

***Does Violent Conflict Make Chronic Poverty More Likely?
The Mindanao Experience***

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Abstract

This paper investigates whether provinces with violent conflict are more likely to experience higher rates of chronic poverty. The location of conflict areas in Mindanao was derived from Barandiaran (2002), while conflict intensity, defined as the annual number of battle-related deaths, was obtained from Gleditsch et al (2002). Following the findings of Jalan and Ravallion (1998) that education and health outcomes are key determinants of chronic poverty, the Human Development Index (HDI) and the Quality of Life Index (QLI) are used as proxy variables for chronic poverty. The HDI is a composite index of life expectancy, functional literacy, and real per capita income. The QLI is a composite index of number of births attended by a medical professional, under-five nutrition, and elementary cohort survival rate. T-tests of means for HDI and QLI were performed, comparing provinces with conflict and provinces without conflict. Results show that provinces experiencing conflict have significantly lower HDI outcomes relative to provinces that did not experience conflict. Pooled results for the QLI also show that a statistically significant difference between the means of provinces with and without conflict exists.

Key Words: Chronic poverty, violent conflict, civil war, Mindanao

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1. Introduction?

Areas overrun by violent conflict have experienced staggering effects on societal welfare and will continue to reap losses in the long term (Mehlum and Moene, 2002; WHO, 2002). Project Ploughshares reports that more than 80 percent of the 40 wars in 1999 occurred in countries at the bottom half of the UNDP Human Development Index (HDI) rankings. The effect of the loss of lives and destruction of economic-social infrastructure is so massive that a deeper understanding of the impact of conflict cannot be emphasized more.

Anecdotal evidence of violent conflict resulting in poverty is indeed compelling and raises the stakes in embarking on more rigorous research. Still, there has been a dire lack of empirical inquiry into the causal relationship between violent conflict and poverty (Goodhand, 2001). Specifically, research attention increasingly focused on chronic poverty has not resulted in empirical testing of violent conflict as a factor that makes chronic poverty more likely. This paper attempts to be one of the first steps in filling this research gap.

The chronic poor are those who experience significant deprivations over a long period of time and whose deprivation is passed onto the next generation (Hulme, 2002). They are also least able to benefit from the “trickle-down” effect of economic growth (Reyes, 2002b; Hulme, 2002). Thus, more than mere growth-enhancing strategies, active anti-poverty interventions are also necessary to allow these groups to extricate themselves from poverty and participate in the opportunities offered by growth. On the other hand, following the Correlates of War (COW) datasets (Sarkees and Singer, 2001) and Gleditsch et al (2002), violent conflict in this paper is defined as civil war where there is sustained combat between the armed forces of the government and forces of at least another entity. The result of the armed conflict is *at least 25* battle-related deaths.

A wealth of insight can be derived from the empirical analysis of violent conflict and chronic poverty, as distinct from transient poverty. This distinction has important policy implications because in the context of an ongoing conflict, interventions needed by the chronic poor may be different from those needed by the transient poor (Reyes, 2002b). Moreover, a refinement of targeting criteria for both groups has budget implications, increasing the efficiency of each peso spent on anti-poverty programs.

Within the Philippines, evidence shows that Mindanao is wracked both by conflict as well as chronic poverty. Reyes (2002b) reports that three of the five administrative regions in Mindanao¹ -- ARMM, Central Mindanao and Northern Mindanao -- have the highest incidences of chronic poverty in the country. Although the consequences of strife are deemed serious, poverty is often thought of as the larger issue underlying the war in

[?] The views expressed in this paper are those of the authors, and should not be attributed to the respective institutions.

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¹ Regional breakdown of Mindanao in the study by Reyes (2002) does not include Region 13, the CARAGA Administrative Region, which was officially created in 1995. Provinces under CARAGA were previously from Regions 10 and 11.

Mindanao. Poverty as causing conflict is therefore often invoked in formulating policy priorities. Understandably, although far from ideal, the consensus in the literature that poverty makes civil war more likely and that civil war worsens poverty (Humphreys, 2002), has not spawned efforts to go further and quantify measures. There is serious need for rigorous investigations of the dynamics involved in conflict-driven poverty impacts on an extended duration of time. Most poverty studies carried out on Mindanao are assessments of poverty and human development indicators, socio-economic and targeted poverty alleviation programs (Reyes, 2002b; Adriano and Adriano, 2001).

1.1 Objective of the Study

This paper investigates whether provinces with violent conflict are more likely to experience chronic poverty in Mindanao. This study belongs to the group of literature that investigates the socio-economic costs of ongoing conflict. However, rather than output loss (Elbadawi, 1999; Murdoch and Sandler, 2001; Abadie and Gardeazabal, 2001; Barandiaran, 2002), cost is defined here as the permanent deterioration of household welfare, or chronic poverty. The emphasis on chronic poverty is based on the recognition that chronic poverty is an urgent concern, especially in the case where the experience of conflict has likewise been chronic.

The analysis covers the period 1988 to 2000, while violent conflict in Mindanao has been ongoing with various degrees of intensity since the 1970s. The key premise is that violent conflict is a shock to the provincial economy, which affects consumption and welfare of the households through the erosion of resources. Thus, violent conflict may contribute to both transient and chronic poverty. Transient poverty is affected at the onset of the shock, while chronic poverty is affected once adjustment to the shock is complete and households have reevaluated their permanent consumption at a lower level.

