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February 2021

Online at <https://mpra.ub.uni-muenchen.de/106381/>
MPRA Paper No. 106381, posted 05 Mar 2021 03:58 UTC

Societal Violence: The Role of Formal and Informal Institutions

Sadia Sherbaz* and Karim Khan[‡]

Abstract

Violence is a recourse towards achieving particular objectives. In its most extreme form, violence deprives the victim of the most basics of human rights, i.e. the right to live and bodily integrity. Thus, violence is undesirable and needs to be prevented. Formal and informal institutions are structured in societies to govern such an undesirable behavior. In this study, we want to assess the role played by the formal and informal institutions in the mitigation or exacerbation of societal violence. In addition, we want to evaluate the implications of informal institutions as far as the relationship between formal institutions and societal violence is concerned. We take three indicators of societal violence, namely, homicides, gender-based violence and violence against children. We find that while overall occurrence of societal violence is more effectively mitigated by informal institutions; formal institutions are more effective in mitigating violence targeted towards women and children. These results signify the importance of both formal and informal institutions in prevention of the violence in society. Alternatively, institutional reforms are the key to mitigating societal violence.

JEL Classification: A13, C21, D02, D74, F59

Keywords: Formal Institutions, Informal Institutions, Societal Violence, Homicides, Gender-based Violence, Violence against Children

1. Introduction

Violence has many motivations. It is a tool for asserting dominance, personal gratification, financial and physical appropriation, and recourse towards achieving certain objectives. In all of its forms, the impact of violence is severely endured by the most vulnerable segment of the society. In its most extreme form, violence can result in the loss of life and bodily integrity, depriving the victim of the most basics of human rights. Further, its prevalence can have inter-generational implications through its long term physical and psychological effect on women and children, who

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happen to be disproportionately affected by the prevalence of violence (Cordero, *et. al*, 2017; Waters, *et. al*, 2004).¹ In addition to the costs to affectees, violence is also costly to the perpetrators. For instance, the destruction or loss of property, forgone wages and employment opportunities, injury or death, psychological trauma, legal ramifications, with severity varying according to the gravity of the crime, are some of the costs associated with engaging in violence (Waters, *et al.*, 2004). Likewise, violence involves significant social costs in terms of deterioration in social relationships and economic outcomes, and overall unrest in the society. Thus, violence is undesirable and needs to be prevented. Institutions are the key to governing such an undesirable behavior. Institutions are thought of as constraints on behavior that may be considered as socially undesirable (North *et al.*, 2009). These constraints can be both the formal and informal. Formal institutions comprise constraints on government behavior enforced by the 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. Both the formal and informal institutions can play an instrumental role in inhibiting violence by placing transaction costs on carrying out the acts of violence.

Formal and Informal institutions evolve together through the activities of formal and informal social groups (North, 1991).² Likewise, there is a strong link between formal and informal institutions in regulating the activities of these groups. For instance, Brinks (2003), in this regard, posits that even democracies fail to root out violence when informal norms contradict formal rules. Thus, in order to assess the impact of institutions on violence, we have to look at both the formal and informal institutions. Also, the relationship between violence and institutions depends on the nature of the link between formal and informal institutions. In this study, we want to assess the role played by the formal and informal institutions in the mitigation or exacerbation of societal violence. In addition, we want to evaluate the implications of informal institutions as far as the relationship between formal institutions and societal violence is concerned. We have three objectives in this regard. First, we want to see how informal institutions like trust, respect, tolerance and freedom affect the chances of violence. Second, we are interested in the implications

¹ Women and Children, in particular, remain the primary targets for inter-personal violence.

² These social groups include households, firms, ethnic communities, and governments

of formal institutions that constrain the executive's power to expropriate for the mitigation of violence. Finally, we want to see whether there is any complementarity between formal and informal institutions as far as the mitigation of violence is concerned.

We construct the variables of formal and informal institutions separately. Using the data of World Values Survey (WVS) and employing the methodology of Williamson (2009), we construct the indicator of informal institutions which capture aspects like trust, respect, control, obedience and tolerance. Likewise, by adapting, in part, the methodology of Gleaser *et. al*, (2004), we construct the indicator of formal institutions which cover aspects like plurality, proportional representation, checks and balances on chief executives, type of political system, and constitutional limit on the duration of power. In order to see the implication of these variables on violence, we take into account societal violence. Societal violence or interpersonal violence, in general, includes violence between family members and intimate partners and violence between acquaintances and strangers that is not intended to further the aims of any formally defined group or cause (Waters et al., 2004). In other words, self-directed violence, war, state-sponsored violence and other collective violence are specifically excluded from this definition. Thus, in this regard, we focus on homicides, gender-based violence and violence against children.³ In order to maintain institutional integrity, the time period chosen is from 1991 to 2015. We employ the approach of instrumental variable in order to control for the issue of endogeneity. We contribute to the existing literature on three fronts. First, the existing literature seldomly explores the relationship between institutions and violence. Second, informal constraints have not been studied in the context of violence in any form. Third, the complementarity between formal and informal institutions as far as the mitigation of violence is concerned is yet unexplored in the existing literature. Rest of the study is organized in five sections. In section 2, we survey the relevant literature. Section 3 provides the theoretical framework, the construction of variables, and the estimation methodology. In section 4, we provide and discuss the empirical results while section 5 concludes the paper.

