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Drugs, Violence, and Development in Colombia: A Department-Level Analysis

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ABSTRACT

Observers say that drug production fuels violence in Colombia, but does coca production explain different levels of violence? This article examines the relationship between coca production and guerrilla violence by reviewing national-level data over time and studying Colombia by department, exploring the interactions among guerrilla violence, exports, development, and displacement. It uses historical analysis, cartographic visualization, and analysis of the trends in four high coca-producing and four violent Colombian departments, along with a department-level fixed effects model. Contrary to the conventional wisdom, the department-level analysis suggests that coca production is not the driving force of contemporary Colombian guerrilla violence. Instead, economic factors and coca eradication emerge as prominent explanatory factors.

U.S. support for the Government of Colombia (GOC) is designed to attack every element of the drug trade and to assist the GOC to re-establish government control and the rule of law in areas threatened by drug-related violence.

—Fact Sheet, Bureau of International Narcotics and
Law Enforcement Affairs,
U.S. Department of State, Washington, DC, August 12, 2002

According to conventional wisdom, drug production fuels Colombian violence. But does coca production explain different levels of violence in Colombia? The annual data show a strong relationship between coca production and violence. This article examines the relationships among violence, economic factors, and coca production in Colombia. It looks both at national-level data over time and at Colombia by department, including violence, exports, development, and displacement. (Displacement refers to the creation of refugees within Colombia.) This study uses four different tools to explore the relationship between violence and coca production: historical analysis, cartographic visualization, an analysis of the trends in four high coca-producing and four vio-

lent Colombian departments, and a department-level fixed effects model. For the statistical analysis, the data are confined to the period 1999–2001 because of the change in the estimate of coca cultivation relative to 1991–97. To illustrate time trends, department-level graphs are provided for 1991–2001. The department-level analysis debunks the conventional wisdom, suggesting that coca production is not the driving force of contemporary Colombian violence; instead, economic factors and coca eradication emerge as prominent explanatory factors to account for different levels of violence in Colombia.

COLOMBIAN VIOLENCE: THE CONVENTIONAL WISDOM

Most scholars draw a connection between drugs and violence in Colombia. Other factors, such as poverty, state presence, development, and the effects of refugee populations are also theorized as important. Economic factors can have influence as sources for broad-based development. Alternatively, economic resources can be captured and diverted to support insurgent groups.

Thoumi points out that “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” (1995a). Another prominent scholar, Pecaut (1997), concludes that there is a clear connection between the production of illicit crops, such as coca or poppies, and violence. A recent Rand report on Colombia draws a relationship between the Colombian drug trade and violence: “Current instability in Colombia derives from the interaction and resulting synergies stemming from two distinct tendencies: the development of an underground criminal drug economy and the growth of armed challenges to the state’s authority.... the strength of the guerrillas is directly linked to the guerrillas’ control of drug producing and drug processing areas” (Rabasa and Chalk 2001, xiii). Rangel estimates that the FARC receives approximately half of its income from the drug trade and dedicates about one-third of its soldiers to indirect or direct coca-related activities. He further notes a strong historical coincidence of FARC and coca expansion (Rangel 1998, 125–26). Echandía (1999) discusses how the guerrillas used drug proceeds to fuel their territorial expansion throughout Colombia and concludes that there is strong relationship between armed groups, coca cultivation, and violence (Echandía 1999, 79–81).

General economic resources can serve as a financial basis for insurgent groups. Collier finds that

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)

In particular, primary commodity exports are “lootable because their production relies heavily on assets which are long-lasting and immobile” (Collier 2000, 4). Sánchez demonstrates that areas rich in primary export goods have become points of confrontation because of the importance of controlling these lucrative zones (Sánchez 1998, 39). In addition, because coca is a lucrative crop, different armed groups often fight for control over areas of cultivation as a general economic resource (Rangel 1998, 127).

Colombia also faces the challenge of having created a large population of internal refugees, also known as displacement. Some scholars theorize that displacement may spread insurgent activity throughout the country. Comparing the maps of drug production in 2001 with the map of displacement from 2000 to 2001 (figures 4 to 6, pp. 164–66), it appears that there is a positive relationship between displacement and drug production. It is unclear, however, what causes the displacement. Byman et al. claim that insurgency tends to flourish in refugee areas.

Insurgents often come to dominate these sites, largely because they are well armed and organized, while the displaced population is weak and disorganized; in addition, there may be no government or aid agency capable of imposing order. In such circumstances, it is relatively easy for rebel groups to demand money, provisions, or recruits from displaced populations, even when those groups are not popular with the broader population they claim to represent. (2001, 66)

There is an incentive for governments to have a meaningful presence among refugees.

A meaningful state presence is something that Colombia historically has not provided uniformly throughout the country, given both institutional weakness and a rugged terrain. Scholars such as James Fearon and David Laitin “hypothesize that financially, organizationally, and politically weak central governments render insurgency more feasible and attractive due to weak local policing or inept and corrupt counterinsurgency practices. . . . On the rebel side, insurgency is favored by rough terrain, rebels with local knowledge of the population superior to the government’s and a large population” (Fearon and Laitin 2003, 76). They also theorize the importance of an effective government reach into remote areas.

Most important for the prospects of a nascent insurgency, however, are the government’s police and military capabilities and the reach of government institutions into rural areas. Insurgents are better

able to survive and prosper if the government and military they oppose are relatively weak—badly financed, organizationally inept, corrupt, politically divided, and poorly informed about goings-on at the local level. (Fearon and Laitin 2003, 80)

Waldmann (1997) finds examples of a pattern of violence in Colombia's remote regions, with little state presence. Many scholars note that the FARC's support is based on its provision of basic order in parts of the country that do not have significant government presence (Rangel 1999; Vélez 2000; Cubides 1998). In another Colombian study, Sanín (2001) believes that it is necessary to examine the level of development when discussing Colombian violence.

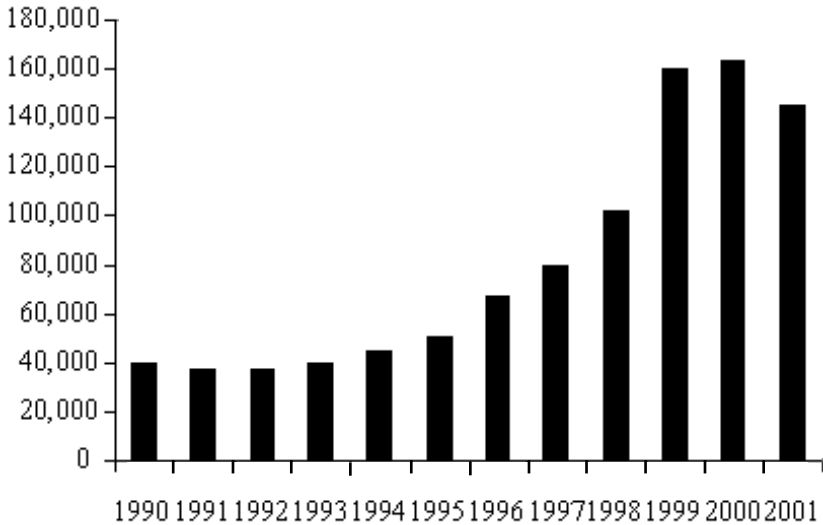
Another important factor is the persistence of poverty in the country. The connection between inequality and violence has been examined by scholars such as Sigelman and Simpson (1977), Muller (1985), Muller and Seligson (1987), Boswell and Dixon (1990), and Schock (1996). This connection has been challenged by those who find that the relationship between inequality and violence disappears when controlling for the level of economic development (Hardy 1979; Weede 1981, 1987). In the Colombian case, a large body of literature focuses on these issues. For example, Sarmiento and Becerra (1998), using an index of conditions of life, GINI index, and levels of education, discover an inverse relationship between human capital and violence, and a correlation between higher levels of violence with higher levels of voter turnout (Sarmiento 1999). More recently, Llorante et al. (2001) discount demographic factors, such as displacement, population density, and poverty, but find an important positive correlation with education, in terms of literacy and educational attainment, and a relationship between the presence of the state and violence.

