

AN ANALYSIS OF THE INCIDENCE AND HUMAN COSTS OF VIOLENT CONFLICTS IN THE AUTONOMOUS REGION OF MUSLIM MINDANAO

Violence Monitoring Working Papers No. 1

Joseph J. Capuno
University of the Philippines



The Asia Foundation

Documents in the *Violence Monitoring Working Papers* series are produced as part of The Asia Foundation's Violence Monitoring Program. The Foundation has been supporting the establishment and development of Violent Incidents Monitoring Systems (VIMS) across Asia, to improve our understanding of and responses to conflict and violence in the region. The Foundation provides financial and technical support to systems owned and operated by local partners. It facilitates the development of a regional community of practitioners, and promotes methodological harmonization across systems. Finally, it commissions research using subnational violence data, connecting findings with global, national and local policymakers and practitioners.

The series includes academic papers based on the VIMS data, as well as methodological papers and other documents related to violence monitoring. Papers in this series are not formal publications of The Asia Foundation.

The findings, interpretations and conclusions herein are those of the author(s) and do not necessarily reflect the views of The Asia Foundation.

The papers carry the names of the authors and should be cited accordingly. The series is edited by the Conflict and Development unit of The Asia Foundation, based in Bangkok, Thailand. For more information on the series or the Violence Monitoring Program, please contact us, or consult our website:

Web: <http://asiafoundation.org/tag/violence-monitoring>

E-mail: adrian.morel@asiafoundation.org

An analysis of the incidence and human costs of violent conflicts in the Autonomous Region of Muslim Mindanao, Philippines*

Joseph J. Capuno

University of the Philippines

Abstract

Like other developing countries, the Philippines has a long history of internecine warfare or conflicts, especially in Mindanao where the secessionist conflicts alone since the 1970s have resulted in enormous human and economic costs. That this and other conflicts continue to this day underscore the need for a better understanding of their causes to guide policy. Applying regression analysis on the conflict dataset for 2011-2014 of the Bangsamoro Conflict Monitoring System, we identify the important correlates of the incidence of violent conflicts and their human costs (fatalities and injuries) in the cities and municipalities of the Autonomous Region of Muslim Mindanao. The internal revenue allocation (IRA) and poverty rates are negatively correlated with the incidence of identity conflicts. Further, the IRA and the frequency of shadow economy conflicts are positively correlated. There is some evidence of spatial spillover: the incidence of violent conflicts due to crime, governance, political or shadow economy issues is associated more with the overall incidence than the incidence of any particular type of conflicts in the neighboring local government units (LGUS). The incidence of the same types of conflicts also tends to be lower in places where the incumbent mayor and governor belong to the same clan. Further, the incidence is generally higher in cities, especially in Cotabato City, than in municipalities, or in provincial capitals. Relative to other places, Isabela City and Lanao del Sur appear safer or more peaceful. While the incidence of resource conflicts

* I gratefully acknowledge The Asia Foundation (Bangkok Office) for the opportunity and support to undertake conflict research; Anders Engvall, Patrick Barron, an anonymous reviewer, Ingo Widerhorfer, Eakpant Pindavanijja and Adrian Morel for their generous comments and suggestions; and Xylee Javier, Erlinda Ranchez, Sylvia Nachura and Angelo Gabrielle Santos for their excellent research assistance. I also benefitted from the comments of the session participants during the Violence Monitoring in Southeast Asia and Beyond Workshop held on June 1-2, 2016 in Bangkok, Thailand, and in the seminar in the UP School of Economics held on 28 September 2016. I am also grateful to the UPecon-Health Policy Development Program for the bridge support that enabled me to update and revise an earlier draft of this report. The findings, interpretations, and conclusions expressed in this paper are entirely mine. They do not necessarily represent the views of The Asia Foundation or the UPecon Foundation.

appears lower in 2012 than in 2011, in general there is no significant variation in the incidence of any type of conflict across years. The analysis of human costs shed few new or nuanced findings. First, it is the neighbors' total number deaths and injuries rather than that of deaths alone or injuries alone that is correlated with the total deaths or total injuries in a given locality. Second, the number of injuries in the neighboring jurisdictions has lagged and possibly negative effects on the incidence of the same in a given locality. Relative to municipalities, cities tend to have greater number of deaths but not of injuries. To contain violent conflicts and their human costs, these results suggest that policy interventions are better directed at cities, especially Cotabato City, more in Maguindanao and less in Lanao del Sur, or in places where mayors and governors are related, or at once to wherever they occur initially to prevent them spilling over to adjacent places.

1. Introduction

Violent conflicts – including skirmishes among tribes, clans or groups, and armed challenges against the State – are widespread, persistent, and exact heavy economic and social toll, even long after they have ceased. Estimates from the Uppsala Conflict Data Program show that over the period 1989-2014 there have been 1003 instances of armed conflicts, of which around 20% are considered wars, in over 760 locations worldwide, but mostly in Africa and Asia (Pettersson and Wallensteen, 2014).¹ These conflicts have resulted in possibly over a million battle-related deaths. Additionally, wars or armed conflicts lead to injuries and forced displacement, destruction of public infrastructures and physical capital, and an overburdening of the public social services in places where the refugees and displaced population relocate. The civil wars in Peru, El Salvador, Nicaragua, Angola, Democratic Republic of Congo and Burundi had their toll on their economy's total output (Collier et al., 2003). This echoes the finding that political instability impedes economic growth (Barro, 1991). When social and political institutions are likewise disrupted or destroyed, recovery is difficult and the adverse effects linger, especially on the health and education of children in refugee camps and the inability of firms to recruit workers in the affected areas (Collier and Duponchel, 2010). All these push a country closer to a “conflict trap” (Collier et al., 2003).

To control or contain the incidence and consequences of wars and violent conflicts, their causes have to be understood and the appropriate interventions adopted. On the face of it, competing groups appear to have distinct identities, be it based on race, ethnicity, religion or nationality. Often, however, their social aggressions have underlying economic and political reasons (Brown and Stewart, 2015), especially inter-group inequalities in economic or political positions or opportunities (Nelson, 1998). In their analysis of civil wars in Africa, Collier and Hoeffler (2000) report that it is the control over a natural resource or a “lootable” resource like diamonds and other minerals, especially in countries that rely heavily on exports of such primary resources, more than the gripes that one group bears over another, that predict bloody confrontations between them. Geography also matters. Landlocked African countries are found more susceptible to civil strife (Collier, 2006). Measuring inter-group inequalities based on household assets and education levels for several countries, Gudrum (2007) finds that while the risks of in-country conflict occurrence is positively associated with inequalities between ethnic or religious groups, it is the inequality across regions that counts most. In Nepal during the period 1996-2006, the fatalities due to armed conflicts are found greater in poor districts and in forested and mountainous areas, that is, in places where insurgents are already located (Do and

¹ Also based on the estimates from the Uppsala Conflict Data Program, Gleditsch et al. (2002) report around 225 armed conflicts over the period 1946-2001.

Iyer, 2010). Not to discount the insights gained from these studies, further investigations could confirm if the findings so far are general or specific to a setting, or to point out the exact causal pathways leading to the eruption of violent discords.

This study presents an empirical analysis of the incidence of violent conflicts and their consequences in terms of fatalities and injuries in the Philippines. Two factors underpin the focus on the Philippines. The first factor is that the Philippines has a long history of internecine warfare or conflicts. The story of development traps in Sub-Saharan Africa that Paul Collier discussed in *The Bottom Billion* (Collier, 2007) finds resonance in many impoverished areas in the Philippines. Bad governance in the country is often associated with patronage politics, a practice that has kept local elite families or clans in political power for generations (see, for example, Coronel et al., 2004). In recent years, control over mining resources has pitted local governments against national government agencies, municipalities against provinces, mining firms against civil society organizations, leading to a stalemate and unrealized economic potentials.² In many rural areas, business operations and investments are often disrupted by skirmishes between the military and insurgents, terrorists or criminals. Many localities with unfavorable geography – being in a remote island or a mountainous terrain – are further disadvantaged by the lack of connecting roads, bridges or seaports, and are thus unable to gain from trade, which add to their grievances against the government.

The aforementioned traps and their detrimental impacts on the lives and welfare of the local population are perhaps nowhere as evident in the Philippines as in Mindanao. The prevalence and persistence of violent conflicts in Mindanao have deep historical roots that can be traced far back to the Spanish and American colonial periods (Schiavo-Campo and Judd, 2005; Abinales, 2000; Amoroso, 2005). That this unfortunate colonial legacy continues to this day speaks volume about the inability of the Philippine government to address the problem adequately. Part of the difficulty in addressing the conflicts in Mindanao is their variety, complexity and interlinkages. This is best illustrated in the case of *rido* or clan feuds or conflicts. The origin of these feuds could be a slight of honor or disrespect, theft or destruction of property, land disputes, political rivalry, jealousy or accidents. Initially involving only two persons usually from different clans, such incidents escalate automatically into a feud between their respective clans, sometimes across generations as well. Often these feuds are settled out of court, involving various intermediaries (traditional leaders, influential persons, elected officials, and the military) and based on traditional practices and Islamic laws. The formal legal system often

² As an example a recent news account, see “Mining companies in Philippines face many travails” by Trefor Moss, dated May 12, 2015. <http://www.wsj.com/articles/mining-companies-in-philippines-face-many-travails-1431467078>

proves inadequate for the purpose. (For example, see various case studies of conflicts in Torres III (2014).)

The need to end the *rido* conflicts as well as other types of violent discords in Mindanao is underscored further by the enormous human and economic toll they exact. For one, the secessionist conflicts between the Muslim separatists groups (Moro National Liberation Front, in particular) and government forces since the 1970s have resulted in loss of lives of about 120,000 people and the displacement of more than two million. Recent estimates of the economic losses during the first decade (1969-1979) of the secessionist conflict put it at US\$400 per person per year. By the third decade (1990s), the economic losses had risen to US\$1600 per person per year. These figures are equivalent to about 18% and 46% of the country's average annual Gross Domestic Product per capita during the respective periods (Molato, 2015).

Moreover, political rivalries, which are deadly already in many parts, have worsened. The so-called Ampatuan Massacre in Maguindanao in 2009 is perhaps the most infamous manifestation of violent political conflicts (between two political clans) in Mindanao³ or perhaps anywhere else in the country. In recent years, some Islamist militant groups (the Abu Sayaff, for example) have victimized foreigners and Filipinos ostensibly for ideological reasons, but whose nefarious tactics like bombings, kidnappings and extortions render them indistinguishable from common bandits. Due to these incidents, foreign embassies in Manila regularly issues warning to their nationals to refrain from visiting Mindanao, especially ARMM. The heavy toll of the breakdown in local peace and order situation on tourism, investments, entrepreneurship, trade and other economic activities manifest in official poverty estimates.⁴ Between 1991 and 2000, the poverty incidence rate in ARMM worsened, from 56% to 71%.⁵

To be sure, the Philippine government, development partners, civil society organizations and even the private sector have tried various policies, programs and projects to spur development, promote peace, or both, in the conflict areas of Mindanao. One of the most significant initiatives is the creation in 1989 of the Autonomous Region of Muslim Mindanao (ARMM), a new and unique governance structure that has jurisdiction over the predominantly Muslim provinces of Maguindanao, Lanao del Sur, Basilan, Sulu and Tawi Tawi. Through the years, development

³ For news accounts of this incident see, for example, "Maguindanao Massacre –How it happened" by Matikas Santos, dated November 21, 2014. <http://www.inquirer.net/143183/maguindanao-massacre-how-it-happened>. Or, "Maguindanao Massacre: One Year After" by Ed Lingao, dated December 28, 2010. <http://pcij.org/tag/maguindanao-massacre/>

⁴ In April 2016 when the Malaysian government closed off its border in Sabah to protest of the kidnapping of its nationals by the Abu Sayyaf group, the prices of rice and other basic commodities in the province of Sulu reportedly rose due to the resulting trade embargo. <http://www.gmanetwork.com/news/story/562786/money/economy/armm-economy-hurt-by-closure-of-sabah-border-due-to-abu-sayyaf-kidnappings>. Dated 15 April 2016.

⁵ See Monsod (2016) for a more incisive account of the links between human development and conflicts in ARMM.

institutions, donors and civil society organizations, often in partnership with government agencies, have provided various development programs and humanitarian assistance to the region. In addition, both military offensives and peace-building efforts have been employed to control or contain violence in the region. A more recent initiative is the filing of the Bangsamoro Bill in the last Philippine Congress (under the Aquino Administration) that seeks to create the Bangsamoro in lieu of ARMM. If approved, the Bangsamoro will have greater fiscal powers and autonomy from the central government than ARMM. While the Bangsamoro will help push the aspirations of Muslim Filipinos towards self-governance, the successful realization of this dream rests as well on how the ongoing social discords will be resolved and future ones averted. Unresolved, these discords can derail the approval of the Bangsamoro Bill in Congress, render illegitimate the plebiscite that will determine which localities will become part of the new regional government, or mar the election of the new set of regional government officials.

The second motivation for this study is the recent availability of detailed, standardized municipal-level conflict data collected under the Bangsamoro Conflict Monitoring System (BCMS) administered by the Internal Alert UK Philippines Office with fund support from the World Bank. By tracking the incidence of conflicts in the proposed Bangsamoro region (ARMM provinces and the cities of Isabela and Cotabato) and classifying them further in terms of causes, actors and effects, the BCMS makes these publicly accessible so that development practitioners and peace building actors are able “to identify where, when and how resources can be targeted and to understand the conflict effects of development initiatives” (International Alert, 2014). A particular advantage of the BCMS dataset is that it lends itself to econometric analyses of the triggering or conditioning factors behind the occurrence of violent conflicts as suggested in previous, qualitative studies.

Using the BCMS dataset for 2011-2014, we attempt to identify the important correlates of the incidence and human costs of violent conflicts in ARMM cities and municipalities, and to suggest inputs to policy. Towards this, we seek to answer the following questions: First, how important are fiscal and economic factors? Specifically, are the locality’s internal revenue allocation, poverty rate and cityhood status associated with the occurrence of violent conflicts? Second, do violent conflicts spill over across areas? In particular, is the incidence in a given locality influenced by the incidence in its neighbors? Third, is geography critical? Do interior municipalities (or cities) or island municipalities (or cities) have fewer cases of violent conflicts? Fourth, does the incidence follow an election cycle? That is, are there more cases of violent conflicts during an election year than in other years? Last, do the characteristics of the elected officials matter? In particular, is violence more or less frequent in places where the incumbent mayor is given another mandate or where the mayor and others elected officials belong to the

same political clan? While the findings will not necessarily indicate causal relations, we hope they can still serve as “flash points” or identify “hot spots” to where policy attention can be focused. If indeed violent political conflicts, for example, are found to cross borders systematically, then it would make sense to contain them immediately where they first occur. If violence occurs more frequently in particular places, say, Cotabato City or provincial capitals, then much of the peace-keeping efforts should be directed toward them.

