Masked Development: Exploring the Hidden Benefits of the Zapatista Conflict

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MASKED DEVELOPMENT:
EXPLORING THE HIDDEN BENEFITS OF THE ZAPATISTA CONFLICT

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Abstract

In 1994, the *Zapatistas* took up arms claiming for indigenous people rights in Chiapas, Mexico. After 12 days of civil war, the national government called for dialogue. Nevertheless, since then, it has deployed a "low intensity war" over the self-declared Zapatista Autonomous Communities. At the same time, the Zapatistas started to implement a new set of institutions, which have allegedly enhanced their socio-economic situation. The purpose of this study is, thus, to elucidate this ambiguous theoretical effect on the wellbeing of the communities under harassment. This paper generates a unique dataset, linking socio-economic variables from the Mexican Census with different measures of conflict intensity at the locality level, based on geo-coded influence areas from the military and police positions disseminated throughout Chiapas. The present investigation controls for the endogeneity in the relationship between conflict and the socio-economic performance, instrumenting the former by the distance from each locality to a strategic military spot defined by the Zapatista Army for its uprising in 1994 on the natural boundary of the Lacandon Jungle. The results, robust to different specifications and conflict intensity definitions, imply that the impact of the Zapatista institutions has surpassed the negative effect of the civil strive, suggesting that: i) bottom-up policies carried out by grass-root organizations, even in times of conflict, might represent an appropriate path for endogenous socio-economic development; and ii) the Mexican government should recognize the Zapatista autonomy and its right for self-determination.

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I. Introduction

On January 1, 1994, an uprising of indigenous communities interrupted New Year's Eve festivities in Chiapas, Mexico. The *Ejército Zapatista por la Liberación Nacional* (hereafter EZLN), went up in arms claiming for indigenous people rights; i.e. acknowledgement of their culture and language specificities, right to a decent life, land, autonomy, education, and health.

After twelve days of civil war, the federal government called for dialogue. Although the "official" civil war lasted less than two weeks, a "low intensity war" (hereafter LIW) started through military and paramilitary harassment against the *Zapatistas* with the consequence of dwelling damages, massacres, and thousands of Internally Displaced People (henceforth IDPs). In 2000, when the PAN (*Partido de Acción Nacional*) reached the presidency, the conflict intensity began to decrease.

The purpose of this study is to quantify the effect of this conflict on different measures of wellbeing. From the fields of Anthropology and Political Science, there are several studies analyzing the origin and organization of the Zapatista Autonomous Communities (hereafter ZACs) and the overall connotation of their autonomy. However, the quantitative impact of the "Zapatista Conflict" has been widely overlooked.

This investigation is located in the body of literature related to conflict, with Miguel et al. (2004, 2011) as the leading proponents. Some empirical evidence of the detrimental (Akbulut-Yuksel, 2009; Shemyakina, 2011; Akresh et al., 2011; Swee, 2011) or neutral (Miguel and Roland, 2011) long-term effects of conflict on economic development has been found. However, generally speaking, there might have been some misleading conclusions due, mainly, to: i) a small sample size; ii) the non-random nature of the conflict; iii) endogeneity; and iv) double causality. This paper proposes to use an instrumental variable (IV) estimation, within a large sample of communities, in order to cope with these obstacles.

This research analyzes the short- and long-term consequences of the conflict in Chiapas (which had its peak during the period 1994-2000) on deprivation, fertility, overcrowding, and literacy rates. It combines variables from both the Mexican Census and the CONEVAL (National Council for the Evaluation of Social Development Policy) with a unique documentation of the conflict at the local level[1] from an independent, non-profit and non-partisan entity from Chiapas, called CIEPAC[2]. In particular, this institution published the military and police positions established in Chiapas since 1993. Using geo-reference data from INEGI (Mexican Institute of Statistics), this paper, first, sets an influence area from each position at the locality level to identify the communities in conflict and, then, creates different conflict intensity variables. These variables are instrumented by the distance in kilometers from each locality to a military strategic triangle set by the EZLN for its uprising in January 1994 at the doorsteps of the Lacandon Jungle, a natural boundary that allows the Zapatistas to hide from the National Army. This instrumental variable is expected to be correlated with conflict and uncorrelated with the error term that determines the response variables, thus complying with the IV econometric requirements[3].

The expected impact of the conflict is not necessarily negative, as one could readily assume. On the one hand, according to the literature in conflict, the effects would be negative (or neutral in the best-case scenario) because of dwelling damages -including health and education facilities-, teacher's absence, psychological disruptions, malnutrition, and famine, among other reasons. On the other hand, there is a particular feature playing at the same time in a large amount of communities in conflict: the new institutional arrangement adopted by the Zapatistas, crystalized by their own schools, health centers, laws, and the so-called "Good Government Councils". These institutions may have enhanced the wellbeing conditions in the ZACs. In fact, in the 2005 Zapatista Press Release, the *Sexta Declaración de la Selva Lacandona*, the Zapatistas declared that "only the indigenous communities located in the Zapatista territory have enhanced their life conditions, as regards health, education, food, and housing" (EZLN, 2005, 5). Hence, *as several communities in*

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[1] In Mexico, there are 32 states (or more precisely, 31 states and the Federal District; i.e. Mexico City), 2.492 municipalities and 299.638 localities in 2010. Hereafter, when I mention communities, I am referring to localities.
[2] CIEPAC is the acronym for *Centro de Investigaciones Económicas y Políticas de Acción Comunitaria*. Its mission is to analyze and make research, to train, and to examine social processes, especially in Chiapas.

conflict are ZACs, the allegedly negative effect of the conflict may be counterbalanced.

The empirical findings of this paper suggest that the conflict is associated, in the long-term, with a decline in the social backwardness index[4], the overcrowding rate[5], and the fertility rate[6]. At the same time, the conflict is related to a slight increase in the literacy rates[7]. In particular, *an extra year in conflict is associated with: i) lower levels of the social backwardness index in 2010 from 2.9 to 5.9 percent; ii) a decrease in the overcrowding rate in 2010 from 1.33 to 2.68 percent; iii) a decline in the fertility rate in 2010 from 1.8 to 3.62 percent; and iv) a less-significant increase of children's literacy rates in 2010 from 0.55 to 1.16, specifically on boys (1.14 to 1.62 percent).* However, this paper does not find any statistical association of the conflict with short-term deprivation.

The contributions of this paper are multifold. This is the first study that robustly analyzes the quantitative effect of the Zapatista conflict. It also adds to the literature of conflict with a particular case where bottom-up policies are implemented in the region in conflict. Finally, and more importantly, the policy implications of this study are crucial for the resolution of this conflict: the government should recognize the Zapatista autonomy without any type of aggression, by either police, military or paramilitary forces. This is not only part of the Indigenous People's right to self-determination [8] ; also, their new set of institutions has been benefiting their communities, as shown in this paper.

The remainder of the paper is organized as follows. Section II presents the literature review. Section III describes the conflict *per se,* the Zapatista historical roots, and their well-established autonomous institutions. Section IV explains the identification strategy, the instrumental variable, and the conflict intensity measures used in the research. Section V presents the data. Section VI contains the main

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[3] However, I cannot formally test the exclusion restriction, because the estimation is just-identified, thus the over-identification test cannot be executed.

[4] A weighted index comprising the areas of education, health, basic services, and dwelling. The lower the index, the less deprived the community is.

[5] The average of individuals per dwelling.

[6] Number of children born alive divided by the amount of women in reproductive age.

[7] Literacy rates of children aged 8 to 14 in 2010.

estimations of the impact of the conflict, while some robustness checks are presented in Section VII. Section VIII discusses alternative interpretations of the results and, finally, Section IX presents the final remarks.

II. Literature Review

The numerous negative consequences of armed conflict, such as life losses, displacements, massive killings, capital and infrastructure destruction, malnutrition, human and civil rights impediments, and psychological effects, are undeniable. But, does conflict have a long lasting effect on economic growth and development? And if this were the case, under which circumstances? This is an essential question addressed in the development economics literature in the last few years.

Miguel and Roland (2011) analyze the long-term impact of the Vietnam War. First, they advance a neoclassical model in which the expected long-run effect of the conflict is ambiguous, as human and physical capital recovers relatively quickly to its steady state[9] but the *impact on institutions is uncertain*. Since the theoretical effect is unclear, the empirical research is of outmost importance. Thus, they evaluate the long-term impact of the Vietnam War on poverty rates, consumption expenditures, infrastructure, and human capital, without finding statistically significant effects. The main contribution of this paper is their acknowledgement of both the non-random placement of the areas under disruption and the endogeneity in the conflict variables. Therefore, they propose to use the distance from the 17th parallel as an IV for the U.S. bombing intensity, suggesting that this parallel coincides with the border between North and South Vietnam set "exogenously" in the 1954 Geneva Accords.

The aforementioned paper and Miguel et al. (2004) represent the core of a more robust literature on the topic, which considers the potential double causality

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[8] Article 3 and 4, United Nations Declaration on the Rights of Indigenous Peoples.
[9] In related works, Brakman, Garretsen and Schramm (2004) and Davis and Weinstein (2002) find no long run impact of U.S. bombing on post-war outcomes; i.e. city growth in Germany and population growth in Japan, respectively. This evidence supports the neoclassical models predictions of rapid recovery to pre-war equilibrium levels in a period of 20-25 years. At the

between conflict and economic development. In particular, Miguel et al. (2004) show a significant negative effect of economic growth on the probability of civil strive, instrumenting by rainfall variation, in a sample of 41 African countries during 1981-1999. They conclude that a reduction of 5 percentage-points in annual economic growth increases the average likelihood of civil conflict by 50 percent.

Given the difficulty in establishing valid exogenous instrumental variables, several papers have attempted to circumvent this problem using cohorts, comparing those exposed and non-exposed to the conflict. This procedure has been popularized in the development economics literature by the works of Rosenzweig and Wolpin (1986, 1988) and Duflo (2000), identifying exposure to the program by individual's date of birth and region of birth, thus avoiding non-random placement.

Using a similar framework, Shemyakina (2011) explores the effect of the armed conflict in Tajikistan on education. She finds that past damage to household dwelling had a significant and negative short-run effect on the enrollment of girls, but little or no effect on boys'. In particular, her results suggest that the civil conflict reduced the probability of complete schooling for girls in between 7 and 12.3 percent. Some precisions would be useful to comment about her identification strategy. First, she compares children's enrollment in the mandatory school age group in a cross-section framework, hence endogeneity arises as a consequence of the non-random fashion of the conflict. Second, she analyzes the effect on adult's education based on date of birth and region of *study*, in which region of study is utterly endogenous[10]. Finally, Shemyakina does not add a comparison group in order to increase the robustness of her results, thus her difference in difference outcomes could have been driven by a systematic variation in the increase in the education pattern across regions, as previously suggested by Strauss and Tomas (1995).

Akbulut-Yuksel (2009) examines the effect of physical destruction in German cities after the World War II on educational attainment, health status, and labor

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same time, Lopez and Wodon (2005) analyze the armed conflict in Rwanda and suggest that in a span of 10 years, health and education indicators come back to their trend but GDP per capita is still 25-30% lower.

[10] That is, individuals may attempt to study in low conflict-intensity regions, so they can move from high conflict-intensity areas, and thus participation in the conflict is endogenous to unobservables correlated with the response variable. For more robust results, Shemyakina could have instrumented by region of birth.

market outcomes. The author uses city-by-cohort variation in the WWII due to damage intensity measured by the physical destruction caused by Allied Air Forces bombing. In particular, Akbulut-Yuksel finds that children in conflict had 0.4 fewer years of schooling on average in adulthood, half an inch (one centimeter) shorter, inferior self-reported health satisfaction, and 6 percent less earnings. Again, endogeneity may play an important role in these results. The author compares cohorts directly affected by the WWII (i.e. born between 1924 and 1939) with cohorts born *after* the conflict (i.e. 1951 to 1960); thereby, the latter cohort may receive long-lasting negative spillover effects because of the conflict by their parents' deficiencies (e.g. psychological or physical). In addition, exposure to war is identified by region of conflict and not by region of birth, exacerbating the endogeneity problem.

Several other studies, facing similar identification problems, imply significant negative effects of conflict. Akresh, Bhalotra, Leone and Osili (2012) find long-run negative effects of the Nigerian civil war of 1967-70 over women's human health capital -using a control group born *after* the war. Akresh, Luchetti and Thirumurthy (2012) find a short-run negative impact on height-for-age Z-scores as a consequence of the 1998-2000 Eritrea war, identifying individuals by region of war. Following a similar strategy, Akresh, Bundervoet and Verwimp (2009) analyze the impact of the 1994-1998 Burundi conflict, suggesting that an additional month of civil war exposure decreases a child's height-for-age Z-score by 0.047 standard deviations. Similarly, León (2010) finds a significant short- and long-term negative impact on years of schooling of the 1980-1993 Peruvian conflict between *Sendero Luminoso* and the National Army.

Through a more complete identification strategy, Swee (2011) examines the influence of the Bosnia and Herzegovina civil war in 1992-1995 on education. Conflict intensity is identified by the combination of municipality-level war casualties and variation in birth cohorts of children; the exposed cohort is 15-28 years old in 2001 and there are several older comparison cohorts. Acknowledging the non-random placement problem, Swee instrumented the conflict variable by ethnic polarization, doubtfully unrelated with unobserved individual attributes that directly determine post-war outcomes. The results suggest that the conflict reduces the likelihood of completing secondary school -but are not significant for primary schools.

In a related research, Ibañez and Moya (2010) advance an analysis of IDPs from the long-lasting conflict in Colombia. First, they describe the drop in welfare conditions -e.g. in assets and labor income- of Colombian IDPs, comparing before and after being displaced from their communities. Second, the authors split IDPs by their beneficiary status of income-generation programs funded by USAID, instrumenting program participation by the access of Emergency Humanitarian Aid (a pre-requisite that determines the potential beneficiaries of USAID programs). They conclude that although these programs seem to be effective in augmenting IDPs' short-term labor income, this increase is not enough for enhancing consumption ratios. In addition, they show that income-generating programs decrease beneficiary's likelihood of having to split up the household as a coping strategy, but that it was not effective to keep children in school.

There are a few attempts, with similar methodologies, that analyze the effect of conflict on fertility, generally accepting that families postpone births during conflict as a way to avoid both a higher level of short-term deprivation and a lower level of human capital accumulation in their children in a longer term. Agadjanian and Prata (2002) find that fertility rates drop during the war in Angola and then rebound once conflict finishes. De Walque (2006), Lindstrom and Berhanu (1999), and Schindler and Brück (2011) find similar results in Cambodia, Ethiopia and Rwanda, respectively. They suggest that famine, access to health services, destruction of health facilities, and the process of displacement (especially of males) directly affects fertility. At the same time, De Walque (2006) stresses that men mortality increases during conflict times, with a direct consequent effect on fertility rates.

Finally, Arcand and Wouabe (2009) analyze the effect of the Angolan civil war, instrumenting conflict by the distance of each community from the main rebel group's headquarters. In the short-term, they find that conflict decreases child health (Z-score anthropometric indicators) and fertility, increases school enrolment, and does not statistically affect household expenditures. However, in the long run, the conflict does only have a statistically but marginal effect on child health, while no impact on the other same variables. Additionally, they develop a Neoclassical unitary household model, which eventually only predicts their short-run results. The explanation of the

short-term school enrolment rate increase can be found in the labor market disruption; i.e. lower wages decrease the opportunity cost for education.

In sum, there are several empirical studies showing both the detrimental short- and long-term effects of conflict on wellbeing measures. Nevertheless, there is no single paper analyzing the consequences of conflict when the communities under civil strive are devising, at the same time, their inner institutions and development policies. *This is the topic of this paper*.

III. The Context

III.1. The Conflict

On January 1, 1994, the EZLN took over seven municipal capitals in Chiapas (*cabeceras municipales*), including San Cristóbal de las Casas, the third one in terms of population. Simultaneously, the EZLN issued the "First Declaration of the Lacandon Jungle" (EZLN, 1993), a war pronouncement against the federal government with the purpose of "liberating the oppressed Mexicans" of Chiapas and spread the movement to the national level.