TRENDS IN COCA PRODUCTION AND VIOLENCE

Most research to date on the relationships among Colombia's violence, economy, and drugs is based on national-level data. However, as presented visually in the maps, there is a large variation among the nation's 32 departments. Moreover, the distribution of coca among these departments changes over time. A wealth of detail is lost when drug production is aggregated to the national level.

Figures 1, 2, and 3 provide national-level trends in Colombian coca production. The methodology of estimating coca production changed in 1998 and 1999. Beginning in 1999, Colombian national coca production was estimated by a new, satellite-based system, providing estimates for 1999–2001. As of 2000, Colombia began receiving greatly increased amounts of counternarcotics aid from the United States. Production

Figure 1. Coca Production
(harvestable crop after eradication, in hectares)



Source: Government of Colombia, with U.S. State Department, UNDCP Landsat, and Spot satellite imagery.

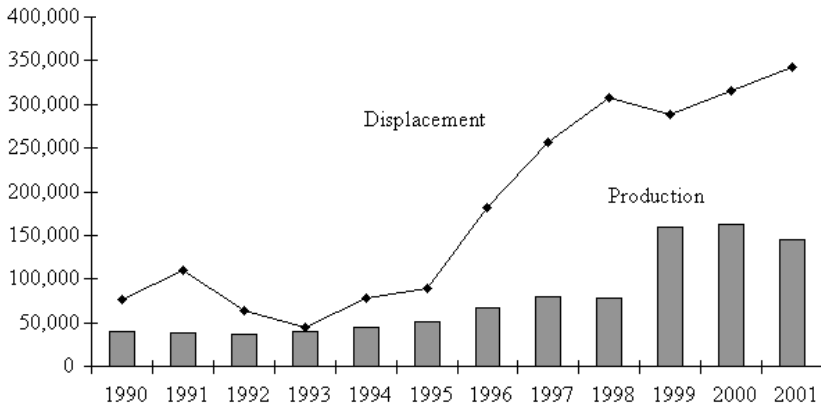
increased in 2000 but decreased in 2001. Overall, the levels of drug production appear to have greatly increased since the mid-1990s. However, due to the change in measurement, it is difficult to assess the actual trend. Production begins to increase in 1994. Coincidentally, in 1994, the Colombian economy began its decline in terms of rising unemployment.

While Colombia has seen a rise in drug cultivation and a simultaneous increase in violence, to claim that the increase in drug cultivation is the source of the violence may be an oversimplification of the underlying causes of the violence. Figure 2 appears to show a relationship between drugs and displacement in the annual data, based on figures for the entire country. At the national level, both drug production and displacement show upward trends.

In figure 3, there is a general increase in political violence from the early 1980s to a relatively high level in the 1990s. The level of kidnappings varies, but shows a pattern of increasing levels in 1994. In general, the national-level data show a general increase in all types of violence, including kidnapping and displacement. At the same time, the economic situation is deteriorating and drug production is increasing.

Thus, according to national-level trends, there appears to be a general, positive relationship between violence, displacement, and increasing drug production. Figures 1 and 2 portray general increases in vio-

Figure 2. National Trends of Displacement and Coca Production (in hectares)



Sources: Production estimates: U.S. Department of State. Displacement estimates: Government of Colombia (RED de Solidaridad).

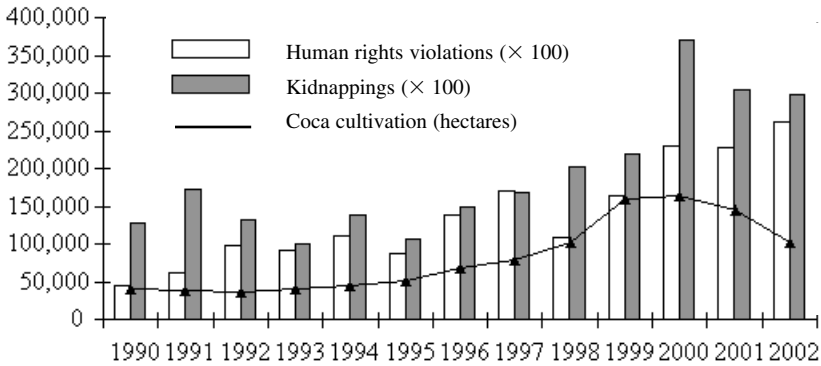
lence and displacement as drug production reaches high levels in the late 1990s and early 2000s.

Although there appears to be a connection over time at the national level between violence and coca production, it is important to evaluate whether or not this pattern holds when explaining variations among Colombian departments. Given that the Colombian insurgency has historical roots that predate coca cultivation, it is important to critically evaluate this broadly held causality. When presented visually by department, the lack of geographical overlap among violence, displacement, and coca production is striking (figures 4, 5, and 6). The human rights violations and the displacement are concentrated in the western part of the country. Coca production is mainly in the south, with minimal overlap between coca production and human rights violations or displacement. Moreover, the patterns of violence within Colombia vary significantly from national-level trends over time. While policy decisions are made at a national level, department-level relationships are important to ensure that the policies enacted at the national level do not have contradictory effects at the department level.