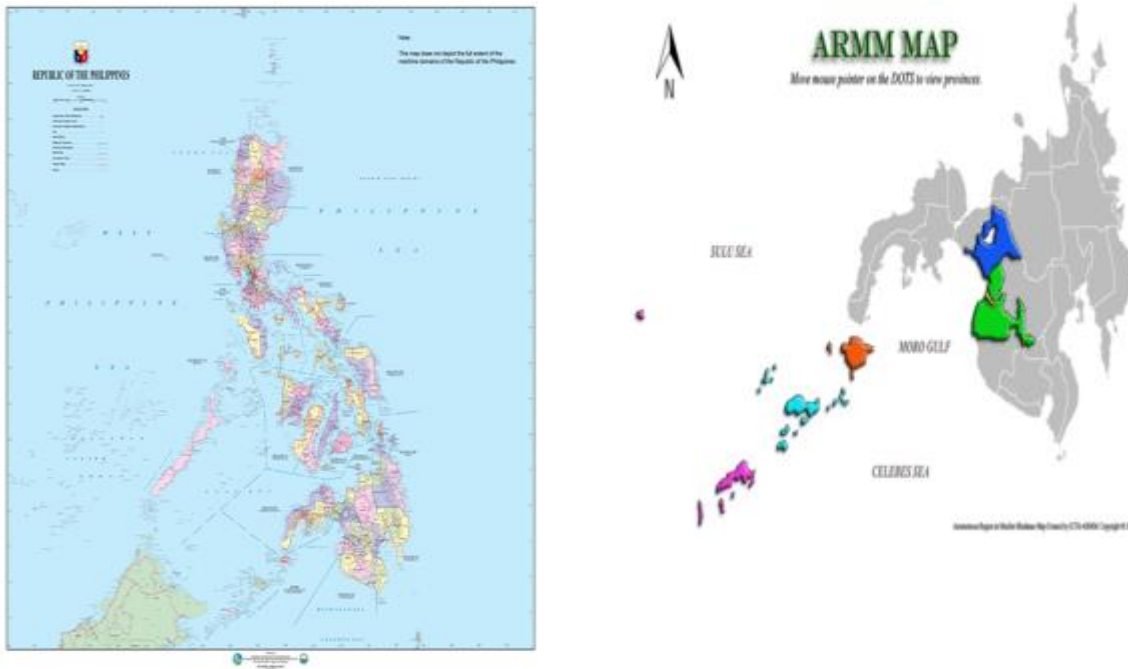
2. Autonomous Region of Muslim Mindanao

A special regional government created in 1989 under Republic Act 6734 and later amended in 2001 through Republic Act 9054, the Autonomous Region of Muslim Mindanao lies in the southwestern part of the Philippines (Figure 1). It comprises five provinces, two cities, 116 municipalities and 2488 barangays (Table 1). Unique among regions in the Philippines, ARMM has its own executive branch, headed by the Regional Governor, and a legislative assembly. Since 1990 up to present, there have been eight ARMM regional governors, including Nurallaj Misuari, the founder and former leader of the secessionist organization Moro National Liberation Front, and Zaldy Ampatuan, a member of the clan implicated in the infamous so-called Ampatuan massacre. The current governor is Mujiv S. Hataman, who was initially appointed to the position as the officer-in-charge in mid-2011 and then won it in both the May 2013 and May 2016 elections.

Located in Mindanao, the second biggest and southern-most island group in the Philippines, the ARMM covers a total area of 33.51 thousand square kilometers or about 11.2% of the total for the country. Among the five provinces of ARMM, Lanao del Sur occupies the widest land area at 13.5 thousand square kilometers. The province with the second largest land area (9.7 thousand square kilometers) is Maguindanao which has the biggest population at around 945 thousand (in May 2010). In comparison, Basilan, Sulu or Tawi Tawi each has about only a third of Maguindanao's land area.

While the two largest provinces are in the main island of Mindanao, the three small ones comprise a scattering of various islands in the Celebes Sea and Sulu Sea (Figure 1). Due to its varied geographical features, some municipalities in ARMM, especially those in Lanao del Sur and Maguindanao, are landlocked or far from the coast. In contrast, many in the three other provinces are coastal towns and some municipalities are situated alone and without neighbors in islands. On the one hand, these geographical barriers may serve to contain the spread of violence across areas in ARMM. On the other hand, precisely because they are remote, they can also be the hideouts of the perpetrators of violence in the region.

Figure 1. Maps of the Philippines and the Autonomous Region of Muslim Mindanao



Sources of maps: National Mapping and Resource Information Authority (<http://www.namria.gov.ph/download.php>), Autonomous Region of Muslim Mindanao (<http://www.armm.gov.ph/armm-map/>)

All five provinces account for about 3.53% of the country’s total population in 2010. While officially not part of the ARMM, geographically the cities of Isabela and Cotabato are in the provinces of Basilan and Maguindanao, respectively. Cotabato City is one of the principal economic hubs and political centers in Mindanao. According to the Philippines Statistics Authority, 90% of the population in ARMM in 2000 was Muslim. Despite this widely shared characteristic, the people in ARMM belong to different ethnolinguistic groups, including Maguindanao, Maranao, Yakan, Tausug, Samal, Yakan and Iranun. There is also the non-Muslim, indigenous population called the *Lumads*.

Among the regions in the country, the ARMM has the lowest level of socioeconomic development. In 2009 and 2012 the overall proportions of population in the country with per capita incomes below the poverty thresholds were 26.3% and 25.2%, respectively. In either year, none of the ARMM provinces scored better than the national poverty rate. Worse, the poverty rates in Lanao del Sur and Maguindanao in each year were at least double the national rates. Other development indicators further illustrate ARMM’s relative depravity. While the country’s overall score in Human Development Index (HDI) – composite of average family income, life expectancy at birth and adult literacy rate – improved from 0.609 in 2009 to 0.644 in 2012, the individual HDI scores of the ARMM provinces were consistently way below the

national scores, with that of Lanao del Sur and Maguindanao even deteriorating between 2009 and 2012.

Partly due to their poor local economies, the local governments in ARMM are unable to raise revenues from real property taxes, business taxes and other local sources. For this reason, they rely heavily for their incomes on their fiscal transfers from the national government. In ARMM and elsewhere in the country, the internal revenue allocation (IRA)⁶ is the single most important source of revenues for most local governments (Llanto, 2012). In ARMM, on the average the IRA accounts for not less than 90 pesos out of each hundred in incomes of a LGU. Since the IRA is largely a lump sum grant, the LGU can use it to provide public services to improve local welfare, support local economies or even manage violent conflicts.⁷ But perhaps precisely because the IRA is fungible, local officials can also misappropriate it as rents or fund patronage that may in turn incite discord between the favored and disadvantaged groups.

The use or misuse of the IRA and other local revenues, as other aspects of fiscal performance, is arguably a function of the quality of local governance, especially of the quality of local leaders (De Dios, 2007; Rivera, 2011). Where local officials are competent and responsive, they can make up for the meager fiscal resources at their disposal. As in most places in the country, local politics in ARMM is dominated by a few families or clans. Related by blood or marriage, these politicians occupy simultaneously or sequentially key elective offices in the municipality, city, congressional district or province (Gutierrez, 1994; Coronel et al., 2004). Perhaps more so in ARMM than elsewhere in the country, many ARMM politicians can trace their lineages to traditional leaders dating back to the Spanish and American colonial periods. Some ARMM municipalities have been named after their forebears, such as Datu Odin Sinsuat, Datu Paglas, Datu Piang and Datu Salibo. Rivalries among the traditional elites often extend to political or electoral competition and sometimes to armed conflicts. Though intra-clan rivalries are known, violent inter-clan rivalries are presumably less frequent in places when one clan effectively dominates. Where they dominate, they can ensure the election and re-election of their clan members. Therefore, the mayor's re-election status reflects more his or her clan's dominance than the voters' approval of his or her past performance. Thus election outcomes and the clan affinities of the elected leaders in ARMM may be correlated with the incidence of violent disagreements (Kruezer, 2005). The correlation may be direct as when clan competition during

⁶ The IRA is the share of the local governments in the revenues collected from income taxes and consumption taxes of the national government. It is apportioned to local governments based on a formula that factors in, first, the level of local government (province, city, municipality, barangay) and then, within each level, the local government's share in the total population, land area and the number of other local governments in the same level. (Diokno, 2012)

⁷ In many instances, local elected officials contribute to the payment of blood money to settle *rido* conflicts (Torres III, 2014).

elections turns bloody or intense, or indirectly as when the clan in power expends government resources to thwart the opposition.

Local elections in the Philippines however often lead to violence or to loss of lives, limbs or properties. To sway voters, political rivals employ *guns, goons and gold* where platforms and charisma do not suffice (Coronel et al., 2004). The elections in ARMM are no different. The infamous Ampatuan massacre was instigated when the candidacy of the Ampatuan clan to the position of Maguindanao governor was challenged by a rival clan. In ARMM, as in the rest of the Philippines, therefore, violent conflicts may also escalate in the run-up to the elections, the last three of which were held in May 2010, May 2013 and May 2016.

Table 1. Socioeconomic and fiscal characteristics of the ARMM provinces

Characteristics	Basilan	Lanao Sur	Maguindanao	Sulu	Tawi Tawi
Number of cities municipalities, barangays (as of May 1, 2010)	1 City, 11 municipalities 210 barangays	1 city, 39 municipalities 1,159 barangays	36 municipalities 506 barangays	19 municipalities 410 barangays	11 municipalities, 203 barangays
Land area in 2010, in 1000 km ² (as % of total Philippines)	3.22 (1.07%)	13.49 (4.50%)	9.73 (3.24%)	3.44 (1.15%)	3.63 (1.21%)
Population, as of May 1, 2010 (as % national)	293,322 (0.32%)	933,260 (1.01%)	944,718 (1.02%)	718,290 (0.78%)	366,550 (0.4%)
Poverty rate					
2009	36.6%	56.6%	52.2%	41.6%	35.3%
2012	41.2%	73.8%	63.7%	45.8%	28.6%
HDI					
2009	0.460	0.416	0.300	0.266	0.350
2012	0.419	0.217	0.309	0.303	0.403
Internal Revenue Allocation per capita (2006 pesos), province					
2010	13.70	32.63	28.59	17.26	14.31
2011	13.90	33.09	29.01	17.53	14.47
2012	12.84	30.53	26.76	16.17	13.41
2013	12.26	29.85	24.38	15.42	13.17
2014	13.30	32.48	26.53	16.78	14.26
Share of IRA in total revenues, province ^a	95%	96%	96%	97%	97%
Internal Revenue Allocation per capita (in 2006 pesos),					
2010	22.32	77.51	61.21	32.46	21.96
2011	24.18	75.02	54.12	31.47	22.71
2012	26.16	67.48	54.79	27.61	20.71
2013	23.81	60.37	30.90	21.52	13.05
2014	25.81	67.99	55.14	28.67	20.52

Share of IRA in total revenues, all munis. and cities ^a	95%	96%	91%	96%	94%
--	-----	-----	-----	-----	-----

Sources: Philippine Statistics Authority, Bureau of Local Government Finance.

^aAverage annual share for the period 2010-2014.

3. Data

The data used here are of two types. The first type consists of the reported incidence and human costs of violent conflicts in the 118 component local government units (i.e., cities and municipalities) of the provinces of Basilan, Lanao del Sur, Maguindanao, Sulu and Tawi Tawi, including the cities of Cotabato and Isabela. While the last two cities are not officially part of ARMM, they are located in Maguindanao and Basilan, respectively. The data on violent conflicts and their human costs are culled from the Bangsamoro Conflict Monitoring System (BCMS), which is a “subnational conflict monitoring system that systematically tracks the incidence, causes, and human costs of violent conflict and violent crime in the proposed areas of the Bangsamoro” (International Alert, 2014). In turn, the BCMS derived its raw data from regional and provincial police blotters, supplemented them with media reports, and then validated these through meetings with various local stakeholders.⁸ Obtained from the BCMS website on 26 February 2016, the conflict dataset used here covers the period 2011-2014. In the BCMS, a violent conflict “refers to incidents where two or more parties use violence to settle misunderstanding and grievances, and/or defend and expand their individual or collective interests (e.g., social, economic, political resources and power, etc.)” (International Alert, 2014). Moreover, the BCMS dataset is differentiated from the crime reports from the Philippine National Police in the former violent conflict are distinguished from non-violent crime. Further, the BCMS counts number of displaced, kidnapped, killed, trafficked or injured/wounded persons as human costs of violent conflicts. In this report, the human costs are limited to the number of killed or injured persons. Also covering the same four-year period, the second type of data consists of fiscal, socioeconomic, and geographic indicators, and election outcomes obtained from the Bureau of Local Government Finance, the Philippine Statistics Authority (PSA), and the Commission on Elections (COMELEC).

The BCMS classifies the causes of violent conflicts into seven broad categories based on their main triggers or underlying causes. These are extrajudicial crime/popular justice, governance issues, identity issues, political issues, resource issues, shadow economy issues, and others. The definitions of these seven types are shown in Annex 1. The last type pertains to cases of violent conflicts not included in the other types, possibly because of incomplete information.⁹ The BCMS

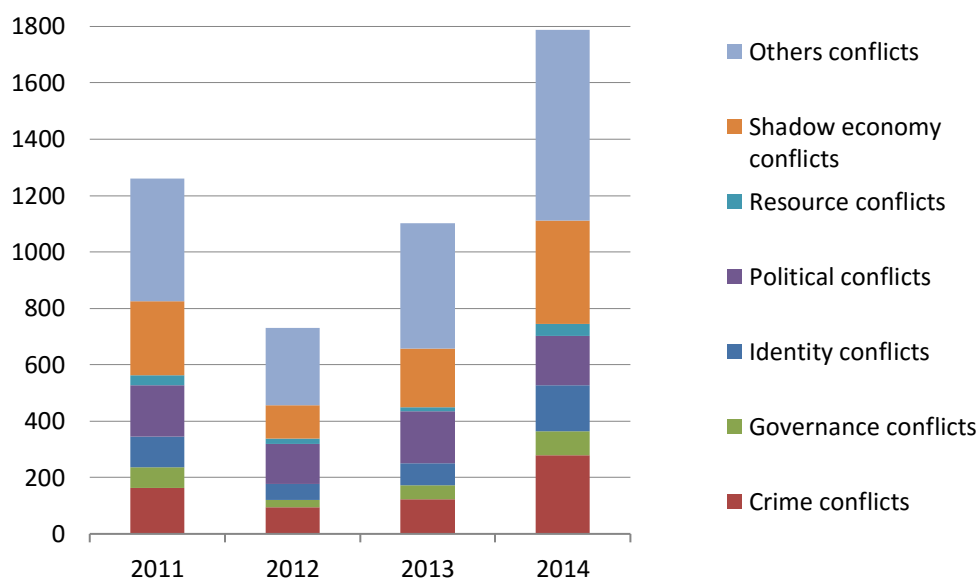
⁸ According to the BCMS website, “The BCMS was established in 2013 by International Alert UK Philippines Office in partnership with the World bank, with the cooperation of the Mindanao State University System and the Western Mindanao State University.” <http://bcms-philippines.info/vers1>. Accessed on February 2, 2016.

⁹ Thus with more information forthcoming, the incidence for each type may change even as the total number of cases remains the same.

also classifies the consequences of violent conflicts in terms of horizontal or vertical conflicts, and human costs. On the one hand, horizontal conflicts are “characterized by violent struggles between clans, ethnic groups, rival insurgent factions, political parties and private armed or shadow authorities for control over land, natural resources, elective and non-elective positions, including government resources and rents.” On the other hand, vertical conflicts are “insurgency-related, separatist armed struggle against the state, including terrorist actions”. Human costs are measured by the number and gender of persons killed, injured (wounded), kidnapped, displaced or trafficked. In our analysis, we use the seven causal categories of violent conflicts and limit their human costs to the number of persons killed or injured.

