

IDEOLOGICALLY MOTIVATED CONFLICTS IN THE PHILIPPINES: In Search of Underlying Causes

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I. Introduction

“Human development is the process of widening choices for people to do and be what they value in life.” (Human Development Report, 2004) Surely this definition admits that security is a prerequisite of human development. We only need to recall the situation following the 9/11 attack in the US when people, even those living outside the US, could not freely move about or do certain things. In other words, the feeling of insecurity has limited people’s choices of what they could do and be.

The Philippines has a long history of ideologically motivated conflict. Ocampo (2000) traces the introduction of Marxist ideas to the Philippines in 1902 although the formal organization comes later in 1930. Conflict with the Moros dates as early as the Spanish times and continues up to the present. The objects of aggression have changed radically from the colonial powers (Spanish and American colonizers) to the so-called imperial governments (Philippine Commonwealth) and to the Philippine Republic. During the early years of the Marcos administration, we see the resurgence of the Moro liberation movement brought about by what Santos (2000) calls contemporary causes. Still, we can hypothesize that the root cause of the struggle has persisted regardless of the government representation, hence the persistence of the conflict.

Since the founding of the Philippine Republic, peace agreements have been pursued. A landmark achievement was supposed to have been the Tripoli Agreement between government and the Moro National Liberation Front (MNLF). However, we see a resurgence of hostilities in the late 70s following the breakdown of post-Tripoli peace negotiations. Negotiations resumed during the Aquino years and again during Ramos’. The latter resulted in a final peace agreement in 1996.

Relationship with the MNLF is still delicate as evidenced by the rebellion in Sulu that culminated in the hostage-taking incident in Zamboanga City in November 2001. Presently, government is still pursuing peace talks with the Moro Islamic Liberation Front and the New People’s Army. This study aims to determine the factors that give rise to conflicts. The ambitious goals are to guide the framework of the peace negotiation and, if possible, avert future occurrences of conflicts.

The next section discusses the hypotheses being tested in the study. This is followed by a discussion of the Analytical Framework and Methodology used. Discussion of results proceeds afterwards and the last section concludes and discusses recommendations.

II. Initial Hypotheses

In 1992, President Ramos constituted the National Unification Commission (NUC) aimed at finding solutions to the nation’s peace problem. There was recognition that lasting peace is not simply a matter of declaration of cessation of hostilities. Rather, what was needed was positive peace – peace that is achieved by solving the root causes of the conflict. Palm-Dalupan (2000) writes the following as the root causes commonly identified in the multi-sectoral consultations:

1. massive poverty and structural economic inequity
2. structural inequities in the political system
3. injustice, abuse of those in authority and power, violations of human rights, etc.

4. poor governance, including lack of basic social services, corruption and inefficiency in government, and
5. exploitation and marginalization of indigenous cultural communities

Unfortunately, data limitations do not allow an empirical and quantitative study of all these causes. This study focuses on the following factors as possible determinants of incidence of conflict:

- Lack of access to basic services
- Land disputes
- Income poverty
- Inequality
- History of conflict

III. Conceptual Framework

The dominant theory that explains incidence of conflict is the frustration-aggression theory. Briefly, it explains that aggression arises from frustration.

Obviously, not all frustration is translated into aggression. The theory proceeds to say that the frustration is over someone or some entity that is perceived to be standing in the way of one's success. The next relevant question, therefore, is to determine the kind of frustration that leads to aggression directed towards government.

One such frustration is the feeling or perception of being deprived relative to others. The more relevant, according to the relative deprivation theory, is the so-called "fraternal deprivation" where the deprivation is felt by a group of individuals that are bound by some identity. This is the type that is most linked to aggression. Tying this with the frustration-aggression theory, it must be the case that the relative deprivation is perceived to have been due to government action or inaction, or better yet, a systematic outcome of present political processes.

Success is also relatively defined. The hypothesis of A.K. Sen is that every individual aspires to be able "to be" and "to do." Whatever the specifics are, there are requisite "functionings" for the individual to achieve these aspirations. Such is the basis of the human development index. The index looks at the very basic form of these "functionings" – life expectancy, functional literacy and standard of living. In exploring the possibility of an early warning system for the incidence of conflict, we need to identify obstacles or factors that inhibit the full realization of these "functionings" such that these factors are perceived to result from government action or inaction with respect to a certain group of individuals.

What causes frustration?

A survey, commissioned by the World Bank, was conducted by APPC in 2003 among some of the poorest communities in the Philippines. Respondents were asked to enumerate what, for them, are the major problems in their communities. Following are the most frequent responses:

Problems	%
1. bad roads	23.1
2. lack of employment opportunities	17.1
3. inadequate water and sanitation facilities	16.8
4. power supply problems	10.1
5. health and nutrition problems	8.5
6. problems with peace and order	5.2
7. illiteracy/increasing number of out-of-school youths	5.1
8. lack of medicine in the BHS/health center	1.7
9. poverty	1.4
10. lack of bridges	1.3

A follow-up question was asked about how satisfied they are about the response of government to address these problems. We then associate the low levels of satisfaction with feeling of frustration.

The more relevant issue is to isolate the factors that led to “frustration” with respect to inadequate provision of public goods and services. In other words, in pursuing this current study, we wish to focus only on those public goods and services that poor people think are important.

Accessibility. Among those who mentioned bad roads as the major problem in their barangay, 65% of them live in barangays whose roads are entirely made of dirt or gravel. If we consider those with at least 50% of roads are made of dirt or gravel, then we would have accounted for more than 90% of the dissatisfied respondents. Thus, with respect to roads, the minimum is to have concrete or asphalt roads for at least 50% of the network.

% roads made of dirt or gravel	%
100	65.0
more than 75	86.4
more than 50	91.3

Employment opportunities. Interestingly, in the areas surveyed, labor force participation ranges from about 70 to 85% and employment rate between 97-100%, using the old definition of employment. In fact, we find small-scale enterprises like sari-sari stores (86%) and post-harvest facilities (71%) in these communities.

Despite this, “lack of employment opportunities” figures as a major problem cited by the respondents. Probing further, it would seem that employment is taken to mean some semblance of formal sector employment. Among those who mentioned employment as a problem, 76% of them live in barangays without markets and 80% without financing institutions.

Water and sanitation. Among those who said that inadequate water and sanitation facilities are their problem, 63% of them do not have a waterworks system in their community. Note, however, that these households do have access to water supply systems, from either Level I or II. Almost all consider their water source safe for drinking. The dissatisfaction therefore arises from the inconvenience of sourcing water outside their housing premises. In other words, they are interested in a Level III water supply system.

