests that the economic benefits from power associated with the absence of checks and balances on the extractive authority of the executive is the primary cause of war.

In their seminal work on the issue Collier and Hoeffler (1998) present the view that war occurs if the incentive for rebellion is large enough to induce a violence specialist to incur its cost. The authors regressed various incentives and cost indicators on occurrence and duration of civil war for a sample of 98 countries using probit and tobit regressions. Cultural and ethnic attributes proxied by ethno-linguistic fractionalization were found to be insignificant in instigation of civil war. However, the variable played an important role in extending the duration of civil war, revealing that cultural factors come into play after the onset of civil war and exacerbate the conflict. Contrary results are presented by Vreeland (2008). The author found that cultural factors (ethnic heterogeneity) are significant in intensifying the prospect of civil war. On the other hand Goldstone *et al.* (2010) concludes that the cultural factors incorporated as ethno-linguistic fractionalization are found to be insignificant. These results are in contradiction with the outcome presented by Montalvo and Reynal-Querol (2005). The authors analyze the importance of institutions in the offsetting or intensifying social conflict in societies with higher and deeper ethnic cleavages. The researchers access data from 138 countries from 1960 to 1999 and through logit regression analysis found that among cultural factors ethnic polarization was found to be significant in increasing the likelihood of civil war.

2.2.3. *Ethnic Violence*

The role of institutions in exacerbating ethnic violence can be explained by the theory of *ethnic security dilemma* presented by Posen (1993) and developed further by Saideman *et al.* (2002). In the same vein Lake and Rothchild (1996) posit that ethnic conflict is an outcome of the mounting insecurities about the future. Information failures, inability to resolve commitment problems and the security dilemma (Posen, 1993) causes the ethnic groups to become more apprehensive about their sustained security leading to mistrust against other ethnic groups as well as the state. Ethnic activists and violence specialists build upon these fears and polarize the society even further leading to violence. Lake and Rothchild (1996) elaborate further that the only way to avoid violent ethnic conflict is to institute safeguards that include power-sharing arrangements (electoral rules) and maintenance of ethnic balance in public services. These arrangements will stabilize ethnic relations and reduce the chances of exploitation. Formal and informal ethnic contracts can establish political privileges, distribution of and access to resources that helps channel politics in peaceful directions.

Gurr (1993) adopts a novel approach in assesses the factors that cause ethnic violence among communal groups. The author used individual events of ethnic rebellion as dependent variable and attempts to identify factors that induce mobilization of ethnic groups for political actions. The author presents two interlinked explanations for ethnic rebellion namely, grievances about group status and pursuit of interest by political entrepreneurs. The conflict analysis specifies discontent arising from perceived unjust distribution of resources and mobilization of ethnic group in response to emergence of political opportunities as major contributors to ethnic violence. Ethnonationalism on the other hand explains ethnic violence as an outcome of primordial sense of ethnic identity in which ethnicity is deemed as an endeavor for maintaining boundaries. Violence in this context becomes an instrumental reaction to differential treatment by the state or dominant coalition. Using the data on 227 ethnic groups belonging to 90 countries the author determined that grievances about political rights, differentials political power and historical loss of autonomy all contribute in increasing the probability of rebellion, while democracy result in decline in chances of rebellion. These results give credence to the violence mitigating role of formal institutions.

While Posen (1993) applied the security dilemma to ethnic conflict for the first time, Saideman *et al* (2002) explain the role of institutions in instigating or mitigating ethnic violence. According to the authors ethnic violence is an outcome of competition between

ethnic groups for the control of the government. Government of any one particular group is deemed as a potential threat to other ethnic groups as the government has the ability and resources to perpetrate violence against the others. These leads to insecurity among the non-governing ethnic groups that may motivate them to either seek control of state or choose to secede. One group's attempts to control the state will reinforce the fears of the others so respond by competing. In this situation one group's efforts to control government cause all to be worse off by instigating mass conflicts. Saideman *et al.* (2002) are of the view that the ethnic groups may feel more secure if they have access to policymakers and have been provided avenues for blocking policies that they perceive as harmful. Two institutional attributes have been identified in this respect namely, federalism and power of executives and legislators. Both the institutes promote power sharing and provide the necessary representation in the policymaking to the minority ethnic groups leading to decline in conflict. The authors carried out the analysis of the data on 275 ethnic groups accessed from Minorities at Risk dataset and concluded that both parliamentary democracy and proportional representation lead to decline in ethnic protests and rebellion. Similar results were found to be true for federalism. Further the results also showed that older governments incur more violence as newer governments imply that all non-violent options for conflict resolution are yet to be explored. Overall the study signifies that unless the formal institutional structure allows the ethnic minorities in a diverse nation to secure their interests, ethnic violence remains a possibility. Fearon and Laitin (2003) on the contrary found that religious fractionalization lead to increase in likelihood for ethnic violence while democracy has no effect.

The findings of Saideman *et al.* (2002) are corroborated by Christin and Hug (2006). The authors explored the endogenous nature of institutions using federalism as the indicator of political institutions. The results depicted that federalism reduces ethnic violence, while higher levels of democracy was found to be exacerbating the likelihood of ethnic violence. This impact however, turned out to be nonlinear as the coefficient of the squared democracy indicator was negative and significant. Ethnic discrimination and ethno-linguistic fractionalization were also found to be conflict enhancing in the study, giving credence to the importance of informal institutions and cultural factors in instigating violence.

Ethnic conflict is increasing attributed to ethnic heterogeneities as ethnic groups tend to act selfishly as the spillover benefits, actual or perceived, from human capital development of their own ethnic group are higher. Easterly (2001) refers to this as 'ethnic capital' and

attributes the persistence of income inequality between ethnic groups to this phenomenon. The persistent income differential between ethnic groups in time give rise to ethnic tensions and may even erode social capital and trust. In the ethnically homogenous societies the resulting social networks lead to emergence of informal institutions that provide security against expropriation. These institutions are severely impeded in societies that are ethnically divided. In such societies formal institutions make up for low levels of social capital and hence are more productive. The formal institutions provide legal protection to minority groups and limit the ability of the dominant ethnic group of harming other. In this way good institutions make ethnic fractionalization less damaging for development. Easterly (2001) uses genocide, defined as state-sponsored mass killing whose victims are may be identified by their ethnic classification, as indicator of ethnic violence. Genocide is incorporated as dummy that assumes the value one if a genocide that includes “*communal victims*” or “*mixed communal and political victims*” has occurred in the country between 1960 and 1990. The probit regression depicts that ethno-linguistic fractionalization happens to be conflict enhancing however, the interaction between institutions measured by institutional quality and fractionalization is conflict suppressing.

The formal political institutions and their impact on conflict have been scrutinized by Brancati (2006) in the context of decentralization. The author endeavors to analyze the reasons for decentralization being more successful in mitigation of violence in some countries while fails to do so in others. Decentralization (under different circumstances) produces varying results. On one side it brings governance closer to people and enhancing public participation in government activities resulting in decline in ethnic violence. On the other hand decentralization leads to growth in regional parties and divisions, which may strengthen ethnic identities, precipitate discriminatory legislation and access to resources and result in conflict. After carrying out the analysis of about 50 democracies from 1945 to 2000 the authors conclude political decentralization decreases the likelihood of ethnic conflict and while regional parties are conflict enhancing. Further, ethno-linguistic fractionalization was found to be significantly and positively affecting ethnic violence. The interaction between decentralization and regional parties was also found to be affecting the probability of ethnic violence positively and significantly.

As is the case with civil war, the literature assessing how institutions affect ethnic violence focuses mainly on the role of formal institutions. The literature posits that existence of democracy does not warrant that conflict will not occur. In fact different democratic

systems and levels play varying parts in exacerbation or mitigation of ethnic violence. Further, the degree of ethnolinguistic fractionalization in part determines the link between formal institutions and onset of violence.

2.2.4. Terrorism

Terrorism can be defined as an ideology or strategy that justifies propagation of terror through acts of violence, with the purpose for deterring ideological opposition through maximization of fear. This generally involves random targeting of individuals or locales (Turk, 1982). Terrorism may be an outcome of economic, social and political inequality and is more likely to appear in totalitarian structures; however, there is evidence that the terrorist events are more frequent in democratic states as liberty and civil rights makes dissemination of terrorist ideologies more convenient. Terrorism may be considered as a viable course when any conflict is perceived to be zero-sum by the perpetrator faced with a change in the favored status quo. Caplan (2006) analyses the motivation for engaging in terrorist activity and puts it through the test of rationality. The work distinguishes three different types of irrational behavior, namely; lack of response to incentives, going against own self-interest and failure of rational expectations. According to Caplan (2000) in addition to material gains, loyalty and adherence to a cherished ideology adds to the utility of committing acts of terrorism. The author argues that in this case the benefits are not financial but purely psychological. The author is of the view that the acts of terrorism may also be social i.e. by changing his/ her worldview the terrorist may risk losing social capital, making cultural violence a major factor in enabling or inhibiting violence. Turk (1982) associates terrorist activity and ideology with the breakdown of traditional authority structure. Democratic political and institutional reforms may weaken the already established arrangements inhibiting violence and may further sensitize potential dissidents towards the existing unequal life chances. The existence of dissidents, in the first place, indicates prevailing environment of mistrust and fragmentation. This volatile situation is an indicator that the existing formal and informal institutions exacerbate violence by propagation of racism and ethnocentrism, rigidity in accommodation for minorities or opposing ideologies and adoption of violent control strategies. Schmid (1992) also discusses the strengths and weaknesses of democracies in preventing terrorism. Democracies provide recourse to non-violent change through free elections, open criticism by the press, courts that regulate and check the powers of the executive. However, the democratic values allowing freedom of movement and association, a legal system the places procedural barriers to effective action, constrains democratic

government ability to prevent an unrestrained opponent. Terrorists are not restrained by the law of the country or civility. They are intolerant, untrusting and disrespectful to fundamental human rights and freedoms. The democratic values of tolerance and due process create problems for democracies when dealing with terrorism. The author points out that, democracies seemingly face a choice between acceptability and effectiveness. However, the author concludes that democracies that respect majority's political demand while protecting the rights of minorities make it difficult for violence specialists to exploit political issues.

If democracies are unable to solve economic problems, conflict becomes a real possibility. In the first place elections do not guarantee constitutional control over the executive's power, protect the civil rights of minority ethnic and religious groups or encourage tolerance for differing opinion. This is especially true for new democracies. To this end Eubank and Weinberg (2001) attempt to assess the relationship between democracy and terrorism. According to authors the sudden onset of democracy leads to the reemergence of dormant ethnic and ideological grievances with potentially violent consequences. The researchers accessed the International Terrorism: Attributes of Terrorist Events (ITERATE) dataset for the time period 1978 to 1990 and simple cross-tabulation showed that terrorism is more prevalent in stable democracies. This has been explained as the expression of discontentment felt by a "significant minority" whose narrative and policy preferences have been lost out in democracy.

Terrorist activities may be an outcome of inability of the dissident group to bring about change in the status quo. Conflict may be instigated due to negative shocks to the economy. Blomberg *et al.* (2004a) have constructed a theoretical model establishing the link between terrorism and resource accumulation as well as generation. Slow growth of resources owing to excessive extraction by those in power leads to deprivation among certain groups and increases the probability of conflict. Elaborating this argument, Blomberg *et al.* (2004b) are of the view that as the resource base diminishes the interest groups come in conflict with one another in order to increase their respective appropriation. This conflict can take two forms, rebellion for control or secession and, the less institutionally disruptive, terrorism for dissemination of voice and group narrative. In the presence of a powerful military or relatively weaker rebellion technology in hand of the dissidents, terrorist activities are carried out for expressing political discontent (Blomberg *et al.*, 2004a). In order to test this hypothesis Blomberg *et al.* (2004b) constructed dataset of 127 countries from 1968 to 1991. Using Markov processes the authors analyzed the univariate dynamics of per capita income

growth. The results depict that terrorist activities are more likely in high income democracies because stronger economy and well-equipped military increase the cost of civil war leaving terrorist activity as the only viable course of action other than submission to existing state of affairs. This is particularly true during economic downturn experienced by otherwise powerful and economically strong countries. Further, democratic countries experiences more incidences of terrorism, which depicts that the dissident groups are unable to stage a mass over throwing of the state and thus have to resort to terrorist activity.

Newman (2007) investigates the validity of the argument that weak states² allow for the emergence and operation of dissident terrorist groups. Further, state weakness may result in international terrorist organization finding fertile groups for establishing setup and recruitment in the country. This renders state weakness as a strategic as well as humanitarian challenge. However, stable functioning nations may enable the terrorist organizations to capitalize on the inherent economic and logistical opportunities. The author argues that terrorists challenge state structures instead of manipulating the absence of authority. The researcher analyzed the social and political environment in which the most notorious terrorist organization are established and function. The paper finds that most terrorist groups do operate in weak states, but while this might provide a hospitable environment for terrorist activity, it is definitely not a sufficient condition for explaining terrorism. Many specific factors attributed to weak states play a significant role in encouraging terrorist activity which include non-functioning institutions, and poor law and order etc. This implies that if institutions in these states are improved and strengthened threat of terrorism can be considerably reduced.

Krieger and Meierrieks (2010) identified tactical goals of terrorism as gaining publicity, political destabilization and economic loss. In the long run terrorist activity seeks to achieve political and economic redistribution. The authors are of the view that terrorists are rational actors and a terrorist event is an outcome of optimization. The terrorists maximize a utility function with respect to costs and gains associated with terrorist action. The utility maximizing level of terrorism equates opportunity costs of terrorist activity with marginal benefits of terrorism namely, attainment of strategic goals. The costs and benefits of terrorism are affected by country-specific factors and may in turn affect the onset of terrorism. Global

² “Weak state” are defines the scenario where central government lacks the capacity to control public order, is unable to consistently control its borders, cannot maintain functioning public institutions or services, and is prone to extra-constitutional domestic challenges (Newman, 2007).

Hypothesis highlights the role of formal and informal institutions in explaining terrorist activity. The formal institutional structure incorporates political institutions, economic institutions and government policies and the informal institutions are captured through measurement of identity conflict³. The authors conclude that formal institutional arrangements play a larger role in likelihood of terrorist activity than informal institutions.

Although dictatorships are less likely to experience terrorism than democracies, it really depends on the types of political institutions. Which basically means that all dictatorships are not the same, some allow for the existence of elected legislature and opposition parties while some do not. A dictator allows the existence of political institutions to obtain loyalty in exchange of rents and political concession. Political concessions require the dictator to make credible promises and political institutions provide a mechanism to make concession credible. Legislature requires bargaining over the exchange of policy concession for loyalty without threatening the survival of the regime. Without legislature mobilized opponents can only influence the politics from outside the formal structure of power. Democracies may experience more terrorism owing to the strength and type of institutions that may re-enforce or hinder the state's capacity to control and mitigate dissent [Aksoy *et al.*, 2012; Wilson and Piazza, 2013].

