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THE IMPORTANCE OF FAMILY AND COMMUNITY
SOCIAL CAPITAL PRIVADO IN THE CREATION OF
HUMAN CAPITAL IN URBAN COLOMBIA

Resumen

Este documento explora la relación entre el capital social comunitario y familiar, y la acumulación de capital humano en las zonas urbanas de Colombia. El análisis considera diversos índices para medir el capital social comunitario: problemas de conflicto entre vecinos; de armas; de prevalencia de drogas; y de la presencia de centros de prostitución en el barrio o sector; y la presencia de actos violentos en el vecindario. El índice del capital social familiar considera los siguientes factores: la falta de material de lectura para los niños; el abuso infantil; la presencia de problemas de drogas o alcohol en la familia; y el tiempo que lleva la familia viviendo en el vecindario. El trabajo descriptivo estudia la distribución regional del capital social. El análisis *Logit* es utilizado para evaluar el efecto del capital social familiar y comunitario en la probabilidad de abandonar la escuela entre los 7 y los 17 años, controlando por una serie de características individuales, familiares y regionales. El análisis econométrico se realiza a nivel de las alcaldías en Bogotá, así como para las principales áreas urbanas en su conjunto. La investigación utiliza la *Encuesta de Pobreza y Calidad de Vida en Bogotá de* 1991 y la *Encuesta Nacional de Calidad de Vida de* 1993.

Los resultados descriptivos muestran la existencia de múltiples problemas asociados con un bajo capital social en la familia y la comunidad, así como una alta variación geográfica. Los resultados econométricos muestran lo relevante de la ausencia de capital social en la familia y en la comunidad como determinante de la probabilidad de abandonar la escuela tanto a nivel primaria como secundaria. Los cambios marginales y las simulaciones sugieren que los conflictos en el vecindario, así como los problemas con drogas, son factores importantes a nivel de la comunidad para determinar la probabilidad de que los niños y jóvenes no continúen en la escuela. La falta de acceso a materiales de lectura, el abuso infantil y los problemas con drogas en la familia, se encuentran entre los factores más importantes asociados con la deserción escolar en primaria y secundaria. Al controlar por efectos de pobreza, así como por efectos fijos a nivel regional, los resultados econométricos mencionados se ven reforzados.

Abstract

This paper explores the relationship of community and family social capital to the accumulation of human capital in urban Colombia. The analysis considers a variety of measures of both community social capital including: problems with conflict among neighbors, gangs, drugs, and 'nightlife' or centers of prostitution in the barrio or sector; and, the prevalence of violent acts in the neighborhood. The measures of family social capital are: if children have non-scholastic reading materials; prevalence of abusive behavior toward children; drug or alcohol problems in the family; and, duration of affiliation with a community or neighborhood. The descriptive work considers how community and social capital vary geographically. Logistic regression analysis is used to evaluate the effect of family and community social capital on the probability of school drop out among children and youth age 7 to 17, controlling for a series of individual, family and regional characteristics. All of the quantitative analysis is undertaken at the level of the alcaldías of Bogota, as well as among the major cities. The research makes use of both the 1991 Encuesta de Pobreza y Calidad de Vida en Bogotá and the 1993 Encuesta Nacional de Calida de Vida.

The descriptive results show a high prevalence of many of the problems associated with low family and community social capital, as well a substantial degree of geographic variation. The empirical results show the importance of the absence of both community and family social capital in determining the probability of school drop out at both the primary and secondary level. The marginal changes and simulations suggest that neighborhood conflict and drug problems are important factors at the community level in determining the probability that children and youth do not remain in school. Lack of access to reading materials, as well as abuse and drug problems in the family are among the most important factors associated with not remaining in school at both the primary and secondary levels. Controls for poverty and geographic fixed effects reinforce these results.

Introduction

Investment in the schooling of children and youth produce direct pecuniary and non-pecuniary private benefits to the young person and to their family.[1] Schooling also results in direct benefits to society. Children and youth that drop out of school are more likely to engage in adverse behaviors that not only diminish their personal life chances, but also reduce the quality of life in the community.[2]

A range of individual, family and community characteristics influences the likelihood of school attendance during childhood and adolescence. The concept of social capital suggests a means of highlighting an important subset of these factors. Non-financial resources available to the family, such as community ties, and those existing within the family, such as parental involvement, have profound implications on school attendance at both the primary and secondary levels and hence on educational attainment. The endowments of resources that constitute social capital differ among communities and families, thus constituting a determinant of the success of individual children in the development of their human capital and later-life productivity. Investments in social capital form an important component of the productivity of direct investments in the education and development of children and youth (Coleman, 1988).

The purpose of this paper is to investigate the impact of family and community social capital on the accumulation of human capital. Urban Colombia is used as the case for the empirical analysis. The analytical findings provide important suggestions in terms of the formulation of programs as many of the determinants of social capital, and hence of school dropout, are policy-sensitive variables.

The first part of the paper provides an brief overview of the recent literature on the links between social and human capital. This section also includes a brief review of prior research on human capital formation in Colombia. The next section develops a theoretical framework, based on the work of Coleman (1988) and Becker (1996). The following section presents the data used in the analysis. Section 5 describes the empirical specifications. Descriptive information on school drop out and social capital is provided in section 6. The results of the regression analysis are

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[1] The relationship between education and individual earnings has been formalized in the theory of human capital developed in Becker (1964) and extensively tested empirically in a variety of developed and developing countries. In Colombia, see for example, Berry *et al.* (1993), Berry (1993) and Tenjo (1993, 1993a and 1993b). Psacharopoulos (1994) provides an overview of returns to education in several countries.

[2] An extensive empirical literature has been developed on these relationships. For a partial overview see Flórez and Knaul (1996) and World Bank (1995).

given in section 7. The final part provides recommendations for policies and programs.

The literature on definition has been paralleled by on-going work on the appropriate indicators and measures of the stock and flow of social capital (Knack and Keefer, 1997; Adams and Someshwar, 1997; Narayan and Pritchett, 1997). This process has not yet generated definitive results, and much of the existing literature centers on formulating and testing indicators of social capital. One of the objectives of this paper is to consider a range of possible, albeit partial indicators of social capital.

The research in this paper considers the situation of children and youth aged 6 to 17. The analysis differentiates, where possible, between primary and the secondary school groups.

The relationship between social and human capital

One of the most important and original developments in recent economic theory is the extension of the concept of physical capital to include human capital (Schultz 1961; Becker 1964). Just as physical capital is created by changes in materials to form tools that facilitate production, human capital is created by changes in persons that generate skills and capabilities. The accumulation of human capital is an important goal for both countries and individuals given its role in promoting economic growth and potential for alleviating poverty, in addition to the intrinsic benefits of education. An impressive literature has been devoted to the study of the most effective means of promoting the accumulation of human capital, and particularly education.

In contrast to human capital, social capital is accumulated through changes in the relations among persons that facilitate action. The benefits from physical and human capital are generally viewed as being captured by the individual making the investment; this is not so with social capital. The benefits accrue within the family and beyond to the community (Coleman 1990). Social capital is also more difficult to measure and define than human capital.

