

An Economic Analysis of a Drug-Selling Gang's Finances*

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Abstract

We analyze a unique data set detailing the financial activities of a drug-selling street gang on a monthly basis over a four-year period in the recent past. The data, originally compiled by the gang leader to aid in managing the organization, contain detailed information on both the sources of revenues (e.g. drug sales, extortion) and expenditures (e.g. costs of drugs sold, weapons, tribute to the central gang organization, wages paid to various levels of the gang). Street-level drug dealing appears to be less lucrative than is generally thought. We estimate the *average* wage in the organization to rise from roughly \$6 per hour to \$11 per hour over the time period studied. The distribution of wages, however, is extremely skewed. Gang leaders earn far more than they could in the legitimate sector, but the actual street-level dealers appear to earn less than the minimum wage throughout most of our sample, in spite of the substantial risks associated with such activities (the annual violent death rate in our sample is 0.07). There is some evidence consistent both with compensating differentials and efficiency wages. The markup on drugs suggests that the gang has substantial local market power. Gang wars appear to have an important strategic component: violence on another gang's turf shifts demand away from that area. The gang we observe responds to such attacks by pricing below marginal cost, suggesting either economic punishment for the rival gang or the presence of switching costs for users that makes market share maintenance valuable. We investigate a range of alternative methods for estimating the willingness of gang members to accept risks of death, all of which suggest that the implicit value that gang members place on their own lives is very low.

Street gangs have a long history in American cities (Thrasher 1927). Until recently, gangs were organized primarily as social peer groups. Any economic activities were of secondary importance (Suttles 1968, Klein 1995). The last two decades, however, have given rise to a dramatic transformation in street gangs, or what Taylor (1990) terms their “corporatization.” When crack became widely available in the mid-1980s, sold in small quantities in fragmented street-corner markets, street gangs became the logical distributors. The potential profit in drug dealing dwarfed that previously available to gangs through other criminal channels. As a consequence, the economic activity of drug distribution quickly emerged as the focus around which many gangs are organized.

In concert with declining legitimate labor market opportunities and increasing concentrations of poverty in inner cities (Wilson 1987), the new economic underpinning of street gangs has led to a dramatic increase in gang involvement. Landre, Miller, and Porter (1997) estimate that the number of individuals associated with street gangs in California alone is projected to reach 250,000 by the year 2000, although this number includes not only hardcore gang members involved directly in drug distribution, but also those on the periphery.

The timing of the rise in gang activity corresponds to a period of rising inner-city youth violence. Between 1985 and 1995, the homicide arrest rate among those aged 13 to 17 doubled (Blumstein 1995, Cook and Laub 1997). Increases among African-American youths were particularly great, more than tripling (to a level five times higher than whites). In stark contrast, the adult homicide arrest rate fell over this period. Inner-city communities have also seen a divergence in male and female performance along a number of other dimensions (Wilson 1987). Whether the rise in gangs play a causal role in these trends, or are perhaps caused by these

changes, remains unclear.

Although there has been a great deal of academic work on street gangs (e.g. Thrasher 1927, Taylor 1993, Padilla 1992, Jankowski 1993, Spergel 1995, Venkatesh 1997), their economic and financial activities have gone largely un-examined. This lack of focus is perhaps partly attributable to the fact that few economists have been involved in the study of gangs.¹ More fundamentally, there is an absence of reliable data. The illicit nature of the gang activities and the lack of formal accounting procedures makes it extremely difficult to obtain financial data.²

In this paper we are able to directly analyze the financial activities of a gang for the first time through the use of a unique data set containing detailed financial information over a recent four-year period for a now-defunct gang. These data were maintained by the leader of the group as a management tool for tracking the gang's financial activities and for monitoring the behavior of gang members. Updated monthly, the data include breakdowns of costs and revenues into major components, as well as information on the distribution of profits as wages to gang members at different levels of the hierarchy. This financial data is supplemented with information on the numbers of violent deaths, injuries, and arrests of gang members over this period, as well as

¹ There are some exceptions. Akerlof and Yellen (1993) present a model analyzing the relationship between police enforcement against gangs and community cooperation. Freeman (1992a) provides an economist's perspective on ethnographic research. There is a much longer history of economic analysis of organized crime (see, for instance, Reuter 1983 and Schelling 1984).

² On one particular issue, the wages earned by those selling drugs, there has been a substantial amount of research (e.g. Reuter et al. 1990, Freeman 1992b). It is an open question, however, as to the reliability of self-reports in this context. Other studies relying on ethnographic observation obtain far lower values for drug-related earnings, e.g. Bourgois (1989), Padilla (1992). If the distribution of earnings is highly skewed within the gang hierarchy, the answers obtained may vary dramatically depending on the level of the organization that is studied.

interviews and observational analysis of the gang.

A number of insights emerge from the paper. First, not surprisingly, we observe an enormous expansion in the revenue generated by drug dealing associated with the expanding market for crack over the four year period examined. The average wages and profits of the gang roughly double. Second, wages in the gang are extremely skewed -- probably far more so than in corporate America. Thus, one must view gang involvement as a form of tournament (Lazear and Rosen 1982) in order to make economic sense of the decision to participate in a gang. Even incorporating the tournament aspects of the returns to gang involvement, drug dealing does not appear to be particularly lucrative. By the end of our sample, the average wage in the organization is estimated to be \$11 per hour. Although this average wage is substantially higher than the legitimate-market alternatives for the gang members, once the significant risk of death is taken into account, the returns to gang involvement appear to be quite low. Moreover, for much of the period examined, the actual wage earned by low-level street-corner sellers (as opposed to the average wage over all levels of the gang), is less than the minimum wage. Consequently, most low-ranking gang members hold low paying legitimate sector jobs in addition to selling drugs for the gang. Third, the gang prices the drugs it sells at a substantial markup over marginal cost, implying local market power. It is unclear whether local market power increases as the gang expands, doubling its turf. The price charged by the gang rises relative to the city-wide average, but the wage bill also increases, so that the markup falls. During gang wars, both the price and quantity of drugs sold fall substantially, and the profitability of the drug-selling operation disappears. The gang prices below marginal cost during gang wars in order to maintain market share, implying either economic punishment for the rival gang or the presence of switching costs

among drug purchasers (Klemperer 1995). Finally, a variety of different approaches to measuring the implicit value that these gang members place on their own lives suggest that this valuation is extremely low. Of course, all of these conclusions are based on the analysis of a single gang's experience. The degree to which these results are broadly generalizable remains an open question.

The structure of the paper is as follows. Section I briefly surveys the existing research on the subject. The second section provides background on the community in which the gang is situated, the organizational structure of the gang, and the competitive environment within which it operates. Section III describes and summarizes the data set. Section IV presents regression results. The final section offers a brief set of conclusions.

Section I: Review of the Existing Literature

The seminal text, and to this day the most comprehensive study of street gang activity in one city, is Thrasher (1927). Thrasher observed the practices and organization of over 1,000 street gangs in Chicago, concluding that the gang was an adaptive mechanism for newly arrived immigrants and their settlement communities. For example, the street gang could provide protection to residents by defending their community against predatory forces that arose from a neighboring community of different ethnic or racial makeup. Thrasher's writings set the tone for the street gang scholarship in the mid-twentieth century. Of paramount concern was the role of the gang in the social life of the community-- e.g., its relations with politicians and residents, the social control mechanisms in place (or not) to control juvenile delinquency-- as well as an interest in the motivations among youth to join a gang. In later research (Ohlin and Cloward 1963, Short

and Strodbeck 1965), the focus turned to questions of the roles and functions served by street gang members, how gang participation shaped individual identities, and how gangs differed from other subcultures.