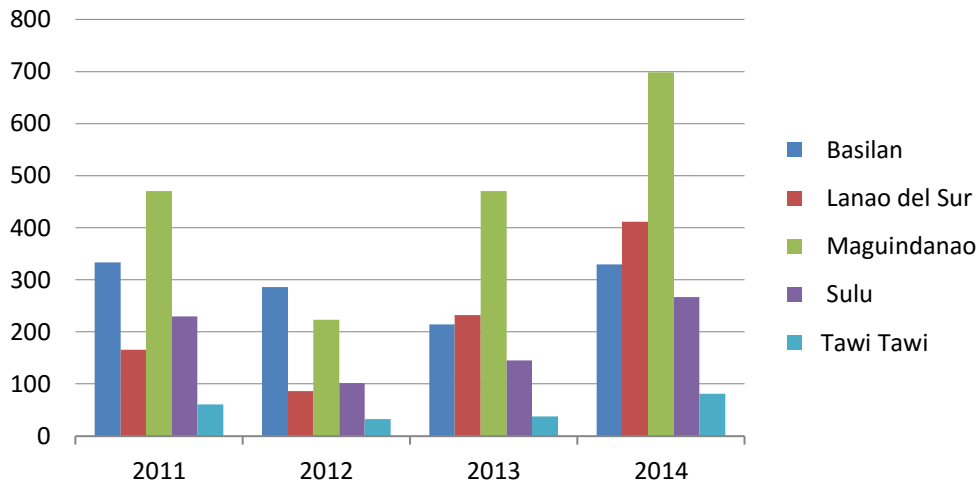
As of February 2016, the BCMS identified a total of 4881 cases of violent conflicts. As shown in Figure 2, the highest number of cases (1788) occurred in 2014 and the least (730) in 2012. Of the total for the four-year period, conflicts of undetermined causes account for around 38%, conflicts related to illicit activities or shadow economy account for around 20%, while crime-related conflicts and political-related conflicts each account for about 14%. Among the five ARMM provinces, Maguindanao (including Cotabato City) registered the highest incidence of violent conflicts – a total of 1862 cases or about 38% of the total in 2011-2014 (Figure 3). It also had the most number of cases every year except in 2011 when Basilan topped the list. The next most conflict-ridden provinces are Basilan (1165 cases, including those in Isabela City) and Lanao del Sur (897 cases). In each year, Tawi Tawi had the least number of cases.

Figure 2. Number of violent conflicts, by causes, 2011-2014



Source of raw data: BCMS.

Figure 3. Number of violent conflicts, by province 2011-2014

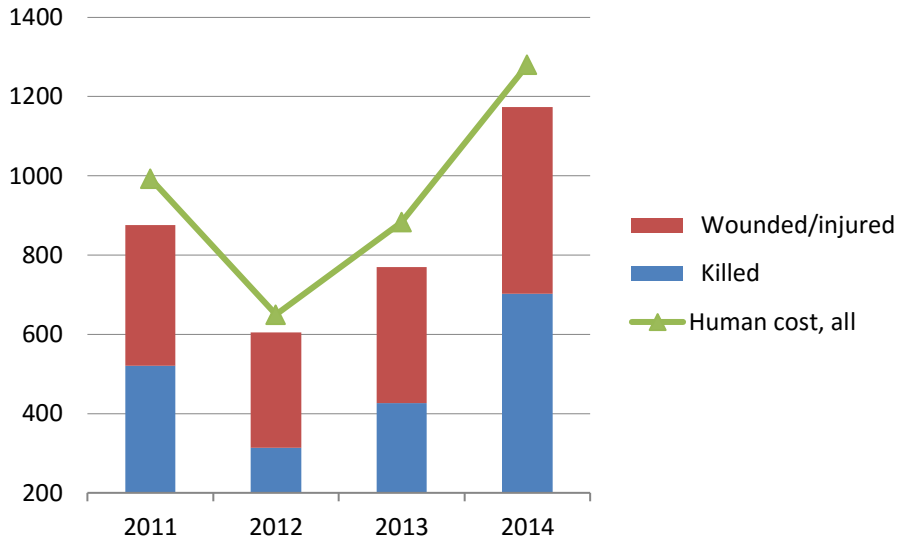


Source of raw data: BCMS.

As expected, the annual trend in the distribution of the human costs also somewhat mimics that of the incidence of violent conflicts. Exhibiting a U-shaped pattern, the total human costs declined from 993 in 2011 to 650 in 2012, and then climbed up 883 in 2013 and then finally to 1280 in 2014 (Figure 4). Consistently in each year, the combined number of fatalities and injuries constitute a huge proportion of the total human costs.

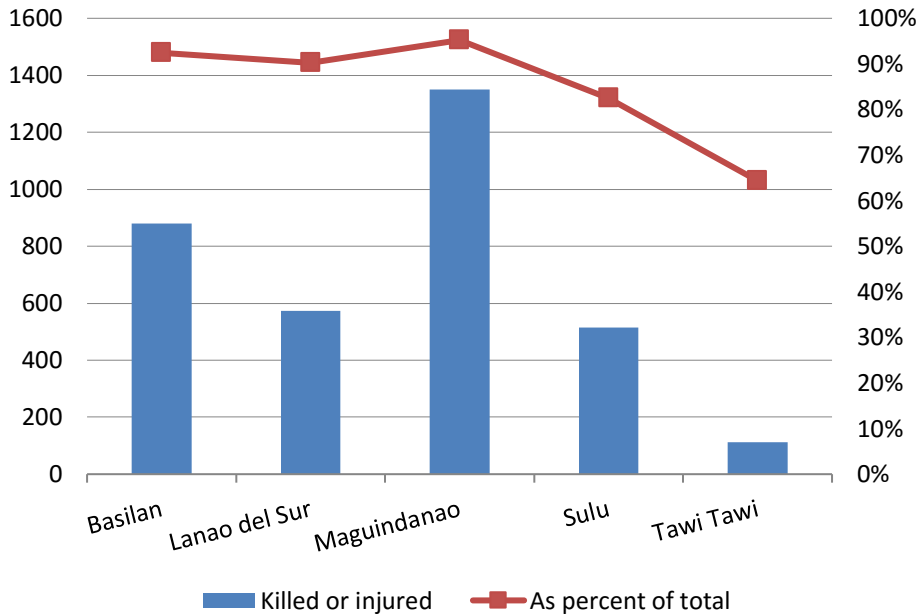
In terms of deaths and injuries due to violent conflicts, the deadliest ARMM provinces are Maguindanao and Basilan. The total number of deaths and injuries in these two provinces are six times and four times as great, respectively, as that in Tawi Tawi, which registered less than 200 cases over the four-year period (Figure 5). In Basilan, Lanao del Sur and Maguindanao, the deaths and injuries account for over 90% of the total human costs (which include displaced, kidnapped or trafficked persons). The same type of human costs accounts for about 83% and 65% in Sulu and Tawi Tawi, respectively. Though slight, the variation in the distributions of deaths and injuries, on the one hand, and of incidence of violent conflicts, on the other, is worth investigating further to see if they have different correlates, and, therefore, may respond to varied policy interventions.

Figure 4. Number of persons killed or injured due to violent conflicts, 2011-2014



Source of raw data: BCMS.

Figure 5. Number of persons killed or injured due to violent conflicts, by province, 2011-2014



Source of raw data: BCMS.

With the raw data, we assembled a panel dataset where the cross-section unit is the local government (city or municipality) and the period covered is 2011-2014. That is, we measured

all variables at the city or municipal level for each year during the period under analysis. An LGU-level analysis is relevant to policy since cities and municipalities have the requisite mandates and the basic powers and resources to prevent, control, manage and resolve conflicts within their jurisdictions.

The dataset used here has some limitations. First, the fiscal and socioeconomic data are available only on annual basis, and cannot be matched with the monthly or quarterly analysis of conflict possible with the BCMS dataset. Second, we can construct a balanced panel only for 100 LGUs. Of the 20 LGUs excluded due to missing fiscal and socioeconomic variables, 15 are in Maguindanao (Pandag, Rajah Buayan, Sharif Aguak, Talayan, Datu Anggal Midtimbang, Datu Saudi Ampatuan, Mangudatu, Barira, Datu Blah T. Sinsuat, Kabuntalan, Matanog, Northern Kabuntalan, Datu Hoffer Ampatuan, Datu Salibo, Sharif Saydona Mustapha), 4 in Basilan (Akbar, Al-Barka, Hadji Mohammad Ajul, Hadji Muhtamad), and 1 in Sulu (Hadji Panglima Tahil). Altogether, these 20 LGUs account for about 13% of the total number of persons killed or injured and 10% of all instances of violent conflicts during the period 2011-2014. Second, official municipal-level poverty estimates are available only for the years 2006, 2009 and 2012. So we used the 2009 estimate for 2011 and the 2012 estimate for 2012-2014. Third, in adjusting the nominal fiscal variables, we used province-level consumer price index (the base is 2006) and the 2010 municipal- or city-level actual population counts. There are no municipal-level estimates of prices or actual population counts for the period under study.¹⁰

¹⁰ Municipal-level population projections in ARMM may not be stable due to displacement or migration arising from violent conflicts.

4. Method

4.a Regression models

To identify the significant correlates of violent conflicts and their human costs, we run two sets of regression models. In the first set, we use the ordinary least squares (OLS) method on a dataset where the cross-section units (LGUs) are pooled together and treated as independent observations to estimate the following model:

$$v_{it} = \alpha + \bar{v}'_{-it}\boldsymbol{\beta} + \mathbf{X}'_{it}\boldsymbol{\theta} + \mathbf{t}'\boldsymbol{\delta} + \varepsilon_{it}, \quad (1)$$

where v_{it} is the conflict variable for the i th LGU in year t , \bar{v}_{-i} is a joint conflict indicator for the neighboring LGUs, \mathbf{X} is a vector of economic and other explanatory variables, \mathbf{t} is a vector of year dummy variables, α is the intercept, and ε is the error term.

The signs and statistical significance of the coefficients will indicate the important correlates of the incidence of violent conflicts and their human costs. Specifically, the estimates of the β 's will indicate spillover effects¹¹; the estimates of δ 's for $t=2012, 2013$ and 2014 will indicate whether violence gets worse or not relative to that in 2011 as the year moves closer to or farther from an election year (2013)¹²; and estimates of the θ 's will indicate if any of the fiscal, social, political or demographic factors also matter. (In the next section, we define the specific variables used in the regressions.) A potential problem with (1) materializes when an omitted variable is correlated with any of the regressors leading to under- or over-estimate of the true coefficients.¹³

To minimize such bias, estimating a fixed-effects model on the panel dataset when the unobserved characteristic is time-invariant and specific to the unit of observation is recommended (Wooldridge, 2002). Taking note of fixed-effects factors such as geography, local culture or pre-2011 history of violent conflicts, we estimate following equation:

$$v_{it} = \alpha_i + \bar{v}'_{-it}\boldsymbol{\beta} + \mathbf{X}'_{it}\boldsymbol{\theta} + \mathbf{t}'\boldsymbol{\delta} + \mu_{it}, \quad (2)$$

¹¹ It is possible though that it is the incidence in the i th LGU that influences the incidence it is neighbors or that all of them are jointly influenced by an external factor. One way to address this so-called reflection problem is to use instrumental variables (Manski, 1993; Revelli, 2005). Using fixed-effect estimator could potentially address the endogeneity problem, but only to the extent that the incidence in the neighboring LGUs is correlated with the time-invariant omitted variable. To be on the conservative side, we interpret the estimated β 's as correlations.

¹² Alternatively, a variable that indicates the number of years before the next election may be used. The advantage though of the year dummy variables used here is that it captures the effects of other year-specific factors as well.

¹³ Note also that spatial correlation of errors – that of LGU and its neighbors – not accounted for here.

In equation (2), the effects of the time-invariant, unobserved individual-specific characteristics are going to be picked up by the parameter α_i , which is a component of the error term in equation (1) (i.e., $\varepsilon_{it} = \alpha_i + \mu_{it}$). The inclusion of a fixed-effects indicator in the regression estimation however has its own drawback. Due to collinearity, the fixed-effects indicator will result in the dropping from the estimation of other variables that capture other time-invariant, but observed characteristics that by themselves may be important correlates of violent conflicts.¹⁴ Examples of these characteristics are the local government being a city, being located in an island without neighbors, or belonging to a particular province.

Each of regression models (1) and (2) has two variants. In the first variant, the variable \bar{v}_{-i} is a summary measure of violent conflicts in all municipalities or cities adjacent to the i th LGU. In the second variant, the variable \bar{v}_{-i} is unpacked into various types of violent conflicts, but each still a summary measure for all adjacent LGUs. If the dependent variable is an indicator of the human cost of violent conflicts – that is, persons killed or injured – then variable \bar{v}_{-i} would also pertain to the human costs of violent conflicts in the neighboring LGUs. In estimating models (1) and (2), the standard errors are adjusted for municipal- or city-level clustering.

We are aware that different types of violent conflicts may have different sets of drivers or that their common drivers influence in them different ways, perhaps nonlinearly or indirectly through some endogenous explanatory variables. Due to data limitations, we are constrained to use the same set of covariates. This has the advantage of making the results across regression models comparable. Thus, equations (1) and (2) are best considered as reduced-form models.¹⁵

Note, however, that when the omitted variable changes across time, its effects may not be fully attenuated even with a fixed-effects estimator. For example, the observed coincidence of conflicts in a group of neighboring municipalities may be the effect of the presence (or absence) or the size of the military or police force that maintain peace and order in the areas covered by the same group. Another example is a development or peace building project introduced in a district with several LGUs. To the extent that this project is successful, the effect will manifest as a correlation in the reduction of the incidence or human costs of violent conflicts in all the concerned LGUs. While these factors can be measured in principle, we do not have data for them. Thus, our estimated spillover effects are not entirely causal effects.

¹⁴ The dropped variables do not necessarily become unimportant, statistically or theoretically. But since they are dropped, we cannot say anything much about their influence. This is where the results of the pooled, cross-section analysis become important.

¹⁵ We leave non-linear specifications for future studies.

4.b Variables

With our assembled dataset, we constructed 40 regression variables for each of the 400 observations (100 LGUs times 4 years) (Table 2). Of these, eight variables measure the incidence of violent conflicts in the reference LGU, one for each of the 7 categories in Table 2 (*total crime conflicts*, *total governance conflicts*, *total identity conflicts*, *total political conflicts*, *total resource conflicts*, *total shadow conflicts*, *total other conflicts*), and another for overall incidence (*total incidence of conflicts*). Two variables count the human costs of violent conflicts, namely *total killed persons* and *total injured persons*. On the average, a total of around 11 cases of violent conflicts per LGU per year occurs, most of which are of undetermined type (total other conflicts), related to the shadow economy, crime or political issues. These ten indicators constitute our main dependent variables in the regression analysis.

The rest of the indicators in Table 2 are used as explanatory variables. To examine the issue of inter-LGU spillover of violent conflicts and their human costs, we also measure the incidence in the adjacent jurisdictions. To do this, we first define the reference LGU's neighbor to be another LGU in ARMM with whom it shares a physical (i.e., land) boundary. Thus, in our definition an island municipality (*island LGU*) has no neighbor; conversely, it is not labeled as island municipality if it shares the island with another. Note that an LGU in ARMM may share a boundary with another from a non-ARMM province, but that adjacent jurisdiction would not count among the LGU's neighbors in our definition.¹⁶ The physical boundaries are identified using official maps and Google maps.

Then we constructed eight indicators of total incidence of violent conflicts in the neighboring municipalities or cities. These are *neighbors' total conflicts*, *neighbors' crime conflicts*, *neighbors' governance conflicts*, *neighbors' identity conflicts*, *neighbors' political conflicts*, *neighbors' resource conflicts*, *neighbors' shadow conflicts*, *neighbors' other conflicts*. Also included are two indicators of the human costs of conflicts in the neighboring jurisdictions, namely *total killed persons in neighbors* and *total injured persons in neighbors*. The incidence of violent conflicts of all types in neighboring jurisdictions averages to around 37, most of which are also of undetermined type (13.65), related to the shadow economy (7.3), politics (5.24) or crime (5.14). To account for the greater likelihood of spillovers in LGUs with more neighbors, an indicator of the number of LGU neighbors is also included. The average number of neighbors is around three, with some having as many as ten.