According to Putnam *et al.* (1993), social capital refers to features of social organization, such as networks, norms and trust that facilitate coordination and cooperation for mutual benefit. Moreover, these stocks of social capital tend to be self-reinforcing and cumulative. Successful collaboration in one endeavor builds connections and trust. These can be conceptualized as social assets that facilitate future collaboration in other tasks. Trust is an important element of Fukuyama's

(1995) concept of social capital. He argues that social capital is a capability that arises from the need to form mutual alliances in society.

Loury (1977, 1987) is one of the first to introduce the language of social capital into economics. He argues that the deleterious consequences of past discrimination for, say, a racial minority, are reflected in the fact that minority young people have, on average, less favorable parental influences on their skill-acquisition processes. Further, families group themselves together into communities. This means they have access to certain local public goods, such as public education, and are influenced by peer pressures that shape the development of personal character. Also, they have contacts that generate information about the world of work and enjoy friendship networks that evolve among persons situated in the same or closely related communities. Access to the relatively well off communities depends on parents' social status, providing another avenue by which parental background influences offspring' achievement—hence, another source of social capital (Loury 1987).

Recent work has highlighted mechanisms through which social capital generates cooperative action thereby positively affecting economic outcomes, and hence be considered to be 'capital' (Collier, 1998). Narayan and Pritchett (1997) highlight five mechanisms through which social capital is coincident with cooperative action that facilitates economic improvement: the promotion of public sector efficiency; providing solutions to problems with local, common property elements; through the diffusion of innovation by way of linkages among people; by reducing information imperfections; and, by providing a means of sharing household risk.

From French sociologists comes the concept of "cultural" and "social" capital (Bourdieu 1977; Bourdieu and Passeron 1977). In addition to material wealth (financial capital), children of the wealthy are more likely than others to receive "cultural capital"—or various forms of knowledge, dispositions and skills. The possession of cultural capital and financial capital enhances one's opportunities in the marketplace. Bourdieu also has his own version of "social capital," whereby he refers to interpersonal connections that enhance one's professional advancement. These theories have been applied in the French, Greek (Katsillis and Rubinson 1990) and American (Zweigenhaft 1992) contexts.

Given that social capital is a function of the actions of a group of people, the "community" may also be analyzed at various levels including the family, the neighborhood and larger geographic areas (Coleman 1988). In the case of the family, social capital is embodied in the relations between children, parents and other members of the household and relatives. Social capital may facilitate the

accumulation of education through a series of mechanisms at the level of both the family and the community.

At the level of the family, human capital stocks may be less relevant to outcomes for children if parents are not an important part of their children's lives or if the relations between parents and children are mediated by negative behavior such as abuse. That is, the presence of social capital impacts on the efficacy of using the human capital of the previous generation to develop the capacities of the next generation (Coleman 1988, 1990). . For example, in one public school in the United States where texts for school use were purchased by children's families, school authorities found that a number of Asian immigrant families purchased two copies of each textbook needed by the child. It was later revealed that the family purchased the second copy for the mother to study in order to help her child do well in school (Coleman 1988, 1990). This is a case in which the human capital of the parents, at least as measured traditionally by years of schooling, may be low, but the social capital in the family and available for enhancing the child's formal education is high and facilitates the task of the school.

Community social capital is directly relevant to individual outcomes such as educational attainment, as well as to indicators of the well-being of a community. Putnam *et al* (1993) refer to vertical (hierarchical) and horizontal associations suggesting that states and markets may operate more efficiently where the latter prevail. As the experiment with regional government in Italy shows, the North is more successful partly because of norms of reciprocity and networks of civic engagement which have been embedded in horizontal associations and have fostered the accumulation of both physical and human capital. In the South, social and political relations are vertically structured.

Social capital is likely to have an impact on the accumulation of human capital at the aggregate level for a variety of reasons. Societies characterized by greater degrees of social capital are likely to have higher returns to the accumulation of human capital for a number of reasons (Knack and Keefer, 1997). Improvements in access to credit facilitate school enrollment, particularly at the secondary and tertiary levels. Further, better performance of local government encompasses the public education sector, and schools of better quality translate in greater accumulation of education in part because families are more willing to enroll their children. Finally, high trust societies have less need to use personal ties to guide hiring decisions and may rely more heavily on educational credentials to screen applicants.

The theoretical underpinnings of social capital theory have been tested in a number of empirical applications, several of which stress the potential positive impact on scholastic achievement. Coleman (1988) examines the effects of a lack of

social capital on school attainment. Using the 1980-82 United States 'High School and Beyond' sample of students, Coleman documents the relationship between dropout rates for students in different types of families and with differential access to family and community social capital. Using proxies for social capital such as mother's expectation for child's education, he measures the marginal impact of social capital, controlling for human and financial capital, children's success in school.

Community social capital, proxied by the number of residential moves since the fifth grade, also appears to be an important determinant of school drop out. Those children who move least are less likely to dropout of high school (Coleman 1988). For families that have moved often, the social relations that constitute social capital are severed. In a replication of Coleman (1988), but focused entirely on the southern states, Smith, Beaulieu and Israel (1992) present similar findings based on the 1980-82 'High School and Beyond' survey. The likelihood of dropout is reduced if the individual actively participates in church organizations, and if the individual has not moved since grade 5. Adolescents living in an urban environment lacking appropriate role models are likely to express skepticism towards the rewards of education. Using an ethnographic approach based on interviews with 50 impoverished families, Kelly (1994) demonstrates how in a major city in the United States the lack of cultural and social capitals, as expressed by social networks, negatively affects youths perceptions of the need to continue their schooling. Case and Katz (1991) provide suggestive evidence that, regardless of race, inner-city youth living in neighborhoods with high levels of social capital are more likely to stay in school, have a job, and avoid drugs and crime, controlling for their individual characteristics. This study illustrates the important effects of neighborhood peer influences on youth behavior. For example, youths that had family members in jail when they were growing up were more likely to be involved in criminal activity.

Recently, a series of studies have provided empirical evidence on the causal relationship between social capital and educational attainment at the country level. Knack and Keefer (1997) find that social capital, measured by trust and the presence of civic norms, has an important impact on economic growth in a cross-section of countries. They also find evidence of a causal impact of social capital on education. La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997) find that, at the cross-country level, trust is positively associated with a series of indicators of social success. They find a large impact on educational achievement measured by the proportion of the population with completed high school, and the adequacy of the educational system. These results are robust to endogenizing the social capital variables.

The majority of the studies on social capital have been applied in developed countries. In one of the few studies on social capital in a developing country, Narayan and Pritchett (1997) analyze the impact of social capital on household

income in rural Tanzania. They find a strong, positive relationship between household expenditure and social capital. This relationship holds after endogenizing the social capital variables. Further, there is evidence of spillover effects as community social capital has an independent impact on the income of individual families.

There are few quantitative studies on the impact of social on human capital in Colombia. Mohan (1986) evaluates the effect of residential location on human capital accumulation and earnings determination. While human capital explains most of the earnings differential, current residence is also important. Mohan suggests that location of residence captures factors left out of standard human capital models, such as the quality of schools and social class. He also hypothesizes that to be born and raised in a poor area implies limited aspirations and poor contacts and networks; in other words, a lack of social capital. Tenjo (1990) demonstrates the relationship between networks of friends, relatives and acquaintances, and connections (or *palancas*)—other forms of social capital—and unemployment experience in Colombia using wealth to partially capture the effect of social networks. Londoño (1992) that considers the geographic variation in a series of indicators of social and human capital, and the relationship between the two at the level of the *departamento* in Colombia.

