"A Subnational Study of Insurgency: FARC Violence in the 1990s"

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Abstract

Colombia provides an ideal case to test theories of insurgencies because there are significant variations of violence, economic performance, and political factors within the country. We examine the traditional factors that have been purported to explain the prevalence of insurgency, political and economic variables, at the sub-national level using a departmental level fixed effects Poisson model and, finally, extend the analysis to reveal the role of coordination and contagion using spatial econometric techniques.

Introduction

Although Colombia is one of Latin America's oldest democracies, with a history of unusually competent economic governance, it is also home to one of the most entrenched leftist insurgencies in the world. Many factors are theorized to be important to explain insurgency, including geography and history, the economy, government, and demography. Colombia is an ideal case to test these factors, due to the ability to analyze the issues at the sub-national level and the variability of violence within the country. In this paper, the analysis at the subnational level is based on unique dataset constructed from CINEP (Centro de Investigación y Educación Popular) and Colombian government sources. The subnational level analysis can assist in the determination of whether the cross-national or national level results are supported at a disaggregated level. With any cross-sectional analysis, the possibility of a spillover effect must be taken into account. Because of this, in addition to conducting a department level fixed effects poisson model, we check our results for spatial autocorrelation. In the case of an organization such as the FARC, it is possible growth factors can be regional, as opposed to strictly local.

The Theoretical Debate and Testable Hypotheses

When analyzing insurgencies, it is important to understand the origin and growth of the organization. Daniel Pecaut (1997) and Sánchez et al (2003) remind scholars, especially in the case of the FARC, that factors contributing to later growth can be independent of factors that encouraged its emergence. Pecaut states that the pervasive Colombian violence has created its own influences on society, regardless of the original causes of the violence. Properly understanding old and new dynamics is essential to crafting an appropriate and effective policy response to the challenge of insurgency.

The FARC, the Armed Forces of the Colombian Revolution (Fuerzas Armadas Revolucionarias de Colombia), is the dominant guerrilla group in Colombia, with approximately 17,000 members[1]. The FARC, a dominant force in much of rural Colombia, has a presence in the main cities (Petras 2000, 134). Formally, the FARC originated out of peasant self-defense groups in the 1960's. However, it has deeper historical roots, beginning in the 1920s and 1930s, in the early agrarian conflict of poor agricultural workers against the large landed estates (Pizarro 1992, 180, fn 26). The FARC has continued to evolve since its founding, from a primarily localized movement, based on peasant support, to a revolutionary movement of national breadth, with fronts in both rural and urban areas. From the founding through the seventies, the FARC could still be considered a peasant movement of a limited geographic area. FARC support was based on their provision of basic order in parts of the country that did not have significant government presence (Rangel 1999, Vélez 2000, Medina Gallego 1990, Fernando Cubides 1998a). The FARC builds on its original basis of demands for land reform, while adding charges of corruption, the perversion of capitalism, and U.S. imperialism to its motivations. Pecaut (1997, 915) argues that the motivations of the young guerrillas are very different than the older ones, in that the younger guerrillas tend to look at being a guerrilla as merely one potential job among many. Whether or not the group has become less ideological and more bureaucratized is not the subject of this study. Today the FARC consists of the following operational blocks. By the end of the 20th century, the FARC had 63 rural and 4 urban fronts, composed of the Caribbean Block (Costa Atlántica), the Central Block (Tolima, Huila y Cundinamarca), the Southern Block (Nariño, Putumayo and Caquetá), the Eastern Front (Meta, Vichada and Guaviare), and

the José María Córdoba Block (Urabá and Antioquia) (Vélez 2000, 6-9). By the 1990s, the FARC had been completely transformed.

Economic Factors

There are two ways that economic factors can encourage insurgency. First, poor economic conditions may inspire sedition. In Colombia, there are long standing structural challenges in the countryside, resulting in persistent land conflict (Ortiz Sarmiento 1990-1, Medina 1985-6). As new crops become lucrative, old tensions reignite. For example, when new lands are brought into production (for coffee, coca etc.) and peasants displaced, groups of bandits form to provide "protection" for the landowners from the recently displaced peasants. Beginning in the 1980s, with advent of the drug agriculture, the aim has been to gain dominance, in the form of land ownership (Meertens 1997). In general, some scholars focus on hopelessness (Muller 1989). Others, after controlling for the level of economic development, find no relationship between inequality and violence: Hardy (1979), Weede (1981,1987), and Collier (2000).[2] One direct connection between poverty and Colombian violence is that, in many cases, the guerrillas pay better than other available agricultural jobs (Sánchez 1998, 40).[3] Second, economic resources can serve as a financial basis for insurgent groups. Collier (2000) finds

> The factors which account for this difference between failure and success are to be found not in the 'causes' which these two rebel organizations claim to espouse, but in their radically different opportunities to raise revenue…the economic theory of conflict argues that the motivation of conflict is unimportant; what matters is whether the organization can sustain itself financially … (Collier 2000 2, 4)

In particular, primary commodity exports are "lootable because their production relies heavily on assets which are long-lasting and immobile" (Collier 2000, 9). Sánchez

(1998, 39) documents that areas rich in primary export goods have become points of confrontation due to the importance of controlling these lucrative zones.

