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Is Violence Against Union Members in Colombia Systematic and Targeted?[*]

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Abstract

Violence against union members in Colombia has been at the center of a debate for several years now. Union leaders and NGOs in Colombia and abroad continuously argue that free trade agreements with Colombia should be blocked based on the failure of the current Colombian government to protect union members from targeted killings. We first look at the evolution over time of the indicators for violence against union members and union leaders. In particular we show (using different indicators and data sources) that violence against unionists in Colombia has steadily declined over the last seven years. Then, we use available panel data to study the determinants of violence against union members and union leaders. We make special emphasis on testing the claim that a greater intensity in the characteristic activities of unions leads to more violence against union members and union leaders. Using different data sets, data sources and estimation methods, we find no statistical evidence supporting this claim. These results suggest that, on average, violence against unionists in Colombia is neither systematic nor targeted.

Keywords: Violence, Targeted Killings, Unions, Union Activity.

JEL Classification Numbers: J51, J52, K42.

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¿Es la violencia anti-sindical en Colombia sistemática y dirigida?[*]

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Esta versión: Noviembre de 2009

Abstract

Durante los últimos años la violencia anti-sindical en Colombia ha sido fuente continua de debates. Líderes sindicales y ONGs en Colombia y otros países continuamente argumentan que los Tratados de Libre Comercio con Colombia deben ser bloqueados debido a la falta de resultados del gobierno colombiano en disminuir la violencia contra los sindicalistas. Utilizando diferentes fuentes de información e indicadores, este artículo estudia la evolución en el tiempo de la violencia contra sindicalistas en Colombia. En particular, el artículo muestra que la violencia anti-sindical en Colombia ha caído de manera sostenida durante los últimos siete años. Adicionalmente, usamos una base de datos tipo panel para estudiar los determinantes de la violencia anti-sindical en Colombia, haciendo especial énfasis en probar la hipótesis según la cual la mayor actividad sindical causa mayor violencia anti-sindical. Usando diferentes fuentes de datos, estrategias de estimación y períodos de tiempo, no encontramos ninguna evidencia estadística en favor de esta hipótesis. Los resultados de este artículo sugieren que, en promedio, la violencia contra sindicalistas en Colombia no es sistemática ni dirigida.

Palabras clave: Violencia, Asesinatos Dirigidos, Sindicatos, Actividad Sindical.

Códigos JEL: J51, J52, K42.

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1   Introduction

Violence against union members and union leaders has been at the center of a debate in Colombia and in countries currently negotiating a Free Trade Agreement (FTA) with Colombia. In particular, NGOs and union leaders in Colombia, Europe, Canada, and the U.S. persistently argue that FTAs with Colombia should be blocked because there are no results to be seen from attempts by the current Colombian Government to halt violence against union members in Colombia. Furthermore, a recent report by an NGO claims that "Most of the violence against trade unionists is a result of the victims normal union activities. While the Colombian government claims that most of the violence against trade unions is a by-product of the armed conflict, the Escuela Nacional Sindical (ENS), a respected NGO that provides training and support to the Colombian labor movement, says that the majority of the anti-union violence that takes place in Colombia is in response to the victims' normal union activities..." (see USLEAP, 2008). Union leaders, on their part, have argued that under the current administration homicides of union members have increased. For instance, in a recent letter to the Permanent Representatives of the EU Member States, John Monks, the General Secretary of the European Trade Union Confederation (ETUC), argues that "assassinations of trade unionists in Colombia continue at a rate unseen in any other country ... The country's main trade union confederations, the Central Unitaria de Trabajadores (CUT) [Central Union of Workers], the Confederación General del Trabajo (CGT) [General Confederation of Labour], and the Confederación de Trabajadores de Colombia (CTC) [Confederation of Workers of Colombia] are alerting us and providing documentation that refutes claims by the Uribe Government that the situation is under control." He then asks the representatives to "call a halt to the FTA negotiation... and so make it clear to the Colombian authorities that the EU and its Member States do not condone the current situation in Colombia..." The topic of violence against union members in Colombia even reached the debates in the previous U.S. presidential campaign. More precisely, in a debate in New York, President Obama pointed to abuses in Colombia as the reason for his opposition to the FTA with Colombia, including labor leaders he said are being targets for assassination on a consistent basis.[1] On its part, the Colombian government defends itself, explaining that huge efforts have been made in order

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[1]See voanews.com (2008), and beaconbroadside.com (2008).

to protect unionists. During President Uribe's speech last year responding to a message sent by a U.S. congressman, he argued that there were 6,000 people in Colombia receiving personal protection. Of these, a fourth of them (1,500) were union members. And so the debate goes on, with many points of view contributing to the discussions, while FTAs continue to be blocked.

What are the specific indicators for violence against union members in Colombia? Has there been any progress in solving this problem? Can killings of union members in Colombia be explained by their involvement in union activities? What are the main determinants of violence against union members in Colombia? This paper first presents the main stylized facts on violence against union members in Colombia, comparing them with the evolution of the total homicide rate and with the homicide rate for other groups identified as vulnerable (journalists, councilmen, mayors, and teachers). Then, using panel data evidence for Colombia at the State level, we assess determinants of the homicide rate for union members in Colombia. In particular, we are interested in testing the claim that union activities (wage agreements and negotiations, strikes, work stoppages, etc.) help explain the homicide rate of union members. In other words, testing this hypothesis is a first step towards proving, using econometric techniques, that union members are targeted and killed because of their activities as union members, or, conversely, that unionism is a dangerous activity in Colombia in that union membership increases the chances of being a target of violence. Should this hypothesis be proved wrong, however, would suggest that there is no evidence of systematic targeting of union members, and the argument used to block economic reforms such as the FTAs with the U.S., Canada and Europe would be flawed.

Using different data sources and indicators we show that there has been a remarkable decrease in homicides (both in absolute numbers and in terms of the homicide rate) of union members in Colombia during this decade. Furthermore, we show that the decrease in homicides of union members is larger when one uses the data reported by the unions' NGO - Escuela Nacional Sindical (ENS) - than when one uses government data. Furthermore, the decrease in homicides against union members has been steeper than the reduction observed in the total homicide rate for Colombia and in the rate for other vulnerable groups (teachers, journalists, mayors and councilmen). When analyzing the determinants of union member homicides, there is no evidence supporting the hypothesis that the homicide rate for union members can be explained by involvement in union activities, such as wage agreements

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and negotiations, or work stoppages and strikes. In other words, using the information available we invalidate the main argument used by union members in Colombia and abroad, which states that union members are being systematically killed because of their activities as unionists. While we do not deny the possibility that there may be individual cases of targeted killings and targeted violence against union members, this situation is in no way generalized, nor is it valid to use the argument of generalized violence against union members to block economic reforms such as FTAs.

To the best of our knowledge this is the first attempt in the existing economic literature on crime to study the determinants of crime against a specific vulnerable group. Furthermore, it constitutes the first attempt to test the claim that a group's specific and characteristic activities are an important determinant of violence against it. This paper contributes to the existing literature on the economics of crime pioneered by the seminal works of Becker (1968) and Ehrlich (1996). Also, this paper contributes to the empirical literature studying the determinants of crime (see Fajnzylber et al., 1998; Levitt, 1999; Gaviria and Pages, 2002; Bushway and Reuter, 2008; and Di Tella et al., 2009, among others).

The paper is organized as follows. Section two provides the stylized facts related to the evolution of different indicators for violence against union members in Colombia and describes some of the measures taken by the Colombian government to confront this problem. This section also provides a thorough description of the data used in the empirical exercise. Section three explains the empirical strategy, and section four presents the main results. Section five states the main conclusions.

2   Stylized Facts and Data

Figure 1 shows the evolution over time in the number of union member homicides in Colombia for the 1986-2008 period, as reported by the Escuela Nacional Sindical - ENS (National Union School) (A), and the ratio between union member homicides and total homicides in Colombia.

As can be observed in panel (A) of Figure 1, murders of unionists increased steadily between 1986 and the mid-nineties, with a peak of 274 unionists murdered in 1996. During the second half of the nineties, the number again increased until 2002, when it began to fall

steadily all the way to the latest data in 2008. Panel (B) shows the ratio between union homicides and total homicides in Colombia for the same time period. It demonstrates that although total homicides have been reduced every year since 2003 when they were at a peak of 28,800, the number of homicides of unionists fell at a steeper rate than the number of total homicides in Colombia.

[INSERT Figure 1 here]

The more traditional way to look at statistics on crime is to focus on the homicide rate, defined as the number of homicides per 100,000 inhabitants. Figure 2 shows the evolution in the number of homicides in Colombia per 100,000 inhabitants in panel (A) and the number of homicides of unionists per 100,000 unionists in panel (B). It must be stressed that the figures used for homicides of unionists were taken from ENS documents and not from the figures the Government handles on union homicides. In other words, this indicator for union homicides uses the number reported by the ENS for the 1995 to 2008 time period for both murders and for the number of individuals affiliated in trade unions in Colombia. The rate for union homicides in 2008 was 6.1. The rate for the total population was 36.2 in the same year. In other words, the homicide rate for the total population is 6 times larger than the homicide rate for individuals affiliated in unions in Colombia. To see this clearly, note the difference in scale for the two panels in Figure 2. The union homicide rate in 2007 was the lowest since 1986 (the first year data was recorded). This rate of 6.1 per 100,000 unionists is equal to the homicide rate for the total population in countries such as the U.S. and Uruguay during 2008.

[INSERT Figure 2 here]

Both homicide rates, union and general, have been significantly reduced in Colombia. But the union homicide rate has responded more quickly than the rate for the total population. This can be seen in Figure 3, where the ratio between the union member homicide rate and the total rate is presented. As can be seen in this Figure, the homicide rate for unionists as a percentage of the homicide rate for the total population has been decreasing steadily since 2001. In other words, progress in reducing union homicides has been greater than progress in reducing homicides in the general population.