Twelve days later, after the National Army recovered the seven municipal heads and with the result of between 145 and 1,000 fatalities (according to SIPAZ[11]), the federal government unilaterally declared a cease-fire. In 1995, the Army launched a fierce offensive against the Zapatistas and occupied several communities. In February 1996, in order to improve its public reputation, the government signed the San Andrés Accords, granting recognition to indigenous rights. However, these accords were not respected and the Zapatistas left the dialogue. The conflict reached its zenith with the *Acteal Massacre* in 1997, where approximately sixty paramilitary agents took over a church with displaced people from other communities and killed forty-five of them.

Although the official war lasted only the first few days from 1994, since then, the government started the so-called "low intensity war" (LIW) that persists even nowadays. This process is illustrated by direct military and paramilitary hostilities against the self-declared ZACs through road cuts, crop damages, eviction of communities, military appropriation of schools and hospitals, killings, tortures, rapes, looting, and other human rights violations (Luevano et al., 1995; Rebón, 2001; Hidalgo Dominguez, 2006). At the same time, the LIW has been deployed through more indirect ways, such as higher amounts of governmental social resources directed at the most deprived communities in Chiapas in order to capture potential Zapatista followers (Castro and Ledesma, 2000).

Even though several scholars closely followed this topic, there is a small amount of data about the quantitative consequences of the conflict. According to UN (2012), the LIW generated between 50,000 and 90,000 IDPs from 1994 to 1998, the highest intensity period. The large amount of displacements had a direct effect on school attendance, teacher's absence, accessibility to health supplies, food availability, and agricultural production. Though having faced a difficult time when they came back to their looted communities of origin, the Zapatistas started to experience progressive improvements in their social conditions, not only as a consequence of the Presidency change in 2000[12], but also after the implementation of the new set of institutions in 2003 (UN, 2012; Hidalgo Dominguez, 2006). In any case, even nowadays, the ZACs suffer from persecutions and disturbances at the hands of police, military, and paramilitary forces.

III.2. Historical Background

According to the large stock of literature on the Zapatistas from other fields, the movement has **four historical origins** (Obregón, 1997; Ghiotto and Pascual, 2008; Stahler-Sholk, 2010; De Vos, 2002). First, some scholars argue that ZACs follow **ancestral indigenous communal traditions (i.e. Mayan's)** with a focus on a

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[11] SIPAZ is an international organization legally established in the United States and The Netherlands, and based in Chiapas.

participatory democracy, where every participant takes decisions after long deliberations (Gossen, 1996)[13].

The second factor is the **Liberation Theology**. This is a Latin American movement born in the seventies within the Catholic Church, with a clear tendency towards social reform and justice. Members of the church have encouraged Chiapanecan indigenous communities to be organized, specifically since the Indigenous Congress of 1974, as a way to strengthen their social capital and to overcome its extreme deprived condition of poverty (Obregón, 1997)[14].

The gradual arrival of young **leftist activists** to the Lacandon Jungle since 1968 can be traced as the third main reason of the appearance of the ZACs (Obregón, 1997). These individuals started to create clandestine groups in isolated places of Mexico (e.g. the Lacandon Jungle) with the purpose of helping and organizing deprived communities that were not satisfied with their social, economic, and political conditions. In 1980, *Frente Proletario* (FL) used church influences and contacts to have an approach to some communities in Chiapas. Then, in 1983, *Frente de Liberación Nacional* (FLN) arrived to the same area and replaced FL. Eventually, FLN gave birth to its own military forces, the EZLN.

Finally, **property rights over land** have been one, if not the most, problematic issue in the last five centuries in this region (De Vos, 1980, 1988, 2002). Back in 1712 and 1868, indigenous people claiming for land were heavily repressed by the government (Gossen, 1996). In the 1910 Mexican Revolution, contrarily to what could have been expected, there was almost no land redistribution in Chiapas (Obregón, 1997). During the fifties, indigenous people began to migrate to the Lacandon Jungle searching for new land. This migration trend was fostered by the government's agrarian reform, which nationalized a large part of the Lacandon Jungle to "settle new population centers and agricultural cores" (De Vos, 2002:80). In the following decade, the government of Chiapas granted 600,000 hectares of land from

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[12] The *Partido Acción Nacional* returned to the presidency after more than seven decades of *Partido Revolucionario Institutcional's* mandate.
[13] The Zapatistas have a collective auto-identification as Mayas, as "general principles of values and conduct" (Gossen, 1996:536).
[14] The Bishops Samuel Ruiz and Raúl Vera have been the iconoclasts of this movement in Mexico.

the Lacandon Jungle to a very small indigenous group (The *Lacandones*) [15] , generating a big discontent among other groups (either because they were also landless or because their properties suddenly became illegal under the new "Lacandon Zone")[16]. In 1978, environmental projects were approved for the conservation of around 70 percent of the Lacandon Jungle and, consequently, even less land remained available. In the eighties, fifty *tojobales[17]*, claiming for their property rights, were executed by the military forces (Obregón, 1997); meanwhile, the government of Chiapas continued with its "agrarian reform", distributing 80,000 hectares to PRI-only members.

These historical aspects, coupled with the deep drop of coffee prices since the mid-eighties[18], the reform of the Article 27 of the Mexican Constitution in 1992 that suspended land redistribution[19], and the commitment of Mexico to sign up the North American Free Trade Agreement (NAFTA) with Canada and the United States on January 1th, 1994, led to the EZLN uprising in the exactly same date of the NAFTA signature.

III.3. The Zapatistas

III.3.1. Identification of the Unit of Study

The Zapatistas are a heterogeneous group (Collier, 1998) with respect to ethnicity, culture, tradition, and language -Tzotzil, Tzeltal, Chol, Mam, Zoque, and Tojobal (Gossen, 1996; Obregón, 1997). The same occurs with religion. As a result of the significant influence of the Liberation Theology over the indigenous communities, the federal government began to favor Protestant Churches, and consequently, a great

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[15] The group of people called "Lacandones" has changed throughout the last centuries, thus the sixty-six families who received this big portion of land were not necessarily the people who had previously lived in the area (De Vos, 1980).

[16] The new "Lacandon Zone" is a big portion of the "Lacandon Jungle", but they are not perfectly juxtaposed.

[17] One of the more than ten indigenous groups with presence in Chiapas.

[18] This was caused by the disintegration of the National Institute of Coffee (*Instituto Nacional Mexicano del Café)*, together with the international coffee prices drop.

[19] The Art.27, set up after the 1910 Mexican Revolution, created the notion of *ejidos* with the purpose of establishing an agrarian reform in Mexico (goal that was not fully fulfilled). The reform of 1992, which allowed trading common land, was perceived by several indigenous communities as a cancelation of government's commitment to land redistribution, challenging their sense of community (Stahler-Sholk, 2010) and the opportunity for those left-behind to receive new portions of land.

amount of indigenous people (even Zapatistas) changed from Catholicism to Protestantism (Obregón, 1997).

The Zapatistas are located in Chiapas, the most deprived State of Mexico[20] (Figure 1). There is no "official" delimited area of the ZACs. According to CIEPAC, they have presence in almost half of the State (the right side of Figure 2):

FIGURE 1: Chiapas

Source: Government of Chiapas.

FIGURE 2: Location of ZACs
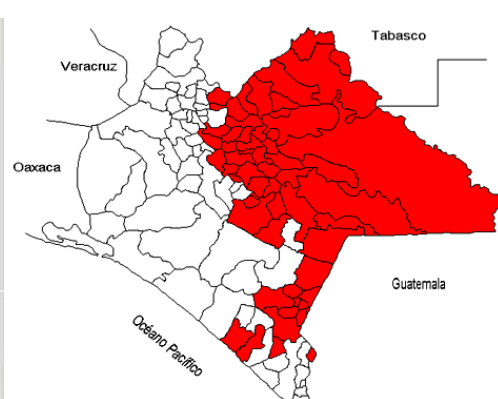
Source: CIEPAC.

Unfortunately, there is no precise way to identify the ZACs since: i) they hide their identity due to the LIW; ii) not all members of a given community are necessarily EZLN supporters; and iii) they change year by year[21]. *Thus, the unit of study in this paper is the communities in conflict, who are generally ZACs, but they are not necessarily perfectly juxtaposed*.

III.3.2. Institutional Arrangement

The Zapatistas have developed a new platform of institutions. On December 19, 1994, they self-declared 32 autonomous territories (which they called MAREZ, or Zapatista

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[20] According to CONEVAL, Chiapas presents the highest poverty lines of the country, ranging from 32% to 75% in 2012 (asset and food line, respectively). The average at the national level is 10% and 46%, respectively.

[21] Sánchez-Pérez, Arana-Cedeño and Yamin (2006) provide the only attempt of robustly measuring the social conditions of the ZACs. They chose three high-intensity conflict areas of Chiapas and randomly selected 54 out of 524 communities with population between 300 and 2,500 individuals. After a collective effort from local organizations (NGOs, government sources and Church), they classified those communities as pro-government, pro-EZLN and mixed communities. At the end of the paper, they admit that they have an identification bias of approximately 25 percent and a considerably small sample of pro-EZLN

Autonomous Municipalities) covering, in whole or in part, 38 official municipalities from Chiapas, out of the 112 in 1990 (UN, 2012). In the movement's early years, the Zapatista institutions were basically the so-called *Aguascalientes*, the political and cultural centers created in 1994, together with some incipient health centers and schools built in the late nineties. But it was not before 2003, that they actually established a definitive set of institutional arrangements through the creation of the *Caracoles*[22] and the *Juntas de Buen Gobierno* (Good Government Councils or JBGs). Since then, the number of MAREZ declined to 27 (CIEPAC, 2003).

The Caracoles symbolize the heart of the Zapatista autonomy, where their main schools and health centers are generally established. The same happens with the JBGs, a rotating system of representatives where all decision-making pertaining the Zapatista movement takes place. The legislative, judicial, and executive powers are centered in the JBGs where several laws have been enacted -e.g. power restriction over the EZLN military branch, regulations over collective cooperatives, etc.

In particular, the Agrarian Law regulated the *Agrarian Reform de facto* that the Zapatistas carried out in Chiapas. This law regulated the type of land to usurp (or recover) before the uprising[23], and the amount of land to receive afterwards, which should be not more than one hundred hectares of "bad land" or fifty hectares of "good land", in accordance with the Zapata's Plan of one hundred years ago.

The Revolutionary Law on Women represents another important mandate of the movement. This law, together with the EZLN's Indigenous Revolutionary Clandestine Committee demands of March 1994, attempts to empower the Zapatista indigenous women, stating for example, that they have the right to education, health, community participation, and family planning (access to contraceptives and the right to decide the number of children they have and care for).

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communities. Otherwise, if the Zapatistas could be identified, I may include fixed effects to control for it. Or even more interesting, I would be able to analyze the effect of the conflict on the ZACs.
[22] "Caracoles" mean "snails", which represents the idea of horizontal and circular ways of decision-making.
[23] It could neither be communal land, *ejidos*, nor cooperatives (Cerda García, 2011).

The political organization of the Zapatistas is illustrated in Figure 3. In brief, there are 5 Caracoles (*Roberto Barrios*, *Oventic*, *Morelia*, *La Garrucha*, and *La Realidad*) which together encompass 27 MAREZ or *Zapatista Autonomus Municipalities* (CIEPAC, 2003). These, in turn, are composed by more than 1,000 ZACs in total (Barmeyer, 2009). Considering the census population average at the community level in Chiapas in 2010 (i.e. 748.87), it would be reasonable to say that there should be an approximate number of 750,000 Zapatistas. However, these numbers are only imprecise estimations of the number of ZACs and of their population.

FIGURE 3: Political Organization of the Zapatistas since 2003

State Level	**5 Caracoles**	Good GVT Councils, own justice, schools, health centers, etc
Municipal Level	**27 MAREZ**	Autonomous Councils; 1 or 2 MAREZ's representatives per Caracol.
Local Level	**> 1,000 communities**	1 Communal representative per MAREZ.
Individual Level	**750.000 individuals**	
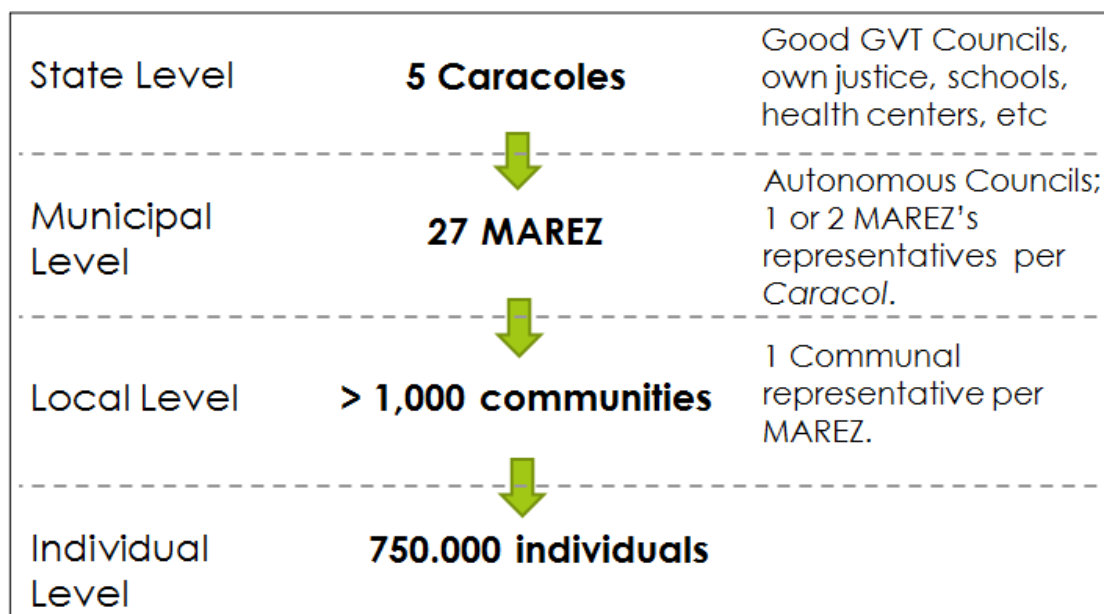
Source: Own elaboration based on Barmeyer (2009), CIEPAC (2003) and INEGI (2010).

III.3.3. ZACs Funding

ZACs are usually not sustainable in financial terms (Barmeyer, 2009). They generally reject governmental social programs -e.g. *Oportunidades*, the Mexican Conditional Cash Transfer Program- as part of their denial of the "bad government" (in their own words). Instead, ZACs receive a large amount of donations from national and international NGOs and foreign governments, which are administered by the Caracoles. Ten percent of the value of a donation for a particular ZAC is retained by

the Caracol and it is then redistributed to other communities. At the same time, there is a *brother tax* on transactions that is also reallocated into isolated communities.

According to Stahler-Sholk (2010), ZACs funds are also obtained through cooperatives placed in the "community-administered collective land", where the JBGs decide the pattern of production and trade[24]. The author also argues that there is an "individual-administered collective land", where the "recovered" land is not considered as private property; instead, it is a communal property where peasants can enjoy the usufruct of the parcel.

III.3.4. Education

Since the 60s, and especially after the Indigenous Congress in San Cristóbal de las Casas in 1974, indigenous demands for a bilingual education started to increase to a great extent. As a consequence, the National Ministry for Public Education (SEP for its acronym in Spanish) initiated the national bilingual education program in 1978.

Nevertheless, this "bilingualism" has been highly criticized. Considering the great variety of indigenous languages in Mexico (particularly in Chiapas), the fact that teachers are usually from other communities has represented a relevant obstacle to teach in the language of origin; thereby, classes were generally given in Spanish which is not understood by everyone in this region (Klein, 2001; Shenker, 2011). Thus, local education promoters started to be selected in some regions of Chiapas since 1988 (Baronnet, 2009), as a precedent for the Zapatista educational movement.

The education institution is one of the key features of the ZACs as a mean to "protect indigenous culture, values, languages, rights, and sexual equality" (Shenker, 2011). Even more, the Zapatista schools represent an essential space for autonomy consolidation (Barmeyer, 2009).