The study is similar in its objective and method to the paper by Davis and Kuritsky (2001), which looked at the effect of violent conflict on indicators of public health in sub-Saharan Africa between 1980 and 1997. Using t-tests of means and cross-country time-series regression, they find evidence that violent conflict is negatively correlated with public health measures. Similarly, we analyze a set of dependent variables to confirm the linkage between conflict and chronic poverty. These variables are welfare indices, access to social services, health and education outcomes, and poverty and subsistence incidence.

1.2 Limitations

One major constraint in the analysis is the unavailability of more detailed conflict data. Data on conflict intensity is based on annual battle-related deaths categorized into three intensity levels: minor, intermediate and war. However, violent encounters need not always result in deaths, despite a high degree of tension. Also, credible threats of violence are likely to affect expectations and behavior even without the casualties.

In addition, it is assumed that the conflict occurs in the same provinces over the entire period. While Barandiaran (2002) confirms that the conflict has been restricted to Southwestern Mindanao, the intensity of conflict may have been concentrated in different locations within this area, causing differences in the experience of conflict even within the “conflict group” of provinces.

Because of their dynamic nature, summary poverty measures are disaggregated into their chronic and transient components using panel household datasets (Reyes, 2002; Jalan and Ravallion, 1998). However, estimates of the incidence of chronic and transient poverty are only available for the regional level and not for the provincial level. Instead, the analysis depends on proxy variables for chronic poverty. Our options for proxy variables are also limited because not many variables are available at the provincial level.

Although the study attempts to verify the social cost imposed by the ongoing Mindanao conflict to chronic poverty, it cannot show the direction of causality. Our results can only identify where the links exist or are significant. It also fails to take account of negative spillovers to the peaceful provinces in Mindanao. Despite these limitations, insights from the analysis are expected to contribute to the understanding of chronic poverty in Mindanao, and provide direction for further research.

The paper is organized as follows: Section Two provides a brief background on the Mindanao conflict; Section Three lays out the theoretical framework used to analyze the link between violent conflict and chronic poverty; Section Four describes the data and methodology; Section Five reports the empirical findings; Section Six concludes, and identifies implications for policy and further research areas.

2. Background on the Mindanao Conflict

Mindanao is composed of 25 provinces, of which 13 are considered conflict areas in this study. Among the provinces in the conflict group, 4 provinces officially constitute Muslim Mindanao— Sulu, Tawi-Tawi, Lanao Del Sur and Maguindanao. Three culturally distinct groups make up the population of Mindanao. Christians form the majority with a 75% share of the population. The Christian population is a result of the waves of migration that occurred from 1913-1970s. Muslims and Lumads respectively constitute 20% and 5% of the population. Muslim Filipinos refer to the Islamized indigenous people and are generally known as Moros. Lumads on the other hand are also referred to as the Indigenous Cultural Communities of Mindanao. There are at least 18 of these communities exhibiting distinct ethno-linguistic characteristics (Rodil et. al., 2002).

The Philippines has experienced and continues to experience armed conflict in various regions. However, the seat of long-standing concentrated violent conflict is in Mindanao, particularly in the Muslim regions. The distinguishing characteristic of violent conflict in Mindanao is that it corresponds with the island’s “separation” from the rest of the Philippines in a historical, political, and socio-economic context. Mindanao was a bed of

resistance during colonial rule and is thought to have been unconquered in colonial history. Military history attests to the remarkable centuries-long resistance against colonial rule. Understandably, although migration built up the Christian population, cultural integration was not as intense and broad as in Luzon and Visayas. This explains the distinct heritage in Mindanao. In terms of political disenfranchisement, voice and representation are apparently weak and Mindanao has been perceived to be at the receiving end of top down decisions made in the country’s North. Administration of social services is poor, reflecting the government’s bias against the island group. Further, not many individuals from Mindanao, particularly Muslims, have wielded political influence and prominence. In terms of socio-economic affairs, Mindanao and particularly Muslim Mindanao consistently figured at the bottom of welfare measures.

Tables 1 and 2 report the bottom ten provinces for the Human Development Index (HDI) and the Quality of Life Index (QLI) rankings in 1997, and their previous ranking in 1994. Note that majority of the provinces with the lowest HDI and QLI for 1997 were located in Mindanao.

Table 1: Bottom 10 Provinces in HDI 1997

		1994 Ranking
10	Masbate	7
9	Northern Samar	9
8	Agusan del Sur	8
7	Lanao del Norte	12
6	Ifugao	3
5	Basilan	5
4	Lanao del Sur	6
3	Maguindanao	4
2	Tawi-tawi	2
1	Sulu	1

Source: *Philippine Human Development Report 2000*.
 Note: Provinces in boldface are located in Mindanao.

Table 2: Bottom 10 Provinces in QLI 1997

		1994 Ranking
10	Masbate	5
9	Davao del Sur	28
8	Agusan del Sur	12
7	Bukidnon	3
6	Capiz	6
5	Maguindanao	18
4	Northern Samar	7
3	Biliran	8
2	Sulu	4
1	Basilan	1

Source: www.aer.ph
 Note: Provinces in boldface are located in Mindanao.