³ According to the United Nations Office on Drugs and Crimes (UNODC) (2012), the incidents of homicides have declined significantly since 1950; however, in the developing countries, there has been a noted increase in gender-based violence.

2. A Review of Literature

Societal violence is different from other types of violence in its motivation. It may be motivated by financial benefit, personal grievance or psychological pleasure. At the same time, there is cost associated with societal violence; the severity of this cost is determined by the strength of institutions. It is a general perception that democracies are efficient in reducing violence. In other words, the civilizing effects of democracy reduce the number of incidences of violent crimes in democratic countries.⁴ For instance, to Elias (1978), Western democracies have managed to reduce violent crimes more effectively than other nations. There are two justifications for this assertion. First, democracies usually have a complementary justice system. Alternatively, in democratic countries, people are facilitated in approaching authorities for the resolution of inter-personal conflicts.⁵ For instance, due to the lack of complementary justice system, democracies in Latin America have failed to root out violence (Brinks, 2003). Second, democracies should be complemented by well-functioning informal institutions in restricting violence. For instance, in states where democracies are accompanied by strong informal norms and cultural traditions, the efficacy of violence in the advancement of individual's self-interest declines. In Latin America, especially in Brazil and Argentina, such complementarity is lacking, the result is rising rates of homicides committed by police officers while on duty (Brinks, 2003).⁶ To put it differently, the lack of coordination between formal and informal institutions can render the state unable to control violence. There are also contrasting views in this regard. For instance, Diamond (1999) and Mendez *et. al*, (1999) assert that new democracies in Latin America have experienced rapid increase in homicides, owing to the chaotic and ambiguous definitions of authority and jurisdiction during the transitional period. Likewise, Backman (1998) and Barak (2000) present a similar situation for Eastern European countries that were previously part of the Soviet Union. Alternatively, during the transition to capitalistic structures and democracies, these countries experienced a rapid increase in violent criminal activities or homicides.⁷ In general, the transitional

⁴ Lafree and Tseloni (2006) call it the civilization perspective of democracies.

⁵ For instance, a modern democratic state can claim a monopoly on legitimate use of violence, thereby, making personal quests for justice and violent vigilantism illegal.

⁶ For instance, the police officers in these countries believe that taking a life in their routine police work is justified even if the formal regulations explicitly declare it otherwise.

⁷ See also Lafree and Drass (2002) in this regard.

period is marked by economic inequality, unemployment and social misery, giving rise to violent crimes (Taylor *et. al*, (1973); Quinney, 1977; Bohm, 1982).⁸ Neumann and Berger (1988) reconcile these opposing perspectives through the dynamics of institutional change. During the process of transitions, modern cultural norms are challenged by the traditional cultural values. Such a confrontation leads to normative ambiguity and weakening of the traditional inhibitive mechanisms, resulting in an increase in violence and homicides along with other criminal activities.⁹ Alternatively, the process of modernization itself is the main cause of violent crimes, owing to the institutional confusion during the transition process (Lafree and Tseloni, 2006). Thus, democracies alone are not sufficient to restrict homicides; rather, they require the supporting role of traditional cultural values.

In general, the severity of societal violence is experienced disproportionately by the most vulnerable segment of the society, i.e. women and children. 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. The benefits associated with such a violence include direct enjoyment from the pain of sufferers, a relief from frustration, control over victim's behavior or access to resources (Tauchen *et. al*, 1991).¹⁰ In contrast, the costs depend on the reaction of the victims, which is determined by the existence and effectiveness of violence inhibiting institutions. For instance, in the presence of violence inhibiting punishment mechanism, the victims can resort to assistance from the authority. In general, such costs increase with the democratic culture or open institutional order, violence inhibiting legislation, and cultural constraints on gender-based violence. With respect to the violence against children, a society marked with the prevalence of violence would render its youngest inhabitants defenseless against physical assault. Likewise, a society without checks and balances or cultural sanctions on the use of violence would experience higher incidence of violence against children.¹¹ Such cultural tendencies can be countered by formal institutional arrangements (Gil, 1971). However, Richter and Dawes (2008) find that

⁸ Lafree and Tseloni (2006) call it the conflict perspective of transition.

⁹ Messner and Rosenfeld (1997) call it as anomie.

¹⁰ The authors consider violence as a means of gratification and a tool for regulating behavior.

¹¹ For instance, Tolan and Guerra (1998) identify social norms, institutionalization of violence (as punishment mechanism for controlling behavior and tendencies), secondary status of children along with socio-economic stress leads to increase in victimization.

despite the existence of rights-based legislation for the protection of children, lack of cultural support has led to little change in the state of child abuse in South Africa.