There are no formal teachers in the primary and secondary Zapatista schools. Instead, local education promoters are trained in order to provide an "inclusive" education, imparted in the indigenous community language where Spanish is only taught as a second language (Shenker, 2011).

The school timetable and the curricula are jointly defined by local promoters, an education committee, and an education coordination based on the interests and necessities of the communities and it is adjusted to leave kids some days for working the land or helping at home[25]. For instance, Gutierrez (2005) maintains that the autonomous school "*Semillitas del Sol*", founded in July 1997, has six areas of knowledge: grammar, mathematics, "our land", history, "building autonomy", and sports.

An especial limitation of the Zapatista schools is that their diplomas are not recognized by "formal institutions", preventing students from the opportunity to continue their studies at the university level. Yet, there are other kinds of educational arrangements for the Zapatistas at this stage of studies. For example, the *Universidad de la Tierra*, in San Cristóbal de las Casas, offers all kind of tuition-free courses with the purpose of developing skills of the indigenous population; though, this institution is not recognized as an official university by the government.

III.3.5. Health

The Zapatista health centers represent another vital institution of the ZACs as a consequence of the deprived health conditions of the area, where governmental services are scarce or even inexistent (Cerda García, 2011).

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[24] Most cooperatives are coffee producers but there are also cooperatives of handicrafts, textiles, corn, etc. Some of them are immersed in the fair trade segment. The purpose of the creation of the cooperatives is to gain market power and to avoid brokers (the so-called *coyotes* in this area).

[25] Although it is not the scope of the present work, there are some debatable issues around this topic, such as child labor.

Similar to the education scheme, health promoters assist the population without perceiving a salary[26]. Health promoters are generally trained by NGOs and they tend to put more emphasis on natural medicines. Unlike the Zapatista education frame, the access to the Zapatista health centers is open to everyone, where Zapatistas attend for free and non-Zapatistas pay only a small amount of money.

An important characteristic of the Zapatista health policies is that alcohol and drugs are forbidden, as well as prostitution practices. Even though this may enhance health conditions of these communities, some Zapatista followers have started to contest those policies in the past few years.

In order to have a broader picture of some health policies followed by the Zapatistas, Cerda García (2011) provides an interesting case study of the ZACs in the autonomous municipality of Vicente Guerrero. By 2003, health strategies in this municipality were comprised by: i) deworming children and adults twice per year with plant-based medicines; ii) fostering well-nutrition practices; and iii) training on how to prepare and conduct papanicolau studies on women. The author also emphasizes the existence of both primary care centers in some ZACs and a health clinic in the *Caracol*. Finally, he states that health policies directed at children were mainly focused on mortality prevention due to respiratory, gastrointestinal, nutritional, and neo-natal diseases, while those directed at reproductive-age women focused mainly on mortality due to delivery complications and timely detection of cervical and uterine cancer.

IV. Identification Strategy

IV.1. Identification Issues

A Random Controlled Trial, the so-called "golden rule", determines unbiased estimations under a proper design and implementation (Sefton et al., 2002). Since this

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[26] The communities support health and education promoters with food and basic resources (Shenker, 2011; Ghiotto and Pascual, 2008).

method is not feasible in the conflict context, it is necessary to rely on a quasi-experiment where several biases may arise.

Because of the non-random nature of the civil strive, the composition of the communities in conflict differ from the non-conflict communities', either by observables or unobservables, thereby the impact of the conflict is affected by **selection bias**.

In other words, individuals normally move from high to low intensity areas, so their *ability* to cope with the conflict may determine their self-selection into one or the other group. This process may end up with communities with less *ability* -e.g. less aggregated entrepreneurial skills that is generally unobservable-, that in turn, determines higher probability of being in conflict and lower levels of wellbeing. This problem of omitted variable is called **endogeneity** (Wooldridge, 2002).

In a fixed effects model with panel data, unobserved factors are wiped out assuming they are only time-invariant, so the problem of endogeneity would be solved. However, considering the cross-section nature of my database, I need a different strategy; i.e. an instrumental variable (IV) correlated with the conflict variable and uncorrelated with the error term that determines the response variable. Otherwise, OLS estimates would not only be biased but also inconsistent. Thereby, by following the IV procedure, the direct effect of conflict over the response variable can be isolated and the indirect effect of the unobserved factors over the response variable through conflict can be avoided[27]. At the same time, the IV estimation allows to **infer causality** from conflict to socio-economic outcomes[28].

To further address the omitted variable bias problem, this paper includes a large array of pre-conflict and time-invariant control variables.

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[27] It should be noted that I am able to control for unobservables between communities, but not within communities, because of the structure of the data at the locality level.

[28] This procedure does not imply that the reverse causality does not exist. Nonetheless, the identification strategy followed in this paper precludes me to provide conclusions about the causality from economic conditions to conflict.

IV.2. Instrumental Variable Approach

Taking into account the historical background already mentioned, I am not able to instrument by ethnic fragmentation (Swee, 2011; Acemoglu, Johnson, and Robinson, 2001), since this is completely endogenous due to the high-level of migration within Chiapas and from Guatemala since the 50s. Nor can I instrument by religious differentials, because although the ZACs where highly influenced by the Liberation Theology, a large amount of Zapatistas have converted to Protestantism as a consequence of the governmental policy presumably favoring protestant churches (Obregón, 1997).

At the same time, it would not be appropriate to use, for example, the fall in coffee prices or the percentage of agricultural production -considering the antecedents previously cited of the coffee price drop and the reform of the Article 27, a few years before the conflict- as IVs, since this identification strategy would not comply with the exclusion restriction (i.e. they may have a direct effect on the response variables, besides their effect through conflict).

Instead, this paper uses an instrumental variable based on the main referent of the anthropological history of Chiapas, Jan de Vos. I obtained from his book, "*Una tierra para sembrar sueños. Historia reciente de la Selva Lacandona, 1950-2000*", a strategic military spot that the EZLN Army fixed for its uprising in 1994. The EZLN attempted to control a geographic triangle (Figure 4) formed by the localities of Ocosingo, Oxchuc, San Cristóbal de las Casas, Huixtán, Chanal, Las Margaritas, and Altamirano, locking the roads that connect each other. The purpose of this strategy was to set a regional control at the doorsteps of the "Lacandon Jungle", which can be considered as an exogenous natural boundary where the Zapatistas might have had more chances to hide from the National Army[29]. The decision about this strategic point is related to military objectives, rather than the social or economic conditions of the communities involved in the conflict.

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[29] This IV implies that the initial preferences and strategies for conflict would keep geographically stable over the whole period of the civil strive, as opposed to the Kalyvas' (2006) theory that suggests that the reason of violence should be found in the specific transition of the conflict. Though the location of the Zapatista conflict has had some variability (with especial emphasis on the north of Chiapas), the Lacandon Jungle has always represented a reference point where the Zapatistas have found refuge from the military and paramilitary forces, and thus they have located in the nearby areas.

FIGURE 4: The EZLN Triangle
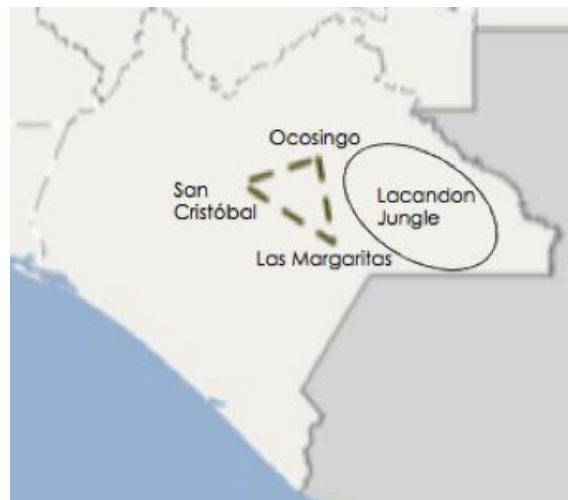
In particular, the IV used in this paper, obtained by geo-referenced data from INEGI, is the distance in kilometers from each locality centroid to the center of the triangle. The IV is apparently correlated with conflict and directly uncorrelated with the unobserved variables that determine the response variables, complying with the exclusion restriction. At the same time, the distance in kilometers from each locality to the triangle center is negatively correlated with the social backwardness index in 2010, indicating that the farther from the triangle, the less deprived the community is in 2010 (Graph 1).

**GRAPH 1: Social Backwardness in 2010 and
Distance from the Military Spot**
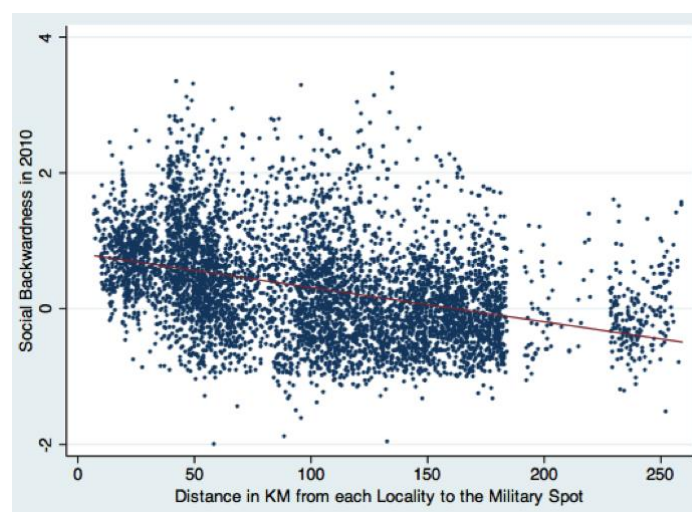
Note: The red line is estimated by OLS.

Though the exclusion restriction cannot be formally tested since the model is exactly identified, it is important to examine whether the IV would have a direct and independent impact on the response variables through the error term. For example, the distance from the triangle centroid may be a proxy for vulnerability levels, in the sense that communities closer to the Lacandon Jungle tend to be poorer. In other words, the IV could be associated with pre-conflict socio-economic conditions, which in turn, may be determining the response variables. Therefore, this model includes baseline socio-economic controls, such as the poverty rate in 1990 at the municipal level[30] and illiteracy rates in 1990 at the locality level, to avoid non-compliance of the exclusion restriction.

Another way the exclusion restriction may be violated may arise if communities closer to the Lacandon Jungle were less accessible for governmental projects, and so those communities receive a smaller amount of public funds, which may be determining worse well-being conditions in the response variables. The opposite may also take place; i.e. the LIW may be reflected through higher amounts of governmental resources to the communities closer to the Jungle that tend to be in conflict, as suggested by several scholars. Both situations are avoided by the inclusion of the public spending per capita net increase from 1994 to either 2000 or 2010. It should be noted that the data for creating these variables is only published at the municipal level, so I am able to include them in only those specifications without municipality fixed effects. In the more complete specifications, the municipality fixed effects controls for every heterogeneity at the level of the *municipios*, thus those variables disappear -explicitly- from the estimation, and thereby, any remaining bias would only stem from public spending variability at the local level. Unfortunately, data unavailability precludes me to control for this potential bias.

IV.3. Conflict Identification

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[30] This variable is not published at the local level.

To identify the communities in conflict, this paper uses the military and police positions established in Chiapas from 1994 to 2000, as labeled by Hidalgo Dominguez (2006).

The positions are not necessarily situated in the specific communities that are attempted to control (since there are, for example, communities composed by only one family); rather, they are located in strategic points which allowed the army to set control over an influence area. Thus, I consider a *radius of twenty kilometers around the police and military positions for identifying the communities in conflict*. The selection of this cut-off is consistent with my fieldwork carried out in Oventic (one the five Zapatista Caracoles), Chiapas, during 2013. In any case, for increasing the robustness of my results, I will present more estimations at different thresholds (i.e. ten, fifteen, twenty-five, and thirty kilometers), with the presumption that the effect would progressively decline as long as the threshold increases. Figure 5 presents the 246 military and police positions from 1994 to 2000 deployed in Chiapas, together with their influence areas. It is crucial for this research to point out the high degree of overlapping of this illustration with Figure 2, reflecting the fact that the major part of the ZACs is in the conflict zone.

One reason to be cautious about conflict identification is that some police and military positions might have been established for other military purposes in Chiapas; e.g. i) drug-trafficking, ii) protection of strategic points not necessarily related with the EZLN (e.g. the border with Guatemala or large infrastructure projects), and iii) undocumented migrants on their way to the United States or escaping from civil strive in nearby countries -as was the case with Guatemala during the 70s. However, this source of noise is minimized, since there was no other sizeable civil struggle in that period and drug-trafficking has just started to increase considerably in the past few years[31].

Another point to consider is the importance of the paramilitary forces. Military and paramilitary forces tended to work side-by-side in Chiapas, since paramilitaries

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[31] In any case, I cross-checked this data with other sources (newspapers, magazines, and conflict reports) and I withdrew only twelve observations from the original database presumably being related to non-Zapatista issues.

are prone to materialize what is not politically correct for the national army (Castro and Ledesma, 2000). For example, when describing the Acteal Massacre of 1997, Hidalgo Dominguez (2006, 45) sustains: "*While the paramilitaries were perpetuating a massacre, the Army and the Public Security Police were waiting 300 meters aside without any intervention.*" Therefore, during the conflict period under analysis (1994-2000), paramilitary and military forces were highly juxtaposed, so the effect of the conflict would not be significantly underestimated.

**FIGURE 5: Police and Military Positions and their Influence Areas
(1994 - 2000)**
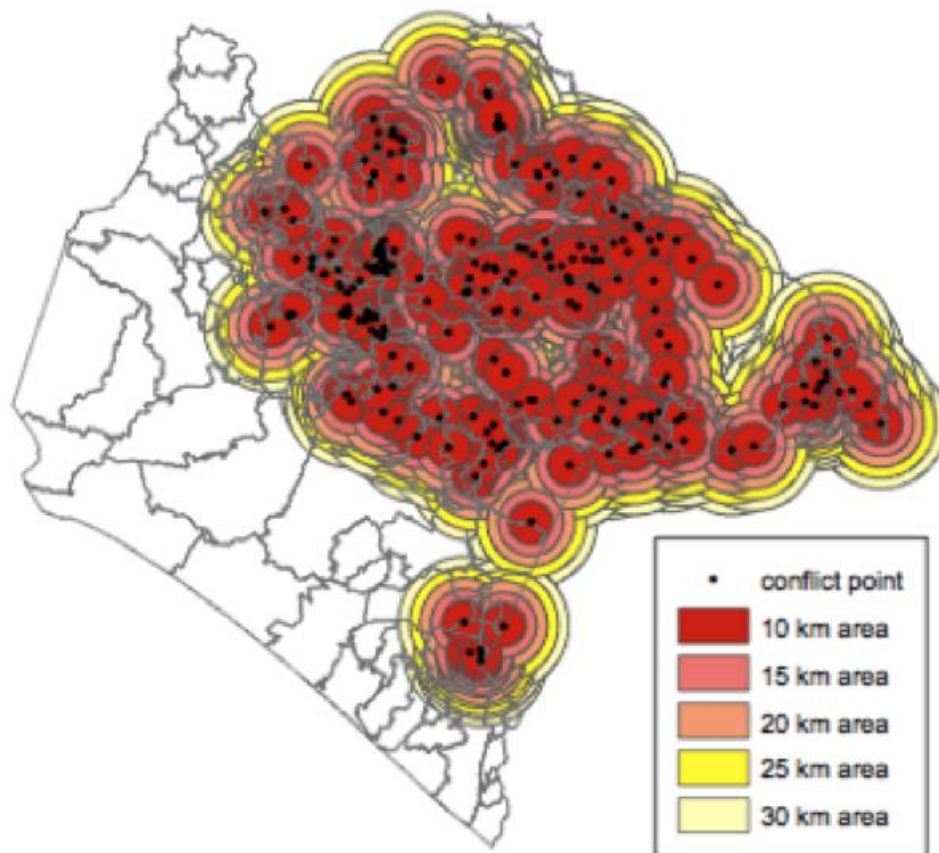
In particular, I present four conflict intensity variables at the locality level, evaluated from 1994 to 2000: i) the years of conflict; ii) the number of military and police positions; iii) the aggregate amount of police and military corporations[32]; and iv) the quantity of influence areas that affect each locality.