In addition to analyzing licit exports, it is important to examine illicit exports as a key source of financing of insurgent activities. Theoretically, illicit drugs can be conceptualized as a form of enclave production and thus more susceptible to predation. "It is evident that items produced in enclaves are more susceptible to predation. That makes them more attractive targets for both personal rulers and predatory rebels than are small agriculturalists because neither predation nor general state or market collapse will stop the revenue from flowing: even if their products are often looted, enclave producers will continue to generate goods because of extreme asset specificity, and because of general concentration, production will continue even in the face of general collapse" (Leonard and Strauss 2003, 15). Many scholars and U.S. officials cite the importance of coca production in fueling the Colombian conflict (Rochlin 2003, McCaffrey 2000, Byman et al 2001, Pecaut 1997). For example, Francisco Thoumi (1995) points out "the drug trade has in fact weakened the country's economy by fostering violence and corruption, undermining legal activity, frightening off foreign investment, and all but destroying the social fabric." In Colombia, guerrillas fight for control of areas that can finance them (Bottía Noguera 2003, 44). Many scholars have discussed the financial basis of the group, but there is disagreement about the extent of the funding that comes from drugs. Some claim that the FARC is itself a cartel. For example, Villamarín Pulido (1996) cites military documents claiming that the FARC is the third largest cartel in Colombia.[4] Despite suggestions that guerrilla groups such as the FARC are nothing more than another drug cartel, the reality is much more complicated. In areas where the

guerrillas are too strong to eliminate, the drug traffickers pay the guerrillas a "tax" on their proceeds. Some scholars have probed the pragmatism of the relationship (Steiner 1999). In testimony to the U.S. House of Representatives, Marc Chernick, Director of the Andean and Amazonian Studies Program at Georgetown University, stated

> Some have tried to obfuscate this issue by collapsing the two issues into one, saying that the guerrillas work with the drug traffickers and are therefore effectively 'narco-guerrillas.' However, this is a gross distortion of the situation in Colombia. The guerrillas do not constitute another 'cartel.' Their role in the drug trade is in extorting a percentage of the commercial transaction of coca and coca paste, just as they do with many other commercial products in the areas in which they operate, be it cattle, petroleum, or coffee (House of Representatives Committee on International Relations 104th Congress)

The FARC's financial basis rests upon extortion of both licit and illicit businesses in areas under its control and kidnapping (Shifter 1999,15 and Sánchez et al 2003, 12). Ortiz Sarmiento (1990-1, 269) estimates that the group taxes production at rates of 10% and commerce at 8%. Some scholars cite particular times and circumstances in which there have been drug FARC ties. Edgar Torres (1995) tells of a 1977 decision of the narcos to locate processing facilities in guerrilla controlled areas, outside of the government purview. As the narcos purchased lands, their incentive to cooperate with guerrillas changed. Eventually, instead of having the guerrillas provide order (and impose their 'tax'), the narcos funded their own paramilitary armies, often fighting the guerrillas for local control (Pecaut 1997, 908, Rochlin, 2003 100). How much of the recent growth of the FARC is due to funding from the drug trade? Rochlin (2003) discusses the complicated relationship between the FARC and coca. He cites an interview with the UNDCP, in which officials explain that some FARC members are involved, but it is not uniform among the leaders or the rank and file. However, he

claims that much of the department by department spread of the FARC was due to drug cultivation in areas of its control (Rochlin 2003, 137, 99).

As applied in this analysis, we are able to operationalize economic factors in the following hypothesis.

Hypothesis 1. Guerrilla violence is positively associated with exports since easily lootable exports (illicit or licit) provide an accessible source of funding for non-state violent groups.

Hypothesis 2: Higher levels of insurgency will be associated with low levels of GDP per capita or negative growth rates.

Government Factors

Ortiz Sarmiento (1990-1) generally finds that violence during La Violencia was a product of an incremental chain of retaliation between the Liberals and Conservatives and that private justice has been common throughout Colombian history because of a relatively weak police and military presence. For example, in 1949, there were only 15,000 soldiers, compared to 4500 guerrillas. Later, under Rojas Pinilla (1953-1957), the military increased to 42,000, still a relatively small number in a country of 11.5 million (Ortiz Sarmiento 1990-1, 253-4). Byman et al 2001 (2000) criticizes contemporary Colombia for its low military spending, with only 3.1% of GDP spent on military expenditures in 1998. The relatively low military spending and small military for a country facing decades long insurgency reflects the historical weakness of the Colombian state. As Waldmann (1997) points out, Colombia has not had a unifying dictatorship, such as the Porfiriato in Mexico. More recently, many blame the National Front for a legacy of political exclusion, insufficient legitimation, and insurgency (Medina 1985-6).

Although the National Front, which lasted from 1958-1974, ended the war between the Liberals and Conservatives, the lack of mobility and flexibility of the National Front "gave rise to an opposition that, lacking a means of expression, turned toward a plan of radical rupture" (Pecaut 1992, 227). In general, scholars such as Schock (1996) find that semi repressive regimes have higher levels of violence. Another aspect of a weak state is the poor judicial system. According to Pecaut (1997), this is both a cause and consequence of the violence. Sanín (2001) describes the Colombian judicial system as arbitrary, inefficient, and politicized. We test the following hypothesis to examine the relationship between political factors and FARC violence:

Hypothesis 3. Guerrilla violence is expected to emerge in the context of weak state presence.