During the 1980s, there was an important shift in street gang activities, or what Taylor (1990) terms their “corporatization.” Gangs became systematically involved in the distribution of various narcotic substances including heroin and crack-cocaine (Block and Block 1993). With this change, the scope for economic analysis of gangs increased. Although numerous scholars have studied this process (c.f., Hagedorn 1988, Padilla 1992, Taylor 1990, 1993) and the role that drug distribution plays in the everyday structure and practice of the entrepreneurially-oriented street gang, much of the scholarship has been based on verbal reports by gang members, or in exceptional cases, direct observation of trafficking (Bourgois 1989, Williams 1989). The analysis and methods have not been of the type generally performed by economists. Little is known of the earnings of the gang, the wages of its members who are active in drug markets, nor how such attributes change over time (c.f., Spergel 1995). Likewise, there has been little attention paid to the industrial organization of drug distribution, i.e. market structure, organizational forms, competitive strategies, and how economic activity is structured in the absence of legally enforceable contracts (Southerland and Potter 1993 is an exception)..

The data set used in this paper (described at length in section 3) represents the first opportunity that researchers have had to undertake a quantitative, longitudinal study of street gang using financial data gathered and maintained by the gang itself. While this data is certainly not without limitations, it nonetheless represents a great advance over that which was previously available. Before analyzing the data, however, we first describe the context in which the gang

operates.

Section II: The Gang and the Social, Economic, and Competitive Environment in which it Operates

The gang³ for which we have data is located in an inner-city neighborhood in a large, industrial American city.⁴ Table 1 provides social and economic data from the 1990 Census of Population and Housing for two census tracts representative of those in which the gang operates, as well as nationwide averages for purposes of comparison.⁵ Residents of the area are almost exclusively African-American (over 99 percent), as are all of the gang members. The labor market experiences of the residents, particularly males, are far worse than the United States as a whole. Less than 40 percent of males sixteen or older in the neighborhood are employed, compared to roughly 70 percent of American males. Unemployment rates for males are four

³ There is some imprecision in our use of the term “gang” here. Among gang members themselves, the group we analyze is termed a “set.” A set is the small, geographically concentrated unit around which local drug-dealing is organized. A particular set is likely to have affiliations with other sets in an overarching gang structure (e.g. the Crips or the Bloods). In this paper, we use the term gang rather than set when referring to the small group we analyze in order to avoid confusion of the mathematical and gang definitions of the word “set.” We will use the term “organization” to denote the overall cooperative that encompasses the many geographically localized units.

⁴ Throughout the paper we withhold precise details of the gang’s location, identity, and the exact time period examined in order to protect the anonymity of those who have provided us with the data. This data was obtained in the course of research for a multi-city study of gang activities initiated by Venkatesh in the mid-1980s.

⁵ The boundaries of the gang’s turf do not closely conform with a single census tract. The part of the city in which the gang operates, however, is quite homogeneous along socio-economic lines. The census tracts we have chosen are representative of the gang’s immediate neighborhood. The summary statistics presented are population-weighted averages of the values for the two census tracts, except for median family income, which is a simple average.

times higher than the national average; labor force participation is also lower. Female residents also fare worse in the labor market, but not nearly so poorly relative to the rest of the nation as males.

Children in the neighborhood experience high probabilities of adverse economic circumstances. Over half of the children were below the poverty line at the time of the 1990 census. Over three-quarters of all children live in single-parent families, and 60 percent are in families that receive public assistance.

Median family income is \$15,077 annually, less than half of the national average. A small fraction of residents in the census tract reside in public housing, although the immediate neighborhood in which the gang operates does not include any large-scale public-housing complexes. Roughly half of adults in the community do not have a high-school diploma. Only one in twenty residents has a degree from a four-year college, compared to one in five Americans generally.

A striking feature of the mobility patterns among neighborhood residents is the rarity with which outsiders move into the neighborhood. Although there is movement within the county, less than three percent of the 1990 residents lived outside of the county in 1985. For the United States as a whole, residents were seven times more likely to have moved to their current home from outside of the county. There was a substantial de-population of the neighborhood between 1960 and 1990. According to the 1990 census, approximately 15 percent of the housing units are boarded up. The officially reported sex ratio is substantially skewed towards women, but it is unclear to what extent this captures a real phenomenon, or is simply under-reporting due to the requirement that males be absent in order to qualify for public housing.

The organizational structure of the gang as a whole is shown in Figure 1. We use the titles used by the gang, except where those titles would reveal the gang's identity. The structure of the organization is simple compared to most firms of comparable size (see, for example, Baker, Gibbs, and Holmstrom 1994). The top-level of the organization is made up of what we broadly denote the "central leadership." This includes 4-6 individuals with responsibility for guiding the long-term strategies of the multi-state organization, maintaining relationships with suppliers and affiliates in other regions of the country, and also roughly a dozen others who are responsible for collecting dues, overseeing recruitment of new members, allocating punishments, and serving as liaisons to the community.⁶ Roughly one-third of these leaders are typically imprisoned at any time. The next tier in the organization is a group of "gang leaders" with specific territorial responsibility for one or more localized gang. In the organization we study, there are roughly 100 of such gang leaders. Reporting in to each gang leader are three "officers." The "enforcer" is responsible for ensuring the safety of group members, the "treasurer" is responsible for the liquid assets of the group, and the "runner" performs the risky task of transporting large quantities of drugs and money to and from the supplier. Reporting to the enforcer are the "foot-soldiers" who serve as street-level drug sellers and from whose ranks future officers and leaders arise. Foot-soldiers are typically 16-22 years of age, although potentially much older. On the periphery of the gang is a group of "rank and file" spanning all ages (the age range in the group we study is 14 to 40), who have little formal responsibility for drug selling. Rank and file, unlike foot-soldiers and higher gang members, pay dues to the gang, in return

⁶ Within the organization, a clear distinction is made between those performing the two different functions of the central leadership. We ignore these differences here because they are not material to the analysis we perform.

receiving protection, status, and a reliable supply of drugs for those who deal independently.⁷ The structure of the overall organization is similar to that of a franchised company. Gang leaders pay a fee to the franchisers (central gang leadership), but are the residual claimants on the profits accruing to their franchise. In return for those tribute payments, local gang are provided with protection (both on their turf and in prison), access to reliable sources of wholesale drugs, and the possibility of some day rising up the organization into the upper echelon. The individual gang units, like separate franchise owners, have relatively little interaction with one another.

The data that we have are for just one gang within the larger organizational structure. That gang is overseen by a gang leader, and has one enforcer, one treasurer, and one runner at any given point of time. The number of foot-soldiers ranges between 25 and 75 over the period examined, and there are 60 to 200 rank and file.

The geographic and competitive landscape in which the gang operates is detailed in Figure 2. This gang's turf for most of the time period examined is a twelve square block area bordered by major thoroughfares on all sides. Most of the drug-dealing is done along the edges of the territory on or near one of the major streets. Perhaps 30 percent of the drugs are sold to those living within the twelve block area, with most of the remaining purchasers coming from a relatively limited geographic range. In this particular area, relatively few buyers come from the suburbs.

The areas to the immediate north and South of this gang's turf are controlled by separate, rival gangs. The time period for which we have data is punctuated by a series of violent conflicts

⁷ Rank and file who deal drugs would not do so on the gang's own turf (without risk of serious punishment), but rather might sell in other neighborhoods, at their workplace in the legitimate sector, or at school.

between the group we study and the rivals to the North, culminating with the eventual seizure of the rival group's turf, a twelve square block area, in the latter part of our sample period.

Although relations with the gang to the South have historically been quite hostile, there were no major conflicts between these two groups in the years for which we have data. To the West of this group is territory controlled by another gang of the same organizational affiliation. To the East are residential tracts similar in demographic and socio-economic makeup, but with markedly lower gang and drug activity.