Health and nutrition. Among those who mentioned that health and nutrition is a problem, 80% of them live in barangays with health centers. This figure indicates that the presence of health centers is not enough. Quality of care provided is more important. Some of the manifestations of poor quality care are the lack of regular medical personnel, lack of medicines in health centers, etc. It is also interesting to note that none of these respondents live in areas with a hospital.

Out-of-school youth. It would seem that the more crucial determinant of this problem is the lack of access to secondary schools. Among those who considered this as a problem, 84% of them have elementary schools in their barangays but only 23% have high schools in their area.

Power supply. For this problem, the solution is obvious. Almost 9 out of 10 dissatisfied respondents, concerned with their power supply, do not have electricity in their homes. Energization of barangays is not a good enough indicator; it has to reach the households.

Income inequality has been hypothesized to be the root cause of civil conflict. However, Macculloch (2005) reports that studies from political science literature have found positive, negative and insignificant effects. His study gives a different perspective, this time, looking at preference for radical change by way of revolution as a way of transforming society. The data is based on the World Values Survey, taken in three waves from 1981 to 1995 and the Eurobarometer Survey Series, taken annually between 1976 and 1990. Using the latter dataset, he finds that high levels of inequality lead to high levels of revolutionary support only when there is no government response, proxied by the amount of unemployment benefits disbursed. At high levels of benefits, the relationship becomes muted. This study highlights the need to include variables that capture government response or nonresponse to the problems that gave rise to frustration.

Another interesting study is by Glaeser (2005) where he models the interaction between the supply of hate-creating stories from politicians and the willingness of voters to listen. Politicians with lower marginal cost of obtaining funds are more likely to spread hatred stories. Meanwhile, recipients of the stories, which he labels the “in-group”, may try to unravel the truth but only at a cost. This behavior is encouraged if the cost of learning the truth is less than the potential damage from unnecessarily engaging in “self-protection” measures based on a false story. Education may lessen the cost of learning the truth, so does access to other information and even social integration. Also, the public is encouraged to investigate further if there is a high probability that the “out-group” is not “harmful” as portrayed by the politician. In other words, the “in-group” recalls previous incidents and decides if it is likely that the “out-group” would behave as portrayed by the politician.

We can extend the above model to apply to our present study on conflict. In undertaking armed struggle, there are at least three players involved – the leader, follower and the object of aggression. The leader fans the flames of frustration of the follower and convinces the latter that government is the root cause of the frustration. This undertaking increases in frequency and intensity as financial support increases (i.e., the cost of obtaining funds is low). In this study, we presume the existence of the leader “searching” for possible followers, the base of the armed struggle. Those who hear the leader’s story may undertake either of two actions: (1) verify his story, or (2) not verify his story. As discussed above, the act of verification (truth finding) is encouraged if the costs associated are low or if there is a high probability that the story is untrue (based on previous experiences of the “would-be follower” with the government). Those who verified the story and found them to be true and those who did not verify the story will then take on either of two actions: (1) support the cause of the armed struggle, or (2) not support the cause. A rational individual will make this decision based on the comparison of expected costs and benefits from supporting the cause. All those who decided to support the cause make up the base of the armed struggle. We will assume that for the armed struggle to actually take place, there must be a critical mass of these supporters.

The preceding paragraph discusses the processes that take place before the occurrence of the conflict. Unfortunately, we will not be able to capture these processes in their entirety. What we can observe is the initial situation that reflects relative deprivation, some evidence of government action (or inaction) and the resulting occurrence (or non-occurrence) of conflict.

IV. Methodology

A. Variables and Sources of Information

1. Dependent Variable: Incidence of Conflict

There are three dimensions of conflict that can be considered: the incidence and intensity of armed confrontations and whether the conflicts were instigated by rebel groups. The last dimension reflects the relative strength of the NPA, MNLF or MILF in particular areas as demonstrated by attacks on military establishments and government offices. For this study we only consider the number of reported armed incidents or encounters between the Armed Forces of the Philippines (AFP) and the NPA, MNLF or the MILF from 1991 to 2004. The data on history of conflict is limited to the incidences between 1986 to 1990. Note that the term ‘encounter’ is used broadly to cover actual armed confrontations as well as raids on various installations. It is used interchangeably with ‘armed incident’, the term adopted by the AFP.

The data on encounters were obtained from Patricio Abinales and Edmund Ramos, who culled major dailies, the Ibon Databank and the CPP’s *Ang Bayan* for information on armed conflicts from 1972 to 2004. This was later verified by Cynthia Bautista (xxxx).

The dependent variable is operationally defined as the mean number of encounters per year, reckoned within the duration of the Ramos, Estrada and Macapagal-Arroyo administrations.

2. Independent Variables

We apply the framework discussed above and link it to the hypotheses we want to test. We will also make use of the results of the NUC consultations to guide the choice of independent variables used in this study, subject to data availability:

1. Factors that may lead to frustration
 - a. Relative deprivation in terms of access to services
 - b. Income poverty
 - c. Income inequality
 - d. Land disputes
 - e. History of conflict
 - f. Minoritization
2. Factors that increase the cost of “learning the truth”:
 - a. Poor or non-existent roads
 - b. No access to electricity and information facility
 - c. Low educational attainment
3. Evidence of government response/nonresponse
 - a. Poor governance, including lack of basic social services
 - b. Government programs on redistribution (CARP)
 - c. Government policy on peace

4. Factors that affect expected cost and benefit of supporting the armed struggle
 - a. Income level
 - b. Demographic characteristics of the family

Note that the government is assumed to hold “authorship” of the abovementioned causes of frustration, meaning that these “obstacles” are outcomes of the political system. Furthermore, with respect to a certain group of individuals - the elite, the perception is that these constraining factors are not present. Thus, there is the perception of injustice with respect to the enabling environment facing the marginalized group that constrains their ability “to be” and “to do”.

The marginalized group is operationally defined as ethnolinguistic groups that constitute less than 1.5% of the entire population based on the 2000 Census of Population and Housing. Municipalities in each province are classified into whether they have “high” concentration of these marginalized groups if they comprise at least 40% of the municipality population, and “low” otherwise. We then determine the proportion of households with access to public facilities and amenities (level II and III water supply systems, electricity, secondary school, market, hospital) according to this municipality classification. Access to electricity is reckoned at the household level. With respect to school, market and hospital, we assume that if the facility is present in the barangay, then the household is able to access the facility. Access to water supply is measured the same way so that we do not include households who are able to provide for their own. In other words, we want to ensure that the lack of access to water supply is because there was no public investment in the waterworks system.