Using the data from Global Terrorism Database (GTD) the Aksoy *et al.* (2012) established that the presence of opposition parties without legislation leads to emergence of violent terrorist groups and onset of terrorist attacks not only in dictatorships but also in all regime types. On the other hand the evidence presented by Wilson and Piazza (2013) depicts that while democracies do experience highest number of terrorist activities, the relationship between regime type and terrorism is not fully explained by the simple democracy-autocracy divide. Their study establishes link between terrorism and institutions through the control strategy adopted by the government. Using zero-inflated negative binomial regression estimation on a database of 166 countries for the period from 1970 to 2006, the authors found that single-parties autocracies are most successful in controlling terrorism. Among autocracies military autocracy was most ineffective in mitigation of terrorism, while democracies experience highest number of terrorist events over all. The authors echo the views of Aksoy *et al.* (2012) that authoritarian regimes that use democratic institutions to some extent are more effective in mitigating terrorism.

³ Identity conflict is measured through ethno-linguistic fractionalization and religious fractionalization

2.3. Institutions and Societal Violence

Societal violence is different from political violence in its motivation. While political violence is directed towards change in policy, polity and at times even geographical boundaries, societal violence can be motivated by financial benefit, personal grievance or psychological pleasure. Just like political violence there is cost associated with societal violence, the intensity and magnitude of this cost is determined by the strength of institutions. Brinks (2003) uses Latin America, especially Brazil and Argentina, as case studies for democracies that have failed to root out violence by public actors. The author points to the failure of the justice system in dispensing punishment for homicides committed by police officers while on duty. The reason for that may be that informal institutions contradict formal institutions in these countries. The police officers believe that taking a life in their routine police work is justified even if the formal regulations explicitly state otherwise. This signifies that lack of coordination between formal and informal institutions can render state unable to control violence.

2.3.1. Violent Crime

The link between institutions and the rate of homicide is explored by Elias (1978), who makes the argument that strong Western democracies like the United Kingdom, France and Germany etc. have managed to reduce violent crimes more effectively than other nations. The author identifies two distinctive processes through which these countries have managed to reduce violent crime. First of all, a modern democratic state can claim a monopoly on legitimate use of violence, thereby, making personal quests for justice and violent vigilantism illegal. People are facilitated to approach authorities like police or the courts for resolution of inter-personal conflicts. Secondly democracies in these states are accompanied with changes in social configuration and cultural transformation that reduces the efficacy of violence in advancement of individual's self-interest. Lafree and Tseloni (2006) label this argument as civilization perspective i.e. the civilizing effects of democracy will reduce the number of incidences of violent crime in democratic countries.

Interestingly, evidence to the contrary exists in the literature. Diamond (1999) and Mendez *et. al*, (1999) provide evidence from the analysis of Latin American nations that new democracies are expected to experience rapid increase in homicides, owing to the chaotic and ambiguous definitions of authority and jurisdiction during the transitional period. Backman (1998) and Barak (2000) present a similar situation for Eastern European countries that were

previously part of Soviet Union. During the transition to capitalism and modern democratic political system, these countries experienced a rapid increase in violent criminal activities.

A more puzzling observation are in the findings of Eisner (2001) discuss that while homicide rates for Western European nations have declined since the 17th century, World War II has depicted are reversal of trends where homicide rates have increased in Western European countries since 1950s. Lafree and Drass (2002) showed that it's the countries in transition that experience homicide boom by carrying out the analysis of 34 industrialized nations from 1958 to 1998. However, they postulate that homicide rates even in the industrialized countries have increased during that time.

An alternative perspective to civilization theory is given by Taylor *et. al*, (1973) and Bohm (1982). The researchers are of the view that the changes in economic system that accompanies democratic transition, is instrumental in instigating violence. This transitional period is marked by economic inequality, unemployment and social misery, giving rise to violent crimes. This alternative perspective is termed as the conflict perspective (Lafree and Tseloni, 2006). Quinney (1977) is of the view that those market economies that emerge during democratic transitions intensify the gap between haves and have-nots and encourages greed and selfishness giving rise to violent crime.

Neumann and Berger (1988) attempt to reconcile the conflict and civilization perspectives through the dynamics and processes involved in institutional change. When a nation goes through democratic and market transition, modern cultural norms are challenged by traditional cultural values. This confrontation leads to normative ambiguity and weakening of traditional inhibitive mechanisms, termed by Messner and Rosenfeld (1997) as anomie, resulting in an increase in violence and homicides along with other criminal activities. Lafree and Tseloni (2006) carried out the analysis of 44 countries from 1958 to 2000 and found support for the perspective of Shelley (1981) that modernization process in itself is main cause of violent crime, owing to the institutional confusion during the transition process. They also found that full democracies experience almost similar homicide rates as autocracies. Hence attaining full democracy does not reduce the prevalence of violent crime, which indicates that there is a possibility that traditional cultural values may be hampering the formal institutional change from preventing violence.

2.3.2. Gender Based Violence

Gender based violence can involve a wide array of physical, sexual and emotional abuse. Majority of the acts of violence against the opposite sex are perpetrated by a family member and are generally, directed from male to female members of the household. Tauchen *et. al*, (1991) include violence in the noncooperative model of the family. The authors consider violence as a means of gratification and a tool for regulating behavior. The dominant decision maker in the framework of a household may inflict violence because the benefits derived from intimate partner violence exceed cost. The benefits derived from violence may be in form of direct enjoyment from the pain of another, a relief from frustration, control over victim's behavior or access to resources. The costs however, depend on the reaction of the victim, which is determined by the existence and effectiveness of violence inhibiting institutions. In the presence of punishment mechanisms for violent individuals and recourse to protection the victims can seek out assistance from the authority. Existence of democratic and open institutional order, legislation preventing gender-based violence and lack of cultural acceptance for gender-based violence increase the cost of perpetrating violence and hence reduce gender-based violence. Although Levinson (1989) studied domestic violence at the societal level using anthropological data, most research on domestic violence has been at the individual or household level.

The work of Arthur and Clark (2009) examines what determines variation in domestic violence at the macro level. The authors identified and tested six theories that explain cross-country variation in domestic violence namely, a resource theory, an economic dependency theory, a culture of violence theory, a patriarchal theory, a modernization theory and an exchange theory. Resource theory implies as levels of education, labor force and political participation of women will reduce domestic violence in the nations. The dependency theorists are of the view that patriarchy is often augmented with introduction of capitalism from outside in order to maintain balance and stability by avoiding confusion regarding gender roles. Hence the theory posits that the greater the economic dependency of a country would explain the high the overall levels of domestic violence. Culture of violence theory suggests that domestic violence is a natural outcome in a violent society as in such societies violence becomes a norm for resolving inter-group or inter-personal conflicts. Patriarchal norms justify violence perpetrated by men to exercise control over choices available to women by reducing the social or informal cost of gender-based violence. Exchange theory suggests that the presence of laws against domestic violence lead to lower levels of domestic

violence. The theory posits that domestic violence will be prevalent wherever the benefits to the perpetrators are higher than the cost of the act. Costs of violence would be low because of inadequate social controls placed on such violence. This theory projects the efficacy of informal and formal institutions in preventing domestic violence. The research also discusses modernization theory. Smelser (1966) points out that modernization results in universalistic norms characterized by social equality between gender roles being valued over traditional gender-based dichotomy. This also credits informal institutions in being instrumental in reducing violence. Analysis of 158 countries carried out by Arthur and Clark (2009) confirms the validity of exchange, modernization, dependency and patriarchy theories. However, the results suggest that for the selected sample culture of violence theory fails to explain the variations in domestic violence across nations.

2.4. Conclusion

The role democratic institutions play in maintenance of peace and prosperity in the developing world are quite distinguished from the western democracies. Political democracy is necessary but grossly insufficient in insuring civil rights and assurance of the rule of law. Without civil rights and rule law a political democracy inevitably loses its effectiveness in preventing violence among the masses as well as by the state actors. The result is prevalence of systematic and societal violence in new democracies. There is overwhelming evidence that while new democracies achieve success in establishment of formal democratic rules through constitutions and legal codes, the systematic violation of civil rights leads to the delegitimization of these formal arrangements. The outcome is rise in violence perpetrated by the government agents as well as the public, marginalization of minorities, civil wars, mobilization of violent ideologies and emergence of enterprises of violence (Caldeira and Holston, 1999). The consolidation of understanding of formal democratic rules as a more holistic phenomenon requires consideration for social and cultural context. This means that the analysis focuses solely on formal institutions remains incomplete.

Hence it can be asserted the formal institutions fail to achieve the desired results because they are challenged by informal structure, often disguising the policies benefitting a particular interest group behind the façade of a formal democratic institutional structure. This is characterized as preference for “personalism” in implementation of the law, where popular mindsets and nepotism leads to selective application of the formal rules (Da Matta, 1999). This results in emergence of grievances against authority among the minority or

disenfranchised groups, providing the violence specialists with a fertile recruitment environment (Collier and Hoeffler, 2004) and reducing the cost of perpetrating violence.

Chapter 3

Conceptual Framework

3.1. Introduction

This chapter presents the theoretical framework for my study. It presents the theoretical connection between institutions and violence. Institutions include legislation, constitutional constraints, social conventions, informal behavioral norms, and shared beliefs about the world. Violence in itself is a form of behavior that is destructive to property as well as national solidarity. Institutions are designed to prevent such destructive activities.

This chapter is divided into two sections. First Section of this chapter deals with introduction and definition of institutions. This section also explains the inter-linkage between formal and informal institutions. Section 2 deals with the link between institutions and political violence, which provides the theoretical basis for our empirical analysis.

3.2. Institutions

Institutions are humanly defined rules that regulate and control all forms of human interactions (North, 1991). They include written laws, social conventions, informal behavioral norms, and shared beliefs about the world. Institutions are also thought of as constraints on behavior as they are the tools by which individuals form opinions regarding and in response to the behavior of other people (North *et al.*, 2006).

These constraints can be both formal and informal. Formal institutions comprise of constraints on government behavior enforced by legislative framework. Formal rules encompass constitutional constraints, legislative rules, and other political constraints (North, 1991). Informal institutions, on the other hand, are constraints in form of norms, culture, and customs that are not designed or enforced by government (Williamson, 2009). Informal institutions are product of socially transmitted knowledge and formulate inherited values. These are part of the heritage also called culture. Boyd and Richardson (1996) define culture as the "*transmission from one generation to the next, via teaching and imitation, of knowledge, values, and other factors that influence behavior*". Daily interactions of the individuals are for the most part defined and governed by informal institutions. That may explain the diverging outcomes associated with similar formal rules imposed on different societies.

In the absence of formal rules, informal institutions comprise conventions that help solve the coordination problem. Informal constraints acquire a moral force when one person's well-being is affected by the well-being of the others that individual is in a group with (Margolis, 1997). When everyone in a community follows informal rules, each rule following individual can hold others accountable, creating a kind of "morality of cooperation" (Sugden, 1986).

3.3. Institutions and Violence

Institutions both formal and informal also emerge to constrain and limit socially undesirable behavior emanating from interactions between individual and groups. Violence is one of the undesirable aspects of human interaction and has varying implications for the development of the society. The eruption of violent conflict disrupts the working of the society and may severely reduce welfare among its members (Williamson, 2009). For human societies to prosper violence has to be contained and prevented.

This is one of the primary functions of the state. This requires establishment and sustaining a social order that limits and curtails violence. North *et al.* (2006) identify three classifications of the society based on social order; (a) *primitive social order* like that existed in the hunter-gatherer society, (b) *limited access order or natural state* that has been prevalent for the last ten millennia, prevents or limits violence by manipulation of the economic structure by political vested interests for the purpose of generating and appropriating rents in return for stability and security, and (c) *open access orders* maintains social order through competition instead of rent creation, indicating economic and political development.

Open access ordered society comprise of democratic and open political systems, in combination with a competitive economic system, and a state monopoly in violence which put limits to incidence and scale of violence. Further, the proscribed violent activity by state itself can be mitigated by legal sanctions. In short, open access social order is characterized with well-functioning formal institutions, complemented by enabling informal constraints.

In a developing country (limited access social order) with weak institutions there tend to be no monopoly on violence. Instead the situation takes the form of an oligopoly in violence, where the capacity to perpetrate mass violence is concentrated in a small *subset* of population. These individuals with the capacity of instigating mass violence are referred to as '*violence specialists*' (Francois *et al.*, 2015). These violence specialists can opt for forming a

coalition of elites that can appropriate through taxation or direct appropriation by coercion or threat of open violence in which case no coalition is possible (van Besouw *et al.*, 2016). According to North *et al.*, (2006) a coalition of violence specialists can reduce the potential for violence in the presence of weak institutions. The way that the masses respond in this situation is also important. The common public is generally concerned with the safety of their lives and physical well-being. Further, the threat of destruction of property and loss of livelihood is also a major consideration, inducing people to align themselves with the violence specialists. This order is, however, highly divisive and creates rifts on the basis of social, ethnic and religious differences in the society.

The term *natural state* is assigned to such societies because they represent the natural response of civilizations to the threat of large-scale violence in the absence of strong institutional order. In natural states conflict tends to be prevalent in the society. This is so because people who live in close proximity form expectations of support and attention from each other. In the absence of well-defined formal or informal rules there would be ambiguity regarding what a person can expect from others in the society, which may result in mistrust and violence as potential outcomes. At the same time, while coercive appropriation has the potential for violence, it is the competition between the violence specialists (elites) that may prove to be the main source of violence in natural states.

Historically and even in many contemporary cases a coalition of ruling elite tend to exert economic, political and military authority over the rest of society. In most developing nations, elite comprise of political parties, ethnic groups and other forms of patronage networks. They join together into a coalition and commit to restrict violence (North *et al.*, 2006). They do so to create and distribute rents accruing from monopolies, subsidies, exclusive trade licenses and redistribution of taxes etc. Rents are also generated in form of privileges to exploit natural resources in resource-rich areas; these privileges tend to be potential sources of conflict.

These elite are able to extract taxes in return for maintenance of social order and restricting violence. They continue doing so as long as the benefits of such behavior exceed the cost; including the cost of limiting own direct appropriation (Acemoglu and Robinson, 2006). However, this balance is precarious, the coalition operates through cooperation and the issue of distribution of rents among the elites may present a possibility of conflict within

the coalition. Further, lowering of rents may induce some violent specialists to separate from the coalition and become warlords.