With deteriorating socio-economic conditions, chances for mobility for Moros are likewise diminishing. Government development plans are regularly drawn up to address the multi-faceted problem in Mindanao but what remains lamentable is the administration’s inability to meet the needs of the Muslim community. This state of affairs, accompanied by the exploitation of the conflict by external parties (i.e. terrorist groups) as well as the lingering anti-Moro proclivities, have strengthened sentiments for independence. However, aspirations for Mindanao independence are nothing new. In the past century alone, independence sentiments were expressed in 1910 regarding the isolation imperative for business development. It was again put forward in 1930 regarding Moro preference to be excluded in “Philippine independence” which entailed “Filipino rule” over them. A turning point was seen in 1970, when Datu Matalam of the

MIM², Robert Canoy from Cagayan de Oro, and Nur Misuari of the MNLF³, gave the struggle for independence a concrete voice. The MNLF was able to secure a compromise agreement in 1976 in the form of the Tripoli Agreement, which called for a comprehensive representation of the Filipino Muslim community. The policy implications were not radical enough for some Moro stalwarts and this led to the emergence of the MILF⁴ headed by Hashim Salamat. Through the long and arduous struggle, what cannot be ignored is that independence sentiments underpin the notion of autonomy, despite differences, and all social action of Moro communities (Tan, 2000). It is noteworthy that the inability of the administration to understand the needs of the Moros in this context increases the chances of conflict being more protracted.

According to Barandiaran's (2002) historical account, the Mindanao conflict erupted in 1970 with the rebellion of the Moros against the pressure of the large migration from Luzon and Visayas. Although this event is seen by some scholars to have triggered violent conflict in the region, this paper emphasizes that the rebellion was a complex reaction to the decades of socio-economic deterioration suffered by Moros and Lumads, which also included displacement from their traditional areas into a few areas of Southwestern Mindanao. The MNLF reportedly lost the war in 1982, and a final settlement of the conflict was explored in the succeeding years until 1996.

After the war, demands for reconstruction and development were unattended for several years. However, political conditions shifted substantially in the 1980s, when the Filipino constituency of Southwestern Mindanao became too large to be ignored by politicians. This constituency started demanding infrastructure and social services so that between 1993-97, they were the largest beneficiaries of government programs, including large investments for transportation, communications, energy, irrigation, health care and education services.

The GRP⁵-MNLF Peace Agreement of September 1996 concluded the long negotiations during the Ramos administration. However, it failed to settle the issues of political autonomy and mobilization of resources, resulting in a breakdown of the negotiations. Although there was no war, political tension during this period was volatile, punctuated by violent encounters and negotiated cease-fires.

By the end of 1997, the East Asian crisis and the *El Niño* were slowing down economic growth, forcing the government to scale down development programs in Southwestern Mindanao. In the last five years, the conflict was aggravated significantly, with tension escalating into war in 2000 and causing casualties of over 1,000. Over the last 32 years, the Mindanao conflict has resulted in an estimated 120,000 casualties. (Barandiaran, 2002)

² Mindanao Independence Movement (MIM)

³ Moro National Liberation Front (MNLF)

⁴ Moro Islamic Liberation Front (MILF)

⁵ Government of the Republic of the Philippines (GRP)

3. Theoretical Framework

In identifying the cost of the ongoing Mindanao conflict on human deprivation, the key variable of interest is individual or household welfare⁶. Welfare indices such as the Human Development Index (HDI) and the Quality of Life Index (QLI) attempt to quantify welfare outcomes directly.

Alternatively, welfare may be measured indirectly by analyzing consumption levels. This assumes that the state of well-being results from the consumption of goods and services. Poverty is typically measured by comparing actual consumption levels to a standard poverty line, which is constructed using objective criteria such as caloric intake or minimum basic needs. Chronic poverty may then be analyzed within the framework of prolonged material deprivation or consumption inadequacy.

As in standard consumption theory, individuals or households choose their levels of consumption by maximizing utility subject to their expected lifetime resources⁷. Resources here may be broadly defined to include not only income and personal assets, but also human capital, social capital/institutions, and publicly provided goods and services such as social services and infrastructure. However, we must qualify that the mere existence of public goods and services need not result to welfare for poor households. Public resources translate to welfare only to the extent that households are able to access these resources.

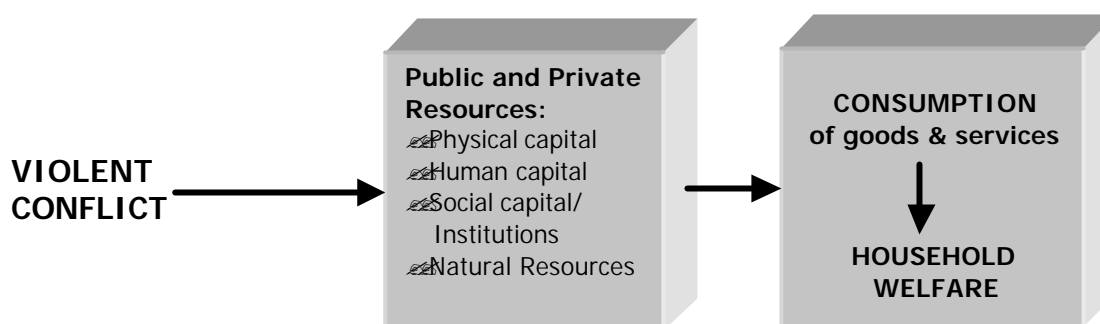
Aggregate poverty is defined as the sum of two components: the transient and the chronic components (Jalan and Ravallion, 1998). Transient poverty results from the variability of consumption, while chronic poverty results from low average consumption over the period. Reyes (2002b) applied this definition in her estimates of regional chronic and transient poverty for the Philippines. She identifies the chronically poor as the households whose expenditures consistently lie below the poverty line in all observation years. Conversely, she identifies the transitorily poor as households whose consumption fell below the poverty line in at least one observation year.