The next step is to compute for the difference in proportion of households with such access between those in the “low” and “high” municipalities in the same province. For provinces with all municipalities classified as “high”, that we will later label as “minority” provinces, the “low” values of the nearby regional center is adopted. And for provinces with all municipalities classified as “low”, that we will later label as “majority” provinces, the difference is given the value zero. Provinces with both “high” and “low” municipalities are labeled “mixed” provinces. Annex 1 gives a listing of the ethnolinguistic groups defined as ethnic minority. Annex 2 lists the provinces classified into the three groups.

Income inequality is given by the Gini ratio. We can also adopt the ratio of the incomes in the highest and lowest quintile as proxy.

Unfortunately, we do not have data on land disputes. What we do have is data on CARP accomplishment relative to each administration. While this accomplishment is largely influenced by the infusion of fiscal resources for CARP, we can still hypothesize that accomplishment is hampered by the presence of land disputes. Thus, for any given budget for CARP, accomplishment will still be higher if there are no land disputes.

The variable “minoritization” is proxied by the proportion of “original” settlers in the region. The “original” settlers are identified from history books and from censuses dating back to the 40s. We also supplement the analysis of this variable with data coming from the National Commission on Indigenous Peoples (NCIP) on ancestral domain claims.

History of conflict is limited to the armed encounters that happened during the period 1986 to 1990.

The data on quality-adjusted road density is aggregated to the level of the province. As such, it is a summary measure. The usual pattern is that the roads are found in built-up areas and is bound to be highly correlated with incomes.

The data on educational attainment of all individuals of schooling age is taken from the 1990 CPH. The aggregation is according to age group (8 to 13, 14 to 17, 18 to 23, 24 to 45, 46 to 65 and over 65) and ethnic classification of municipality.

Income is measured in terms of per capita expenditure, so that we capture permanent income. The average is taken for each quintile.

Government policy on peace is difficult to quantify. In the study, we introduce a dummy variable to represent each administration. In effect, this is a catch-all variable and may mean the policy on peace and defense, or its policy on growth and income redistribution.

Most of the independent variables are measured in 1990. The data on income is measured at the initial year, 1991, and at the end-year of each of the Ramos, Estrada and Macapagal-Arroyo terms. The CARP accomplishment is also measured at the end-year of their respective terms. Furthermore, in order to be consistent, the provinces are classified as they were in 1985, numbering only 74 in all.

Annex 3 presents the variables used in this study and their corresponding description.

B. Limitations of the Study

The framework requires data on relative deprivation. Unfortunately, many of the data are aggregated to the level of province, including the data on conflicts. There was serious effort to disaggregate the information on the access of households to public facilities and amenities, at least, distinguishing between the “high” and “low” municipalities (according to concentration of ethnic minorities). Still, there may be some inequalities that have been masked at this level.

It is understood that the incidence of conflict takes some time to happen. It takes awhile to brew frustration and transform this into aggression. We measure data on relative deprivation in 1990 and 1991 and compare this against incidence of conflict beginning 1991. The assumption is that the situation observed in 1991 is a carryover of relative deprivation that could have been observed way before, if data were available.

V. Discussion of Results

A. Overview of the Conflicts, 1986-2004

During the period 1986-2004, there was an average of 0.69 encounter per province. There was wide disparity, particularly if we break down the figure by administration.

During the Aquino administration, the average was 0.86 and then it went down dramatically during the Ramos administration, to only 0.04. In fact, during the time of Ramos, there were encounters in only 9 (out of 74) provinces. This figure is very much lower than the number of “affected” provinces during the Aquino administration, 61. The average increased during the Estrada administration, to 0.93 and the number of affected provinces also increased to 49. The average and number of affected provinces increased further during the Macapagal-Arroyo administration, to 1.45 and 64, respectively. Thus, during the period under study, there have been encounters in 68 (out of 74) provinces.

B. Evidence of Relative Deprivation

The differences in access to facilities and services as well as differences in outcomes become highlighted when municipalities within provinces are classified into those with high concentration and those with low concentration of ethnic minorities. It becomes obvious that the “majority” municipalities are the better off. It is only with respect to access to markets where the profile favors the “minority.” Moreover, note that these average differences are not so stark as when we compare the minimum and maximum values of these differences. For instance, among adults aged 25-46, we find those residing in majority municipalities finishing about 14% of ideal educational attainment, while those in the minority, 11%. Examining further, we see that in the majority, the worst case is 5% of schooling and the best, 41%. In contrast, those in the minority only have, at best, 30% and at worst 2%, of ideal schooling. Another example is the access to level II or III water supply system. The average proportion is 43% of households, for those residing in the majority municipalities and 40% for those in the minority. However, the data also shows that in the minority, there are municipalities where no household has access to these convenient sources of water. Annex 4 gives the complete list of descriptive statistics of the variables used in the study.

C. Evidence of Minoritization

The proportion of original settlers remains high, averaging about 73% in 2000. But there is considerable variation. As expected, the proportion is highest in the minority provinces, 82%, although it can be as low as 30% for some. Among provinces with mixed municipalities (some have high concentration of ethnic minorities, others have low concentration of ethnic minorities), the average proportion of original settlers is only 65% and this figure can be as low as 1.5%.

D. The Model

The initial variable of interest is the number of encounters per year. This is assumed to follow a Poisson distribution with mean λ . The hypothesis that the observed number of encounters is governed by a single distribution is rejected. This implies that the parameter λ is variable. The following discusses the results of model estimation of this variable λ .

The model is given by the following equation:

$$\text{aveconf}_t = f(\text{FACTORS_1}, \text{FACTORS_2}, \text{FACTORS_3}, \text{FACTORS_4})$$

where $\mathbf{aveconf}_i$ is the average number of encounters per year for each of the four presidential terms and the FACTORS_# correspond to the listing of variables in the earlier section.

The variable $\mathbf{aveconf}_i$ is expected to increase with evidence of factors that cause frustration (deprivation with respect to access to services, income inequality, poverty, land disputes, history of conflict). It also increases with respect to factors that increase the cost of learning the truth because the latter discourages the would-be supporter from learning the truth and simply accepts the hate-creating stories of the leader of the armed struggle. Favorable government action will reduce $\mathbf{aveconf}$, while unfavorable government action as well as government inaction will likely increase $\mathbf{aveconf}$. Meanwhile, we experiment with various forms of relationship with respect to income. For instance, we can say that the poorest will not (probably) be encouraged to support an armed revolt, given that the expected benefits are low and may take a long time to be felt, while the expected costs could be very high and the effect, immediate.