¹⁶ It is possible though that these non-ARMM neighbors are the sources of spillovers. However, this issue cannot be pursued here because there is no suitable or comparable conflict data for the non-ARMM LGUs.

To account for the socioeconomic characteristics of the LGU, we also introduce fiscal indicators and poverty rates. The main fiscal variable is *IRA real per capita*, which is the amount of internal revenue allocation (IRA) of the LGU adjusted for population (based on 2010 census of population) and inflation (province-level consumer price index computed at 2006 prices). The mean IRA real per capita is around 20 pesos. The municipal-level poverty rates are small-area estimates for 2009 and 2012 from the PSA. Specifically we impute that the 2011 poverty rate is the same as the official 2009 figure, and those for 2012, 2013 and 2014 are the same as the official 2012 figure. The average *poverty rate* is around 54%. The LGUs are further classified according to their cityhood status (*city*), which is officially determined based on the population and income of the LGU. The four cities are Lamitan, Marawi, Cotabato and Isabela.

Since Cotabato City and Isabela City are officially not part of ARMM, we further distinguish each with dummy variables bearing their names from other local governments. Other dichotomous indicators of administrative or geographic characteristics are *interior LGU* (whether an LGU is landlocked or surrounded by land borders), *provincial capital* (whether an LGU is the province's capital), and *Basilan, Tawi Tawi, Sulu and Lanao del Sur* (with Maguindanao as the reference province). Of the total observations, about 50% are interior LGUs and another 15% are island LGUs. In terms of provincial distribution, 9% are in Basilan, 11% in Tawi Tawi, 18% in Sulu, 40% in Lanao del Sur, and the rest (22%) in Maguindanao (the base province).

The incumbent provincial governors, municipal or city mayors and vice mayors, and district representatives to Congress were classified in terms of their clan affiliations. Following the convention in the literature (e.g., Gutierrez, 1994; Rivera, 1999; Mendoza et al., 2012) two politicians belong to the same political clan if they are related by blood or marriage. Using COMELEC data, their affinities are established by comparing their own or their spouses' surnames or middle names. By this definition, we are able to tag with dummy variables incumbent mayors who belong to the same political clan as the incumbent vice mayor of the same LGU (*mayor and vice mayor are same clan*), those related to the Congressional district representative (*mayor and congressman are same clan*), or to the governor of the province where the LGU is located (*mayor and governor are same clan*). The clan affinities for 2011 and 2012 are based on 2010 election results, while those for 2013 and 2014 based on the 2013 election results. Another election-based dummy variable is *if mayor is re-elected* which indicates whether the incumbent mayor was re-elected in the immediately preceding local elections. Of the total observations, around 34% indicate that the incumbent mayor and vice mayor belong to the same political clan, about 11% indicate that the mayor and the Congress representative ("congressman", henceforth) are kin, and around 7% denote that the mayor and governor are related. About 44% of the incumbent mayors are re-elected.

To capture the effects of temporal factors, we also introduced dummy indicators for the years 2012, 2013 and 2014. The base year is 2011. Thus, the estimated coefficient of Year 2013 should indicate whether the incidence of violence is different in 2013 (an election year) from that in 2011 (the base year).

Table 2. Variable definitions and descriptive statistics (N=400)

Independent variables	Definition	Mean	Std. Dev.	Min.	Max
Total incidence of conflicts	Total incidence of violent conflicts	11.013	24.336	0	255
Total crime conflicts	Total incidence of crime conflicts	1.533	4.620	0	43
Total governance conflicts	Total incidence of governance conflicts	0.513	1.947	0	32
Total identity conflicts	Total incidence of identity conflicts	0.925	1.778	0	19
Total political conflicts	Total incidence of political conflicts	1.388	3.285	0	29
Total resource conflicts	Total incidence of resource conflicts	0.253	0.738	0	6
Total shadow conflicts	Total incidence of shadow conflicts	2.265	6.515	0	60
Total other conflicts	Total incidence of other types of conflicts	4.138	10.224	0	107
Total killed persons	Total number of persons killed due to violent conflicts	6.910	16.226	0	140
Total injured persons	Total number of persons injured due to violent conflicts	7.205	20.683	0	251
IRA real per capita	Internal revenue allocation, per capita (in 2006 pesos)	19.75	8.39	3.64	60.26
Poverty rate	Poverty rate (2011; same rate for 2012, 2013 and 2014)	53.60	15.47	17.50	84.76
Neighbors' total conflicts	Total incidence of violent conflicts in LGU neighbors	36.96	52.23	0	283
Neighbors' crime conflicts	Total incidence of crime conflicts in LGU neighbors	5.138	9.597	0	55
Neighbors' governance conflicts	Total incidence of governance conflicts in LGU neighbors	1.723	3.267	0	34
Neighbors' identity conflicts	Total incidence of identity conflicts in LGU neighbors	3.123	3.809	0	22
Neighbors' political conflicts	Total incidence of political conflicts in LGU neighbors	5.243	9.200	0	58
Neighbors' resource conflicts	Total incidence of resource conflicts in LGU neighbors	0.743	1.364	0	8
Neighbors' shadow conflicts	Total incidence of shadow conflicts in LGU neighbors	7.338	12.654	0	70
Neighbors' other conflicts	Total incidence of other conflicts in LGU neighbors	13.650	20.621	0	143

Total killed persons in neighbors	Total number of killed people in the LGU neighbors due to violent conflicts	24.227	37.595	0	227
Total injured persons in neighbors	Total number of injured people in the LGU neighbors due to violent conflicts	26.105	48.087	0	298
If mayor is re-elected	=1 if mayor was re-elected in the previous election, 0 if not	0.435	9.496	0	1
Mayor and vice mayor are same clan	=1 if mayor and vice mayor belong to the same political clan, 0 otherwise	0.340	0.474	0	1
Mayor and congressman are same clan	=1 if mayor and congressperson belong to the same political clan, 0 otherwise	0.105	0.307	0	1
Mayor and governor are same clan	=1 if mayor and governor belong to the same political clan, 0 otherwise	0.065	0.247	0	1
Number of LGU neighbors	Number of LGUs that share physical land border with the reference LGU	3.320	2.147	0	10
Interior LGU	=1 if interior LGU, otherwise	0.520	0.500	0	1
Island LGU	=1 if LGU is an island municipality/city, 0 otherwise	0.140	0.347	0	1
City	=1 if city, 0 otherwise	0.040	0.196	0	1
Cotabato City	=1 if Cotabato City, 0 otherwise	0.010	0.100	0	1
Isabela City	=1 if Isabela City, 0 otherwise	0.010	0.100	0	1
Provincial capital	=1 if LGU is the provincial capital, 0 otherwise	0.040	0.196	0	1
Basilan	=1 if province is Basilan, 0 otherwise	0.090	0.287	0	1
Tawi Tawi	=1 if province is Tawi Tawi, 0 otherwise	0.110	0.313	0	1
Sulu	=1 if province is Sulu, 0 otherwise	0.180	0.385	0	1
Lanao del Sur	=1 if province is Lanao del Sur, 0 otherwise	0.400	0.491	0	1
Year 2012	1 if year is 2012, 0 otherwise	0.250	0.434	0	1
Year 2013	1 if year is 2013, 0 otherwise	0.250	0.434	0	1
Year 2014	1 if year is 2014, 0 otherwise	0.250	0.434	0	1

5. Correlates of violent conflict

This section presents and discusses the results of the regression analysis of the correlates of the incidence of each of the seven causal types of violent conflicts. In Tables 3–10, the results reported under columns [1] and [2] are derived by applying the OLS method on a pooled, cross-

section dataset, while those under columns [3] and [4] are derived using fixed-effect panel estimation method.

5.a All violent conflicts

Across all four regression specifications, the overall incidence of violent conflicts seems not influenced by the amount of fiscal transfers, the poverty rate, the mayor's re-election status, or his or her kinship relations with the vice mayor or the district representative to Congress (Table 3). The variables *IRA real per capita*, *poverty rate*, *if mayor is re-elected*, *mayor and vice mayor are same clans*, and *mayor and congressman are same clan* are all statistically insignificant in any of the regression models. Likewise, the variables *Year 2013* and *Year 2014* are not statistically significant, which mean that the overall incidence in 2013 or 2014 is not significantly different from that in 2011.

There is some evidence of spatial spillovers of violent conflicts. Under column [1], *neighbors' total conflicts* is positive and highly significant (0.075 at $p < 0.01$): one incident of violent conflict in the adjacent LGUs is associated with nearly one case of the same in the locality. Further, it is the overall incidence rather than the incidence of a particular type of conflict in neighboring LGUs that is associated with the overall incidence locally. This we can infer from column [2] where none of the 7 conflict incidence indicators in neighboring LGUs is found to be statistically significant. Similar results are shown in columns [3] and [4], which suggest that the patterns of spillover effects are unaffected by? possible omitted variable bias.

However, there are OLS results in columns [1] and [2] that appear to be biased. In particular, the variable *mayor and governor are same clan* is negative and statistically significant, which suggest that key officials of different levels of local government who are kin are better able than others to contain or manage violent conflicts. The same variable however is statistically insignificant in columns [3] and [4], which implies that such a kinship relation by itself may be immaterial and appears to be consequential only because it reflects the effects of a time-invariant unobserved factor. Interestingly, *Year 2012* is negative in all four specifications, but statistically significant only in the panel data estimates. This particular result and that for *Year 2013* and *Year 2014* reveal a curious cycle of violent conflicts: the overall incidence falls in the year before the election, but remains flat and high in all other years. Arguably, this may not be a real pattern or trend since the period under study is short and includes only one election year (2013).

Other OLS results reveal additional important correlates of the overall incidence of violent conflicts. For one, the incidence is lower by around four cases in an interior LGU than in other

LGUs (e.g., coastal or not landlocked), by around five cases in Lanao del Sur than in Maguindanao, or by around 35-36 cases in Isabela City than elsewhere. For another, the incidence in an LGU however is greater by around 50 cases when it is a city than when not, by around 91 cases if it is Cotabato City than if not, or by around 47 cases when it is the provincial capital than when not. There are no statistically significant differences in the incidence between the LGUs in Maguindanao and Basilan, Tawi Tawi or Sulu. The number of surrounding LGUs also appears not to matter. Note that these results have no counterpart panel estimates because the relevant variables are collinear with the fixed-effect variable and therefore automatically dropped in the estimation.

The OLS regression models yield high R^2 . Each accounts for about 72% of the variations in the incidence of violent conflicts in 100 LGUs over four years. In contrast, the panel data regression models account for less than 3% of the overall variations in the dependent variable. In each of the four models, however, the F -statistic is statistically significant, which indicates that the null hypotheses that the explanatory variables are simultaneously equal to zero can be rejected.

5.b Crime conflicts

There is no strong evidence that the incidence of crime-related violent conflicts is systematically triggered by or associated with *IRA real per capita* or *poverty rate* (Table 4). These two variables are consistently statistically insignificant in all four regression models. Moreover, the incidence appears unrelated to the mayor's kinship relations with other key elected officials, or the mayor's re-election status. Furthermore, there are no systematic variations in the incidence across years or across provinces. All the three-year dummy variables and four province indicators are not statistically different from zero in all regression models. Interior LGUs are no more or less prone to crime conflicts than non-interior LGUs, after controlling for other factors.

There is some evidence of inter-LGU correlation of the incidence of crime conflicts. In column [2], we find that an incident in the LGUs' neighbors is associated with nearly one case of crime conflict within its jurisdiction. However, this particular spillover effect seems sensitive to possible omitted variable bias, since the variable *neighbors' crime conflicts* is statistically insignificant in the panel data estimates (column [4]). No other types of spillover effects from surrounding localities are found to be important. Consistently across specifications, the incidence of non-crime violent conflicts in the neighboring LGUs does not appear to worsen or improve the occurrence of crime conflicts locally.

Curiously, LGUs with a great number of neighbors appear to have lower incidence of crime conflicts. For each ten additional neighbors the frequency of crime conflicts is fewer by about

two cases. LGUs with no physical neighbors (i.e., island LGUs) also appear to have lower crime incidence, after controlling for other factors.

The frequency of crime conflicts is also greater in cities by around 11 cases than in municipalities, in Cotabato City by around 14 cases than elsewhere, in Isabela City by around four cases than elsewhere, or in a provincial capital by around three cases than elsewhere.

As in the previous table, the OLS models account for a high proportion (65%) of the variations in the dependent variable. In contrast, the panel regression models account for less than 4% of the variations. All four models have statistically significant *F*-statistics, again indicating that their respective independent variables are not simultaneously equal to zero.

Table 3. Correlates of the incidence of violent conflicts

Independent variables	Pooled, cross-section		Panel data estimates	
	[1]	[2]	[3]	[4]
IRA real per capita	-0.076 (0.057)	-0.084 (0.060)	0.285 (0.244)	0.494 (0.359)
Poverty rate	0.044 (0.062)	0.027 (0.063)	0.142 (0.090)	0.123 (0.078)
Neighbors' total conflicts	0.075*** (0.020)		0.074*** (0.022)	
Neighbors' crime conflicts		0.060 (0.257)		0.154 (0.270)
Neighbors' governance conflicts		-0.239 (0.378)		-0.209 (0.344)
Neighbors' identity conflicts		-0.164 (0.254)		0.165 (0.235)
Neighbors' political conflicts		0.201 (0.194)		0.406 (0.312)
Neighbors' resource conflicts		0.162 (0.690)		-0.086 (0.789)
Neighbors' shadow conflicts		0.079 (0.169)		-0.113 (0.168)
Neighbors' other conflicts		0.119 (0.133)		0.129 (0.179)
If mayor is re-elected	0.666 (0.984)	0.610 (0.940)	0.853 (1.090)	1.315 (1.256)
Mayor and vice mayor are same clan	0.006 (1.475)	0.163 (1.445)	3.405 (2.707)	3.972 (2.710)
Mayor and congressman are same clan	3.363 (2.632)	3.138 (2.785)	-6.586 (4.658)	-5.967 (3.797)
Mayor and governor are same clan	-6.656** (2.593)	-6.306** (2.803)	3.707 (4.317)	4.117 (4.382)
Number of LGU neighbors	0.246 (0.380)	0.287 (0.548)		
Interior LGU	-3.582* (2.071)	-4.029* (2.319)		
Island LGU	-3.234 (2.429)	-2.623 (2.105)		

City	50.063*** (4.721)	49.320*** (5.579)		
Cotabato City	90.834*** (5.884)	90.907*** (7.043)		
Isabela City	-34.619*** (5.670)	-35.677*** (6.948)		
Provincial capital	37.070*** (3.880)	37.370*** (3.720)		
Basilan	1.770 (4.000)	0.313 (4.008)		
Tawi Tawi	-4.810 (3.164)	-5.456 (3.815)		
Sulu	-1.578 (3.732)	-2.132 (3.852)		
Lanao del Sur	-4.707*** (1.745)	-3.557 (2.542)		
Year 2012	-4.737 (3.123)	-4.839 (3.181)	-5.846* (3.328)	-5.327* (3.106)
Year 2013	-2.147 (2.326)	-2.101 (2.415)	-2.802 (2.611)	-2.155 (2.548)
Year 2014	2.233 (2.602)	2.853 (2.478)	1.006 (3.077)	1.741 (2.825)
Constant	8.336** (3.353)	9.095** (4.037)	-4.114 (7.731)	-9.425 (10.502)
LGU Fixed effects			YES	YES
No. of obs.	400	400	400	400
No. of groups	100	100	100	100
R-squared (overall)	0.721	0.723	0.0168	0.0279
F-statistic	12410.06	13340.32	3.65	3.3
Prob>F	0.000	0.000	0.000	0.000

Note: Figures in parentheses are robust standard errors adjusted for municipality-level clusters.