For the purposes of this paper, it is also important to consider the large body of existing work on other determinants of schooling in Colombia. While this paper does not provide an exhaustive overview of existing studies, it does highlight some of the findings that are most relevant to the analysis. For a detailed overview of the literature on the determinants of human capital, particularly in Colombia, see Berry *et al.* (1993) and Knaul (1995). There is also an important literature on educational attainment as well as levels and determinants of crime and other community problems. On the colombian case, see for example Vélez (1995) and World Bank (1994) on the former, and Camacho (1993) and Gaitan (1994) on the latter.

There is considerable evidence on the benefits of investment in human capital in Colombia. The returns to schooling have apparently decreased from approximately 18% in 1973 to 15% in 1989 for men, and from 21% to 13% for women (Psacharopoulos 1993). Studies also suggest that the returns to primary schooling, at approximately 20%, exceed those to secondary, which in turn are higher than the returns to university education (Psacharopoulos 1994). Psacharopoulos y Ng (1992) present rates of return that suggest that the earnings penalty associated with not completing primary school is very high. The earnings of primary school drop outs is almost one-third lower than those with a complete primary education. Knaul (1995) provides evidence to suggest that those who drop out of school incur a substantial earnings penalty, even if they do experience some benefits associated with early labor force experience. In addition, the probability of

being poor is reduced from 21% in households where the head is illiterate. to less than 4% in households where the head has received 12 years of schooling (World Bank 1994). Thus. schooling, especially primary education, is a profitable investment for the individual and for society as a whole.

The brief review of the international empirical literature on social capital demonstrates that both family and community social capital, even after controlling for financial and human capital, are important determinants of educational outcomes. This suggests the usefulness of developing analytical tools to identify the aspects of social capital that are most amenable to policy change and likely to have the largest impact on the accumulation of human capital.

Theoretical framework

Becker (1996) uses the concept of social capital to extend the utility-maximizing approach to decision making to include endogenous preferences. Individual preferences are extended to include personal habits and addictions, peer pressure, parental influences on the tastes for children, love, sympathy and a series of other behaviors that had not previously been dealt with explicitly in these models.

Becker's approach incorporates experience and social forces into preferences or tastes through two basic capital stocks. Personal capital includes the relevant past consumption and other personal experiences that affect current and future utilities. Social capital incorporates the influence of past actions by peers and others in an individual's social network and control system. An individuals personal and social capital form part of their total stock of human capital. The methodology that has been used to study the effects of investments in human capital on earnings is applicable to investments in personal and social capital, although rates of return on such capital cannot be directly measured since.

Utility functions depends on goods consumed but also on the stock of personal and social capital. In the following formulation:

$$u = u(x_t, y_t, z_t, P_t, S_t) \qquad (1)$$

x. y and z are different goods, including advertisements, education and other determinants of preferences. Personal capital (P) is determined by past consumption and influences future consumption. Greater personal capital of one-type stimulates the demand for investment in other types of personal capital if they are complements. For example, addictive capital and the consumption of addictive goods are complements. This has implications for habit formation.

In the utility function given above, (S) is social capital. The formation of social capital can be expressed as:

$$S^i_{t-1} = X^i + (1 - d_s)S^i_t \qquad (2)$$

Where d_s is the depreciation rate on social capital, and $X^i = \sigma(x^i)$ is the effect of choices by the j members of i's network on his social capital.

The influences of others members of the network on a person's utility come through the stock of social capital. Since this capital captures the effects of the social milieu, an individual's stock of social capital depends not primarily on his own choices, but on the choices of peers in the relevant network of interactions. Once a social network is given, people have little control over the production of their social capital, for that is mainly determined by the actions of peers and relevant others. An increase in a person's social capital increases their demand for goods and activities that are complements to the capital and reduces the demand for those that are substitutes. For example, a teenager may begin to smoke, join a gang, and neglect studies mainly because friends smoke, are gang members and do not pay attention to school.

Equations (1) and (2) provide a framework for conceiving of the demand for social capital as a good in and of itself that figures into the individual utility calculus. Within a framework of the demand for education, both family and community social capital may figure as intermediate goods that affect the production of education. Following Coleman (1988), positive family and community social capital may have a negative impact on human capital formation.

Data

The analysis presented below makes use of both the expanded version of the Survey of Poverty and Quality of Life in Bogota (SPQLB—*Encuesta sobre Pobreza y Calidad de Vida en Santafé Bogotá*) collected in 1991, and the urban part of the National Survey of Quality of Life (NSQL—*Encuesta Nacional de Calidad de Vida*) undertaken in 1993. Both surveys were administered by the Colombian National Administrative Department of Statistics (*DANE Departamento Administrativo Nacional de Estadística*).

The SPQLB includes 2,900 families. The survey includes information on socio-economic characteristics of the family, as well as a relatively standard household labor force participation module. The additional sections in the longer questionnaire are devoted to such issues as household expenditures, wealth, living conditions and

practices of the household, family belongings, perceptions of social problems and needs, and the history of the head of the household and his/her parental home.

The sample is designed to be representative at the level of the *alcaldia*, of which there were 19 in Bogota at the time the survey was undertaken. Sample size and representativity are based on guaranteeing a measure of Unsatisfied Basic Needs.[3] The survey is by area, multistage and stratified and includes expansion factors that are used in the descriptive analysis.

The NSQL is a national survey that includes a questionnaire for each of the rural and urban areas. This research is restricted to the urban survey as it includes more information on social capital. The sample is designed to be representative of the urban areas as a whole, as well as each of Santafé de Bogota, Medellin with Valle de Aburra, Cali and Yumbo, Barranquilla and Soledad, and the rest of the urban areas as a whole. The urban sample includes 22,160 homes of which 4,968 are from Bogota, 4,467 from Medellin, 3,970 from Cali, 2,655 from Barranquilla and 6,110 from the rest of the urban areas of the country. The survey is by area, multistage and stratified and includes expansion factors that are used in the descriptive analysis (DANE 1994).

The questionnaire has sections on physical conditions of the home and access to basic services, household expenditures, the health of children aged 5 and younger, the level of education of children and adults aged 5 and over, the work of children aged 5 to 11, the work and working conditions of youth and adults aged 12 and over, living conditions and practices of the family, and family history and perception of quality of life of the household head. The national survey is somewhat less inclusive than the SPQLB in terms of information on social capital.

The use of both the Bogota and the national survey allows for a more complete analysis of social capital in Colombia and the impact on schooling. The SPQLB has the advantage of providing more detailed information on both family and community social capital. Still, the relatively small sample size coupled with the fact that being out of school is a rare event in Bogota among primary school age children, makes it impossible to differentiate between younger and older children for either the descriptive or the empirical analysis. The NSQL includes fewer measures of social capital, yet the much larger sample size and higher prevalence of school dropout in smaller cities makes it possible to evaluate the differences between primary and secondary school-age children.