The final model is given in Table 1. The model is estimated using iterated least squares taking into consideration the first round effects of quality-adjusted road density on income.

We begin by enumerating the variables that did not figure in the model:

- Poverty incidence is the proportion of the population that fall below the poverty threshold. The results show that this variable, even if disaggregated into urban and rural, does not explain the average number of encounters observed in the province. It would seem that an individual is aware only of his own status in life, but not of the other individuals. That is, the headcount index is an abstract number to the individual. Another explanation is that poverty incidence is too aggregate a figure and cannot capture the extent of deprivation relative to certain groups.
- Income inequality, measured either using the Gini coefficient or the ratio of the incomes of the richest and poorest quintiles, also does not figure as a significant determinant of the number of encounters. The gini ratio is more sensitive to the inequality around the middle of the income distribution. It may also be said that income inequality is again an abstract concept. What is more obvious to the individual is the inequality in outcomes. Moreover, if access to services were equal, then clearly, inequality in incomes could not have been due to government action or inaction.
- Demographic variables do not figure as a significant determinant of conflict incidence.

Table 1
Iterated Least Squares

<i>Dependent Variable PCEXP3</i>				
Variable	Parameter Estimate	Standard Error	t Values	Pr > t
Intercept	12975.0500	321.400	40.370	<.0001
QROAD	477.8115	61.019	7.830	<.0001
<i>R Square</i>	<i>0.2195</i>			
<i>Adj R-sq</i>	<i>0.2159</i>			

<i>Dependent Variable AveConf</i>				
Variable	Parameter Estimate	Standard Error	t Values	Pr > t
Intercept	0.7960	0.453	1.760	0.0804
GMA	1.7061	0.221	7.720	<.0001
ERAP	1.0358	0.200	5.180	<.0001
Previous conflict	0.3053	0.083	3.690	0.0003
Ethnicp	-5.2126	1.787	-2.920	0.0039
CARP accomplishment	-1.2820	0.637	-2.010	0.0453
Helect*Heduc8	-11.8015	4.023	-2.930	0.0037
Ethnicm*p_orig	-1.3498	0.372	-3.630	0.0004
Ethnicp*PCEXP3	0.0007	0.000	2.820	0.0052
Ethnicp*(PCEXP3^2)	-0.0000	0.000	-2.900	0.0042
Ethnicm*PCEXP3	0.0002	0.000	3.450	0.0007
Ethnicm*(PCEXP3^2)	-0.0000	0.000	-2.960	0.0034
Ethnicp*(d_h20)	8.2390	0.847	9.730	<.0001
<i>R Square</i>	<i>0.5244</i>			
<i>Adj R-sq</i>	<i>0.4968</i>			

We now turn to the variables that appear to significantly affect the incidence of conflict.

1. Factors that may lead to frustration

Disparity in access to convenient water supply systems in provinces that host the ethnic minorities is major cause of frustration. Note that the disparity is computed with respect to those residing in the nearby regional centers. History of conflict increases the expected number of encounters. Applying the framework above, we may say that the traumatic experience is blamed on the government and consequently, the seed of frustration has been planted.

Minoritization is also a significant determinant of conflict in mixed provinces. The higher the proportion of original settlers (that is, the lesser the degree of minoritization), the less is the incidence of conflict. There may be two ways of explaining this. One is to say that the greater the homogeneity of the province in terms of culture, the better is the flow of information. The other explanation is that the process of minoritization has resulted in much frustration among the original settlers. This is further explained in the next section.

2. Factors that increase (or decrease) the cost of “learning the truth”:

The higher the proportion of households with access to electricity in the minority provinces, the lower is the incidence of conflict. We find the same pattern with respect to the educational attainment of adults aged 66 years and above. In fact, when these two variables are interacted, we get better explanatory power.

Density of quality-adjusted roads affects the number of encounters in so far as it affects the value of median (permanent) income, i.e., the relationship is indirect.

The classification of provinces into either minority, majority, and mixed is also a significant determinant of the incidence of conflict. Interestingly, all other things remaining the same, we find average encounters to be lower in minority provinces than in the others. There is no significant difference between mixed and majority provinces. Harmony of cultures (or lack thereof) obviously discourages (encourages) individuals from (into) immediately taking up arms against government. Another implication is that if there is no evidence of relative deprivation, and if government performance does not discriminate between majority and ethnic minority, then there would be less encounters especially in these minority provinces.

3. Evidence of government response/nonresponse

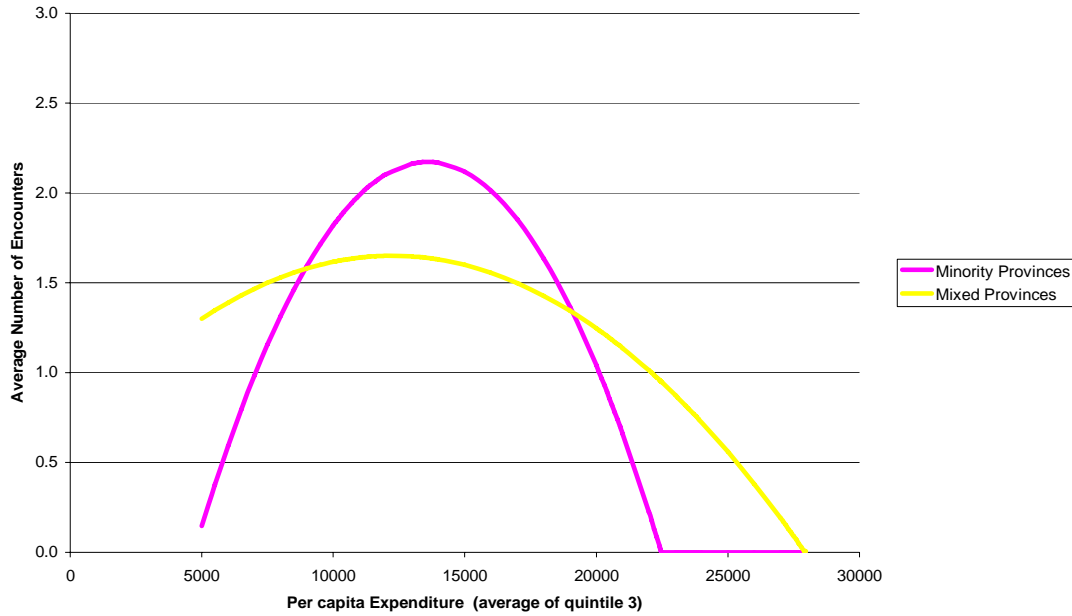
Government accomplishment on CARP is a significant deterrent to the incidence of conflict. As mentioned before, this accomplishment may also be reflective of the extent of land disputes in the province. Note, however, that it is the cumulative accomplishment that matters and not the additional accomplishment of the administration at the time.