Violent conflict is interpreted as a shock resulting in a drain on resources through various channels as described by Collier (1999). Some resources are destroyed, e.g. part of the labor force is maimed and killed, infrastructure such as bridges or key communications facilities may be destroyed. Achieving the same outcomes may entail higher transactions costs due to insecurity of property rights and difficulty of enforcing contracts. Public expenditures may be diverted from output-enhancing activities to military expenditures. Private agents may shift their assets out of the country (or region) resulting to an exodus of factor endowments.

⁶ While it may be ideal to analyze individual welfare, we are limited by household-level survey data.

⁷ See Romer (2001: 337-339) for a mathematical exposition of consumption under uncertainty.

Figure 1: A Simple Framework



This negative shock on resources causes consumption variability as agents adjust their consumption levels. The initial change in consumption will cause some households to fall below the poverty line. This increase in aggregate poverty may be interpreted as coming from the increase in the transient component of the poverty measure. However, once the adjustment has been completed, consumption levels may be permanently lower as expected resources spread over remaining lifetimes become lower due to the negative shock. Thus, after the adjustment has been made, only the impact on the chronic component of aggregate poverty remains.

In the case of Mindanao, conflict has been ongoing since the 1970s, and has been confined in certain locations. One might say that in the last decade, conflict in Mindanao is no longer a shock, but a permanent phenomenon over the medium-term from the point of view of households. However, whether or not this is true will depend on the exact location of violent encounters, and the length of time between encounters. It is likely that the intensity of the conflict varies greatly within the provinces of Southwestern Mindanao. Also, it is difficult to determine how households form expectations regarding the duration of the conflict.

For example, Barandiaran (2002) divides the Mindanao conflict into three periods: war from 1970 to 1982, low tension from 1983 to 1996, and high tension leading to war from 1997 to 2001. He argues that the aggravation of the conflict in the last period may be treated as a new shock to the economy.

In this paper, conflict is treated as an ongoing phenomenon. Lack of detailed data on conflict and panel data for households prevent us from investigating the adjustment mechanisms of households more closely. Instead of disaggregating the impact of conflict on poverty's transient and chronic components, we limit our analysis to variables highly correlated to chronic poverty.

4. Data and Methodology

To avoid data problems from regional re-classifications, provincial-level data was used. Barandiaran (2002) reports that the Mindanao conflict has been confined in Southwestern Mindanao, an area composed of three administrative regions, IX-Western Mindanao, XII-Central Mindanao, ARMM⁸ (Autonomous Region of Muslim Mindanao), and four provinces in XI-Southern Mindanao (Davao Del Sur, South Cotobato, Sarangani and Sultan Kudarat). Given this information, conflict is assumed to have occurred in the areas identified, while the remaining provinces were assumed to be at peace.

Gleditsch, et al (2002) defines armed conflict as a contested incompatibility that concerns government or territory or both where the use of armed force between the two parties result in at least 25 battle-related deaths. Of the two parties, at least one is the government of a state. Under the territory of Mindanao, Gleditsch et al (2002) enumerate armed conflicts between the Philippine Government and the MNLF, MILF⁹, and Abu Sayyaf. Each conflict year between 1972-2000 was classified as minor, intermediate or war. The categories are defined as follows:

- ✍ Minor armed conflict – at least 25 battle-related deaths per year and fewer than 1,000 battle-related deaths during the course of the conflict;
- ✍ Intermediate armed conflict – at least 25 battle-related deaths per year and an accumulated total of at least 1,000 deaths, but fewer than 1,000 in any given year;
- ✍ War – at least 1,000 battle-related deaths per year.

A simple method of investigating the relationship between violent conflict and chronic poverty is the difference of means test. We compare provinces with and without conflict using various measures of resources and welfare covering the period 1988 to 2000. Following Barandiaran (2002), Figure 2 depicts the provincial groupings, and Table 3 summarizes dependent variables and data sources. Majority of the data was available only for several years in the 1990s.

Gleditsch (2002) reports that the years 1989 to 1993 were non-conflict years with less than 25 battle-related deaths. Years 1994 to 1999 were classified as intermediate conflict, while year 2000 was classified as war. However, in our analysis, we assumed conflict to be ongoing for the entire period in the conflict provinces for simplicity. We find that treating years 1989 to 1993 as non-conflict years does not change our results significantly.

The key variables of interest are the Human Development Index (HDI) and the Quality of Life Index (QLI), which we use as proxy variables for chronic poverty. This follows from recent findings by Jalan and Ravallion (1998) that health and education outcomes are key determinants of chronic poverty. The HDI is a composite index of life expectancy,

⁸ The Autonomous Region of Muslim Mindanao (ARMM) was created in 1990. ARMM is the only region in the Philippines where Muslims comprise a majority in all of its four provinces.

⁹ Moro Islamic Liberation Front (MILF).

functional literacy, and real per capita income. The QLI is a composite index of number of births attended by a medical professional, under-five nutrition, and elementary cohort survival rate. HDI values are available for 1990, 1994, and 1997. QLI values are available for 1991, 1994, 1997, and 1999.

In addition, we include resource variables relating to human capital and access to social services. We included four health indicators from the Department of Health: access to potable water (1994, 1997, 1998, and 1999), access to sanitary toilets (1994, 1997, 1998, 1999), number of rural health units per 100,000 population (1996), and total hospital bed capacity per 100,000 population (1996). Two education indicators from the Department of Education are included: elementary cohort survival rate (1991, 1995, 1998, 2000) and functional literacy (1994).