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[3] The original measure of Unsatisfied Basic Needs in Colombia is a mix of the following indicators: primary school-aged children not attending school, inadequacy of housing, lack of access to public utilities, high household occupation density, and large number of dependents per wage earner per household. See World Bank (1994) for a more detailed description of this indicator.

Empirical specification and description of measures of social capital

This paper, following on Coleman (1988), evaluates the effect of various measures of family and community social capital on the probability of dropping out of school among children and youth aged 7 to 17, controlling for several individual, family and regional characteristics. A logistic regression is used to model the effects of financial capital, human capital and social capital on primary school dropout. The model expresses the probability (P) of being a dropout as a function of various characteristics (X) such as individual, household, demographic and social capital.

$$P = \frac{1}{1 + e^{-\Sigma \beta_i X_i}}$$

The partial derivatives indicate the change in the probability of being a dropout, relative to a single unit change in one of the independent variables and evaluated at the means of the other independent variables. These are specified as follows, where ß is the logit coefficient:

$$\frac{\partial P}{\partial X_i} = \beta_i \, P \, (1 - P)$$

The dependent variable for the logit equations is defined as unity if the child is not attending school. Dropout is based on an answer of 'no' to a question about current school attendance. The question is the same in both the SPQLB and the NSQL.

The sample for both Bogota and the national survey is restricted to children and youth aged 7 to 17. The lower bound is defined at age 7 because the high rates of non-attendance among 6 year olds is taken to reflect late entry into school as opposed to drop-out or a likelihood that the child will never attend school. For reasons of sample size mentioned above, the analysis for Bogota uses the sample of children aged 7 to 17, a group that includes both primary and secondary school ages. For the national data, the analysis is repeated for 7 to 13 and 12 to 17 year olds. The overlap for 12 and 13 year olds is due to the fact that late entry and grade repetition make it likely that while some children progress to secondary school, many are still in primary at these ages.

This research included an exhaustive evaluation of information from each of the two surveys that might be considered an indicator of family or community social capital. A list of these variables and the results of the analysis are given in Tables 1

and 2. The variables are classified according to: use in both the descriptive and the regression analysis and by the regression in which they were placed; used only in the descriptive analysis; and, considered but not used to issues of sample size or quality of the information. The variables that were selected for the descriptive and multivariate analysis are those that were most likely to be appropriate indicators of social capital based on the existing theoretical literature, and those that were sufficiently prevalent to be measured with accuracy using the available survey data.

The analysis for Bogota includes descriptive information on five indicators of community social capital. Four of the indicators refer to the proportion of children whose families report that they experience specific problems in their *barrio* or *sector*, which is assumed to approach a neighborhood.[4] These problems are conflict or scandals among neighbors, presence of gangs, use or consumption of drugs, and presence of 'nightlife' or centers of prostitution. Each of these problems is expected to aggravate dropout.

An additional measure of community social capital is the proportion of children aged 7 to 17 in the *seccion* whose families have suffered a violent act, excluding the child's own family.[5] The indicator is the sum of two questions, the first of which refers to violent acts over the year prior to the survey. The question defines violent acts to include assault, robbery, rape, homicide, physical injury from an attack, kidnapping, disappearance, aggressive conduct, and abuse or negligence at the hand of the police. The majority of positive responses refer to robbery. The second question asks if a member of the family died violently in the year prior to the survey. Again, the indicator is expected to display a negative relationship to school attendance yet was insignificant in the regressions.

As a proxy for measuring the impact on school dropout of maintaining a long-term affiliation with a community or neighborhood and of repeated migration, the number of years that the family has lived in the *sector* is also included. The sign on this variable should be negative if community ties, which are broken with migration, are important for keeping children in school. On the other hand, for families who live in neighborhoods with low social capital, remaining for a longer period of time may be positively associated with school dropout. Given that neither the data nor the theory provide a clearcut means of differentiating between these two hypotheses, less

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[4] According to the data from the NSQL, a *sector* includes an average of 21,600 individuals.

[5] These were aggregated at the level of the *seccion* (average of 16,000 people) and *segmento* (average of 6,100 people), in order of size of the conglomeration. Only the *seccion*-level aggregation gave useful measures due to issues of sample size. The other level, while being small and hence more closely approaching a neighborhood, did not include a sufficient number of households. The variables exclude the child's own family.

emphasis is placed on this variable than on the other measures of community social capital. [6]

The analysis includes five measures of family social capital for the Bogota sample, all of which are included in the descriptive analysis. The first is if the child's family provides children aged 12 and younger with books for recreational reading, dictionaries or encyclopedias. This indicator is expected to have a negative sign in the regression on the probability that youth are out of school. The proportion of families who report using abusive behavior in disciplining their children is used as another measure, and is expected to have a positive sign. Abuse is a very difficult concept to define, and in this case includes kicking, hitting with objects (wire, sticks), and using a belt or other severe forms of punishment. Verbal reprimands, restriction of activities and slaps are also given as possible response categories, but are not included in the definition of abuse employed in this study. [7] The third family social capital variable, expected to have a positive sign, is whether or not the family includes a member who suffers from drug or alcohol problems.

Finally, the analysis considers the impact of living in a one-parent family, as well as the number of children less than 17 years of age. For the Bogota survey the measure of number of children is defined to include all relatives living in the household, while for the analysis of the urban areas the variable includes only the siblings or in other words the children of the household head. In all cases, the count of the total number of children excludes the child who is the subject of the analysis. These variables are designed to measure the potential amount of time that parents might have to devote to each child, and follows Coleman (1988). The larger the family and the fewer parental members, the less adult time is likely to be devoted to each child and the higher the probability of dropout. Still, and particularly in the case of 'sibship', these regressors may be proxying for family income and education.

A number of other variables were also analyzed as potential measures of social capital. These variables either proved to be highly correlated with the variables included in the analysis, or rare events that were not likely to be accurately measured in the surveys. The additional community social capital variables, aggregated at the smallest possible geographic level given sample size limitations, include: the proportion of individuals in a *sector* who say that they participated in community organizations (*actividades de clubes o grupos culturales, sociales o deportivos*), the

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[6] The regressions discussed below are robust to the exclusion of the 'time in community' variable.

[7] The analysis was repeated using a more restrictive definition of abuse that excludes use of a belt. The regression results were of the expected sign and less significant probably due to the reduced number of people who reported severe abuse.

proportion of families who report that a member has a drug or alcohol problem, and the level of youth unemployment.[8]

For family social capital the following variables were explored as indicators of potential time to spend with children: if at least one parent has less than two days off per week to rest; if head of household has taken a vacation with the family in the past year; if parents read, listen to music, do sports or take time off outside of the city at least once per month; number of hours spent by all adult family members aged 12 or over on household tasks and child care divided by number of children aged less than 12 years. The following were considered as measures of the family's perception of the importance of education and awareness of current events: if parents bought books or newspapers in the month prior to the survey; and, if the head of the household has or thinks it necessary to have completed secondary education, newspapers and magazines, books for children in addition to school books, outings with the children at least every two weeks, toys and sports equipment for children, books for reading and consultation, or a desk for study and work.

As mentioned above, the national survey includes fewer measures of social capital. Neighborhood problems with gangs and drugs, and having suffered a violent act are used as measures of community social capital with only the drug problem variable included in the regressions. Abusive behavior toward children, one-parent families, number of children below the age of 17, and presence of family members with drug or alcohol problems are used as measures of family social capital. The latter measure is not used in the regression analysis.