Hypothesis 4. Higher levels of state repression will be associated with higher levels of insurgent violence.

Demographic Factors

Typically, discussions of insurgency will address religious or ethic differences. However, the Colombian conflict is distinctive because it is not a conflict driven by ethnicity or religious divisions.[5] In general, scholars have found evidence of education (Collier 2000) and the presence of refugees (Byman et al 2001) in fueling conflict. Byman et al (2001) suggest that large refugee populations, especially in areas without sufficient government control, can become havens for insurgents. Obviously, there is an incentive for governments to control these camps. Other scholars have found this connection in Colombia (Sarmiento 1999), although the finding is disputed in Llorante et

al (2001). We look at the relationship between internal displacement and FARC violence to discern if in fact refugee camps serve as a base for guerrilla groups.

Hypothesis 5. Guerrilla violence is expected to emerge in the context of internal displacement.

Geography and Regional Effects

General studies of civil wars and insurgency recognize the importance of geography and regional factors. A growing literature highlights the need to take into account spatial factors and diffusion effects. The country, in some respects, is a nominal nation, in which many parts have never been under effective government control. Power vacuums are then filled by leftist guerrilla groups or rightist paramilitary groups. In Colombia, geographic and historical factors overlap. In general, scholars such as Laitin and Fearon have found that "mountainous terrain is significantly related to higher rates of civil war" (Laitin and Fearon 2003, 85) because it makes it harder for government counterinsurgency efforts to be effective. Specifically within Colombia, Sánchez finds large centers of guerrilla activity during "la violencia" in parts of the country with recent settlement, land conflict, open frontier, rough topography, lack of state presence, and support of liberal landowners (Sánchez 1992, 92). Similarly, Ortiz Sarmiento (1990-1) finds a pattern of violence in areas of recent settlement. In particular, when settlement occurred without a robust state presence, insurgency tends to follow. Collier (2000) theorizes that the more geographically dispersed a group is, the easier it is for the government to control. Moreover, he finds that "if a country has recently had a civil war its risk of further war is much higher." (Collier 2000, 6) In Colombia, certain areas tend to be conflict prone. Previous wars, such as the war of the thousand days (1899-1901),

and la violencia (1946-1958) primarily occurred in the countryside, in remote regions, with little state presence (Waldmann 1997, 411). Some scholars, such as Pizarro, recognize a geographical overlap among successive Colombian conflicts (Pizarro 1992, 175).

In terms of spatial effects, sometimes, a regional dummy variable is incorporated, but this does not take into account either spatial lag or spatial error. For example, Laitin and Fearon (2003) use a regional dummy, but do not perform spatial autocorrelation checks in their cross-national study of insurgency. According to Sambanis, "if we want to predict where and when a civil war will occur, we can also no longer afford to ignore the temporal and spatial dependence of various forms of political violence" (Sambanis 2004, 270). Mechanisms of diffusion include regional conflicts, refugee flows, and regional arms networks (Sambanis 1996, Sambanis 2001, Brown 1996, Lake and Rothchild 1998). Sambanis' case study project on civil wars suggests "the role of external assistance (direct intervention or provision of cross-border sanctuaries), neighborhood effects, and escalation processes may be important theoretical additions in explaining how political violence takes the form of civil war" (Sambanis 2004, 273). Other studies, such as Murdoch and Sandler (2002), find neighborhood effects of civil war on economic growth. Sambanis stresses the importance of neighborhood effects in the civil wars. "This is a new empirical finding that supports some of the theoretical literature on contagion and diffusion effects….Both of these effects are possible and deserve further empirical study" (Sambanis 2001, 275). Diffusion is also recognized in a growing literature on democratization (Bollen 1983, Gonick and Rosh 1988, Starr 1991,

O'Loughlin et al 1998, Markoff 1996, Whitehead 1996). These studies on contagion or spillover effects are limited to cross country impacts.

Within studies on Colombia, a few scholars have conducted spatial analysis of violence including Sánchez et al (2003) and Bottía Noguera (2003). Sánchez et al find that the efficiency of justice, narcotrafficking, and the presence of illegal armed forces explain most of the homicides, kidnappings, piracy, and crimes against the patrimony. In addition, they see a global dynamic of violence in Colombia and conclude there are significant ties between coca production and violence. Bottía Noguera (2003), in a study of 1067 municipalities, finds economic conditions, zones with previous presence of coca or poppy cultivation, increases in rural salaries, oil and coal, natural parks significant in explaining political violence. However, the results are questionable due to problematic indicators (the author examines 1992-1994 and 1998-2000, but only includes 1994 drug data) and the lack of checks of the spatial relationships of the units in the residuals. Other scholars have questioned the validity of a municipal analysis, because of the varying size of municipalities and the tendency of the large municipalities to be less poor (Pissoat and Gouëset 2002). Moreover, economic data are typically unavailable in units smaller than departments, making it difficult to include important factors.

Our analysis extends this literature by examining the impact of coordination and contagion on the prevalence of FARC violence at a sub-national level by testing for the presence of spatial autocorrelation and latent spatial variables. Although some scholars, such as Ortiz (2002) define the organization as decentralized in terms of resources, there is still a high level of recognized cohesion among the different fronts. In this particular

study of Colombian FARC violence, coordination, and resource sharing among different fronts must be considered as a source of spatial relationships.