On the determinants of domestic violence at the macro level, there are six different theories (Arthur and Clark, 2009). They are 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 that the levels of education, labor force and political participation of women reduce domestic violence in the nations. The dependency theorists assert that patriarchy combined with capitalistic structures from outside maintains balance and stability by avoiding confusion regarding gender roles. The culture 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. The exchange theory suggests that the presence of laws against domestic violence lead to lower levels of domestic violence.¹² This theory also projects the efficacy of informal institutions in preventing domestic violence. With respect to modernization theory, Smelser (1966) points out that modernization results in universalistic norms characterized by social equality between gender roles.¹³

As stated earlier, political democracy is necessary but grossly insufficient in insuring civil rights and the rule of law. In other words, without civil rights and the rule of law, political democracy inevitably loses its effectiveness in preventing violence. The result is the prevalence of societal violence in new democracies. There is overwhelming evidence that while new democracies achieve success in the establishment of formal democratic rules through constitutions and legal codes; the systematic violation of civil rights leads to the de-legitimization of these formal arrangements (Caldeira and Holston, 1999). Thus, the consolidation of the understanding of formal democratic rules as a more holistic phenomenon requires consideration for the social and cultural context. In this study, we focus on such complementarity between formal and informal institutions as far as the mitigation of societal violence is concerned.

¹² The theory posits that domestic violence will be prevalent wherever the benefits to the perpetrators are higher than the cost of the act.

¹³ This theory also credits informal institutions in being instrumental in reducing violence.

3. Model Specification, Construction of Variables and Estimation Technique

In this section, firstly, we specify the model for our analysis. Onwards, we discuss the construction of variables. Finally, we provide a brief description about the estimation technique.

3.1. Specification of the Model

Our econometric model is based on the work of Williamson (2009). However, different indicators of violence have different determinants; therefore, the control variables vary from indicator to indicator.

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

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. As stated earlier, we take three indicators of societal violence, namely, homicides, gender-based violence and violence against children. Societal violence happens to be intimate and its motivation is more personal.

Intentional homicide or pre-meditated murder is the extreme form of societal violence. The motivation for that can vary from economic benefits to quid pro quo for some actual or perceived offence. The United Nations (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 100,000 individuals is accessed from United Nations Office on Drugs and Crime (UNODC)’s International Homicide Statistics (HIS). Another form of societal violence is gender-based violence which is an outcome of cultural trends, backed by the 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 the Global Database on Violence against Women (GDVW) of the United Nations (2015). In order to capture the prevalence of violence against children, we have accessed data on percentage of

children (1 to 14 years old) who experience any violent discipline including psychological aggression and/or physical punishment published by United National International Children Emergency Fund (UNICEF) (2017).

Formal institutions tend to increase the cost or penalty of committing violence and can lead to reduction in violence. It is, thus, expected that societal violence will be lower in the presence of democratic formal institutions.¹⁴ Alternatively, in the presence of strong formal institutions, offenders are penalized by law. Likewise, strong informal institutions reflect the prevalence of mutual respect, sense of control and trust and, thus, constrain violent tendencies.¹⁵ In other words, violence is reviled due to the culture of non-violence and punishment of offenders through ostracization or exclusion. The formal and informal institutions should be complementary in mitigating violence. This implies that the efficacy of formal institutions in the mitigation of violence should be enhanced by the existence of supporting informal institutions.¹⁶ The ratio between formal and informal institutions captures the effectiveness of formal institutions in the absence of informal institutional support. Basically, we want to check that how increase in formalization relative to informality will affect violence. We expect the coefficient of this ratio to be either positive or insignificant, depicting that without the support of informal institutions, formal institutional arrangements may become either irrelevant or violence inducing.

Among the control variables, higher levels of economic development are expected to have negative effect on violence, while demographic stress may increase the probability of violence. Higher economic progress is usually accompanied by increase in general well-being which, in turn, result in decline in the motivations 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 societal violence. Trade represents stronger linkages with the rest of the world which

¹⁴ Lafree and Tseloni (2006), in contrast, find that democratic formal institutions combined with the brutalizing effects of market economy results in higher incidences of violence. There may also be a possibility of the neutrality of formal institutions in limiting violence in the society due to the acceptance of culture of violence.

¹⁵ Strong informal institutions lead individuals not only to avoid violent conflict but also condemning the incidences of violence elsewhere.

¹⁶ Thus, the interaction between formal and informal institutions is expected to have a negative and significant effect on violence.

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. School enrollment is important as far as violence against children and gender-based violence are concerned. For instance, gender sensitive or equal opportunity education ensures gender equality and mutual respect, reducing the incidences of gender-based violence. Similar is the case with the violence against children. Likewise, poverty is important for homicides. Poverty represents lack of economic opportunities or 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. In case of gender-based violence, we also use a dummy variable for whether the country has legislation regarding domestic violence. The existence of legislation regarding domestic violence places a formal penalty on the act and can work as a deterrent for gender-based violence.

3.2. Construction of Variables

We construct the variable of informal institutions by taking insight from the methodology of Williamson and Kerekes (2011). The authors identify four distinct categories of culture, i.e. trust, respect, control, and obedience that serve as rules governing interactions between individuals. In order to get data on these variables, we use the World Values Surveys (WVS) which explores cultural values and beliefs across the globe. To make a comprehensive measure of informal institutions as far as violence is concerned; we also control for the prevalence of *tolerance* within a country. *Trust* (T) is measured through the survey question: “*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 among the masses in order to avoid hostility (Reemtsma, 2012). The survey question used for describing *Control* (C) 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 is found by averaging all the individual responses and multiplying them by ten. Lack of control may lead to the feeling of

helplessness and exclusion, which exacerbates grievances and increase likelihood of violence. *Respect (R)* is capture through a question: “*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. *Respect* 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. *Obedience (O)* in the society is depicted by the percentage of respondents that identified obedience as a desirable quality in social interactions.¹⁷ Obedience within a society allows for violence specialists to command higher degrees of control. With regard to *Tolerance (T)*, 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, is taken as an indicator for prevalence of intolerance in the society. This indicator can then be subtracted from the pre-scaling measure of culture calculated by using the methodology of Williamson and Kerekes (2011).