Reduction in rents accruing from taxation may be an outcome of high output elasticity of effort. If the rate of taxation is too high, the producers will reduce effort (input) leading to decline in rents. This might induce some violence specialists to become warlords i.e. an increase in potential for mass violence even civil war (van Besouw *et al.*, 2016). That said, in the presence of strong cooperation of the elite and low decisiveness of conflict, violence can be avoided and high level of welfare can be achieved. The reduction in violence in natural state generates significant social benefits, but this system in no way eliminates violence all together, in fact possibility of violence in itself becomes a factor in the stability of a natural state. The potential of violence in natural state induces economic and political actors that are not perpetrators of violence themselves to align with prospective protectors.

North *et al.* (2006) indicate that many contemporary limited access orders have constitutional rules and formal legislative frameworks that limit violence by state and private actors, provide security, and dispute resolution mechanisms for citizens and enable maintenance of social order. However, the state in this context is unable or uninterested in implementation of the formal rules leading to poor quality and weak formal institutional structure. Williamson (2009) attributes ineffective or detrimental formal institutions to lack of complementarity with informal rules regulating the society.

In short onset violence is undesirable for all actors in a society regardless to its social order. However, in the absence of working formal institutions the threat of violence in itself becomes part of the informal institutional framework that allows the elite to appropriate in form of taxes and warlords to appropriate production directly. However, in this system the peace becomes a precarious situation that can breakdown into mass violence anytime the elite considers it beneficial to them. Hence, the most beneficial scenario happens to the open access social order that allows for the complementary interaction between the formal and informal institutions and lowers the violence potential in the society.

Chapter 4

Institutions and Violence:

Model Specification and Data Analysis

4.1. Introduction

Political violence, defined as violence outside of state control that includes revolutions, civil war, ethnic unrest and terrorism, is deemed as the direct outcome of country's economic, social and political structure. Its implications are many and multifaceted. Owing to the economic and humanitarian cost associated with it violence is undesirable in all its forms. Institutions both formal and informal emerge to constrain and limit socially undesirable behavior like violence. Since both formal and informal institutions evolve together, their effectiveness in limiting violence depends on how they interact with each other. This study therefore aims to assess the impact of formal and informal institutions separately as well as evaluate how the two institutions interact with one another in stimulating and mitigating the onset of violence.

This chapter presents the econometric model that is to be used in the thesis and in detail discusses every component of the model, including how each aspect is measured and why that measure is used. This chapter also includes explanation of how each focus variable is constructed for incorporation into the model. The second section presents data sources.

This chapter also presents a preliminary data analysis, just to get some idea about how the variables behave and interact with each other. The third section gives classification of countries based on the strength of their formal and informal institutions and the information we can garner from this activity. The fourth section presents the basic analysis of relationship between institutions and violence using scatter diagram and fitted line.

4.2. Model Specification

The econometric models are based on the work of Williamson (2009) but since different indicators of violence have different determinants the control variables vary from indicator to indicator. However, my core specification remains the same:

$$V_{k,i} = \beta_{k,0} + \beta_{k,1}FI_i + \beta_{k,2}II_i + \beta_{k,3}FI * II_i + \beta_{k,4}FI/II_i + \sum_{j=5}^n \beta_{k,j}X_{ji} + \mu_{k,i}$$

Where, $V_{k,i}$ is the k^{th} indicator of violence, FI_i is indicator of formal institutions, II_i is the constructed indicator of informal institutions, X_{ji} are the control variables that will vary depending on the form of violence under consideration. $\beta_{k,3}$ captures the impact of interaction of formal and informal institutions. The coefficient $\beta_{k,4}$ presents the effect of formal institutions in the absence of informal institutional support.

4.2.1. Dependent Variable

The indicators of violence are divided into two broad classes, namely, political violence and societal violence. Political violence is defined as, violence outside of state control perpetrated in order to achieve political goals or influence public policy. I have used four indicators of political violence namely, civil war, ethnic violence, terrorism and interstate war. Civil war is defined as a large scale violent conflict between the state and non-state actors within the state's territory. Ethnic violence is an outcome of long standing ethnocentric tensions. It can take many forms from riots, terrorism or even genocide. My data however, only deals with major episodes of political violence, hence, small scale events are not accounted for. Terrorism may or may not be perpetrated due to ethnocentrism. Terrorism includes all those violent activities that are intended to promote terror as a pressure tactic to achieve political objectives. Inter-state war represent failure of foreign policy in resolving a variety of inter-state conflicts through dialogue and bargaining. These conflicts are varying in nature, ranging from territorial disputes to ideological differences. Whatever, the source of conflict the purpose of inter-state wars happens to be political in nature. Societal violence happens to be more intimate and its motivation is more personal. My research incorporates homicides and gender based violence to depict the prevalence of societal violence.

4.2.2. Independent Variables: Core Specification

The core specifications of the model constitute the effect of formal and informal institutions, their interaction and ratio of formal to informal institutions.

Formal institutions can be instrumental in inhibiting political violence by providing a wider platform for voicing opinions and participate in policymaking by increasing the size of dominant coalition and limiting the power of the executive. Open access institutional order presents perspectives and priorities of all individuals and, places checks and balance on the dominant coalition's ability to appropriate and extract rents. This provides nonviolent avenues of achieving individual or group interests and thus disincentivises violence. On the

other hand democratic formal institutional framework can severely limit the executive's ability to discourage and stop dissidents. This may empower the potential opposition to resort to political violence in order to either assume power or achieve geographical succession. This may render the formal institutions ineffective in inhibiting political violence.

Formal institutions tend to increase the cost or penalty for committing violence and can lead to reduction in violence. It is expected that both homicides and gender based violence will be reduced in the presence of democratic formal institutions, however, Lafree and Tseloni (2006) are of the view that democratic formal institutions may be accompanied by the brutalizing effect of market economy leading to increase in violence. Further, the authors also prescribe the possibility of neutrality of formal institutions in limiting violence in the society due to acceptance of culture of violence.

Informal institutions are also expected to have negative impact on the likelihood of violence of all types, since strong informal institutions reflect prevalence of mutual respect, sense of control and trust. These values result in individuals or groups not only actively trying to avoid violent conflict but also condemning the incidences of violence elsewhere. Thus informal institutions are expected to constrain the violent tendencies and prevent violence of all types. Political violence is generally, prevented by cultivating a culture of non-violent protest somewhat in the vein of the civil rights or suffragette movements. People instead of resorting to nationwide warfare, riots or terrorist activity, employ non-violent means of garnering political support for their cause. Further, state will also be induced by the public to look for non-violent and dialogue based means for resolving inter-state conflicts.

Societal violence is similarly reviled due to the culture of non-violence and offenders not only are penalized by law but also by the society through ostracization and exclusion. This loss of social capital may induce an otherwise violently inclined individual to refrain from violence.

The interaction between formal and informal institutions is expected to have a negative and significant effect on all types of violence. This interaction terms is incorporated to assess the complementarity between the two types of institutions. The assertion is that even if formal institutions are not significant in affecting violence; in the presence of support from informal institutions they will become effective in reducing violence.

The ratio between formal and informal institutions, on the other hand, captures the effectiveness of formal institutions in the absence of informal institutional support. Basically,

we check that how increase in formalization relative to informality will affect violence in the nation. The coefficient of this ratio term is expected to be either positive or insignificant depicting that without the support of informal institutions, formal institutional reforms may become either irrelevant or violence inducing.

4.2.3. Independent Variables: Control Variables

Among the control variables higher levels of economic and human resource development are expected to have negative effect on violence, while demographic stress and reliance on natural resources may increase the probability of violence. Further diversity and exclusion among groups captured through ethnolinguistic and religious fractionalization is expected to increase certain types of violence.

Political violence is generally affected by level of economic development captured by natural log of per capita GDP. It is expected to be negative and significant but a higher GDP per capita may also mean that violence specialists will be tempted by the larger size of potential rent and if they are unable to exercise the power required to extract that rent due to the formal constraints on the power of the executive, it might induce them to become warlords and perpetrate political violence. In this case per capita GDP is expected to have a positive effect on violence. There is also a possibility that level of economic development does not play any role in mitigating or encouraging political violence. This will be the case if the historical ethnic, racial or economic (inequality) grievances are not being rectified with economic development.

Societal violence on the other hand is affected by economic progress measured by growth of GDP. It is expected that economic progress will lead to reduction in societal violence as it is accompanied by increase in general well-being resulting in decline in motivation for societal violence. There is however a possibility that growth of GDP may prove to be ineffective in controlling violence. That happens when the benefits accruing from growth are unevenly distributed; this may even result in heightening of frustrations and animosity, ultimately violence and loss of life.

Trade openness is expected to be effective in mitigating both political and societal violence. Amodio *et al.* (2017) suggests two possible scenarios in this regard. If trade openness is income enhancing then opportunity cost of engaging in violence increases and the benefits accruing from violence may fall due to disruption of trade. Further, society's tolerance or acceptance of violence may also reduce leading to creation of informal contracts

that inhibit societal violence like homicides or acts of domestic violence by adding punishing the dissidents by erosion of social capital. Hence, trade openness can be potentially violence inhibiting. This effect is termed as *the opportunity cost effect*. On the other hand, if trade liberalization results in the increase in gains from appropriation owing to the rise of contestable income. This will result in increase in violence also called *the rapacity effect*. At the societal level pre-established extractive institutions and individuals who gain from it may view the trade dependence as a threat to the status quo due to its formative effects on society. For example, trade represents stronger linkages with the rest of the world which results in import of ideas and values of gender, racial or ethnic equality, acceptance for alternative life style choices, desire for democracy and personal control. This will in turn challenge the established conventions and may induce aforementioned individuals to resist by using violent means resulting in gender violence or increase in homicides.

Diversity and fractionalization are expected to have a profound effect on violence. Linguistic fractionalization signifies a basic disconnect between cultural and ethnic groups. Having different languages results in inability to communicate, and hence hampers the ability to understand each other's point of view. This results in creation of misunderstandings and even animosity resulting in an increase in violence. Ethnic fractionalization results in hyper-ethnocentrism (Kimsey and Fuller, 1998) and ethnic divide which may be enhanced by language barriers or income inequality. Significant ethnic minorities may feel disenfranchised and resort to ethnic violence, civil war or terrorist activity. Further, this may also give rise to hate crimes and inter-ethnic homicides as isolated but frequent occurrences instead of an organized activity. That said unlike linguistic fractionalization, ethnic fractionalization may also depict hypo-ethnocentrism as diversity and proximity may generate greater understanding and even inter-ethnic familial linkages through marriage. This may actually result in reduction in violence. Ethnolinguistic fractionalization, however, is not expected to have any effect on gender-based violence and inter-state wars.

Country's status as net exporter of oil and petroleum has important implications for prevalence and incidences of political violence. It depicts a potential source of conflict among various ethnic and political groups owing to the possibility of extraction of significant oil rents, the distribution of which is a point of contention. Additionally, oil rich countries have been suffering from the Dutch disease resulting from over reliance on oil revenues, this basically reflects under-development of other sectors and existence of significant inequalities which may in turn give rise to dissention, frustrations and animosity against the state and

other ethnic, social and political groups and finally in political violence. It is also a potential cause of inter-state wars as oil rents may induce other states to infringe on the country's sovereignty in order to appropriate oil resources. In the same vein being an oil exporter gives a country certain amount of hegemonic clout in international politics, which may result in the country itself interfering with other states on the basis of ideological differences and various vested interests which may induce a country to engage in inter-state violent conflict.

Urbanization is included in the equation for civil war and homicides. Urbanization may be indicative of higher levels of modernization and dissemination of the contemporary ideals of non-violence. Further it may also reflect an increase in opportunities for social and economic mobility, which in turn will limit the chances for mass violence especially civil war. On the other hand urbanization may result in urban squalor and creation of slums leading to stark inequalities coexisting within a limited geographical area. This would be ripe ground for the violence experts for recruitment in militant groups leading to increased opportunity for perpetration of civil war. Further urban squalor also increases opportunity for crime accompanied by increasing resentment among the disadvantaged groups. This may manifest in for high incidence of homicides and societal violence.

Income inequality measured by Gini coefficient is incorporated in the equation for civil war. It is expected to have a positive sign countries with high income inequality are expected to experience more civil wars. High income inequality is an indicator of growing resentment in the society between various income groups, making it convenient for violence specialists to gain recruitment for mass violence.

The equation for inter-state war incorporates the dummy for the country being land locked. A land-locked country tends to be dependent on its transit neighbors for trade and transport. The dependence on neighboring transit countries results in raising the stakes the in any inter-state dispute, which may reduce the opportunity cost of violent conflict resulting in a higher probability of an all-out inter-state war. Further, land locked countries are also dependent on the political situation and stability of the transit neighbors. Hence, may have to take side in an international dispute involving the transit neighbors. There is also a possibility that this dependency reduces the bargaining power of the nation and weakens its status in international conflict, this may induce the country to seek out conciliatory resolution to inter-state dispute and reduce inter-state war.

The equation for inter-state war also includes average incidences of terrorism in the country since 1990. Terrorism in recent history has been a source of conflict between countries especially, those that are political rivals of each other. Accusation of cross-border terrorism can be a source of international conflict resulting in an all-out war. The most significant of such events has been the 2001 US-Afghan war, which was an outcome of the 9/11 terrorist attacks on US soil. Hence in modern international warfare the role of terrorism cannot be ignored.

School enrollment is incorporated in the models for ethnic violence and gender-based violence. Attainment of education is expected to reduce both ethnic violence and gender based violence. Enrolling in and attending school means proximity and contact with children from different ethnicities and races. This will result in better communication between different communities and give rise to hypo-ethnocentrism resulting in reduction in ethnic violence. Further, gender sensitive and equal opportunity education can also ensure gender equality and mutual respect reducing the incidence of gender based violence.

Unemployment among male youth is major cause of economic, social and psychological distress. It results in reduction in opportunity cost of engaging in terrorist activity due to the dearth of economic opportunity, deteriorates social capital, creates animosity and grievances. This gives violence specialists an opportunity to recruit and radicalize and may result in increase in incidences of terrorism. The unemployment among male youth has been added to the model for terrorism.

Poverty is added to the model for homicides. Poverty represents lack of economic opportunities and existence of severe deprivation. This creates incentives for perpetrating violent crimes like homicides by reducing opportunity cost of violence as well as by creating grievances against the privileged members of the society.

The equation for gender-based violence incorporates a dummy variable for whether the country has legislation regarding domestic violence or not. The existence of legislation regarding domestic violence places a formal penalty on the act and can work as a deterrent for gender-based violence.

4.3. Construction of Variables

This particular section presents the construction of variables. The first subsection the dependent variables have been discussed in detail. Subsection 5-I-ii deals with the main focus variables of formal and informal institutions and their construction.