Section III: Data and Analysis

The data set contains detailed financial information on the activities of the gang described above on a monthly basis for a recent four-year period. The data were originally maintained by the leader in control of the gang and were updated each month by the enforcer. The data was compiled by hand. The data ends abruptly with the arrest of the gang leader and other officers. Shortly thereafter, the gang, weakened by these arrests and beset by infighting, was overpowered by rivals, its turf divided between a number of enemy gangs. The gang we study is no longer in operation. Most of the former gang members have since abandoned drug dealing. The person who supplied us the data is a former gang member with ties to the gang that tracked the data (although he was not necessarily directly affiliated with this particular group). Our informant, after serving a prison sentence, now holds a full-time job in the legitimate sector. For obvious reasons, we have accommodated his request to remain anonymous.

Given the unusual nature of the data, it is important to consider both its reliability and the degree to which it is representative of gangs more generally. On the most basic question of

authenticity, we have no reason to doubt that the data actually represents the financial records of the gang. In terms of understanding the possible biases in the data, it is worth noting that it served two purposes: (1) a tool for managing the day-to-day operations of the gang, much as a CEO relies on management information systems (MIS) data in a firm, and (2) a means of tracking operations for reporting to higher levels in the gang hierarchy. The first purpose suggests that the intention of the data keepers was to accurately capture the gang's finances, although their ability to do so effectively may be subject to question. The second use of the data, however, raises the possible concern that the scale of operations and profitability of the enterprise are systematically understated since high profits are likely to lead to greater demands for tribute from the gang leadership. Although the source of the data assures us that is not the case, we nonetheless believe that it is prudent to view the revenue and profits we obtain as lower bounds on the true values for two reasons. First, the gang leader had substantial power to make financial arrangements "off the books." For instance, during the time period examined the gang leader received an unknown amount of compensation from non-gang members in return for the right to sell heroin on the gang's turf. This income is not recorded in our data set. Second, the revenue reported reflects only that obtained by the gang, missing that fraction of the proceeds which is appropriated by gang members, either for their own use or for resale. While usage of crack by gang members appears to be low (it is strongly discouraged by gang leaders), a non-negligible fraction of the drugs/drug revenues appear to be pilfered by the low-level gang members.⁸ We do not have a

⁸ This pilfering takes a number of different forms. First, those who are responsible for putting the crack into bags for sale on the street report that they routinely kept some portion for themselves. It was also common practice for street-level sellers to examine the bags of crack they are responsible for selling, removing some of the crack from the bags with the largest quantity. Finally, sellers attempted to engage in price gouging when buyers are suspected to be naive.

good measure of the extent of such activities, but estimate that at most 15 percent of the revenues are skimmed by those selling the drugs.⁹

The data contain monthly breakdowns of the major sources of revenues and expenditures for the gang. Table 2 presents monthly averages for each of the four years covered. Of the 48 months spanned by our sample, six months of data are missing.¹⁰ Averages are calculated based only on those months for which data is available. All dollar values are converted into 1995 dollars using the GDP deflator. Revenues are broken down into three sources: proceeds from drug sales (almost exclusively crack cocaine), dues from gang members, and “street taxes,” i.e. money extorted from individuals (and occasionally companies) conducting business on the gang’s turf. Examples of those required to pay street taxes would include grocery store owners, gypsy cabs, people selling stolen goods, and those providing services such as auto or plumbing repair. Average monthly revenue from all sources for the gang rose from \$18,500 to \$68,400 over the period examined. As noted above, these revenues are best viewed as a lower bound on the true figures. Proceeds from the sale of crack are the major source of income for the group and growth in drug sales accounts for virtually all of the increase in revenues over time. Dues collected from gang members are nearly constant until the final year, when the gang membership expands

Excess proceeds from sales made at inflated price were unlikely to be reported back to the gang enforcer. While all of these activities were technically against gang rules, and were sometimes punished by violent beatings, it appears that they were nonetheless commonplace.

⁹ We base this estimate of 15 percent on conversations with a number of former gang members, although we have no good means of verifying this magnitude. At most one-third of this skimming would be for personal consumption, with the remainder either unreported profits or the removal of some of the crack for later resale.

¹⁰ Data for December is missing in three of the four years and represents half of the missing data in the sample. According to our source, December is a slow month for drug sales.

dramatically with the expanded turf. It is important to note that in this gang, core gang members (i.e. officers and foot-soldiers) were not required to pay dues. Only the peripheral members of the gang (i.e. rank-and-file) paid these fees.¹¹

Non-wage costs are broken down into six categories: costs of drugs sold, payments to higher levels of the gang, weapons, payments to mercenary fighters (non-gang members who are hired for short periods of time to help fight in gang wars), funeral costs and payments to families of the deceased, and miscellaneous expenses.¹²

The single greatest non-wage expenditures of the gang were tribute payments to higher levels of the gang. These payments amount to almost twenty percent of total revenues. Expenditures for obtaining the drugs to be sold are the next largest non-wage cost component, accounting for 15 percent of total revenue, and almost 25 percent of drug sales. The price paid by the gang to obtain powder cocaine, which is subsequently transformed into crack by the gang for resale on the street, declines roughly 35 percent over the sample period, reflecting a citywide decline in the price of bulk cocaine. Surprisingly, there appears to be substantial imprecision in the measurements used in these bulk drug transactions. Standard units such as kilograms and pounds are not used by the gang (although the supplier does use such units). Quantities instead described in various “street” units that we are able to only roughly translate into kilograms.¹³

¹¹ This dues structure is unusual. Typically all gang members pay dues. The value of the dues that foot-soldiers avoid could be considered as income. Average dues, however, are only about \$50 per month, so the basic conclusions are unchanged.

¹² Included in miscellaneous expenses are costs for parties, community events organized by the gang, lawyers fees, bribes, etc.

¹³ For instance, the gang would pay roughly \$1,500 for the quantity of cocaine that fits in a ziploc-type sandwich holder.

Thus, we report our results in an artificial unit (“bags”) that approximates the standard quantity in which street sales occur, rather than in kilograms. While this choice of units is essentially arbitrary, it has the attractive feature of roughly capturing the number of sales made by the gang in a month. A bag contains an extremely small quantity of crack cocaine (e.g a few pebbles) and typically sells for about ten dollars on the street. By our calculations, between 10,000 and 15,000 bags can be produced from one kilogram of powder cocaine, making the street value of a kilogram of pure cocaine converted into crack between \$100,000 and \$150,000.¹⁴

Information about relative prices and quantities are presented in the bottom panel of Table 2. The quantity sold rises over the period examined, especially in the final year after the gang has expanded its turf. Price initially rises, but falls in the final year. The rise and subsequent fall in prices in our data mirrors the city-level street price estimates based on data collected by the Drug Enforcement Agency in the STRIDE database and analyzed in Abt (1997). Between years one and two, Abt (1997) reports a 13 percent increase in city-wide crack prices, compared to 6 percent for this gang.¹⁵ From years two to four, the city price of crack falls 40 percent, compared to 27 percent for the gang we analyze.

Another important expenditure item is for mercenary fighters known as “warriors” who are hired on a retainer basis during gang wars. Fees for warriors are roughly \$2,000 per person per month of service. Among the services provided by these warriors are guarding areas where

¹⁴ Further confounding such a translation is the that by the time the gang purchases the bulk cocaine it has been cut with other substances (perhaps repeatedly). Even knowing the weight, without a measure of the purity, we would not know what the volume of pure cocaine is.

¹⁵ The prices we report from Abt (1997) are the real price per unit of pure cocaine purchased in quantities smaller than an ounce in the city where the group we study is located.

drugs are sold, occupying front-line positions on the gang's turf, and performing drive-by shootings. The use of hired warriors declines at the end of the sample as the gang increasingly chose to use internal resources (foot-soldiers) for fighting rather than contracting-out this task. This decision on the part of the gang appears to be linked in part to the increased difficulty on controlling the expanded turf, over which the gang had no inherent legitimacy. The original territory was much easier to defend because the gang's roots were in their original neighborhood and the key gang members continued to reside there. Furthermore, prior to expansion, all of the gang violence involved the gang to the North. After the takeover, the number of enemies with whom the gang fights increases, leading to a rise in the baseline frequency of violence when discrete wars are not taking place. Consequently, developing this fighting expertise within the organization became more valuable.