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[32] The police and military positions may belong to different corporations, such as: Public Security Police, National Army, Immigration, Judicial Police of Chiapas, Federal Police of Roads, etc.

Graphs 2.a. and 2.b. show that conflict (measured by years in conflict) is negatively correlated with the distance in kilometers from each locality to the triangle centroid and it is positively correlated with the social backwardness index in 2010 (i.e. communities in conflict are worse off in 2010), respectively. *It is the purpose of this study to disentangle if this last positive relationship between conflict and deprivation (and other response variables) keeps, or if it even turns around, after performing the identification strategy described in the subsequent sub-section.*

GRAPH 2.a: Conflict Intensity and Distance from Military Spot
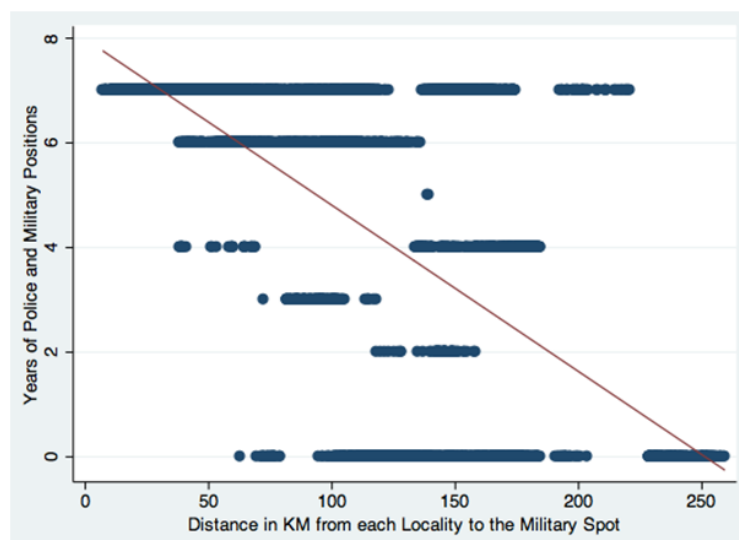
Note: The red line is estimated by OLS.

FIGURE 2.b: Conflict Intensity and Social Backwardness in 2010
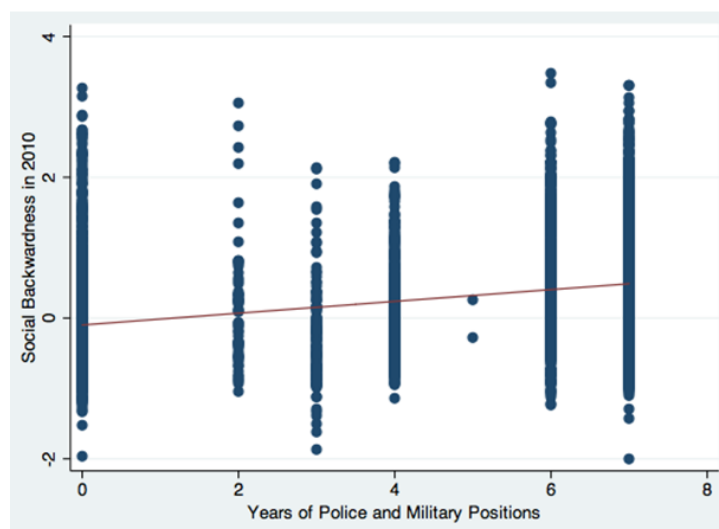
Note: The red line is estimated by OLS.

Table 1 presents the descriptive statistics of the conflict intensity variables. The first variable, years in conflict, ranges from zero (no conflict) to seven years (i.e. from 1994 to 2000), with a mean of 4.7 years. The number of police and military positions has an average of sixty-three spots with a maximum of 374 in the highest conflict locality. The third variable, the aggregate amount of corporations, ranges from zero to four, with an average of 1.7 corporations per locality in Chiapas. Finally, each locality has been affected, on average, by eleven influences areas of military and police positions, with a maximum of sixty-two influence areas.

TABLE 1: Descriptive Statistics- Conflict Data

	Mean	S.D.	Max.	Min.	Observations
Conflict Intensity measured by:					
Years in Conflict	4.72	2.91	7	0	5696
Number of Police and Military Positions	63.41	89.80	374	0	5696
Number of Corporations	1.69	1.34	4	0	5696
Number of Influence Areas	11.35	15.08	62	0	5696

Source: Own elaboration based on Hidalgo Dominguez (2006).

IV.4. The Strategy

The **identification strategy** consists in the examination of the impact of the conflict[33] in 1994-2000 on wellbeing conditions (i.e. the social backwardness index in 2000[34] and 2010, the overcrowding rate in 2010, the fertility rate in 2010, and the literacy rate of children aged 8 to 14 in 2010), by using an **instrumental variable approach**. The following structural equation will be estimated:

$$Y_{cm} = \beta_0 + \alpha_m + CONF_{cm}\,\beta_1 + \mathbf{X_{cm}}\,\boldsymbol{\beta_2} + \varepsilon_{cm}, \qquad (1)$$

where Y_{cm} is the response variable of the community[35] c in municipality m, β_0 is a constant, α_m are municipality fixed effects, $CONF_{cm}$ is the conflict intensity variable

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[33] This identification is not able to shed light on the *ex-post* effect of conflict on the consolidation of local organizations and collective action, as suggested by Gáfaro et al. (2014).
[34] The only dependent variable from which I have data for 2000 is the social backwardness index. That is why I did not evaluate the short-term impact of conflict on the other dependent variables.
[35] As already said, I mention locality and community interchangeably.

(as defined in Section IV.3.) between 1994 and 2000 of community c in municipality m, X_{cm} is a matrix of covariates at either the community or municipal level (depending on data availability) and ε_{cm} is the robust disturbance term clustered at the municipal level. The coefficient of interest is β_1. The first-stage reduced form of the IV procedure is estimated as follows:

$$\text{CONF}_{cm} = \delta_0 + \gamma_m + \text{DIST}_{cm}\,\delta_1 + \mathbf{X_{cm}}\,\boldsymbol{\delta_2} + \mu_{cm} \tag{2}$$

where δ_0 is a constant, γ_m are municipality fixed effects, DIST_{cm} is the distance in kilometers from each community (centroid) c of municipality m to the center of the strategic military triangle, X_{cm} are the same controls used in the second stage and μ_{cm} is the robust disturbance term clustered at the municipality level.

V. Data

Hidalgo Dominguez (2006) presents an invaluable and unique source of documentation of the civil conflict in Chiapas. This paper is part of CIEPAC´s publications. In particular, Hidalgo Dominguez (2006) published the military and police spots established in Chiapas, at the locality level, as a consequence of the conflict during the period 1994-2006. I use data until 2000, since by then, it started to decrease in intensity and there were several position retirements. To cross-check this data, I consulted several Mexican newspapers (particularly *La Jornada* and *El Universal*).

Socio-economic conditions at the locality level are obtained from the Mexican Population Census of 1990, 2000 and 2010. This information is provided by INEGI in the subsection "ITER". I supplement this information with indicators of social backwardness from CONEVAL. In particular, the social backwardness index is a weighted index of deprivation that mixes indicators of education, health, basic services, and dwelling at the local, municipal, and state level; the higher the index, the more deprived the community is.

I add several control variables at the locality level with the purpose of avoiding an omitted variable issue. I include altitude, longitude, and latitude in order to control for agricultural productivity, climatic shocks, and strategic military areas. In addition, I create the proportion of indigenous population in 1990 as the ratio between individuals older than five years old who speak an indigenous language and do not "use" Spanish (as defined by INEGI)[36], and the total population under that age range. Another variable that may have an influence on the model is the percentage of Catholics, taking into account the role played by the Liberation Theology and the governmental policy favoring protestant churches afterwards. I use this variable from 2000, since it was the first year to be released by INEGI. Finally, a very important control, as a baseline socio-economic indicator, is the proportion of illiterate people older than fifteen years old in 1990.

Additionally, as De Walque's (2006) results suggest regarding the higher mortality rate of men in conflict times, I add the proportion of men out of the total population of the locality in 1990. This may control for the possibility that the conflict may have more influence on communities with a higher percentage of men, and, consequently, this may directly affect fertility rates and, indirectly, other socio-economic variables through a labor force stock decrease.

Simultaneously, I incorporate three variables at the municipal level, which are not published at lower levels of aggregation. I obtain the poverty rate in 1990 from CONEVAL[37]. In addition, I create two municipal public spending per capita growth variables; the first one ranges from 1994 to 2000, while the second one goes from 1994 to 2010. They will be used in the short-term and long-term estimations, respectively. These variables are calculated in 1994 prices and are taken from SIMBAD, INEGI[38].

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[36] As a robustness check, in the following estimations, the definition of the "indigenous ratio" was replaced by the "percentage of people older than five years old that speak an indigenous language" without finding significant changes in the variables of interest.

[37] In particular, CONEVAL presents three poverty thresholds, related to food, capacities, and assets. I use the first one in the baseline estimations, but I perform robustness checks with the other ones, without finding significant changes in the results.

[38] Unfortunately, this variable is not published at the locality level.

Finally, it is pertinent to mention that I use the Vincenty STATA Module for: i) establishing the influence areas from each military and police position; and ii) determining the distances in kilometers of the instrumental variable.

Table 2 presents the summary statistics of the data, where I show the response variables, the main baseline controls, and the IV, disaggregated by conflict intensity areas. The purpose of this division is to offer a clear picture of some disparities between high and low conflict intensity regions. However, the non-dichotomous conflict intensity variables utilized in the subsequent sections provide much richer information about the data structure of the conflict process.

In particular, the "Conflict Region" in Table 2 encompasses those localities situated within the influence area of twenty kilometers from a military or police spot, while those out of that boundary are considered as pertaining to the non-conflict region.

TABLE 2: Descriptive Statistics

(Social, Economic, Demographic, and Geographic Data)

	Overall			Conflict Region			Non-Conflict Region			Difference	
	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N	Mean	s.e.
Dependent Variables											
Social Backwardness in 2000	0.40	0.69	5696	0.52	0.66	4287	0.05	0.67	1409	0.47	0.02
Social Backwardness in 2010	0.30	0.76	5696	0.42	0.74	4287	-0.06	0.71	1409	0.48	0.02
Overcrowding Rate in 2010	4.96	1.12	5696	5.14	1.14	4287	4.43	0.85	1409	0.71	0.03
Fertility Rate in 2010	2.94	0.60	5696	2.95	0.61	4287	2.90	0.58	1409	0.05	0.02
Prop. of Literate People aged 8-14 in 2010	0.87	0.15	5696	0.86	0.15	4287	0.91	0.14	1409	-0.05	0.004
Covariates											
Population in 1990	520.50	4,569.31	5696	465.59	4,705.90	4287	687.57	4,123.07	1409	-221.98	140.30
Population in 2010	748.87	8,227.93	5696	707.90	8,839.07	4287	873.55	5,997.99	1409	-165.65	252.68
Altitude	915.87	666.28	5696	1,094.64	641.87	4287	371.96	384.86	1409	722.68	18.08
Men Ratio in 1990	0.51	0.05	5696	0.51	0.05	4287	0.52	0.05	1409	-0.014	0.002
Indigenous Ratio in 1990	0.14	0.21	5696	0.18	0.23	4287	0.01	0.04	1409	0.17	0.01
Prop. of Illiterate People older than 15 in 1990	0.38	0.21	5696	0.41	0.22	4287	0.27	0.13	1409	0.15	0.01
Catholics Ratio in 2000	0.46	0.28	5696	0.44	0.29	4287	0.53	0.26	1409	-0.09	0.01
Public Spending per capita Growth 1994-2000	26.89	88.25	5671	27.35	88.47	4270	25.46	87.60	1401	1.89	2.72
Public Spending per capita Growth 1994-2010	393.85	150.12	4995	409.38	143.87	3664	351.10	158.50	1331	58.28	4.73
Poverty Rate in 1990 (%)	53.12	11.89	5696	55.81	11.50	4287	44.92	8.94	1409	10.89	0.34
Instrumental Variable											
I Loc. Centroid - Military Spot Centroid I	102.69	56.39	5696	86.14	50.11	4287	153.02	42.98	1409	-66.88	1.49

Source: Own elaboration based on INEGI (1990, 2000, 2010) and CONEVAL (2000, 2010).

Table 2 shows that almost all the variables, except for population (both in 1990 and 2010) and the public spending per capita growth 1994-2000, are statistically different in conflict communities compared to the non-conflict ones. The mean of social backwardness in 2000 is 0.40, which is higher in the conflict region (0.52) than in the non-conflict one (0.05). Considering that this index goes from -2.98 (less

vulnerable) to 2.30 (more vulnerable), Table 2 suggests that the communities in conflict are more vulnerable in 2000. The social backwardness index in 2010 presents very similar results to the preceding one. At this regard, two observations must be highlighted: i) overall, the localities in Chiapas are less vulnerable in 2010 (by 0.10 points); ii) the mean of both groups decreases approximately in the same range (0.10 points), thus their difference keeps stable from 2000 to 2010. *The caveat of the last result would suggest that there has not been a specific rebound in the communities under harassment after the conflict, neither there has been a natural convergence process between richer and poorer areas.*

The average of the overcrowding rate in 2010 is 4.96 individuals per dwelling, with a higher mean in the conflict region than in the non-conflict one (5.14 versus 4.43, respectively), reflecting the higher vulnerability of the localities under harassment. The same goes for the fertility rate (i.e. the ratio between the number of children born alive and the amount of women in reproductive age), with an average of 2.94 in the total sample, 2.95 in the conflict region, and 2.90 in the non-conflict area. Finally, the percentage of literate people aged 8-14 in 2010 (thus affected all their lives by the conflict) has an average of 87 percent for the whole population, and it is significantly smaller in the communities in conflict, in line with the previous variables.

As regards the control variables, the conflict region presents a non-significant lower level of population in 1990 and a significant higher altitude. This is coherent with the idea that the Zapatistas may find refuge not only in the jungle but also in small communities over the mountains. Simultaneously, there is less population in the conflict region in 2010 with respect to the non-conflict region in the same year, but the difference between regions reduces from 222 in 1990 to 166 in 2010 and it is still insignificant. This reduction can be caused due to either higher levels of fertility rates, lower levels of mortality rates, or more migration inflows in the conflict region by 2010. This result may reflect some social progress in the conflict region from 1990 to 2010, presumably related to the Zapatistas institutions and policies (this idea will be extended in the following sections with the econometric analysis).

Table 2 also shows a marginal but significant difference between the percentage of men in non-conflict areas (52 percent) and conflict areas (51 percent). As regards the ratio of indigenous population in 1990, it has an average of 18 percent in the conflict region, compared with only 1 percent in the non-conflict region, and 14 percent in the total area. This result is line with the perception of: i) the Zapatistas as being part of an indigenous movement; and ii) the IDPs of this conflict being primarily indigenous. As expected, the proportion of illiterate people in 1990 in the conflict region (41 percent) is considerably and statistically higher than in the non-conflict one (27 percent), while the overall average of the total sample arises to 38 percent, reflecting the deep problems of education in Chiapas. Somewhat surprisingly, the percentage of Catholics is a 20 percent higher in the non-conflict region, as opposed to the Liberation Theology argument.

The municipal public spending per capita net increase is greater in the conflict area, in accordance with the LIW. However, these differentials are only significant in the long run (1994 to 2010). The last control variable included in the model is the poverty rate in 1990, which continues to portray the more vulnerable pre-conflict conditions in the communities under civil strive; i.e. the poverty rate in the conflict area arises to 56 percent, almost 11 percentage points higher than in the non-conflict area. Finally, the distance from each locality to the center of the military triangle set by the EZLN (the IV) is considerably and statistically higher (almost doubled) in the non-conflict communities compared to the conflict ones, as it was suggested.