4.3.1. Violence

For my work I will be using six indicators of violence:

(a) Societal Violence

While violent crime can take many forms, intentional homicide or pre-meditated murder is its most extreme form. The motivation for that can vary from economic benefits to quid pro quo for some actual or perceived offence. The UN defines intentional homicides as, “*unlawful homicides purposely inflicted as a result of domestic disputes, interpersonal violence, violent conflicts over land resources, inter-gang violence over turf or control, and predatory violence and killing by (small) armed groups.*” The data on intentional homicides per 100000 individuals is accessed from UNODC’s International Homicide Statistics database.

Another aspect of violent crime is gender-based violence, which is an outcome of cultural trends backed by lack of enforcement of laws. Gender-based violence is defined as percentage of women who reportedly experienced physical violence over their lifetime and is accessed from UN (2015).

(b) Political Violence

a. Terrorism

It is defined as violence perpetrated by non-state actors in order to promote and spread fear. It is generally politically motivated and is intended to project a particular point of view. Its casualties are generally not targeted but end up being collateral damage for achievement of broader objectives of the perpetrators.

b. Ethnic Violence

Ethnic violence is motivated by ethnic animosity and conflict. It can take varying forms in terms of its intensity. It ranges from ethnically motivated strikes and riots to ethnic cleansing and genocide. Unlike terrorism ethnic violence is almost always targeted at people belonging to perceived adversary ethnic groups. In its most extreme form ethnic violence can emerge as lasting threat to security and national solidarity.

c. Civil War

A civil war is the armed conflict between structured groups within the same country. This conflict is generally politically motivated to gain control of the country, to achieve succession for a particular region within the country or to alter government

policies. Civil wars result in large numbers of casualties and destruction of substantial resources.

d. Inter-State War

Interstate violence is a conflict between two or more states, which use their respective armed forces in the conflict. Inter-state conflict that results in more than 1000 deaths is generally considered as a full-scale war; while those that result in fewer (than 1000) deaths are called Militarized Interstate Disputes (MIDs).

The magnitude scores of ethnic violence, civil war and inter-state wars are accessed from Major Episodes of Political Violence (MEPV) dataset constructed by Center of Systemic Peace. The scores are then averaged for the post-cold war time period.

e. Episodes of Political Violence

Additionally, aggregate of scores for ethnic violence, civil war and inter-state war is also taken to assess the prevalence of political violence for each country.

4.3.2. Informal Institutions

Our variable for informal institutions is constructed by following the methodology of Williamson and Kerekes (2011). The authors identify four distinct categories of culture that should constrain behavior related to social interaction. These four components are trust, respect, control, and obedience. These components serve as rules governing interaction between individuals. In order to maximize sample size, we will utilize last three waves of the World Values Surveys. The World Values Survey (WVS) explores cultural values and beliefs, how they change over time. Each constituent of culture has a corresponding question from the survey and a different aggregation process.

Trust (T) is measured through the following question from the survey: “*Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?*” The level of trust is captured in each country by adding the number of respondents that answered “*Most people can be trusted*”. A high score in trust is indicative of a more cohesive society, in which leaders try to inculcate trust in and among the masses in order to avoid hostility (Reemtsma, 2012).

The second component of culture depicts individual’s perception regarding **Control** (C). People’s behavior depends on their perception regarding the control they have in their life. Lack of control may lead to the feeling of helplessness and exclusion, which exacerbates grievances and increase likelihood of conflict. The survey question used for describing

control is, “*Some people feel they have completely free choice and control over their lives, while other people feel that what we do has no real effect on what happens to them. Please use this scale (from 1 to 10) where 1 means “none at all” and 10 means “a great deal” to indicate how much freedom of choice and control in life you have over the way your life turns out*”. An aggregate control component can be found by averaging all the individual responses and multiplying by ten.

The third cultural trait is defined as **Respect (R)**. Some societies encourage social interactions beyond own group and some do not. Respect and its prevalence encapsulates the permissiveness for outside the identity group interactions, which may lead to widespread understanding and acceptance for opposing outlooks leading to reduction in the likelihood of violence. The survey question that determines the significance of respect in a society is: “*Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five*”. Respect is defined as the percentage of respondents in each country that stated the quality “*tolerance and respect for other people,*” as being important.

The fourth cultural characteristic captures the importance of **Obedience (O)** in a society. Tabellini (2010) argues, it is perceived in certain areas that the role of the state is to suppress individualistic instincts through coercion to achieve desired outcomes. In certain cultures this takes the form of parents also suppressing individualistic instincts in their children. This type of attitude allows for violence specialists to command higher degrees of control. Importance of obedience in the society is depicted by the percentage of respondents that identified obedience as a desirable quality. A comprehensive measure for culture for each country is achieved by summing trust, control, and respect, and subtracting the obedience score.

The works of Williamson (2009) and Williamson and Kerekes (2011) deal with economic development and property rights respectively. However, our focus is on violence, for which I believe that **prevalence of tolerance (T)** is an important cultural trait. Bomhoff and Lee (2012) have used the question, “*On this list are various groups of people. Could you please mention any that you would not like to have as neighbors?*” to indicate tolerance in the society. Percentage of respondents who indicate that they would not like to have “*people of different race*”, and/or “*immigrants/ foreign workers*” as neighbors, can be taken as an indicator for prevalence of intolerance in the society. This indicator can then be subtracted

from the pre-rescaling measure of culture calculated by using the methodology of Williamson and Kerekes (2011). We then convert this measure to be measured on a relative scale ranging from 0 to 10, with 10 representing the country with the higher quality of informal institutions.

Trust, respect and freedom tend to remove grievances, increase acceptance towards other groups, enhances sense of belonging and accommodation and lead to more cohesive social construct in which inter-group contact and interactions become norms. All these factors tend to reduce the likelihood of onset of violence, while obedience allows the violence specialists to exploit deep rooted traditional beliefs and mobilize a large number of people for instigating unrest. Prevalence of intolerance contradicts the values encapsulated in trust, respect and freedom. It creates mistrust against the perceived others, leads to disrespectful outlook towards alternative ideologies and may stimulate repressive behavior that involves social exclusion and threat of physical violence. Therefore by adding the indicators of trust, respect and freedom and subtracting obedience and intolerance we can get an indicator for violence mitigating informal institutions. The final indicator for Informal Institutions (II)

$$II_i = (T_i + R_i + C_i) - (O_i + Tl_i)$$

This composite index combines all those cultural factors that suppress and mitigate violence. This index is expected to have a negative effect on all types of violence.

4.3.3. Formal Institutions

Most studies pertaining to the relationship between institutions and violence, deal exclusively with formal institutions. The most common indicator for formal institutions is in the form of a dichotomous dummy that indicates the presence or absence of democracy and openness. Collier *et al.* (2004) measured formal institutions by democracy through incorporating democracy score from Polity IV dataset published by Center of Systemic Peace. Fearon and Laitin (2003) used the same dataset by incorporating democracy as a dummy which assumes value 1 if polity2 index is greater than five. This particular research also included the dummy for anocracy which assumed value of one in case of regime interruptions. Reynal-Querol (2005) construct indicator for formal institutional structure by using two datasets. Polity IV is used for construction of dummies for democracy and autocracy. The dummies assume value 1 if democracy score is greater than or equal to 4. The author also used Gastil's Index to construct a dummy for countries that are considered free and a dummy for partially free. The level of inclusiveness is captured by the dummy constructed from variable CHECKS in the Database of Political Institutions (DPI) 2015.

Epstein *et al.* (2006) deems binary categorization to be too crude to capture formal institutional setup. To this end Easterly (2001) uses the International Country Risk Guide (ICRG) Dataset and average indicators for institutional quality into an overall index. Brancati (2006) measured democracy by using the mean level of political rights and civil liberties in a country per year. Goldstone *et al.* (2010) derived their measure of political institutions by using polity scale for openness of executive recruitment to capture contestation and scale for competitiveness to capture inclusiveness. They categorized polity into five categories ranging from *full autocracy* to *full democracy* based on different combination of contestation and inclusiveness.

Glaeser *et al.* (2004) identify four constraints on government power of expropriation. These constraints can be classified as electoral rules and judicial constraints. Electoral rules, measured by plurality and proportional representation, are constraints on executive power. Judicial constraints, measured by judicial independence and constitutional review, capture the constraint on the executive issued by the judiciary. Plurality represents the election of a legislator by a winner take all strategy. Proportional representation captures whether a candidate in the upper and lower houses of parliament is elected based on the percentage of votes received by their party. Both measures are dummy variables (0, 1) averaged over a given time period. Judicial independence measures the term length of the Supreme Court judges. Constitutional review captures both the extent of judicial review and the rigidity of the constitution. Judicial review is measured by whether judges have the power to review the constitutional validity of laws. The rigidity of the constitution quantifies how hard it is to change the constitution by counting the number of steps necessary to do so. Both judicial independence and constitutional review are normalized to range between zero and one. All four formal constraints are political rules constraining government. Higher scores for each measure necessarily imply stronger formal institutions. Additionally, higher levels of checks and balances and control on executive's power inhibit the dominant coalition from discrimination against minority groups. Plurality ensures representation of minorities and special interest groups on the political platform and allows for alternative and non-violent means for resolution of potential conflict leading to reduction in the likelihood of violence. In order to construct one comprehensive measure of formal institutions, principal component analysis is extracted from all four constitutional rules to create an overall formal institutional construct. The index is normalized to range between zero and ten, with a score of ten

indicates that governments in these countries are more constrained via formal rules than those countries with low scores.

My indicator for formal institutions comprise of five indicators of political institutional structure that represent the extent and degree of constraints on the powers of the chief executive of the country. The first two indicators are selected following the work of Gleaser *et al* (2004) is plurality (PL) and proportional representation (PR). In plurality systems political representatives are elected using a winner take all rule. It assumes the value '1' if this system is in place and zero otherwise. Again, following Gleaser *et al.* (2004) average for the variable is taken over the post-cold war years. Proportional representation means that the representation in the elected body of legislators is determined by the percentage of electoral votes/ support received. It equals one if candidates are elected using a proportional representation system.

The other three components of formal institutions are used in a variety of research papers to represent checks on the executive authority. The first such indicator is 'Checks and Balances' accessed from the Database of Political Institutions (DPI). Its value ranges from 1 to 6, where 1 represents a non-competitively elected legislature and almost absolute power to the executive and six represents elected representatives in the legislature and inclusion of opposition in the legislative process.

The other indicator is 'System'. Its value ranges from zero to 2. Zero represents a presidential system, while one represents a system in which the president is elected by assembly. The value 2 represents Parliamentary system. The last indicator is 'FINITTRM', which is a binary variable that takes the value one if there is a constitutional limit on the number of years the executive can remain in power before new elections must be called and zero otherwise.

Average of these indicators is taken from 1991 to 2015. Then using Principal Components Analysis (PCA) a composite index of formal institutions is constructed. The generated index is then rescaled to range from 1 to 10, with 1 representing no constraints on the power of the executive while 10 showing little authority given to the executive alone.

4.4. Data Sources

The data for violence is accessed through multiple data sources. The data on violent crime is accessed from UN Office on Drugs and Crime's International Homicide Statistics database. This data comprises of number of unlawful homicides intentionally perpetrated as a result of

domestic disputes, interpersonal violence, conflicts over land resources, inter-gang violence, and predatory violence and killing by armed groups, per 100,000. Data on gender-based violence is measured through lifetime prevalence of physical violence against women accessed from The World's Women 2015: Trends and Statistics pushed by the United Nations. For accessing the data on terrorism GTD published by University of Maryland is employed. The data on ethnic violence, civil wars and international wars is accessed from Major Episodes of Political Violence (MPEV) published by Center for Systemic Peace (CSP).

The variable for informal institutions is constructed by using the data from World Value Survey (WVS) by Institute for Comparative Survey Research, Austria. For formal institutions we use the Database of Political Institutions constructed by Beck (2000).

Employing the aforementioned methodologies the indicators for formal and informal institutions are constructed for 89 countries. In order to maintain institutional integrity the time period chosen is 1991 to 2015. The reason is to control for the institutional upheaval resulting from the end of cold war especially in the Central Asian and Eastern European States. Period averages have been taken for the time varying variables as the focus variable of informal institutions as well as theoretically relevant instrumental variables do not vary over time. In order to maintain consistency in data type we are constructing cross-sectional dataset.

4.5. Formal and Informal Institutions

Following the framework of Williamson (2009) possible combinations of formal and informal institutional arrangements can be divided into four categories.

Table 4.5.a. Strength of Formal and Informal Institutions

(1) Strong Formal Institutions Strong Informal Institutions	(2) Weak Formal Institutions Strong Informal Institutions
(3) Strong Formal Institutions Weak Informal Institutions	(4) Weak Formal Institutions Weak Informal Institutions

Following the framework the countries belonging in each quadrant have been identified below:

Table 4.5.b. Formal & Informal Institutional Framework

<p style="text-align: center;">(1)</p> <p style="text-align: center;">Strong Formal Institutions Strong Informal Institutions</p> <p>Argentina, Australia, Canada, China, Colombia, Cyprus, Czech Republic, Dominican Republic, Finland, France, Germany, United Kingdom, Hong Kong, Hungary, Italy, Japan, Latvia, Macedonia, Mexico, Moldova, Netherlands, New Zealand, Norway, Poland, Puerto Rico, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Uruguay</p>	<p style="text-align: center;">(2)</p> <p style="text-align: center;">Weak Formal Institutions Strong Informal Institutions</p> <p>Azerbaijan, Bahrain, Chile, Georgia, Guatemala, Kazakhstan, Kyrgyzstan, South Korea, Taiwan, USA, Uzbekistan, Vietnam</p>
<p style="text-align: center;">(3)</p> <p style="text-align: center;">Strong Formal Institutions Weak Informal Institutions</p> <p>Albania, Brazil, Bulgaria, Croatia, Cyprus, Ecuador, El Salvador, Estonia, India, Indonesia, Israel, Libya, Malaysia, Peru, Qatar, Serbia, South Africa, Thailand, Trinidad-Tobago, Turkey, Ukraine, Venezuela</p>	<p style="text-align: center;">(4)</p> <p style="text-align: center;">Weak Formal Institutions Weak Informal Institutions</p> <p>Algeria, Armenia, Bangladesh, Belarus, Burkina Faso, Egypt, Ethiopia, Ghana, Iran, Iraq, Jordan, Kuwait, Lebanon, Lithuania, Mali, Morocco, Nigeria, Pakistan, Philippines, Rwanda, Singapore, Tanzania, Tunisia, Uganda, Yemen, Zimbabwe</p>

The aforementioned categorization is one way to catalogue institutions in order to analyze and understand their effects on violence. Quadrant (1) represents strong formal and informal institutions. In this scenario, strong political rules and strong informal constraints exist. The country falling in this quadrant reflects not only effective formal conflict resolution mechanisms and also cultural values that inhibit violent tendencies. Thus, such a country is not likely to experience mass violence. The majority countries in this quadrant belong to the OECD and almost all of them are considered to be highly developed. The most striking feature is that the United States is not in this list. In fact the United States lies in quadrant (2), owing to the presidential system and lack of proportional representation. None of these countries have experience civil war since 1990, only Russia has engaged in inter-state conflict. However, incidences of ethnic violence were experienced by many of these countries. Other than Colombia and Russia the incidents of terrorism are also not common place. Homicide rates are also quite low in most countries, other than Russia and Colombia.