Funerals and related expenses such as compensating the victim's family are costly to the gang, but are viewed as extremely important by the gang leaders as evidenced by the response to a query by one of the authors:¹⁶

“What do you mean, ‘Why do we pay for their funeral?’ That’s a f----- stupid question ‘cause as long as you been with us, you still don’t understand that their families is our families. We can’t just leave ‘em out. We been knowing these folks our whole lives man, so we grieve when they grieve. You got to respect family.”

The death of a foot-soldier costs the gang up to \$5,000 in family compensation and funeral services, or roughly three years worth of foot-soldier wages. Interestingly, once the gang

¹⁶ We have consciously chosen to leave participant quotes in a raw form in order to provide as accurate a reflection of their statements as possible. Consequently, we have made no attempt to eliminate misstatements, profanity, and colloquialisms that might typically be edited out.

expands, members conscripted from the former enemy gang were treated much less generously than were those who had been part of the original gang.

The purchase of weapons, at a cost of \$300-\$400 per month, is initially a relatively small component of gang costs. Expenditure on weapons increases dramatically in the final year, both because of increased fighting, and because the gang reduced its reliance on outside warriors, choosing instead to defend itself. Combined with miscellaneous expenses, all of these non-wage costs total to just less than fifty percent of revenues.

The remainder of the revenues are distributed as wages to gang members, or are retained by the gang leader who is the residual claimant on profits. The distribution of these payments is also shown in Table 2. The gang leader retains between \$4,200 and \$10,900 a month as profit, for an annual wage of \$50,000-130,000. This value is well above what most leaders, given their education and work experience, could hope to earn in the legitimate sector.¹⁷ The officers each earn roughly \$1,000 per month. These tasks are full-time jobs (in the sense that the people who perform them would be unlikely to be concurrently employed in the legitimate sector, although they may not strictly involve 40 hours of work per week). While the standard of living associated with holding these jobs is higher than the likely outside option in the legitimate sector --a minimum wage or near minimum wage job-- these positions are far from lucrative in any absolute sense. Although payments to foot-soldiers are the single greatest expense incurred by the gang, monthly payments to each foot-soldier are in fact extremely low: only \$200 per month or less until

¹⁷ For instance, a former leader of a rival gang is now employed in the legitimate sector at an annual salary of \$16,000. His legitimate sector wage may be lower than it otherwise would have been, however, due to his intervening years spent in prison (Lott 1992 Nagin and Waldfogel 1995).

the final year. The typical foot-soldier works roughly 20 hours per week selling drugs or performing other tasks for the gang, implying an hourly wage that is below the federal minimum wage.

While these wages are almost too low to be believable, there are both theoretical arguments and corroborating empirical evidence in support of these numbers.¹⁸ From a theoretical perspective, it is hardly surprising that foot-soldier wages would be low given the minimal skill requirements for the job and the presence of a “reserve army” of potential replacements among the rank and file. Similar findings are reported by Bourgois (1995) and Padilla (1992). Empirically, the behavior of the foot-soldiers suggests that they are not well off financially. First, gang members below the level of gang leaders live with family because they cannot afford to maintain their own residences. Second, many foot-soldiers also hold low-paying jobs in the legitimate sector. We estimate that 75-80 percent of the foot-soldiers are employed in the legitimate sector at some point over the course of a year. Job tenure, however, is generally quite low, so that perhaps only 40-50 percent of the foot-soldiers are employed in the legitimate sector at any given point in time.¹⁹

¹⁸ Data manipulation on the part of gang record-keepers cannot explain these low wages. If the gang were using the records to convince the central gang that they could not afford to pay additional money in tribute, we would expect foot-soldier wages to be systematically exaggerated rather than understated.

¹⁹There is some anecdotal evidence that legitimate labor market participation responds to changing wages in the drug trade. For instance, a former foot-soldier describes his past labor market behavior in the following way: “*Well, once, when I was starting out slinging [selling drugs], we took over another building and we, well really just me and Rock, we had the whole place. But, even when everybody was in there, we were making like two times a month what we was getting before. Its not a lot of money, but if you start getting more money from [the officers of the gang], you get into your head that you don't need no other work. So I quit [my job at a fast-food restaurant]. But I went back and got the job I quit at, 'cause slinging wasn't bringing*

Foot-soldier wages rise dramatically in the final year of the data. A number of factors appear to contribute to this. First, foot-soldiers take on more of the responsibility for defending the gang's turf and thus bear greater risks for which they must be compensated. Second, the gang leader becomes a member of the central gang leadership (the elite group of 16 that oversee the entire organization). This dramatically limits the amount of time he is able to spend monitoring this particular group, perhaps providing an incentive to pay efficiency wages. The leader's promotion to the central gang leadership also means that he can collect tribute from other gang's, lessening his need to extract the maximum surplus from this operation. Efficiency wages may also serve the purpose of ensuring the loyalty of this group, which is important to his continued success in the central leadership.

Given the enormous gap between the wages of the foot-soldiers and those higher up in the gang, the most reasonable way to view the economic aspects of the decision to join the gang is as a tournament where the participants vie for large awards that only a small fraction will eventually obtain (Lazear and Rosen 1982). Gang members themselves appear to be keenly aware of this, as evidenced by the following quote from a foot-soldier:

“You think I wanta be selling drugs on the street my whole life? No way. But I know these n----- [above me] are making more money, and it's like, people don't last long doing this s—. So you know, I figure I got a chance to move up. But if not, s—, I get me a job doin' something else.”

Table 3 presents empirical documentation of the tournament aspects of gang participation. If gang members are risk neutral, then the average wage in the organization captures the expected

me no money after a while, you know, too dangerous and s---. But, that's me, you know and there's some people who stay working even if they got to selling more for the [gang] organization.”

return to gang participation.²⁰ For comparison purposes, observed hourly wages for the gang leader and foot-soldiers are also presented. These rough estimates of average wages in the organization are based on a number of assumptions. First, it is assumed that the gang we study is representative of the roughly 100 locally-based gangs that fall under the umbrella of the extended gang network, both in terms of number of members and the tribute paid to the central leadership.²¹ We further assume that 75 percent of the tribute paid to the central gang organization is profit (the other 25 percent covering various operating costs). Finally, we assume that the perceived likelihood of rising to each level of the gang is given by static expectations based on the composition of the current hierarchy, e.g. there are roughly 3,000 foot-soldiers and 16 central gang leaders, implying a $16/3,000$ probability that any given foot-soldier will rise all the way to the top.

We calculate average wages both under the assumption that the official data fully capture the wages and profits to the organization (columns 1-3) and allowing for the gang leader to skim 10 percent of drug revenues and the foot-soldiers an additional 15 percent (columns 4-6). Focusing on that second set of estimates, which we believe to be more representative, the average wage in the organization ranges from \$5.90-\$11.10 during the sample period. This value is substantially above legitimate market wages available to the foot-soldiers, who as poorly educated inner-city youths are unlikely to earn much more than the minimum wage. Thus, in spite of the

²⁰ Of course, any particular individual's expected return will depend on his or her ability and effort. In a tournament context, the expected return (as well as, by definition, the actual return) may be very skewed.

²¹ After the gang we study expands its turf in year 3, we treat it as if it represents two of the 100 locally-operating gangs.

low wages earned by foot-soldiers, participation in the gang may nonetheless be an economically rational decision.²² As will be discussed later, however, the wage premium earned by gang members is relatively small given the enormous risks associated with selling drugs.