HISTORICAL OVERVIEW

Since the middle of the twentieth century, Colombia has been plagued by violent civil conflict. In the 1940s, the country erupted into a bloody civil war, known as *la Violencia*, that lasted ten years. The two com-

Figure 3. Violence and Coca Trends



Sources: Human rights violations, CINEP; kidnappings, País Libre; coca estimates, Colombian National Police Antinarcotics Division

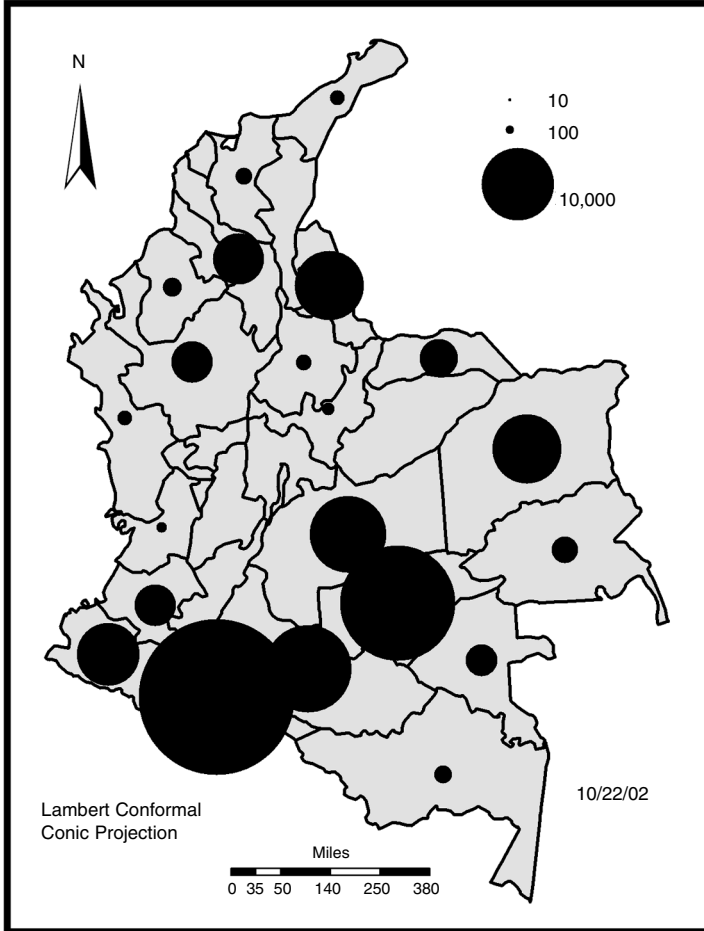
batants were the two traditional political parties, the Liberals and the Conservatives. They reached a compromise in 1957 that resulted in a power-sharing agreement called the National Front. Partly in response to being shut out of this new arrangement and partly because of the pre-existing social conflict, a new insurgency surfaced in the 1960s. That rebel conflict continues today, and is further complicated by the emergence of paramilitary groups, sometimes legal and sometimes illegal, to counter the guerrilla groups.

As the internal conflict continued, the Colombian economy changed, and an illicit drug industry began in the 1970s. By the 1980s, the drug trade had created powerful networks that infiltrated Colombia's politics, society, and economy. Violence from the guerrilla conflict, the drug trade, and the state make Colombia one of the most dangerous countries in the world. Millions of Colombians have fled the country, and millions more have been internally displaced. More than three hundred thousand Colombians have been murdered since 1985 (Pardo 2000, 65). Politicians, police, judges, trade unionists, human rights workers, and journalists are especially targeted.¹ However, it is important to recognize the multiple forms of violence in Colombia and to analyze them separately.

Colombian Guerrilla Groups

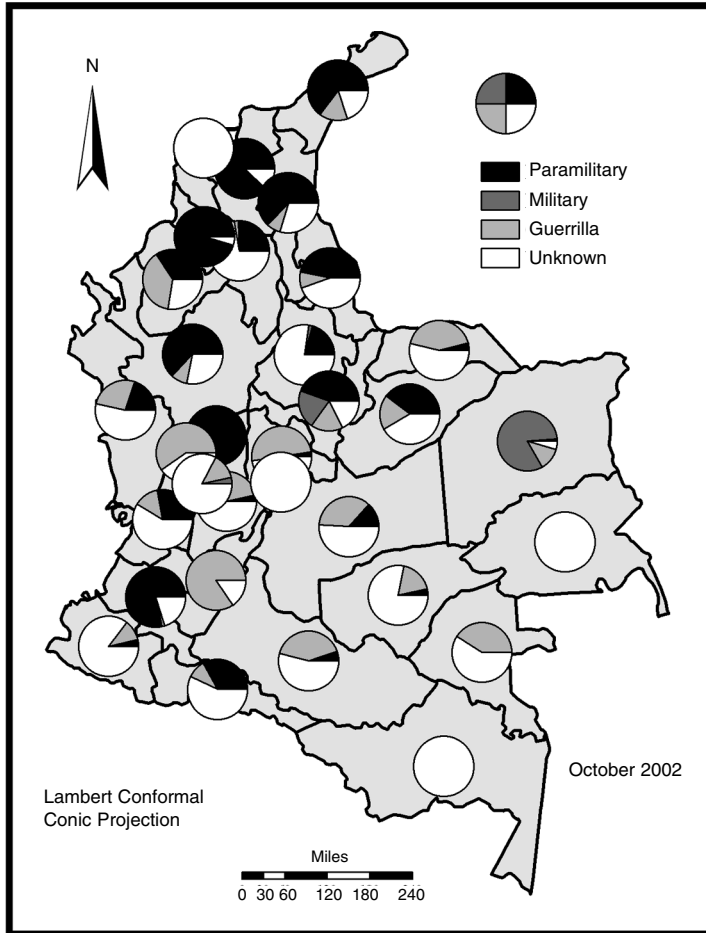
In Colombia, three major guerrilla groups are active. The best-known is the Armed Forces of the Colombian Revolution (FARC). This Marxist group is the largest Colombian insurgent group, with approximately

Figure 4. Colombian Coca Production, 2001



17,000 members. The FARC's financial base rests on extortion of both licit and illicit businesses in areas under its control, and kidnapping (Shifter 1999, 15). The FARC is a dominant force in much of rural Colombia and is currently making inroads into the main cities (Petras 2000, 134). Another guerrilla group, the Popular Army of Liberation (EPL), is smaller, with approximately 300 to 500 members. The EPL funds its activities mainly through kidnappings and violence against the landed elite and criticizes the FARC's alleged drug ties (Kline 1999, 18). In the early 1990s, most of the group accepted a peace agreement with the government, but a small group continues the conflict (Bagley 2001). The Army of National Liberation (ELN) comprises about 4,000 to 5,000 active