Quadrant (2) exemplifies existence of less developed formal institutions with strong informal constraints. This institutional setup consists of rules stemming from cultural norms,

rather than from the political setup. It is expected that such institutional arrangement may still be effective in limiting the incidence of violence as mobilizing and motivating the people towards violence may be difficult in societies with higher levels of trust, respect and tolerance even in the absence of strong formal institutions. However, this particular quadrant includes only a small number of countries with the United States being the most significant. Kazakhstan, Kyrgyzstan and Uzbekistan are unitary states where the executive (President) exercises immense control and electoral process is known to be highly questionable. South Korea has seen increase in the power of the chief executive since 2005, which may be the reason for it lying in the second quadrant. The occurrence of civil war is extremely rare in these countries as well with only exception being Georgia. Ethnic violence is also experienced by Kyrgyzstan only. Terrorist activity and homicide rates remain low in these countries.

Countries in the Quadrant (3) portray the situation where formal constraints are effectively enforced but the informal institutions are weak. This quadrant contains countries attempting to establish certain formal institutional arrangements. However, the institutional framework is still in transition, which means that the values espoused by formal institutional reforms have not been assimilated in the society. That country would therefore be classified as having a strong formal institution, regardless of how well it performs and the outcomes in terms of violence remain ambiguous at best.

Quadrant (4) represents countries with weak formal and informal institutions. In this situation, the strong political and cultural constraints are lacking. These societies are expected to be marked with frequent episodes of violence, as both formal and informal constraints would be ineffective. It is notable that majority of the quadrant 4 countries are situated in Africa or Middle East and happen to be highly dependent on natural resources especially petroleum.

These arrangements of formal and informal constraints are incorporated through the interaction and ratio terms. The values of their coefficients indicate the way cultural constraints affect the relationship between formal institutions and violence.

4.6. Institutions and Violence: Bivariate Analysis

The relationship between institutions and violence has been assessed by simple scatter diagrams. Institutions are taken on x-axis while various types of violence are taken one-by-one on y-axis. Additionally, a simple linear relationship between the two variables is also

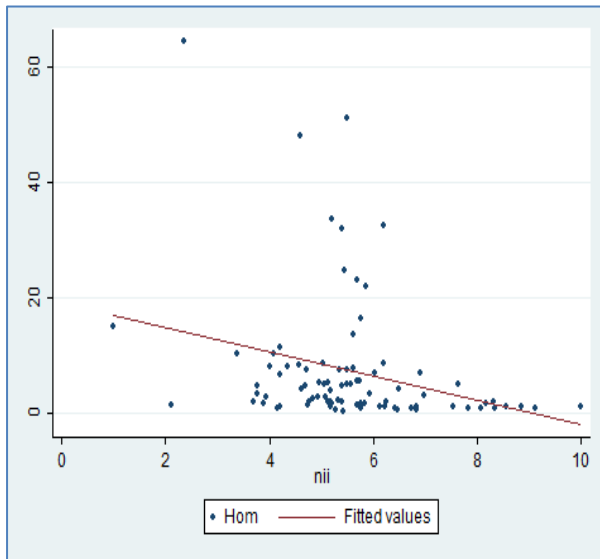
fitted in order to clarify the relationship. This allows us to understand how our focus variables interact with each other. This section is further divided into two subsections based on the type of violence studied. Subsection II-1 presents bivariate analysis of institutions and societal violence and subsection II-2 deals with the correlation between institutions and political violence.

4.6.1. Societal Violence and Institutions

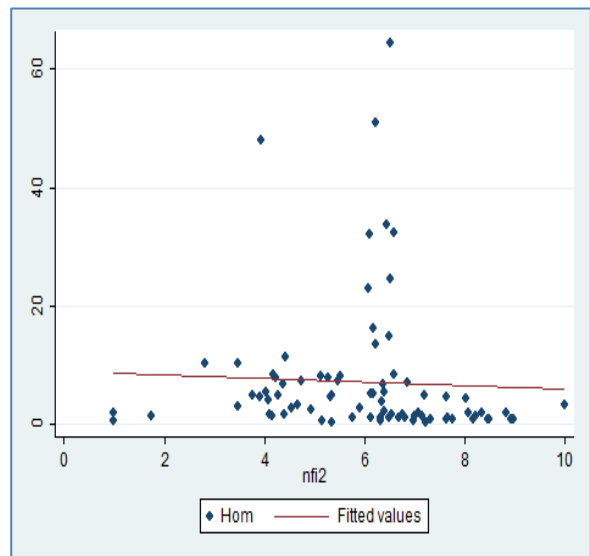
The link between societal violence and institutions is explored and represented in figure 1. Assessing the impact of institutions on homicides brings us to the conclusion that while there is a clear and understandable negative relationship between informal institutions and homicides (Figure 1, Panel I), the link between formal institutions and homicides remains ambiguous (Figure 1, Panel II). Gender-based violence does not seem to have any discernable relationship between gender-based violence and institutions. This is in no way indicative that the variables are not linked, simply that the relationship is more complex and requires further exploration.

Figure1. Institutions and Societal Violence

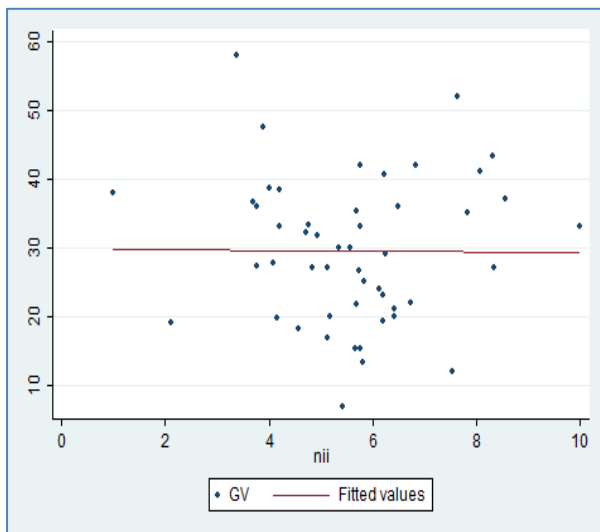
I. Informal Institutions and Homicides



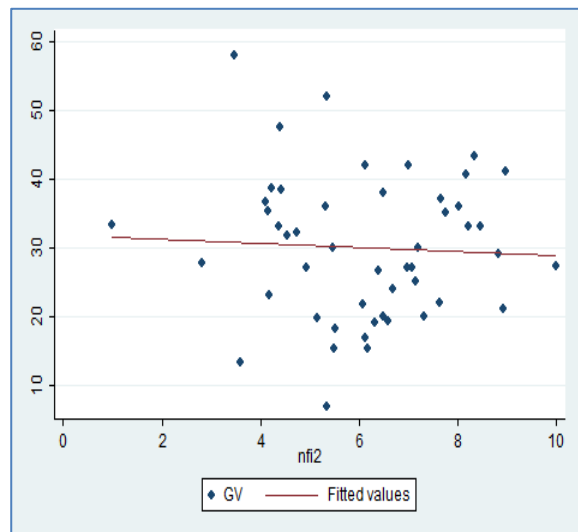
II. Formal Institutions and Homicides



III. Informal Institutions and Gender-based Violence



IV. Formal Institutions and Gender-based Violence



Note: Panel 1-I and 1-III depict the effect of informal institutions on homicides and Gender based Violence, respectively, through scatter diagram and simple linear fitted line. Panel 1-II and 1-IV similarly present the link between formal institutions and the two indicators of societal violence.

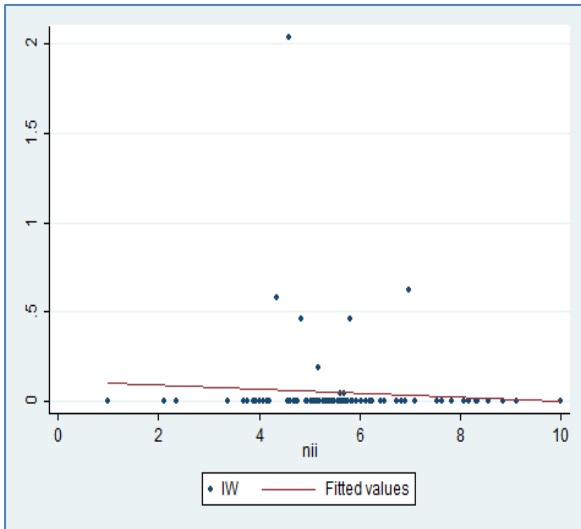
4.6.2. Institutions and Political Violence

Figure 2 represents the relationship between institutions and political violence. Both formal and informal institutions are negatively linked with civil wars, ethnic violence and inter-state wars. Informal institutions remain seemingly more effective in controlling violence as compared to formal institutions in case of ethnic violence. Interestingly for inter-state wars and civil wars formal institutions seem more effective in mitigating violence.

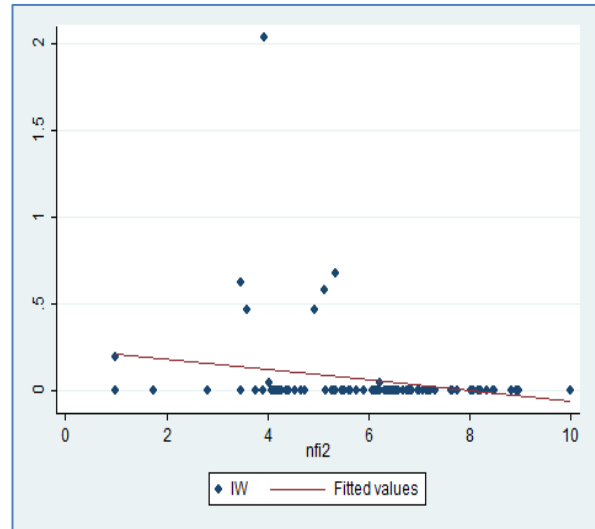
Both formal and informal institutions appear to have negative relationship with incidences of terrorism but the effect of informal institutions is more pronounced than that of formal institutions. Exceptions barring, the relationship between institutions and terrorism is negative which depicts the affirmative role institutions can play in controlling terrorism. At the same time it is also depicted that informal institutions can play a larger role in inhibiting terrorism.

Figure 2. Institutions and Political Violence

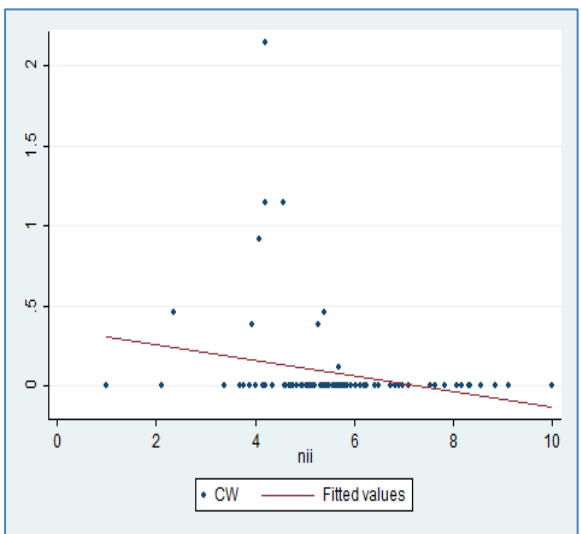
I. Informal Institutions and Inter-State War



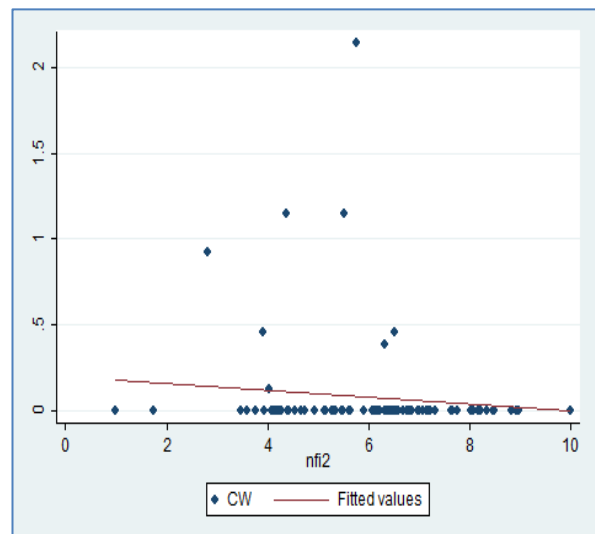
II. Formal Institutions and Inter-State War



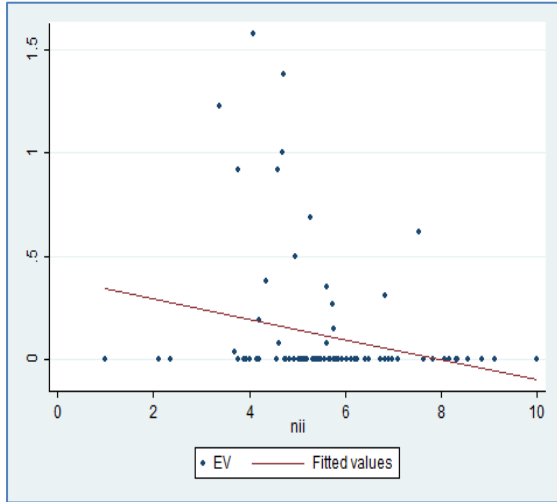
III. Informal Institutions and Civil Wars



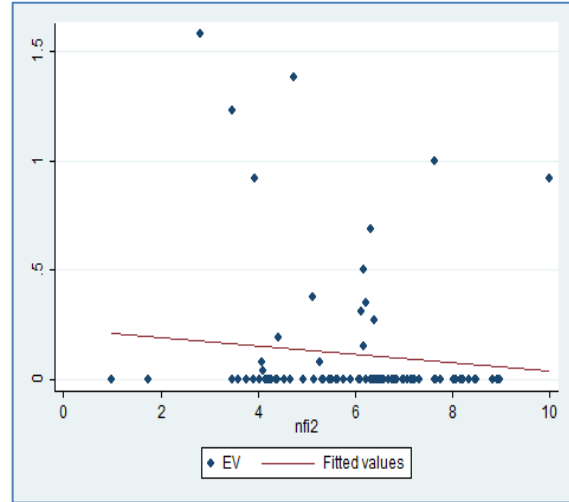
IV. Formal Institutions and Civil Wars



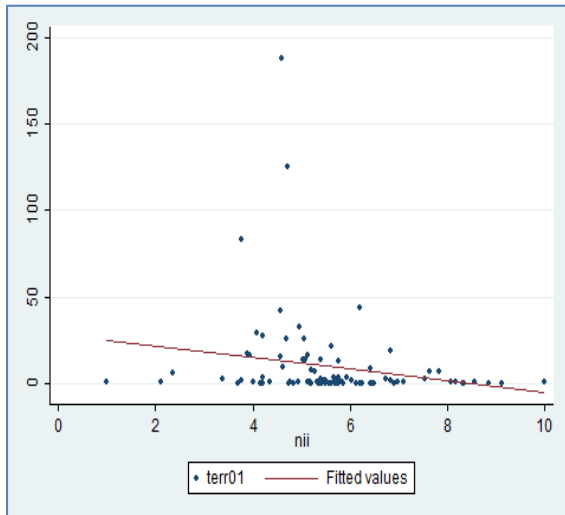
V. Informal Institutions and Ethnic Violence