Table 3 suggests that the distribution of wages within the gang are extremely skewed. The gang leader earns 10-20 times more than the average foot-soldier. While this earnings gap is small compared to frequently cited numbers about CEO pay (e.g. Reingold 1997), it should be noted that the gang leader we are referring to is two levels in the hierarchy below those who run the gang organization and has less than one hundred employees. More directly comparable is data on franchisees who, like gang leaders, put up capital and are residual claimants on the profits of the operation. Michael and Moore (1995) report that franchise owners receive slightly over \$100,000 (in 1995 dollars) in operating income, a number similar to that earned by gang leaders in our data. To the extent that employees of franchises appear to be paid more than the foot-soldiers, the distribution of wages is more skewed in the gang than in the typical franchise.

Tables 2 and 3 fail to capture the dramatic impact that gang wars have on the gang's financial situation. A gang war is defined as a prolonged period of violence involving repeated exchanges of weapons fire between rival gangs. Gang wars typically follow the attempt of one gang to disturb the drug distribution activity of a neighboring group. During gang wars, there is an easily discernible reduction in street activity and public loitering, and typically a heightened police presence. Information on the existence of a gang war during a particular month was collected by Venkatesh in the context of a past ethnographic analysis. Over the period we study

²² There are also important non-economic reasons to participate in the gang such as status, protection, companionship, and enhanced success with members of the opposite sex.

there are seven episodic gang wars lasting for a total of twelve months, or roughly one-quarter of our sample. There are gang wars in each of the four years of our sample. In addition, there is a five-month period of transition in the third year of our data during which the gang incrementally seizes control of the territory to the North.

Table 4 separates the data on revenues and costs into pre- and post- expansion time periods both with and without gang wars. The five-month transition period. is excluded from this table. Comparing columns 1 and 2 (gang wars versus no gang war prior to expansion), drug revenues fall almost in half in war months. The quantity of drugs sold falls 29 percent, and price falls 25 percent. Thus, gang wars differ from episodes where cooperation breaks down among colluding suppliers (Porter 1983, Ellison 1994). In those cases, price falls and quantity rises. In contrast, gang wars induce large, adverse demand shocks. Customers are afraid to come purchase drugs, as evidenced by the following observation by a gang officer:

“Ain’t no way nobody gonna come ‘round here looking for their rock [crack] if they know they gonna get shot. People got too many options, man, they got too many n----- that they can buy they s— from, so why come to us if we can’t keep s— safe for ‘em?”

The strategic aspects of gang wars are not lost on the participants. The rivals to the North who are eventually vanquished use violence in their competition’s turf as an explicit strategy for shifting demand to their own territory. As one former member of the rival gang put it during a gang war:

“See the thing is they [the gang for which we have data] got all these places to sell, they got the numbers [of sellers], you know. It’s not like we can really do what they doing. So we gotta try get some kinda advantage, a business advantage. If we start shooting around there [the other gang’s territory], nobody, and I mean it you dig, nobody gonna step on their turf. But we gotta be careful, ‘cause they can shoot around here too and then we all f-----. But, it’s like we ain’t got a lotta moves we can make, so I see shooting in their ‘hood as one way to help us.”

Thus, violence is a strategic tool in this context. In fact, in some cases, it is observed that a gang engages in drive-by shootings on a rival's turf, firing into the air. The intention is not to hurt anyone, but rather to scare potential buyers. It is interesting to note that the gang member understands the game-theoretic consequences of such actions corresponding to retaliation by the rival, in which case both parties are worse off than if no violence had occurred.²³

A second strategic element of gang wars is the price response on the part of the gang. The bottom row of Table 4 presents Lerner indexes $((\text{price} - \text{marginal cost})/\text{price})$ for the gang in the different parts of the sample. For the purposes of calculation, the gang's marginal cost is assumed to be only the cost of goods sold and wages paid to foot-soldiers. All of the other costs are reasonably viewed as fixed costs.²⁴ Prior to expansion, the gang prices *below* marginal cost during wars (Lerner index = -.08). This suggests one of two possibilities. First, the low price is a strategic response designed to punish the rival gang for the attack. Second, there may be costs for drug buyers associated with switching suppliers. If that is the case, then pricing below marginal cost in the short run to maintain market share may be rational (Klemperer 1995). Note that post-expansion, the markup is almost identical in war and non-war months. This may reflect

²³ The fact that wars are accompanied by demand shocks may serve to make collusive agreements easier to sustain. If one gang violates some term of an implicit bargain (e.g. selling too cheaply or selling on another gang's turf) and the other gang responds by shooting in the first gang's turf, the punishment is more costly for the recipient than the punisher (unlike when the punishment is a price reduction). The fact that punishments are cheap to administer will help to sustain collusive equilibria.

²⁴ Mercenary fighters are generally held on retainer during gang wars, so there is no direct link between such costs and marginal sale of drugs. Tribute to the gang hierarchy is only weakly linked to drug revenues in a particular month, although if the gang cannot sell drugs due to a war, tribute payments are typically waived.

the fact that the character of gang wars changes dramatically. In the later period, gang wars are generally attempts by surrounding gangs to take over the newly acquired territory of the gang we study. This fighting is concentrated in the new territory, whereas most of the gang's actual selling continues to be done along the boundaries of their original turf. This the adverse demand shock associated with a gang war is muted. Consequently, neither price nor quantity fall as dramatically as in the pre-expansion period war months, and the markup is unaffected.

One aspect of the pricing data that is peculiar is the lower markups observed after expansion. In non-war months prior to expansion, the Lerner index for the gang is .59, suggesting substantial local market power (in perfect competition, the Lerner index is 0, for a monopoly, the value is $1/\text{elasticity of demand}$). One would expect that the expanded territory would provide the gang with increased local market power, generating a higher markup. The observed markup, however, falls to .21. The primary reason that the markup appears to fall is the dramatic increase in foot-soldier wages which increases the marginal cost of selling. It is possible that the lower markup post-expansion is related to a change in the gang leader's objective function, i.e. with his promotion to the central gang leadership extracting maximum profit out of this territory is no longer necessary. Alternatively, it may simply be that the shrinking markup reflects a city-wide decline in crack prices. As noted earlier, crack prices fell 40 percent in this city between years two and four of the sample, whereas this gang only reduced price by 27 percent. While the noisiness of the price data leads us to be cautious in interpreting this result too strongly, it is at least consistent with increased market power as a result of the territorial expansion.

A final interesting feature to note with respect to gang wars is the steep increase in foot-

soldier wages during wars in the early part of the sample. Pre-expansion, foot-soldier wages are almost 70 percent higher during gang wars.²⁵ The increase in foot-soldier wages is a clear example of compensating differentials. Table 5 presents the frequency of adverse events in our sample, expressed in terms of likelihood per gang member per month. The observed likelihood of violent death in the pre-expansion time period is 1.2 percent per gang member per month during wars. In contrast, there were no gang fatalities in non-war months prior to the transition. The likelihood of injury more than doubles with gang wars during the pre-expansion period, and the arrest rate also increases. As one foot-soldier put it at the time:

“Would you stand around here when all this s— [shooting] is going on? No, right? So if I gonna be asked to put my life on the line, then front me the cash, man. Pay me more ‘cause it ain’t worth my time to be here when [the gangs are] warring.”

Comparing columns 3 and 4 of Table 4, the compensating differential paid by the gang in war months disappears. While this is somewhat puzzling, there is an explanation. Since foot-soldiers are being paid such a high wage post-expansion, even though the wage falls somewhat during wars, it is higher than in pre-expansion war months. Given that the gang leader absorbs losses in war periods, a cash-flow constraint on the part of the leader would provide a simple explanation for why wages do not rise during wars in the latter half of the sample. According to the leader of another gang, it is not actually cash constraints that limit wage payments, but rather the perceived importance of the leader making a profit:

²⁵ This rise is almost certainly a lower bound on the increase in the hourly wage because the number of hours worked during gang wars is typically less than that in non-gang war months.

"You got all these n----- below you who want your job, you dig. So, you know, you try to take care of them, but you know, you also have to show them you the boss. You always have to get your's first, or else you really ain't no leader. [If] you start taking losses, they see you [as] weak and s----."