Trust, respect and control 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. We then convert this measure to be measured on a relative scale ranging from 1 to 10, with 10

¹⁷ 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 aspect is referred to as the level of obedience.

representing the country with the higher quality of informal institutions. Thus, the final indicator for informal institutions (II) is:

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

In order to measure the strength of formal institutions, we use five indicators that capture the extent and degree of constraints on the power of the chief executive of the country. These are Plurality (PL), Proportional Representation (PR), Checks and Balances on Chief Executives (CBCE), type of political System (S) and FINITTRM.¹⁸ 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. Following Glaeser et al. (2004), we take the average for the variable 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, and zero otherwise. ‘Checks and Balances on Chief Executives’ is 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 the opposition in the legislative process. The value of System ranges from zero to 2. Zero represents a presidential system, while one represents a system in which the president is elected by assembly and 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 the 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. For data on these indicators, we use the Database of Political Institutions (DPI) constructed by Beck (2000).

Employing the aforementioned methodologies, the indicators for formal and informal institutions are constructed for the sample countries. In order to maintain institutional integrity,

¹⁸ FINITTRM shows constitutional limits on the duration of power.

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. With regard to other controls like economic development, education, well-being, education, and youth unemployment, we use the World Development Indicators (WDI) of the World Bank. Linguistic Fractionalization is taken from Alesina, et al. (2003).

3.3. Estimation Technique

As stated earlier, we use cross-sectional data. We have the option of using Ordinary Least Squares (OLS) for estimation. However, we expect simultaneity bias in the model. While the incidences of violence are affected by economic growth, the rate of economic growth is also affected by violence. Acts of homicides, violence against children, and domestic violence, while do not destroy property, do deteriorate societal capital by creating insecurity and mistrust among the citizens which result in brain drain, reduction in private investment, decrease in labor force participation and decline in economic growth. Economic growth is also included in the models as regressor. Therefore, the causality in our models is not purely from the independent variable to the specified dependent variable. The most common way of dealing with this problem is to use instrumental variable technique. 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) postulate 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. We have used LIML estimation and it improves the Cragg-Donald Wald F statistic results by revising the critical values.

4. Empirical Results

In this section, we provide the results of our analysis. Firstly, we provide descriptive analysis of data. Onwards, we provide the results of regression analysis.

4.1. Descriptive Analysis

As stated earlier, we rely on cross-sectional data; however, the data is highly variable-specific, depending on the availability of data. The use of cross-sectional data is justified by two factors. First, the panel is not balanced, *i.e.* in some countries; the variables are the averages over long periods but in other cases, they are the averages over small periods. Second, the institutional variables are highly persistent. For instance, democracy in developed countries and monarchy in Arab countries are persistent over the whole period covered. Given the sample, the annual average rate of homicide across the globe is 7.23 per 100,000 individuals. Likewise, 30 percent of the women and 73 percent of the children, on average, experience gender-based violence and violence against children, respectively.¹⁹ Gender-based violence and violence against children are frequent in Africa while homicides are recurrent in North America. This implies that gender-based violence and violence against children are highest in countries where we observe weak formal institutions and weak informal institutions, while homicides are highest in countries where the formal institutions are though strong, but the informal institutions are weak. The average score on formal and informal institutions for our sample is 5.85 and 5.59, respectively. The continent-wise comparison shows that Europe dominates in terms of the prevalence of both the formal and informal institutions while Africa is characterized as the continent with weak formal and informal institutions. The relationship between our indices of institutions and violence has been assessed by a simple scatter along with a simple linear relationship.²⁰ This allows us to understand how the variables of our focus interact with each other. As is visible in figure A1 in the appendix, there is a clear and understandable negative relationship between informal institutions and homicides (Figure A1, Panel I), the link between formal institutions and homicides remains ambiguous (Figure A1, Panel II). Gender-based violence does not seem to have any discernable relationship with institutions. This is in no way indicative that the variables are not linked, simply that the

¹⁹ See Tables A1 and A2 for the details of Summary Statistics.

²⁰ Institutions are taken on x-axis while various types of political violence are taken one-by-one on y-axis.

relationship is more complex and requires further exploration. The relationship between violence against children and institutions is clearly negative in case of both formal and informal institutions.

On the basis of our constructed indices of institutions, we categorize the countries into four possible combinations of formal and informal institutions.²¹ Our bench-mark in this regard is the score of 5 on these indices, i.e. institutions in a country are strong if the score achieved by that country on our index is equal or greater than 5. This categorization is shown in table A4 in the appendix. Column 1 represents countries with strong political rules and strong informal constraints which implies that these countries not only have effective formal conflict resolution mechanisms but also cultural values that inhibit violent tendencies. Thus, such countries are 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. Homicide rates are also quite low in most countries, other than Russia and Colombia.