Figure 5. Internal Displacement of Colombian Population, 2000–2001

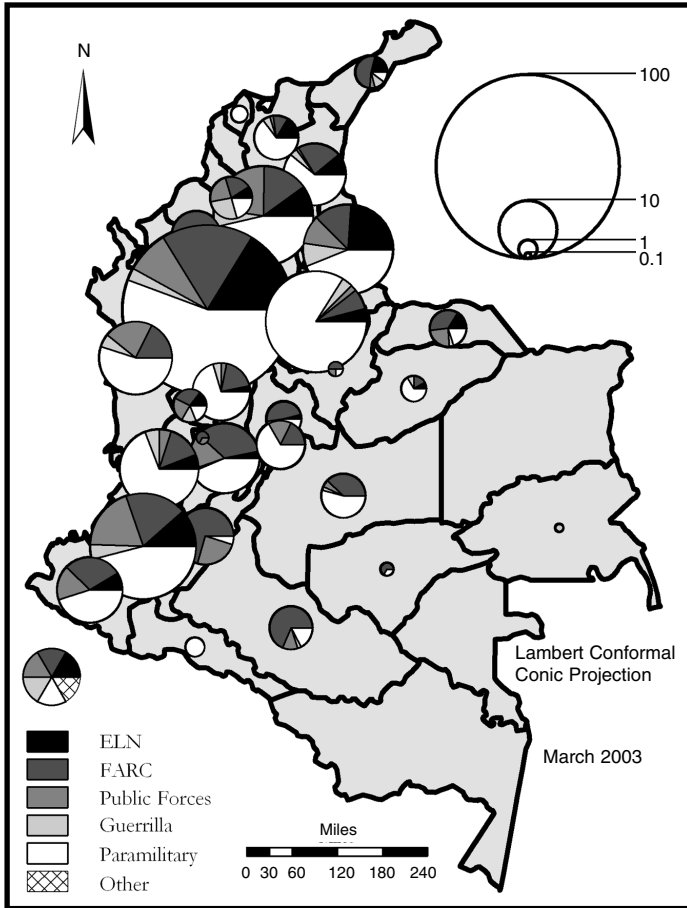


guerrillas. Most of the ELN's activity is concentrated in the oil-producing part of the country, from the eastern plains to the Caribbean.

Coca Cultivation

In Colombia, the drug trade began modestly in the 1960s with small-scale cultivation of marijuana. In the 1970s, coca was imported from Peru and Bolivia, processed in Colombia, and exported to the United States. By the early 1980s, Colombians began to grow coca as well. Quickly, the industry became a major economic factor, accounting for approximately 10 to 25 percent of the country's exports, although it was not initially considered a threat to Colombian democracy (Thoumi 1995b).

Figure 6. Human Rights Violations in Colombia, 2001



In the early days, a few cartels controlled the drug trade. The most notorious was the Medellín cartel, headed by Pablo Escobar and the Ochoa brothers, Jorge and Fabio. Until Colombian police killed Escobar in December 1993, this group was the dominant supplier of Colombian cocaine. After Escobar's death, the Cali cartel, a subtler and less violent producer, increased its share of production. The Cali group legalized some of its businesses and contributed millions of dollars to Colombian political candidates, including former president Ernesto Samper. Despite this, the leaders were imprisoned in the 1990s, albeit with relatively light sentences (Reyes 1995). It would be a mistake to characterize the current coca business as being dominated by a few cartels; many independents are active in the drug trade (Castillo 1996). As U.S. and Colom-

bian officials target larger players, others quickly replace them to meet the demand for drugs.

The Colombian drug trade is not a simple story of South American supply and North American demand. Within Colombia, the drug trade has complicated the preexisting social conflict between the traditional landowners and the landless. The success of the drug trade allowed narco-traffickers to buy land, in a sense joining the ranks of the traditional landowners, but with different interests and goals. The traditional land conflict continues, but in the context of the armed protection of the haciendas from the peasants in the 1980s (Reyes 1995, 125). The drug trade also produced violence against elements of the state, especially the judicial system that prosecuted it, resulting in an increase in criminal activity and a transformation of the traditional conflict.

In Colombia, the relationship between drug traffickers and guerrillas is not as clear as some analysts have suggested (Blank 2001, 265). Both bloody conflict and cooperation have occurred between them. When drug traffickers became landowners, they dealt with the traditional land conflict by creating death squads or paramilitary groups to terrorize the local population. In areas where the guerrillas were too strong to eliminate, the drug traffickers paid the guerrillas a "tax" on their proceeds. The relationship is pragmatic (Steiner 1999). Despite suggestions that guerrilla groups such as the FARC are nothing more than another drug cartel (Tamayo 2000), the reality is much more complicated. 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. (Chernick 1996)

Likewise, Rangel notes that different FARC commanders interact with the drug trade differently, ranging from pragmatic alliances to ideologically based rejection. Practical alliances may be encouraged by eradication efforts, which can unify narcotics and FARC interests in the short term. At the same time, in Rangel's view, it is possible to find cooperation between narco-traffickers and the FARC in the south of the country but conflict in the north (Rangel 1998, 127–28). Coffin asserts, "[drug] eradication programs have exacerbated human rights violations, strengthened undemocratic governments, and help[ed] forge alliances between guerrillas and peasant growers" (Coffin and Bigwood 2001).

The shifting relationships among violent groups and drug traffickers make the guerrilla problem more challenging.

The Paramilitaries

With Decree 3398 of 1965 and Law 48 of 1968, it became legal to create civil defense groups to confront guerrillas privately and to support the army in counterinsurgency efforts. Many landowners and drug traffickers formed such groups, and paramilitary activities and violence increased in the 1980s. In response to the intensification of violence and the increase in human rights violations, the paramilitaries were declared illegal in 1989, although there is some disagreement about whether support for them continues, directly or indirectly. The Department of Antioquia, in the early 1990s, created a new type of paramilitary group, called the *convivir*. Although these groups were allowed to carry only small sidearms, they, too, were eventually outlawed because of their violence (Cubides 2001). Despite their illegal status, the paramilitaries continue to operate, and many groups finance their operations by taxing the drug trade (Bagley 2001).

The largest paramilitary group is the United Self-Defense Groups of Colombia (AUC). The AUC is composed of approximately fifteen thousand active paramilitaries and is funded by landowners, businesses, and drug dealers (Soto and Restrepo 2002). Its internal cohesion varies. The group claims to be an alternative to the guerrillas and purports to assume the traditional counterinsurgency role of the military. Carlos Castaño, its original leader, stated that his organization was the product of diverse groups and interests coming together to protect the lives and property of the citizens from the guerrillas because the Colombian state was unwilling or unable to do so (Castaño 2001). In the AUC's view, the guerrillas are not truly interested in peace and the government is unable to provide security, so it has taken it upon itself to do so (Mancuso 2002). Recently, the paramilitaries have been responsible for more than 80 percent of the human rights violations in Colombia. In addition, responsibility for the infamous massacres at Mapiripán in July 1997, Barrancabermeja in May 1998, and La Gabarra-Tibú in August 1999 has been attributed to them.

However, the group recently reorganized, with the goal of making itself more acceptable to participate in government peace talks. To do this, the AUC needed to appear less implicated in drug trafficking and human rights violations. Castaño retained the role of political commander until July 2002, when he stated that the AUC was out of control and too involved in drug trafficking. The AUC formally disbanded on July 18, 2002. In a September 2002 interview with Reuters, Castaño announced that the AUC's drug ties had been severed and the group reconstituted: "We are committed to abandoning drug trafficking. I have never been a

drug trafficker” (AP 2003). Castaño, nevertheless, did not deny that the AUC killed people. He stated his belief that the AUC was winning the war against the guerrillas by killing “guerrillas dressed as peasants” (Bagley 2001). As peace talks progressed, the organization appeared to fracture in 2004. That year, Castaño’s disappearance and probable murder, perhaps by rival paramilitary groups, and the murder of Rodrigo Franco, another politically motivated paramilitary leader opposed to coca cultivation, indicate the questionable cohesion of paramilitary forces and underline the importance of examining differences within Colombia.