VI. Estimations

I will present the impact of the conflict on several socio-economic variables, where conflict intensity will be measured by: i) the number of years that the locality is situated within a police or military station's influence area; ii) the number of military and police positions of those localities; iii) the aggregated amount of corporations of the same localities; and iv) the number of influence areas that affect those localities.

I include controls at both the locality and municipality level. First, I explicitly add variables at those two levels of aggregation. Second, in my preferred specifications, I introduce variables at the locality level, together with municipality fixed effects in order to control for every heterogeneity at the level of the *municipios*. In addition, I consider robust standard errors to control for the effect of unobserved heterogeneity in variance. These standard errors are allowed to be correlated across communities within the same municipality (i.e. clustered standard errors).

In this section, I will present the estimations where the localities under conflict will be those located within an influence area of 20 kilometers from each police and military position. In the following section, I will present the main results by different influence areas as robustness checks.

VI.1. Determinants of Conflict

The distance in kilometers from each locality to the center of the strategic military point is a strong predictor of conflict (Table 3.a. and 3.b.), robust to different specifications and definitions of conflict intensity.

Table 3.a. shows the determinants of conflict, where the latter is defined by both the number of years that the locality is under harassment (columns 1 to 4) and the amount of police and military spots with presence in the locality (columns 5 to 8). It is important to point out that only the IV and the geographic variables are strongly associated with conflict throughout the different specifications. Among the other control variables, only the indigenous population in 1990 and the public spending per capita growth from 1994 to 2000 are associated with conflict in some specifications (column 2 and 6), but their signs are not consistent between them.

Columns 1, 2, 5 and 6 (Table 3.a.) include the control variables at the level of the *municipio*, thereby the municipality fixed effects disappear. Though these specifications are less preferable than the others -since the former do not control for every municipal heterogeneity-, they are added in order to visualize whether there is a

particular effect of the LIW. In fact, those estimations have not found a significant and consistent effect of the LIW through public spending, but the IVs are still significant.

Finally, columns 3, 4, 7 and 8 (Table 3.a.), which include municipal fixed effects, do not show substantial differences with respect to the other columns; mainly, the IV is still significant and the indigenous ratio in 1990 turns insignificant.

TABLE 3.a.: Determinants of Conflict

Dependent Variable: Conflict Intensity measured by:	Years in Conflict				Military Spots			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I Loc. Centroid - Military Spot Centroid I	**-0.0176**	**-0.0185**	**-0.0277**	**-0.0280**	**-1.0798**	**-1.0773**	**-0.5298**	**-0.5429**
	(0.0040)	(0.0034)	(0.0057)	(0.0056)	(0.1898)	(0.1770)	(0.1630)	(0.1626)
Population in 1990	0.0000019	-0.0000020	0.0000024	0.0000023	0.0001248	0.0002463	0.0000354	0.0000391
	(0.0000035)	(0.0000033)	(0.0000021)	(0.0000021)	(0.00022)	(0.00023)	(0.0000530)	(0.0000540)
Altitude	**0.00151**	**0.00143**	**0.00070**	0.00069	**0.00054**	**0.02140**	**0.01067**	**0.01040**
	(0.00023)	(0.00018)	(0.00017)	(0.00017)	(0.0078)	(0.0094)	(0.0037)	(0.0037)
Longitude	**-0.000243**	**-0.000258**	**-0.000155**	**-0.000154**	**-0.001392**	**-0.000585**	**-0.003900**	**-0.003800**
	(0.000024)	(0.000025)	(0.000058)	(0.000058)	(0.0010)	(0.0010)	(0.0015)	(0.0014)
Latitude	**-0.000070**	**-0.000070**	**-0.000183**	**-0.000181**	**-0.003000**	**-0.003700**	**-0.004800**	**-0.004900**
	(0.000025)	(0.000024)	(0.000078)	(0.000078)	(0.0011)	(0.0010)	(0.0027)	(0.0027)
Men Ratio in 1990	-0.416	-0.315	-0.128	-0.140	-29.740	-38.510	-13.550	-14.220
	(0.500)	(0.457)	(0.243)	(0.244)	(17.47)	(16.83)	(5.85)	(5.89)
Indigenous Ratio in 1990	-0.927	**-0.922**	-0.178	-0.196	26.280	**47.170**	-9.520	-10.520
	(0.587)	(0.501)	(0.182)	(0.184)	(45.32)	(48.83)	(9.13)	(9.13)
Prop. of Illiterate People in 1990	-0.253	0.023	-0.104	-0.093	-8.120	-5.620	6.050	6.660
	(0.383)	(0.343)	(0.177)	(0.178)	(17.29)	(17.24)	(4.94)	(5.06)
Catholics Ratio in 2000	-0.298	-0.349		-0.124	-21.870	-5.210		-6.900
	(0.265)	(0.255)		(0.090)	(10.27)	(13.24)		(3.75)
Public Spending Growth 1994-2010	-0.0009				0.0060			
	(0.0010)				(0.042)			
Public Spending Growth 1994-2000		0.0025				-0.0918		
		(0.0015)				(0.041)		
Poverty Rate in 1990 (%)	0.027	0.002			0.251	0.809		
	(0.017)	(0.012)			(0.903)	(0.670)		
Municipality FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	4995	5671	5696	5696	4995	5671	5696	5696
F- Statistic	76.17	87.44	> 100	> 100	9.81	9.67	> 100	> 100

Notes: All estimations include robust standard errors (in parentheses) clustered at the municipality level. Conflict intensity is measured by: i) the number of years that the locality is located within a police or military station's influence area (columns 1 to 4); and ii) the number of military and police positions of those localities (columns 5 to 8). All numbers in black are significant, at least, at the 10% level.

Table 3.b. presents the determinants of conflict as well, but conflict is now defined as the aggregated amount of corporations[39] (columns 1 to 4) and the number of influence areas affecting the locality (columns 5 to 8). The results are pretty similar to Table 3.a.; specifically, the distance from the triangle centroid is highly and negatively associated with conflict throughout all the estimations. Again, the geographic variables are, generally, strong predictors of conflict.

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[39] As a robustness check, this conflict intensity variable was slightly modified, changing those localities with presence of the immigration corporation as being in non-conflict, since this particular corporation could be somewhat related to other military purposes. The estimations throughout the paper do not significantly change when this conflict intensity variable is modified. These results can be provided under request.

It is interesting to highlight that the percentage of men in 1990 is negatively and significantly associated with conflict, implying that those communities with more women tend to be more in conflict. Though this could be somewhat unexpected, the role of women in the movement has been highly underlined by the scholars of the topic (e.g. the central character of *The Sub-Comandanta Ramona*, first, and *The Sub-Comandanta Esther*, afterwards).

The other controls do not present a clear trend as determining conflict. Only in column 1 and 2, the percentage of indigenous people in 1990 is, surprisingly, statistically and negatively correlated with conflict, whereas the illiteracy rate in 1990 presents a positive and significant coefficient, as expected. However, these coefficients turn insignificant by the inclusion of the municipality fixed effects. In addition, the results do not provide evidence of the LIW, since the public spending growth variables are generally not associated with conflict. Finally, the proportion of Catholics in 2000 is negative and statistically significant in only column 5 and 8, contrarily with the Liberation Theology argument.

TABLE 3.b.: Determinants of Conflict (Continuation)

Dependent Variable: Conflict Intensity measured by:	Corporations				Influence Areas			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I Loc. Centroid - Military Spot Centroid I	**-0.0170**	**-0.0165**	**-0.0118**	**-0.0118**	**-0.1894**	**-0.1850**	**-0.0932**	**-0.0957**
	(0.0022)	(0.0021)	(0.0027)	(0.0027)	(0.0306)	(0.0281)	(0.0276)	(0.0274)
Population in 1990	0.0000013	0.0000016	0.0000024	0.0000024	0.00002	0.00004	0.0000041	0.0000048
	(0.0000020)	(0.0000016)	(0.0000059)	(0.0000060)	(0.00004)	(0.00004)	(0.0000092)	(0.0000092)
Altitude	**0.00054**	**-0.000097**	**0.00032**	**0.00032**	0.0020	**0.0036**	**0.0019**	**0.0019**
	(0.00008)	(0.000013)	(0.00006)	(0.00006)	(0.0012)	(0.0015)	(0.0007)	(0.0007)
Longitude	**-0.000100**	**-0.000097**	**-0.000065**	**-0.000065**	**-0.00035**	-0.00021	**-0.00076**	**-0.00074**
	(0.000013)	(0.000013)	(0.000032)	(0.000032)	(0.00015)	(0.00015)	(0.00024)	(0.00024)
Latitude	-0.000024	-0.000022	0.000025	0.000024	**-0.00055**	**-0.00065**	**-0.00098**	**-0.00100**
	(0.000014)	(0.000012)	(0.000047)	(0.000047)	(0.00018)	(0.00017)	(0.00047)	(0.00047)
Men Ratio in 1990	**-0.485**	**-0.505**	**-0.309**	**-0.310**	**-4.83**	**-5.86**	**-2.34**	**-2.47**
	(0.275)	(0.255)	(0.160)	(0.160)	(2.85)	(2.70)	(1.00)	(0.99)
Indigenous Ratio in 1990	**-1.69**	**-1.52**	-0.17	-0.17	6.35	9.31	-1.31	-1.50
	(0.42)	(0.42)	(0.11)	(0.11)	(7.93)	(8.28)	(1.63)	(1.63)
Prop. of Illiterate People in 1990	**0.466**	**0.453**	0.04	0.04	-1.02	-1.02	1.25	1.365
	(0.207)	(0.185)	(0.10)	(0.10)	(2.93)	(2.90)	(0.82)	(0.837)
Catholics Ratio in 2000	-0.03	0.05		-0.004	**-4.35**	-1.78		**-1.32**
	(0.11)	(0.11)		(0.047)	(1.65)	(2.11)		(0.70)
Public Spending Growth 1994-2010	0.0002				0.004			
	(0.0005)				(0.007)			
Public Spending Growth 1994-2000		-0.0003				**-0.016**		
		(0.0005)				(0.006)		
Poverty Rate in 1990 (%)	-0.004	-0.002			-0.005	0.117		
	(0.008)	(0.006)			(0.144)	(0.105)		
Municipality FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	4995	5671	5696	5696	4995	5671	5696	5696
F- Statistic	38.21	55.51	> 100	> 100	13.87	14.32	37.26	> 100

Notes: All estimations include robust standard errors (in parentheses) clustered at the municipality level. Conflict intensity is measured by: i) the aggregated amount of corporations of the same localities (columns 1, 2, 3 and 4); and ii) the number of influence areas that affect each locality (columns 5, 6, 7 and 8). All numbers in black are significant, at least, at the 10% level.

In sum, Tables 3.a. and 3.b. suggest that the only strong predictor throughout all the specifications is the distance from the triangle centroid (with t-

statistics ranging from 3 to 7), implying that the shorter the distance from the triangle centroid, the more conflict intensity. At the same time, the distance from the triangle has been proved of not being a weak instrument, as suggested by the F-Tests, which generally are considerably larger than 10 (the famous "Rule of Thumb").

As a final comment, the construction of the IV may comprise measurement error, in the sense that I take the distance in kilometers from each locality centroid (directly obtained from INEGI final geographic data) with respect to the triangle centroid (which I calculated from the interactive map of INEGI). Thus, as a robustness check, I replace the IV by the average of the distances from each locality centroid to the three external points of the triangle. The results of this alternative IV, which can be provided under request, are statistically similar to the preceding ones.

VI.2. Short- and Long-Term Impact on Social Backwardness

VI.2.1. Short-Term Effect

This subsection analyses the effect of the conflict between 1994 and 2000 on the social backwardness index of 2000. In this period, the conflict has reached its zenith, with thousands of IDPs, massacres, and dwelling damages. Nevertheless, the Zapatistas started to develop their new set of institutions: several laws were issued, the *Aguascalientes* were established, and some incipient health and education institutions were launched. At the same time, the Zapatistas started to receive important amounts of money from international donors. Thus, the expected negative impact of the conflict *per se* on social backwardness may be counterbalanced by the newly-established Zapatista institutions in the short run.

Table 4 presents the short-term impact of the conflict. Conflict intensity is defined by years in conflict in columns 1 and 2, police or military positions in columns 3 and 4, the aggregated amount of corporations in columns 5 and 6, and, finally, the influence areas affecting each locality in columns 7 and 8. The first column for each conflict variable includes both the locality and municipality controls, and thus excludes the municipality fixed effects; whereas the second column, the

preferred one for each conflict variable, includes every control at the locality level and the municipality fixed effects.

It should also be noted that since the proportion of Catholics is obtained for the 2000 -not published in 1990-, this variable is endogenous as can be affected by the conflict. Therefore, all the estimations of the paper have been re-estimated without including this variable, but the results did not significantly change. For presentational matters, they are not presented in the paper, but can be provided under request.

TABLE 4: Determinants of Social Backwardness in 2000

Dependent Variable: **Social Backwardness in 2000**	Conflict Intensity measured by:							
	Years in Conflict		Military Spots		Corporations		Influence Areas	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Conflict Intensity	0.0184	-0.0335	-0.0003	-0.0017	0.0206	-0.0795	0.0018	-0.0098
	(0.0228)	(0.0429)	(0.0005)	(0.0022)	(0.0313)	(0.0977)	(0.0028)	(0.0123)
Population in 1990	**-0.000014**	**-0.0000150**	**-0.0000141**	**-0.0000149**	**-0.0000141**	**-0.0000149**	**-0.0000141**	**-0.0000149**
	(0.000007)	**(0.0000079)**	**(0.0000069)**	**(0.0000078)**	**(0.0000066)**	**(0.0000078)**	**(0.0000069)**	**(0.0000078)**
Altitude	0.000069	**0.00017**	**0.00009**	**0.00016**	**0.00008**	**0.00017**	**0.00009**	**0.00016**
	(0.000052)	**(0.00004)**	**(0.00003)**	**(0.00004)**	**(0.00003)**	**(0.00005)**	**(0.00003)**	**(0.00004)**
Longitude	0.0000007	0.000001	-0.000004	-0.000001	-0.000002	0.000001	-0.000004	-0.000001
	(0.0000086)	(0.000010)	(0.000004)	(0.000011)	(0.000005)	(0.000084)	(0.000004)	(0.000011)
Latitude	0.0000039	0.000004	**0.0000064**	-0.000011	**0.000006**	-0.0000005	**0.000006**	-0.000012
	(0.0000051)	(0.000021)	**(0.0000024)**	(0.000010)	**(0.00003)**	(0.0000174)	**(0.000002)**	(0.000010)
Men Ratio in 1990	-0.176	-0.163	-0.169	-0.183	0.171	-0.183	0.171	-0.183
	(0.219)	(0.210)	(0.222)	(0.213)	(0.220)	(0.211)	(0.221)	(0.212)
Indigenous Ratio in 1990	-0.061	-0.095	-0.093	-0.106	-0.047	-0.102	-0.095	-0.103
	(0.110)	(0.106)	(0.118)	(0.108)	(0.118)	(0.107)	(0.119)	(0.107)
Prop. of Illiterate People in 1990	**1.73**	**1.75**	**1.73**	**1.76**	**1.72**	**1.75**	**1.73**	**1.76**
	(0.11)	**(0.11)**	**(0.11)**	**(0.12)**	**(0.12)**	**(0.11)**	**(0.11)**	**(0.12)**
Catholics Ratio in 2000	**-0.137**	**-0.123**	**-0.141**	**-0.131**	**-0.144**	**-0.119**	**-0.140**	**-0.132**
	(0.046)	**(0.041)**	**(0.044)**	**(0.043)**	**(0.044)**	**(0.042)**	**(0.045)**	**(0.043)**
Public Spending Growth 1994-2000	0.00017		0.00025		0.00022		0.00025	
	(0.00017)		(0.00019)		(0.00017)		(0.00019)	
Poverty Rate in 1990 (%)	**0.0095**		**0.009**		**0.0095**		**0.0093**	
	(0.0017)		**(0.002)**		**(0.0016)**		**(0.0017)**	
Municipality FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	5671	5696	5671	5696	5671	5696	5671	5696
R^2	0.4811	0.5281	0.4842	0.5242	0.4853	0.5277	0.4843	0.5251

<u>Notes</u>: All estimations include robust standard errors (in parentheses) clustered at the municipality level. Conflict intensity is measured by: i) the number of years that the locality is located within a police or military station's influence area (columns 1 and 2); ii) the number of military and police positions of those localities (columns 3 and 4); iii) the aggregated amount of corporations of the same localities (columns 5 and 6); and iv) the number of influence areas that affect each locality (columns 7 and 8). All numbers in black are significant, at least, at the 10% level.