[INSERT Figure 3 here]

Data from the Office of the Vice President confirms the mid-term trend observed in the ENS-reported homicides of union members (see Office of the Vice President, 2008). This

Office uses the figures from the Observatory of Human Rights, which are lower than the ENS figures, but the mid-term trend is the same. For example, Figure 4 (A) shows the ENS union homicide rate and the same rate from the Office of the Vice President from 2001 to 2008.[2] Both data sources show the rate fell between 2001 and 2008. In fact, the reduction in the union homicide rate is greater with ENS data (see ENS, 2009) than with the data from the Office of the Vice-President (2009).

Figure 4 Panel (B) shows the ratio between union homicides and total homicides in vulnerable groups from 2001 to 2008. As seen, the figure for union homicides as a percentage of homicides in vulnerable groups shows sustained reduction between 2001 and 2008 as well. This was not, however, because of an increase in homicides in vulnerable groups. In fact, according to data from the Office of the Vice President, total homicides in vulnerable groups went down from 2001 (412 homicides) to 2008 (129 homicides). Panel (B) of Figure 4 shows that progress in reducing union homicides in Colombia has been greater than the progress in reducing homicides in other groups identified as vulnerable (journalists, teachers, councilmen, etc.). Once again, union homicides have not only fallen at a steeper rate than total homicides in Colombia, but also at a steeper rate than homicides in other vulnerable groups.

[INSERT Figure 4 here]

The Central Unitaria de Trabajadores (CUT, the largest trade union confederation in Colombia) reports data on the number of homicides of union leaders[3] between 2000 and 2008 in Colombia. Figure 5 (A) shows the evolution over time in the number of union leader homicides, and panel (B) shows the ratio between the number of union leader homicides and the total number of homicides in Colombia. As in the case of homicides of union members, the number of homicides of union leaders decreased steadily between 2001 and 2007. As can be seen in panel (A), the CUT did not report any homicides of union leaders during 2006 and 2007, and for 2008 the number of union leader homicides reported was 11. Panel (B) shows that the reduction in the number of homicides of union leaders in

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[2]For the Office of the Vice President, we construct the homicide rate of union members as the numeber of homicides of union members reported by this Office per 100,000 union members, the latter reported by the ENS.

[3]The CUT divides the homicides of union members between union activists, members of boards of directors, and unionized workers. We take the first two groups as being part of the group of 'union leaders.'

Colombia was larger than the reduction in the total homicides between 2000 and 2007.

[INSERT Figure 5 here]

The amount of resources allocated to the protection of union members and the number of union members protected have increased steadily over the last ten years. Figure 6 (A) shows the evolution over time in the per capita amount of resources allocated (measured in real Colombian pesos of 2009) to protect union members.[4] While in 1999 the Colombian government invested less that $COP 10,000[5] in protection services per union member per year, by 2008 this amount was more than 10 times larger (about $COP 100,000[6] per union member per year). Panel (B) shows the number of union members with government protection (per 100,000 union members) for the same time period. In 1999 there were about 10 union members protected for every 100,000 unionists. By 2008 this figure increased to about 250 unionists protected per 100,000 union members (see Ministerio de Interior y Justicia, 2009).

[INSERT Figure 6 here]

To summarize, the stylized facts provided so far depict a different picture from the one drawn by union leaders to block economic reforms in Colombia. Using either of the available data sources (ENS, CUT, or the Colombian Government) we observe a continuous decrease in violence against union members and union leaders in Colombia. Not only has progress in security been greater for union members and leaders than for the total population, but it has been greater than for other vulnerable groups. Lastly, the government has steadily increased the resources allocated to the protection of union members and the number of union members receiving government protection over the last ten years.

We now turn to the empirical exercise, where we estimate the causal impact of union activities on the union homicide rate, using data of Colombian States for the years 2000 through 2008.

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[4]Most protection schemes provided by the government consist of bullet-proof cars, police protection or body guards.

[5]About $5 dollars.

[6]About $50 dollars.

2.1 Data Used in the Empirical Exercise

In order to test the hypothesis that greater union activity causes more homicides of union members and union leaders, we use a panel that includes data from Colombian States (political division similar to a State) on violence against union members, violence against union leaders, different types of union activity, the homicide rate for the total population, per capita income, and proxy variables for both government presence and protection, and for paramilitary and guerrilla presence. Table 1 presents some descriptive statistics on the main data used in the analysis.

2.1.1 Violence Against Union Members and Union Leaders

Since the year 2000, both the union NGO - ENS, and the Human Rights Observatory at the Office of the Vice President of Colombia have reported the number of homicides of union members in Colombia per year and per State. Although the two sources differ in the number of homicides of union members reported, with the ENS figures being larger, the evolution over time is very similar in the two sources, as described above (see Figure 4 (A)). The ENS also reports the number of union members in each State.[7] We use this information on the homicide rate for union members in Colombia (for both sources), defined as the number of homicides of unionists per 100,000 unionists.[8] This will be our dependant variable in the empirical exercise. Furthermore, the CUT reports the number of homicides of union members case by case, indicating whether the victim was a union activist, a member of a board of directors, or a unionized worker. With this information, we construct the number of homicides of union leaders and the homicide rate for union leaders[9] by state and year, from 2000 to 2008. This variable will also be used in some of the empirical exercises as a measure of violence against union members.

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[7]ENS reports figures for the number of union members by State every two years. We interpolate using the average between the available years in order to fill the gaps.

[8]The homicide rate (the number of homicides per 100,000 individuals, or members of a group) is the most standard measure used in the academic literature.

[9]We don't have estimates on the number of union leaders per State and year. Thus, we define the homicide rate of union leaders as the number of homicides of union leaders per 100,000 union members. If the ratio between union leaders and union members remains relatively constant over time and accross States, then this normalization is innocuous.

2.1.2   Trade Union Activity

Data is available for different types of union activity. In particular, we have yearly data from each State on two types of wage agreements and pacts, as well as data on strikes, work stoppages, street marches and hunger strikes. Both the ENS[10] and the Ministry of Labor report data on wage agreements and negotiations. The Ministry of Labor reports data on strikes and work stoppages, and the ENS reports data on other types of union activity such as protests, strikes, food strikes, lawsuits, and marches. In order to measure the intensity of union activity, we classify the activities into two groups: Type I union activity, which refers to wage agreements and pacts between companies and union members, and type II union activity, which refers to active acts of protest (strikes, work stoppages, marches, etc.). In order to control for the fact that larger States normally have more union members and thus more union activity of both types, we measure union activity per 100,000 union members. These will be our direct measures of the intensity of union activity by State and by year. When we run the empirical exercise we will look at each type of activity separately and aggregated by type of activity (for each data source).

2.1.3   State Controls

We include additional variables that help us control for other determinants of violence against union members different than the intensity of union activity. In particular, we control for the level of economic development (as measured by GDP per capita), the general level of violence (as captured by the total homicide rate for each State[11]), government protection (as proxied by the number of police arrests per 100,000 individuals[12]), paramilitary and guerrilla presence (as proxied by the number of paramilitary and guerrilla attacks on civilians), and for year and State fixed effects.

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[10]See ENS (2008a).

[11]When we calculate the total homicide rate, we subtract homicides of union members from the total homicides in each State and the number of unionists from the total population.

[12]Unfortunately, the Ministry of Justice in Colombia has only aggregate data on the amount of resources invested in the protection of union members and does not break it down by State.

3   Empirical Strategy

In order to test the hypothesis that more intense union activity leads to more violence against union members, the following is the simplest specification we test:

$$HRUM_{s,t} = c_1 + \gamma UA_{s,t} + \beta X_{s,t} + \varepsilon_{s,t}, \tag{1}$$

where c_1 is a constant term; $HRUM_{s,t}$ is the homicide rate of union members[13] (defined as the number of homicides of union members per 100,000 unionists) in State s at time t; $UA_{s,t}$ is a measure of the intensity of unions' activity (per union member) in State s at time t; $X_{s,t}$ is a set of controls, such as GDP per capita, the total homicide rate, government protection, guerrilla and paramilitary attacks to civilians, and the interaction of guerrilla and paramilitary attacks with the measures of each type of union activity for each State s and year t; finally, $\varepsilon_{s,t}$ is an error term.

Under the specification in equation 1, γ is our parameter of interest. In particular, this parameter will provide an estimate of the effect of a greater intensity of union activity (as measured by the alternative figures available on different types of union actions) on the degree of violence against union members. If the claim that violence against union members in Colombia is indeed generated by the unionists' own and characteristic activities, then parameter γ should turn out to be positive and significant when we carry out the empirical estimation of equation 1. Thus, a positive and significant γ would imply that, controlling for other determinants of violence against union members, a greater intensity of union activity leads to more violence against unionists.

We should note, however, that the specification in equation 1 suffers from a potential endogeneity problem.[14] More precisely, it can easily be argued that the intensity of union activity ($UA_{s,t}$) is an endogenous variable, since it could be affected by the degree of violence against union members. In other words, it is reasonable to think that union activity might be affected by the degree of violence against union members, since union members might decrease the intensity of their activities based on fear or increase the intensity when motivated to protest in response to increased violence. The parameter γ that results from

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[13]In some of the specifications that we will test below, we replace the homicide rate of union members, $HRUM_{s,t}$, with the homicide rate of union leaders, $HRUL_{s,t}$.

[14]See Angrist and Pischke (2009, ch. 4).

the direct estimation of equation 1 by Ordinary Least Squares (OLS) would thus be biased due to the reverse causality problem just described. As such, the parameter γ estimated by OLS should only be interpreted as a correlation coefficient between union activity and violence against union members, and not as a causal effect from the former to the latter.