Hypothesis 6. Coordination or contagion effects are potential drivers of insurgent. Coordination among insurgent groups may be a latent spatial variable, creating a geographic driver of FARC violence.

In testing the stated hypotheses, the analysis needs to control for additional factors, such as population, eradication of illicit crops, and general level of development. This literature review highlights the importance of incorporating a broad range of explanatory factors into an analysis of FARC violence. A subnational study of Colombia offers a unique opportunity to incorporate many of the theoretically important factors into a model of FARC violence. Checks on spatial autocorrelation examine whether there are regional clusters conflict fueling FARC violence.

Subnational Level Analysis

While at the national level Colombia has seen a rise in drug cultivation and a concomitant increase in violence, to claim that the increase in drug cultivation is the source of the violence appears to be an oversimplification of the underlying causes of the violence. Most of the research on Colombia is conducted at the national level. The national level data are not appropriate for time series analysis because of the limited data set given the short time span. Moreover, as Guillermo O'Donnell points out, "current theories of the state often make an assumption which recurs in the current theories of democracy: that of a high degree of homogeneity scope, both territorial and functional, of the state and of the social order it supports" (O'Donnell 1999, 130). In the Colombian case, clarity may be gained by examining differences among departments.[6] In Colombia,

there are 32 sub-national political territories called departments. From the original Spanish colonization through contemporary times, significant differences persist into the current period.

Data, Method, and Results

This is an original dataset, compiled from Colombian sources. The violence variables in the data set used for this analysis were constructed from raw departmental data collected by the Centro de Investigación y Educación Popular (CINEP) in Bogotá, Colombia and their Banco de Datos sobre Derechos Humanos y Violencia Política.[7] The dependent variable, FARC human rights violations, includes a spectrum of activity, ranging from threats to killings. This measure of violence facilitates an understanding of either an escalation or de-escalation of violence (Sambanis 2004). An important political factor, state strength, can be assessed by justice and security spending. Municipal justice and security spending (aggregated to the department level) are indicators of government police and military capability. These figures are provided by the Departamento Nacional de Planacion (DNP), in 1998 constant thousands of pesos. Previous studies, such as that of Fearon and Laitin (2003), use per capita income as a proxy for these capabilities, instead of directly measuring actual security and justice expenditures as we do in this paper. Four economic variables are included in this analysis. Gross domestic product per capita in constant 1994 pesos, obtained from Departamento Administrativo Nacional de Estadisticas (DANE), measures the general level of development. These estimates are provided at the department level. Primary exports, on the other hand, are a measure of foreign exchange income streams, and are theoretically easily captured for the support of rebellious activities. Primary exports, in constant 1995 U.S. dollars, are from the

Ministerio de Comercio, Industria y Turismo. Coca estimates are incorporated into the model because it is a special category of 'lootable exports.' Coca cultivations numbers, in hectares, are provided by the Colombian National Police. Other important factors included as control variables are population (from DANE) and paramilitary violations (from CINEP).

In this analysis, a fixed effects Poisson model is utilized because the dependent variable (FARC human rights violations) is a count. Moreover, almost thirty- two percent of the departments do not have FARC activity at one time or another, making the data an appropriate candidate for the Poisson model. A fixed effect model is particularly useful in situations with omitted variables, which can be captured by the department fixed effects. Sambanis highlights that case studies of civil war have "challenged the unit-homogeneity assumption that underlies current quantitative work. This should prompt analysts to test for fixed effects by country, region, or period" (Sambanis 2004, 273). Year dummy variables capture unmodelled changes over time. In a fixed effects model, variables that do not change throughout time can be taken into account through the department intercepts. In order to maximize cases, the first model omits displacement (internal refugees moving to another department) and justice and security spending.

Table 2: Department Level Conditional Fixed-effects Poisson Regression of Human Rights Violations Committed by the FARC 1991-1998

	Model 1	Model 2	Model 3	Model 4
Independent Variables	β/ s.e.	β/ s.e.	β/ s.e.	β/ s.e.
Primary Exports	-.0013236	-.0013409	.0038559†	.0036173†
in millions US $1995	(.0009259)	(.000925)	(.0021694)	(.0021447)
GDP in 1994 Pesos	-.2818012†		-.6584067**	
Per capita	(.1521803)		(.2528819)	
GDP % Change		.0004356		-.0133619†
		(.0053201)		(.0071193)
Human Rights Violations by	.0161112***	.0160188***	.0285838**	.0287362**
Government Forces	(.0044206)	(.0044465)	(.0092916)	(.0092903)
Human Rights Violations by	.0021799***	.0022235***	-.0012032	-.0011109
Paramilitaries	(.0006788)	(.0006796)	(.0018251)	(.001801)
Homicides	.0002439	.0002268	.0016676†	.0015515†
	(.0002028)	(.0002033)	(.0008992)	(.0008817)
Population	-1.248103**	-1.231467**	-4.76297**	-4.105954**
in millions	(.4519165)	(.4547307)	(1.648305)	(1.645921)
Coca Cultivation	-4.74e-06	-7.93e-06	.0000239	.00003
	(9.98e-06)	(.000011)	(.0000176)	(.0000205)
Justice and Security			-.0005607	-.0007659
Spending (Millions)			(.0037734)	(.0037534)
Displaced Persons			.0001078†	.0001039†
Received			(.0000639)	(.0000635)
1992	-.1179469	-.1317747		
	(.1113634)	(.1124034)		
1993	-.2668043*	-.295621**		
	(.1227366)	(.1228136)		
1994	.4747523***	.4389956***		
	(.1147288)	(.1132222)		
1995	.2406649†	.1795788		
	(.1288967)	(.1255962)		
1996	.3052628*	.2356128†	.3015249*	.2219833†
	(.1362521)	(.1311208)	(.13271)	(.1342901)
1997	.4902439***	.4102501**	.382764*	.2691464
	(.1477357)	(.1415801)	(.1645696)	(.1692203)
1998	.7964929***	.7319261***	.6348171***	.495026**
	(.1525196)	(.1504478)	(.1681248)	(.1840075)
Log likelihood	-523.56	-525.37	-183.34	-185.22
Wald chi2(7)	105.51	101.61	54.90	52.05
Prob > chi2	0.0000	0.0000	0.0000	0.000
N	232	232	112	112
N Groups	29	29	28	28