Table 4 shows that, independently of the conflict intensity definition, *the conflict did not have a short-term impact on the social backwardness index*. Seemingly, the sign of the coefficient of interest is not consistent throughout the different specifications. As regards the control variables, the determinants of the social backwardness in 2000 are generally the same along the different columns of Table 4. Localities with more population in 1990 and with less altitude are significantly less vulnerable in 2000, suggesting that the isolated communities, especially those in the mountains, tend to present more levels of vulnerability. At the

same time, communities with greater proportions of Catholic population in 2000 are also associated with lower levels of the index. Finally, the main baseline socio-economic indicators (i.e. the illiteracy ratio and the poverty rate in 1990) always present a positive and significant coefficient, as expected.

In sum, these results suggest that *the conflict is not associated with the short-term vulnerability levels of the communities under harassment*; or to put it in other terms, they show that *the positive effect of the Zapatista institutions has nullified the negative effect of the conflict per se in the short run*. Although the specific drive behind these results cannot be unveiled with this identification strategy, these results can give a hint about the overall short-term impact of the conflict.

VI.2.2. Long-Term Effect

In the previous sections, I have described the special emphasis that the Zapatistas have put into their institutional development since 2003, with the introduction of the Caracoles and the JBGs. This fact, together with the neutral effect of the conflict found in the short-term measure of social backwardness may lead to a positive long-term effect of the civil strive on that variable. The following results are in accordance with this presumption.

The structure of Table 5 is similar to the one of Table 4, with respect to the eight columns split by four dependent variables and the control variables added in the estimations. In columns 1, 3, 5 and 7, where public spending growth and poverty rates in 1990 are explicitly included, neither the coefficient of interest nor the public spending per capita growth from 1994 to 2010 is significant, thus discarding that the results are driven by differentials in public spending growth. In the more robust estimations where municipality fixed effected are included (columns 2, 4, 6, and 8), conflict intensity in 1994-2000 is negatively related to social backwardness in 2010, suggesting that the conflict leads to less long-term deprivation rates; i.e. *the positive influence of the ZAC's policies and institutions has allegedly surpassed the negative effect of the conflict per se in the long run*.

The control variables present similar results to those in Table 4, except for the baseline population that keeps the negative sign but turns insignificant. That is, altitude, the proportion of illiterate people older than fifteen years old in 1990, the Catholic ratio in 2000, and the poverty rates in 1990, are significantly associated with the social backwardness index in 2010.

The coefficient of interest in column 2 is -0.1023 and it is significant at the 95 percent confidence level. This result means that an extra year of conflict is related to a decrease in 0.10 points in the social backwardness index in 2010. Assuming that a locality experiences a one year conflict, and coming from the mean of the social backwardness index in 2010 of the conflict region, the conflict is associated with a decrease in the index from 0.42 to 0.32. Considering the maximum (3.46) and the minimum (-2) of this index in 2010, this reduction is equivalent to *a 4.13 percent drop in the social backwardness index of 2010; i.e.* -0.10/(0.42-(-2)).

TABLE 5: Determinants of Social Backwardness in 2010

Dependent Variable: Social Backwardness in 2010	Conflict Intensity measured by:							
	Years in Conflict		Military Spots		Corporations		Influence Areas	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Conflict Intensity	0.0112	**-0.1023**	-0.0002	**-0.0053**	-0.0115	**-0.2429**	-0.0010	**-0.0299**
	(0.0365)	**(0 .0495)**	(0.0006)	**(0.0029)**	(0.0383)	**(0.1082)**	(0.0035)	**(0.0160)**
Population in 1990	-0.0000094	-0.0000096	-0.0000094	-0.0000092	-0.0000094	-0.0000093	-0.0000094	-0.0000092
	(0.0000061)	(0.0000061)	(0.0000061)	(0.0000059)	(0.0000061)	(0.0000060)	(0.0000061)	(0.0000059)
Altitude	**0.00019**	**0.00033**	**0.00017**	**0.00031**	**0.00018**	**0.00033**	**0.00017**	**0.00031**
	(0.00009)	**(0.00007)**	**(0.00004)**	**(0.00006)**	**(0.00005)**	**(0.00006)**	**(0.00004)**	**(0.00006)**
Longitude	-0.000061	-0.000012	-0.000004	-0.000017	-0.000005	-0.000013	-0.000004	-0.000019
	(0.000094)	(0.000012)	(0.000004)	(0.000017)	(0.000005)	(0.000013)	(0.000004)	(0.000016)
Latitude	0.000004	**0.000045**	0.000003	0.000001	0.000003	0.000033	0.000003	-0.000003
	(0.000006)	**(0.000021)**	(0.000003)	(0.000018)	(0.00004)	(0.000022)	(0.000003)	(0.000018)
Men Ratio in 1990	0.038	0.062	0.038	0.001	0.037	0.001	0.038	0.002
	(0.200)	(0.184)	(0.200)	(0.192)	(0.200)	(0.185)	(0.200)	(0.190)
Indigenous Ratio in 1990	0.244	0.054	**0.260**	0.019	0.235	0.032	**0.261**	0.029
	(0.155)	(0.144)	**(0.146)**	(0.164)	(0.170)	(0.152)	**(0.146)**	(0.161)
Prop. of Illiterate People in 1990	**1.88**	**1.84**	**1.84**	**1.89**	**1.89**	**1.86**	**1.88**	**1.89**
	(0.10)	**(0.08)**	**(0.11)**	**(0.10)**	**(0.12)**	**(0.08)**	**(0.11)**	**(0.10)**
Catholics Ratio in 2000	**-0.177**	**-0.106**	**-0.178**	**-0.130**	**-0.174**	**-0.094**	**-0.178**	**-0.133**
	(0.056)	**(0.052)**	**(0.057)**	**(0.067)**	**(0.056)**	**(0.049)**	**(0.057)**	**(0.069)**
Public Spending Growth 1994-2010	-0.0001		-0.00011		-0.00011		-0.00011	
	(0.0002)		(0.00018)		(0.00018)		(0.00018)	
Poverty Rate in 1990 (%)	**0.007**		**0.007**		**0.007**		**0.007**	
	(0.003)		**(0.003)**		**(0.003)**		**(0.003)**	
Municipality FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	4995	5696	4995	5696	4995	5696	4995	5696
R^2	0.457	0.5036	0.4543	0.4749	0.4549	0.5027	0.454	0.4769

Notes: All estimations include robust standard errors (in parentheses) clustered at the municipality level. Conflict intensity is measured by: i) the number of years that the locality is located within a police or military station's influence area (columns 1 and 2); ii) the number of military and police positions of those localities (columns 3 and 4); iii) the aggregated amount of corporations of the same localities (columns 5 and 6); and iv) the number of influence areas that affect each locality (columns 7 and 8). All numbers in black are significant, at least, at the 10% level.

The other conflict intensity variables are also significant in the more robust estimations (second column of each variable). An extra military or police spot is associated with a decrease in 0.0053 of the index (column 4), equivalent to a 0.22 percent drop from the conflict region average, and it is significant at the 90 percent level. An additional corporation is related to a 0.24 decline in absolute terms (column 6) or 10 percent at the 95 percent confidence level, while a supplementary influence area of a military spot determines a decrease of 0.03 points, or 1.24 percent, at the 90 percent level.

Overall, conflict in 1994-2000 is negatively and statistically associated with the social backwardness index in 2010. This means that those communities exposed to the conflict have reduced their levels of deprivation in the long run as a consequence of the conflict. As suggested, the Zapatista institutions, especially those established since 2003, seem to become an autochthonous path of endogenous development, even in times of conflict.

VI.3. Long-Term Impact on Overcrowding Rates

As mentioned in the previous sections, the Zapatistas have deployed an Agrarian Reform *de facto*, regulated by the Revolutionary Agrarian Law, which allows them to live in better dwelling conditions and to generate new income sources. This fact, together with the long-term better social conditions of the communities under harassment showed in Table 5, would apparently lead them to lower levels of overcrowding rates in 2010, as an overall measure of social development.

Table 6 shows that the conflict is strongly associated with lower levels of overcrowding rates in 2010 throughout the different specifications and definitions of conflict intensity. The coefficient of interest is significant at the 99 percent of confidence in the first column of each variable. In their second columns (the preferred specifications which include municipality fixed effects), the results are still significant at either the 90 or 95 confidence level. I will only comment these last results. In particular, an extra year of conflict (column 2) is associated with a decrease in the

overcrowding rate by 0.0986 points, equivalent to a reduction of 1.92 percent coming from the conflict region average (0.0986/5.14). An extra military or police position (column 4) is associated with a decrease in 0.0051 points (0.10 percent), while an extra corporation (column 6) is related to a 0.2341 points decrease (4.55 percent). Finally, an additional influence area of a military spot (column 8) leads to a 0.0288 points decline of the overcrowding rate (0.56 percent).

As regards the control variables, the population in 1990 is always negatively but insignificantly related to the overcrowding rate in 2010, in line with the results of Table 5, whereas the geographic coefficients are significant in almost all the estimations (only latitude is not significant in columns 3, 5 and 7). As baseline socio-economic controls, the proportion of illiterate people in 1990 older than 15 years old and the poverty rate in 1990 are positively associated with the overcrowding rate, as expected.

TABLE 6: Determinants of Overcrowding Rates in 2010

Dependent Variable: Overcrowding Rate in 2010	Conflict Intensity measured by:							
	Years in Conflict		Military Spots		Corporations		Influence Areas	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Conflict Intensity	**-0.2438**	**-0.0986**	**-0.0040**	**-0.0051**	**-0.2513**	**-0.2341**	**-0.0226**	**-0.0288**
	(0.0777)	**(0.0504)**	**(0.0010)**	**(0.0029)**	**(0.0529)**	**(0.1117)**	**(0.0054)**	**(0.0156)**
Population in 1990	-0.0000024	-0.0000046	-0.0000024	-0.0000042	-0.0000026	-0.0000043	-0.0000024	-0.0000043
	(0.0000034)	(0.0000031)	(0.0000021)	(0.0000028)	(0.0000025)	(0.0000029)	(0.0000021)	(0.0000029)
Altitude	**0.00088**	**0.00043**	**0.00056**	**0.00041**	**0.00065**	**0.00044**	**0.00056**	**0.00042**
	(0.00018)	**(0.00009)**	**(0.00007)**	**(0.00009)**	**(0.00008)**	**(0.00009)**	**(0.00007)**	**(0.00009)**
Longitude	**-0.000079**	**-0.000069**	**-0.000025**	**-0.000073**	**-0.000045**	**-0.000069**	**-0.000028**	**-0.000075**
	(0.000021)	**(0.000016)**	**(0.000007)**	**(0.000016)**	**(0.000009)**	**(0.000012)**	**(0.000008)**	**(0.000015)**
Latitude	**0.000031**	**0.000076**	0.000002	**0.000034**	0.000008	**0.000064**	0.000001	**0.000030**
	(0.000011)	**(0.000023)**	(0.000004)	**(0.000016)**	(0.00006)	**(0.000020)**	(0.000005)	**(0.000017)**
Men Ratio in 1990	**-0.740**	**-0.626**	**-0.757**	**-0.684**	**-0.761**	**-0.685**	**-0.748**	**-0.683**
	(0.354)	**(0.278)**	**(0.344)**	**(0.282)**	**(0.336)**	**(0.273)**	**(0.344)**	**(0.283)**
Indigenous Ratio in 1990	0.077	0.026	**0.407**	-0.008	-0.123	0.005	**0.446**	0.002
	(0.240)	(0.179)	**(0.208)**	(0.171)	(0.204)	(0.171)	**(0.211)**	(0.171)
Prop. of Illiterate People in 1990	**1.15**	**1.20**	**1.18**	**1.25**	**1.33**	**1.22**	**1.19**	**1.25**
	(0.19)	**(0.17)**	**(0.18)**	**(0.18)**	**(0.17)**	**(0.16)**	**(0.18)**	**(0.18)**
Catholics Ratio in 2000	**-0.305**	-0.004	**-0.319**	-0.027	**-0.240**	0.007	**-0.331**	-0.030
	(0.126)	(0.071)	**(0.084)**	(0.069)	**(0.090)**	(0.072)	**(0.087)**	(0.069)
Public Spending Growth 1994-2010	0.0003		-0.00057		**0.00060**		**0.00064**	
	(0.0004)		(0.00035)		**(0.00030)**		**(0.00035)**	
Poverty Rate in 1990 (%)	**0.016**		**0.011**		**0.009**		**0.010**	
	(0.007)		**(0.006)**		**(0.005)**		**(0.006)**	
Municipality FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	4995	5696	4995	5696	4995	5696	4995	5696
R^2	0.1051	0.3039	0.217	0.3009	0.232	0.3097	0.2166	0.3017

Notes: All estimations include robust standard errors (in parentheses) clustered at the municipality level. Conflict intensity is measured by: i) the number of years that the locality is located within a police or military station's influence area (columns 1 and 2); ii) the number of military and police positions of those localities (columns 3 and 4); iii) the aggregated amount of corporations of the same localities (columns 5 and 6); and iv) the number of influence areas that affect each locality (columns 7 and 8). All numbers in black are significant, at least, at the 10% level.

It is also interesting to observe that the proportion of men in 1990 is negatively and significantly associated with a decrease of the overcrowding rate in all

the estimations of Table 6. Considering that this variable was not significant in Table 5, probably suggesting that it was not a proxy for well-being measures, the results of this table may be related to the fact that housing is a male labor intensity sector.

Finally, the other controls are not consistently significant. The percentage of indigenous population in 1990 older than 5 years old is positively related to the overcrowding rate, reflecting the worse living conditions of the indigenous people; though, these results are significant in only column 3 and 7, where municipality fixed effects were not added. The Catholics ratio in 2000 is consistent with Table 5, since the higher the ratio, the lower level of the overcrowding rate. However, these results turn insignificant by the inclusion of the municipality fixed effects. Finally, the coefficient of the municipal public spending per capita growth from 1994 to 2010 is significant in only two out of the four estimations (column 5 and 7), weakening again the hypothesis that the socio-economic conditions in 2010 were driven by public spending differentials.

Overall, the conflict is negatively and statistically associated with the long-term overcrowding rate, which may be reflecting both the direct effect of land occupation (or recovery) by the EZLN, and the indirect positive effect of the Zapatista institutions and policies, in line with the previous results on social backwardness showed in Table 5. Though it can be argued that this result may be driven by a population decrease in the conflict region as a consequence of the civil strive, this presumption is discarded by Table 2, which shows an increase in population from 1990 to 2010 in both regions, but especially in the one within conflict.

VI.4. Long-Term Impact on Fertility Rates

In this segment of the paper, I will investigate the long-term effect of conflict on fertility rates (i.e. the number of children born alive as a percentage of women in reproductive age). Considering the positive association between conflict and well-being conditions showed so far, I expect that the higher the conflict, the lower the

fertility rate as a proxy for social development. Before displaying the results, two comments are relevant for their interpretation.

First, the effect of conflict on lower fertility rates would be presumably enlarged by the role played by women in the movement, favor by the Revolutionary Law on Women and the EZLN's Indigenous Revolutionary Clandestine Committee demands of March 1994, which make visible their rights to health and family planning. Second, it is not expected a particular detrimental effect of the conflict *per se* on fertility rates in 2010, since as I have described in the literature review, fertility rates usually shrink during conflict (which in the Zapatista case, it ended between 1998 and 2000 its highest intensity period) and rebound immediately afterwards.