Government policy on peace and income redistribution is a significant determinant of conflict incidence. The policies of the Estrada administration, for instance, increased the incidence of conflict by more than two-fold when compared against the Ramos administration. The policies of the Macapagal-Arroyo administration, meanwhile, increased the incidence by almost three-fold versus the Ramos administration. These effects already take into account the effect of the other variables like relative deprivation, cost of learning the truth, etc.

4. Factors that affect expected cost and benefit of supporting the armed struggle

Incidence of conflict increases with average permanent income, where average is represented by the average income of the middle quintile. This average is nearer the median of the income distribution, rather than the mean. However, at a high enough level of (permanent) income, incidence of conflict decreases. This means that incomes of the middle class have to increase sufficiently high in order to discourage would-be followers from supporting the cause. At this status, the discount rate may still be high so that the discounted expected benefits no longer outweigh the expected immediate costs which may even be in terms of forgone current incomes.

Relationship between Per Capita Spending and Average Number of Encounters, in Minority and Mixed Provinces



The strength of relationship depends on the classification of the province. In the mixed provinces, we see that the income level beyond which the incidence of conflict decreases is lower than in the minority provinces. However, the level of income necessary to bring down the incidence of conflict to near zero is higher in the mixed provinces than in the minority provinces. This scenario is illustrated in the chart given above.

A Closer Look at the Minoritization Issue

Minoritization is a process by which in-migrants have managed to outnumber the original settlers. In the past, the government sponsored resettlement programs for residents from the North to move to the South, the Land of Promise (Mindanao). Cagoco-Guiam (2000) recalls that this program began in 1913 under the American colonial regime. This resulted in the displacement of the original settlers, as well as disenfranchisement of their lands. RA 8371, also known as “The Indigenous Peoples Rights Act of 1997” seeks to correct this injustice. The law grants indigenous peoples not only the rights of usufruct, but also of ownership over ancestral domains. Indigenous peoples who have been disenfranchised of their property may file a claim of ownership with the National Commission on Indigenous Peoples (NCIP). The NCIP data on ancestral domain claims may then give us an idea of the extent of the disenfranchisement of the original settlers.

We want to know whether, in fact, the variable minoritization simply captures the disenfranchisement or encompasses a wider range of factors that come as a result of minoritization. We test the model:

$$\text{aveconf}_t = f(\text{FACTORS}_1, \text{FACTORS}_2, \text{FACTORS}_3, \text{FACTORS}_4)$$

where the variables are as defined above. We introduce two approaches - one is to include the variable CADCSHR (proportion of lands being claimed as ancestral domain, to total land area) directly into the model, instead of ETM_ORIG; the other is use instrumental variable technique.

In the first approach, the coefficient of the variable CADCSHR is not significantly different from zero, meaning that there is no direct relationship between CADCSHR and the incidence of the conflict.

For the second approach, we note that CADCSHR varies inversely with the proportion of original settlers but in the mixed provinces, the relationship is positive. The correlation coefficients, in both cases, are significant. We address this situation by employing instrumental variable technique, the results of which are given in Table 2.

The first thing we notice from the table is that the coefficients of the variables earlier considered are robust, both with respect to sign and magnitude. We also observe that the coefficient of the variable minoritization in the CADCSHR equation is the same as its coefficient when included directly into the AVECONF equation. This means that, in the case of mixed provinces, the relevant variable is still minoritization. Meanwhile, in the case of the majority and minority provinces, CADCSHR reduces the value of the intercept by a very small amount (=0.00000001). We can then conclude that the more relevant factor that affects incidence of conflict is minoritization. What this also implies is that the source of frustration goes beyond disenfranchisement of land and may be closer to political and cultural marginalization.

Table 2
Iterated Least Squares

<i>Dependent Variable PCEXP3</i>				
Variable	Parameter Estimate	Standard Error	t Values	Pr > t
Intercept	12975.0500	321.400	40.370	<.0001
QROAD	477.8115	61.019	7.830	<.0001
<i>Dependent Variable CADCSHR</i>				

Variable	Parameter Estimate	Standard Error	t Values	Pr > t
Intercept	0.0001	0.000	1.1E25	<.0001
Ethnicm*prop_orig	-13497.8	0.000	-464E31	<.0001
<i>Dependent Variable AveConf</i>				
Variable	Parameter Estimate	Standard Error	t Values	Pr > t
Intercept	0.7960	0.455	1.750	0.0819
GMA	1.7061	0.222	7.690	<.0001
ERAP	1.0358	0.201	5.160	<.0001
Previous conflict	0.3053	0.083	3.670	0.0003
Ethnicp	-5.2126	1.796	-2.900	0.0039
CARP accomplishment	-1.2820	0.640	-2.000	0.0453
Helect*Heduc8	-11.8015	4.042	-2.920	0.0037
CADCSHR	0.0001	0.000	3.61	0.0004
Ethnicp*PCEXP3	0.0007	0.000	2.810	0.0054
Ethnicp*(PCEXP3^2)	0.0000	0.000	-2.880	0.0044
Ethnicm*PCEXP3	0.0002	0.000	3.430	0.0007
Ethnicm*(PCEXP3^2)	0.0000	0.000	-2.950	0.0035
Ethnicp*(d_h20)	8.2390	0.851	9.680	<.0001
<i>R Square</i>	0.5244			
<i>Adj R-sq</i>	0.4919			

E. Sensitivity Analysis

Table 3 presents the results of the sensitivity analysis. The analysis will allow us to compare the likely impact of possible interventions on the incidence of conflict. We consider six different interventions: (1) finish the CARP scope, (2) increase access to electricity to 80% of households, (3) improve educational attainment of adults equivalent to at least 6 years of education, (4) remove disparity in access to water supply, (5) increase road density to 6 kilometers per square kilometer, and (6) government policy, operationally defined as akin to FVR years. The numbers give the probability that there will be at least one encounter in any given year (after 2003).

The first thing we observe is that, given the data layout in 2003², the probability that there will be at least 1 encounter remains high, especially in the minority provinces.

Increasing adult education will give the best results, regardless of the type of province. This is easier said than done. The average educational attainment among adults aged over 65 years is less than 1 year of education. Obviously, investment in education takes a long time and the disparity can happen as early as sixty years ago.

² Initial conditions – access to electricity, adult education, disparity in access to water supply, are still given by their values in 1990.