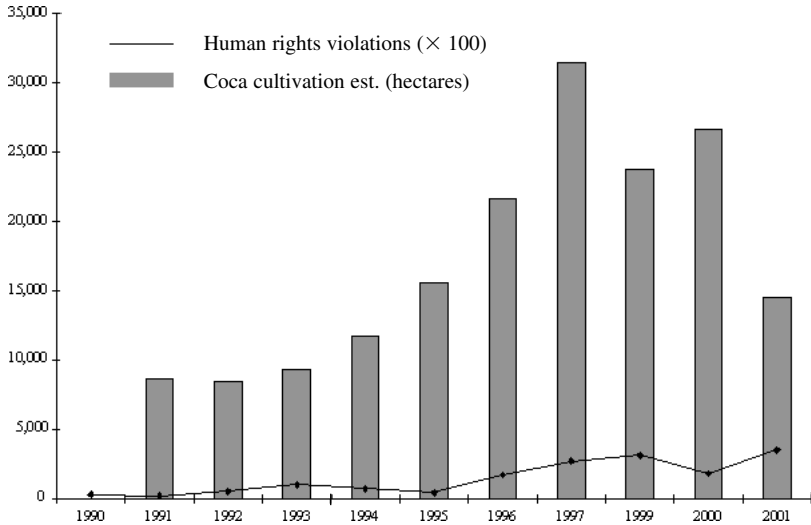
ECONOMIC GROWTH

The Colombian economy can be characterized by a pattern of relatively high longterm growth punctuated by crisis. From 1966 to the early 1980s, Colombia practiced conservative macroeconomic policies and, as a result, was able to survive the debt crisis of the 1980s relatively unscathed. The favorable world economic conditions, coupled with conservative economic policies, stimulated growth. From 1966 to 1974, real growth rates in Colombia averaged 6.57 percent. The period 1975–82 was characterized by much lower growth rates, approximately 4.05 a year, on average. The explanation for these lower growth rates is that as coffee prices increased, so did government spending. During the Latin American debt crisis, slow world growth stalled the Colombian economy in 1982–83. After 1984, fiscal spending was drastically reduced and the Colombian peso devalued in order to stabilize the economy.

Before 1990, economic policies focused on import substitution. An overvalued peso and fiscal spending supported this policy objective. It was not until after the coffee bonanza of 1986–87 that the Colombian government faced the reality of the failing import substitution policies. As coffee prices fell in 1988, the government had to enact another stabilization plan, which included a devaluation of the peso and trade liberalization. In the case of Colombia, financial liberalization preceded trade liberalization. The financial liberalization eliminated the system of exchange rate controls and permitted the free flow of foreign exchange and capital. The financial liberalization, however, led to a massive inflow of currency, and the domestic economy was incapable of absorbing this inflow of wealth. The potential for inflation led to the trade liberalization program, which eliminated most nontariff barriers and substantially reduced tariffs. The Colombian domestic producers were unprepared to compete with cheaper, better-quality imports, and economic growth began to decline, while unemployment increased. The trade liberalization policies were complicated by the role of illegal drugs and money in the Colombian economy.

Since the late 1990s, unemployment in Colombia has been consistently rising. The level of unemployment increased from 10.2 percent in

Figure 7. Caquetá



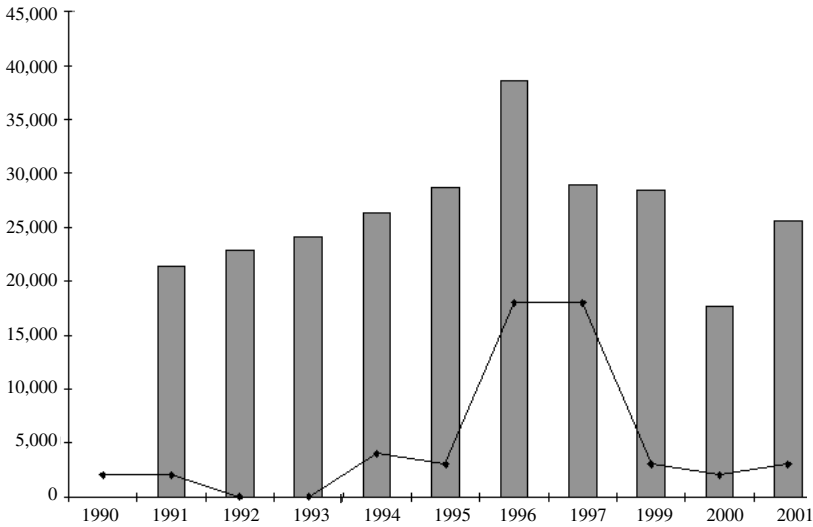
Sources: Figures 7–14: Human rights violations, CINEP; coca cultivation estimates, Colombian National Police Antinarcotics Division

1990 to 20.5 percent in 2001 (DANE). This increase is disturbing because the 1990s were a decade of strong world growth. Additionally, per capita GDP measured in constant dollars has shown a marginal but steady increase since the early 1970s. By the mid- to late 1990s, GDP per capita had fallen. By 1999, real GDP per capital had dropped back to 1992 levels, eliminating all the growth of the 1990s. Overall, the economy saw a dramatic slowing of growth, as measured by the growth rate of the GDP. While the economy did grow in the early 1990s, the average growth rate was approximately 4 percent. (During the same time, the East Asian countries were growing at a robust rate of 8 to 9 percent.) In 1994, the Colombian economy began a steady decline, and it has yet to recover.

A DEPARTMENTAL ANALYSIS

By examining the data at the department level, we can begin to disaggregate the relationships among drugs, violence, and the economy. It appears that the analysis at the national level masks these relationships. A visual analysis of four high coca and four high violence departments is instructive to see the relationships between coca and violence at the department level.

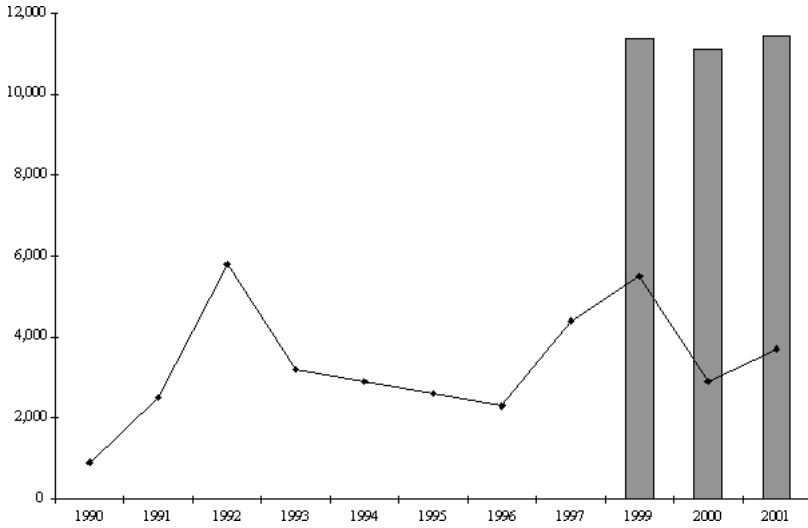
Figure 8. Guaviare



The departments of Caquetá, Guaviare, Putumayo, and Meta have high levels of coca production (see figures 7–10). In Caquetá, coca cultivation greatly increases through 1997, without sustained increases in the level of violence. Moreover, as coca production falls after 1997, violence generally increases. In Guaviare, we see the best case that these two trends may generally correlate, although the violence numbers are generally very low. Moreover, there are decreases in violence in 1992, 1993, and 1999 that are unmatched by the coca trends. In Meta, there is a peak of violence in 1991, before coca cultivation began. Moreover, the large increases in coca cultivation after 1996 are unaccompanied by increasing levels of violence. In Putumayo, the largest coca-producing department, there is little change in the amount of violence after drug production soars in the late 1990s. These four graphs illustrate general trends of large increases in coca production without corresponding increases in violence rates.