Table 7 shows that conflict is associated with lower levels of long-term fertility rates along the different specifications and conflict intensity definitions. As in the preceding tables, the second column of each conflict intensity variable is the preferred one (I will only comment on this), since it controls for municipality fixed effects. In any way, the coefficient of interest is also negative and significant in those estimations without municipality fixed effects. In particular, column 2 shows that an additional year in conflict is related to a decrease in 0.0765 points of the long-term fertility rate at the 95 percent confidence level, equivalent to a 2.59 percent drop from the conflict region average (0.0765/2.95). Column 4 illustrates this relationship when conflict intensity is defined by the number of military or police positions and it shows that an extra spot is associated with a decrease in 0.0039 points (0.13 percent) of the fertility rate at nearly the 95 percent level. When it is defined by the aggregate amount of corporations (column 6), the coefficient arises to -0.1816 at the 95 percent confidence level, suggesting that an additional corporation is related to a 6.16 percent decline of the fertility rate in 2010. Finally, when conflict intensity is measured by the number of influence areas affecting each locality (column 8), the coefficient turns to -0.0223 points, suggesting that an additional influence area is associated with a 0.76 percent decline of the fertility rate at the 0.10 significance level.

The control variables behave, in general, similarly to the preceding tables. The baseline population coefficient is negative and almost always significant (except in column 1). The geographic variables are generally significant as well, except for

latitude. The men ratio in 1990 coefficient becomes positive and keeps significant, implying that the higher the proportion of men, the higher the fertility rate, as expected. The indigenous ratio in 1990 is surprisingly negatively and significantly associated with fertility rates in 2010 in six out of the eight the columns, while the illiterate rate in 1990 is always positive and significant. Finally, the Catholic ratio, the public spending variable, and the poverty rate are not significantly associated with fertility rates.

TABLE 7: Determinants of Fertility Rates in 2010

Dependent Variable: Fertility Rate in 2010	Years in Conflict		Military Spots		Corporations		Influence Areas	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Conflict Intensity	**-0.1798**	**-0.0765**	**-0.0029**	**-0.0039**	**-0.1853**	**-0.1816**	**-0.0167**	**-0.0223**
	(0.0560)	**(0 .0317)**	**(0.0007)**	**(0.0020)**	**(0.0390)**	**(0.0775)**	**(0.0041)**	**(0.0118)**
Population in 1990	-0.0000053	**-0.0000060**	-0.0000053	-0.0000057	-0.0000054	-0.0000058	-0.0000053	-0.0000058
	(0.0000033)	**(0.0000031)**	(0.0000024)	(0.0000029)	(0.0000027)	(0.0000030)	(0.0000024)	(0.0000029)
Altitude	**0.00045**	**0.00023**	**0.00022**	**0.00022**	**0.00028**	**0.00024**	**0.00022**	**0.00022**
	(0.00013)	**(0.00005)**	**(0.00004)**	**(0.00004)**	**(0.00005)**	**(0.00005)**	**(0.00004)**	**(0.00005)**
Longitude	**-0.000036**	**-0.000019**	0.000004	**-0.000023**	**-0.000010**	**-0.000019**	0.000002	**-0.000024**
	(0.000015)	**(0.000006)**	(0.000005)	**(0.000007)**	**(0.000006)**	**(0.000006)**	(0.000006)	**(0.000007)**
Latitude	**0.000018**	**0.000043**	-0.000003	0.000009	0.000001	**0.000032**	-0.000004	0.000006
	(0.000009)	**(0.000015)**	(0.000004)	(0.000013)	(0.00003)	**(0.000012)**	(0.000004)	(0.000014)
Men Ratio in 1990	**0.552**	**0.537**	**0.540**	**0.491**	**0.537**	**0.491**	**0.546**	**0.492**
	(0.266)	**(0.223)**	**(0.253)**	**(0.222)**	**(0.256)**	**(0.230)**	**(0.255)**	**(0.226)**
Indigenous Ratio in 1990	**-0.461**	**-0.323**	-0.217	**-0.349**	**-0.608**	**-0.339**	-0.188	**-0.341**
	(0.184)	**(0.104)**	(0.203)	**(0.111)**	**(0.159)**	**(0.105)**	(0.210)	**(0.111)**
Prop. of Illiterate People in 1990	**0.71**	**0.78**	**0.73**	**0.82**	**0.84**	**0.80**	**0.74**	**0.82**
	(0.14)	**(0.09)**	**(0.11)**	**(0.09)**	**(0.11)**	**(0.09)**	**(0.12)**	**(0.09)**
Catholics Ratio in 2000	-0.083	0.027	-0.093	0.009	-0.035	0.036	**-0.102**	0.007
	(0.079)	(0.042)	(0.057)	(0.045)	(0.054)	(0.042)	**(0.059)**	(0.046)
Public Spending Growth 1994-2010	-0.0001		0.00012		0.00014		0.00017	
	(0.0002)		(0.00024)		(0.00015)		(0.00024)	
Poverty Rate in 1990 (%)	**0.009**		0.005		0.003		0.004	
	(0.004)		(0.004)		(0.003)		(0.004)	
Municipality FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	4995	5696	4995	5696	4995	5696	4995	5696
R^2	---	0.1517	---	0.1389	0.0299	0.1522	---	0.1387

Notes: All estimations include robust standard errors (in parentheses) clustered at the municipality level. Conflict intensity is measured by: i) the number of years that the locality is located within a police or military station's influence area (columns 1 and 2); ii) the number of military and police positions of those localities (columns 3 and 4); iii) the aggregated amount of corporations of the same localities (columns 5 and 6); and iv) the number of influence areas that affect each locality (columns 7 and 8). All numbers in black are significant, at least, at the 10% level.

All in all, *the conflict is negatively and statistically associated with the long-term fertility rates, as a reflection of the beneficial effect of the Zapatista institutions, as already shown with the aforementioned variables.*

VI.5. Long-Term Impact on Literacy Rates

The education field has represented one of the paramount institutions of the Zapatistas, who has used it as way for revitalizing their local history and for

dignifying their autonomy and resistance. Although these objectives are pretty difficult to measure, I will evaluate the impact of the conflict on the literacy rates of children aged 8 to 14 in 2010 (thus affected all their lives by the conflict), as an overall measure of education.

Table 8 shows that the conflict is associated with lower levels of literacy rates in 2010 in the odd columns where municipality fixed effects are not included. However, in the preferred estimations (i.e. the even columns which include municipality fixed effects), the coefficient turns positive but insignificant. Therefore, these results would imply that the better social conditions observed in the other response variables have not spilled into the education atmosphere.

TABLE 8: Determinants of Literacy Rates in 2010
(People Aged 8 to 14)

Dependent Variable: % of Literate People aged 8-14 in 2010	Years in Conflict		Military Spots		Corporations		Influence Areas	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Conflict Intensity	**-0.0163**	0.0117	**-0.00026**	0.00060	**-0.0168**	0.0279	**-0.0015**	0.0034
	(0.0074)	(0.0073)	**(0.00009)**	(0.00044)	**(0.0058)**	(0.0176)	**(0.0005)**	(0.0024)
Population in 1990	0.0000003	0.0000003	0.00000029	0.00000024	0.00000028	0.00000026	0.00000029	0.00000025
	(0.0000002)	(0.0000003)	(0.00000027)	(0.0000024)	(0.00000025)	(0.00000026)	(0.00000027)	(0.00000025)
Altitude	**0.000026**	**-0.0000137**	0.0000048	-0.000012	0.000011	**-0.0000145**	0.0000046	-0.000012
	(0.000016)	**(0.0000082)**	(0.0000053)	(0.000008)	(0.000007)	**(0.0000083)**	(0.0000051)	(0.000008)
Longitude	-0.000003	0.0000005	0.0000010	0.0000010	-0.00000034	0.0000005	0.00000081	0.0000013
	(0.000002)	(0.0000023)	(0.000008)	(0.000027)	(0.00000090)	(0.0000025)	(0.00000082)	(0.0000027)
Latitude	**0.0000024**	-0.000002	0.00000048	0.0000033	**0.00000087**	-0.0000004	0.00000043	0.0000038
	(0.0000013)	(0.000038)	(0.00000055)	(0.000038)	**(0.00000053)**	(0.0000041)	(0.00000054)	(0.0000037)
Men Ratio in 1990	-0.018	-0.047	-0.019	-0.041	-0.020	-0.036	-0.019	-0.040
	(0.056)	(0.057)	(0.056)	(0.057)	(0.057)	(0.024)	(0.056)	(0.057)
Indigenous Ratio in 1990	**-0.052**	**-0.039**	-0.030	-0.035	**-0.066**	-0.036	-0.028	-0.036
	(0.031)	**(0.023)**	(0.023)	(0.026)	**(0.027)**	(0.024)	(0.022)	(0.026)
Prop. of Illiterate People in 1990	**-0.23**	**-0.21**	**-0.23**	**-0.21**	**-0.22**	**-0.21**	**-0.23**	**-0.21**
	(0.02)	**(0.02)**	**(0.02)**	**(0.02)**	**(0.02)**	**(0.02)**	**(0.02)**	**(0.02)**
Catholics Ratio in 2000	0.012	0.014	0.011	0.016	**0.0164**	0.012	0.010	0.0168
	(0.011)	(0.010)	(0.010)	(0.011)	**(0.0096)**	(0.009)	(0.010)	(0.0111)
Public Spending Growth 1994-2010	-0.000047		-0.000030		-0.000028		-0.000025	
	(0.000043)		(0.000032)		(0.000031)		(0.000029)	
Poverty Rate in 1990 (%)	0.00047		0.00009		-0.000048		0.000017	
	(0.00068)		(0.00052)		(0.000468)		(0.000486)	
Municipality FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	4995	5696	4995	5696	4995	5696	4995	5696
R^2	0.1299	0.2124	0.166	0.1989	0.1696	0.2067	0.1703	0.1983

Notes: All estimations include robust standard errors (in parentheses) clustered at the municipality level. Conflict intensity is measured by: i) the number of years that the locality is located within a police or military station's influence area (columns 1 and 2); ii) the number of military and police positions of those localities (columns 3 and 4); iii) the aggregated amount of corporations of the same localities (columns 5 and 6); and iv) the number of influence areas that affect each locality (columns 7 and 8). All numbers in black are significant, at least, at the 10% level.

Sinking into the control variables, only the pre-conflict percentage of illiterate people older than 15 years old is a consistent and robust predictor of the percentage of literate people aged 8-14 in 2010 throughout the different specifications and conflict intensity definitions. Altitude is only significant in three out of the eight

estimations (but the sign is not consistent among them), while latitude is significant in two of the non-preferred estimations. Unsurprisingly, the initial proportion of indigenous people is negatively associated with literacy rates in 2010, but the coefficient is significant in only three cases (columns 1, 2 and 5). The other controls seem to have no influence on the education variable.

Taking into account the great emphasis that it has been highlighted around gender issues within the Zapatista literature, Table 9 illustrates the differential effect of the conflict on literacy rates of children aged 8 to 14 in 2010 by gender status. Panel A rewrites the results of the coefficient of interest from Table 8 as a comparison basis for the other results. It is clear in this table that the estimations without municipality fixed effects are still negative for boys and girls (columns 1, 3, 5 and 7 of Panel B and C). Though, when municipality fixed effects are added, conflict intensity is positively and significantly associated with boys' literacy rates at the 90 percent confidence level when the former is measured by both the number of years in conflict (Panel B, column 2) and the aggregate amount of corporations (Panel B, column 6). By contrary, the effect on girls is still insignificant (column 2, 4, 6 and 8 of Panel C).

TABLE 9: Determinants of Literacy Rates in 2010 By Gender
(People Aged 8 to 14)

Dependent Variable: % of Literate People aged 8-14 in 2010 by Gender	Conflict Intensity measured by:							
	Years in Conflict		Military Spots		Corporations		Influence Areas	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: General Sample								
Conflict Intensity	**-0.0163**	0.0117	**-0.00026**	0.00060	**-0.0168**	0.0279	**-0.0015**	0.0034
	(0.0074)	(0 .0073)	**(0.00009)**	(0.00044)	**(0.0058)**	(0.0176)	**(0.0005)**	(0.0024)
Observations	4995	5696	4995	5696	4995	5696	4995	5696
Panel B: Boys								
Conflict Intensity	**-0.0148**	**0.0140**	**-0.00024**	0.00072	**-0.0153**	**0.0333**	**-0.0014**	0.0041
	(0.0066)	**(0.0085)**	**(0.00009)**	(0.00051)	**(0.0056)**	**(0.0200)**	**(0.0005)**	(0.0028)
Observations	4894	5591	4894	5591	4894	5591	4894	5591
Panel C: Girls								
Conflict Intensity	**-0.0174**	0.0091	**-0.00028**	0.00047	**-0.0180**	0.0217	**-0.0016**	0.0027
	(0.0088)	(0.0067)	**(0.00010)**	(0.00040)	**(0.0073)**	(0.0160)	**(0.0006)**	(0.0022)
Observations	4881	5570	4881	5570	4881	5570	4881	5570
Covariates								
Municipality Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Controls at the Locality Level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls at the Municipality level	Yes	No	Yes	No	Yes	No	Yes	No

Notes: All estimations include robust standard errors (in parentheses) clustered at the municipality level. Conflict intensity is measured by: i) the number of years that the locality is located within a police or military station's influence area (columns 1 and 2); ii) the number of military and police positions of those localities (columns 3 and 4); iii) the aggregated amount of corporations of the same localities (columns 5 and 6); and iv) the number of influence areas that affect each locality (columns 7 and 8). All numbers in black are significant, at least, at the 10% level. The control variables are the same to those of the preceding tables.

In particular, column 2 (Panel B, Table 9) shows that an additional year in conflict is related to a 0.0140 points increase in boys' literacy rates, equivalent to a 1.62 percent growth from the conflict region average (0.0140/0.8627)[40]. When it is defined by the aggregate amount of corporations (column 6), the coefficient arises to 0.0333, which implies that an extra corporation is associated with a 3.86 percent increase in boys' literacy rates.

In brief, the conflict is not highly associated with literacy rates of children aged 8 to 14 in 2010. When dividing the analysis by gender, I found only marginal positive effects on boys and no effect on girls, contrarily of what has been written about gender equality in the Zapatistas literature. Three possible interpretations arise from these results. First, the negative effects of the conflict *per se* may be reflected more consistently in the education field, due to infrastructure damages and the high level of IDPs. Second, as the Zapatistas perceive the education scheme as a special space for strengthening their autonomy and not *necessarily* for enhancing their education levels *vis-á-vis* the official education, it could be the case that literacy rates do not necessarily reflect the Zapatista education aim. Finally, by contrary, if this variable were in fact a good proxy for the education performance of the movement, this research would be showing a space for improvements in the Zapatista education arena. The next section will provide us with more evidence in order to specify stronger conclusions.

VII. Effect by Different Influence Areas

So far, I have shown the effect of conflict when localities were classified as in conflict when they were situated within an influence area of 20 kilometers from a police or military position. In order to increase the robustness of these results, I will provide estimations by different influence areas; i.e. 10, 15, 25 and 30 kilometers. My hypothesis is that the military spot location is a good approximation of the ZACs',

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[40] The average of the literacy rate of children aged 8 to 14 in 2010 is 0.86, as shown in table 2. This average almost keeps for boys (but not shown in that table).

thus the farther from these points, the lower the effect of both the conflict *per se* and the Zapatista policies.

Table 10 shows the results. I include only the preferred estimation for each conflict intensity variable; i.e. including municipality fixed effects. It should also be noted that the results presented in this table pertaining to the influence area of 20 kilometers are the same to the corresponding ones from the previous charts.

The first four columns of Panel A illustrate the relationship between conflict and the long-term social backwardness index[41]. If the localities in conflict are considered within an influence area of 10 kilometers, the effect of conflict on social backwardness in 2010 vanishes for all the conflict intensity variables. Though the coefficients are the largest with respect to the bigger influences areas, the same applies to their standard errors[42]. Going through the next influence area (15 kilometers), the effect of conflict turns significant in three out of the four conflict intensity variables. Interestingly, the coefficients are a bit smaller than in the precedent influence areas for all the variables of interest. Progressively, as the influence area grows, the effect decreases (as expected) and the t-statistic increases, whereas all the conflict intensity variables are significant.