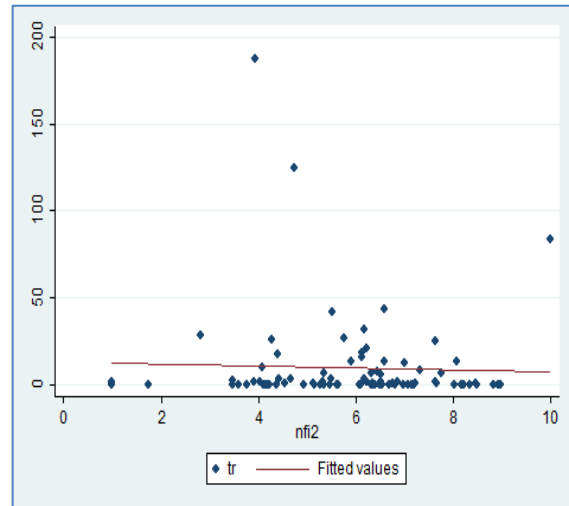
VI. Formal Institutions and Ethnic Violence



VII. Informal Institutions and Terrorism



VIII. Formal Institutions and Terrorism



Note: Panel 2-I and 2-II depict the effect of informal and formal institution on magnitude of inter-state wars. Panel 2-III and 2-IV present the effect of informal and formal institutions respectively on Civil wars. Panel 2-V and 2-VI exhibit the effect of informal and formal institutions respectively on the incidence of ethnic violence. Panel 2-VII and 2-VIII portray how informal and formal institutions respectively affect terrorist activity.

The preliminary data analysis for the most part gives credence to our original hypothesis that strong formal and informal institutions have negative effect on all types of violence. Also the analysis reveals that informal institutions are more clearly effective in inhibiting violence, the only exception being the relationship between formal institutions and inter-state wars where the effect is more noticeable. The more alarming outcome is the positive relationship between gender-based violence and formal institutions. Whether this relationship represents a true anomaly or not remains to be seen. Further, the relation between institutions and violence is clearer in case of political violence that includes terrorism, civil war, ethnic violence and inter-state war as compared with social violence that includes homicides and gender-based violence. This analysis not only confirms, for the most part, the existence of relationship between institutions and violence but also provides us basis for more in depth analysis.

Chapter 5

Institutions and Violence: Estimation and Discussion of Results

5.1. Introduction

Institutions are formal and informal rules established to prevent behavior that is deemed socially undesirable. One such socially undesirable behavior is violence, its perpetration and participation in mass violent movements. While socially and economically damaging, violence does accrue private benefits to the committer. These benefits may be in form of rents, direct appropriation or even personal gratification. Acts of violence are generally motivated by a combination of these benefits and the institutional constraints determine the cost of these acts.

The econometric estimation and its results are discussed in this chapter. In the first section, I have attempted to explain the choice of estimation technique. The second section deals with results of the estimation and the analysis of those outcomes.

5.2. Estimation Technique

The data we are using is cross-sectional. We have the option for using Ordinary Least Squares (OLS) estimation. However, the model suffers from simultaneity bias, since while incidences of violence are affected by economic development and growth, the level of economic development and the rate of economic growth are also affected by violence. Wars, internal or international, lead to disruption of trade and destruction of property, physical, and human capital, resulting in decline in development and economic growth. Violent events like terrorism and ethnic violence also affect investor's confidence adversely, leading to decline in investment and hence growth. Acts of homicides and domestic violence, while do not destroy property, do deteriorate societal capital by creating insecurity and mistrust among the citizens leading to brain drain, reduction in private investment, decrease in labor force participation and decline in economic growth.

Level of economic development is at same time considered to be a major determinant of political violence and is included in the models for civil war, inter-state war, ethnic violence and terrorism. Similarly, economic growth is also included in the models for homicides and gender-based violence as regressor. Therefore, the causality in our models is not purely from the independent variable to the specified dependent variable i.e. simultaneity exists in our model since the left hand side variable is in some way affecting and determining

one of the right hand side variable. This results in the error term being correlated with the affected right hand side variables, violating one of the fundamental assumptions for OLS regression.

When the assumption that independent variables are not correlated with the error term is violated, i.e. $Cov(x_i, \mu_i) \neq 0$, the problem of endogeneity arises. Wherever, there is endogeneity, OLS estimates of slope coefficients will not be unbiased. The most common way of dealing with this problem is to use instrumental variable technique.

Instrumental variables estimators enable us to obtain consistent estimates of slope parameters. Since, the problem is that independent variables is not only associated with changes in dependent variables but also changes in the error term. This necessitates a method of generating only exogenous variation in the independent variable. This requires identification of a set of instrumental variables that explain the variation in the endogenous right hand side variable but do not lead to change in the dependent variable.

The instrumental variable estimation can be carried out by Two Stage Least Square (2SLS), Generalized Methods of Moment (GMM) or Limited Information Maximum Likelihood (LIML). Bound *et. al*, (1995) postulated that when the excluded instruments are only weakly correlated with the endogenous variable tests of significance have incorrect size i.e. estimated standard errors of 2SLS and instrumental variable estimators may be too small. Cragg and Donald (1993) statistic confirms that our excluded instruments are weak and hence calls for remedial or alternative estimation techniques.

One such estimator is Limited Information Maximum Likelihood (LIML), which is a linear combination of the OLS and 2SLS estimate, with weights (depending on data) that eliminate the 2SLS bias. LIML estimator was proposed by Anderson and Rubin (1950) and is the maximum likelihood equivalent of the 2SLS estimator. I have used LIML estimation and it improves the Cragg-Donald Wald F statistic results by revising the critical values. The subsequent section presents the results generated from the given estimation technique.

5.3. Results and Discussion

This section presents the results of instrumental variable regression. It is divided into 2 sub-sections the first sub-section deals with the results for political violence and the second sub-section deals with the regression results for societal violence.

5.3.1. Institutions and Political Violence

Table 5.a. presents the result for major episodes of political violence, which is the aggregate of magnitude scores of ethnic violence, inter-state wars and civil wars. The table comprises of 5 columns, each presents the result for one particular variation of the core model. The first model assesses the impact of formal and informal institutions on aggregate magnitude scores of civil war, inter-state wars and ethnic violence (collectively called incidences of mass violence). The results in Model 1 and model 3 signify that informal institutions are more effective in mitigating mass violence than formal institutions. Impact of informal institutions is negative and significant and that of formal institutions is positive but insignificant. This shows that culture plays a greater role in controlling and preventing mass violence and formal constraints on the powers of the executive are ineffective in playing any role in mass violence. Model 4 also signifies that while formal institutions alone are not significant in affecting violence, the interaction term between formal and informal institutional scores is not only negative but also significant. This shows that in the presence of violence inhibiting cultural constraints formal institutional constraints become effective in controlling violence. The ratio term incorporated in model 5 is insignificant showing that in the absence of informal constraints formal institutions become ineffective in preventing violence.

Table 5.3.a. Instrumental Variable Regression Results for Major Episodes of Violence					
Dependent Variable	Major Episodes of Violence				
Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Informal Institutions	-0.3294* (0.1970)	-	-0.3490* (0.2087)	-	-
Formal Institutions	-	0.0534 (0.2080)	0.0936 (0.2001)	0.2641 (0.2271)	-
Formal Institutions x Informal Institutions	-	-	-	-0.0329* (0.0181)	-
Formal Institutions/ Informal Institutions	-	-	-	-	0.1896 (0.3360)
Per Capita GDP	0.5261 (0.3615)	0.1779 (0.3638)	0.4228 (0.4335)	0.3736 (0.4510)	0.2397 (0.2369)
Linguistic Fractionalization	2.2244** (0.9211)	2.2126** (0.9216)	2.1874** (0.8903)	1.9727** (0.8765)	2.2727** (0.9572)
Oil Exporter	0.4812 (0.3415)	0.6037* (0.3260)	0.5404* (0.3269)	0.3776 (0.3199)	0.5682 (0.3539)
Trade Openness	-0.0138*** (0.0049)	-0.0127*** (0.0041)	-0.0127*** (0.0042)	-0.0133*** (0.0043)	-0.0126*** (0.0044)
Intercept	-2.1499 (2.4611)	-1.2798 (2.6549)	-1.7633 (2.7994)	-2.6474 (3.4846)	-1.7578 (2.3869)
Number of Observations	75	75	75	75	75
Under-identification Test (LM Statistic)	19.791*** p-value: 0.003	16.339** p-value: 0.01	14.752** P-value: 0.0223	15.656** P-value: 0.0157	20.844** p-value: 0.0020
Hansen J Statistic	1.021 p-value: 0.9609	1.813 p-value: 0.8744	1.744 P-value: 0.8833	3.748 P-value: 0.5862	1.846 p-value: 0.8700
Instrumented: Per Capita GDP Instruments: Capital Formation, Unemployment, Legal Origins (UK), Primary Enrollment Rate, Land Locked					

- a. * Significant at 10% level of significance, ** significant at 5% level of significance, *** Significant at 1% level of significance
b. Parenthesis i=encapsulate standard errors

Per capita GDP has a positive though insignificant effect on violence which shows that increase in per capita GDP either is accompanied by high levels of inequality or increase in potential rents creating incentive for engaging in mass violence. Linguistic fractionalization is also found to be significantly violence promoting. Linguistic fractionalization depicts failure to communicate between various groups separated primarily and in some instance solely by ethnicity and language. This failure to communicate lead to ignorance and misinterpretation of other's perspective and can be a significant instigator for violence. Further, this failure to communicate also provides the violence specialists a tool for spreading incendiary information about the other group and instigating mass violence. If the country is net exporter of oil it is likely to face higher incidences of mass violence. As dependence on oil is

indicative of high potential rents that can be extracted which may result in violence specialists to engage in warlordism in order to get access to the potential rents from oil wealth. Trade openness is found to be significant and violence inhibiting giving credence to the opportunity cost view of trade openness.

5.3.1.a. Civil War

In case of civil war models 2, 3 and four in Table 5.b. present negative and significant coefficients of formal institutions, while from models 1 and 3 informal institutions while negative turn out to be insignificant. However, the magnitude of the coefficients of informal institutions in absolute terms is greater. This means that had they been effective informal institutions would have had a greater role in preventing and reducing the incidents of civil wars than formal institutions. That said the statistical significance of formal institutions cannot be ignored as it shows that formal institutions are more likely to be effective than informal institutions. The sign of the coefficient also signifies that both formal and informal institutions can prevent incidence of civil war. The interaction term incorporated in model 4 is negative but insignificant probably owing to the insignificance of informal institutions. Model 5 perhaps is the bigger proof of the importance of informal institutions since the absence of informal support the previously significant formal institutions become insignificant. Civil wars tend to be politically motivated and find support when a significant proportion of the populace feels unrepresented by the government policies. The likelihood of this is limited in an open access social order with a large dominant coalition and considerable control over the power of the executive. Many groups on the fringe might find Cultural values on the other hand may actually be disregarded in the absence of wider access to basic needs of life.

Table 5.3.b. Instrumental Variable Regression Results for Civil War					
Dependent Variable	Civil War				
Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Informal Institutions	-0.1161* (0.0678)	-	-0.1210 (0.0767)	-	-
Formal Institutions	-	-0.0876** (0.0367)	-0.0768** (0.0347)	-0.0522* (0.0296)	-
Formal Institutions * Informal Institutions	-	-	-	-0.0075 (0.0061)	-
Formal Institutions/ Informal Institutions	-	-	-	-	-0.0131 (0.0296)
Per Capita GDP	0.1984* (0.1079)	0.1989* (0.1002)	0.2904* (0.1572)	0.2669 (0.1720)	0.1083 (0.0740)
Linguistic Fractionalization	0.6981** (0.3081)	0.7629*** (0.2998)	0.7830*** (0.2993)	0.7360** (0.3039)	0.6581** (0.3168)
Ethnic Fractionalization	-0.6488 (0.4255)	-0.7302* (0.4177)	-0.7963* (0.4199)	-0.7659* (0.4314)	-0.5037 (0.4258)
Oil Exporter	0.1944 (0.1454)	0.1847 (0.1652)	0.1650 (0.1475)	0.1007 (0.1423)	0.2313 (0.1697)
Trade Openness	-0.0025 (0.0018)	-0.0036* (0.0020)	-0.0037* (0.0021)	-0.0039* (0.0024)	-0.0022 (0.0017)
Urbanization	-0.0087* (0.0048)	-0.0117* (0.0060)	-0.0121* (0.0061)	-0.0119* (0.0064)	-0.0086* (0.0049)
Gini Coefficient	0.0046 (0.0080)	0.0103 (0.0092)	0.0075 (0.0087)	0.0122 (0.0090)	0.0061 (0.0089)
Intercept	-0.9045* (0.4816)	-1.1144* (0.5715)	-1.1792* (0.6347)	-1.6034 (1.0393)	-0.8627 (0.5450)
Number of Observations	61	61	61	61	61
Under-identification Test (LM Statistic)	19.452*** p-value: 0.0069	18.080*** p-value: 0.0116	19.266*** P-value: 0.0074	19.845*** P-value: 0.0059	19.521*** p-value: 0.0067
Hansen J Statistic	4.334 p-value: 0.6316	3.882 p-value: 0.6926	3.812 P-value: 0.7021	4.007 P-value: 0.6757	5.039 p-value: 0.5388
Instrumented: GDP Per Capita Instruments: Capital Formation, Unemployment, Primary Enrollment Rate, Export of Natural Resources, Legal Origins (UK), Land Locked, Inter-State War					

- a. * Significant at 10% level of significance, ** significant at 5% level of significance, *** Significant at 1% level of significance
b. Parenthesis i=encapsulate standard errors

Increase in per capita GDP has positive and significant effect on civil war, indicating that the countries with higher per capita GDP face more incidences of civil war. A higher GDP per capita also means that violence specialists may be tempted by the larger size of potential rent and if they are unable to exercise the power required to extract that rent due to the formal constraints on the power of the executive, it might induce them to become warlords and perpetrate political violence. In this case per capita GDP is expected to have a

positive effect on violence. Additionally, the higher per capita GDP can be achieved by creating greater inequality based on the trickle down approach, which may induce economically disadvantaged groups to align themselves with warlords resulting in incidences of civil wars.