The departments of Antioquia, Bolívar, Cauca, and Santander have relatively high rates of violence. Figures 11 through 14 compare coca production trends with violence trends. In Antioquia, the upward trend of violence precedes any coca cultivation, which does not appear until the late 1990s. In 2000, moreover, violence increases, but coca cultivation decreases. In Bolívar, coca cultivation peaks in 1991, 1999, and 2000, while the violence trend line generally rises over time. Cauca has stable violence and coca cultivation until the late 1990s, when coca cultivation peaks and then falls, yet human rights violations increase. In

Figure 9. Meta



Santander, levels of violence vary significantly before coca cultivation even begins.

In these departments, we see great variability in coca production, measured in hectares of production after eradication, without correspondence to the trends in leftist guerrilla violence. These graphs sug-

Figure 10. Putumayo

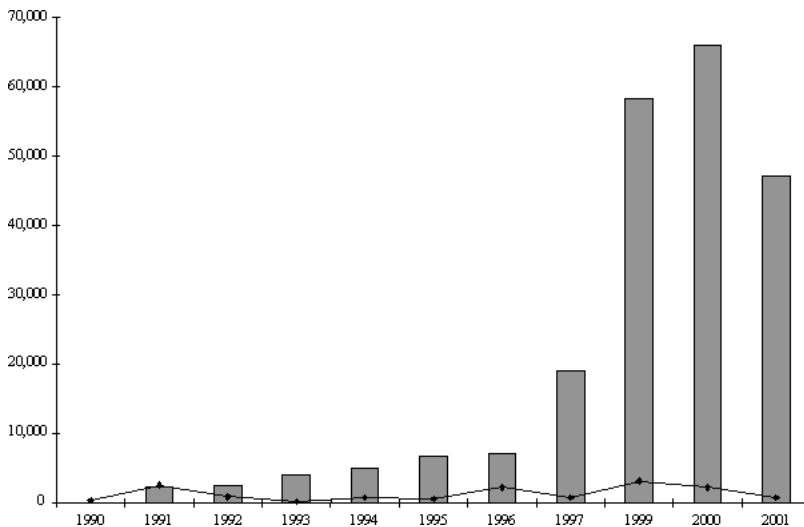
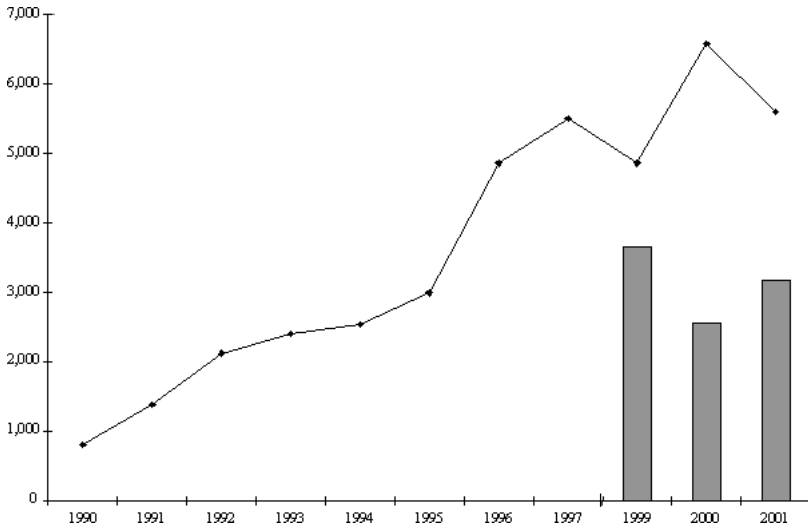


Figure 11. Antioquia



Note: Human rights violations (line) here multiplied by 10.

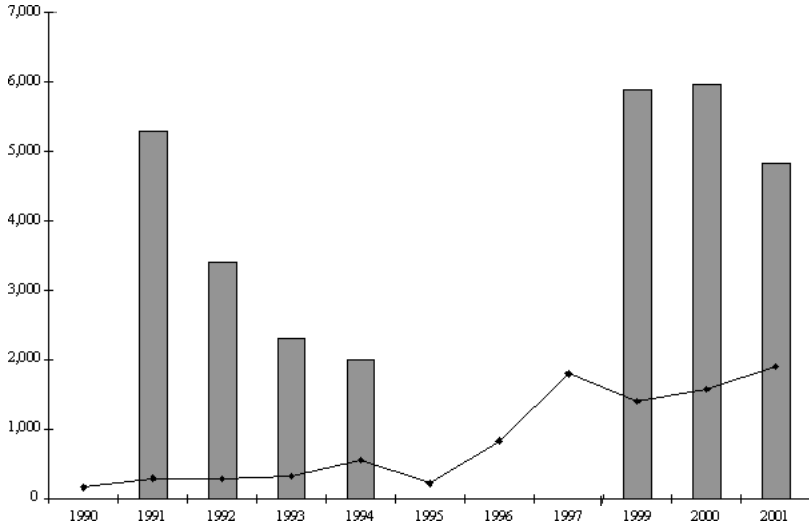
gest that something other than drug production is fueling violence in Colombia. The trends should be interpreted with caution, however, because the methodology of measuring drug production changed in 1998 and 1999. Nevertheless, even with the change in estimation of coca, little evidence at the department level in these eight cases suggests that coca cultivation is fueling leftist human rights violations.

DATA AND STATISTICAL ANALYSIS

Both the visual analysis of the distribution of leftist human rights violations and coca cultivation and the eight department graphs suggest that in Colombia, differences among high levels of violence are not related to the relative distribution of coca cultivation. To check the robustness of these findings and to further explore these relationships, a department-level fixed effects analysis can be used to elucidate the possible contributing factors to explain different levels of leftist human rights violations (including ELN, FARC, and other guerrillas) throughout Colombia. A fixed effects model is particularly appropriate for examining differences among Colombian departments.