Although poverty and food subsistence incidence reflect both chronic and transient components, we also included these indicators for comparison. We expect that these indicators may reflect various risks that translate to movements in the transient component, in addition to any impact violent conflict might have on the chronic component. Poverty incidence (1988, 1991, 1994, 1997, 1998, 2000) and food subsistence incidence (1994, 1997, 1998) are simple head-count measures obtained from the National Statistical Coordination Board (NSCB). Subsistence incidence is based on a lower poverty threshold that excludes non-food expenditures.

We performed tests for each available year. Because of our small sample, we also averaged data for all years. For example, we report HDI results for 1990, 1994, and 1997, as well as outcomes based on average HDI for 1990-1997. Results for the difference of means tests are summarized in Tables 4-6.

5. Findings

Pooled results reveal that significant differences for HDI and QLI exist between provinces in conflict and those that are not. Provinces with conflict had mean HDI that is .07 lower and mean QLI that is .04 lower compared with the peaceful group. Yearly results for HDI are all significant as well, the conflict group faring worse than the peaceful group. For QLI, only 1997 had a significant difference at a 95 percent confidence level; 1999 was significant at a 94 percent level. No significant disparity existed for other years.

Based on pooled data, access to potable water and access to sanitary toilets are 14 percent and 20 percent less, respectively, for residents of conflict provinces. Save for 1999, none of the yearly tests revealed significant differences in these variables. The remaining health indicators, number of rural health units and total hospital bed capacity, are only available for one year (1996). They do not display significant differences in means.

A similar pattern of results exists for our two education indicators. Elementary cohort survival rate (pooled) is 9.7 percent lower for conflict provinces. For individual years,

only 2000 shows a significant difference (13.3 percent). We also find that the functional literacy rate is 13.7 percent lower for conflict provinces, though data is only available for 1994.

Contrary to findings for HDI and QLI, poverty incidence and subsistence incidence were not significantly different in conflict and non-conflict provinces. This is true for both yearly and pooled tests.

To summarize, HDI is significant for all years, while QLI follows the same pattern of results as other health and education indicators: pooled results are generally significant, while yearly tests are not always significant. As key determinants of chronic poverty (Jalan and Ravallion, 1998), significant differences for health and education outcomes between conflict and non-conflict provinces imply that provinces in conflict are likely to experience higher rates of chronic poverty than provinces at peace.

One possible explanation for the significance of pooled results is that massive public investments in infrastructure and social services were undertaken between 1993-97 in Mindanao (Barandiaran, 2002). This may have partially reversed the impact of the long-standing conflict on resource and welfare indicators during this period. The difference of means test does not allow us to control for these effects.

The year 1999 also requires closer inspection because it appears to be contributing substantially to the pooled results. In all cases where pooled results are significant, 1999 results are also highly significant.¹⁰ It is possible that the impact of conflict on the variables was heightened during this year because of the escalation of violence. According to Barandiaran (2002), violence began to intensify after the breakdown of peace talks in 1997, eventually leading to an all-out war in 2000. This effect may have been compounded by the dwindling public investments to the region, due to the East Asian crisis.

The results for poverty and subsistence incidence are not as perverse as they initially appear. While it is usually expected that provinces that experience conflict have a higher incidence of poverty than peaceful provinces, we must note that violent conflict is only one of the many shocks that can drain Southwestern Mindanao's resource base. Thus, aggregate poverty measures such as these can reflect fluctuations in the transient component resulting from other shocks such as natural calamities.

Indeed, Manasan and Mercado (1999) report that all provinces in Mindanao share common risks in agriculture production, a sector accounting for 35-50 percent of the regional economy. In 1995, excessive rainfall in Region 11, particularly in the provinces of Sarangani and South Cotabato, resulted to massive crop failure. Manasan and Mercado (1999) estimate that this calamity contributed 23 percent of the decline in the region's corn production during the period. Similarly, the recent *El Niño* experience of 1997-98 had a large negative impact on Mindanao (Barandiaran, 2002; Reyes, 2000a). These shocks affected the whole of Mindanao regardless of whether the province was in conflict

¹⁰ For elementary cohort survival rate, the significant year is for SY 1999-2000.

or not. Thus, the impact of violent conflict on chronic poverty may have been camouflaged by the large contribution of the transient component.

6. Policy Implications and Areas for Further Study

Our findings support the observation that provinces in Mindanao that are stricken with violent conflict are likely to suffer greater chronic poverty. These areas have consistently ranked the lowest in terms of welfare indicators. The recognition of the link between conflict and poverty has resulted in development efforts and peace-building action that includes a military response to avert conflict. Hence, the notion of the socio-economic costs of conflict in Mindanao and the entire country is nothing new and the administration's response reflects that to an extent. In light of the findings of this paper, concerted policy responses to conflict must consider the following implications:

A. Peace-building must be an integral part of the anti-poverty policy orientation

This paper recognizes that poverty may be a major motivator of conflict. However, based on statistical tests laid out in this paper, conflict worsens poverty and specifically makes chronic poverty more likely. Averting conflict must thus be treated as a significant poverty-alleviation measure.

1) Conflict-Poverty Link

The current anti-poverty policy orientation recognizes that areas having high measures of violent conflict and ensuing devastation should be prioritized with a corresponding amount of dedicated resources for basic services. The pouring in of resources to fill basic needs may thus address deprivation in the conflict-stricken areas and likewise address the *causal link from poverty to conflict*. It can therefore be argued that spending on poverty alleviation is an efficient approach in addressing conflict since it supposedly addresses the primary driver of conflict. The expectation is that conflict will diminish with poverty. Further, current poverty alleviation efforts, at best, make up for immediate deprivation effects of violent conflict.