The regressions for both Bogota and the urban areas include a dummy variable for gender under the assumption that there are differences between girls and boys. The specifications also include a linear and a squared term for age of the child as drop out tends to be high among the youngest children, to fall, and then to rise among youth. Further, mother's education and per capita family wealth are included as these are expected to be highly associated with drop out and potentially correlated with family and community social capital factors. Per capita, labor and non-labor income of all family members aged 18 and over is used in the Bogota regressions as measures of family wealth. Family expenditure is used as opposed for the national data set, as it appears to involve less measurement error and is a better proxy of long-term financial conditions or wealth.[9] City-area dummies are included in the regressions using the

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[8] These were aggregated at each of the level of the *sector* (average of 21,600 people), *sección* (average of 13,700 people) and *segmento* (average of 4,900 people). Only the *sector*-level aggregation gave useful measures due to issues of sample size. The other two levels, while being small and hence more closely approaching a neighborhood, did not include a sufficient number of households to generate a well measured indicator. The variables exclude the child's own family.

[9] The results for the family and social capital variables are robust in sign and magnitude to

national data set with Bogota as the excluded category and one indicator for each of Barranquilla. Medellin, Cali and another for the rest of the urban areas.

The coding of family ties is somewhat limited in the Quality of Life surveys, as in most Colombian household surveys. It is impossible to identify the parents of children who are not the children of the household head. In the case of the Bogota data and for reasons of sample size, the analysis includes all children who are related to the household head, excluding children of people who work in the house or rent rooms. The inclusion of children who are not those of the household head complicates the measurement of education of the mother. It is necessary to include education of the household head if she is female, or of the spouse of the household head if he is male, regardless of the relationship to the child. This variable is called education of the female head in the text, and may refer to the child's mother, grandmother, aunt, sister or other female relative. While this introduces some error relative to including education of the child's own mother, it is reasonable to assume that the education of the household head or his spouse are important indicators of the impact of the previous generation's education on children.[10] For the regressions using the national data set, the sample is restricted to children of the household head as sample size does not pose a problem.

The basic regressions were subject to a series of tests of robustness. In order to control for community-level variation due to factors other than measured social capital, each of the regressions was run with a series of geographic fixed effect dummies. This technique serves to test the robustness of the community social capital variables and to gauge their marginal impact in the face of omitted variables such as differences in school quality across communities. These dummies were also constructed using information of *strata*. The *strata* are designed to reflect poverty and access to social services. so that including these dummy variables provides an additional control for poverty.

Selectivity is likely to be an important, and untreated, problem in measuring the impact of the indicators of social capital on school drop out in this paper. In particular, it may be that children are likely to drop out of school for reasons other than the nature of the community in which they live, and that their families choose or are forced to live in neighborhoods with low social capital. Similarly, families who have not spent a long period of time living in a community may be 'moving' type families and this may have a negative effect on the probability that a child remains in school that is independent or complementary to the fact that the same family will build few communities ties

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using either expenditure or income.

[10] The regressions were repeated using the restricted sample that includes only children of the household head. The signs of the coefficients, including mother's education, are similar to those presented below.

because they do not stay in one place for very long. While this is a serious econometric and theoretical problem that is difficult to overcome with the available cross-sectional data, it is most likely to affect the community social capital variables. Further, it is plausible that the family human, financial and social capital indicators control for a substantial part of the selectivity related to potentially high correlation between household level problems and gravitation to a particular community. In order to further examine the impact of endogeneity, the sample was divided according between recent movers and those who have resided in the same sector for many years and the regressions for Bogota are repeated for each sample.

Descriptive evidence on school drop out and family and community social capital

Both in the Bogota SPQLB, and in the urban areas NSQL data, the proportion of children who are out of school tends to follow a u-shaped pattern with a relatively large proportion of 6 year-olds out of school, a decline up to age 10 or 11, and increasingly high rates through to age 17 (Table 3).[11] In the urban areas as a whole, 14.8% of 6 year olds, 5.8% of 7 to 13 year olds, and 16.5% of 12 to 17 year olds are not attending school. In Bogota, the proportion of 6 year-olds out of school is particularly high. As mentioned above, the high rates among the youngest age groups are likely to be due to late entry into the school system. The same u-shaped pattern holds for each of the large cities and for the other of the urban areas

Non-attendance varies substantially across the *alcaldias* of Bogota. For 7 to 13 year olds, the figures range from 14.7% to less than 3% (Figure 1). For youth aged 12 to 17, the figures range from 29.4% to a low of 3.4%. While in many *alcaldias* there is a correlation between the relative rates of non-attendance among the two groups, there is a substantial degree of variance despite the overlap for 12 and 13 year olds. This suggests important differentials between *alcaldias* in terms of the probability of dropout at the primary versus the secondary level. The differential is likely to be related to both demand and supply factors.

The community and family social capital variables are presented in Tables 4 and 5. The *alcaldias* are ordered according to average per capita family expenditure as a proxy for wealth. The measures of community social capital for Bogota suggest substantial variation at the *alcaldia* level (Table 4). Overall, the families of 15.1% of children aged 7 to 17 report that conflict among neighbors is a problem in their *barrio*. The proportion ranges from a high of 41.9% to a low of 5.7%. A much higher proportion of families report problems with gangs. The overall average is 45.5%, ranging from over 65% in some *alcaldias* to below 20% in others. Drug problems are reported by 24.4%, ranging from 38.2% to 9.5%. The families of only 6.4% of

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[11] The National Household Surveys *(Encuesta Nacional de Hogares)* covering the urban areas and recent years also show similar u-shaped pattern as attendance is lower among 6 year olds.

children report problems of prostitution and related activities. The range is from very low proportions to highs of over 20%. The correlation between neighbor, gang and drug problems is evident, although there is still variation across *alcaldias*. Reports of prostitution tend to be more common where neighbor problems are less common. Summing the problems shows that 53.9% of the sample report that at least one of the *barrio* problems affects them.

The families of 28.5% of children in Bogota reported violence in the year prior to the survey. The figures range by *alcaldia* from 43.4% to 14.2%. Robbery is the most common form of violence and affected the families of 21.7% of children. The other forms of violence are much less common: rape was reported by 0.7%, homicide by 0.3%, injury from assault by 3.9%, kidnapping by none, extortion by 0.4%, disappearances by 0.3%, assaults by 2%, abuse or negligence by the authorities by 3.3%, and "other forms of" violence by 0.5%. Almost 1.5% reported a violent death within the family.

The proportion of urban children whose families report neighborhood problems with gangs is 38.6% and with drugs is 25.2% (Table 5). The rates for Bogota are approximately 10% higher than in the SPQLB at 57.4% and 33.4%, for gangs and drugs respectively. Both proportions are substantially lower in Medellin and in the rest of the urban areas, than in Bogota, Cali or Barranquilla. The proportion that report suffering a violent act is 17.5% and is highest in Bogota. In this case the figures from the two surveys coincide quite closely. The rates are lowest in the rest of the urban areas and in Barranquilla, although Medellin is also below the average. The composition of violence again shows that robbery is particularly common. The families of 15% of children and youth in the urban areas suffered a robbery in the year prior to the survey. The other types of violence are much less common: 1.3% have suffered an injury from assault, 0.8% report a problem with the authorities, 0.5% mention homicide, 0.1% report a kidnapping and 0.1% a disappearance, and 0.4% some "other form of" aggression. A violent death in the family is much more common and is reported by the families of 4.6% of the children.