In a fixed effects model, it is assumed that across departments, the fundamental relationships among variables are the same (slope coefficients are constant) but the intercept varies, due to unobservable and fixed departmental differences. However, unmeasured differences among

Figure 12. Bolívar



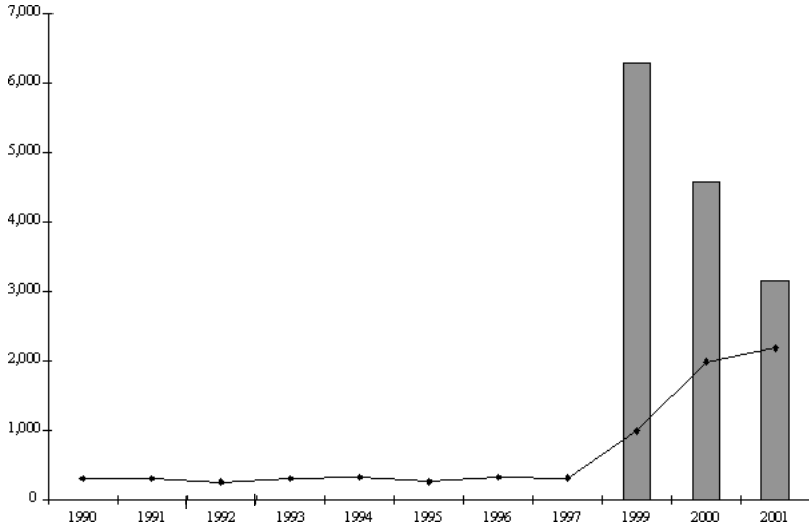
Note: Human rights violations (line) here multiplied by 10.

different departments are still captured in each department's intercept. In this way, potentially important but omitted variables, such as state presence or illiteracy, are indirectly incorporated into the analysis. The slope coefficients capture common effects omitted across departments.

This technique is particularly applicable because a fixed effects model reduces the potential bias due to unobservable heterogeneity. The short time span of the data eliminates the need for year fixed effects (Ashenfelter et al. 2003). This model assumes that there is no unobservable time-specific component that affects the outcome and that differences across departments are fixed over the time span. In this case, the analyzed time period, 1999–2001, incorporates the years that the FARC controlled a demilitarized zone, the *despeje* of 1998–2002.

This unique dataset combines data from the Colombian government, the United Nations, and the Centro de Investigación y Educación Popular (CINEP), a Jesuit human rights organization in Bogotá. The violence variables (guerrilla, government, and paramilitary) in the dataset used for this analysis come from CINEP's Banco de Datos sobre Derechos Humanos y Violencia Política. An advantage of the CINEP figures is that they provide a categorization of human rights violations, ranging from threats to kidnappings and extrajudicial executions, with attributions of responsibility. Homicide figures come from the Departamento Nacional de Planación of the Colombian government. Coca eradication estimates are from the United Nations Office on Drugs and Crime and

Figure 13. Cauca



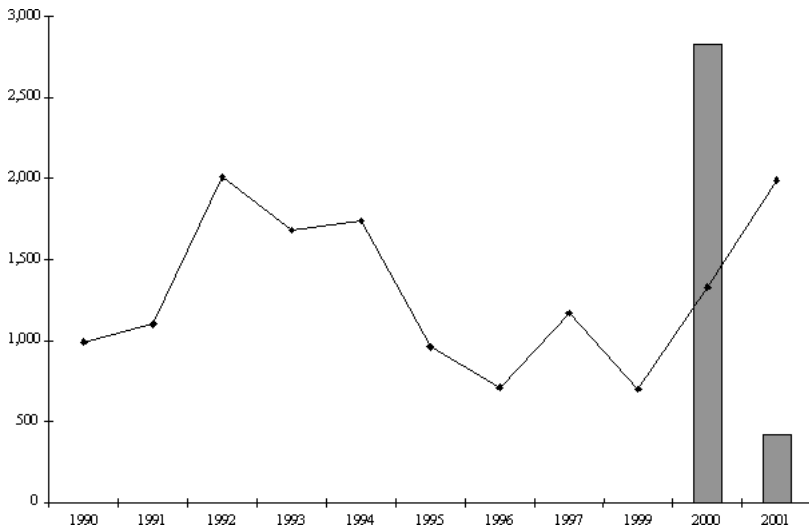
Note: Human rights violations (line) here multiplied by 10.

its satellite imagery program in Colombia (SIMSI). The satellite-based coca estimates have been available only since 1999. Before that year, coca estimates are based on reports from the Colombian National Police. Population, GDP, unemployment, and poverty estimates are provided by the Departamento Nacional de Estadística (DANE), the Colombian statistical agency. Export figures are from the Colombian Ministerio de Comercio, Industria y Turismo. Displacement figures are provided by the Red de Solidaridad of the Colombian government.

This dataset is considered a pooled or panel dataset that represents movement over time (years) of cross-sectional units (departments). Given the Colombian data, a panel dataset increases the number of cases (up to 32 per year) compared to what would be a very limited time series of three years. By pooling the data, collinearity is reduced and individual effects are captured. It allows us to focus, moreover, on the dynamics of change across departments, to minimize the bias resulting from aggregation, and to gain degrees of freedom and efficiency. Panel data allow us to escape the problem of examining effects only across departments or only across years, enabling a focus on dynamics across both departments and years (Gujarati 2003, 637–38.)

In this analysis, the dependent variable is human rights violations attributed to leftist guerrilla groups. Civilians killed in military actions between armed groups are not included if the incidents resulted from

Figure 14. Santander



Note: Human rights violations (line) here multiplied by 10.

direct combat among the guerrillas, paramilitaries, or armed forces. Actions such as extrajudicial killings, torture, kidnappings and disappearances, threats, and so on are included. Table 1 presents the results.

In all three models, coca eradication, measured in hectares, is positively and significantly correlated with leftist guerrilla violence. The mere presence of coca cultivation (measured in hectares in cultivation even after eradication efforts) is insignificant. Coca cultivation, by itself, does not appear to fuel the conflict; the government's response to the cultivation of coca does. Whether this is because the state is challenging narcotraffickers or merely alienating individual peasants, it does not detract from the consistent relationships observed, in that eradication efforts appear to exacerbate the conflict. Another significant factor is human rights violations committed by the public forces, such as the military or police. This seems to suggest, at least in the short term, that government repression may suppress some guerrilla activity.²

Government and paramilitary human rights violations are included to take account of conflict among the different armed groups. There is a strong, positive relationship between displacement and leftist guerrilla violence in model 1, but the significance diminishes in models 2 and 3. An influx of displaced people could tax an already overburdened and weak state, facilitating insurgent activity; or the insurgents may travel with the displaced population. In addition, in all three models, exports,

Table 1. Department-Level Fixed Effects Model of Human Rights Violations Committed by Leftist Guerrilla Groups, 1999–2001