In practical terms, the above does not address the implications of causality from conflict to chronic poverty. Even if poverty is indeed the root cause of conflict, the effects of current conflict result in more poverty. The lagged effects of ongoing conflict are therefore beyond the domain of the current policy orientation. Since the effects of conflict are not merely in the short run, conflict makes poverty alleviation efforts in conflict areas challenging to begin with. A protracted conflict makes chronic poverty more costly to alleviate or eradicate especially if there are incentives for conflict to thrive. Conflict feeds into more conflict and prolongs poverty

while there is a high probability that people will remain poor for their entire lives after 5 years or more of being poor (Corcoran, 1995). In other words, it takes more resources to stop a prolonged conflict and even more resources to repair the poverty effects especially because they can be transmitted across generations (Moore, 2001).

2) Conflict May Hinder the Delivery of Basic Services

Even if the targeting scheme of the anti-poverty program is efficient, conflict may block the delivery of basic services. In this scenario, poverty alleviation objectives are not met. This is not due to short-term unresponsiveness of target areas, which in turn would imply a rethinking of anti-poverty measures. Rather, objectives are not attained due to the inability of anti-poverty efforts to reach the target populations. Monitoring schemes must be clear on this distinction.

Implementation-wise, the administration should look into the convergence of poverty alleviation policies and peace-building efforts at least in the case of Mindanao.

B. Develop metrics for violent conflict and chronic poverty

Violent conflict is peculiar to the particular socio-economic milieu of an area. Hence, the violent conflict in Mindanao in terms of causes, channels, and costs must be studied more rigorously.

1) Explanatory Indicators for Conflict

For instance, poverty *per se* may not be the primary driver of conflict. The associated social exclusion may be a better indicator. Alternatively, ethnicity should be ascertained as a robust explanatory variable for conflict, considering that the Medium Term Philippines Development Plan (MTPDP) 2001-2004 recognizes that the “multiethnic composition of Mindanao’s society ... has actually contributed to the area’s vulnerability to armed conflict and political tensions”. Further, the greed or grievance dynamics in an area may better explain the nature of conflict (Collier and Hoefler, 2000). Contagion effects of a conflict in a neighboring state such as Indonesia may also be worth studying to investigate intricacies of conflict, which include conflict networks (Murdoch and Sandler, 2001).

2) Violent Conflict Typology and Measures

Violent conflict has a highly rigorous typology in the literature. Conflict studies on ARMM would benefit from such typology and metrics. More research must thus be carried out so that quantitative analyses can be

refined (Sarkees and Singer, 2001). For instance, mobilization of military personnel or number of armed encounters may be good indicators of violent conflict. How is “influence by armed groups” in a province measured? How can monitoring and data gathering be made possible? This effort will prevent the use of inappropriate proxies and correlates.

Further, more violent conflict data (e.g. data on conflict events) will be able to provide a better picture whether conflict shocks in the macro level (i.e. where conflict group is taken as a whole) are consistent with shocks in the provincial level. This is helpful in refining the theory on protracted conflict and its effects on chronic and transient poverty components across provinces. Also, intricacies of the process of adjustment to shocks by households and how household expectations are affected by the duration of intervals between conflict events can also be elucidated.

3) Metrics for Chronic Poverty

Quantitative and qualitative metrics for chronic poverty can be refined as well to reflect the multi-dimensionality of chronic poverty in conflict-stricken areas. Hence, the study of chronic poverty must include such concepts as vulnerability, risk, voicelessness, and powerlessness (World Bank, 2000). Imperfections in survey data should motivate efforts to inject qualitative approaches in determining welfare (Hulme, et al, 2001). A cross between objective-quantitative and subjective-qualitative approaches should be further looked into (Pradhan and Ravallion, 1998). Since the robustness of welfare measures may differ across regions, it would be a step in the right direction to investigate whether some measures would be more indicative of poverty in ARMM. For instance, monetary poverty may be less persistent than child stunting, adult malnutrition, and school enrolments (Baulch and Masset, 2002; McKay and Lawson, 2002). This result shows that the effects of human capital loss in terms of education and nutrition are difficult to reverse. However, refining metrics should be treated with care because expanding dimensions do not necessarily lead to greater clarity of the characteristics of chronic poverty (Baulch and Masset, 2002).

The value of panel data on households cannot be overemphasized. Research on chronic poverty will greatly benefit from such data as it will allow disaggregation of the chronic and transient components of poverty. A deeper analysis of chronic poverty will therefore be enabled.

4) Profiling of Chronic vs. Transient Poverty

Development of metrics should also focus on refining the profiling of poverty. For instance, there should be a clear distinction conceptually between those who are chronically poor from those who are transitorily

poor. It is inadequate for instance to distinguish between chronic and transient poverty by merely looking at the difference of income from a specified minimum level. Also, profiling should look into the welfare disparities among territorial groups and among social groups. This respective distinction between horizontal and vertical inequality may shed more light into motivations toward conflict.