In order to solve the (potential endogeneity) problem that would arise from the estimation of equation 1 by OLS, we use an Instrumental Variables approach (IV) in order to solve the potential endogeneity problem. In particular, we instrument the intensity of union activity using variables that affect union activity but are not simultaneously affected by the degree of violence against union members. To instrument type I union activity (wage agreements) we use two different measures of the degree of formality of labor markets in the industry (the percentage of full time employees with open-ended contracts and social security payments per capita). To instrument type II union activity (strikes, work stoppages, etc.), the type of union activity that expresses protest, we use two different measures of industrial activity (per capita industrial consumption of energy and the number of industry establishments per capita). Our first stage regression will be given by:

$$UA_{s,t} = c_2 + \delta_1 z_{1s,t} + \delta_2 z_{2s,t} + \beta X_{s,t} + u_{s,t}. \tag{2}$$

Where c_2 is a constant term, and z_1 and z_2 are the set of instruments described above depending on the type of union activity (I and II). In particular, for the case of type I union activity, $z_{1s,t}$ is the the proportion of full time employees with an open-ended contract as a proportion of total population in State s at time t, and $z_{2s,t}$ is the amount of social security payments per capita in State s at time t. Both instruments, z_1 and z_2, are direct measures of the degree of formality in the labor markets. The intuition for using measures of formality to instrument type I union activity is straightforward. A more formal labor market allows workers and union members to better organize themselves to negotiate wage agreements with firms. Furthermore, regulation in Colombia requires a minimum number of workers to form a union. Given the well-established relationship between firm size and the degree of formality in the labor market (see World Bank, 2007), our instrument for type I union activity makes perfect sense.

When instrumenting type I union activity, it is important that the measures of formality in the labor market not be endogenous to our measure of violence against union members.

In other words, that violence against union members does not affect the degree of formality in the labor market.

When we instrument type II union activity to estimate equation 1, $z_{1s,t}$ is the per capita industrial consumption of energy in State s at time t, and $z_{2s,t}$ is the number of industrial establishments per capita in State s at time t. The two measures used to instrument type II union activity capture the intensity of industrial activity by State and year. Again, what is important here is that homicides of union members do not affect the two measures of industrial activity and that industrial activity correlates with type II union activity. The intuition for using industrial activity as an instrument for type II union activity is that more strikes, work stoppages, etc. stop firms' activities and this should be reflected in our two measures of industrial activity. If this intuition is correct, we should find a significant negative correlation, *ceteris paribus*, between our two measures of industrial activity (our instruments) and type II union activity.

Yet another way to solve the reverse causality problem between violence against union members and union activity is to estimate equation 1 directly by OLS but including a lagged value for union activity, $UA_{s,t-1}$, instead of the current value. This partially solves the problem of reverse causality, since it would be difficult to argue that union activity is greater in year $t-1$ as a response to more violence against union members in year t.

Although including a lag for union activity instead of the current value partially solves the reverse causality problem, the IV approach described above is our preferred identification strategy, as it takes care of the endogeneity problem, allowing us to isolate the causal impact, if any, of union activity on violence against union members. However, when presenting the results of the estimation of equation 1, we will also report the estimation results using OLS and the OLS estimation that includes the lagged value for union activity.

4 Main Results

4.1 The Effect of Type I Union Activity on Violence Against Union Members

In this section we use the data reported by the ENS on wage agreements as well as the data reported (also by the ENS) on the number of homicides of union members per State

in order to test the claim that a greater intensity of union activity generates more violence against union members.

Table 2a presents the OLS estimation of equation 1 for type I union activity (wage agreements and wage negotiations[15]). Table 2b presents the OLS estimation but instead of including the current level of type I union activity, we include this variable with a one-year lag. Table 2c and 2d report the IV estimate of equation 1 (with the first stages presented in the tables below each second stage) using each instrument separately (percentage of full time employees with open-ended contracts (Table 2c) and social security payments per capita (Table 2d)). Table 2e reports the IV estimation using both instruments together.

In this case, irrespective of the method of estimation, type I union activity (wage agreements and pacts) does not help explain the homicide rate for union members. When we estimate equation 1 directly using OLS, the effect of a greater intensity of type I union activity on the degree of violence against union members is never significant once we control for other determinants (see Table 2a). The same results hold true when we include the one-year lag in the value for type I union activity (Table 2b). Recall that including the lagged value of our variable of interest partially solves the endogeneity problem by taking care of the possibility of reverse causality between union activity and violence against union members. When we take care of the potential endogeneity problem by instrumenting type I union activity with two different measures of labor market formality, we again find no statistical evidence supporting the hypothesis that more union activity causes more violence against union members once we control for other determinants (see Tables 2c, d, and e).

In other words, more activity related to negotiations and wage agreements (our measure of the intensity of type I union activity) does not cause more violence against union members. In fact, the effect of a greater intensity of union activity on the level of violence against union members is negative and significant under some specifications, but, as we include more controls, this negative and significant effect disappears. When we include all the controls and time and State fixed effects (column 8 in Table 2a, 2b, 2c, and 2d) the effect of union activity on violence against union members is, again, statistically zero. In other words, we find no evidence supporting the claim that, on average, more union activity causes more violence against union members.

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[15]The ENS reports data broken down by State for wage agreements from 2005 through 2008.

As expected, under most specifications, in those States where there is more violence against the total population (as captured by the total homicide rate) and less economic development (in terms of lower GDP per capita), there is more violence against union members. Note that in those regressions where we control for government protection, our coefficient of interest, γ, remains non-significant. Although the sign on the number for police arrests (our measure of protection) is positive and significant under some specifications, this estimate cannot be interpreted as a causal effect. What is important is that we control for government protection to interpret our parameter of interest (γ, which captures the effect of more intense union activity on the degree of violence against union members), but one cannot interpret the positive sign on the number of police arrests as evidence that more police arrests cause more violence against union members.

Police arrests, the proxy for government protection we include as a control, is, almost by definition, endogenous to the degree of violence against union members. Thus, interpreting the positive coefficient associated with this variable as evidence that more protection causes more homicides of union members would be mistaken. In fact, to estimate the causal effect of more government protection on the homicide rate of union members, we would have to instrument the former variable using a variable that affects protection but that is not affected by the union member homicide rate. In some of the specifications that we test we also include the interaction between union activity and guerrilla and paramilitary presence (as captured by the number of attacks to civilians per capita for each group).[16] This interaction term is included in order to test whether it is true that guerrilla and paramilitary presence make union activity more (or less) dangerous. Under most specifications, neither guerrilla and paramilitary presence alone nor their interaction with union activity turn out to be significant.

Regarding the first stages, when we instrument for type I union activity (from the ENS) we find that a higher degree of formality in the labor market is in fact associated with more union activity, with the effect being significant at the 5% level. The F-statistic for excluded instruments (reported at the end of the first stage regressions in Tables 2c and 2d) and the Hansen statistic (reported at the end of the first stage regressions in Table 2e) validate the instruments used to solve the endogeneity problem described above.

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[16]We follow the methodology proposed in Wooldridge (1997) for the instrumentation of the interaction term.

When we replace the homicide rate of union members for the one for union leaders as the dependant variable, we find no statistical evidence supporting the claim that a greater intensity of type I union activity leads to more violence against union leaders. Table 2f reports the results of the estimation of equation 1 when we use the homicide rate of union leaders as the dependent variable and instrument type I union activity using the two measures of formality in labor markets at the State level. In none of the specifications in Table 2f is type I union activity statistically significant in explaining violence against union leaders.[17]

Summarizing the results obtained so far, when we use type I union activity as a measure of the intensity of union actions, we find no statistical evidence supporting the claim that violence against union members or against union leaders in Colombia can be explained by the characteristic practices of unions. We do find, however, that violence against union members can be explained by the general level of violence and by low levels of economic development.

4.2 The Effect of Type II Union Activity on Violence Against Union Members

We will now use the figures from the Ministry of Labor for the other type of activities that are characteristic of unions, type II union activity: strikes and work stoppages[18] (the type of union activity that expresses itself as protest). We will ask whether a greater intensity of this type of activity leads to more violence against union members. Table 3a presents the OLS estimate of equation 1 for type II union activity (strikes and work stoppages). Table 3b reports the OLS estimation but instead of including the current level of type II union activity includes the value with a one-year lag. Tables 3c and 3d report the IV estimation of equation 1 (with the first stages presented below) using each instrument separately (industrial energy consumption per capita in Table 3c, and the number of industrial

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[17] Although we do not report the results on the OLS regressions; the regressions that use the lagged value of type I union activity; and the IV regressions using the two instruments separately, all these estimations suggest that type I union activity does not have a positive causal impact on violence against union leaders. These results are available from the authors upon request.

[18] The figures on strikes and work stoppages broken down by State are reported by the Ministry of Labor from 2000 through 2008.

establishments per capita in Table 3d). Table 3e reports the IV estimation using both instruments together.

When we use type II union activity to capture the intensity of union protest actions, we, once more, find no statistical evidence supporting the claim that these types of union activity cause more violence against union members. Whether we estimate equation 1 using OLS (that is, without resolving the possible endogeneity of union activity), or including the lagged value for union activity or using an instrumental variables approach (that solves the potential endogeneity problem), our parameter of interest, γ, which tells us the effect of a greater intensity of union activity on the degree of violence against union members, is statistically zero.

Note, however, that specifications where we do not control for other determinants of violence against union members do tend to suggest that a greater intensity of type II union activity (that is, more work stoppages and strikes) does lead to more violence against union members. However, when we control for other determinants of violence against unionists this positive effect disappears and becomes not significant. Yet again, we find that in those States where there is more violence against the general population and in those States with a lower level of economic development, violence against union members is more prevalent.

When we compare the OLS and IV estimates in this case (that is, for type II union activity), we observe that the OLS estimation is biased, most probably due to the possibility of reverse causality explained above. The OLS coefficient should only be interpreted as a correlation coefficient between violence against union members and union activity. In other words, the estimated coefficient using OLS is capturing the correlation between type II union activity and the degree of violence against union members, but not the causal effect of the former on the latter.

When we look at the first stages, it should be stressed that more industrial activity (industrial energy consumption per capita and number of industrial establishments per capita) tends to correlate negatively with type II union activity, and the instruments used for type II union activity are validated by the F-statistic of excluded instruments (when the instruments are used separately) and the Hansen test (when the instruments are used jointly).