Interestingly ethnic fractionalization has an inhibiting effect on civil war. This means that unlike linguistic fractionalization, ethnic fractionalization can lead to hypo-ethnocentrism as diversity and proximity may generate greater understanding of other ethnic groups and even inter-ethnic familial linkages through marriage. This result in reduction in violence, as mass support will be difficult to garner on the basis of ethnic conflict resulting in decline in the average magnitude scores of civil wars.

Country's status as net exporter of oil while statistically insignificant has a positive effect on incidences of civil war. Trade openness has a negative and significant effect on civil wars. Amodio *et al.* (2017) is of the view that if trade openness is income enhancing then opportunity cost of engaging in violence increases and the benefits accruing from violence may fall due to disruption of trade. That may induce violence specialists to seek non-violent means for influence and may even seek to become part of the dominant coalition instead of opting for warlordism. This results in decrease in the incidences and magnitude scores of civil war.

Urbanization also has significant and negative effect on civil wars. This may be indicative of higher levels of modernization and dissemination of the contemporary ideals of non-violence, due to which people would be reluctant to join in any mass violent effort for political motives. Further it may also reflect an increase in opportunities for social and economic mobility, which in turn will limit the chances for civil war. Country's status as net exporter of oil and inequality measured by Gini coefficient have a positive but statistically insignificant.

5.3.1.b. Inter-State War

In similar vein to civil war but perhaps for a different set of reasons formal institutions and more effective than informal institutions in mitigating and controlling inter-state wars. Strong formal institutions ensure that inter-state communications are based on reliable contract enforcement and credible commitments made by state actors, which can only be ensured through formal constraints on executive's power. Further, a larger size dominant coalition as indicated by higher values of formal institutions will also prevent the executive to unilaterally

declare war against other states. The interaction between formal and informal institutions is negative but insignificant. Signifying that formal institutions do not become more effective in controlling violence in the presence of strong informal institutions, however the insignificance of the ratio between formal institutions and informal institutions depicts that in the absence of violence inhibiting cultural constraints formal institutions become ineffective in controlling violence.

Table 5.c. Instrumental Variable Regression Results for Inter-State War					
Dependent Variable	Inter-State War				
Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Informal Institutions	-0.0105 (0.0295)	-	-0.0187 (0.0319)	-	-
Formal Institutions	-	-0.0467** (0.0214)	-0.0469** (0.022)	-0.0336* (0.0202)	-
Formal Institutions x Informal Institutions	-	-	-	-0.0030 (0.0024)	-
Formal Institutions/ Informal Institutions	-	-	-	-	-0.0197 (0.0277)
GDP Per Capita	0.0745 (0.0706)	0.1075* (0.0549)	0.1289 (0.0809)	0.1399* (0.0709)	0.0713 (0.0443)
Trade Openness	0.0003 (0.0006)	-0.0002 (0.0006)	0.0070** (0.0031)	-0.0004 (0.0006)	0.00019 (0.0006)
Oil Exporter	0.0891 (0.0585)	0.0589 (0.0571)	0.0560 (0.0559)	0.0329 (0.0540)	0.0968 (0.0626)
Land Locked	0.2834*** (0.1002)	0.2784*** (0.0961)	0.2906*** (0.1016)	0.2645*** (0.0952)	0.3002*** (0.1043)
Terrorist Activity	0.0068** (0.0032)	0.0070** (0.0031)	0.0070** (0.0031)	0.0069** (0.0031)	0.0069** (0.0032)
Intercept	-0.7318 (0.5544)	-0.7782* (0.4522)	-0.8634 (0.5506)	-0.9927* (0.5539)	-0.7401 (0.4652)
Number of Observations	65	65	65	65	65
Under-identification Test (LM Statistic)	25.485*** p-value: 0.0003	32.443*** p-value: 0.0000	29.057*** P-value: 0.0001	26.793*** P-value: 0.0002	31.678*** p-value: 0.0000
Hansen J Statistic	6.152 p-value: 0.2917	4.623 p-value: 0.4636	4.198 P-value: 0.5213	4.382 P-value: 0.4959	5.684 p-value: 0.3382
Instrumented: GDP Per Capita Instruments: Capital Formation, Unemployment, Primary Enrollment Rate, Urbanization, Asia/ Africa					

- a. * Significant at 10% level of significance, ** significant at 5% level of significance, *** Significant at 1% level of significance
- b. Parenthesis i=encapsulate standard errors

As expected the coefficient of GDP per capita is positive but insignificant for the most part. This shows that countries with higher GDP per capita experience more incidences of inter-state wars. Trade openness and the dummy for net exporter of oil and petroleum are insignificant. Signifying that trade arrangements and reliance on oil revenues does not seem to be playing a role in inter-state conflict.

The dummy for the country being land-locked or not has a strong positive effect on magnitude score of inter-state war. This means the land-locked countries expected to experience more incidents of inter-state wars. This result is according to our expectation that the dependence on neighboring transit countries results in raising the stakes the in any inter-state dispute, which may reduce the opportunity cost of violent conflict resulting in a higher probability of an all-out inter-state war. Further, land locked countries also tend to be dependent on the political situation and stability of the transit neighbors. Hence, may have to take side in an international dispute involving the transit neighbors.

Terrorist activity has a positive and significant effect on inter-state war. Cross-border terrorism has, in recent history, been a major bone of contention between countries. Acts of terrorism have been basis for international wars. Regional, political and economic rival nations tend to hold each other responsible for acts of terror taking place on their soil. His rivalry can escalate into a war.

5.3.1.c. Ethnic Violence

The results for ethnic violence, presented in table 5.d., depict greater effectiveness of informal institutions in controlling ethnic violence. Ethnic violence is an outcome of hyper-ethnocentrism, that occurs when one ethnic group feel its interests and identity threatened by other ethnic groups. This can be exploited by the violence specialists to garner support from the masses and also allows them to find recruits for their cause. This can result in riots, in fighting, civil war or genocide all on the basis of ethnic differences. In such a scenario, formal institutions will be rendered ineffective in neutralizing the situation. However informal institutions that incorporate values like, trust, respect and tolerance can result in hypo-ethnocentrism. This means that people of varying ethnicities interact and communicate with each other in a respectful manner and prefer non-violent avenues for conflict resolution. Increase in communication also dispels a number misperception and makes it much more difficult for violence specialists to mobilize support for perpetuation of ethnic violence. The importance of informal institutions is further projected by the negative and significant

coefficient of the interaction term. As it depicts that in the presence of violence inhibiting informal institutions formal institutions become more effective and reducing ethnic violence. This can be because violence inhibiting cultural values will induce the policymakers to legislate and implement measures that protect ethnic minorities and prevent ethnically motivated violence.

Dependent Variable	Ethnic Violence				
Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Informal Institutions	-0.1019* (0.0600)	-	-0.1149* (0.0611)	-	-
Formal Institutions	-	0.0089 (0.0328)	0.0288 (0.0320)	0.0643 (0.0403)	-
Formal Institutions * Informal Institutions	-	-	-	-0.0094** (0.0043)	-
Formal Institutions/ Informal Institutions	-	-	-	-	0.0414 (0.0642)
Per Capita GDP	0.2289 (0.1917)	0.1806 (0.1295)	0.2314 (0.1485)	0.2348 (0.1461)	0.2134 (0.1569)
Ethno-Linguistic Fractionalization	0.2583** (0.1286)	0.2497* (0.1275)	0.2701** (0.1309)	0.2121* (0.1237)	0.2586* (0.1312)
Oil Exporter	-0.1194 (0.0977)	-0.0833 (0.0990)	-0.0942 (0.0991)	-0.1529 (0.1025)	-0.0968 (0.3814)
Trade Openness	-0.0026* (0.0013)	-0.0020 (0.0012)	-0.0024* (0.0013)	-0.0025* (0.0013)	-0.0020 (0.0013)
Net Secondary School Enrollment	-0.0100 (0.0073)	-0.0110* (0.0064)	-0.0107* (0.0062)	-0.0109* (0.0061)	-0.0120* (0.0073)
Latitude	0.5645 (0.4221)	0.2526 (0.3530)	0.6514 (0.4293)	0.4487 (0.3875)	0.2966 (0.3814)
Intercept	-0.8377 (1.1032)	-0.8895 (0.7582)	-0.9649 (0.8107)	-1.2647 (0.8957)	-1.1313 (0.9951)
Number of Observations	54	54	54	54	54
Under-identification Test (LM Statistic)	13.278** p-value: 0.0388	12.780** p-value: 0.0467	14.587** P-value: 0.0237	14.094** P-value: 0.0286	12.392* p-value: 0.0538
Hansen J Statistic	6.087 p-value: 0.2979	4.653 p-value: 0.4597	6.476 P-value: 0.2626	4.593 P-value: 0.4675	4.510 p-value: 0.4786
Instrumented: GDP Per Capita Instruments: Capital Formation, Unemployment, Primary Enrollment Rate, Legal Origins (UK), Oil exports as percentage of GDP, Urbanization					

a. * Significant at 10% level of significance, ** significant at 5% level of significance, *** Significant at 1% level of significance

b. Parenthesis i=encapsulate standard errors

Ethno-linguistic fractionalization has a positive and significant coefficient, which depicts that ethno-linguistic cleavages lead to an atmosphere of mistrust and disrespect for

diversity, which may lead to hyper-ethnocentrism, linguistic differences may also result in the failure to communicate and emergence of misunderstandings between ethnic groups especially those separated by language. This atmosphere of animosity provides an opportunity to the violence specialists to build a following and instigate mass violence.

The negative coefficient of trade openness signifies that increase in trade leads to higher opportunity cost of violence. The disruption of trade reduces the potential rents, in order to avoid this, violence specialists may seek out non-violent ways of extracting rents i.e. they may attempt to join the dominant coalition instead of opting for warlordism. This will keep them from exploiting ethnic grievances and instigating ethnically motivated violence.

The negative and significant coefficient of secondary school enrollment rate signifies the role education can play in reducing ethnic violence. Education has a formative effect on mind and behavior that increases acceptance for diversity and reduces hyper-ethnocentrism. Additionally education also increases the opportunity cost of violence by adding to individual's ability to earn. Engaging in violence and resulting legal ramifications can severely deplete human capital. This will induce people to avoid engaging in ethnic violence.

Economic development measured by per capita GDP is ineffective as is depicted by its positive but insignificant coefficient. Similarly, country being and oil exporter does not affect the incidents of ethnic violence. Geographical location measured by latitude is also not significant in explaining the incidences of ethnic violence.

5.3.2.d. Terrorism

Terrorism is also negatively affected by informal institutions. Better violence inhibiting informal institutions are more effective than formal constraints in preventing and limiting incidences of terrorism. Prevalence of violence constraining cultural values induces people to dislike and revile violent behavior. Further, ideals of respect and trust increase the value of human life leading to distrust towards instigation of violence. People in more tolerance and respectful societies would not be induced to partake in terrorist activities.

Table 5.3.e. Instrumental Variable Regression Results for Terrorism					
Dependent Variable	Terrorism				
Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Informal Institutions	-6.2212* (3.3677)	-	-6.3474* (3.553)	-	-
Formal Institutions	-	-0.5332 (2.4875)	-0.0730 (2.5362)	2.7489 (2.7653)	-
Formal Institutions * Informal Institutions	-	-	-	-0.5389* (0.3039)	-
Formal Institutions/ Informal Institutions	-	-	-	-	0.5720 (4.1877)
Per Capita GDP	11.7216** (5.2357)	4.9740 (4.4372)	11.8243* (6.1890)	10.1215 (7.007)	4.1328 (2.8894)
Ethno-Linguistic Fractionalization	16.2028* (8.3891)	15.9770* (8.4628)	16.5431* (8.5207)	15.3699* (8.5354)	15.5443* (8.1078)
Oil Exporter	4.1059 (8.4589)	5.9753 (7.511)	4.2801 (7.7746)	2.3125 (7.2271)	6.2449 (8.5122)
Trade Openness	-0.1948** (0.0878)	-0.1687** (0.0818)	-0.1905** (0.0851)	-0.2007** (0.0859)	-0.1589** (0.0812)
Youth Unemployment (Male)	-0.1465 (0.4297)	0.2944 (0.4547)	0.1561 (0.4519)	0.2458 (0.4454)	0.2889 (0.4535)
Intercept	-63.2753 (38.9926)	-38.6760 (37.7409)	-64.0706 (42.4296)	-76.1431 (59.7396)	-35.1255 (32.0391)
Number of Observations	78	78	78	78	78
Under-identification Test (LM Statistic)	19.927*** p-value: 0.0013	21.286*** p-value: 0.0007	17.729*** P-value: 0.0033	17.303*** P-value: 0.0040	24.825*** p-value: 0.0002
Hansen J Statistic	3.505 p-value: 0.4771	6.162 p-value: 0.1872	3.503 P-value: 0.4774	5.565 P-value: 0.2341	6.319 p-value: 0.1766
Instrumented: GDP Per Capita Instruments: Capital Formation, Primary Enrollment Rate, Legal Origins (UK), Land Locked, Latitude					

- a. * Significant at 10% level of significance, ** significant at 5% level of significance, *** Significant at 1% level of significance
- b. Parenthesis i=encapsulate standard errors

The insignificance of formal institutions reflects the insufficiency of legislation in preventing terrorism. That said formal constraints become effective in preventing terrorism when accompanied by strong informal institutions. This is depicted by the negative and significant coefficient of the interaction between formal and informal institutions. This shows that terrorism is first and foremost a cultural phenomenon and cultural constraints on violent behavior are needed to make formal rule more effective in thwarting terrorist activity. The insignificant and positive coefficient of the ratio of formal and informal institutions signifies that in the absence of informal institutional support formal institutions may actually constrain

the executive from effectively regulating the dissidents. Further, under stronger formal institutions the violence specialists would not be able to garner support for civil war or revolution, so in order to achieve political goals, so they would have to rely on acts of terror to get attention. This can only be prevented by strong informal rules constraining violent behavior.

Per capita GDP has positive effect on terrorism, indicating terrorism can actually be a tactic to forcibly extract rents. Higher GDP per capita increases potential rent and hence creates incentive for engaging in violence. Further, if high GDP per capita is accompanied by high levels of inequality then it can lead to increase in animosity against the higher income group and the elites which can make it easy for violence specialists to recruit individuals and carry out acts of terrorism.