Table 3
Sensitivity Analysis – Probability that there will be at least
one encounter per year given interventions

	Type of Province		
	Majority	Minority	Mixed
Base Run	0.7550	0.8830	0.7971
Interventions			
Finish CARP scope	0.7015	0.8440	0.7642
Increase access to electricity	0.7372	0.8641	0.7661
Increase adult education	nil	nil	nil
Remove disparity in water supply	0.7550	0.6946	0.7971
Increase road density	0.7550	0.8680	0.7862
Government policy	nil	0.3579	nil

Note: “nil” means almost zero probability

The effect of government “policy” is very radical, especially among the majority and mixed provinces. It may be enough to bring down the probability of an encounter to almost zero. For minority provinces, it may reduce the probability from 0.88 to 0.36. It must be said at this point that the dummy variables representing the administration captures even the situations, unique at the time, that may have a bearing on the incidence of conflict. For instance, there can be a pragmatic explanation behind the very low conflict incidence during the Ramos administration. There were many factors working in his favor at the time:

- Before his time, there were a number of major encounters against the rebel groups and these may have substantially weakened their forces. He was thus conducting peace negotiations on a position of strength.
- The fall of the USSR, the breaking down of the Berlin wall and the seeming capitalist tendencies of China (the end of the Cold War) reduced the flow of external funds.
- The major disasters that wrought havoc to the country – earthquake in 1990 and Mount Pinatubo eruption in 1991 – diverted efforts of government and civil society into restoring properties and livelihoods that were affected.

Again, in the context of the framework of this study, we say that there was reduced supply of hatred stories (reduction of external funds to the rebel groups), expected costs of armed struggle increased (the rebel forces were substantially weakened), there were evidences of government action (rehabilitation efforts that even involved the military forces), and the expected benefits of undertaking armed struggle was greatly reduced (failure of Communist countries to deliver on their promise of better life). However, we have to admit that having prolonged the period of peace for seven years is indeed a notable achievement.

Programs to increase access of households to electricity, by itself, will bring down the probability of encounter but not low enough. At best, the probability can be brought to 0.71 if all households in the majority provinces are given access to electricity.

Finishing the CARP scope will also not give the desired radical results, given that the accomplishment as of 2003 is already very high, averaging 77%, 84% and 91% in the minority, majority and mixed provinces, respectively. This is not to say that we are discouraging the implementation of the CARP. Earlier we said that this variable might also be capturing the settlement of land disputes. It is important that this source of frustration be eliminated, and, on a different note, reduce the uncertainties in the land market

Increasing road density will also yield minimal reduction since the impact is indirect. In fact, in the minority provinces, the more effective intervention is removal of disparity in access to water supply.

VI. Conclusion and Recommendations

This study began by enumerating the hypotheses to be tested. We have seen that the framework discussed above is able to explain the incidence of armed encounters in the Philippines, at least those that happened from 1991 to 2004.

Government policy on peace and income redistribution is, by far, the most significant determinant of incidence of conflict. The relevant (positive) policies are those that address relative deprivation. In the study, the deprivation in access to water stands out as a major cause of conflict. We need to remember that it is not just the provision of safe water that matters, rather the convenience of access. In fact, this variable may be capturing other inconveniences especially confronting the minority groups. Addressing possible sources of frustration, such as land disputes, is also important. Economic growth is also a major avenue of peace. The growth has to be felt especially by those in the middle income groups,

Programs that improve adult education are worthwhile investments to achieve peace in the future. While statistics in basic education achievements appear favorable, Edillon (2005) notes that these are actually deceiving. When expressed in terms of cohorts, the numbers have actually worsened. In 1994, out of 100 school entrants, only 44 finished high school. The figure is worse in 2003, when only 38 would finish high school. Extending the simulation to tertiary, we find that only 3 would graduate from college.

In the short term, what are needed are interventions to encourage truth-learning behavior and reduce the cost of learning the truth. We need to bring government closer to the minority groups. We need to provide them easy access to information.

There must be extreme caution in encouraging resettlement of majority groups into minority provinces. This should not happen at the expense of displacement and neglect of indigenous culture and tradition. There must be ample venues for cultural harmonization.

In terms of monitoring conditions that will likely give rise to conflict, we can then identify the following parameters – access to convenient water supply in the affected provinces, median income and growth of median income, educational attainment of adults (including the young adults), access to electricity in the affected provinces and evidence of minoritization.

Finally, it must be said that the model is able to capture only about 52% of the observed variability in conflict incidence. There is still a lot that we do not know and do not keep track of.

Hopefully, though, addressing the above causes will provide the necessary impetus to achieving lasting peace in the country.

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Annex 1
Ethno-linguistic Groups

Groups	Count	Share (%) to total population
<i>Indigenous People (IP)</i>		
Akeanon/Alanon	522,821	0.69
Ibanag	325,434	0.43
Ifugao	182,755	0.24
Kankanai/Kankaney	441,088	0.58
Karay-a	374,962	0.49
Manobo/Ata-Manobo	384,622	0.50
Maranao	1,019,752	1.34
Masbateno/Masbatenon	537,000	0.70
Sama (Samal)/Abaknon	226,036	0.30
Surigaonon	592,809	0.78
Tausog	911,044	1.19
Zambageno-Chavacano	368,104	0.48
Abelling	22,511	0.03
Abiyan	26,332	0.03
Aburin	4,676	0.01
Aeta/Ayta	28,028	0.04
Aggay	9,057	0.01
Agta	4,143	0.01
Agutaynon/Agutayanon	14,609	0.02
Alangan	3,650	0.00
Apayao/Yapayao	3,883	0.01
Applai	17,315	0.02
Atta/Ata/Ati	17,566	0.02
Ayangan	19,694	0.03
Badjao, Sama Dilaut	40,766	0.05
Bagobo/Guinga	54,135	0.07
Balangao/Baliwon	21,255	0.03
Bantoanon	65,077	0.09
Banwaon	11,803	0.02
Batak/Binatak	1,888	0.00
Batangan	17,112	0.02
Bilaan/B'laan	203,998	0.27
Binukid/Bukidnon	154,573	0.20