When we use the homicide rate of union leaders as the dependant variable, we, yet again, do not find statistical evidence supporting the claim that a greater intensity of type

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II union activity causes more violence against union leaders in Colombia between 2000 and 2008. Table 3f reports the results of the estimation of equation 1 when we use the homicide rate of union leaders as the dependent variable and instrument type II union activity using the two measures industrial activity at the regional level. As the reader shall see, type II union activity is not statistically significant in explaining violence against union leaders[19]

4.3 Robustness Checks

In order to test the robustness of the results described above, we ran the same exercises describe in the previous section but using alternative data sources. In particular, we used the homicides of union members reported by the Office of the Vice President of Colombia instead of those reported by the ENS, the figures on type I union activity reported by the Ministry of Social Protection instead of those reported by the ENS, and the type II union activity reported by the ENS, instead of the figures reported by the Ministry of Labor. When we did so, we found that all results described here are robust to changes in the data sources. More precisely, when the data sources and time periods are changed, we still find no evidence supporting the claim that a greater intensity of union activity (of either type) leads to more violence against union members or union leaders. Under all robustness checks, the parameter of interest, γ, is not significant once we control for the other determinants of violence against unionists and once we solve the potential endogeneity problem using the instrumental variables approach (IV) described before.

We also carried out all the empirical exercises using the two measures of type I union activity separately - wage agreements and wage pacts (as reported by the ENS), and the two different measures of type II union activity - strikes and work stoppages, separately and again found that all results described above were maintained. Also, we tested equation 1 using the sum of type I and type II union activity as our variable of interest, finding, yet again, that a greater intensity of the aggregate measure of union activity does not lead to more violence against union members or union leaders.[20]

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[19]The results from the OLS regressions; the regressions that use the lagged value of type II union activity; and the IV regressions using the two instruments separately are available from the authors upon request. In none of these estimations is type II union activity statistically significant in explaining violence against union leaders.

[20]Although we have not included the Tables for all the robustness checks just described, they are all

5   Concluding Remarks

This paper studies the evolution and determinants of violence against union members in Colombia for the 2000 - 2008 period. Using different data sources and different indicators of violence against union members we show that, contrary to the claim used by different NGOs and union members (in Colombia and abroad) to block important economic reforms such as free trade agreements, there has been a steady decline of violence against unionists during the last 8 years. We go one step further and, using panel data for Colombian States between 2000 and 2008, test the claim that "most of the violence against trade unionists is a result of the victims normal union activities".[21] We find no statistical evidence supporting this claim. Instead, we do find that more violent States and States with a lower level of economic development tend to have more violence against union members.

Of course, any murder is a very serious matter and more so when the driving motivation for the crime is the victim's ideological or political stance. However, an evaluation of the progress made in confronting such a serious problem as violence against unionists in Colombia must necessarily look at the figures and the statistical evidence, and study specific indicators for the results. And this is particularly so if the conclusions of such an assessment are to be used for such significant measures as blocking an economic reform.

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[21] See USLEAP (2008).

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Figure 1

(A)

**Union Member Homicides in Colombia
1986-2008**

(B)

**Number of Union Member Homicides/
Number of Total Homicides
1986-2008**
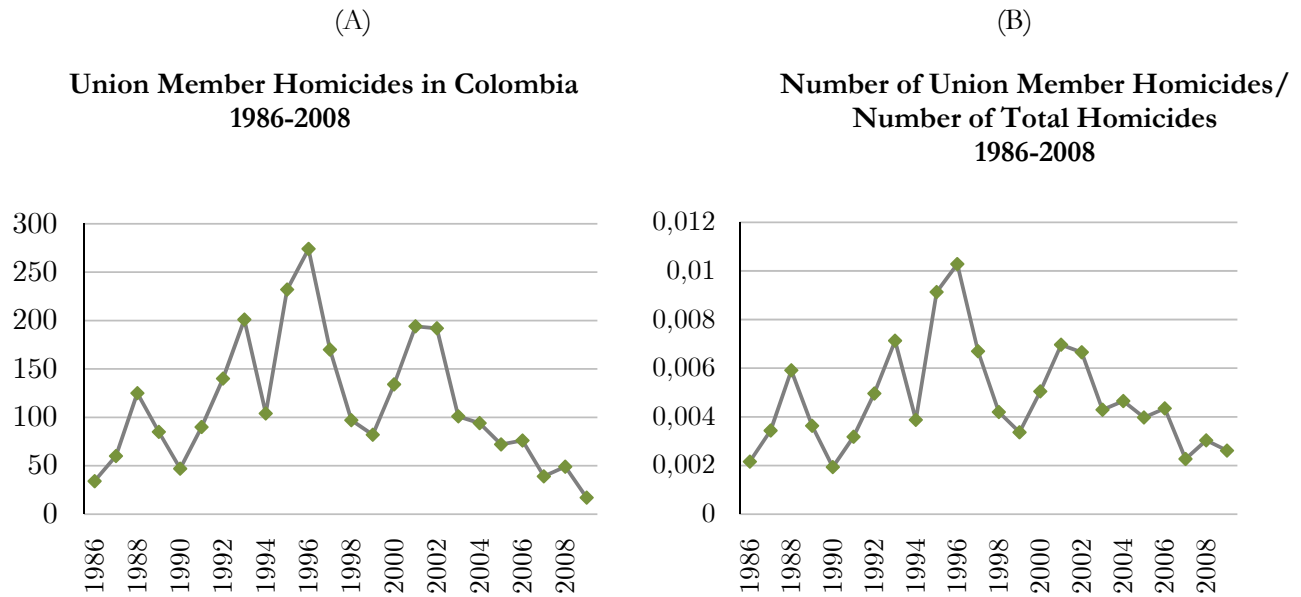
Source: Authors' calculation based on data from Escuela Nacional Sindical (ENS), (2009); Office of the Vice President (2008); and National Police (2008).

Figure 2

(A)

**Homicide Rate in Colombia
1995-2008
(Number of homicides per 100,000 inhab.)**

(B)

**Homicide Rate for Union Members
1995-2008
(Number of homicides per 100,000 unionists)**
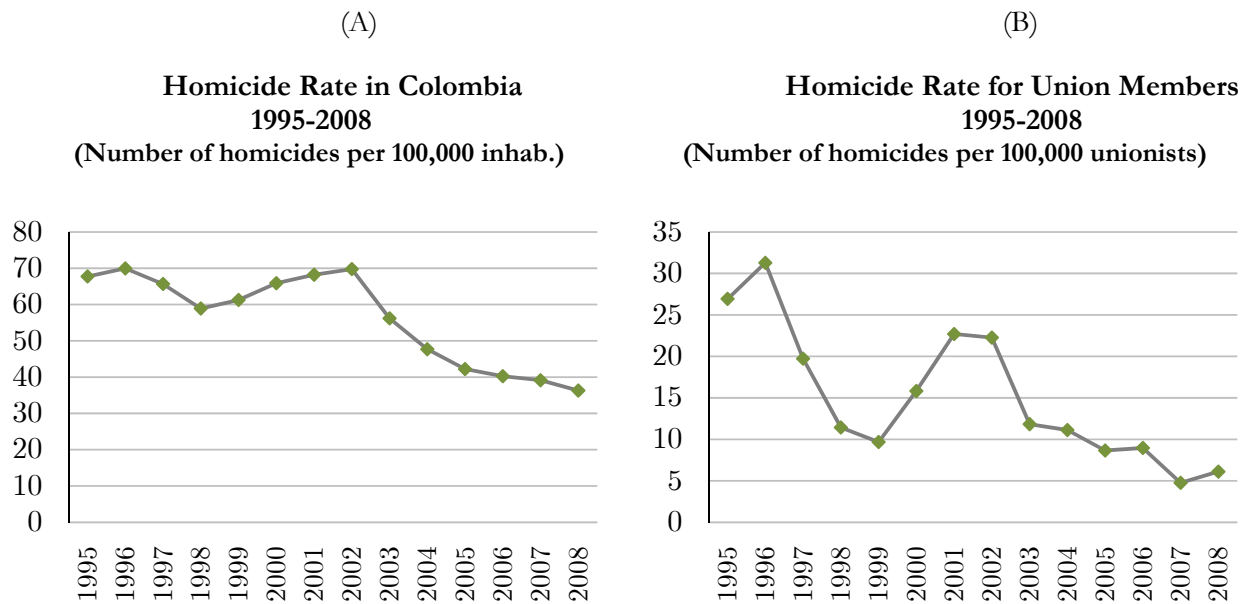
Source: Authors' calculation based on data from the National Police (2008), Office of the Vice President (2009), DANE (National Statistics Department), and ENS (2009).

Figure 3

**Union Member Homicide Rate / Total Homicide Rate
1995-2008**

Figure 4

(A)

(B)

**Unionists' Homicide Rate in Colombia
2001-2008**
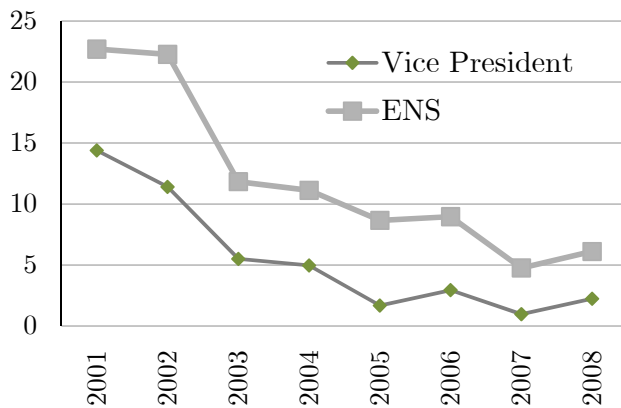
**Unionists' Homicides/Total Homicides
of Vulnerable Groups in Colombia
2001-2008**
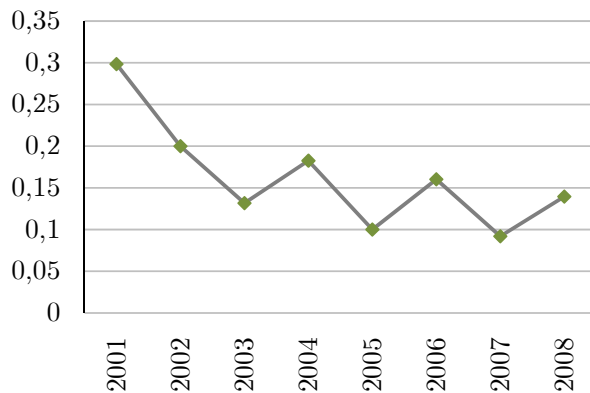
Figure 5

(A)