***=P<.001, **=P<.01, *=P<.05 , †=P<.10

Departments Omitted: Models One and Two: Amazonas, Guania and Vaupes.

Departments Omitted: Models Three and Four: Amazonas, Guania, Vaupes, and Vichada

In general, there is an increasing trend of FARC violence throughout the years, with the exception of 1992 and 1993. This reduction in violence, compared to 1991 levels, may

reflect President Gaviria's 1991 and 1992 attempts at peace negotiations. Across all models, the fixed effects are significant. In terms of economic factors, both hypotheses one and two are supported to some extent. As theorized by Collier (2000) and others, primary exports appear to attract guerrilla operations. Primary exports (legal exports only) are positively related to FARC violence in models three and four, once displacement and justice and security spending are included. However, coca cultivation, a lucrative illicit export, is insignificant across all models, contrary to expectations. As suggested by hypothesis two, GDP per capita is inversely related to FARC violations, perhaps suggesting a prevalence of violence in less economically developed departments. Negative growth rates are associated with higher FARC violence in model four. Hypothesis three, the notion that guerrilla violence is more common in areas with a weak state presence, is weakly supported in the models. Homicides, a potential indicator of poor government control, is associated with high levels of FARC violence in models three and four. Interestingly, municipal justice and security spending, aggregated to the department level, is insignificant. Consistent across all models is the finding that high levels of state repression are associated with higher levels of insurgent violence, although the causality is unclear.[8] Colombia may be experiencing something similar to Peru, in which the government lost popular support among peasants through indiscriminate repression against the Peruvian rebels (Holmes 2001). Government human rights violations also strongly correlate with FARC violations. Whether this is simply a reflection of a particularly hot conflict zone or a causal relationship (Schock 1996) is unclear. Interestingly, paramilitary human rights violations are also positively related to insurgent violence in the first two models, although not in the latter. This could be

possible due to the later time-period of models three and four, considering that significant gains were made to end paramilitary – military ties, in response to foreign pressure such as the Leahy amendments, starting in 1997. Hypothesis five, in which higher levels of insurgent violence are expected as more internal refugees are received, is supported. This relationship can be explained in one of two ways. Either the addition of displaced peoples could exacerbate existing problems of a weak state, facilitating insurgent activity, or insurgents can hide within the displaced population and spread the insurgency.

Preliminary Spatial Analysis

Since geographical factors do not change over time, they cannot be included in a fixed effects model. Nonetheless, it is possible to use cartographic visualization to determine if there is geographic overlap in different Colombian conflicts.

Insert Maps One and Two

During the civil war known as "la violencia" and its aftermath (1948-1963), as shown in Map One, the departments of Tolima, Meta, Vichada, and Vaupes suffered more violence relative to the other departments. However, Map Two of FARC violence in 1994 and 1997 show a concentration in Antioquia and Bolivar, with a general prevalence of violence in the central part of the country. From this rough comparison, it appears that the theater of the conflict has shifted since its beginning.

Both methodologically and substantively, the analysis of FARC violence done at the department level would be incomplete if the spatial aspects are not considered. Methodologically, using checks designed for an OLS model, a rough approximation of whether or not spatial lag or spatial error exists in the model is possible. According to Anselin (2002), spatial econometrics allows us to test for the relevance of factors in other

spaces, such as neighboring departments. Anselin and Cho (2002) find that ignoring spatial relationships affects both the accuracy and precision of the coefficients in question. Substantively, it is important to consider the possibility of the FARC's ability to move resources from one part of the country to another in order to fuel the conflict in other parts of the country.

The spatial lag problem refers to a model where the spatial lag of the dependent variable (Wy) should enter the model as an independent variable. If ignored, as in the ordinary least squares (OLS) model, the estimated coefficients of the model are biased. The spatial lag model is often referred to as the spillover problem, in which factors in one area are linked to the factors of one's neighbors. Anselin states "the essence of the problem is that a single cross-sectional data set contains insufficient information to identify the precise nature of the underlying mechanism" (Anselin 2002, 6). Thus, if the tests indicate the likely presence of a spatial lag, one cannot use OLS and must rely on maximum likelihood or other estimators to identify the parameters of the model. The spatial error problem suggests that a spatial variable has been omitted from the model and is being captured in the error term. Spatial error affects the precision of the coefficients. The model can be "corrected" by introducing an extra term in the error in essentially the same way that temporal autocorrelation is corrected. Spatial error is likely to occur when data limitations result in important variables being left out of the model and these variables have a spatial relevance.