Column 2 exemplifies existence of the less developed formal institutions with strong informal constraints. In such countries, we conjecture that the institutional arrangements would be effective in limiting the incidence of violence as mobilizing the people towards violence may be difficult with higher levels of trust, respect and tolerance, even in the absence of strong formal institutions. Based on our indices, this 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 electoral process is known to be highly questionable because the chief executive (President) exercises immense control. South Korea has seen increase in the power of the chief executive since 2005, which may be the reason for it lying in this quadrant. The occurrence of civil war is extremely rare in these countries, with only exception being the Georgia. Ethnic violence is also experienced by Kyrgyzstan only. Terrorist activity remain low in these countries as well. Countries in the column 3 portray the situation where formal constrains are effectively enforced but the informal institutions are weak. In such countries, the values espoused by formal institutional reforms have not been assimilated in the society. The role of institutional arrangements in terms of violence mitigation remain ambiguous. Column 4 represents countries with weak formal and informal institutions. These societies are expected to be marked with

²¹ We are following Williamson (2009) in this regard.

frequent episodes of violence, as both formal and informal constraints would be ineffective. It is notable that majority of these countries are situated in Africa or Middle East and happen to be highly dependent on natural resources especially petroleum. These countries also exhibit on average the highest incidence of gender-based violence as well as violence against children (see, Table 1). Highest average incidence of homicides is faced by the countries in quadrant 3. Overall countries with weak informal institutions experience more homicides regardless to the strength of formal institutions, while countries with weak formal institutions seem to experience more gender-based violence and violence against children.

Table 1. Violence in Society by the Type of Institutional Structures

	Strong Formal Institutions & Strong Informal Institutions	Weak Formal Institutions & Strong Informal Institutions	Strong Formal Institutions & Weak Informal Institutions	Weak Formal Institutions & Weak Informal Institutions
Homicides	4.886 (7.862) [0.39, 32.39]	4.426 (2.826) [0.683, 8.52]	12.603 (17.638) [0.543, 64.49]	6.428 (9.082) [0.35, 48]
Gender-based Violence	0.293 (0.094) [0.12, 0.43]	0.278 (0.16) [0.133, 0.519]	0.255 (0.074) [0.169, 0.38]	0.322 (0.117) [0.068, 0.58]
Violence against Children	66.33 (7.528) [55, 76]	66.44 (15.92) [43, 92]	64.4 (9.529) [53, 77]	82.06 (10.155) [63, 94]

Note: This table gives average, standard deviation (in parentheses), maximum and minimum [in square brackets]

4.2. Homicides

The results in case of homicides are shown in table 2. As is evident from the table, homicides are negatively and significantly affected by informal institutions. For instance, the specification shown in column 1, depicts that homicides are lower by 12 per 100,000 homicides in the ideal set of informal institutions as compared the extreme set of poor informal institutions. Alternatively, violence inhibiting cultural values tend to reduce the social benefits of engaging in violence, i.e. ostracization, social exclusion and derision towards violence specialists result in a decline in the rates of homicides. If we compare columns 1, 2 and 3, we can see that the prevalence of values like trust, control, respect, tolerance etc. is more effective in mitigating homicides as compared to the formal political arrangements. However, the negative and significant coefficient of the interaction between formal and informal institutions shows that, in the presence of cultural values that discourage violence, formal institutions become more effective in reducing violence. In other

words, the widespread preference for non-violence in the culture puts pressure on the leaders of the nation, especially, in the case of strong formal institutions, to be tough to the violent offenders. In such a case, there would harsher laws and stricter implementation of those laws, leading to a notable decline in homicides. 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 constraints on the executives would imply the inability of the political leaders to take a decisive action and implement legislation that can be detrimental to reducing homicide. This may reduce the opportunity cost of committing violent crime, resulting in higher rates of homicides.

Economic progress as measured by the 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 the opportunity for societal violence or homicides due to the increasing resentment among the disadvantaged groups. Another aspect may be that urban areas are regulated better, and the record keeping is also more extensive as compared to rural areas. Therefore, crime in urban areas is more likely to get reported and recorded, which might explain the positive effect of urbanization on homicides. Poverty results in the creation of animosity against higher income groups. This resentment can give rise to societal violence, resulting in increase in the rates 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.

Table 2. Instrumental Variable Regression Results for Homicides

Variables	Dependent Variable: Homicides				
	1	2	3	4	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 * 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. Parentheses encapsulate standard errors

4.3. Gender-based Violence

As far as gender-based violence is concerned; it is not affected by informal institutions as is shown in table 3. Alternatively, cultural constraints are insufficient in preventing gender-based violence. One of the reasons being that the culture of non-violence is accompanied by the respect for property and privacy, so at 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. For instance, in specifications shown in columns 2 and 3, gender-based violence reduces by 17.9 percent as the countries make transition from the inefficient set of formal institutions to the ideal set of formal institutions. This implies that 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 costlier 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. However, 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. The significance of the dummy for the legislation regarding domestic violence is another evidence of the effectiveness of formal institutions in reducing gender-based 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.²² For instance, a clear and explicit legislation criminalizing domestic violence would provide the victims a clear path to follow for reprisal and safety.