**Union Leader Homicides in Colombia
2000-2008**

(B)

**Number of Union Leader Homicides/
Number of Total Homicides
2001-2008**
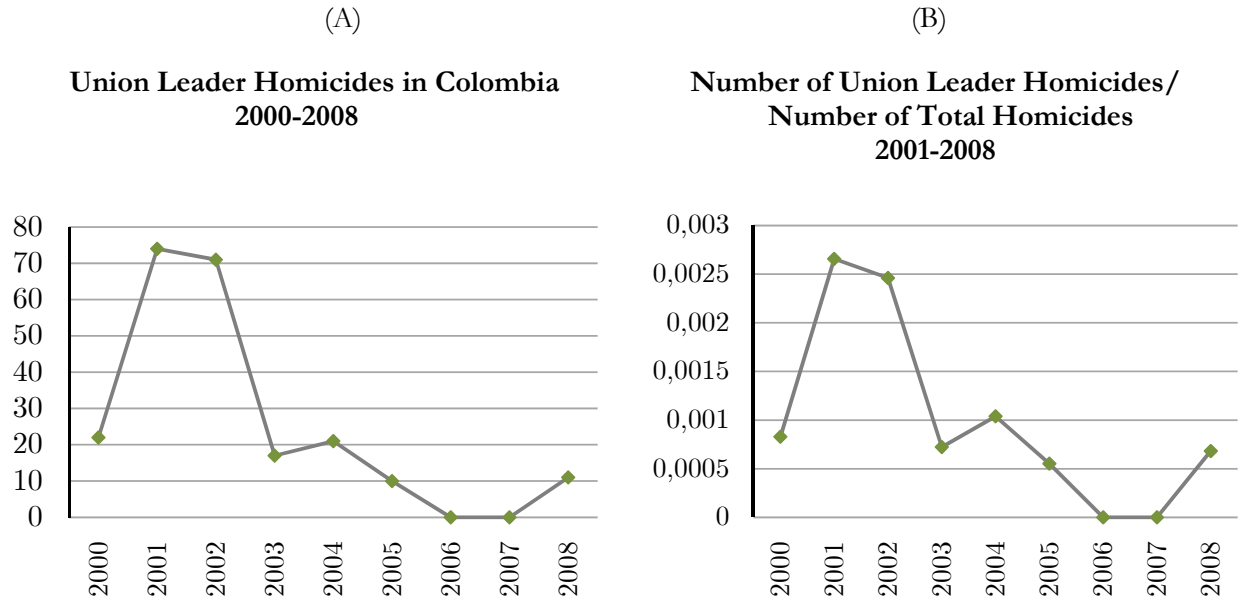
Source: **Authors' calculation based on data from the Central Union of Workers (CUT) (2009); the National Police (2008); and Office of the Vice President (2009).**

Figure 6

(A)

**Amount of Resources Allocated to Protect Unionists
1999-2008
(2009 real $COP)**

(B)

**Number of Unionists with Gov. Protection
1999-2008
(Number per 100,000 unionists)**
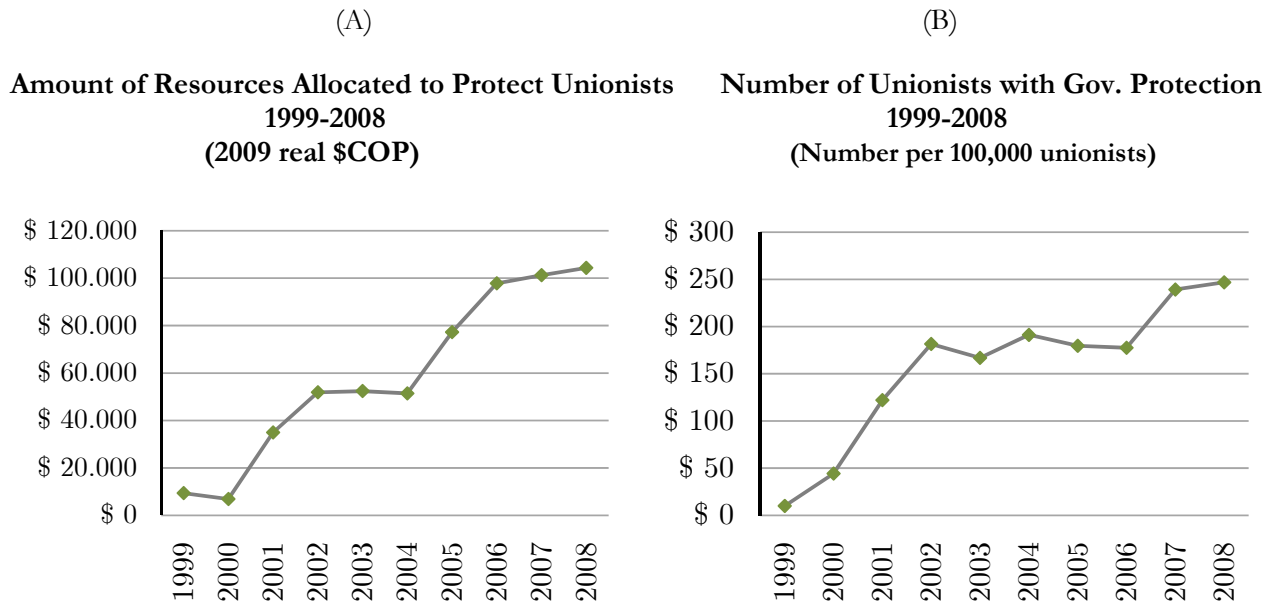
Source: **Authors' calculation based on data from the Ministry of Labor (MPS) (2009); and ENS (2009).**

Table 1

Variable	Units	Number of observations	Period	Source	Mean	Std. dev.	Min	Max
Union activity								
National Unions´School (ENS)	#/100,000 unionists							
Type I union activity		112	05-08	ENS	80.9	207.7	0.0	1148.9
Wage pacts		112	05-08	ENS	23.4	93.5	0.0	655.8
Wage agreements		112	05-08	ENS	57.5	141.7	0.0	1123.6
Type II union activity(a)		93	00-08	ENS	19.4	18.9	0.3	94.1
Ministry of Labor (MPS)	#/100,000 unionists							
Type I union activity		140	04- 08	MPS	113.1	407.7	0.0	4494.4
Wage pacts		140	04- 08	MPS	5.8	13.3	0.0	64.4
Wage agreements		140	04- 08	MPS	107.3	404.5	0.0	4494.4
Type II union activity		251	00-08	MPS	276.2	733.2	0.0	7734.8
Work stoppages		251	00-08	MPS	272.3	732.9	0.0	7734.8
Strikes		251	00-08	MPS	3.9	13.1	0.0	136.6
Homicide rates								
Total (excluding union members)	#/100,000 inhab.	243	00-08	Police/DANE	54.2	35.1	6.2	194.7
Union members (ENS)	#/100,000 unionists	260	00-08	ENS	25.1	38.1	0.0	258.6
Union leaders (b)	#/100,000 unionists	261	00-08	CUT	7.7	37.0	0.0	552.5
Union workers (C)	#/100,000 unionists	261	00-08	CUT	22.5	54.2	0.0	561.8
Other controls								
Gross domestic product per capita (GDP pc)(d)	COP millon pc	243	00-08	DANE	5.0	4.0	1.4	28.0
Police arrests	#/100,000 inhab.	243	00-08	Vice President	12.1	14.7	0.5	98.6
Attacks to civilians (presence)								
Guerrilla (FARC and ELN)	#/100,000 inhab.	243	00-08	Vice President	2.4	3.2	0.0	21.5
Paramilitary (AUC)	#/100,000 inhab.	243	00-08	Vice President	0.8	2.0	0.0	16.3
Instrumental Variables (e)								
Percentage of full time employees	% pc	212	00-08	DANE	0.005	0.005	0.000	0.019
Social security payments	COP thousand pc	212	00-08	DANE	41.0	40.2	0.1	134.7
Industrial energy consumption	Kw pc	212	00-08	DANE	249.7	237.4	0.2	1166.7
Number of industry establishments	# pc	212	00-08	DANE	0.0001	0.0001	0.0000	0.0004
Population								
Number of unionists		261	00-08	ENS	29,224	63,188	178	374,997
Population		243	00-08	DANE	1,555,859	1,537,496	215,979	7,155,052

Notes:
ENS=Escuela Nacional Sindical (Unions' NGO)
MPS= Ministerio de Protección Social (Ministry of Labor)
CUT= Central Unitaria de Trabajadores de Colombia (Central Union of Workers)
DANE = Departamento Administrativo Nacional de Estadísticas (Nacional Administrative Department of Statistics)
Vice President= Office of the Vicepresident of the Republic of Colombia
pc = per capita
(a) Union activity Type II (ENS) corresponds to the sum of: strikes, work stoppages, protests, hunger strikes, establishment take-over, lawsuits, marches, and others.
(b) Activists and members of the board of director
(c) Union workers = non leader union members
(d) The value reported for 2007 is approximated. GDPpc for 2008 is not available. We approximate it using the growth rate from 2006 to 2007 and 2007 GDPpc.
(e) To obtain the values for 2007 and 2008 we use the growth rate of tax revenues from industry and commerce.