In this case, both spatial lag and error, a weights model, based on simple common boundary definition defined, is used. Each year and model is tested individually. In both models one and two for 1991-1997 there is no evidence of spatial autocorrelation in the

residual, according to the following tests: Moran's I, the Lagrange multiplier, and Robust Lagrange Multiplier. Secondly, tests for spatial lag and spatial error models are necessary. For all seven years, there is no evidence of spatial lag or spatial error problems. The results for 1998, however, are interesting. In 1998, problems with spatial autocorrelation, spatial lag and spatial error appear in both models one and two. In model 1 for 1998 the Lagrange multiplier is significant at 5.6% level with a coefficient of 3.651; rho is significant at 0.8% level with a coefficient of -0.6072; and, lambda is significant at 0.0% level with a coefficient of -1.0697. In model 2 for 1998 the Lagrange multiplier is significant at 5.8% level with a coefficient of 3.600; rho is significant at 0.7% level with a coefficient of -0.6062; and, lambda is significant at 0.2% level with a coefficient of -0.9301.

Models 3 and 4 include displacement (internal refugees) and justice spending among departments. The results revealed neither spatial autocorrelation nor spatial error problems for 1995 and 1997. Yet, there are spatial lag and error problems for 1996 in both the models 3 and 4. In model 3 for 1996, rho is significant at 0.8% level with a coefficient of 0.4726. In model 4 for 1996, lambda is significant at 3.4% with a coefficient of 0.5108. For 1998, we only find problems of spatial lag where in model 3 rho is significant at 5.2% level with a coefficient of -0.4762 and in model 4 rho is significant at 5.3% level with a coefficient of -0.4698. This suggests that there are spatial spillover effects from justice spending and displacement on FARC violence.

Spatial error indicates that a spatial variable has been omitted. Spatial error problems disappear once displacement is included in the model. Whether or not this is a random effect or a reflection of a change in policy or method of operation of the FARC

after 1997 is unclear, highlighting the need for further research. Because these tests are designed for an OLS regression, the substantive significance of the spatial problems is unclear. Hypothesis six, that coordination or contagion effects may serve as a latent spatial variable, is supported. Unfortunately, given the imperfect fit of existing spatial checks to the Poisson model, this finding is preliminary. Further research should focus on model appropriate checks for a Poisson regression.

Conclusions

This analysis of Colombian FARC violence both sharpens the larger debate on insurgency and provides insight to the particular Colombian case. In Colombia, the utilization of a department level analysis is essential to uncover the factors fueling FARC insurgency. Theories of violence posit the importance of economic resources to explain the funding and activity of violent groups. Contrary to the expectations of many scholars and government officials, coca production is insignificant to explaining FARC violence. Other significant findings include a positive relationship between FARC violence and legal primary exports. As expected, more FARC violence is present in areas of a low level of development or negative growth. Depending on the model, there is evidence that FARC violence is higher in areas with a weak state presence. This analysis also suggests that FARC violence increases with both the arrival of internal refugees and state violence. In addition to increasing understanding of the Colombian conflict, this study refines general theory in the following ways. First, a more accurate measure of state strength or capacity should be used. The Colombian sub-national analysis provided a precise measure – actual security and justice spending and a ratio of public officials to the population. Second, a subnational analysis provides an opportunity for increased rigor,

through increasing the number of comparable cases, while encountering fewer problems associated with cross national studies. Finally, regional effects or contagion should be accounted for through techniques to correct for spatial lag and spatial error.

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[1] For the purpose of this paper, only the FARC is included in the analysis. Another main group, the ELN, is smaller and concentrated in the oil producing part of the country. The ELN has publicly criticized the FARC for its connection to the coca trade.

[2] For the debate about violence and inequality, see Sigelman and Simpson (1977), Muller (1985), Muller and Seligson (1987), Boswell and Dixon (1990), and Schock (1996). For a relevant discussion of the debate as it pertains to Colombia, see Gutiérrez (1999a, 1999b).

[3] For a discussion of these factors and homicide rates, see Sarmiento y Becerra 1998, Sarmiento Gómez 1999, Echandia (1999). A Colombian classic work attributing violence to poverty is Comisión de Estudios sobre la Violencia (1987).

[4] See also *Semana* 354 20 Feb 1989

[5] This is not to say that there are not significant indigenous populatations in Colombia. See Carlos Vladimir Zambrano, "Diversidad y democracia. Riesgo y reto para una Colombia en el siglo XXI" *Revista Javeriana* 67 (April 1999) 165-172.