The family social capital variables suggest that a high proportion, over 40%, of Bogota's children live in homes where reading books, dictionaries or encyclopedias are not available (Table 6). The figures range across *alcaldias* from a low of 62% to a high of 33.5%. Abusive behavior towards children is also quite common and affects 28.4% of children. The rates are over 40% in four *alcaldias*. The most common form of potentially 'abusive' punishment is the use of the belt, which occurs in the families of 26% of children. Kicks are reported by 1.3%, use of objects by 2.6%, and "other forms of" punishment by 0.9%. Less severe forms of punishment are much more common, and almost 87% of the children receive verbal reprimands, 24% limitations on activities and 17% slaps. By contrast, relatively few families report that a household member has drug or alcohol problems. This may be partly due to stigma surrounding

the problem. or possibly a lack of recognition of what constitutes substance abuse. Overall, the figures suggest that only 3.7% of children live in families where one or more members has a drug or alcohol problem.

Almost 22% of children live in single-parent homes, and the figure ranges from 11.0% to 49.2%. Average number of children and youth aged 0 to 17 in the household. excluding the child under study, ranges from 2.2 to 1.3, and the overall average is 1.8. The average number of years lived in the *sector* suggests that many families stay in one neighborhood for relatively long periods of time. Still, there is an important degree of variance in these figures that is not evident from the simple averages. These variables do not tend to vary in similar ways across *alcaldias*.

The figures from the urban areas as a whole suggest that abusive behavior affect 27.3% of children, that 3.8% live in families where drug or alcohol abuse are a problem and 23.4% live in one-parent families (Table 7).[12] As is the case in the information from the Bogota survey, use of a belt to discipline children is the most common form of potentially 'abusive' or severe punishment and is reported by the families of 26% of the children and youth. Kicks are reported by 0.6%, hitting with object by 1.2%, and "other forms of" punishment by 0.6%. The figures for substance abuse and single-parent home coincide for Bogota in the two surveys. The figure for abusive behavior is more the 10% lower in the national data set than in the SPQI.B. Abusive behavior is quite common in the rest of the urban areas. Abusive behavior. and drug and alcohol problems are all relatively severe for Medellin.

The family social, community social and financial capital variables tend to be related to school attendance in relatively predictable patterns. In Bogota, abuse, lack of access to books, single parent families and conflict with neighbors are less common among children who attend school. Similarly, average education of the female head. number of children and youth in family, number of years living in the same community. and per capita family expenditure are lower among children and youth who attend school (Table 8).[13]

In the urban areas as a whole, neighborhood gang and drug problems are more common among families whose children are out of school (Table 9). The relationship between school attendance and average education of the mother, number of siblings.

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[12] The fact that the variable measuring number of children is smaller in the survey of urban areas than in the Bogota survey reflects the manner in which the variables are defined. For the survey of the urban areas it is number of siblings, while for the Bogota survey it is total number of children living in the household.

[13] This is also true for children aged 7 to 13 where there are alcohol and drug problems in the family. and for youth aged 12 to 17 among families that have suffered a violent act. The proportion of children and youth out of school is surprisingly somewhat lower among families that report neighborhood problems with gangs, drugs, and nightlife.

average per capita family expenditure, two parent families and abusive behavior arc consistent with the results for Bogota and with the hypotheses of the study.[14]

Regression results for Bogota and the urban sample

The following discussion presents the results of the multivariate analysis for Bogota using the SPQLB. followed by the results for the urban areas as a whole using the NSQL. The means of the dependent and independent variables for each of the three samples are given in Tables 10 and 11.

The regression results for Bogota suggest that, controlling for gender, age, family income and education of the female head, a selection of both the family and the community social capital variables are significantly related to school dropout in the ways hypothesized in sections II and IV (Table 12).[15] Living in a two-parent family. remaining in the same neighborhood for longer periods of time, living in smaller families, living in neighborhoods without conflict among neighbors, having access to reading books in the home, living in a non-abusive family, and living in a family where drug and alcohol problems are not present, are all factors that are positively and significantly associated with staying in school. These results are robust to the inclusion of *alcaldia* dummies (Column 2).

Using the marginal effects from the regression that includes the *alcaldia* dummies (Column 2), the probability that a 7 to 17 year old drops out increases by 4.5% if the family report problems with conflict among neighbors, by 3.0% in families where reading books arc not available, by 2.7% if the family is abusive, and by 4.6% in families with alcohol and drug problems. This pattern is consistent, although the magnitudes are lower using the marginal effects evaluated at the mean of the independent variables. Note that there is a positive correlation between length of time in a neighborhood and staying in school that may suggest the importance of maintaining community contacts.

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[14] Families that have suffered a violent act report lower levels of dropout.

[15] Problems with conflict among neighbors is the only community social capital variables that proves to be significant in the regression analysis. The other variables were insignificant predictors of school attendance. Both a linear and a factor-based combination of the four neighborhood problems also proved to be insignificant predictors. The sign and magnitude of the variable on conflict among neighbors is robust to the inclusion of all or any combination of the other community social capital variables. This result is not surprising given that conflict among neighbors is actually the variable that can be considered to most closely represent relationships within the community where the family resides. and hence of social capital. The other variables refer to problems suffered by the community but that are likely to originate in other communities. Gangs for example, may operate in one neighborhood. yet live in another and have little on-going contact with the residents of the neighborhood where the crime occurs.

The other variables in the regression also have the expected sign. Males are more likely to drop out, although the difference is not significant. Drop out follows a u-shaped pattern with a trough at 10.4 years. Leaving school is less common among children from higher income families. Education of the female head is highly significant, and an increase of one year is associated with a decline of 0.2% in the probability of dropout.

The regressions for the urban areas give similar results for both age groups (Tables 13 and 14). For the primary school age groups (Table 13, Column 1), the social capital variables suggest that suffering abuse and living in a neighborhood with drug problems are significantly associated with a higher probability of drop out. The marginal change is particularly large for drug problems in the neighborhood. The other control variables show that males are significantly more likely to be out of school, drop out increases with age, and both higher per capita family income and mother's education have a significantly reduce the probability of being out of school. The dummy variable for the rest of the urban areas is positive and significant, suggesting that school drop out is more common in the smaller urban centers.

For the secondary school age group, the results also show that the family and community social capital variables are significant and the signs are as hypothesized (Table 14, Column 1). The marginal change associated with living in a neighborhood with drug problems is again particularly high. The signs of the two age terms suggest a u-shaped relationship between school drop out and age. Males, as well as children from families with lower per capita expenditures and low mother's education, are more likely to be out of school. The dummies for Medellin and for the rest of the urban areas are positive and significant, suggesting that secondary school drop out is particularly common in these two regions.