With regard to the control variables, trade openness is effective in mitigating gender-based violence. Alternatively, trade openness and the associated economic opportunities induce individuals to avoid engaging in gender-based violence. Trade openness results in more jobs and skills, and enhances gender sensitivity and mutual respect which, in turn, reduce 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 any significant effect on gender-based violence. Likewise, the access to education is the necessary but, utterly, insufficient condition for ensuring a reformative effect on mind and thinking of the individuals.

Table 3. Instrumental Variable Regression Results for Gender Violence

Variables	Dependent Variable: Gender-based Violence				
	1	2	3	4	5
Informal Institutions	-0.80 (1.1)	-	0.23 (0.99)	-	-
Formal Institutions	-	-1.79** (0.88)	-1.79** (0.85)	-2.10** (1.02)	-

²² Such legislation would make violence against women very costly in terms of finances and deterioration in human and social capital, resulting in an overall decline in gender-based violence.

Formal Institutions *	-	-	-	0.04	-
Informal Institutions				(0.10)	
Formal Institutions/ Informal Institutions	-	-	-	-	-0.43 (1.51)
GDP Growth	-2.49** (1.13)	-1.58 (2.01)	-1.34 (2.08)	-1.46 (2.38)	-1.69 (2.09)
Legislation regarding domestic violence	-9.40*** (2.97)	-9.48*** (3.40)	-9.35*** (3.45)	-9.61*** (3.46)	-8.92*** (3.30)
Trade Openness	-0.10* (0.06)	-0.11** (0.05)	-0.11** (0.05)	-0.12** (0.05)	-0.11* (0.06)
Net Primary Enrollment	0.13 (0.16)	0.29 (0.19)	0.29 (0.19)	0.28 (0.19)	0.14 (0.19)
Intercept	47.11*** (13.47)	36.63* (20.41)	34.33* (20.90)	36.98* (21.99)	39.24* (22.27)
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 encapsulate standard errors

4.4. Violence against Children

The results with respect to the violence against children are shown in table 4. Similar to the results of gender-based violence, formal institutions are more effective in reducing violence against children. As is shown in columns 2 and 3, countries with ideal set of formal institutions experience around 50 percent lower violence against children as compared to countries with poor set of formal institutions. This implies that formal institutional reforms constraining the authority of the executives will induce the governments to pass legislations and implement laws, protecting the children from mental and physical abuse. In comparison, informal institutions are ineffective in mitigating violence against children. Alternatively, the instinct of using violence especially as means to discipline the children seems to be not affected by the informal institutions. While violence as punishment mechanism especially for children may be part of the culture, formal institutional constraints to the contrary can work to offset them. Further, one striking result in this regression is the negative and statistically significant effect of ratio of formal to informal institutions which signifies that high level of formalization relative to informal constraints can

reduce violence. This result depicts the lack of complementarity between formal and informal constraints in reducing violence against the children. In other words, in case of violence against children, formal institutions can be effective without the help from informal institutions.

Economic progress measured by GDP growth has a positive and significant coefficient. This implies that increased economic activities create more competition, resulting in fatigue and higher levels of stress which, in turn, translate into physically and psychologically abusive behavior. Trade openness has a negative and significant coefficient which indicates that trade openness can be violence inhibiting. Trade ties with the rest of the world will result in countries having to adhere to international laws regarding human rights, resulting in more active role of government in preventing violence against children. Surprisingly, net secondary enrollment remains insignificant in preventing violence against children

Table 4. Instrumental Variable Regression Results for Violent Discipline against Children

Variables	Dependent Variable: Violence against Children				
	1	2	3	4	5
Informal Institutions	-2.6098 (4.3157)	-	-0.6328 (3.1797)	-	-
Formal Institutions	-	-5.1028*** (1.1871)	-5.0170*** (1.3163)	-3.6611* (1.9685)	-
Formal Institutions * Informal Institutions	-	-	-	-0.2424 (0.2182)	-
Formal Institutions/ Informal Institutions	-	-	-	-	-11.9738*** (3.8224)
GDP Growth	10.2042* (5.8406)	6.2092*** (1.9105)	6.1754*** (2.0006)	6.2802*** (2.0288)	7.5953** (3.6154)
Trade Openness	-0.0721 (0.1014)	-0.0726* (0.0403)	-0.0737* (0.0408)	-0.0795** (0.0341)	-0.0575 (0.0706)
Net Secondary Enrollment	0.0993 (0.2308)	0.0971 (0.1114)	0.1074 (0.1289)	0.1533 (0.1094)	0.0176 (0.1452)
Intercept	46.3393 (34.357)	75.9513 (12.9965)	78.2054*** (15.9899)	74.0791*** (12.943)	61.0895** (22.234)
Number of Observations	19	19	19	19	19
Under-identification Test (LM Statistic)	8.111* p-value: 0.0876	8.33* p-value: 0.0802	8.503* P-value: 0.0748	8.598* P-value: 0.0720	6.463 p-value: 0.1671
Hansen J Statistic	4.128 p-value: 0.2480	1.446 p-value: 0.6948	1.552 P-value: 0.6703	0.818 P-value: 0.8456	3.673 p-value: 0.2990

Instrumented: GDP Growth

Instruments Capital Formation, Unemployment, Ethno-Linguistic Fractionalization, Africa (Dummy)

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

5. Conclusion

This study is motivated by the recent surge in research on socio-economic implications of the institutional diversities across the globe. Institutions constrain and limit socially undesirable behavior emanating from the interactions between individuals and groups. Violence is one of such undesirable aspects of human interactions. In addition to its aggregate costs in terms of lower levels of economic prosperity, the individuals who engage in violence stand to incur substantial personal costs. Thus, 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 this study, we want to see what such a social order, incorporating both the formal and informal institutions imply for the prevalence of violence. We focus on societal violence by considering homicides, gender-based violence and violence against children.