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

Table 4. Correlates of the incidence of crime conflicts

Independent variables	Pooled, cross-section		Panel data estimates	
	[1]	[2]	[3]	[4]
IRA real per capita	-0.011 (0.012)	-0.014 (0.012)	0.111 (0.067)	0.191 (0.134)
Poverty rate	0.014 (0.014)	0.015 (0.013)	0.034 (0.021)	0.027* (0.015)
Neighbors' total conflicts	0.016*** (0.004)		0.021*** (0.007)	
Neighbors' crime conflicts		0.082* (0.047)		0.099 (0.067)
Neighbors' governance conflicts		-0.049 (0.066)		-0.027 (0.073)
Neighbors' identity conflicts		0.015 (0.043)		0.030 (0.074)
Neighbors' political conflicts		0.052 (0.063)		0.120 (0.128)
Neighbors' resource conflicts		-0.090 (0.143)		-0.210 (0.184)
Neighbors' shadow conflicts		-0.023 (0.027)		-0.059 (0.044)

Neighbors' other conflicts		0.017 (0.028)		0.029 (0.039)
If mayor is re-elected	0.112 (0.209)	0.146 (0.198)	0.407 (0.392)	0.526 (0.446)
Mayor and vice mayor are same clan	0.105 (0.300)	0.076 (0.292)	0.645 (0.717)	0.769 (0.685)
Mayor and congressman are same clan	0.452 (0.416)	0.343 (0.452)	0.263 (0.288)	0.559 (0.574)
Mayor and governor are same clan	-0.623 (0.378)	-0.425 (0.392)	0.202 (0.882)	-0.059 (1.060)
Number of LGU neighbors	-0.167*** (0.058)	-0.183* (0.095)		
Interior LGU	-0.308 (0.347)	-0.359 (0.378)		
Island LGU	-0.329 (0.265)	-0.493* (0.294)		
City	11.257*** (0.331)	10.779*** (0.608)		
Cotabato City	13.846*** (0.581)	14.385*** (1.023)		
Isabela City	3.972*** (0.528)	4.076*** (0.817)		
Provincial capital	2.644*** (0.251)	2.611*** (0.289)		
Basilan	-0.312 (0.565)	-0.775 (0.710)		
Tawi Tawi	-0.434 (0.537)	-0.141 (0.612)		
Sulu	-0.631 (0.451)	-0.338 (0.493)		
Lanao del Sur	0.055 (0.280)	0.257 (0.503)		
Year 2012	-0.692 (0.643)	-0.769 (0.651)	-0.800 (0.684)	-0.664 (0.587)
Year 2013	-0.609 (0.545)	-0.643 (0.539)	-0.748 (0.614)	-0.557 (0.443)
Year 2014	0.441 (0.711)	0.404 (0.560)	-0.014 (0.881)	0.207 (0.589)
Constant	0.754 (0.707)	0.721 (0.729)	-3.301 (2.122)	-4.990 (3.582)
LGU fixed effects			YES	YES
No. of obs.	400	400	400	400
No. of groups	100	100	100	100
R-squared (overall)	0.649	0.657	0.0185	0.0309
F-statistic	160000	33426.21	5	4.47
Prob>F	0.000	0.000	0.000	0.000

Note: Figures in parentheses are robust standard errors adjusted for municipality-level clusters.

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

5.c Governance conflicts

As in the case of crime conflicts, the occurrence of governance-related violent conflicts does not appear to be related to the size of the IRA, the extent of poverty in the population, the mayor's re-election status, or the LGU being landlocked (i.e., interior LGU). It also does not appear to

vary systematically across years, after controlling for other factors. Similarly, the incidence of governance conflicts is greater in cities (by around one case) than in municipalities, in Cotabato City (by around nine cases), or in provincial capital (by around two cases) than elsewhere (Table 5).

While there is also evidence of spillover effects of violent conflicts between the locality and its neighbors, the direction for governance conflicts is unlike that for crime conflicts. Curiously, in this case, the contagion effect is negative and statistically significant. In particular, the local incidence is lower by about six cases for every 100 cases of governance conflicts in the neighboring jurisdictions.¹⁷ The same result is obtained with either estimation model.

In this case, there is also some evidence that the mayor's kinship ties with some other elected officials matter. In both columns [1] and [2], we find that the incidence is higher in LGUs where the mayor and congressman belong to the same clan, and lower in LGUs where the mayor and governor are kin. Unlike in the analysis of the incidence of crime conflicts, the analysis of frequency of governance conflicts shows that the *number of LGU neighbors* and *island LGU* are statistically insignificant. Here, we also find the incidence in Lanao del Sur to be systematically lower than in Maguindanao. However, there are no significant differences between Maguindanao and Basilan, Sulu or Tawi Tawi.

The OLS models still account for a fair proportion, but now less than half, of the variations in the dependent variable. In comparison, the panel data models account for less than 4% of the total variations. Nonetheless all four models have statistically significant *F* statistics.

5.d Identity conflicts

The incidence of violent conflicts among and between tribes, families and clans, and those emanating from religious, gender or racial differences appear to be less frequent as the fiscal transfers (IRA) or poverty rate increases, as shown in columns [1] and [2] in Table 6. After controlling for possible time-invariant unobserved factor, however, the *IRA real per capita* becomes statistically insignificant. Note that with panel regression model, *poverty rate* remains significant when the incidence of identity conflicts is regressed against *neighbors' total conflicts* (column [3]), but not when regressed against the indicators of incidence of different types of violent conflicts in the neighboring jurisdictions (column [4]). In this case, the incidence of identity conflicts appears correlated with the incidence of similar type of conflicts in the

¹⁷ This is derived by multiplying by 100 the estimated coefficient of neighbors' governance conflicts (i.e., $6 \approx 100 \times 0.056$).

surrounding LGUs. This suggests that inter- or intra-group violent struggles could easily cross borders, and perhaps more especially in poor districts comprising two or more LGUs.

There is no strong evidence that the occurrence of other types of violent conflicts in the neighboring LGUs affects the incidence of identity conflicts in a given LGU. The apparent negative effect of neighbors' political conflicts in column [3] washes out after controlling for a possible omitted factor (column [4]). Kinship ties between the incumbent mayor and other selected key local officials also appear to be inconsequential. The indicators of the mayor's clan affiliation are all statistically insignificant. Moreover, the number of LGU neighbors does not have any systematic effect. The variables *island LGUs* and *provincial capital* are both insignificant.

The incidence is lower by around one case for interior LGUs (relative to non-interior LGUs), by four cases in Isabela City (than elsewhere), and by around one in Tawi Tawi or Sulu (relative to Maguindanao). The incidence in Basilan or Lanao del Sur is not systematically different from that in Maguindanao. In general, the incidence in cities is greater by three cases than in municipalities. It is particularly higher in Cotabato City (by around three cases) than elsewhere.

Consistently across the four regression models, the incidence appears to be higher in 2014 than in 2011 (base year). The estimated coefficients of *Year 2014* range from 0.501 to 0.726, which are all significant at $p < 0.05$. The incidence in the election year (2013) does not systematically vary from that in 2011.

The OLS models account for about 40% of the variations in the incidence of identity conflicts. The panel data models account for less than 4% of the same. All models pass the *F* test.

5.e Political conflicts

Recall that the violent conflicts related to political issues pertain to both vertical conflicts and horizontal conflicts. Horizontal conflicts are armed challenges by a local group (e.g., separatist organizations) against the State, while vertical conflicts refer to violence arising from political (or electoral) competition or power struggles among groups or factions. Thus, the incidence of political conflicts may be correlated with specific group identity (e.g., ideology) or State-level characteristics (e.g., peace talks with selected groups, targeted military operations against others). Unfortunately, there is no available LGU-level data for these variables. Since they could vary across LGUs or years, their effects may not be adequately picked up by our fixed-effect estimator. This can be inferred from the results of the *F*-test in columns [3] and [4] in Table 7. These results indicate that regressors in the panel data models are likely to be jointly insignificant.

Notwithstanding the limitations of the explanatory variables used, there are a few regression results worth noting. First, there is evidence of spatial contagion: the occurrences of political conflicts in the reference LGU and in its neighbors are correlated. Second, it appears that mayors and governors who belong to the same clan are better at reducing the incidence of political conflicts (columns [1] and [2]), although possibly another factor correlated with this particular clan indicator could be the real cause (the coefficients are insignificant in columns [3] and [4]). Third, the incidence is higher in Cotabato City by around five-six cases than elsewhere, and lower in Lanao del Sur by around two cases than in Maguindanao. Fourth, the LGUs' main fiscal resources or the proportion of destitute constituent are not significant correlates. Fifth, other geographical features – having more neighbors, surrounded by land or water borders – also appear inconsequential. Last, there is no evidence of election cycle; the variations in the incidence of political conflicts across years are not systematic.

Of the total variations in the dependent variable, the OLS models account for about a third while the panel data models account for about 4–8%.

Table 5. Correlates of the incidence of governance conflicts

Independent variables	Pooled, cross-section		Panel data estimates	
	[1]	[2]	[3]	[4]
IRA real per capita	0.001 (0.005)	0.000 (0.005)	-0.070 (0.043)	-0.059 (0.043)
Poverty rate	0.006 (0.009)	0.003 (0.008)	0.013 (0.016)	0.009 (0.014)
Neighbors' total conflicts	0.004** (0.002)		0.001 (0.003)	
Neighbors' crime conflicts		-0.010 (0.028)		-0.006 (0.025)
Neighbors' governance conflicts		-0.056** (0.027)		-0.050* (0.025)
Neighbors' identity conflicts		-0.037 (0.027)		-0.033 (0.034)
Neighbors' political conflicts		0.030** (0.013)		0.018 (0.019)
Neighbors' resource conflicts		0.022 (0.046)		0.036 (0.056)
Neighbors' shadow conflicts		0.020 (0.019)		0.002 (0.023)
Neighbors' other conflicts		0.005 (0.016)		0.011 (0.026)
If mayor is re-elected	0.057 (0.158)	0.026 (0.147)	-0.165 (0.263)	-0.122 (0.254)
Mayor and vice mayor are same clan	-0.053 (0.084)	-0.004 (0.071)	-0.105 (0.118)	-0.032 (0.107)
Mayor and congressman are same clan	0.324*** (0.118)	0.284** (0.115)	-0.339 (0.455)	-0.355 (0.404)
Mayor and governor are same clan	-0.545*** (0.180)	-0.531** (0.201)	0.280 (0.437)	0.483 (0.637)

Number of LGU neighbors	0.006 (0.021)	0.021 (0.033)		
Interior LGU	0.092 (0.114)	-0.061 (0.110)		
Island LGU	-0.355 (0.214)	-0.153 (0.130)		
City	1.440*** (0.420)	1.336*** (0.445)		
Cotabato City	9.462*** (0.472)	9.373*** (0.498)		
Isabela City	0.095 (0.478)	-0.050 (0.459)		
Provincial capital	1.878*** (0.541)	1.933*** (0.461)		
Basilan	0.424 (0.279)	0.140 (0.248)		
Tawi Tawi	0.261 (0.307)	-0.049 (0.389)		
Sulu	0.621* (0.339)	0.302 (0.298)		
Lanao del Sur	-0.208** (0.089)	-0.063 (0.209)		
Year 2012	-0.482 (0.413)	-0.473 (0.429)	-0.689 (0.542)	-0.669 (0.541)
Year 2013	-0.336 (0.394)	-0.306 (0.426)	-0.512 (0.491)	-0.477 (0.513)
Year 2014	-0.192 (0.410)	-0.037 (0.406)	-0.190 (0.475)	-0.103 (0.473)
Constant	-0.080 (0.256)	0.175 (0.340)	1.639* (0.939)	1.495 (0.977)
LGU fixed effects			YES	YES
No. of obs.	400	400	400	400
No. of groups	100	100	100	100
R-squared (overall)	0.4235	0.4347	0.0156	0.035
F-statistic	13399.74	15474.79	2.83	2.5
Prob>F	0.000	0.000	0.004	0.003

Note: Figures in parentheses are robust standard errors adjusted for municipality-level clusters.

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

Table 6. Correlates of the incidence of identity conflicts

Independent variables	Pooled, cross-section		Panel data estimates	
	[1]	[2]	[3]	[4]
IRA real per capita	-0.026** (0.011)	-0.023** (0.010)	0.053 (0.034)	0.031 (0.031)
Poverty rate	-0.014** (0.007)	-0.012* (0.007)	-0.013* (0.007)	-0.006 (0.007)
Neighbors' total conflicts	0.000 (0.002)		0.001 (0.004)	
Neighbors' crime conflicts		-0.017 (0.017)		-0.009 (0.023)
Neighbors' governance conflicts		-0.012 (0.035)		-0.021 (0.039)
Neighbors' identity conflicts		0.022 (0.040)		0.087* (0.051)
Neighbors' political conflicts		-0.039**		-0.009

		(0.015)		(0.021)
Neighbors' resource conflicts		0.049		0.061
		(0.090)		(0.098)
Neighbors' shadow conflicts		0.011		0.006
		(0.011)		(0.021)
Neighbors' other conflicts		0.006		-0.003
		(0.010)		(0.012)
If mayor is re-elected	-0.170	-0.135	-0.101	-0.119
	(0.146)	(0.150)	(0.193)	(0.208)
Mayor and vice mayor are same clan	0.070	0.084	0.180	0.114
	(0.164)	(0.165)	(0.196)	(0.197)
Mayor and congressman are same clan	0.421	0.502	0.168	0.183
	(0.363)	(0.341)	(0.436)	(0.375)
Mayor and governor are same clan	-0.399	-0.435	-0.416	-0.244
	(0.306)	(0.262)	(0.366)	(0.358)
Number of LGU neighbors	0.075	0.080		
	(0.049)	(0.062)		
Interior LGU	-0.791**	-0.674**		
	(0.306)	(0.321)		
Island LGU	0.065	-0.028		
	(0.218)	(0.202)		
City	3.335**	3.752***		
	(1.292)	(1.043)		
Cotabato City	2.640*	2.139*		
	(1.345)	(1.115)		
Isabela City	-4.057***	-4.173***		
	(1.329)	(1.107)		
Provincial capital	0.493	0.488		
	(0.738)	(0.607)		
Basilan	-0.177	0.261		
	(0.453)	(0.454)		
Tawi Tawi	-1.522***	-1.451***		
	(0.394)	(0.434)		
Sulu	-1.159***	-0.960**		
	(0.358)	(0.389)		
Lanao del Sur	0.045	-0.167		
	(0.259)	(0.269)		
Year 2012	-0.294	-0.320*	-0.202	-0.250
	(0.181)	(0.174)	(0.172)	(0.171)
Year 2013	-0.091	-0.136	0.038	-0.029
	(0.195)	(0.185)	(0.195)	(0.194)
Year 2014	0.726***	0.568***	0.690***	0.501**
	(0.219)	(0.209)	(0.202)	(0.201)
Constant	2.511***	2.363***	0.402	0.417
	(0.524)	(0.564)	(0.850)	(0.892)
LGU fixed effects			YES	YES
No. of obs.	400	400	400	400
No. of groups	100	100	100	100
R-squared (overall)	0.3909	0.4129	0.0113	0.0412
F-statistic	2019.86	2202.45	2.9	2.39
Prob>F	0.000	0.000	0.003	0.005

Note: Figures in parentheses are robust standard errors adjusted for municipality-level clusters.