The positive coefficient of ethno-linguistic fractionalization is indicative of the dire impact of ethnic rivalries. Ethno-linguistic fractionalization results in hyper-ethnocentrism (Kimsey and Fuller, 1998) and ethnic divide. This may be enhanced by language socio-economic inequality. Significant ethnic minorities may feel disenfranchised and exploited, which may induce them to resort to terrorist activity.

Trade openness has a negative and significant effect on terrorism. Trade openness leads to increase in economic opportunities in form of investment and employment. That would make it instrumental in reducing terrorist activity as fewer people will be willing to engage in violence. Therefore, we see that in case of terrorism opportunity cost effect of trade openness is dominant.

The coefficient of oil exporter dummy variable and male youth unemployment are predominantly positive but insignificant. This means that while these are having positive effect on terrorism, this effect is less likely to materialize.

5.3.2. Societal Violence and Institutions

5.3.2.a. Homicides

Homicides are negatively and significantly affected by informal institutions. Since violence inhibiting cultural values tends to reduce the social benefits of engaging in violence and society's lack of acceptance for acts of extreme violence like homicides can deteriorate social capital through ostracisation, exclusion and derision towards the perpetrator of violence. This is more effective in most scenarios in reducing homicides than any law or political

arrangement. This is also reflected in the statistical insignificance of formal institutions in affecting any kind of change in homicide rate. However, the negative and significant coefficient of the interaction b between formal and informal institutions shows that in the presence of cultural values that discourage violence formal institutions become more effective in reducing violence. This would mean that widespread preference for non-violence in the culture puts pressure on the leader of the nation, especially, in the case of strong formal institutions, to be tough of violent offenders and renounce homicidal activities by harsher laws and stricter implementation of those laws, leading to a notable decline in homicides.

Table 5.3.f. Instrumental Variable Regression Results for Homicides

Dependent Variable	Homicides				
Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Informal Institutions	-1.2337** (0.5010)	-	-1.6071** (0.7130)	-	-
Formal Institutions	-	-0.3805 (0.4554)	0.0522 (0.4030)	0.7081 (0.5888)	-
Formal Institutions x Informal Institutions	-	-	-	-0.1693** (0.0842)	-
Formal Institutions/ Informal Institutions	-	-	-	-	1.1556*** (0.3724)
GDP Growth	-2.4396** (0.9656)	-3.0545** (1.5287)	-3.1803* (1.6284)	-3.8563** (2.0296)	-3.1062** (1.4603)
Ethno-Linguistic Fractionalization	2.4180 (2.5983)	3.4485 (2.8029)	2.7978 (2.7876)	2.5523 (2.8924)	3.6087 (2.7729)
Trade Openness	-0.0237 (0.0300)	-0.0227 (0.0354)	-0.0173 (0.0367)	-0.0098 (0.0406)	-0.0134 (0.0355)
Urbanization	0.1916* (0.0978)	0.1794* (0.1026)	0.1875* (0.1033)	0.2256* (0.1170)	0.1883* (0.1013)
Poverty	0.1782* (0.0939)	0.2261* (0.1137)	0.1977* (0.1084)	0.2472* (0.1311)	0.2431** (0.1071)
Intercept	15.8702** (6.2825)	12.2628* (7.3781)	19.3536** (9.1108)	14.8284* (8.7681)	7.7034 (5.2628)
Number of Observations	57	57	57	57	57
Under-identification Test (LM Statistic)	7.229* p-value: 0.0649	7.524* p-value: 0.0569	7.347* P-value: 0.0616	6.082* P-value: 0.1077	7.384* p-value: 0.0606
Hansen J Statistic	0.120 p-value: 0.9419	0.044 p-value: 0.9780	0.025 P-value: 0.9876	0.066 P-value: 0.9675	0.223 p-value: 0.8945
Instrumented: GDP Growth					
Instruments: Capital Formation, Primary Enrollment Rate, Youth Unemployment Male					

- a. * Significant at 10% level of significance, ** significant at 5% level of significance, *** Significant at 1% level of significance
- b. Parenthesis i=encapsulate standard errors

The most notable result here is the positive and significant coefficient of the ratio of formal and informal institutions. This implies that in the absence of supportive and violence reducing informal institutions, formal institutions becomes violence inducing. In the absence of informal support the constraint of executive would mean inability of the political leader to take decisive action and implement legislation that can be detrimental to reducing homicide. This may reduce opportunity cost of committing violent crime resulting in higher rates of homicides.

Economic progress as measure by growth rate of GDP has a significant and negative effect on homicides. Economic progress is generally accompanied by increased opportunities for investment and employment. Acts of violence like murder will significantly damage a person's ability to generate income in this environment, increasing the cost of perpetrating acts of violence.

Urbanization and poverty have a positive effect on homicides. Urbanization may result in urban squalor and creation of slums leading to stark inequalities coexisting within a limited geographical area. Further urban squalor also increases opportunity for crime accompanied by increasing resentment among the disadvantaged groups. This may manifest in for high incidence of homicides and societal violence. Another aspect may be that urban areas are regulated better and the record keeping is also more extensive than rural regions. Therefore, crime in urban areas is more likely to get reported and recorded, which might explain positive effect of urbanization on homicides.

Poverty results in creation of animosity against higher income groups. This resentment can give rise to societal violence resulting in increase in the rate of homicides. Additionally, poverty is generally, the outcome of inability of making a decent living which reduces the opportunity cost of violent crimes. This explains the positive and significant effect of poverty on violence.

Trade openness and ethno-linguistic fractionalization are insignificant. The sign of the coefficient of trade openness is negative reflecting that whole trade openness can reduce violence its effectiveness is hampered. At the same time while the coefficient of ethnolinguistic fractionalization is positive, it does not seem to have significant effect on homicides.

5.3.3.b. Gender-based Violence

Gender-based violence is not affected by informal institutions. This is apparent due to the insignificance of informal institutions. This shows that cultural constraints are insufficient in preventing gender-based violence. One of the reasons being that the culture of non-violence is accompanied by respect for property and privacy, so a lot of times the society remains unaware of the violence that happens behind closed doors. Formal institutions on the other hand are more effective in reducing gender-based violence as strong formal institutions in which the executive and legislation has to cater for common good, would be able to make tougher laws against gender based violence. This would make committing violence against the other gender more costly and hence would be instrumental in reducing gender based violence.

The interaction between formal and informal institutions is insignificant, depicting that informal institutions do not enhance the effectiveness of formal constraints in restraining gender-based violence. That said, just like before the importance of informal institutions is reflected in the insignificance of the ratio of formal to informal institutions. This shows that in the absence of informal institutions formal institutions' ability to control gender-based violence is severely hampered.

Another evidence of effectiveness of formal institutions is the negative and significant coefficient of the dummy for existence of legislation regarding domestic violence. A large percentage of violence against women is perpetrated by male member of the family and hence an effectively implemented legislation against domestic violence can play a notable role in reducing overall violence against women. A clear and explicit legislation criminalizing domestic violence would provide the victims a clear path to follow for reprisal and safety. This is expected to make violence against women very costly in terms of finances and deterioration human and social capital, resulting in an overall decline in gender-based violence.

Table 5.g. Instrumental Variable Regression Results for Gender Violence					
Dependent Variable	Gender-based Violence				
Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Informal Institutions	-0.0080 (0.0110)	-	0.0023 (0.0099)	-	-
Formal Institutions	-	-0.0179** (0.0088)	-0.0179** (0.0085)	-0.0210** (0.0102)	-
Formal Institutions x Informal Institutions	-	-	-	0.0004 (0.001)	-
Formal Institutions/ Informal Institutions	-	-	-	-	-0.0043 (0.0151)
GDP Growth	-0.0249** (0.0113)	-0.0158 (0.0201)	-0.0134 (0.0208)	-0.0146 (0.0238)	-0.0169 (0.0209)
Legislation regarding domestic violence	-0.0940*** (0.0297)	-0.0948*** (0.0340)	-0.0935*** (0.0345)	-0.0961*** (0.0346)	-0.0892*** (0.0330)
Trade Openness	-0.0010* (0.0006)	-0.0011** (0.0005)	-0.0011** (0.0005)	-0.0012** (0.0005)	-0.0011* (0.0006)
Net Primary Enrollment	0.0013 (0.0016)	0.0029 (0.0019)	0.0029 (0.0019)	0.0028 (0.0019)	0.0014 (0.0019)
Intercept	0.4711*** (0.1347)	0.3663* (0.2041)	0.3433* (0.2090)	0.3698* (0.2199)	0.3924* (0.2227)
Number of Observations	46	46	46	46	46
Under-identification Test (LM Statistic)	4.723 p-value: 0.1932	9.227** p-value: 0.0264	8.781** P-value: 0.0324	8.888** P-value: 0.0308	12.817*** p-value: 0.0050
Hansen J Statistic	2.702 p-value: 0.2590	4.096 p-value: 0.1290	3.729 P-value: 0.1550	4.026 P-value: 0.1336	2.648 p-value: 0.2660
Instrumented: GDP Growth					
Instruments Capital Formation, Unemployment, Gini Coefficient					

- a. * Significant at 10% level of significance, ** significant at 5% level of significance, *** Significant at 1% level of significance
- b. Parenthesis i=encapsulate standard errors

Trade openness and the resulting economic opportunities may also induce individuals to avoid engaging in gender-based violence. This is evidenced by the negative and significant coefficient of trade openness. Increase in trade bring with it jobs, that require skill and also informally exposes people to an environment of gender sensitivity and mutual respect resulting in decline in gender-based violence. Further, increase in economic opportunities for female labor force is expected to empower them in seeking reprisal of violation of bodily integrity by intimate partner or anyone else. This again induces men to constrain their violent impulses and adhere to respectful behavior around women resulting in decline in gender-based violence.

Interestingly school enrollment and economic progress remain ineffective in reducing gender-based violence. This signifies that violence against the opposite gender is not primarily an economic decision and so simple increase in economic growth is not going to have a significant effect in gender-based violence. School enrollment also does not seem important in ensuring reduction in gender-based violence as the recent literature explains that access to education is the necessary but utterly insufficient condition for ensuring a reformatory effect on mind and thinking of individuals.

The post-estimation tests confirm that our models are not under-identified. The over-identification hypothesis is also accepted using the Hansen J Statistic. This signifies validity of the instruments.

Chapter 6

Conclusion and Policy Recommendation

Institutions comprise rules that manage interactions between individuals and groups (North, 1991). They constrain behavior that may be considered socially undesirable by forming opinions regarding and in response to the behavior of other people (North *et al.*, 2006). These limitations can be both formal and informal. Formal institutions comprise of restrictions on government behavior. Informal institutions are constraints in form of norms, culture, and customs that are not designed or enforced by government but have evolved as a result of historical processes (Williamson, 2009). Informal institutions are product of socially transmitted knowledge and formulate inherited values. Daily interactions of the individuals are for the most part defined and governed by informal institutions.

Institutions constrain and limit socially undesirable behavior emanating from interactions between individual and groups. Violence is one of such undesirable aspect of human interaction (Williamson, 2009). In addition to its costs in terms of economy and development, the individuals who engage in violence stand to incur substantial personal costs. These costs may be economic or non-economic. At the same time benefits of violence may be personal or group specific, including, economic benefits accruing to winning groups through nepotism or expropriation from the losing side, ability to extract rents though influencing government policy and ideological victory (Waters, *et al.*, 2004). The data indicates violence remains prevalent and endemic. Thus we can assert that in most of these cases the expected benefits from acts of violence exceed costs.

For human societies to prosper violence has to be contained and prevented. This requires establishment and sustaining a social order that limits and curtails violence. In his theory of institutional change, North (1991) explains that formal and informal institutions evolve together through the activities of formal and informal social groups. This indicates the presence of a link between formal and informal institutions. Brinks (2003) posited that democracies fail to root out violence when informal norms contradict formal institutions.

Therefore, it is important to incorporate formal and informal institutions separately when assessing the relationship between institutions and violence. Most of the research explaining incidences and magnitudes of varying forms of violence deals strictly with formal institutions (Schmid, 1992; Walter, 1997; Garfinkel and Skaperdas, 2000; Saideman *et al.*, 2002; Fearon and Laitin 2003; Blomberg *et al.*, 2004a; Sawyer, 2004; by Christin and Hug,

2006; Brancati, 2006; Besley and Presson, 2008). However, empirical evidence indicates strong formal institutions can fail to limit violence. The analysis of police brutality in Latin America carried out by Brinks (2003), suggests the possibility that cultural norms may be undermining the formal institutions' ability to control and mitigate violence. My thesis aimed to explain the role played by both formal and informal institutions in violence. Further I have also tried to assess how informal rules interact with formal institutions and how the effective formal institutions would be in the absence of informal institutional support.

Using the framework given by Williamson (2009) and instrumental variable estimation I have found that for political violence as a whole, ethnic violence, terrorism and homicides, informal institutions are more efficient in decreasing violence and also make formal institutions more effective, while civil war, inter-state wars and gender-based violence are more effectively prevented by formal institutional constraint, however, in the absence of informal institutions the formal institution become ineffectual in mitigating violence.

The results depict that both formal and informal institutions are instrumental for reducing violence, giving credence to the idea that without institutional reforms violence cannot be prevented. Also, these results identify the need for exploring the determinants of institutional change especially, in the case of informal institutions.

Further, the analysis of control variables depicts the efficacy of trade openness in preventing political as well as societal violence. This provides support to the policy of greater openness and liberalization.

Per capita GDP is either ineffective or is promoting political violence. Which, while, does not mean that national income should be reduced, does draw attention to distributional issues which may be resulting in emergence of grievances between groups. Hence any policy that leads to increase in per capita GDP has to be evaluated vis a vis its effect on the distribution of income. The results for GDP growth rate incorporated into the models for societal violence clearly provide support to policies that result in increase in economic growth.

While the negative effect of urbanization on civil wars depicts an encouraging trend in the modern economic and social structure, its positive effect on homicides depict the need managing this process in such a way as to avoid urban squalor and economic hardship of the incoming rural-to-urban migrants should also be eased by systems of subsidies and cheap residential arrangements like halfway houses and hostels etc.

The role of education in prevention of ethnic violence is also notable and presents the need to invest in education for all. The positive impact of poverty on homicides gives credence for social and developmental reforms for reducing poverty. Finally, the results of the model for gender violence show that there is a need for explicit and clear legislation for preventing domestic violence.

While the issue explored in this work has not been investigated before, our study does leave out further venues for research. Given the significance of informal institutions in mitigation of violence, the factors behind informal institutional change need to be studied and analyzed. The measure of formal institutions incorporates strictly the political dimension and it may be interesting to explore other non-political aspects of governance and their impact on violence. However, we were not able to do so due to the data limitations. That said, this work does fulfill the objectives we set out to achieve and the importance of formal and informal institutions in mitigation violence is quite apparent from the analysis.

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