Both the Bogota and urban regressions were repeated applying a series of tests for sensitivity to omitted variables and endogeneity. First, the impact of the family and community social capital variables is robust to controls for poverty. The regression analysis was extended by including strata dummies (Column 3 in Table 12; Column 2 in Tables 13 and 14). The coefficients from all of the regressions, tend to decline slightly in both magnitude and significance, but are overall very robust to this change. The regressions were also repeated restricting the sample by strata.[16] For Bogota, the regression was run independently on strata 1 and 2, and on strata 3 to 6. In both cases, the regressions include a full set of *alcaldia* dummies (Columns 4 and 5 in Table 12). In the poorest strata, conflict among neighbors, access to books, family size and family

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[16] DANE classifies urban areas into strata based essentially on access to urban basic services, so that this classification to some degree coincides with poverty. Areas classified as Strata 1 have the least access, and the scale goes as high as 6.

expenditure continue to be important determinants of school attendance. In the richer strata. conflict among neighbors and mother's education, are the variables that are least significant. All of the family social capital variables are significantly associated with school attendance. For the primary-school age group in the urban areas (Columns 3, 4, and 5 in Table 13), community drug problems, abuse, family wealth and mother's education are significantly associated with school attendance in the smaller urban areas. By contrast, living in a single-parent family and family size are also important predictors for the poorest strata. As is the case in the Bogota sample, the community social capital variable is less important in the richer strata. Abuse and family wealth are also insignificant. For the sample of 12 to 17 year olds (Columns 3, 4, and 5 in Table 14), family wealth, and particularly education of the mother, are important predictors of school attendance. The community social capital variables is significant for all but strata 1 and 2. On the other hand, abuse and living in a one-parent family, are particularly important in the poorest strata.

The regressions were also repeated using a variety of geographic dummies to control for community fixed effects. These dummy variables provide a partial control for variation across communities that could be correlated with neighborhood conflict and other aspects of community social capital, and therefore be generating omitted variable bias. The family and community social capital variables are robust in both the Bogota and urban data sets to including a full set of sector dummies, although the sample size is significantly reduced. The urban regressions were also run including *departamento* (state) dummies and the results did not change.

Given concern with issues of endogeneity associated with the likelihood that families may sort into neighborhoods with high or low social capital, the analysis was repeated dividing the sample according to the length time since the family had moved. The regressions were run dividing among families who had moved in the past two years and those who had not. The results show that for recent movers the community social capital variable, conflict with neighbors, is insignificant, while for families who have not recently moved, the variable is has a significant impact and exacerbates the probability of school drop out. This result is robust to changing the definition of length of time for a recent move.

Simulations for Bogota and the urban sample

The impact of family and community social capital variables are also presented using simulations to test the potential impact on the probability of dropout. These exercises simulate a scenario in which the characteristics of the whole sample of children are changed along a specific parameter or set of parameters, holding the other variables constant at their mean level. The numerical results are given for children and youth in Tables 15, 16 and 17 and the most interesting findings are replicated in Graphs 1-17.

The simulations for Bogota, listed in Table 15, reinforce the potential impact of community and family social capital in reducing the proportion of children and youth that are out of school. In Bogota, the proportion of children and youth out of school would be particularly high if substance abuse problems in the family and conflict among neighbors were widespread (Graph 1).

Proceeding with the analysis of Bogota, the simulations that compare scenarios when education of the female head is set low at 5 years as compared to high at 16 years, and when family income is set low at the 10% percentile as compared to the 90% percentile, are among the most interesting (Graphs 1-7). These results suggest that family and community social capital variables have independent impacts on school attendance, while family human and financial capital continue to be important factors. Even if the education of the female head is low, eradicating abuse, for example, would reduce the dropout rate from 14% to 9% (Graph 2). Access to non-scholastic reading materials has an even greater impact, reducing the proportion of children and youth who are out of school if education of the female head is low from 13% to 8% (Graph 3). Living with conflict among neighbors combined with low education of the female head is associated with 18% of children and youth being out of school, as compared to 9% if there are no such neighborhood problems and education of the female head remains low. When family wealth is low, eradicating abuse results in a decline from 17% to 12% (Graph 4), providing non-scholastic reading materials from 16% to 10% (Graph 5).

The simulation results also provide information on the potential impact of a combined improvement in family and community social capital variables (Graphs 6 and 7). Among young people who live with conflict among neighbors, the proportion out of school increases to between 22% if the family is abusive or does not provide reading materials, and to 31% if the family reports substance abuse problems. In the absence of these community and family problems, the proportion of children and youth out of school is between 7 and 9%.

As a point of comparison, the best case scenario if abuse were eradicated, books were always available, no families had substance problems, all female heads had 16 years of education, families all lived 20 years in a given neighborhood, there was no conflict with neighbors, all families had two parents present, and all families achieved a level of per capita expenditure equivalent to the 90th percentile, the proportion of children and youth out of school would be 3%. By contrast if all of these variables are set at low levels and all problems are present, the proportion increases to 57% (Table 15: last two lines).

For the urban areas as a whole, the simulations suggest that the presence of drug problems in the neighborhood has a particularly large individual impact for children aged 7 to 13 (Table 16 and in Figures 3 and 4). As was true for Bogota.

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mother's education and family wealth are important determinants of school drop out. Increasing mother's education from 5 to 16 years reduces the proportion of children out of school from 5% to 1%. Similarly, increasing per capita expenditure from the 10th to the 90th percentile, results in a decrease from 6% to 3% (Graph 8).

The direction of the combined effects of the variables are similar to the results for Bogota. Even where mother's education continues to be low, eradicating child abuse reduces the proportion of children aged 7 to 13 who are out of school from 6% to 4% (Graph 9), and eradicating community drug problems from 10% to 4%. Still, an increase in mother's education, were community drug problems to remain a factor would result in a reduction to 4% (Graph 11). The results for combining family wealth and social capital suggest that even if families remain poor, eradicating abuse reduces the rates from 9% to 6% (Graph 10). If abuse remains prevalent and families become wealthy, the proportion falls to 3%, and if abuse is eradicated it falls to less than 1%. Eradicating community drug problems if families remain poor, results in a reduction from 12% to 5%, and reducing poverty without any change in drug problems to 6% (Graph 12). Finally, eradicating abuse and community drug problems suggests a reduction from 12% to 4%. By way of comparison, the proportion of children who would be out of school is all the variables were set to negative values is 21%, as compared to 0.4% if they are all set at positive values (Table 23, last two lines).

The results for the secondary school level are similar, although the proportions are much higher than for the primary school level (Table 16 and Figure 4). The presence of community drug problems continues to give the highest proportion out of school, although the differences as compared to other variables is less marked than at the primary school level. Improving mother's education is the variable that results in the lowest proportion of dropout and has a particularly important impact even when abuse and community drug problems are present (Graphs 14 and 16). Still, eradicating drug problems would results in a reduction from 21% to 13% even if mother's education remains low (Graph 16). Similarly reducing drug problems would result in a decline from 26% to 14% even if all families remained poor, and increasing family wealth results in a decline from 26% to 17% even if drug problems remain pervasive (Graph 17). The combined eradication of abuse and community drug problems suggests a decline from 23% to 12%. If all of the variables are set to positive outcomes, the proportion of youth projected to be out of school is 2%, compared to 36% if all are set to negative outcomes (last two lines).