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

Table 7. Correlates of the incidence of political conflicts

Independent variables	Pooled, cross-section		Panel data estimates	
	[1]	[2]	[3]	[4]
IRA real per capita	0.003 (0.014)	-0.002 (0.013)	-0.084 (0.073)	-0.024 (0.079)
Poverty rate	0.016 (0.011)	0.004 (0.013)	0.010 (0.010)	0.001 (0.012)
Neighbors' total conflicts	0.014 (0.009)		0.010** (0.005)	
Neighbors' crime conflicts		0.039 (0.118)		0.046 (0.081)
Neighbors' governance conflicts		-0.035 (0.062)		-0.036 (0.045)
Neighbors' identity conflicts		-0.193* (0.109)		-0.032 (0.069)
Neighbors' political conflicts		0.073** (0.035)		0.095** (0.043)
Neighbors' resource conflicts		-0.075 (0.177)		0.093 (0.144)
Neighbors' shadow conflicts		0.043 (0.071)		0.001 (0.062)
Neighbors' other conflicts		-0.003 (0.021)		-0.020 (0.021)
If mayor is re-elected	-0.016 (0.364)	-0.134 (0.321)	-0.211 (0.261)	-0.086 (0.256)
Mayor and vice mayor are same clan	-0.493 (0.389)	-0.408 (0.363)	-0.041 (0.281)	0.128 (0.298)
Mayor and congressman are same clan	0.475 (0.514)	0.310 (0.417)	-3.997 (3.560)	-3.860 (3.138)
Mayor and governor are same clan	-1.367** (0.568)	-1.381** (0.689)	2.474 (2.517)	2.195 (2.405)
Number of LGU neighbors	0.232 (0.156)	0.367* (0.205)		
Interior LGU	0.667 (0.527)	0.079 (0.436)		
Island LGU	-0.707 (0.720)	-0.228 (0.471)		
City	0.902 (1.193)	0.177 (1.695)		
Cotabato City	5.158*** (1.546)	5.677** (2.163)		
Isabela City	-1.494 (1.297)	-0.972 (1.241)		
Provincial capital	1.322 (0.902)	1.422* (0.807)		
Basilan	2.252 (1.509)	1.445 (1.432)		
Tawi Tawi	0.346 (0.912)	-0.721 (1.101)		
Sulu	1.236 (1.118)	0.190 (1.116)		
Lanao del Sur	-1.853** (0.733)	-1.547** (0.756)		
Year 2012	-0.264 (0.272)	-0.291 (0.315)	-0.326 (0.326)	-0.149 (0.280)
Year 2013	-0.046 (0.378)	0.023 (0.390)	0.028 (0.281)	0.368 (0.296)

Year 2014	-0.623 (0.572)	-0.100 (0.668)	-0.316 (0.389)	0.123 (0.401)
Constant	-0.437 (0.986)	0.627 (1.107)	2.663* (1.580)	1.575 (1.486)
LGU fixed effects			YES	YES
No. of obs.	400	400	400	400
No. of groups	100	100	100	100
R-squared (overall)	0.3023	0.3477	0.0414	0.0833
F-statistic	404.36	594.48	2.25	1.4
Prob>F	0.000	0.000	0.021	0.156

Note: Figures in parentheses are robust standard errors adjusted for municipality-level clusters.

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

5.f Resource conflicts

Only a handful of the explanatory variables are significant correlates of the incidence of violent conflicts over ownership, use and control of land and other natural resources, gems, drugs, water, oil and gas due to business competition (Table 8). In particular, the cases of resource conflicts are higher in Cotabato City or provincial capitals than elsewhere. The incidence is lower in Lanao del Sur than in Maguindanao, and in 2013 than in 2011.

There is no evidence that the incidence is correlated with IRA, poverty rate, the mayor's re-election status or kinship ties with other selected elected officials. The island LGUs or interior LGUs are no more or less prone to experience frequent violent resource-based conflicts than other LGUs.

Contagion among neighbors does not seem to be a problem as well. The number of surrounding LGUs is also inconsequential. The incidence in cities (in general) or in Isabela City is not systematically different from that in other LGUs. There are also no statistically significant differences in incidence between Maguindanao and Basilan, Tawi Tawi or Sulu. Except in 2013, the incidence in 2012 or 2014 is not significantly different from that in 2011.

The OLS models explain about a fifth of the total variations in the incidence of resource conflicts. The panel data models, in contrast, explain less than 5% of the same. While we can reject the hypotheses that the regressors are simultaneously equal to zero in the case of the OLS models, we cannot reject the same in the case of the panel data models.

5.g Shadow economy conflicts

The regression analysis of the incidence of violent conflicts due to illicit or underground economic activities shows some interesting results. First, the incidence of shadow economy conflicts appears to increase with *IRA real per capita* and *poverty rate*, after controlling for

possible time-invariant omitted variable (columns [3] and [4]).¹⁸ Second, there is evidence of spatial externality; however, it is the neighbor's overall incidence of violent conflicts rather than that of any particular type of violent conflict that matters. This particular result appears consistently in both the OLS and panel data models. (Table 9)

There are also some results that are similar to those found for other types of conflicts. Specifically, the mayor's affinity with the governor is associated with two fewer cases of shadow conflicts (columns [1] and [2]); however, this association disappears after controlling for LGU fixed-effect. Further, cities and provincial capitals in general tend to have higher level of shadow conflict incidence. It is also worse by 15 cases in Cotabato City than elsewhere. Further, none of the other geographical indicators (*island LGUs, interior LGUs, number of LGU neighbors*) appear to be of consequence. There are also no systematic differences in the incidence between Maguindanao and any of the other ARMM provinces. Finally, the incidences in 2011 and 2013 or 2014 do not seem to be significantly different.

5.h Other conflicts

Recall that *other violent conflicts* refer to those with undetermined or unknown causes. The regression analysis of the incidence of other conflicts yields some results similar to that of the shadow conflicts. In particular, the incidence tends to increase with *IRA real per capita*, after controlling for possible omitted variable. Moreover, it likewise rises with the incidence of neighbors' total conflicts and it is not correlated with the incidence of any particular type of conflicts in neighboring jurisdictions. (Table 10)

Interestingly, the mayor's clan affiliation with the governor is negatively correlated with the incidence of shadow conflicts when panel data method is used, but no significant correlation is found when PLS method is used. This particular result is the exact opposite of what is found in the analysis of political conflicts and shadow conflicts where the OLS results show negative correlation but the panel data estimates yield no systematic correlation.

There are some results that are broadly similar to those reported in the above sections. Specifically, the incidence appears to be systematically lower in interior LGUs, Isabela City, Tawi Tawi or Lanao del Sur. It is systematically higher in cities, particularly Cotabato City, and the

¹⁸ According to field reports from the International Alert, it has been observed that some parties involved in shadow economies used their amassed wealth to finance their political candidacy, and, once elected use the fiscal resources of the local government to protect their operations in the shadow economy. This could explain the observed correlation between IRA real per capita and the incidence of shadow economy conflicts. I am grateful for this insight to Judy Gulane of International Alert. Also, see Lara, Jr. (2016).

provincial capitals. The mayor's re-election status or the number of surrounding LGUs does not appear to matter.

There are no systematic differences in the incidences in 2011 and 2012 or 2013. However, the incidence in 2014 is higher than that in 2011. The differences in incidence between Maguindanao and Basilan or Sulu are not statistically significant.

Of the total variations in the incidence of other conflicts, the OLS models explain about 73% while the panel data estimation explains less than 2%. All four regression models have statistically significant *F* statistics.

Table 8. Correlates of the incidence of resource conflicts

Independent variables	Pooled, cross-section		Panel data estimates	
	[1]	[2]	[3]	[4]
IRA real per capita	-0.002 (0.004)	-0.002 (0.004)	0.000 (0.014)	0.008 (0.021)
Poverty rate	0.003 (0.004)	0.002 (0.004)	0.007 (0.005)	0.006 (0.005)
Neighbors' total conflicts	0.001 (0.001)		0.001 (0.001)	
Neighbors' crime conflicts		0.003 (0.013)		-0.005 (0.013)
Neighbors' governance conflicts		0.002 (0.028)		-0.004 (0.028)
Neighbors' identity conflicts		-0.013 (0.016)		0.008 (0.015)
Neighbors' political conflicts		0.003 (0.011)		0.019 (0.019)
Neighbors' resource conflicts		0.015 (0.054)		0.025 (0.052)
Neighbors' shadow conflicts		-0.004 (0.006)		-0.003 (0.010)
Neighbors' other conflicts		0.003 (0.008)		0.002 (0.010)
If mayor is re-elected	-0.077 (0.070)	-0.078 (0.072)	0.002 (0.083)	0.025 (0.082)
Mayor and vice mayor are same clan	-0.048 (0.088)	-0.052 (0.090)	-0.038 (0.101)	-0.002 (0.112)
Mayor and congressman are same clan	0.065 (0.139)	0.059 (0.144)	-0.322 (0.324)	-0.312 (0.305)
Mayor and governor are same clan	-0.148 (0.131)	-0.131 (0.133)	0.349 (0.296)	0.361 (0.319)
Number of LGU neighbors	0.045 (0.031)	0.048 (0.041)		
Interior LGU	-0.006 (0.093)	-0.007 (0.094)		
Island LGU	0.042 (0.106)	0.047 (0.108)		
City	0.367 (0.234)	0.303 (0.236)		
Cotabato City	1.247*** (0.302)	1.329*** (0.328)		

Isabela City	-0.027 (0.283)	-0.043 (0.317)		
Provincial capital	0.350** (0.142)	0.369*** (0.136)		
Basilan	0.051 (0.192)	0.007 (0.214)		
Tawi Tawi	-0.235 (0.178)	-0.212 (0.220)		
Sulu	-0.183 (0.167)	-0.157 (0.215)		
Lanao del Sur	-0.414** (0.168)	-0.346* (0.186)		
Year 2012	-0.204 (0.149)	-0.209 (0.149)	-0.257 (0.166)	-0.213 (0.144)
Year 2013	-0.263** (0.131)	-0.255* (0.141)	-0.330** (0.148)	-0.280** (0.138)
Year 2014	0.028 (0.146)	0.054 (0.139)	-0.049 (0.165)	0.010 (0.140)
Constant	0.318 (0.246)	0.315 (0.268)	0.057 (0.411)	-0.206 (0.562)
LGU fixed effects			YES	YES
No. of obs.	400	400	400	400
No. of groups	100	100	100	100
R-squared (overall)	0.1974	0.2027	0.0211	0.045
F-statistic	905.61	1024.28	1.86	1.72
Prob>F	0.000	0.000	0.061	0.054

Note: Figures in parentheses are robust standard errors adjusted for municipality-level clusters.

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

Table 9. Correlates of the incidence of shadow economy conflicts

Independent variables	Pooled, cross-section		Panel data estimates	
	[1]	[2]	[3]	[4]
IRA real per capita	-0.023 (0.015)	-0.023 (0.015)	0.112* (0.065)	0.152* (0.088)
Poverty rate	0.021 (0.017)	0.018 (0.017)	0.046* (0.028)	0.043* (0.025)
Neighbors' total conflicts	0.017*** (0.005)		0.011* (0.007)	
Neighbors' crime conflicts		-0.053 (0.066)		0.015 (0.085)
Neighbors' governance conflicts		-0.068 (0.113)		-0.028 (0.105)
Neighbors' identity conflicts		0.030 (0.063)		0.048 (0.079)
Neighbors' political conflicts		0.054 (0.048)		0.075 (0.073)
Neighbors' resource conflicts		0.060 (0.155)		-0.115 (0.190)
Neighbors' shadow conflicts		0.047 (0.037)		-0.048 (0.051)
Neighbors' other conflicts		0.034 (0.041)		0.049 (0.049)
If mayor is re-elected	0.267 (0.265)	0.231 (0.239)	0.173 (0.343)	0.253 (0.379)
Mayor and vice mayor are same clan	0.271 (0.483)	0.343 (0.472)	1.436 (1.080)	1.542 (1.066)

Mayor and congressman are same clan	0.583 (0.734)	0.569 (0.769)	-0.847 (0.619)	-0.736 (0.618)
Mayor and governor are same clan	-1.627** (0.664)	-1.632** (0.718)	0.305 (0.735)	0.491 (1.038)
Number of LGU neighbors	-0.079 (0.081)	-0.130 (0.116)		
Interior LGU	-0.728 (0.596)	-0.751 (0.652)		
Island LGU	-1.073 (0.696)	-0.775 (0.596)		
City	11.154*** (1.152)	11.391*** (1.403)		
Cotabato City	15.001*** (1.539)	14.463*** (1.912)		
Isabela City	-17.762*** (1.420)	-18.496*** (1.871)		
Provincial capital	19.630*** (1.477)	19.677*** (1.346)		
Basilan	-0.041 (1.078)	-0.300 (1.110)		
Tawi Tawi	0.027 (0.836)	-0.221 (0.925)		
Sulu	0.971 (1.092)	0.620 (0.985)		
Lanao del Sur	-0.124 (0.355)	0.080 (0.602)		
Year 2012	-1.502* (0.839)	-1.434* (0.840)	-1.818* (0.968)	-1.717* (0.906)
Year 2013	-0.894 (0.732)	-0.877 (0.732)	-1.018 (0.869)	-0.978 (0.821)
Year 2014	0.341 (0.862)	0.489 (0.795)	0.125 (1.012)	0.171 (0.944)
Constant	0.756 (0.905)	0.850 (1.021)	-2.658 (2.027)	-3.820 (2.613)
LGU fixed effects			YES	YES
No. of obs.	400	400	400	400
No. of groups	100	100	100	100
R-squared (overall)	0.678	0.6809	0.0032	0.0003
F-statistic	8682.89	9173.51	3.43	2.87
Prob>F	0.000	0.000	0.001	0.001

Note: Figures in parentheses are robust standard errors adjusted for municipality-level clusters.