**Annex 1 (continued)
Ethno-linguistic Groups**

Groups	Count	Share (%) to total population
Bolinao	56,989	0.07
Bugkalot	9,194	0.01
Bontok/Binontok	14,473	0.02
Buhid	9,635	0.01
Butuanon	131,180	0.17
Caviteno	192,161	0.25
Caviteno-Chavacano	11,964	0.02
Cimaron	1,908	0.00
Cotabateno	11,585	0.02
Cotabateno-Chavacano	10,096	0.01
Cuyunon/Cuyunan	181,809	0.24
Dava-Chavacano	16,534	0.02
Davaweno	326,018	0.43
Dibabawon	18,521	0.02
Dumagat/Dumagat(Umiray)	14,729	0.02
Gaddang	21,626	0.03
Gubatnon	3,847	0.01
Hamtikanon	447,758	0.59
Hanunuo	10,765	0.01
Higaonon	68,971	0.09
Ibaloi/Inibalo	135,204	0.18
Ibontoc	33,953	0.04
Ikalahan/Kalanguya	73,215	0.10
Ilanun/Llanuan	2,645	0.00
Ilongot	22,611	0.03
Iranon	152,259	0.20
Iraya	5,627	0.01
Isamal Kanlaw	25,456	0.03
Isarog	3,091	0.00
Isinay	5,973	0.01
Isnag	33,337	0.04
Isneg	5,988	0.01
Itawis	95,644	0.13
Itawit	84,382	0.11
Itneg	16,498	0.02

**Annex 1 (continued)
Ethno-linguistic Groups**

Groups	Count	Share (%) to total population
Ivatan/Itbayat	21,031	0.03
Iwak/T'wa/Owak	2,172	0.00
Iyapplai	2,189	0.00
Iyiwaks	630	0.00
Jama Mapun	30,976	0.04
Kaagan	432	0.00
Kabihug	264	0.00
Kagayanen	24,004	0.03
Kalagan	44,263	0.06
Kalamianen	4,848	0.01
Kalinga	128,034	0.17
Kamayo	148,021	0.19
Kamigin/Kinamiging	48,452	0.06
Kapul	2,350	0.00
Karaga	526	0.00
Karao	1,647	0.00
Karolanos	102	0.00
Kasigurahin	8,550	0.01
Kinalinga	1,127	0.00
Kiniray-a	219,562	0.29
Kolibugan/Kalibugan	30,045	0.04
Ligbuk/Lugbok	1,467	0.00
Maguindanao	991,928	1.30
Malaueg	18,583	0.02
Malbog	131	0.00
Mamanwa	5,716	0.01
Mandaya	100,454	0.13
Mangyan	36,095	0.05
Mansaka	33,961	0.04
Matigsalog	19,523	0.03
Molbog	7,533	0.01
Negrito	1,627	0.00
Nilulubo	115	0.00
Palawan/Pinalawan/Palawanon	61,653	0.08
Paranan	14,272	0.02

**Annex 1 (continued)
Ethno-linguistic Groups**

Groups	Count	Share (%) to total population
Pinangal	49	0.00
Ratagnon	910	0.00
Remontado	286	0.00
Romblon/Rombloanon	197,294	0.26
Sambal, Zambal	135,126	0.18
Sangil, Sangir	10,890	0.01
Subanen (Sicon,Zambo. Norte)/Subaben (Zambo. Norte & Sur)	286,967	0.38
Sulod	455	0.00
Tabangnon	330	0.00
Tadyawan	1,106	0.00
Tagabawa	13,639	0.02
Tagabili	108	0.00
Tagakaolo	81,348	0.11
Tagbanwa	17,206	0.02
Tagbuaanon	41	0.00
Talaandig	9,525	0.01
T'boli	88,701	0.12
Teduray	38,734	0.05
Ternate±o-Chavacano	3,959	0.01
Tigwahon/Tigwahanon	1,941	0.00
Tinggian	35,857	0.05
Tiruray	34,319	0.04
Tuwali	3,821	0.01
Ubo	2,569	0.00
Umayamnon	2,322	0.00
Yakan	153,767	0.20
Yogad	16,186	0.02
Other Local Dialects/Ethnicity	186,216	0.24
Sama (Sama Bangengeh	112,467	0.15
Sama Dilaya	7,422	0.01
Capizeno	579,866	0.76

**Annex 1 (continued)
Ethno-linguistic Groups**

Groups	Count	Share (%) to total population
<i>Non-IP</i>		
Bikol/Bicol	4,609,128	6.04
Cebuano	10,026,252	13.14
Hiligaynon, Ilongo	5,731,749	7.51
Ilocano	6,961,585	9.12
Kapampangan	2,317,831	3.04
Pangasinan/Panggalato	1,370,920	1.80
Tagalog	21,476,193	28.14
Waray	2,578,719	3.38
Bisaya/Binisaya	5,760,365	7.55
Boholano	1,862,342	2.44
Chinese	56,031	0.07
American/English	12,163	0.02
Other Foreign Languages/Ethnicity	19,224	0.03
<i>Not Reported</i>	611,125	0.80

Annex 2
Classification of Provinces

Majority

Metro Manila	Davao	Pampanga
Albay	Eastern Samar	Quezon
Bataan	Laguna	Rizal
Batangas	Leyte	Samar
Bohol	Marinduque	Siquijor
Bulacan	Misamis Oriental	Sorsogon
Camarines Norte	Negros Occidental	Southern Leyte
Camarines Sur	Negros Oriental	Tarlac
Catanduanes	Nueva Ecija	Aurora
Cebu	Mindoro Occidental	

Minority

Aklan	Maguindanao
Antique	Mt. Province
Basilan	Romblon
Batanes	Sulu
Capiz	Tawi-Tawi

Mixed

Abra	Ilocos Sur	Mindoro Oriental
Agusan del Norte	Iloilo	Palawan
Agusan del Sur	Isabela	Pangasinan
Benguet	Kalinga Apayao	Quirino
Bukidnon	La Union	South Cotabato
Cagayan	Lanao del Norte	Sultan Kudarat
Camiguin	Lanao del Sur	Surigao del Norte
Cavite	Masbate	Surigao del Sur
Davao del Sur	Misamis Occidental	Zambales
Davao Oriental	Cotabato	Zamboanga del Norte
Ifugao	Northern Samar	Zamboanga del Sur
Ilocos Norte	Nueva Vizcaya	

Annex 3
Description of Variables

Variable	Description	Remarks
<u>Classification Variables</u>		
ETHNIC	Type of province by ethnicity	0 = majority 1 = minority 2 = mixed
ETHNICM	Dummy variable	1 = mixed 0 = otherwise
ETHNICP	Dummy variable	1 = minority 0 = otherwise
<u>Conflict</u>		
AVECONF	average number of conflicts per year	the averages are computed for each administration
CORYCONF	average number of conflicts per year, 1986-1990	
FVRCONF	average number of conflicts per year, 1991-1997	
ERAPCONF	average number of conflicts per year, 1998-2000	
GMACONF	average number of conflicts per year, 2001 - 2004	
<u>Factors that may lead to frustration</u>		
<i>Relative deprivation in terms of access to services</i>		proportion in low ethnic municipality minus proportion in high ethnic municipality
DELECT	difference in proportion of households with access to electricity	
DHOSP	difference in proportion of households with access to hospital	
DHS	difference in proportion of households with access to secondary schools	
DMARKET	difference in proportion of households with access to markets	
DWATER	difference in proportion of households with access to level II and III water supply systems	
<i>Income poverty</i>		
HCOUNT	headcount index	
HCOUNT_U	headcount index, urban only	
HCOUNT_R	headcount index, rural only	