OLS estimation: Type I union activity (ENS)

Dependant variable: Union member homicide rate

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type I union activity	-0.018***	-0.006	-0.006	-0.004	0.003	0.004	-0.002	0.035
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.028)
Total homicide rate		0.388***	0.388***	0.443***	0.174**	0.178**	0.132*	-0.605*
		(0.105)	(0.103)	(0.114)	(0.081)	(0.083)	(0.076)	(0.312)
GDP pc			0.001	-0.009	-1.445**	-0.977	-1.360**	4.483
			(0.880)	(0.880)	(0.679)	(0.781)	(0.666)	(5.295)
Police arrests					1.609***	2.027**	1.771**	1.369*
					(0.569)	(0.853)	(0.822)	(0.737)
Guerrilla presence						0.752	-0.615	-1.369
						(2.138)	(1.410)	(1.181)
Paramilitary presence						-11.360	-4.711	-7.065
						(8.841)	(8.947)	(9.513)
Union act *guerrilla presence							0.093***	-0.024
							(0.027)	(0.085)
Union act *paramilitary presence							-0.139*	0.111
							(0.077)	(0.175)
Constant	18.935***	1.928	1.922	0.041	-0.831	-1.017	2.053	-2.687
	(2.953)	(3.596)	(6.148)	(6.930)	(6.702)	(6.658)	(6.536)	(30.942)
Year dummy variables	No	No	No	Yes	Yes	Yes	Yes	Yes
State dummy variables	No	No	No	No	No	No	No	Yes
Observations	112	104	104	104	104	104	104	104
R-squared	0.017	0.159	0.159	0.191	0.370	0.411	0.467	0.741

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2b

OLS estimation: Lagged type I union activity (ENS)

Dependant variable: Union member homicide rate

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type I union activity , t-1	-0.002	-0.007	-0.005	-0.005	0.004	0.001	-0.012	0.002
	(0.014)	(0.006)	(0.006)	(0.005)	(0.006)	(0.005)	(0.009)	(0.021)
Total homicide rate		0.390***	0.401***	0.493***	0.200	0.152	0.149	-0.530*
		(0.140)	(0.137)	(0.150)	(0.134)	(0.120)	(0.109)	(0.268)
GDP pc			-0.919	-0.943	-1.914**	-1.050	-1.051	6.884
			(0.674)	(0.675)	(0.860)	(0.720)	(0.704)	(4.616)
Police arrests					2.007*	2.893**	2.523*	-1.079
					(1.136)	(1.302)	(1.442)	(0.693)
Guerrilla presence						-0.242	-0.679	1.195
						(1.973)	(1.391)	(1.105)
Paramilitary presence						-55.776**	-58.095*	8.609
						(23.725)	(33.243)	(13.397)
Union act *guerrilla presence							0.061	-0.236***
							(0.037)	(0.061)
Union act *paramilitary presence							0.287	0.202
							(0.254)	(0.184)
Constant	16.833***	1.533	5.752	3.114	-0.238	0.929	3.049	8.941
	(3.803)	(4.311)	(6.753)	(5.716)	(6.205)	(5.790)	(6.666)	(26.982)
Year dummy variables	No	No	No	Yes	Yes	Yes	Yes	Yes
State dummy variables	No	No	No	No	No	No	No	Yes
Observations	84	78	78	78	78	78	78	78
R-squared	0.000	0.128	0.139	0.180	0.338	0.466	0.506	0.895

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2c

IV estimation (instrument for type I union activity : Percentage of full time employees) (ENS)
Second stage

Dependant variable: Union member homicide rate

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type I union activity	-0.028**	-0.026**	-0.007	-0.010	0.001	0.003	0.006	0.052
	(0.014)	(0.013)	(0.011)	(0.011)	(0.011)	(0.011)	(0.010)	(0.078)
Total homicide rate		0.134**	0.154**	0.152**	0.130**	0.129**	0.133**	0.019
		(0.066)	(0.065)	(0.071)	(0.057)	(0.063)	(0.063)	(0.086)
GDP pc			-1.858**	-1.467*	-1.343	-1.454*	-1.591	3.108
			(0.928)	(0.826)	(0.859)	(0.836)	(1.061)	(3.468)
Police arrests					0.484	0.364	0.443	0.281
					(0.348)	(0.571)	(0.537)	(0.679)
Guerrilla presence						0.171	-1.413	-1.191
						(1.834)	(2.493)	(4.494)
Paramilitary presence						4.453	12.397	0.083
						(6.464)	(12.320)	(12.762)
Union act *guerrilla presence							0.030	-0.085
							(0.077)	(0.171)
Union act *paramilitary presence							-0.178	0.169
							(0.216)	(0.333)
Constant	-11.813	42.252**	76.002	97.187*	69.248	69.803	87.797	-1,113.280
	(19.349)	(18.008)	(47.159)	(55.006)	(49.887)	(51.484)	(60.170)	(690.587)
Year dummy variables	No	No	No	Yes	Yes	Yes	Yes	Yes
State dummy variables	No	No	No	No	No	No	No	Yes
Observations	88	88	88	88	88	88	88	88
R-squared	0.219	0.247	0.250	0.258	0.266	0.271	0.380	0.944

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2c (First stages)

Type I union activity (ENS)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
% full time employees	22,986.519**	22,483.585**	24,632.917**	24,768.866**	26,729.507**	27,183.185**	40,327.246**	94,795.360*
	(9,051.006)	(8,675.639)	(10,466.062)	(10,681.977)	(11,706.806)	(11,897.132)	(16,131.531)	(53,533.682)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Excluded instruments	24.15	23.6	16.18	15.85	16.59	16.47	10.75	5.76
P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002

Type I union activity and guerrilla presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
% full time employees* guerilla presence							2,833.898	3,550.251
							(2,507.401)	(3,423.859)
Other controls							Yes	Yes
F-Excluded instruments							10.3	4.3
P-value							0.000	0.009

Type I union activity and paramilitary presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
% full time employees* paramilitary presence							16,304.439**	16,275.092***
							(6,207.255)	(4,371.959)
Other controls							Yes	Yes
F-Excluded instruments							8.47	14.32
P-value							0.000	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

IV estimation (instrument for Type I union activity : Social security payments per capita) (ENS)
Second stage

Dependant variable: Union member homicide rate

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type I union activity	-0.034**	-0.031*	-0.002	-0.008	0.011	0.014	0.017	-0.096
	(0.017)	(0.016)	(0.016)	(0.016)	(0.020)	(0.018)	(0.019)	(0.187)
Total homicide rate		0.127*	0.160**	0.155**	0.145**	0.144**	0.154**	0.080
		(0.066)	(0.066)	(0.074)	(0.065)	(0.068)	(0.071)	(0.102)
GDP pc			-2.019*	-1.517	-1.685	-1.838*	-2.378	2.373
			(1.044)	(0.962)	(1.040)	(0.981)	(1.459)	(4.963)
Police arrests					0.497	0.357	0.547	0.294
					(0.350)	(0.558)	(0.536)	(0.685)
Guerrilla presence						0.371	-3.190	-1.225
						(1.858)	(3.623)	(5.258)
Paramilitary presence						4.495	16.094	8.295
						(6.391)	(13.237)	(21.057)
Union act *guerrilla presence							0.096	-0.014
							(0.117)	(0.285)
Union act *paramilitary presence							-0.309	-0.093
							(0.292)	(0.639)
Constant	14.479***	9.399***	14.937***	17.948***	13.051**	12.669**	14.549**	7.066
	(2.137)	(2.803)	(3.987)	(3.852)	(5.423)	(5.432)	(5.864)	(26.684)
Year dummy variables	No	No	No	Yes	Yes	Yes	Yes	Yes
State dummy variables	No	No	No	No	No	No	No	Yes
Observations	88	88	88	88	88	88	88	88
R-squared			0.193	0.259	0.266	0.250	0.174	0.282

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2d (First stages)

Type I union activity (ENS)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Social security payments	2.168**	2.095**	2.244**	2.236**	2.533**	2.605**	6.897	7.264
	(0.864)	(0.814)	(0.998)	(1.038)	(1.193)	(1.217)	(4.464)	(5.151)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Excluded instruments	15.72	14.92	7.92	7.52	8.05	8.07	5.52	1.91
P-value	0.000	0.000	0.006	0.008	0.006	0.006	0.002	0.138

Type I union activity and guerrilla presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ss payments*guerrilla presence							0.311	0.348
							(0.309)	(0.354)
Other controls							Yes	Yes
F-Excluded instruments							7.93	4.49
P-value							0.000	0.007

Type I union activity   and paramilitary presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ss payments*paramilitary presence							1.460***	1.705***
							(0.535)	(0.468)
Other controls							Yes	Yes
F-Excluded instruments							6.84	10.51
P-value							0.000	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2e

V estimation (instruments for type I union activity : Percentage of full time employees and social security payments per capita) (ENS)
Second stage

Dependant variable: Union member homicide rate

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type I union activity	-0.021**	-0.020*	-0.012	-0.011	-0.010	-0.009	-0.004	0.057
	(0.010)	(0.010)	(0.010)	(0.009)	(0.008)	(0.008)	(0.008)	(0.051)
Total homicide rate		0.144**	0.147**	0.150**	0.113**	0.113*	0.112*	0.015
		(0.068)	(0.065)	(0.069)	(0.051)	(0.059)	(0.060)	(0.086)
GDP pc			-1.689*	-1.413*	-0.981	-1.052	-0.768	2.093
			(0.874)	(0.744)	(0.783)	(0.789)	(0.905)	(2.923)
Police arrests					0.470	0.372	0.305	0.400
					(0.346)	(0.587)	(0.556)	(0.621)
Guerrilla presence						-0.038	1.015	-2.473
						(1.856)	(2.406)	(3.797)
Paramilitary presence						4.409	6.397	0.257
						(6.560)	(13.289)	(9.113)
Union act *guerrilla presence							-0.052	-0.014
							(0.060)	(0.105)
Union act *paramilitary presence							0.011	0.120
							(0.206)	(0.189)
Constant	13.459***	7.900***	14.697***	17.946***	13.308**	13.026**	12.544**	-6.979
	(1.754)	(2.563)	(3.932)	(3.853)	(5.220)	(5.141)	(5.775)	(16.298)
Year dummy variables	No	No	No	Yes	Yes	Yes	Yes	Yes
State dummy variables	No	No	No	No	No	No	No	Yes
Observations	88	88	88	88	88	88	88	88
R-squared	0.002	0.092	0.175	0.250	0.296	0.306	0.274	0.486

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2e (First stages)

Type I union activity (ENS)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
% full time employees	2,235.522	67,460.384**	72,677.035**	80,114.444**	80,438.792**	79,869.546**	39,334.571**	92,328.417*
	(1,747.677)	(30,238.204)	(31,283.108)	(32,395.439)	(32,345.810)	(32,874.233)	(16,370.746)	(54,169.251)
Social security payments	-0.221	-5.234**	-6.333**	-7.300**	-7.363**	-7.271**	-3.836	-3.734
	(0.170)	(2.623)	(2.864)	(2.980)	(2.980)	(3.033)	(4.762)	(4.839)
Other controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Excluded instruments	15.89	16.27	12.63	13.48	13.24	12.86	9.74	3.01
P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013