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

Table 10. Correlates of the incidence of other conflicts

Independent variables	Pooled, cross-section		Panel data estimates	
	[1]	[2]	[3]	[4]
IRA real per capita	-0.019 (0.023)	-0.019 (0.022)	0.164* (0.088)	0.195* (0.110)
Poverty rate	-0.002 (0.023)	-0.001 (0.023)	0.045 (0.028)	0.042 (0.026)
Neighbors' total conflicts	0.024*** (0.008)		0.028** (0.014)	
Neighbors' crime conflicts		0.016 (0.066)		0.014 (0.090)
Neighbors' governance conflicts		-0.021 (0.165)		-0.042 (0.166)

Neighbors' identity conflicts		0.013 (0.111)		0.056 (0.110)
Neighbors' political conflicts		0.027 (0.063)		0.087 (0.102)
Neighbors' resource conflicts		0.182 (0.306)		0.023 (0.337)
Neighbors' shadow conflicts		-0.015 (0.045)		-0.012 (0.062)
Neighbors' other conflicts		0.058 (0.051)		0.062 (0.063)
If mayor is re-elected	0.494 (0.473)	0.554 (0.499)	0.749 (0.678)	0.839 (0.777)
Mayor and vice mayor are same clan	0.154 (0.561)	0.124 (0.542)	1.327 (0.906)	1.453 (0.921)
Mayor and congressman are same clan	1.043 (1.361)	1.071 (1.379)	-1.511** (0.660)	-1.445** (0.719)
Mayor and governor are same clan	-1.947 (1.245)	-1.772 (1.301)	0.512 (1.311)	0.889 (1.421)
Number of LGU neighbors	0.134 (0.152)	0.083 (0.203)		
Interior LGU	-2.508** (1.074)	-2.257** (1.104)		
Island LGU	-0.878 (1.026)	-0.994 (0.963)		
City	21.607*** (4.279)	21.583*** (4.468)		
Cotabato City	43.481*** (4.511)	43.540*** (4.663)		
Isabela City	-15.345*** (4.519)	-16.019*** (4.875)		
Provincial capital	10.753*** (2.378)	10.870*** (2.400)		
Basilan	-0.426 (1.851)	-0.464 (1.849)		
Tawi Tawi	-3.254** (1.435)	-2.662* (1.572)		
Sulu	-2.433 (1.589)	-1.789 (1.627)		
Lanao del Sur	-2.208*** (0.690)	-1.771* (0.938)		
Year 2012	-1.299 (1.157)	-1.343 (1.169)	-1.755 (1.095)	-1.665 (1.017)
Year 2013	0.092 (0.759)	0.094 (0.776)	-0.261 (0.787)	-0.203 (0.784)
Year 2014	1.513** (0.755)	1.475* (0.744)	0.760 (0.872)	0.830 (0.861)
Constant	4.513*** (1.404)	4.043** (1.632)	-2.915 (2.974)	-3.896 (3.767)
LGU fixed effects			YES	YES
No. of obs.	400	400	400	400
No. of groups	100	100	100	100
R-squared (overall)	0.7285	0.7298	0.0084	0.018
F-statistic	20662.61	24158.79	2.6	2.41
Prob>F	0.000	0.000	0.008	0.004

Note: Figures in parentheses are robust standard errors adjusted for municipality-level clusters.

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

6. Correlates of the human costs

In this section, we show and discuss the regression results for the human costs of violent conflicts. For the analyses of the number of persons killed or persons injured, we present five regression results, of which two are OLS results (columns [1] and [2] in Tables 11 and 12) and three are panel data results (columns [3], [4] and [5] in Tables 11 and 12). The third panel data results include lagged variables indicating the numbers of injured persons and killed persons in the neighboring LGUs in the preceding year. The addition of the lagged variable will reveal whether spillover effects also happen across years (i.e., not only contemporaneously). This additional insight however comes at the cost of losing 100 observations (i.e., one for each of the LGUs) in our regression sample.

6.a Number of killed persons

Based on the OLS results, the statistically significant correlates of the number of persons killed due to violent conflicts are mostly geographic or administrative indicators. Specifically, we find that fatalities in cities are about 15 cases more than in municipalities. Also, Cotabato City registers around 69 deaths more than in other places in ARMM. In provincial capitals there are around 12 deaths more than in other LGUs. An additional neighbor is associated with about one more death in the locality. Nearly 50% of the variations in the number of deaths is explained by the OLS models. (Table 11)

Consistent with previous results, the number of fatalities is lower in Isabela City (by around 23 cases) than elsewhere in the region. It is also lower in Lanao del Sur by around six cases than in Maguindanao. While the figures on the fatalities due to violent conflicts in 2011 and 2013 or 2014 are not significantly different, that in 2012 appears significantly lower than that in 2011. The morbidity count also appears lower in LGUs where the mayor and governors are kin than in places where the two officials are not related.

The number of persons killed seems unrelated to the amount of fiscal transfers (*IRA real per capita*) or the proportion of destitute in the local population. There is also no strong evidence of contagion between neighbors or an effect by the re-election of the mayor to another term. The incidence of fatalities in Maguindanao does not appear different from that in Basilan, Tawi Tawi or Sulu.

The panel data results show fewer statistically significant covariates. The only variable that is significant in both the OLS and panel estimation models is *Year 2012*, which in both cases is negative although the panel estimate is slightly higher in absolute value. The surprising new

result in column [3] is that the *total human cost in neighbors* is positive and statistically significant. When this variable is replaced with *total killed persons in neighbors* and *total injured persons in neighbors*, neither one is significant (column [3]). All the other regressors in columns [2] and [3] are insignificant. However, the first two panel estimation models yield very low *F*-statistics. This means that the possibility of the coefficients in these models to be all equal to zero at the same time cannot be discounted.

Including the lagged variables in the panel estimation (column [5]) improves the value of the *F*-statistic (2.28) and its statistical significant ($p < 0.05$). With fewer observations ($N=300$), however, the standard errors of most the coefficients have become bigger. In this case only *Year 2014* is significant. It indicates that there are five more deaths in 2014 than in 2015, after controlling for other factors including a possible unobserved fixed-effect factor.

6.b Number of injured persons

The results of the regression analysis of the number of injured persons (Table 12) are broadly similar to that for the number of killed persons (Table 11). In particular, the OLS results show that the incidence of injuries is higher in Cotabato City (by 74 cases) than elsewhere in the region or in provincial capitals (by around 12 cases) than in other LGUs. There is an increase by one more case of injury in the locality for each additional LGU neighbor. The incidence in Lanao del Sur is lower by 4 cases than in Maguindanao. It is lower by up to 19 cases in Isabela City than in other places in the region. (Table 12)

Still, the mayor's re-election status as well as his or her clan affinity with the vice mayor or congressman appear immaterial. The mayor's affinity with the governor, however, is associated with the fewer number of injured persons (around 6-7 cases less).

The incidence in interior LGUs, island LGUs or cities is not systematically different from that in other LGUs. Whatever differences in the incidence that Maguindanao and Basilan, Sulu or Tawi Tawi might have, they are more likely to be random than systematic. Also, the temporal differences in the incidence are not systematic. The LGUs' fiscal transfers or poverty rate are also insignificant factors as far as the number of injuries resulting from violent conflicts is concerned.

The OLS models explain about a third of the total variations in the number of persons injured due to violent conflicts. They also have significant *F*-statistics. In comparison, the three panel data models yield much lower R^2 (less than 8%), and the first two models (without lagged variables) also yield insignificant *F*-statistics.

The low F -statistics is explained by the fact that none of the regressors in columns [3] and [4] is statistically significant. Note that this does not mean that the variables in the OLS models that were dropped due to collinearity with the fixed-effect indicator in the panel data models necessarily becomes unimportant correlates of the incidence of injuries due to violent conflicts. A more likely explanation is that those variables that lost their statistical significance in the panel data models were estimated with bias in the OLS models.

Interestingly, including lagged variables – *total killed persons in neighbors last year* and *total injured persons in neighbors last year* – in the panel data model improves the F -statistic (15.59, significant at $p < 0.00$) and overall fit ($R^2 = 0.072$). Moreover, we find in this case that the spillover effects may not be contemporaneous but possibly happen with a lag. While injuries due to violent conflicts in the surrounding LGUs may not immediately spill over to the locality, they will eventually (in a year's time at least). Save for this additional variable and the constant term, however, the regressors in the last panel data model remain statistically insignificant.

Table 11. Correlates of the total number of killed persons due to violent conflicts

Independent variables	Pooled cross-section		Panel data estimates		
	[1]	[2]	[3]	[4]	[5]
IRA real per capita	-0.039 (0.071)	-0.038 (0.071)	-0.159 (0.311)	-0.155 (0.303)	-0.696 (0.437)
Poverty rate	0.040 (0.049)	0.040 (0.049)	0.069 (0.049)	0.069 (0.049)	
Total human cost in neighbors	0.019 (0.015)		0.033** (0.014)		
Total killed persons in neighbors		0.032 (0.055)		0.038 (0.042)	0.071 (0.069)
Total injured persons in neighbors		0.010 (0.036)		0.030 (0.027)	0.001 (0.021)
Total killed persons in neighbors last year					-0.038 (0.338)
Total injured persons in neighbors last year					-0.075 (0.127)
If mayor is re-elected	-0.045 (1.563)	-0.053 (1.566)	-0.577 (0.857)	-0.584 (0.875)	-1.252 (1.113)
Mayor and vice mayor are same clan	-1.968 (1.897)	-1.987 (1.924)	0.099 (0.677)	0.084 (0.695)	-0.856 (1.063)
Mayor and congressman are same clan	1.218 (1.751)	1.262 (1.799)	-10.085 (7.266)	-10.054 (7.184)	-8.818 (7.080)
Mayor and governor are same clan	-5.673** (2.796)	-5.750** (2.864)	5.484 (5.684)	5.403 (5.617)	1.507 (7.805)
Number of LGU neighbors	1.400** (0.703)	1.367* (0.701)			
Interior LGU	-1.590 (1.508)	-1.502 (1.527)			
Island LGU	-2.063 (3.069)	-2.063 (3.067)			
City	15.254***	15.345***			

	(4.863)	(4.808)			
Cotabato City	69.003***	68.950***			
	(6.265)	(6.242)			
Isabela City	-22.504***	-22.622***			
	(5.564)	(5.739)			
Provincial capital	12.357***	12.391***			
	(3.732)	(3.732)			
Basilan	3.396	3.410			
	(5.505)	(5.529)			
Tawi Tawi	-1.391	-1.299			
	(3.258)	(3.367)			
Sulu	1.992	2.062			
	(4.555)	(4.629)			
Lanao del Sur	-5.816*	-5.764*			
	(3.276)	(3.312)			
Year 2012	-2.932**	-2.766*	-3.302**	-3.232**	
	(1.208)	(1.464)	(1.354)	(1.497)	
Year 2013	-1.126	-1.048	-1.086	-1.041	1.630
	(1.351)	(1.393)	(1.367)	(1.477)	(1.534)
Year 2014	1.990	1.959	1.962	1.955	5.276***
	(1.480)	(1.514)	(1.602)	(1.590)	(1.912)
Constant	2.757	2.591	6.231	6.091	19.038***
	(3.754)	(3.836)	(6.875)	(6.359)	(6.961)
LGU fixed effects			YES	YES	YES
No. of obs.	400	400	400	400	400
No. of groups	100	100	100	100	100
R-squared (overall)	0.4798	0.48	0.0608	0.0618	0.0128
F-statistic	3963.95	3606.97	1.62	1.5	2.28
Prob>F	0.000	0.000	0.1115	0.1443	0.0159

Note: Figures in parentheses are robust standard errors adjusted for municipality-level clusters.

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

Table 12. Correlates of the number of injured persons due to violent conflicts

Independent variables	Pooled cross-section		Panel data estimates		
	[1]	[2]	[3]	[4]	[5]
IRA real per capita	0.039 (0.101)	0.050 (0.098)	0.122 (0.248)	0.167 (0.301)	-0.003 (0.447)
Poverty rate	0.027 (0.070)	0.031 (0.070)	0.046 (0.043)	0.047 (0.042)	
Total human cost in neighbors	0.020 (0.018)		0.012 (0.022)		
Total killed persons in neighbors		0.129* (0.077)		0.075 (0.062)	0.075 (0.057)
Total injured persons in neighbors		-0.053 (0.048)		-0.022 (0.023)	-0.023 (0.023)
Total killed persons in neighbors last year					0.696 (0.571)
Total injured persons in neighbors last year					-0.370*** (0.083)
If mayor is re-elected	0.144 (1.919)	0.083 (1.889)	-0.463 (1.454)	-0.551 (1.415)	-0.511 (2.225)
Mayor and vice mayor are same clan	-1.787 (1.680)	-1.940 (1.757)	-0.901 (1.892)	-1.089 (1.884)	-2.004 (2.724)

Mayor and congressman are same clan	1.537 (2.208)	1.896 (2.127)	-28.551 (26.074)	-28.178 (25.781)	-34.849 (30.966)
Mayor and governor are same clan	-6.258* (3.318)	-6.90* (3.605)	18.433 (20.591)	17.432 (20.463)	18.678 (24.132)
Number of LGU neighbors	1.549* (0.899)	1.276 (0.800)			
Interior LGU	-1.643 (1.606)	-0.909 (1.772)			
Island LGU	-4.785 (4.051)	-4.789 (3.997)			
City	9.670 (7.353)	10.422 (6.913)			
Cotabato City	74.160*** (9.115)	73.722*** (8.811)			
Isabela City	-18.454** (7.316)	-19.432** (7.372)			
Provincial capital	12.368** (5.614)	12.658** (5.570)			
Basilan	11.852 (11.509)	11.973 (11.445)			
Tawi Tawi	0.876 (4.014)	1.647 (4.446)			
Sulu	6.451 (5.692)	7.032 (5.981)			
Lanao del Sur	-4.733** (2.043)	-4.302** (2.127)			
Year 2012	-0.253 (1.468)	1.129 (1.874)	-0.567 (1.661)	0.300 (1.508)	
Year 2013	-1.163 (1.907)	-0.509 (1.523)	-0.578 (1.449)	-0.019 (1.284)	1.557 (1.354)
Year 2014	0.819 (2.083)	0.562 (2.167)	1.429 (1.837)	1.343 (1.838)	1.662 (2.345)
Constant	-0.603 (5.242)	-1.981 (5.702)	3.935 (5.821)	2.201 (7.112)	6.981 (9.011)
LGU fixed effects			YES	YES	YES
No. of obs.	400	400	400	400	300
No. of groups	100	100	100	100	100
R-squared (overall)	0.3226	0.331	0.0012	0.0041	0.072
F-statistic	2519.74	2282.26	0.95	0.84	15.59
Prob>F	0.000	0.000	0.494	0.598	0.000

Note: Figures in parentheses are robust standard errors adjusted for municipality-level clusters.

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

7. Discussion and conclusion

Our regression results confirm a few working hypotheses, reject (or fail to provide evidence in support of) others, and yield some insights concerning the temporal and spatial coevolution of the incidence of violent conflicts and of their human costs in the ARMM cities and municipalities, Isabela City and Cotabato City during the period 2011-2014. True to the observations made in the more qualitative studies (e.g., Torres III, 2014), the conflicts in these areas are highly nuanced, varied, complex and intertwined, and whose successful resolutions would require special dispute resolution mechanisms. Notwithstanding the data limitations, our results point to some key variables that would help identify possible intervention points for policymakers, development practitioners, peace advocates, and other stakeholders.

First, the local governments' main revenue source – the internal revenue allocation (IRA) – is found to have neutral effect on the incidence of conflicts due to crime, governance issues, political issues or resource issues. However, it exhibits significant albeit contrasting correlation with two other types of conflict. On the one hand, it is negatively correlated with the incidence of identity conflicts. This result is consistent with anecdotal evidence that this fiscal resource is used to pay blood money by some local officials (mayors) to help settle *rido* conflicts among their constituents (Torres III, 2014). On the other hand, it is positively correlated with the incidence of violent conflicts in the shadow economy, which pertain to illicit or underground economic activities. Field reports from International Alert suggest that the correlation could be partly explained by the fact that some local officials use fiscal resources to promote or protect their involvement in the shadow economy. Another possible explanation is that population concentration is the one that drives the observed correlation between the IRA and the size shadow economy, although the latter may also be inversely related to how well the IRA is put to use. Given these contrasting results about the possible effects of the IRA, further investigation is needed on whether its amount or its usage that really matters to the occurrence of violent conflicts. Notwithstanding our limited understanding of the exact pathways by which the IRA influence the occurrence of violent disagreements, the results could serve as warning signs where identity or shadow conflicts might arise.