**Annex 3 (continued)
Description of Variables**

Variable	Description	Remarks
<i>Income inequality</i>		
EGINI	Gini ratio based on per capita expenditure	
YRATIO_51	ratio of per capita expenditure in 5th quintile to 1st quintile	
<i>Minoritization</i>		
PROPORIG	Proportion of original settlers in the province	
ETM_ORIG	Interaction term; ETHNICM*PROPORIG	
<i>History of conflict</i>		
P_CONF	average number of conflicts per year, 1986-1990	
<u>Factors that increase the cost of "learning the truth"</u>		
<i>Poor or non-existent roads</i>		
QROAD	quality-adjusted road density	total road length, adjusted by type, per sq. km. of alienable and disposable land
<i>Educational Attainment</i>		
HEDUC3	Educational attainment of 8-13 years old, % of ideal, high municipalities only	
HEDUC4	Educational attainment of 14-17 years old, % of ideal, high municipalities only	
HEDUC5	Educational attainment of 18-23 years old, % of ideal, high municipalities only	
HEDUC6	Educational attainment of 24-45 years old, % of ideal, high municipalities only	
HEDUC7	Educational attainment of 45-65 years old, % of ideal, high municipalities only	
HEDUC8	Educational attainment of 66 years old and above, % of ideal, high municipalities only	
HELECED8	Interaction term; HELECT*HEDUC8	
<u>Evidence of government response/nonresponse</u>		
<i>Government program on redistribution</i>		
CARP_A	Proportion of cumulative CARP-DAR accomplishments to Potential Land Reform Area by province	Accomplishments are based on recent data released by DAR. Potential area is an estimate using the accomplishments as of 2003 plus the targets up to 2010

**Annex 3 (continued)
Description of Variables**

Variable	Description	Remarks
<i>Government policy on peace</i>		
ERAP	Dummy variable for Estrada administration	1 = for years 1998-2000 0 = otherwise
GMA	Dummy variable for GMA administration	1 = for years 2001-2004 0 = otherwise
<u>Factors that affect expected cost and benefit</u>		
<i>Income Level</i>		
PCEXP_3	Mean per capita expenditure of the 3rd quintile	CBN adjusted (1997 Metro Manila=100)
PCEXP_32	squared term of PCEXP_3	
<i>Demographic characteristics of family</i>		
LDEPEND	Dependency ratio, low municipalities only	ratio of number of 0-14 and over 64 years old to 15-64 year old persons
HDEPEND	Dependency ratio, high municipalities only	ratio of number of 0-14 and over 64 years old to 15-64 year old persons
DDEPEND	Difference in dependency ratio	ratio in low ethnic municipality minus ratio in high ethnic municipality
LMALES6	Single male 24-45 years old, low municipalities only	
LMALES7	Single male 46-65 years old, low municipalities only	
LMALES8	Single male 66 years old and above, low municipalities only	
HMALES6	Single male 24-45 years old, high municipalities only	
HMALES7	Single male 46-65 years old, high municipalities only	
HMALES8	Single male 66 years old and above, high municipalities only	

**Annex 4
Descriptive Statistics**

Variables	Mean	Standard Deviation	Minimum	Maximum
ETHNIC	1.0811	0.9285	0.0000	2.0000
ETHNICM	0.4730	0.5004	0.0000	1.0000
ETHNICP	0.1351	0.3426	0.0000	1.0000
AVECONF	0.8046	1.6064	0.0000	12.0000
CORYCONF	0.8649	1.0199	0.0000	4.8000
FVRCONF	0.0367	0.1478	0.0000	1.1429
ERAPCONF	0.9279	1.7949	0.0000	12.0000
GMACONF	1.4493	1.8800	0.0000	12.0000
DELECT	0.0867	0.2135	-0.6512	0.8177
DHOSP	0.0069	0.0388	-0.1692	0.1321
DHS	-0.0027	0.1455	-0.6326	0.3715
DMARKET	-0.0718	0.1643	-0.6761	0.2969
DWATER	0.0288	0.2165	-0.4313	0.8192
HCOUNT	0.3218	0.1703	0.0348	0.9203
HCOUNT_U	0.2010	0.1392	0.0000	0.9000
HCOUNT_R	0.3792	0.1789	0.0000	0.9265
EGINI	0.3766	0.0510	0.1922	0.5039
YRATIO_51	6.2883	1.4687	2.5060	10.8408
P_CONF	0.8649	1.0199	0.0000	4.8000
QROAD	3.5024	3.9429	0.3471	39.2284
HEDUC3	0.6746	0.1325	0.3411	0.9089
HEDUC4	0.3921	0.1435	0.0705	0.7378
HEDUC5	0.1333	0.0587	0.0212	0.3232
HEDUC6	0.1144	0.0509	0.0212	0.3001
HEDUC7	0.0595	0.0288	0.0139	0.2243
HEDUC8	0.0353	0.0215	0.0000	0.1769
HELECED8	0.0197	0.0221	0.0000	0.1737
PROPORIG	0.7296	0.2940	0.0057	1.0000
ETM_ORIG	0.3066	0.3861	0.0000	1.0000
CARP_A	0.7716	0.1624	0.2481	1.0000
PCEXP_3	14617.3100	4020.1300	6222.7200	28269.4000
PCEXP_32	229754406.0000	130305976.0000	38722244.2000	799158976.0000
LDEPEND	0.8082	0.0795	0.5510	0.9352
HDEPEND	0.8256	0.0733	0.5510	0.9794
DDEPEND	-0.0174	0.0604	-0.2196	0.1816
LMALES6	22508.0300	42178.9000	0.0000	344126.0000
LMALES7	3105.3400	4123.8200	0.0000	28837.0000
LMALES8	2203.7300	2587.2700	0.0000	14334.0000
HMALES6	3649.0300	5153.7800	0.0000	20206.0000
HMALES7	598.2432	856.4406	0.0000	3717.0000
HMALES8	359.0946	571.7563	0.0000	2743.0000