Type I union activity and guerrilla presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ss payments*guerrilla presence							-0.564	-1.220
							(1.084)	(1.323)
% full time employees * guerilla presence							8,076.367	15,356.854
							(9,290.549)	(11,700.880)
Other controls							Yes	Yes
F-Excluded instruments							8.44	2.68
P-value							0.000	0.024

Type I union activity and paramilitary presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ss payments*paramilitary presence							-0.986	-0.376
							(2.838)	(1.990)
% full time employees * paramilitary presence							25,606.160	19,856.272
							(33,002.638)	(22,406.016)
Other controls							Yes	Yes
F-Excluded instruments							4.90	7.17
P-value							0.000	0.000
Hansen statistic	1.655	1.137	0.409	0.041	1.244	2.1	2.502	5.69
P-value	0.198	0.286	0.522	0.840	0.265	0.147	0.475	0.128

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

IV estimation (instruments for Type I union activity : Percentage of full time employees and social security payments per capita) (ENS)
Second stage

Dependant variable: Union leaders homicide rate

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type I union activity	-0.002 (0.002)	-0.002 (0.002)	0.000 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	0.001 (0.003)	0.024 (0.017)
Total homicide rate		-0.012 (0.011)	-0.011 (0.011)	0.004 (0.010)	0.008 (0.011)	0.000 (0.012)	0.003 (0.011)	-0.028 (0.028)
GDP pc			-0.334* (0.195)	-0.230 (0.175)	-0.275 (0.185)	-0.313 (0.191)	-0.387* (0.221)	1.960* (1.172)
Police arrests					-0.049 (0.043)	-0.194 (0.123)	-0.191 (0.133)	-0.409*** (0.131)
Guerrilla presence						0.604 (0.915)	0.567 (1.118)	0.016 (0.593)
Paramilitary presence						3.455* (1.843)	3.345 (3.872)	-0.943 (3.342)
Union act *guerrilla presence							0.003 (0.016)	-0.038 (0.029)
Union act *paramilitary presence							-0.001 (0.060)	0.153** (0.074)
Constant	1.344*** (0.457)	1.807** (0.738)	3.092** (1.258)	3.055*** (1.039)	3.540*** (1.189)	3.225*** (1.214)	3.229** (1.282)	-7.322 (6.401)
Year dummy variables	No	No	No	Yes	Yes	Yes	Yes	Yes
State dummy variables	No	No	No	No	No	No	No	Yes
Observations	88	88	88	88	88	88	88	88
R-squared	0.002	0.012	0.026	0.167	0.173	0.262	0.267	0.330

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2f (First stages)

Type I union activity (ENS)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
% full time employees	65,343.029** (30,026.344)	67,460.384** (30,238.204)	72,677.035** (31,283.108)	80,114.444** (32,395.439)	80,438.792** (32,345.810)	79,869.546** (32,874.233)	147,484.380*** (52,634.413)	112,369.123 (69,234.460)
Social security payments	-4.923* (2.567)	-5.234** (2.623)	-6.333** (2.864)	-7.300** (2.980)	-7.363** (2.980)	-7.271** (3.033)	-14.448*** (5.344)	-3.734 (4.839)
Other controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Excluded instruments	15.89	16.27	12.63	13.48	13.24	12.86	9.74	3.01
P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013

Type I union activity and guerrilla presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ss payments*guerrilla presence							13,971.055*** (4,968.613)	-7,191.810 (14,850.508)
% full time employees * guerilla presence							-1.674*** (0.599)	-0.642 (1.803)
Other controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Excluded instruments							8.44	2.68
P-value							0.000	0.024

Type I union activity   and paramilitary presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ss payments*paramilitary presence							5,224.435* (2,820.164)	-16,614.037** (6,945.848)
% full time employees * paramilitary presence							-0.562* (0.293)	-0.543 (0.679)
Other controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Excluded instruments							4.9	7.17
P-value							0.000	0.000
Hansen statistic	2.194	2.337	0.583	0.289	1.276	0.275	1.952	3.196
P-value	0.139	0.126	0.445	0.591	0.259	0.600	0.582	0.362

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3a

OLS estimation: Type II union activity (MPS)

Dependant variable: Union member homicide rate

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type II union activity	0.008	0.026**	0.026**	0.030***	0.024**	0.024**	-0.009	-0.006
	(0.006)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.010)	(0.013)
Total homicide rate		0.528***	0.555***	0.576***	0.341***	0.293***	0.293***	0.108
		(0.122)	(0.123)	(0.133)	(0.076)	(0.066)	(0.065)	(0.148)
GDP pc			-1.134**	-1.135**	-1.920***	-2.391**	-2.550***	-14.554**
			(0.486)	(0.496)	(0.558)	(0.922)	(0.898)	(5.903)
Police arrests					1.047***	0.681*	0.593	0.140
					(0.338)	(0.383)	(0.367)	(0.361)
Guerrilla presence						2.173	0.670	0.715
						(1.689)	(1.599)	(1.748)
Paramilitary presence						2.022	2.571	5.646
						(2.306)	(2.165)	(3.484)
Union act *guerrilla presence							0.007***	0.005***
							(0.001)	(0.002)
Union act *paramilitary presence							0.001	0.003
							(0.007)	(0.009)
Constant	23.718***	-8.366	-4.338	-18.304*	-9.686	-7.389	0.573	86.406***
	(2.568)	(5.540)	(5.740)	(9.371)	(6.778)	(6.246)	(5.933)	(32.873)
Year dummy variables	No	No	No	Yes	Yes	Yes	Yes	Yes
State dummy variables	No	No	No	No	No	No	No	Yes
Observations	250	234	234	234	234	234	234	234
R-squared	0.026	0.330	0.343	0.403	0.489	0.512	0.545	0.682

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3b

OLS estimation: Lagged Type II union activity (MPS)

Dependant variable: Union member homicide rate

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type II union activity, t-1	0.001	0.010	0.010	0.012**	0.007	0.007	0.002	-0.001
	(0.003)	(0.007)	(0.007)	(0.006)	(0.007)	(0.007)	(0.012)	(0.014)
Total homicide rate		0.610***	0.636***	0.636***	0.349***	0.306***	0.119	-0.127
		(0.126)	(0.126)	(0.142)	(0.087)	(0.075)	(0.100)	(0.180)
GDP pc			-1.173**	-1.116*	-2.140***	-2.073**	-0.297	-5.992
			(0.586)	(0.639)	(0.669)	(1.018)	(1.010)	(4.209)
Police arrests					1.199***	0.791*	0.238	-0.830*
					(0.380)	(0.442)	(0.424)	(0.426)
Guerrilla presence						2.534	3.845	8.901*
						(1.853)	(3.068)	(4.525)
Paramilitary presence						0.789	-5.857	4.233
						(3.297)	(8.554)	(9.478)
Union act *guerrilla presence							-0.187	-0.242
							(0.147)	(0.150)
Union act *paramilitary presence							0.552*	-0.038
							(0.291)	(0.491)
Constant	26.613***	-7.881	-3.660	2.981	7.194	6.465	31.493*	68.794***
	(2.787)	(5.480)	(5.687)	(5.292)	(8.099)	(7.607)	(18.847)	(23.672)
Year dummy variables	No	No	No	Yes	Yes	Yes	Yes	Yes
State dummy variables	No	No	No	No	No	No	No	Yes
Observations	223	208	208	208	208	208	79	79
R-squared	0.000	0.307	0.318	0.362	0.469	0.489	0.843	0.920

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

IV estimation (instrument for Type II union activity: Industrial energy consumption per capita) (MPS)
Second stage

Dependant variable: Union member homicide rate

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type II union activity	0.097***	0.031	0.011	0.016	-0.008	-0.060	-0.048	0.074
	(0.033)	(0.033)	(0.037)	(0.028)	(0.038)	(0.045)	(0.037)	(0.119)
Total homicide rate		0.267***	0.332***	0.265***	0.234***	0.208***	0.184***	0.168
		(0.075)	(0.093)	(0.066)	(0.058)	(0.069)	(0.064)	(0.113)
GDP pc			-1.398***	-1.206***	-1.611**	-3.577***	-0.943	-12.356
			(0.491)	(0.449)	(0.628)	(1.156)	(3.690)	(22.317)
Police arrests					0.349	0.232	-0.036	-0.178
					(0.248)	(0.259)	(0.359)	(0.426)
Guerrilla presence						2.094	3.861	-3.178
						(1.997)	(9.125)	(10.593)
Paramilitary presence						3.139*	-8.748	10.341
						(1.860)	(19.435)	(18.988)
Union act *guerrilla presence							-0.005	0.008
							(0.022)	(0.022)
Union act *paramilitary presence							0.057	-0.023
							(0.083)	(0.074)
Constant	0.836	0.734	7.902	8.221	14.754	31.132***	19.387	73.845
	(6.326)	(4.662)	(5.715)	(8.091)	(9.882)	(12.021)	(14.282)	(119.131)
Year dummy variables	No	No	No	Yes	Yes	Yes	Yes	Yes
State dummy variables	No	No	No	No	No	No	No	Yes
Observations	203	203	203	203	203	203	203	203
R-squared	0.0523	0.186	0.252	0.372	0.377	0.080	0.065	0.379

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3c (First stages)

Type II union activity (MPS)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industrial energy consumption	-0.218***	-0.168***	-0.149**	-0.185***	-0.153**	-0.172**	-0.101	0.210
	(0.056)	(0.059)	(0.058)	(0.058)	(0.061)	(0.071)	(0.073)	(0.184)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Excluded instruments	11.08	5.49	4.24	7.49	4.72	4.95	5.89	2.62
P-value	0.001	0.020	0.041	0.007	0.031	0.027	0.001	0.053

Type II union activity and guerrilla presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ind. energy consumption* guerilla presence							-0.441	-0.419
							(0.355)	(0.374)
Other controls							Yes	Yes
F-Excluded instruments							6.99	3.91
P-value							0.000	0.010