By taking data from the cross-section of countries, and employing the framework of Williamson (2009), we find that, in case of homicides, informal institutions are more efficient in decreasing violence. Also, they enhance the effectiveness of formal institutions in mitigating homicides. In contrast, targeted violence like gender-based violence and violence against the children are effectively mitigated by the formal institutions. This implies that while the overall level of violence in the society requires cultural constraints for its prevention, the targeted violence can only be mitigated through formal institutional reforms. In cases of homicides and gender-based violence, there is a complementarity between formal and informal institutions in prevention of violence while, in case of violence against children, even in the absence of informal support, formal institutions can play a decisive role in mitigation of violence. Our results clearly demonstrate that both formal and informal institutions are instrumental for reducing violence, giving credence to the idea that without institutional reforms violence cannot be prevented.

While the issue explored in our work has not been investigated before with such details, our study does leave out further venues for research. Given the significance of informal institutions in the mitigation of violence, the factors behind informal institutional change need to be studied and analyzed with greater detail. Likewise, our measure of formal institutions incorporates strictly the political dimension and it may be interesting to explore the effect of non-political aspects of governance on violence.

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Appendix

Table A1: Summary Statistics of Overall Sample

Violence						
	Unit	N	Mean	Standard Deviation	Minimum	Maximum
Homicides	Number per 100,000 individuals	88	7.23	11.48	0.35	64.49
Gender-based Violence	Reported incidents percentage of women within age group	50	30	11	7	58
Violence against Children	percentage of children (1-14) who experience any violent discipline	36	73.08	13.69	43	94
Determinants of Violence						
		N	Mean	Standard Deviation	Minimum	Maximum
Informal Institutions		93	5.59	1.47	1	10
Formal Institutions		86	5.85	1.81	1	10
Per capita GDP (Constant US Dollars)		91	15970.24	15066.27	810.14	82999.45
GDP Growth (%)		92	3.79	1.98	-1.00	10.44
Trade Openness (% of GDP)		92	81.17	50.81	23.37	362.71
Ethno-Linguistic Fractionalization		87	0.75	0.45	0.004	0.99
Urbanization (%)		76	25.49	19.64	3.49	99.84
Poverty Headcount (%)		84	11.05	17.7	0.02	66.425
Net Primary Enrollment Rate		86	90.97	9.38	51.27	99.97
Net Secondary Enrollment Rate		75	74.46	21.35	13.85	98.98

Table A2: Violence in Society and Institutions (Regional Comparisons)

	Africa	Asia	Europe	South America	North America
Homicide	8.542 (10.136) [0.7, 33.59]	5.276 (9.50) [0.35, 48]	2.275 (1.855) [0.67, 7.32]	18.599 (16.464) [3.41, 51.03]	22.04 (22.54) [1.69, 64.5]
Gender-based Violence	34.8 (11.8) [15, 58]	23.9 (9.8) [7, 35]	29.7 (8.3) [17, 43]	28.7 (13.2) [19, 38]	29.6 (19.6) [15, 52]
Violence against Children	84.4 (10.41) [63, 94]	72.08 (13.57) [50, 92]	67.57 (13.06) [43, 82]	63.5 (12.02) [55, 72]	59.33 (6.35) [52, 63]
Informal Institution	4.339 (0.635) [3.37, 5.66]	5.502 (0.885) [3.77, 7.54]	6.247 (1.539) [2.1, 10.01]	5.256 (1.81) [1, 6.9]	5.914 (2.04) [2.36, 8.18]
Formal Institution	4.59 (1.216) [1.73, 6.45]	4.96 (2.144) [1, 10]	7.108 (1.309) [3.76, 8.96]	6.29 (0.68) [4.66, 6.86]	6.13 (0.49) [5.34, 6.55]

Note: This table gives average, standard deviation (in parentheses), maximum and minimum [in square brackets]