Second, poverty per se is not strongly correlated with the incidence of most types of violent conflicts. This is consistent with the point made in other studies poverty rate is less important than inequality as a predictor or correlate of conflicts (e.g., Brown and Stewart, 2015; Gudrum, 2007). Curiously, the influence of the poverty rate on the frequency of identity conflicts (negative) or on shadow conflicts (positive) is similar to that of the IRA. The correlation between poverty rate and the incidence of shadow economy conflicts is intuitive since underground economy is often larger in poor areas. Recall however that we have only two

poverty estimates per LGU due to the dearth of annual estimates. Effectively, these poverty figures also pick up possible omitted variables that are fixed for all LGUs in 2011 or in 2012-2013. Other proxy indicators of poverty or wealth or socioeconomic inequality of the local population can be used instead in future studies.

Third, there is evidence of spatial correlation of the incidence of violent conflicts. In particular, we find that in general a locality's overall incidence or its incidence of crime conflicts, governance conflicts, political conflicts or shadow conflicts is associated with the overall incidence in the neighboring LGUs. Some types of violent conflicts also appear spatially correlated. In the case of crime conflicts, the spillover effect is easily understood since criminals are not confined to only one locality. The co-incidence of political conflicts among adjacent LGUs is likely when same opposing clans contest the elective positions in these places. This result together with the finding that political conflicts are more frequent in LGUs with large number of neighbors underscore the violent nature of political competition in the Philippines. Interestingly, the occurrence of governance conflicts in a locality is negatively correlated with that of its neighbors, while the frequency of other types of conflicts is not especially sensitive to the number of neighboring jurisdictions. In sum, the spillover results further underscore the need to contain or manage violent conflicts where and when they arise to minimize their toll on both the locality and its neighbors.

Fourth, the mayor's re-election status or his or her kinship relations with the vice mayor or congressman (or congresswoman) is generally uncorrelated with the incidence of violent conflicts. There is some evidence however that governance conflicts tend to more frequent in places where the incumbent mayor and congressman are related by blood or marriage. Moreover, where the mayor and governor are kin, the overall incidence or the incidence of governance conflicts, political conflicts of shadow economy conflicts tends to be higher. That a mayor is elected or re-elected regardless of the peace and order situation in his or her jurisdiction suggests a weakness in governance institutions. For one, this means that the vote of the local constituents is hardly based on performance. For another, political candidates may be using force or intimation to secure their electoral success. That political clans generally appear neutral only indicates that they are everywhere (i.e., in areas with low, medium or high frequency of violent disagreements). That the incidence of political conflicts is lower when the mayor and the governor belong to the same clan could mean that their kinship ties enable the municipal and provincial governments coordinate in containing the occurrence and spread of violence. The same could also mean that dominant clan effectively quashes its political rivals

and the violence associated with clan competition for power.¹⁹ A policy-relevant question that is worth pursuing is whether its clan coordination or dominance that explains the lower incidence of governance or political conflicts.

Fifth, a number of geographic or administrative units appear important correlates of violent conflicts. The frequency of violent conflicts related to crime, governance, identity or shadow economy is likely to be higher in cities than in municipalities, in general, and in Cotabato City, in particular. They are also higher in provincial capitals. Interestingly, Isabela City seems to be safer or more peaceful than other LGUs in the region. In general, Lanao de Sur is also safer or more peaceful than Maguindanao, whose incidence is generally the same as that in Basilan, Sulu or Tawi Tawi. Landlocked LGUs also appear less prone to identity conflicts, whereas island municipalities generally are not more or less susceptible to violence than LGUs that share land borders with others.

Sixth, there is no strong evidence that the incidence of violent conflicts follow an election cycle. In general, the incidence fell from 2011 to 2012 and then rose again in 2013. However, the incidences in 2011 and 2013 or 2014 are indistinct from other another. With a longer time period, it may be possible to see whether a downward trend will happen on the year preceding an election year (i.e., 2015 and 2016).

Finally, the regression results for the human costs are broadly similar to those for the incidence of violent conflicts. This is perhaps expected since deaths and injuries constitute above 90% of the total human costs, Nonetheless there are few new or nuanced findings. First, it is the neighbors' total number deaths and injuries rather than that of deaths alone or injuries alone that is correlated with the total deaths or total injuries in a given locality. Second, the number of injuries in the neighboring jurisdictions has lagged and possibly negative effects on the incidence of the same in a given locality. Relative to municipalities, cities tend to have greater number of deaths but not of injuries. The frequency of deaths or injuries due to violent conflicts is not different between coastal towns and interior LGUs or island LGUs. However, they are both higher in Cotabato City and lower in Lanao del Sur than elsewhere. The number of deaths in 2012 was significantly lower than in any other year. In contrast, there no significant variations in the number of injuries across years.

In addition to those mentioned above, the study can be extended further for a deeper understanding of the causes and consequences of violent conflicts in ARMM. To identify the underlying causal relationships, better data are needed and other estimation methods can be applied. Among the required data are the missing socioeconomic and fiscal variables for the 20

¹⁹ Thanks to Adrian Morel for this insight.

ARMM LGUs excluded in our analysis. Recall that these excluded LGUs account for about 10% of the recorded violent conflicts, a substantial percentage that could yield additional insights on the issues addressed in this study. Moreover, the availability of similar conflict data for the non-ARMM provinces in Mindanao will allow us to investigate if violent conflicts are especially intense or confined in ARMM. Some case studies of *rido* conflicts reveal that the parties involved come from Maguindanao, Bukidnon and North Cotabato (Torres III, 2014). Further, indicators that capture the presence or extent of efforts by the national government, civil society organizations or donor institutions at building peace, improving local economies or securing peace and order in the region. Arguably, these efforts or initiative could vary across LGUs and across years, and therefore their effects are not adequately captured by the time-invariant, LGU-level, fixe-effects estimator used here. To the extent that these efforts or initiatives also cover a group of LGUs simultaneously, then they also influence the observed spatial correlation among neighbors. Consequently, adjusting the clustering of errors among neighbors may be necessary as well. However, these efforts or initiatives are unlikely to be randomly assigned to LGUs. This poses a challenge in estimating their impact on the incidence of violent conflicts or on their human costs. With baseline, midline or endline data for those included and excluded in these initiatives, it would be possible to identify their effects. Alternatively, instrumental variable methods may be employed. Identifying a suitable instrumental variable, however, is not easy.

Another potentially useful extension to the present study is to analyze the dynamics of violent conflicts. The BCMS reports the months of the incidence and their human costs. Thus, it may be possible to estimate the duration before the violent conflicts in one place spill over to another, thus providing the size of the window of opportunity for the authorities to prevent contagion. It can also determine whether a series of violent incidents in a given LGU are temporally related, indicating perhaps the gains that can be realized for quick, preemptive measures.

To conclude, the incidence of violent conflicts in ARMM is a complex web factors. Given their persistence and the gravity of their social costs, they must be contained, reduced and prevented. With the BCMS data, it is now possible to apply rigorous methods to the analysis of the causes and consequences of violent conflicts. In this paper, we have made an initial attempt to identify the important correlates of their incidence and their human costs. While the observed correlations are not causal relationships, they point directions for policy interventions or issues for further analysis.

References

- Abinales, P. N. (2000). *Making Mindanao: Cotabato and Davao in the formation of the Philippine nation-state*. Quezon City, Philippines: Ateneo de Manila University Press.
- Amoroso, D. J. (2005). "Inheriting the "Moro Problem": Muslim authority and colonial rule in British Malaya and the Philippines," in Go, J. and Foster, A.N. (eds.), *The American Colonial State in the Philippines, Global Perspectives*. Pasig City, Philippines: Anvil Publishing, Inc. pp. 118-147.
- Barro, R. (1991). Economic growth in a cross section of countries. *Quarterly Journal of Economics* 106(2):407-443.
- Brown, G. K. and F. Stewart (2015). Economic and political causes of conflict: An overview and some policy implications. CRISE Working Paper No. 81. Center for Research on Inequality, Human Security and Ethnicity. Queen Elizabeth House, University of Oxford, Oxford, UK. <http://www.crise.ox.ac.uk/>
- Collier, P. (2006). Economic causes of civil conflict and their implications for policy. Department of Economics, Oxford University.
- Collier, P. (2007). *The Bottom Billion: Why the poorest countries are falling and what can be done about it*. Oxford, UK: Oxford University Press.
- Collier, P. and M. Duponchel (2010). The economic legacy of civil war: Firm level evidence from Sierra Leone. UNU-WIDER Working Paper No. 2010/90. United Nations University – World Institute for Development Economics Research, Helsinki, Finland.
- Collier, P. and A. Hoeffler (2000). Greed and grievance in civil war. WB Policy Research Working Paper 2355. Washington, DC: The World Bank.
- Coronel, S. S., Y. T. Chua, L. Rimban and B. B. Cruz (2004). *The Rulemakers: How the wealthy and well-born dominate Congress*. Quezon City, Philippines: Philippine Center for Investigative Journalism.
- De Dios, E. (2007). "Local politics and local economy," in A.M. Balisacan and H. Hill (eds.), *The dynamics of regional development: The Philippines in East Asia*. Quezon City, Philippines: Ateneo de Manila University Press. pp. 157-203.
- Diokno, B. E. (2012). Fiscal decentralization after 20 years: What have we learned? Where do we go from here? *The Philippine Review of Economics* XLIX(1):9-26.
- Do, Q.-T. and L. Iyer (2010). Geography, poverty and conflict in Nepal. *Journal of Peace Research* 47(6):735-748.
- International Alert (2014). Rebellion, political violence and shadow crimes in the Bangsamoro: The Bangsamoro Conflict Monitoring System (BCMS), 2011-2013. <http://www.bcms-philippines.info/> Accessed 15 December 2015.
- Gleditsch, N. P., P. Wallensteen, M. Eriksson, M. Sollenberg and H. Strand (2002). Armed conflict 1946-2001: A new dataset.
- Gutierrez, E. (1994). *The ties that bind: A guide to family, business and other interests in the Ninth House of Representative*. Quezon City, Philippines: Philippine Center for Investigative Journalism and Institute for Popular Democracy.
- Kruezer, P. (2005). Political clans and violence in the Southern Philippines. PRIF Report No. 71. Peace Research Institute, Frankfurt, Germany.

- Lara, F. Jr. (2016). "The Shadow Economy and Strongman Rule in Mindanao", in Hutchcroft, P.D. (ed.), *Mindanao: The Long Journey to Peace and Prosperity*. Anvil Publishing, Inc.: Mandaluyong City, Philippines. pp. 242-273.
- Llanto, G. (2012). The assignment of functions and intergovernmental fiscal relations in the Philippines: 20 years after decentralization, *The Philippine Review of Economics* XLIX(1):37-80.
- Manski, C. F. (1993). Identification of endogenous social effect: The reflection problem. *Review of Economic Studies* 60(3):531-542.
- Mendoza, R. U., E. L. Beja, Jr., V. S. Venida and D. B. Yap (2012). Inequality in democracy: Insights from an empirical analysis of political dynasties in the 15th Philippine Congress, *Philippine Political Science Journal* 33(2):132-145.
- Molato, R. (2015). The economic cost of secessionist conflict in the Philippines. Max Planck Institute for Tax Law and Public Finance Working Paper 2015-05. Max Planck Institute for Tax Law and Public Finance, Marstallplatz 1, Munich, Germany. <http://www.tax.mpg.de>.
- Montillo-Burton, E., M. Matuan, G. Poingan and J. R. Alovera (2014). "Responses to interkin group conflict in Northern Mindanao," in. Torres III, W. M. (ed.), *Rido: Clan feuding and conflict management in Mindanao*. Quezon City, Philippines: Ateneo de Manila University Press. pp. 118-154.
- Monsod, T. C. (2016). "Human development in the Autonomous Region of Muslim Mindanao: Trends, Traps, and Immediate Challenges", in Hutchcroft, P.D. (ed.), *Mindanao: The Long Journey to Peace and Prosperity*. Anvil Publishing, Inc.: Mandaluyong City, Philippines. pp. 199-242.
- Murdoch, J. C. and T. Sandler (2004). Civil wars and economic growth: Spatial dispersion. *American Journal of Political Science* 48(1):138-151.
- Nelson, J. M. (1998). Poverty, inequality, and conflict in developing countries. Project on World Security. Rockefeller Brothers Fund, Inc. New York, USA. www.rbf.org/pws.
- Ostby, Gudrum (2007). Horizontal inequalities, political environment, and civil conflict: Evidence from 55 developing countries, 1986-2003. World Bank Policy Research Working Paper 4193. Washington, DC: The World Bank.
- Pettersson, T. and P. Wallensteen (2015). Armed conflicts, 1946-2014. *Journal of Peace Research* 52(4):536-550.
- Schiavo-Campo, S. and M. Judd (2005). The Mindanao conflict in the Philippines: Roots, costs, and potential peace dividend. Social Development Paper No. 24. Social Development Department, The World Bank.
- Ra, S. and B. Singh (2005). Measuring the economic costs of conflict. Working Paper Series No. 2. Nepal Resident Mission. Asian Development Bank.
- Revelli, F. (2005). On spatial public finance empirics. *International Tax and Public Finance* 12:475-492.
- Rivera, T. 1999. How fare the clans? Poverty and elite reproduction in the Philippines. Paper presented at the annual conference of the Philippine Political Science Association, 23-24 July, University of the Philippines, Diliman, Quezon City,
- Rivera, T. (2011). "In search of credible elections and parties: The Philippine paradox," in Miranda, F.B., T.C. Rivera, M.C. Ronas and R.D. Holmes, *Chasing the Wind: Assessing Philippine Democracy*. Quezon City, Philippines: Commission on Human Rights. Pp. 46-94.

- Torres, W. M. III (ed.) (2014). *Rido: Clan feuding and conflict management in Mindanao*. Quezon City, Philippines: Ateneo de Manila University Press.
- Vitug, M. D. and G. M. Gloria (2011). *Under the crescent moon: Rebellion in Mindanao*. Quezon City: Ateneo Center for Social Policy and Public Affairs and Institute for Popular Democracy.
- Collier, P., V. L. Elliott, H. Hegre, A. Hoeffler, M. Reynal-Querol and N. Sambanis (2003). *Breaking the conflict trap: Civil war and development policy*. Washington, DC: The World Bank.
- Wooldridge, J. (2002). *Econometric analysis of cross-section and panel data*. Cambridge, MA; The MIT Press.

Annex 1. Classification of violent conflicts

Classification	Definition
Extrajudicial crime/popular justice	Pertain to violent conflict triggered by cases of robbery, rape and damage to properties. They also include cases of domestic violence, sexual indiscretion and slander.
Governance issues	Pertain to violent competitions for government resources and rents, including conflicts associated with bidding processes and other government related transactions. They also include violence associated with government development projects.
Identity issues	Pertain to violence arising from inter- and intra-ethnic and tribal identities, violent struggles between and among families and clans, including violence emanating from gender differences and racial and religious tensions. The category includes cases of violence arising from honour (maratabat) issues.
Political issues	Pertain separatist or non-separatist armed challenges against the State (vertical); violence emanating from political (electoral) competition, abuse of power and authority or political repression, and violent struggles between rival insurgent groups or factions for politico-military influence and control (horizontal). This category also includes violent power struggles among mainstream political parties, tribal leaders and indigenous authorities.
Resource issues	Pertain to conflict over ownership, utilisation, and control of land and other natural resources, including “lootable” resources such as gems and “nonlootable” resources such as water, oil, and gas, including violent business competition. All cases of violence associated with land are included in this category.
Shadow economy issues	Pertain mainly to conflict emanating from the illicit or underground economies of Mindanao. In particular, the production and trade of illicit guns and drugs; kidnap for ransom; cattle rustling; and smuggling. They include violent conflict from illegal gambling, human trafficking and pyramiding scams.
Others	Undetermined

Source: Bangsamoro Conflict Monitoring System.