Type II union activity and paramilitary presence interaction

VARIABLES	(7)	(8)
Ind. energy consumption * paramilitary presence	-0.552***	-1.010***
	(0.171)	(0.265)
Other controls	Yes	Yes
F-Excluded instruments	3.55	10.75
P-value	0.016	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3d

IV estimation (instrument for type II union activity: number of industry establishments per capita) (MPS)
Second stage
Dependant variable: Union member homicide rate

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type II union activity	0.035	0.058*	0.054*	0.053*	0.031	-0.051	-0.059	-0.120
	(0.036)	(0.030)	(0.030)	(0.031)	(0.040)	(0.045)	(0.038)	(0.325)
Total homicide rate		0.226***	0.259***	0.238***	0.224***	0.207***	0.202***	0.103
		(0.057)	(0.061)	(0.054)	(0.050)	(0.064)	(0.067)	(0.206)
GDP pc			-0.985***	-0.915**	-1.218**	-3.497***	-3.300	26.126
			(0.362)	(0.367)	(0.528)	(1.161)	(2.399)	(54.035)
Police arrests					0.213	0.214	0.166	0.355
					(0.221)	(0.248)	(0.314)	(0.799)
Guerrilla presence						1.962	-0.002	13.776
						(1.840)	(6.226)	(19.657)
Paramilitary presence						3.168*	2.589	-22.934
						(1.711)	(12.749)	(49.068)
Union act *guerrilla presence							0.005	-0.026
							(0.015)	(0.041)
Union act *paramilitary presence							0.006	0.105
							(0.057)	(0.190)
Constant	13.678*	-2.935	0.915	-0.504	5.150	28.932**	30.755***	-126.573
	(7.184)	(5.086)	(5.490)	(10.114)	(11.772)	(13.662)	(10.950)	(274.171)
Year dummy variables	No	No	No	Yes	Yes	Yes	Yes	Yes
State dummy variables	No	No	No	No	No	No	No	Yes
Observations	203	203	203	203	203	203	203	203
R-squared	0.037	0.019	0.080	0.211	0.342	0.169	0.206	0.754

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3d (First stages)

Type II union activity (MPS)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
# of industy establishments	-534,230.082***	-625,958.461***	-599,583.752***	-538,025.570***	-430,528.452**	-634,707.010**	-350,335.431	283,878.092
	(169,462.231)	(171,929.292)	(164,406.204)	(164,465.231)	(180,369.444)	(263,196.135)	(320,379.411)	(1519493.488)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Excluded instruments	6.98	9.88	9.12	8.22	4.23	5.62	5.21	1.88
P-value	0.009	0.002	0.003	0.005	0.041	0.019	0.002	0.135

Type II union activity and guerrilla presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
# of industry est*guerrilla presence							-991,520.083	-1154310.742
							(1343957.528)	(1352974.660)
Other controls							Yes	Yes
F-Excluded instruments							5.57	5.75
P-value							0.001	0.001

Type II union activity and paramilitary presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
# of industry est pc*paramilitary presence							-1205245.375**	-1565523.771***
							(481,419.941)	(525,732.218)
Other controls							Yes	Yes
F-Excluded instruments							3.27	6.94
P-value							0.022	0.000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3e

IV estimation (instruments for type II union activity: Industrial energy consumption and number of industry establishments per capita) (MPS)
Second stage

Dependant variable: Unionists homicide rate

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type II union activity	0.076***	0.051*	0.044	0.036	0.010	-0.055	-0.047	-0.040
	(0.029)	(0.027)	(0.027)	(0.024)	(0.030)	(0.035)	(0.029)	(0.151)
Total homicide rate		0.238***	0.275***	0.250***	0.230***	0.207***	0.198***	0.134
		(0.056)	(0.060)	(0.056)	(0.053)	(0.066)	(0.062)	(0.135)
GDP pc			-1.074***	-1.050***	-1.430***	-3.535***	-2.978	7.627
			(0.353)	(0.376)	(0.522)	(1.130)	(2.094)	(18.865)
Police arrests					0.286	0.223	0.118	0.128
					(0.217)	(0.246)	(0.293)	(0.400)
Guerrilla presence						2.023	-0.121	6.463
						(1.864)	(5.653)	(7.172)
Paramilitary presence						3.155*	1.663	-6.856
						(1.776)	(10.836)	(17.985)
Union act *guerrilla presence							0.005	-0.010
							(0.014)	(0.016)
Union act *paramilitary presence							0.011	0.042
							(0.048)	(0.068)
Constant	5.253	-1.931	2.422	3.527	10.337	29.956***	27.009***	-30.336
	(5.530)	(4.612)	(4.947)	(8.219)	(8.883)	(10.847)	(10.052)	(88.584)
Year dummy variables	No	No	No	Yes	Yes	Yes	Yes	Yes
State dummy variables	No	No	No	No	No	No	No	Yes
Observations	203	203	203	203	203	203	203	203
R-squared	0.066	0.080	0.147	0.313	0.392	0.129	0.303	0.270

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3e (First stages)

Type II union activity (MPS)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industrial energy consumption	-0.181***	-0.092	-0.074	-0.126**	-0.117**	-0.154**	-0.091	0.243
	(0.052)	(0.057)	(0.057)	(0.058)	(0.059)	(0.067)	(0.078)	(0.192)
# of industrial est pc	-362,639.378**	520,057.920***	516,772.677***	-392,002.042**	-313,849.502*	-577,099.361**	-370,619.480	-386,835.065
	(156,700.629)	(170,437.479)	(164,350.288)	(170,873.060)	(179,408.573)	(261,278.981)	(317,300.585)	(1558636.738)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Excluded instruments	7.090	5.660	5.010	5.620	3.380	4.850	3.430	1.420
P-value	0.001	0.004	0.008	0.004	0.036	0.009	0.003	0.208

Type II union activity and guerrilla presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ind. energy consumption*guerrilla prese							-0.392	-0.174
							(0.281)	(0.247)
# of industy est.* guerilla presence							-192,495.959	-893,936.014
							(1357446.228)	(1441908.127)
Other controls							Yes	Yes
F-Excluded instruments							3.780	3.020
P-value							0.001	0.008

Type II union activity and paramilitary presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ind. energy consumption *paramilitary presence							-0.267	-0.699***
							(0.237)	(0.253)
# of industry est* paramilitary presence							-1086503.815	-758,577.247
							(668,191.067)	(543,773.831)
Other controls							Yes	Yes
F-Excluded instruments							2.32	5.73
P-value							0.04	0.00

Hansen statistic	**3.043**	**0.645**	**1.243**	**1.155**	**0.711**	**0.024**	**3.963**	**3.184**
P-value	**0.081**	**0.422**	**0.265**	**0.282**	**0.399**	**0.877**	**0.266**	**0.364**

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

IV estimation (instruments for Type I union activity : Percentage of full time employees and social security payments pc) (ENS)

Second stage

Dependant variable: Union leaders homicide rate

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Type I union activity	-0.002	-0.002	0.000	-0.001	-0.001	-0.001	0.001	0.024
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.017)
Total homicide rate		-0.012	-0.011	0.004	0.008	0.000	0.003	-0.028
		(0.011)	(0.011)	(0.010)	(0.011)	(0.012)	(0.011)	(0.028)
GDP pc			-0.334*	-0.230	-0.275	-0.313	-0.387*	1.960*
			(0.195)	(0.175)	(0.185)	(0.191)	(0.221)	(1.172)
Police arrests					-0.049	-0.194	-0.191	-0.409***
					(0.043)	(0.123)	(0.133)	(0.131)
Guerrilla presence						0.604	0.567	0.016
						(0.915)	(1.118)	(0.593)
Paramilitary presence						3.455*	3.345	-0.943
						(1.843)	(3.872)	(3.342)
Union act *guerrilla presence							0.003	-0.038
							(0.016)	(0.029)
Union act *paramilitary presence							-0.001	0.153**
							(0.060)	(0.074)
Constant	1.344***	1.807**	3.092**	3.055***	3.540***	3.225***	3.229**	-7.322
	(0.457)	(0.738)	(1.258)	(1.039)	(1.189)	(1.214)	(1.282)	(6.401)
Year dummy variables	No	No	No	Yes	Yes	Yes	Yes	Yes
State dummy variables	No	No	No	No	No	No	No	Yes
Observations	88	88	88	88	88	88	88	88
R-squared	0.002	0.012	0.026	0.167	0.173	0.262	0.267	0.330

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2f (First stages)

Type I union activity (ENS)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
% full time employees	65,343.029**	67,460.384**	72,677.035**	80,114.444**	80,438.792**	79,869.546**	147,484.380***	112,369.123
	(30,026.344)	(30,238.204)	(31,283.108)	(32,395.439)	(32,345.810)	(32,874.233)	(52,634.413)	(69,234.460)
Social security payments	-4.923*	-5.234**	-6.333**	-7.300**	-7.363**	-7.271**	-14.448***	-3.734
	(2.567)	(2.623)	(2.864)	(2.980)	(2.980)	(3.033)	(5.344)	(4.839)
Other controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-Excluded instruments	15.89	16.27	12.63	13.48	13.24	12.86	9.74	3.01
P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013

Type I union activity and guerrilla presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ss payments*guerrilla presence							13,971.055***	-7,191.810
							(4,968.613)	(14,850.508)
% full time employees * guerilla presence							-1.674***	-0.642
							(0.599)	(1.803)
Other controls							Yes	Yes
F-Excluded instruments							8.44	2.68
P-value							0.000	0.024

Type I union activity   and paramilitary presence interaction

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ss payments*paramilitary presence							5,224.435*	-16,614.037**
							(2,820.164)	(6,945.848)
% full time employees * paramilitary presence							-0.562*	-0.543
							(0.293)	(0.679)
Other controls							Yes	Yes
F-Excluded instruments							4.9	7.17
P-value							0.000	0.000
Hansen statistic	**2.194**	**2.337**	**0.583**	**0.289**	**1.276**	**0.275**	**1.952**	**3.196**
P-value	**0.139**	**0.126**	**0.445**	**0.591**	**0.259**	**0.600**	**0.582**	**0.362**

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1