Further scrutiny of Table 5 highlights the tremendous risks associated with participation in the drug trade, at least in this particular gang during gang wars. The per person likelihood of death ranges from one to two percent a month during gang wars and the transition period. Using the actual number of months in the sample falling into each category (listed in the bottom row of the table), it is possible to construct the cumulative frequency of adverse events per gang member over the four-year period observed. That number is displayed in the last column of Table 5. Gang members who were active for the entire four year period had roughly a one in four chance of dying. Furthermore, there was an average of over two non-fatal injuries (mostly gunshot, but some due to knives or fists) per member, and almost six arrests.²⁶ The risks associated with selling drugs in this sample are astonishing. By comparison, homicide victimization rates for black males aged 14-17 in the United States are roughly 1 in 1,000 per year, or roughly 100 times lower than we observe in this sample. Even among rank-and-file of this gang (those affiliated with the gang, but not actively engaged in the drug trade), homicide rates are only about 1 in 200 annually in our sample.

Using the frequency of adverse events, it is possible to calculate a rough estimate of the willingness of the foot-soldiers to accept risk of death, or extrapolating, the implicit valuation they

²⁶ The injury numbers do not include injuries sustained as the result of punishment by the gang for rules violations. Note that these adverse event calculations refer only to core gang members (i.e. the leader, officers, and foot-soldiers). For peripheral gang members (i.e. the rank-and-file) who are not actively involved in drug dealing, the risks are an order of magnitude lower. One rank-and-file was killed during our sample and a handful were wounded.

place on their own lives in the current context.²⁷ In order for such calculations to be reasonable, the participants must be relatively well-informed about the rewards and risks, and the ex post outcomes must be consistent with ex ante projections. We generate estimates using four different possible comparisons. In each instance, we focus only on the likelihood of death, ignoring differences in the number of injuries or arrests. For this reason, the values we obtain may be systematically upward biased. In all cases, we use the officially recorded wages as our measure; redoing the calculations incorporating our estimates of unofficial wage sources does not dramatically alter the conclusions.

The first comparison is between foot-soldier wages in war and non-war months in the pre-expansion portion of our sample. The average monthly wage in war and non-war months is calculated to be \$220 and \$130 respectively, or a \$90 differential. Given an observed differential in the chance of violent death of .012 per month from Table 5, the implied value of a life is \$7,500. This number may be unrealistically low because foot-soldiers may not really have the choice of not selling during war months without sustaining other punishments. Furthermore, to the extent that heroic actions in wars are rewarded with promotions, this static analysis may not adequately capture the tradeoffs involved in war months.

A second possible means of calculating the implicit valuation on life comes from a comparison of foot-soldier wages pre- and post-expansion. In contrast to the previous measure, this calculation may systematically overstate the value of a life since the overall profitability of the

²⁷ While calculations of this nature are commonplace in the economics literature (Viscusi 1992), those outside the discipline are often resistant to such calculations. To the extent that the participants are overly optimistic about their own survival prospects (a common cognitive bias), these results may exaggerate their willingness to accept risk.

drug operation is increasing over time. Thus, part of the wage increase may not be due to the increased risk in the latter part of the sample, but to other factors. Taking a weighted average over all relevant months, average foot-soldier wages rise from \$161 per month before expansion to \$494 after expansion. The weighted average chance of death per person per month rises from .00415 before expansion to .00718 afterwards. This approach yields an implicit valuation of \$110,000 on a foot-soldier life, although for the reasons above it is likely to be upwardly biased.

The final two comparisons are between gang wages and market wages (both before and after expansion). We use an (after-tax) market wage of \$4.00 as the baseline.²⁸ We also assume that the likelihood of violent death is zero for non-gang members.²⁹ The average gang wage before expansion is \$5.30. Assuming 20 hours of work a week, the gang premium translates into an extra \$108 per month. Given a .00415 chance of death per month, the implicit valuation on life is \$26,100. A similar calculation for the post-expansion period yields a valuation of \$54,700. Note that these last two comparisons may overstate the willingness to accept risk if gang work is more pleasant than a formal-sector job or there are non-pecuniary benefits associated with gang membership.

In all four scenarios examined, foot-soldiers demonstrate an apparent willingness to accept risks of death with in return for small amounts of financial compensation. The values obtained in this paper are far below those typically found in the literature (Viscusi 1992). Our results are

²⁸ Because of low earnings, the tax rate on legitimate sector earnings is likely to be low. If, however, the individual lives in a household receiving AFDC and this income is reported, then the marginal tax rate may in fact be close to (or even greater than) one.

²⁹ Using the death rate of rank-and-file from this gang as the benchmark does not materially affect the conclusions.

consistent with the matter-of-fact manner in which foot-soldiers speak about death. For instance, one nineteen year-old foot-soldier described his situation as follows,

"It's a war out here, man. I mean everyday people struggling to survive, so you know, we just do what we can. We ain't got no choice, and if that means getting killed, well s---, it's what n----- do around here to feed their family."

Section IV: Regression Analysis

While the preceding section provides a broad overview of the factors impinging on gang finances, a major limitation on the analysis is the inability to disentangle the independent contributions of various factors. For instance, if the local drug market is growing over time, than attributing all of the increased revenues at the end of the sample to the gang's victory over the rival gang overstates the true impact. Regression analysis also allows for the removal of any seasonal component in the drug market. The primary limitations on the regressions is the limited number of available observations and the positive correlation between the various measures of risk (gang wars, deaths, injuries, and arrests).

The basic specification utilized is as follows:

$$DEPVAR_t = \alpha + \beta_1 WAR_t + \beta_2 TRANSITION + \beta_3 POST-EXPANSION + SEASON INDICATORS + TIME TREND + \epsilon_t$$

where t indexes time and $DEPVAR$ is any one of a range of possible gang financial measures: profits (as measured by the residual income stream accruing to the regent), price, quantity, markup, etc. WAR is an indicator variable equal to one if a gang war occurs in the month in question, or zero otherwise. WAR is best interpreted as a summary statistic for risk. Given the

limited sample, it is impossible to disentangle the individual contributions of the underlying risk factors (death, injury, and arrest), all of which are positively correlated. *TRANSITION* is an indicator variable equal to one in the five months during which the gang's turf was expanding, and zero otherwise. *POST EXPANSION* is an indicator variable equal to one after the expansion is complete, and zero otherwise. The omitted category is pre-expansion. Three seasonal dummies are included (spring is the omitted category), as is a linear time trend. When included, a quadratic time trend was never statistically significant and generally did not have a large effect on the key coefficients. Equation 1 is estimated using the Cochran-Orcutt procedure allowing for first-order serial correlation in the error term.

Table 6 presents the regression results. Each column corresponds to a different dependent variable. The results mirror those in the earlier tables. Wars are associated with dramatic declines in price, quantity, profit, drug revenue, and markups. Foot-soldier wages are positively related to wars. In all cases these estimates are highly statistically significant. The transition period is not very different from the pre-expansion months: quantity rises and price falls, but revenues, profits, and total surplus are statistically indistinguishable from the earlier period. The post-expansion months, on the other hand, represent a radical break. Total gang surplus and total drug revenues are over \$23,000 a month higher after the expansion, or roughly double the mean values for these variables observed over the sample. Interestingly, the increases in surplus go completely to the foot-soldiers, whose wage rises over \$4.00 per hour. The gang leader's profit, in stark contrast, actually falls slightly in column 2.

Somewhat surprisingly, there does not appear to be a strong seasonal component to any of the variables. In general, fall appears to be the best season for selling drugs, and summer the

worst. For most of the columns, however, one cannot reject the null hypothesis of no seasonal effects.

Even after controlling for the turf expansion, there are strong positive trends in gang surplus, profit, drug revenues, and quantity sold. Drug revenues, for instance, increased almost \$500 per month over the sample everything else held constant. All of this increase is due to an increasing quantity of drugs sold; price exhibits a negative, but statistically insignificant trend.