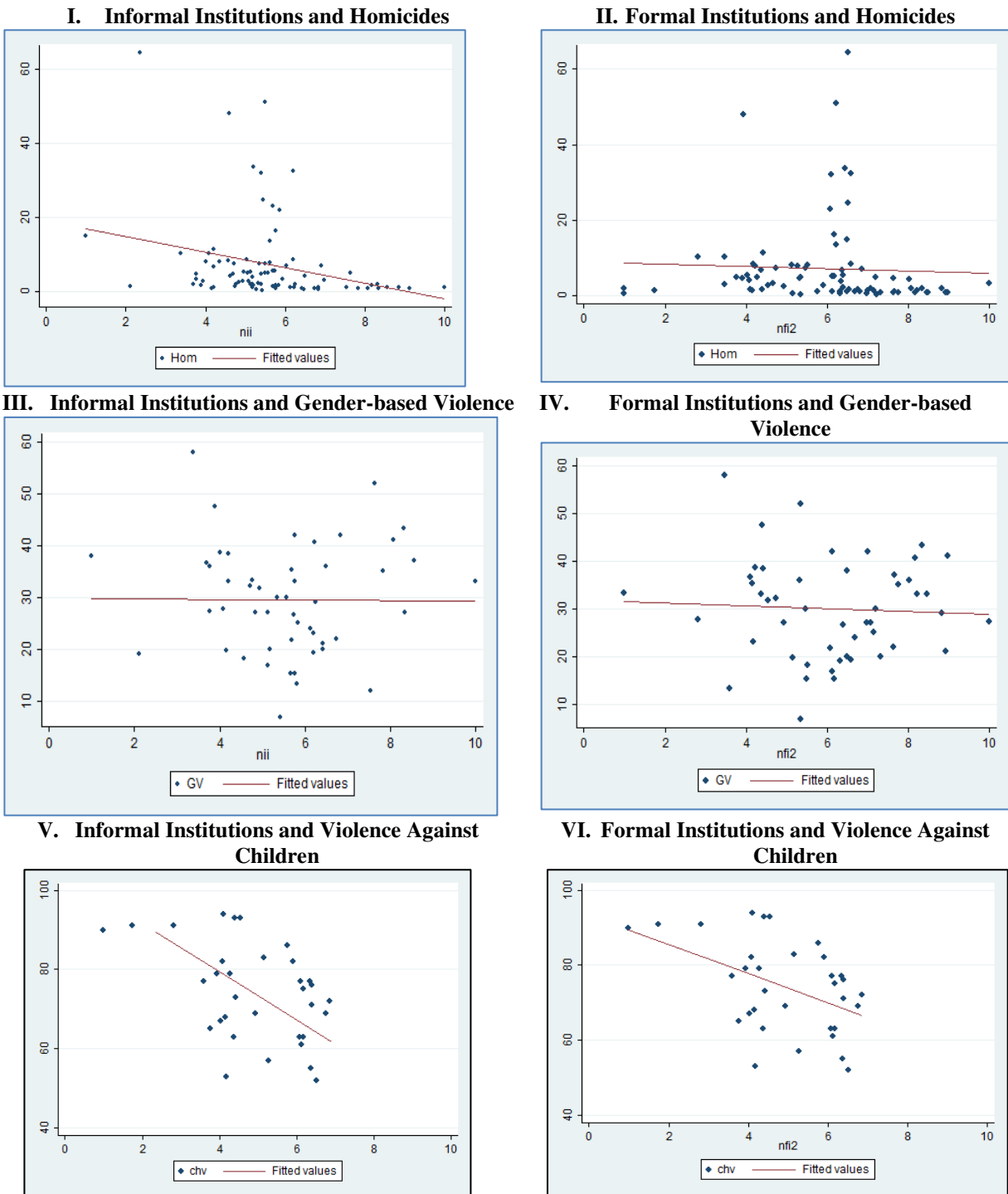
Table A3: Possible Combinations of Formal and Informal Institutional Arrangements

1. Strong Formal Institutions and Strong Informal Institutions	2. Weak Formal Institutions and Strong Informal Institutions	3. Strong Formal Institutions and Weak Informal Institutions	4. Weak Formal Institutions and Weak Informal Institutions
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	Azerbaijan, Bahrain, Chile, Georgia, Guatemala, Kazakhstan, Kyrgyzstan, South Korea, Taiwan, USA, Uzbekistan, Vietnam	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	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

Table A4: Definition of Variables and their Sources of Data

Variable	Definition	Source
Homicides	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 individuals (average taken since 1995)	UN Office on Drugs and Crime's International Homicide Statistics
Gender-based violence	lifetime prevalence of physical violence against women by all perpetrators as percentage of population of women aged 15-49	United Nations
Violence Against Children	Percentage of children (1 to 14 years old) who experience any violent discipline including psychological aggression and/or physical punishment	UNICEF (2017)
Informal Institutions	Cultural values that potentially govern interactions between various agents in the society. Incorporate values of trust, respect, tolerance, freedom and obedience. The value of the index has been rescaled to lie between zero and one. Average score of the index for the last four rounds has been calculated.	World Value Survey (WVS) by Institute for Comparative Survey Research, Austria
Formal Institutions	Institutional constraints on the power of the executive incorporating plurality, proportionality, system of governance and limits to terms of the executive. The value of the index has been rescaled to lie between zero and one. Average score of the index since 1991 has been included.	Database of Political Institutions
Economic Progress & Development	GDP Growth Rate [Average taken since 1991]	World Development Indicators
Education	Net Primary Enrollment Rate, Net secondary Enrollment Rate	World Development Indicators
Well-being	Poverty Headcount (International Poverty Line)	World Development Indicators
Urbanization	Percentage of population living in urban area	World Development Indicators
Ethno- Linguistic Fractionalization	The probability that if two people are randomly selected from the population they would be speaking different languages and are of different ethnicities	Alesina, et al. (2003)
Trade Openness	Total trade as percentage of GDP (average taken for data since 1991)	World Development Indicators

Figure A1. Institutions and Societal Violence



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