Independent Variables	Model 1 β (Standard Error)	Model 2 β (Standard Error)	Model 3 β (Standard Error)
Homicides	-.013 (.016)	-.012 (.017)	-.012 (.018)
Number of displaced people received	.001** (.000)	.000+ (.000)	.000 (.000)
Coca eradication	.002** (.001)	.002** (.001)	.002** (.001)
Population	-.000 (.000)	-.000 (.000)	-.000 (.000)
Coca cultivation	-.000 (.001)	.000 (.001)	.000 (.001)
Human rights violations by public forces	-.364* (.212)	-.404* (.238)	-.357+ (.241)
Human rights violations by paramilitaries	.068 (.077)	.057 (.086)	.077 (.088)
GDP growth rate	.047 (.136)	.049 (.499)	.238 (.593)
Exports in \$1995 (lagged 1 year)	-1.33e-07** (3.50e-08)	-1.32e-07** (4.01e-08)	-1.27e-07** (4.25e-08)
Poverty (lagged 1 year)		.464 (.422)	
Unemployment			.281 (.795)
Constant	112.93+ (70.65)	138.18 (96.50)	137.70 (114.05)
R-sq: within	0.4237	0.4498	0.4297
between	0.3449	0.2669	0.2673
overall	0.2975	0.2437	0.2417
sigma_u	126.93	155.33	131.66
sigma_e	10.20	11.32	11.656
rho	.993	.995	.992
N	87	71	69
N groups	32	24	23

+ $p < 0.15$ * $p < 0.10$ ** $p < 0.05$

Sources: CINEP Base de Datos, Sistema Único de Registro (SUR); Red de Solidaridad Social, Presidencia de la República de Colombia; Policía Nacional; DANE; DNP

measured in constant 1995 U.S. dollars, are negatively and significantly correlated with leftist guerrilla violence. Exports, in this model, capture the importance of economic factors in explaining the relationship between the economy and guerrilla violence. Export figures are an indicator of development in a developing country such as Colombia, because export earnings reflect national purchasing power and local economic opportunity.³ The negative relationship between exports and leftist guerrilla violence suggests that the lack of economic opportunity contributes to leftist guerrilla violence. Department-level GDP growth rates are appropriate to control for the possibility of relative deprivation when growth contracts. Because economic growth often does not benefit citizens uniformly, this study includes models with poverty and unemployment numbers. Unfortunately, the high coca-producing departments do not report these figures.

The poverty and unemployment results in the models should be interpreted with caution, because of two factors. First, eight to nine departments do not report these figures in these years. Second, even when reported, poverty and unemployment figures may be understated.⁴ Nevertheless, the inclusion of either variable does not change the significance of exports, coca eradication, or human rights violations committed.

DATA CONCERNS

Some commentators and U.S. embassy officials have challenged the validity of CINEP's data. For example, 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" (2004). O'Grady quotes an embassy report asserting 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" (2004). In reality, CINEP tallies human rights violations among both state and nonstate actors and differentiates among them, ranging from the FARC to the police. At times, CINEP includes incidents in multiple categories (CINEP 2000), but this issue is not relevant for this analysis, because only one category is employed in this study. As with any dataset, the potential for bias exists. We believe, however, that 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 nongovernment and government numbers, because different groups may have incentives to over- or underreport. Because of this possibility and the controversy surrounding CINEP fig-

Table 2: Correlations Between Government Tallies of “Terrorism” and CINEP Tallies of Human Rights Violations, 1998–2001

	Terrorism	ELN H.R. Violations	FARC H.R. Violations	Other Guerrilla H.R. Violations	Total Leftist H.R. Violations
Terrorism	1.0000				
ELN H.R. violations	0.7243	1.0000			
FARC H.R. violations	0.6483	0.8064	1.0000		
Other guerrilla H.R. violations	0.7682	0.6907	0.6324	1.0000	
Total leftist H.R. violations	0.7565	0.9491	0.9414	0.7668	1.0000

ures, this study compares official government data on terrorism from the Colombian government’s Departamento Nacional de Planación with CINEP figures. Table 2 compares these figures.

In general, we would not expect the government to include tallies of government human rights abuses or atrocities in its tallies of terrorism. However, a correlation of the relevant CINEP violence categories with government figures (terrorism) showed that the correlation among the leftist guerrilla violence in general is high, ranging from 0.6483 with the FARC violations to 0.7682 for guerrilla groups other than the FARC or the ELN. A comparison of terrorism incidents with human rights violations is not a direct comparison of exactly the 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. To test for robustness, the same model was run using the government’s tallies of terrorism in table 3.

Both models confirm that the model is robust over two datasets from two differing sources, further strengthening the validity of the results. This analysis highlights the same significant relationships as the analysis undertaken with CINEP numbers: a negative relationship with exports and government human rights violations and a positive relationship with displacement and coca eradication.

Table 3. Department-Level Fixed Effects Model of Terrorism

Independent Variables	β	(Standard Error)
Homicides	-.002	(.020)
Number of displaced people received	.001**	(.000)
Coca eradication	.003**	(.001)
Population	-.000	(.000)
Coca cultivation	.001	(.001)
Human rights violations by public forces	-.947**	(.273)
Human rights violations by paramilitaries	.112	(.099)
GDP growth rate	-.017	(.176)
Exports in \$1995 (lagged 1 year)	-2.35e-07**	(4.52e-08)
Constant	151.82*	(91.12)
R-sq: within	0.5938	
between	0.3747	
overall	0.3151	
sigma_u	188.69	
sigma_e	13.47	
rho	.995	
N	87	
N groups	32	

+ $p < 0.15$ * $p < 0.10$ ** $p < 0.05$

Sources: DIJEN, Sistema Único de Registro (SUR); Red de Solidaridad Social, Presidencia de la República de Colombia; Policía Nacional; DANE; DNP

CONCLUSIONS

This analysis of department-level data suggests that coca cultivation is not a major factor in explaining differences in leftist guerrilla violence levels in Colombia. Moreover, the evidence suggests that current U.S. foreign policy, predicated on a link between coca cultivation and guerrilla violence, may be counterproductive. This surprising result is consistent throughout this analysis. Geographically speaking, there appears to be minimal physical overlap of coca production and leftist guerrilla violence. The apparent national-level trends are not robust at the department level, given that none of the four fixed effects models shows any evidence of a significant relationship between leftist guerrilla violence and coca production. In contrast, there is a persistent, significant, and positive relationship between leftist guerrilla violence and coca eradication. Likewise, in all four models, as exports increase, leftist violence decreases. These results are consistent with the general consensus in the economic literature that growth and, consequently, trade liberal-

ization have a positive impact on poverty alleviation. This strongly suggests that a possible antidote to Colombian violence is not more coca eradication; instead, meaningful opportunities for inclusive economic development should be promoted, such as increasing nontraditional, labor-intensive exports.

NOTES

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1. Colombia shattered the world record for the number of trade unionists killed in 2000. More trade unionists were killed in Colombia than in the rest of the world the year before (International Confederation of Free Trade Unions 2001). For the number of journalists killed, see International Press Institute 2001.

2. Other studies suggest that the longterm consequences of indiscriminate repression are counterproductive. See Holmes 2001.

3. For more on the relationship between export dynamics, economic growth, and general country welfare, see Amin Gutiérrez de Piñeres and Ferrantino 2000. See also Dollar and Kraay 2002.

4. For a discussion of the reliability of poverty estimates, see Deaton 2006. For a discussion of the reliability of unemployment statistics in developing countries, see Howell 2004.

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