It is possible that gang wars have both contemporaneous and lagged effects on gang finances. To test that hypothesis, once-lagged values of *WAR* were added to the specifications in Table 6. Although never statistically significant, the lagged war variables take on the opposite sign of the contemporaneous war measure in almost every instance. For instance, drug revenues are roughly \$4,000 higher than otherwise would be expected in the month after a gang war (standard error equal to 2,500). This suggests that there is some intertemporal demand shifting taking place, with buyers delaying consumption until the gang war ends.

Section V: Conclusion

This paper provides the first detailed analysis of the financial activities of a drug-selling gang. The data imply that street-level drug dealing is not as lucrative as is generally perceived. Hourly wages for those on the lowest rung of the gang hierarchy, the street-level dealers, appear to be below the minimum wage. The wage structure within the gang is highly skewed, however, so that the more reasonable way to measure the economic rationale for gang participation is in the context of a tournament. Even viewed in this light, however, the economic returns to gang participation are relatively small compared to the enormous risks involved. The willingness to

accept a risk of death among gang members place appears to be extremely high. Gang violence appears to have important strategic components. During wars in the early part of the sample, the gang prices below marginal cost, possibly suggesting the presence of buyer switching costs that make market share maintenance valuable.

One policy implication of this research is the potentially valuable role for job-market interventions for high-risk youths (see also Grogger 1991). The relatively low returns to drug dealing suggest that the legitimate sector is a viable substitute for drug selling. Indeed, a large fraction of the low-level gang members in our data already have at least intermittent contact with the labor market. When gang wages rose in the latter part of our sample, participation in the legitimate labor market decreased. To the extent that the attractiveness of legitimate sector jobs can be improved, either through increased wages or more attractive jobs, youths may reduce gang involvement. The symbolic aspects of gang membership may, however, remain attractive.

It is impossible to know how representative the particular gang we study is. To the extent that the gang kept detailed financial records and was expanding prior to the police crackdown that led to their demise, one might suspect that this group was more economically sophisticated than the typical street gang. Consequently, it is difficult to know how broadly generalizable our findings are. Obtaining parallel data for other gangs remains an important challenge for future research.

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Table 1: Demographic, Social, and Economic Characteristics of the Neighborhood

Variable	Gang's census tracts	U.S. average
Percent Black	99.6	12.0
Employment status of males age 16+ (percent in category):		
Employed	37.7	69.3
Unemployed	21.0	4.8
Not in the labor force	41.3	26.0
Employment status of females age 16+ (percent in category):		
Employed	38.0	53.2
Unemployed	9.4	3.5
Not in the labor force	52.6	43.3
Percent of children in poverty	56.2	18.3
Percent of children in single-parent families	77.6	21.5
Percent of children in families receiving public assistance	60.3	12.3
Median family income	15,077	35,225
Educational Attainment (age 25+)		
Less than high school	49.3	24.8
High school	28.7	30.0
Some college	17.4	24.9
Bachelor's degree or beyond	4.7	20.3
Percent owner-occupied housing	10.4	64.2
Percent of housing units that are boarded up	15.3	0.4
Place of residence five years earlier (in percent)		
Same house	52.9	53.3
Different house, same county	44.2	25.5
Different county	2.9	21.3
Ratio of black females to males (ages 22-29)	1.22	1.10

Notes: All data is from the 1990 Census of Population and Housing, located at the United States Census web-site www.census.gov. The values in the first column report population weighted averages for the two census tracts in which the gang operates. For the variable median family income, a simple average of the two medians is taken. Percent of children in single-parent families is calculated as the fraction of children not living in a family with married parents.

Table 2: Gang Finances by year
Monthly Averages in 1995 dollars

Category	Year 1	Year 2	Year 3	Year 4
Total revenues	18,500	25,600	32,000	68,400
Drug sales	11,900	19,100	24,800	53,000
Dues	5,400	5,200	5,100	9,600
Extortionary Taxes	1,200	1,300	2,100	5,800
Total non-wage costs	8,100	11,600	14,000	25,200
Cost of drugs sold	2,800	4,000	5,000	11,900
Tribute to gang hierarchy	3,200	4,400	5,000	6,000
Mercenary fighters	1,000	1,000	1,300	1,200
Funerals/Payments to families of the deceased	300	1,200	0 ^a	1,100
Weapons	300	400	300 ^a	1,800
Miscellaneous expenses	500	800	2,400 ^a	3,200
Total gang wages	6,200	8,000	9,500	32,300
Officers	2,600	2,600	2,100	3,300
Foot-soldiers	3,600	5,400	7,400	29,000
Net profit accruing to leader	4,200	6,000	8,500	10,900
Monthly wage per foot-soldier	140	200	180	470
Price and quantity of drugs sold:				
Quantity	1,310	2,054	3,109	7,931
Price	8.64	9.18	8.00	6.69

Notes: Data in table reflect monthly averages for the year listed at the top of the table. Values are based on monthly data for the four-year period. Data are unavailable for 6 of the 48 months in the sample, with yearly averages based only on those months with data. Dollar values have been converted into 1995 dollars using the GDP deflator. All values are rounded to the nearest hundred dollars. Estimates include only revenue sources included in official gang records. The units on quantity are number of “bags,” an artificial unit of measure that roughly matches the number of drug transactions that take place. The price is a price per “bag.”

^aDetailed information on the breakdown of some cost categories is unavailable for five months of year 3; all such costs are allocated to the category “miscellaneous.”

Table 4: The Impact of Gang Wars on Gang Finances
Monthly Averages in 1995 dollars

Category	Pre-expansion		Post-expansion	
	Gang war	No gang war	Gang war	No gang war
Total revenues	17,100	25,600	54,500	76,900
Drug sales	10,900	19,000	44,500	58,900
Dues	5,300	5,300	10,000	10,000
Extortionary Taxes	900	1,300	0	8,000
Total non-wage costs	10,200	10,600	30,400	24,500
Cost of drugs sold	2,800	3,900	11,300	12,800
Tribute to gang hierarchy	1,400	5,000	5,800	5,900
Mercenary fighters	3,600	0	5,000	0
Funerals/Payments to families of the deceased	1,000	300	2,300	800
Weapons	600	300	3,000	1,600
Miscellaneous expenses	800	1,100	3,000	3,400
Total gang wages	7,900	6,600	25,600	37,600
Officers	1,500	2,900	2,300	3,800
Foot-soldiers	6,400	3,700	23,300	33,800
Net profit accruing to leader	-1,000	8,400	-1,500	14,800
Monthly wage per foot-soldier	220	130	370	540
Price and quantity of drugs sold:				
Quantity ("bags")	1,442	2,019	7,556	8,563
Price (per bag in 1995 dollars)	7.12	9.54	5.90	6.86
Lerner index ((P-MC)/P)	-.08	.59	.22	.21

Notes: Data in table reflect monthly averages for the time periods in which a gang war is or is not ongoing,, both before and after the expansion in territory. The five months corresponding to the transition period associated with the growth in territory are excluded from the table due to ambiguity about the presence or absence of a gang war. Values are based on monthly data for the four-year period. Data are unavailable for 6 of the 48 months in the sample. All dollar values have been converted into 1995 dollars using the GDP deflator. All values are rounded to the nearest hundred dollars. In the Lerner index, marginal cost is calculated as cost of goods sold plus foot-soldier wages. Estimates include only revenue sources included in official gang records.