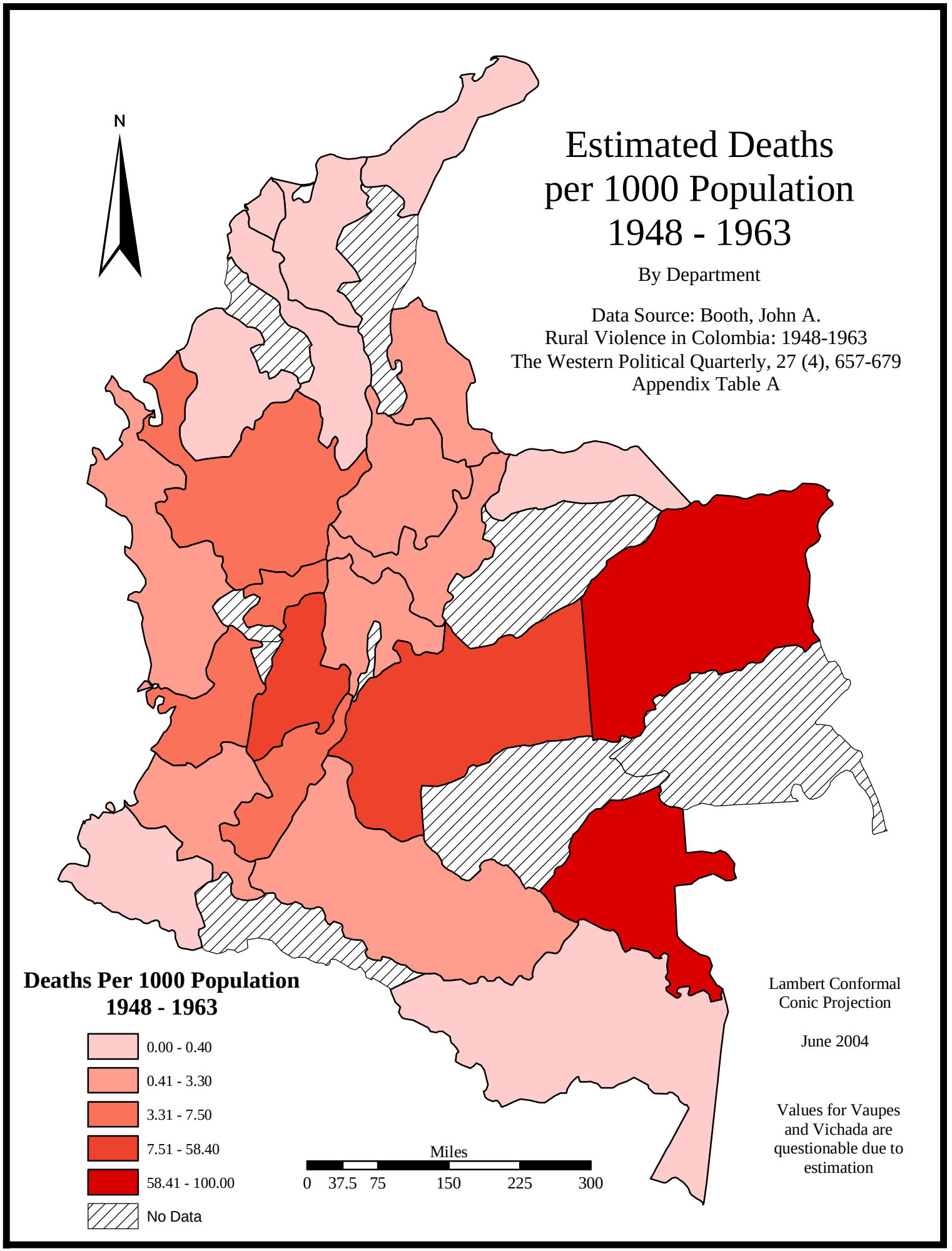
[6] For a discussion of the role of sub-national comparison in comparative research, see Arend Lijphart, "Comparative Politics and the Comparative Method." *American Political Science Review* 65(3):689. More recently, see Richard Snyder, "Scaling Down:

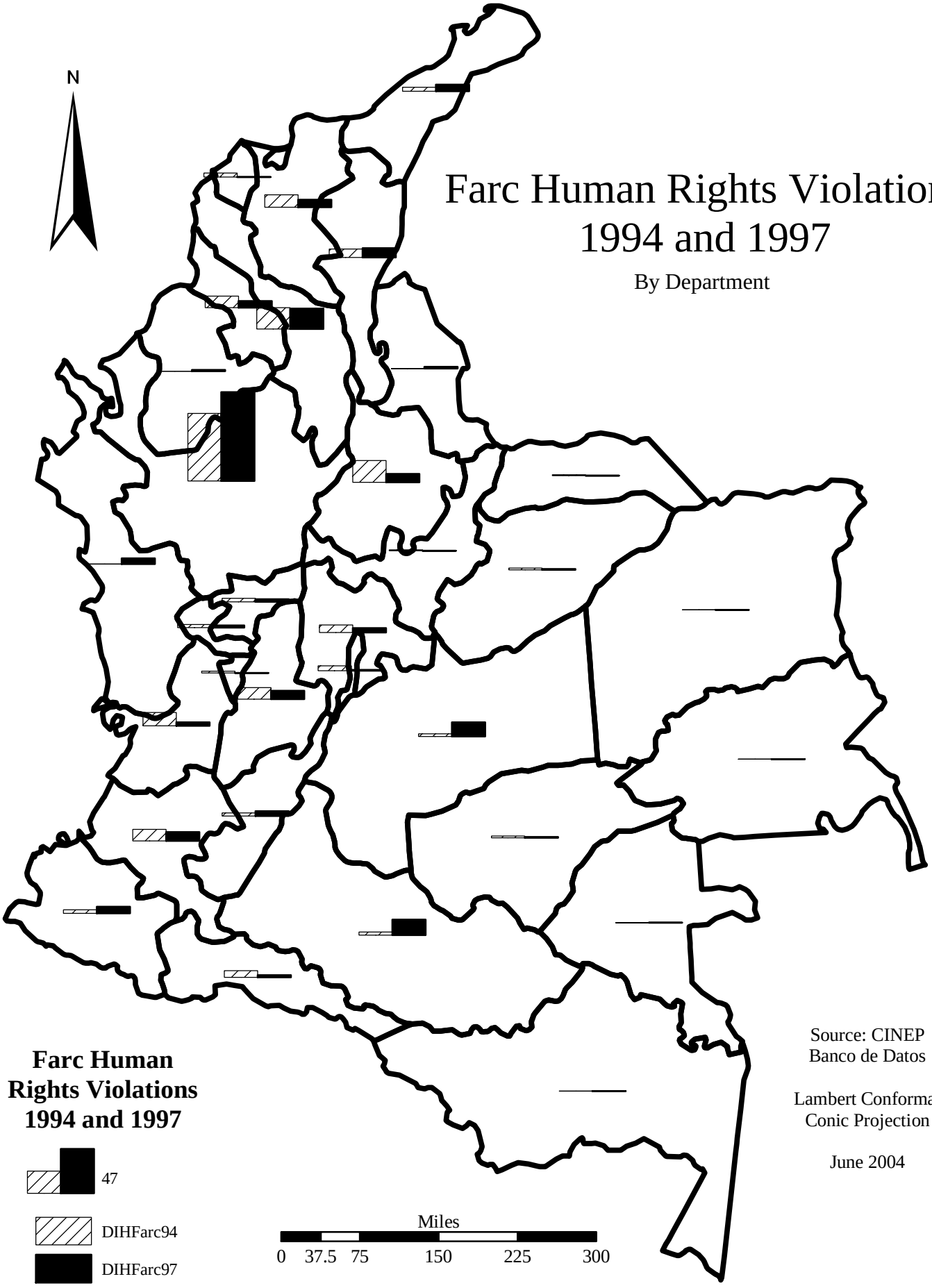
The Subnational Comparative Method," *Studies in Comparative International Development* 36(1)93-110 or B. Guy Peters, *Comparative Politics: Theory and Methods* (New York: New York University Press, 1998) 44.

[7] Some commentators and U.S. embassy officials have challenged the validity of CINEP's data. For example, Mary Anastasia O'Grady repeats State Department allegations that CINEP "methodology creates a heavy bias against the Colombian government while it grants a wide berth to guerrilla insurgents"(O'Grady 2004). O'Grady quotes an embassy report which claims that CINEP 'follows legal conventions that define 'human-rights violations' as crimes that can only be committed by the state or state-sponsored actors, which it presumes paramilitaries to be.'" In reality, CINEP tallies human rights violations among both state and non-state actors and differentiates between human rights violations committed by different actors, ranging from the FARC to the police. At times, CINEP includes incidents in multiple categories (see CINEP, 'Síntesis del Marco Conceptual. *Noche y Niebla* 22 (2001), however, this issue is not relevant for this analysis since only one category is employed in this study. As with any dataset, the potential for bias exists. However, we believe any bias is consistent throughout time in this study, since the included data were generated directly from CINEP's Base de Datos using consistent categories. Especially in politically sensitive areas such as violence statistics, it is prudent to compare non-government and government numbers since different groups may have incentives to over or under report, respectively. Because of this possibility and the controversy surrounding CINEP figures, we have compared official government data on terrorism with CINEP figures for this period. The correlations between CINEP numbers of total leftist guerrilla group violations and

government numbers of terrorism is high (.7424) from 1991-1998. A comparison of terrorism incidents with human rights violations is not a direct comparison of exact same phenomenon, but the relatively high correlation provides confidence in CINEP numbers. Moreover, the CINEP database differentiates attribution of responsibility, which is essential when analyzing the violence of distinct groups with different goals.

[8] Different types of violence exist in Colombia, with distinct origins and effects. Nonetheless, checks on multicollinearity are necessary. To this end, all models were run as OLS to generate VIFS. In model one, the average VIF was 2.21. Only population and homicides had numbers above three (6.12 and 5.22 respectively). In model two , the average VIF was 2.19. Only population and homicides had numbers above three (6.10 and 5.07 respectively). Model three had an average of 2.58 with the following over three: population 8.52 and homicides 6.46. Model four had an average VIF of 2.55 with the following variables with scores above three: population 8.39 and homicides 6.24.


N
Estimated Deaths
per 1000 Population
1948 - 1963
By Department
Data Source: Booth, John A.
Rural Violence in Colombia: 1948-1963
The Western Political Quarterly, 27 (4), 657-679
Appendix Table A
Deaths Per 1000 Population
1948 - 1963
0.00 - 0.40
0.41 - 3.30
3.31 - 7.50
7.51 - 58.40
58.41 - 100.00
No Data
Miles
0 37.5 75 150 225 300
Lambert Conformal
Conic Projection
June 2004
Values for Vaupes
and Vichada are
questionable due to
estimation


N
Farc Human Rights Violations
1994 and 1997
By Department
Farc Human
Rights Violations
1994 and 1997
47
DIHFarc94
DIHFarc97
Miles
0 37.5 75 150 225 300
Source: CINEP
Banco de Datos
Lambert Conformal
Conic Projection
June 2004