If the population is composed of a larger proportion of transitorily poor, then this indeed becomes a serious input to policy. Hence profiling efforts should also delve into quantitative measures, i.e. how many households are chronically poor as opposed to the transitorily poor. In the literature, McCulloch and Baulch (1997) investigate the magnitude of chronic and transient poverty on the basis of household characteristics. Using a five-year panel survey from rural Pakistan and a conventional income-based definition of poverty, results show that 74 percent of poor households in the sample are shown to be transitorily poor. Further, using measures of chronic and transitory poverty, results yield that 70 percent of aggregate poverty is transitory. A serious study of chronic poverty profiling in ARMM would therefore be of value. It must be reiterated however that chronic poverty and violent conflict in ARMM have socio-economic consequences beyond the afflicted households and geographical area. Hence, conflict affecting transient poverty should not result in a redirection of resources away from the chronic poor of the area.

5) Costs of Conflict

With respect to costs of conflict, these are manifested in various levels. A study on how these various costs or effects interact with each other would be a good future research area to consider (Humphreys, 2002). It would be interesting to find out how much of current consumption would people be willing to give up to live without conflict (Hess and Pelz, 2002), as well as the cost of post-conflict reconstruction (Nordhaus, 2002).

C. Eradicating Incentives for Conflict

It is imperative that the administration flexes its intelligence network to find out how conflict parties are being financed and block the channels through which funding and resource support flow into the armed groups.

Humanitarian aid from both donor institutions and government must also be channeled with care, owing to the tendency for these to be an entrepreneurial motivation for conflict. Donor aid that also focuses on development projects rather than mere direct transfers of goods should be considered.

D. Budget and Targets

The MTPDP 2001-2004 does not explain the administration's poverty reduction targets. Further, the government's *Kapit-Bisig Laban sa Kahirapan* (KALAHI) program does not have an official budget yet. The fact that the administration's main socio-economic plan did not provision for a budget yet, subjects the professed urgency towards this program in dubious light. In this regard, it is important that a resource commitment to achieve specific objectives are established and communicated. Otherwise, KALAHI will just be another ingenious acronym with an office.

Welfare-improving efforts, such as the building of health facilities for instance, may not contribute to the reduction of chronic poverty if resources are allocated away from more crucial public spending. There are several channels through which funds may not be spent efficiently. The first is spending on low-priority facilities and activities, which benefits the non-poor and the transient poor. Second is poor planning, which results in incorrect targeting, inaccessible locations for facilities, and lacking functionalities. Third is corruption through funds diversion and procurement activities. The latter result in low quality construction and high rents for corrupt parties. Through these channels, meager resources are diluted even more and chronic poverty actually worsens.

Watchdog institutions like NGOs and People's Organizations should be more vigilant of budget allocations and spending in areas where the chronic poverty concentration is highest. Vigilance on corruption can be integrated into a civil society monitoring mechanism, which should monitor targeting leaks, inefficient prioritization, and implementation bottlenecks. This should add to the monitoring scheme and feedback system that the administration must also implement.

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Figure 2

conflict areas in mindanao

Region IX

- 1 Basilan
- 2 Zamboanga del Norte
- 3 Zamboanga del Sur

Region XI

- 4 Davao del Sur
- 5 Sarangani
- 6 South Cotabato
- 7 Sultan Kudarat

Region XII

- 8 Lanao del Norte
- 9 North Cotabato

ARMM

- 10 Sulu
- 11 Tawi-tawi
- 12 Lanao del Sur
- 13 Maguindanao

peaceful areas in mindanao

Region X

- Bukidnon 1
- Camiguin 2
- Misamis Occidental 3
- Misamis Oriental 4

Region XI

- Compostela Valley 5
- Davao del Norte 6
- Davao Oriental 7

CARAGA

- Agusan del Norte 8
- Agusan del Sur 9
- Surigao del Norte 10
- Surigao del Sur 11



Table 3: Variables and Data Sources

Indicator	Available Years	Source
Access to Potable Water	1994, 1997, 1998, 1999	Annual Poverty Indicators Survey; National Statistics Office (NSO); http://www.census.gov.ph
Access to Sanitary Toilet	1994, 1997, 1998, 1999	Annual Poverty Indicators Survey; National Statistics Office (NSO); http://www.census.gov.ph
Child Mortality Rate	1995	National Statistical Coordination Board (NSCB)
Elementary Cohort Survival Rate	1991, 1995, 1998, 2000	Philippine Institute for Development Studies (PIDS); http://www.pids.gov.ph ; Raw data: Department of Education, Culture and Sports (DECS)
Functional Literacy	1994	PIDS Social Indicators Data; http://dirp.pids.gov.ph/eismain.html
Government Hospital Bed Capacity per 100,000 population	1996	National Statistical Coordination Board (NSCB); Raw data: Department of Health (DOH)
Human Development Index	1990, 1994, 1997	Philippine Human Development Reports (PHDR), various years; Human Development Network (HDN)
Number of Barangay Health Stations per 100,000 population	1996	National Statistical Coordination Board (NSCB); Raw data: Department of Health (DOH)
Number of Rural Health Units per 100,000 population	1996	National Statistical Coordination Board (NSCB); Raw data: Department of Health (DOH)
Percent of Barangays with Health Stations	1996	National Statistical Coordination Board (NSCB); Raw data: Department of Health
Poverty Incidence	1988, 1991, 1994, 1997, 2000	PIDS Social Indicators Data; http://dirp.pids.gov.ph/eismain.html
Quality of Life Index	1991, 1994, 1997, 1999	Action for Economic Reforms (AER); http://www.aer.ph
Subsistence Incidence	1994, 1997, 1998	PIDS Social Indicators Data; http://dirp.pids.gov.ph/eismain.html
Total Hospital Bed Capacity per 100,000 population	1996	National Statistical Coordination Board (NSCB); Raw data: Department of Health (DOH)