Table 3:Gang Participation as a Tournament

	Estimated hourly wage including only official income sources			Estimated hourly wage, including both official and unofficial income sources		
	Average wage for all gang members	Gang Leader wage	Foot-soldier wage	Average wage for all gang members	Gang Leader wage	Foot-soldier wage
Year 1	\$4.80	\$25.20	\$1.70	\$5.90	\$32.30	\$2.50
Year 2	\$5.90	\$36.00	\$2.40	\$7.40	\$47.50	\$3.70
Year 3	\$5.60	\$51.00	\$2.20	\$7.10	\$65.90	\$3.30
Year 4	\$8.70	\$65.40	\$5.60	\$11.10	\$97.20	\$7.10

Notes: Estimates in the first three columns are based on the data reported in Table 2. Estimates in the last three columns attempt to correct for possible under-reporting of income due either to theft or “off-book” transactions. We assume that ten percent of the value of drug sales is obtained “off-book” by the gang leader and that fifteen percent of the value of drug sales is appropriated by the foot-soldiers. We assume 20 hours a week of work by foot-soldiers, and 40 hours a week by the gang leader and other gang officers. In addition, we assume that this gang is typical of the roughly 100 gangs operating within the larger organizational structure both in terms of tribute paid to the central leadership and with respect to the probability of advancement to the central leadership. The average wage for the organization as a whole includes the profit component of payments to the central leadership (assumed to be 75 percent of the overall tribute). All dollar values are in 1995 dollars.

Table 5: Frequency of Adverse Events

Adverse Event	Likelihood of occurrence per person month					Cumulative frequency over four year period
	Pre-Expansion		Transition period	Post-expansion		
	Gang war	No gang war		Gang war	No gang war	
Violent death	.012	0	.018	.021	.002	.277
Non-fatal wound or injury	.078	.033	.100	.075	.051	2.40
Arrest	.155	.103	.214	.219	.133	5.94
Number of months in sample	9	17	5	3	8	42

Notes: Data are based on interviews, research notes gathered over the course of the period, and gang records. Adverse events include only those affecting core gang members (i.e leader, other officers, foot-soldiers). The first four columns capture monthly frequencies, the final column is the cumulative frequency over the four years in our study, taking into account the fraction of months that fall into each category in the sample. Note: Data on these adverse events are still preliminary and are subject to revision.

Table 6: Regression Results

	Gang surplus (leader profit plus wages)	Gang leader profit	Revenues from drug sales	Foot-soldier hourly wage	Price	Quantity	Lerner Index ((P- MC)/P)
Gang war	-13,407 (2,210)	-11,030 (1,307)	-10,982 (1,830)	1.30 (.45)	-1.90 (.38)	-879 (147)	-.52 (.09)
Transition period	1,352 (3,496)	-998 (2,038)	690 (3,248)	1.08 (.76)	-1.49 (.84)	719 (225)	-.34 (.19)
Post-expansion	23,735 (3411)	-444 (1,983)	24,340 (3,246)	4.07 (.75)	-2.09 (.89)	4,818 (218)	-.52 (.19)
Summer	-1,546 (2,393)	-771 (1,402)	-1,531 (2,125)	-.07 (.51)	.06 (.50)	-144 (156)	.02 (.11)
Fall	3,685 (2,261)	4,456 (1,319)	3,048 (2,085)	-.13 (.49)	.60 (.52)	325 (145)	.18 (.12)
Winter	2,045 (2,681)	2,737 (1,575)	1,283 (2,336)	-.05 (.56)	.55 (.53)	-83 (175)	.09 (.12)
Monthly trend	261 (106)	162 (62)	483 (101)	.004 (.023)	-.006 (.028)	57 (7)	.012 (.006)
Intercept	12,120 (2321)	5,204 (1,352)	12,193 (2,178)	1.83 (.51)	9.15 (.59)	1,238 (149)	.29 (.13)
ρ	-.23	-.26	-.03	-.10	.23	-.30	.24
Adjusted R- squared	.90	.80	.94	.74	.50	.99	.34
Mean of dependent variable	22,294	7,474	28,267	3.41	8.05	3,789	.47

Notes: Dependent variable is listed at the top of each column. The unit of observation is a month. Data covers a four-year period, with six months missing over the sample. All values in dollars except for quantity, which roughly corresponds to number of bags sold, and the Lerner index. The Cochran-Orcutt estimation method is used to allow for first-order serial correlation. ρ is the estimated degree of serial correlation. All estimates are based on official gang records and have not been corrected for potential under-reporting. Standard errors in parentheses.

Figure 1: Organizational Structure

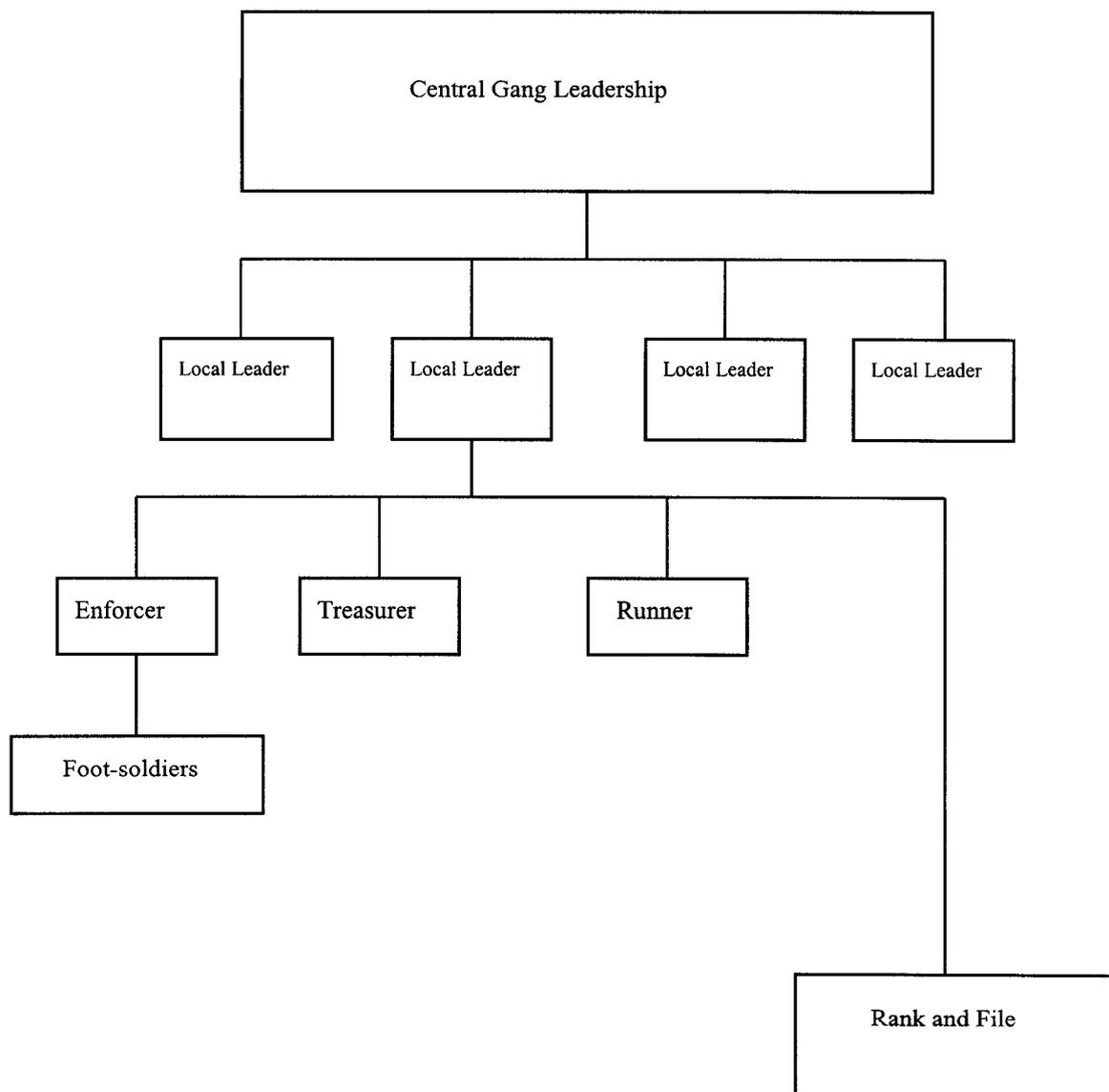


Figure 2: The Geographic and Competitive Landscape of the Gang