Specifically, when conflict is measured by years of conflict (column 1, Panel A), the coefficient is significant from 15 to 30 kilometers and ranges from -0.1426 to -0.0711, respectively; i.e. *an extra year in conflict is associated with a decrease in the long-term social backwardness index from 2.9 to 5.9 percent coming from the index average of the conflict area*. When conflict is defined by the number of military spots (column 2, Panel A), the coefficient is significant from 20 to 30 kilometers and the coefficient ranges from -0.0053 to -0.0020. Finally, when conflict is defined by the amount of corporations and the number of influence areas (column 3 and 4, Panel A), the coefficients are significant from 15 to 30 kilometers.

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[41] Table 10 does not include social backwardness in 2000 as a response variable, because it is never significant.

[42] This can be caused by higher conflict variability in the smaller influence areas. However, this only happens when conflict intensity is measured by years in conflict. In the other three conflict intensity measures, their standard deviation is higher in the farthest influence areas. These results can be provided under request.

TABLE 10: Determinants by Different Influence Areas

	Dependent Variables:							
	Social Backwardness in 2010				Overcrowding Rate in 2010			
Conflict Intensity measured by:	Years	Spots	Corp	Areas	Years	Spots	Corp	Areas
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A								
Conflict Intensity (10 KM)	-0.1429	-0.0184	-0.4578	-0.0964	**-0.1377**	-0.0178	**-0.4412**	-0.0929
	(0.0905)	(0.0127)	(0.2848)	(0.0652)	**(0.0760)**	(0.0122)	**(0.2466)**	(0.0632)
Conflict Intensity (15KM)	**-0.1426**	-0.0111	**-0.3708**	-0.0553	-0.1374	-0.0107	-0.3573	-0.0533
	(0.0798)	(0.0069)	**(0.2057)**	(0.0323)	(0.0696)	(0.0066)	(0.1742)	(0.0311)
Conflict Intensity (20KM)	**-0.1023**	-0.0053	-0.2429	-0.0299	-0.0986	-0.0051	-0.2341	-0.0288
	(0 .0495)	(0.0029)	(0.1082)	(0.0160)	(0.0504)	(0.0029)	(0.1117)	(0.0156)
Conflict Intensity (25KM)	**-0.0872**	**-0.0031**	**-0.1746**	**-0.0183**	**-0.0840**	**-0.0030**	**-0.1683**	**-0.0176**
	(0.0399)	**(0.0017)**	**(0.0743)**	**(0.0098)**	**(0.0421)**	**(0.0017)**	**(0.0784)**	**(0.0097)**
Conflict Intensity (30KM)	**-0.0711**	**-0.0020**	**-0.1233**	**-0.0117**	**-0.0685**	**-0.0019**	**-0.1188**	**-0.0113**
	(0.0307)	**(0.0011)**	**(0.0512)**	**(0.0063)**	**(0.0336)**	**(0.0011)**	**(0.0543)**	**(0.0062)**
Observations	5696	5696	5696	5696	5696	5696	5696	5696

	Dependent Variables:							
	Fertility Rate in 2010				% of Literate People aged 8-14 in 2010			
Panel B								
Conflict Intensity (10 KM)	**-0.1068**	**-0.0138**	**-0.3422**	**-0.0720**	0.0164	0.0021	0.0525	0.0111
	(0.0543)	**(0.0079)**	**(0.1850)**	**(0.0401)**	(0.0136)	(0.0018)	(0.0437)	(0.0091)
Conflict Intensity (15KM)	**-0.1066**	**-0.0083**	**-0.2772**	**-0.0414**	0.0164	0.0013	0.0425	0.0063
	(0.0534)	**(0.0048)**	**(0.1456)**	**(0.0230)**	(0.0121)	(0.0010)	(0.0319)	(0.0048)
Conflict Intensity (20KM)	**-0.0765**	**-0.0039**	**-0.1816**	**-0.0223**	0.0117	0.00060	0.0279	0.0034
	(0 .0317)	**(0.0020)**	**(0.0775)**	**(0.0118)**	(0.0073)	(0.00044)	(0.0176)	(0.0024)
Conflict Intensity (25KM)	**-0.0652**	**-0.0023**	**-0.1305**	**-0.0137**	**0.0100**	0.00040	0.0200	0.0021
	(0.0269)	**(0.0011)**	**(0.0541)**	**(0.0064)**	**(0.0060)**	(0.0003)	(0.0123)	(0.0015)
Conflict Intensity (30KM)	**-0.0531**	**-0.0015**	**-0.0922**	**-0.0088**	**0.0082**	0.00023	**0.01415**	0.0013
	(0.0225)	**(0.0007)**	**(0.0366)**	**(0.0038)**	**(0.0047)**	(0.00017)	**(0.00855)**	(0.0010)
Observations	5696	5696	5696	5696	5696	5696	5696	5696

	Dependent Variables:							
	% of Literate Boys aged 8-14 in 2010				% of Literate Girls aged 8-14 in 2010			
Panel C								
Conflict Intensity (10 KM)	0.0201	0.0026	0.0644	0.0134	0.0129	0.0017	0.0417	0.0085
	(0.0159)	(0.0020)	(0.0504)	(0.0103)	(0.0121)	(0.0016)	(0.0391)	(0.0083)
Conflict Intensity (15KM)	0.0198	0.0015	0.0515	0.0076	0.0128	0.0010	0.0332	0.0049
	(0.0141)	(0.0012)	(0.0362)	(0.0048)	(0.0108)	(0.0009)	(0.0281)	(0.0043)
Conflict Intensity (20KM)	**0.0140**	0.00072	**0.0333**	0.0041	0.0091	0.00047	0.0217	0.0027
	(0.0085)	(0.00051)	**(0.0200)**	(0.0028)	(0.0067)	(0.00040)	(0.0160)	(0.0022)
Conflict Intensity (25KM)	**0.0119**	0.00040	**0.0239**	0.0025	0.0078	0.00030	0.0156	0.0016
	(0.0070)	(0.0003)	**(0.0141)**	(0.0017)	(0.0056)	(0.0002)	(0.0112)	(0.0013)
Conflict Intensity (30KM)	**0.0098**	0.00028	**0.0170**	0.0016	0.0064	0.00018	0.0111	0.0010
	(0.0057)	(0.00019)	**(0.0100)**	(0.0011)	(0.0045)	(0.00015)	(0.0079)	(0.0009)
Observations	5591	5591	5591	5591	5570	5570	5570	5570
Covariates								
Municipality Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
All Controls at the Locality Level	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: All estimations include robust standard errors (in parentheses) clustered at the municipality level. Conflict intensity is measured by: i) the number of years that the locality is located within a police or military station's influence area (columns 1 and 5); ii) the number of military and police positions of those localities (columns 2 and 6); iii) the aggregated amount of corporations of the same localities (columns 3 and 7); and iv) the number of influence areas that affect each locality (columns 4 and 8). All numbers in black are significant, at least, at the 10% level. The control variables are the same to those of the preceding tables when municipality fixed effects were added.

The last four columns of Panel A reflect the impact of conflict on the long-term overcrowding rates. Column 5 shows that years in conflict are significantly and negatively associated with the overcrowding rate throughout the different influences areas analyzed. In particular, the coefficient decreases from -0.1377 (10 kilometers) to -0.0685 (30 kilometers), thus *an additional year in conflict determines a decrease of the overcrowding rate in the range of 1.33 and 2.68 percent*. When the number of military spots measures conflict, the coefficient of interest is significant from 20 to 30 kilometers (column 6). When the number of corporations defines it (column 7), the coefficient is significant in all the influence areas, whereas conflict is a strong

predictor from 15 to 30 kilometers when it is defined by the number of influence areas (column 8).

Panel B, columns 1 to 4, illustrates the strong and negative relationship between conflict and the long-term fertility rates along the different influence areas and conflict intensity measures. All the coefficients are significant and decreasing in intensity as long as the influence area increases, though I will only mention column 1 for interpretation reasons; i.e. *an additional year in conflict is associated with a decline in the fertility rate from 0.1068 to 0.0531; i.e. a range from -1.8 to -3.62 percent coming from the mean*.

Columns 5 to 8, Panel B, shows the association between conflict and literacy rates of children aged 8 to 14 in 2010. Column 5 indicates that *an additional year in conflict is related to an increase in the literacy rate from 0.010 (25 kilometers) to 0.0082 (30 kilometers); i.e. 0.95 and 1.16 percent coming from the mean*. However, there is no significant association in the smaller influence areas. When conflict intensity is defined by the aggregated amount of corporations, the coefficient is only significant for the influence area of 30 kilometers (column 7). However, the coefficients are never significant for columns 6 and 8. Hence, there is only some little evidence about the effect of conflict on literacy rates in the farthest communities from the military spots. This may be explained by the fact that school damages were greater in the nearby area of the military spots, or that the spillovers from the Zapatista policies where not translated into better education performance evaluated by this variable.

Panel C shows the relation between conflict and literacy rates by gender status. It is interesting to see that there is no single association with girls' literacy rates from column 5 to 8. Nevertheless, the results suggest an impact of conflict on boys' literacy rates when the influence area is considered in either 20, 25 or 30 kilometers for two out of the four conflict intensity variables (column 1 and 3). In particular, *one more year in conflict is associated with an increase of boys' literacy rates aged 8 to 14 in 2010 by 0.0140 to 0.0098 points, or 1.14 to 1.62 percent*. This suggests that boys' literacy rates led the small effect seen for the overall population.

In sum, Table 10 reveals that the impact of the Zapatista conflict was not driven by the decision of considering as localities in conflict those located within an influence area of 20 kilometers from the military spots. In fact, Table 10 is in line with the presumption that the effect shrinks when farther localities are considered as in conflict. Finally, this table offers more evidence about the effect intensity by different thresholds, suggesting that the conflict is highly and negatively associated with the long-term social backwardness index, the long-term overcrowding rate, and, specially, the long-term fertility rates. In addition, this table reflects the small beneficial effect on literacy rates of children aged 8 to 14 in 2010, specifically on boys and no for girls.

VIII. Alternative Interpretations?

Which other interpretations can be obtained from these results? First, it can be argued that the beneficial effect of the conflict may only be echoing an economic rebound. Though it can be playing a particular role on macroeconomic outcomes (thus only presumably affecting the overcrowding rate and the social backwardness index in a lower extent), this argument is not highly plausible when analyzing human development dimensions. In particular, this is not consistent with the literate review of conflict, which generally shows detrimental effects on well-being conditions in the short and long run. Seemingly, if the real nature of the beneficial effect of the conflict were an economic rebound, this is not consistent with the neutral short-term effect found in the paper.

Second, it can be mentioned that the results are only capturing a catch-up effect from the economic growth literature; i.e. the poorer communities (which are in conflict) reaching the richer ones, as the time goes by. The summary statistics shown in Table 2 can give us a hint. It illustrates that the social backwardness index presents a similar absolute decrease in both regions from 2000 to 2010, thus it seems that these results are not driven by the catch-up story.

Third, it can be argued that the findings of this paper may be driven by differentials in public spending rates, according to the LIW; i.e. the government may be spending more money in the conflict region in order to capture Zapatista followers and, thereby, dismantling the movement. My main results add municipality fixed effects for controlling for every kind of heterogeneity at the level of the *municipio*, such as the municipal public spending growth, thus any remaining bias is only determined by the variability of this variable (and others) at the locality level. Considering this data is not available by localities, and in order to visualize the robustness of the results to the inclusion of this variable, I explicitly include the municipality public spending per capita growth in some specifications.

In those specifications, where municipality fixed effects cannot be added to avoid a bogus identification, the social backwardness index in 2010 turns insignificant (Table 5) and the literacy rate in 2010 becomes negative and significant (Table 8) - while the overcrowding and fertility rates in 2010 are still negative and significant (Table 6 and 7, respectively). The reason behind these changes can be triggered by: i) some heterogeneity at the municipality level that this model cannot seize; ii) an actual effect of public spending (or other omitted variable) at the locality level not captured in my preferred estimations. I am inclined to the first option, since the municipal public spending growth has generally been insignificant and inconsistent [43] in explaining both the conflict (first stage) and the response variables (second stages). Thus, it does not seem likely that public spending may be significantly biasing the results.

Fourth, it may be questioned that this paper makes conclusions about the Zapatista institutions and policies, since it is only able to identify the localities in conflict. On the one hand, Figures 2 and 5 show that the area in conflict is highly juxtaposed with the ZACs. However, on the other hand, it is reasonable to think that only a portion of the communities classified as in conflict are ZACs. Under this case, the beneficial effect found in the paper would be underestimated by the wrongly

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[43] Inconsistent in the sense that the sign of the public spending variable has changed in explaining the same variable in some occasions. For example, this was the case in the first-stage reduced form (Table 3.a and 3.b). This variable, evaluated from 1994 to 2000, was significant in three out of the four estimations but with opposing signs (while it was insignificant for the four estimations when it was evaluated from 1994 to 2010).

inclusion of some communities in conflict who do not actually perceive the benefits of the Zapatista institutions and policies. Additionally, there could be playing some spillover effects. For example, the health centers are also open to non-Zapatistas. At the same time, nearby non-Zapatista communities may be felt empowered to claim for more rights and for devising more economic, social, and political activities by their own. Therefore, even though not all the communities identified as in conflict are necessarily Zapatistas, the beneficial effect seems to stem from the Zapatista performance.

Finally, it could be sustained that the favorable results were only generated by the funds provided by national and international donors. Although it is undeniable this source of funding, this paper suggests that the Zapatistas have appropriately employed this money for subsequent development through the creation of new institutions and policies. At the same time, the Zapatistas have conceived other sources of income, as previously described.

IX. Final Remarks

This paper finds a positive and robust long-term impact of the Zapatista conflict. In particular, the conflict is associated, in the long run, with lower levels of deprivation, overcrowding rates, and fertility rates. At the same time, it is slightly related to greater literacy rates for children exposed to the conflict, especially for boys (but, unexpectedly, not for girls). By contrary, I have shown no impact on the short-term social backwardness index. Since the location of the conflict and the ZACs are highly juxtaposed, *these results imply that the positive effect of the Zapatista institutions and policies has surpassed the negative consequences of the conflict per se after the formation of the well-established Zapatista institutions in 2003; i.e. the Caracoles and the JBGs.*

Specifically, *an additional year in conflict is associated with lower levels of: i) the social backwardness index of 2010 from 2.9 to 5.9 percent; ii) the overcrowding rate in 2010 in the range of 1.33 to 2.68 percent; and iii) the fertility rate in 2010*

from 1.8 to 3.62 percent -coming from the mean of each response variable in the conflict area. Additionally, this is positively but slightly associated with literacy rates of children aged 8 to 14 in 2010, in the range from 0.55 to 1.16 percent, with special emphasis on boys (1.14 to 1.62 percent).

These results are robust to: i) different definitions of conflict intensity; ii) a great amount of pre-conflict controls; and iii) different influence areas for considering the localities in conflict. At the same time, this study addresses the endogeneity of conflict, by instrumenting it by the distance of each locality from a geographic triangle set by the Zapatistas for its uprising in 1994, at the doorsteps of the Lacandon Jungle.

This paper advances two main policy implications. First, bottom-up policies implemented by grass-root organizations, even in times of conflict, may represent an appropriate channel for encouraging endogenous economic development. In particular, CDD (community-driven development) strategies may symbolize a powerful tool for poverty reduction if development is genuinely driven by communities[44].

Second, the Mexican government should recognize the Zapatista autonomy and its right for self-determination because, not only it is stated in the UN Declaration for the Rights of Indigenous People, but also the Zapatista institutions and policies have proved to be benefiting its communities. For a viable roadmap, the *San Andrés Accords* signed between the government and the Zapatistas in 1996 should be complied and all kind of police, military, and paramilitary harassment should be definitively suppressed.

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[44] It can also be questioned that the Zapatistas are the only representative movement of the indigenous communities in Chiapas. Though there are several indigenous associations in Chiapas (especially of peasants), there is no other long-lasting sizable movement having made a rebellion against the government.

X. References

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