Table 4: Difference of Means Tests, Health Indicators

Indicator	Conflict Group		Peaceful Group		Difference in Means	95% Confidence Bounds		P-value	
	Mean	Sample Size	Mean	Sample Size		Lower	Upper	One-Tail*	Two-Tail
Access to Potable Water									
1994-1999, pooled	56.26	52	70.53	44	-14.28	-24.81	-3.75	0.004	0.008
1994	48.56	13	63.82	11	-15.26	-40.91	10.40	0.115	0.231
1997	56.23	13	67.63	11	-11.40	-33.19	10.39	0.145	0.290
1998	57.13	13	69.71	11	-12.58	-35.39	10.23	0.133	0.265
1999	63.09	13	80.97	11	-17.88	-34.74	-1.02	0.019	0.039
Access to Sanitary Toilets									
1994-1999, pooled	54.24	52	74.11	44	-19.87	-30.73	-9.02	0.000	0.001
1994	46.85	13	71.92	11	-25.07	-49.69	-0.46	0.023	0.046
1997	56.81	13	72.70	11	-15.89	-38.42	6.65	0.079	0.158
1998	46.23	13	65.69	11	-19.46	-42.76	3.83	0.049	0.097
1999	67.05	13	86.13	11	-19.07	-36.68	-1.47	0.018	0.035
Percentage of Barangays with Health Stations									
1996	34.88	13	41.92	10	-7.05	-23.75	9.66	0.192	0.385
Number of Rural Health Units per 100,000 population									
1996	33.02	12	41.70	10	-8.68	-25.11	7.75	0.142	0.283
Number of Barangay Health Stations per 100,000 population									
1996	196.96	12	219.48	10	-22.52	-68.98	23.94	0.162	0.324
Government Hospital Bed Capacity per 100,000 population									
1996	368.28	11	523.06	10	-154.78	-471.74	162.17	0.158	0.316
Total Hospital Bed Capacity per 100,000 population									
1996	900.58	12	1070.56	10	-169.97	-610.58	270.63	0.214	0.428

*Ha: diff<0

Table 5: Difference of Means Tests, Education Indicators

Indicator	Conflict Group		Peaceful Group		Difference in Means	95% Confidence Bounds		P-value	
	Mean	Sample Size	Mean	Sample Size		Lower	Upper	One-Tail*	Two-Tail
Elementary Cohort Survival Rate									
pooled, 1990-2000	47.32	52	56.97	44	-9.65	-15.91	-3.39	0.001	0.003
SY 1990-1991	46.07	13	54.48	11	-8.41	-23.36	6.71	0.131	0.261
SY 1994-1995	43.89	13	51.61	11	-7.71	-21.64	6.22	0.129	0.257
SY 1997-1998	48.01	13	57.15	11	-9.14	-24.12	5.83	0.107	0.214
SY 1999-2000	51.30	13	64.64	11	-13.35	-22.76	-3.93	0.004	0.008
Functional Literacy									
1994	68.66	12	82.34	10	-13.68	-21.45	-5.91	0.001	0.002

*Ha: diff<0

Table 6: Difference of Means Tests, Welfare Indicators

Indicator	Conflict Group		Peaceful Group		Difference in Means	95% Confidence Bounds		P-value	
	Mean	Sample Size	Mean	Sample Size		Lower	Upper	One-Tail*	Two-Tail
Subsistence Incidence									
pooled, 1994-1998	27.65	39	30.63	33	-2.98	-8.90	2.95	0.840	0.320
1994	23.68	13	28.81	11	-5.12	-16.09	5.84	0.829	0.343
1997	24.29	13	25.52	11	-1.23	-9.99	7.54	0.613	0.774
1998	34.98	13	37.56	11	-2.58	-13.39	8.23	0.690	0.620
Human Development Index*									
pooled, 1990-1997	0.50	37	0.58	32	-0.07	-0.11	-0.04	0.000	0.000
1990	0.45	12	0.52	10	-0.07	-0.12	-0.02	0.004	0.007
1994	0.48	12	0.56	11	-0.08	-0.13	-0.03	0.001	0.003
1997	0.58	13	0.64	11	-0.06	-0.10	-0.02	0.003	0.007
Quality of Life Index*									
pooled, 1991-1999	0.55	51	0.59	43	-0.04	-0.07	-0.01	0.004	0.008
1991	0.56	12	0.56	10	-0.01	-0.07	0.05	0.395	0.789
1994	0.53	13	0.56	11	-0.03	-0.09	0.03	0.138	0.277
1997	0.57	13	0.63	11	-0.06	-0.12	0.00	0.019	0.038
1999	0.57	13	0.63	11	-0.06	-0.11	0.00	0.026	0.052
Poverty Incidence									
pooled, 1988-2000	50.54	75	52.38	60	-1.84	-5.49	1.81	0.840	0.320
1988	46.72	12	54.08	10	-7.36	-16.83	2.10	0.940	0.120
1991	49.16	12	57.07	10	-7.91	-17.72	1.90	0.947	0.107
1994	50.67	12	51.51	10	-0.84	-10.75	9.06	0.570	0.861
1997	45.93	13	47.61	10	-1.68	-10.22	6.87	0.658	0.684
1998	57.34	13	56.50	10	0.84	-5.82	7.50	0.398	0.796
2000	53.02	13	47.51	10	5.51	-2.56	13.59	0.085	0.170

* For indicators marked *, Ha: diff<0