Conclusions and policy recommendations

While many aspects of social capital relevant to the case of Colombia could not be measured, the application of the Coleman (1988) model applied in this paper suggests that both family and community social capital are important determinants of school dropout at both the primary and secondary levels. The positive impact of social capital is evident after controlling for family human and financial capital, as well to the inclusion of community fixed effects and controls for poverty. The results allude to the importance of social capital in the creation of human capital in Colombia, just as Coleman demonstrated in the case of the United States. These results also coincide with recent research using cross-country data that demonstrated an important positive relationship between educational attainment and community social capital (La Porta, Lopez-de-Silanes, Shleifer and Vishny, 1997; Knack and Keefer, 1997).

Turning to the descriptive results of the study, urban Colombia shows a high prevalence of many of the problems associated with low family and community social capital, as well as a substantial degree of geographic variation. In Bogota, for example, violence was reported by the families of 28.5% of children aged 7 to 17, ranging by *alcaldia* from approximately 43% to 14. Robbery is the most common form of violence and affected the families of 22% of children. Further, 45% report problems with gangs in their *barrio*. The figure ranges from 65% in some *alcaldias* to 20% in others.

Considering the urban areas as a whole, the proportion of children aged 7 to 17 whose families report neighborhood problems with gangs is 38.6%. In terms of family social capital, only 60% of Bogota's children live in homes where non-scholastic reading materials are available. Abusive behavior towards children is common and affects 28.4% of children with rates are over 40% in several *alcaldias*. The figures from the urban areas as a whole suggest that abusive behavior affects 27% of children.

The marginal changes evident from the regression analysis and the simulations suggest that neighborhood conflict and drug problems, lack of access to reading materials, and abuse and drug problems in the family are among the most important factors associated with not remaining in school at both the primary and secondary levels. Among the most interesting simulations are those that compare scenarios when education of the female head is set low at 5 years as compared to high at 16 years. These results suggest that family and community social capital variables have independent impacts on school attendance, yet education of the female head and family wealth continue to be important factors.

The findings regarding the impact of family and community social capital on school drop-out are robust to controlling for family financial and human capital, as

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well as to the inclusion of local and regional fixed effects and to controlling for strata. In other words, family and community social capital appear to have an impact on the probability of school drop-out that is independent, additional or complementary to issues related to poverty, local conditions other than social capital, and education of the parents. This suggests that policies that affect the creation, maintenance and development of family and community social capital can result in an important reduction in the probability of school drop-out even where parental education is low or poverty is high. Policies in support of the creation of social capital may be particularly important alternatives if social capital can be accumulated more effectively or more quickly than, for example, parental education.

There are a number of avenues for extending the empirical analysis presented in this paper. It is worrisome that only a selection of the social capital indicators proved to be significant predictors. This is much less problematic in the case of the family social capital variables, where several indicators were significant and sample size restrictions are likely to be the main issue in the rest of the cases. It will be useful to more carefully consider the formulation of the independent variables, and in particular the possibility of interacting and combining the measures of family and community social capital in order to develop composite indicators and test for joint effects. Further research is also necessary to attempt to reduce the analysis to the level of communities smaller than the *sector*. Endogenizing the community social capital variables, given the availability of appropriate instruments, could correct for bias due to measurement error as well as making it possible to isolate the causal impact of social capital on school attendance. Finally, it would be interesting to consider other outcome variables related to human capital accumulation such as completed grades and test scores.

The results highlight the need to evaluate a variety of interventions that would complement existing investments in educational infrastructure and poverty alleviation. For example, programs and policies to reduce child abuse would likely have an independent impact on school attendance and achievement. These might include efforts to increase the capacity of the community to identify cases of abuse, additional teacher training to help identify abused children, and education through mass media (commercials, advertisements) to discourage physical punishment. Another important area for interventions is the supply of reading materials in the home. One could conceive of projects that make non-scholastic reading materials more accessible to low-income households such as community libraries and books that could be signed out of school. Public policy designed to facilitate family social capital might also seek to maximize parental involvement with children via the provision of on-site day-care centers at parents' workplaces and flexible time work arrangements. Similarly, child care centers at or near schools and flexible hours can free many girls to attend school. Finally, special efforts are sometimes needed to increase knowledge about the benefits of schooling, particularly in the case of girls and young women (King and Hill, 1991; World Bank, 1995). Insofar as poor parents do

not always appreciate the value of educating their children and many parents do not see the value of educating their daughters, investing in parents' education, especially mother's education, can be an important mechanism for increasing child schooling. Measures to increase social capital include social marketing or awareness campaigns to overcome lack of knowledge, or changes in the location, schedule, staffing, content or direct costs of education to make them more relevant to social and material conditions.

The potential negative impact of community problems such as violence and drug use suggests the importance of experimenting with programs to strengthen community linkages and improve children's environments. The existence of strong neighborhood effects means that shocks or policy interventions that positively affect individuals will have positive multiplier effects within neighborhoods through peer influences and across generations through family influences. In terms of community ties, promising programs might attempt to strengthen the role of individual families in community well-being, as well as the voice of the community in decision-making at the local level. Such programs might work within recent efforts at decentralization and improvement of social services such as health.

Strengthening the social capital of the communities surrounding schools involves a process of establishing and strengthening the interactions among parents of students. The Parent-Teacher Association is one institution already in place that holds the potential for building social capital. Another example is the Child-to-Child program. This is designed for children between the ages of 8 and 15 and who are often, at one and the same time, caretakers of younger siblings, future parents, communicators of information to their parents and other caretakers and community members. This program has been shown to be successful in improving child's knowledge in a number of important areas (Young 1995). Similarly, community-based pre-school care for children allows communities to demonstrate their support for families and children. Along a similar line, childcare cooperatives are an idea that would not only foster parent-child interaction, but would also promote the parent-parent interaction needed to foster community social capital.

The results of this study suggest that increased investment in the accumulation of human capital could be made more efficient by addressing the community and social effects on individual attainment will limit the benefits of the investments. A lack of "social capital", as well as limitations on family financial and human capital, perpetuate school drop out. Youth lacking stable family environments, parental attention and community resources (such as role models) are likely to fare less well in the school system and have an increased probability of dropping out altogether. The design of policy and program interventions targeted to high-risk youth should take this empirical evidence into account in order to ensure an optimal impact of these investments.

The concept of capital implies the sacrifice of current consumption in order to reap a stream of future benefits. The present study shows some of the costs in terms of educational attainment of not having social capital—or the symptoms of a lack of social capital. The next step is to evaluate interventions that can increase social capital, which according to the results presented above, could in addition to their independent positive effects, also be complementary to efforts to reduce dropout of school at each of the primary and secondary levels. While the results of the empirical work highlight the difficulties of finding appropriate measures, they also suggest the complexity of the concept and the variety of the inputs that go into generating social capital. This in turn, points to the wide variation in policies that need to be evaluated in designing programs and policies to improve the levels of family and community social capital.

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Table 1

Community Social Capital Variables
by Whether Significant and Included in Logistic Regression Analysis

Community Social Capital Variables	Included in Regression Analysis			Included in descriptive analysis	Rejected due to poor quality or colinearity
	Bogota	*National*			
	7 to 17	*7 to 13*	*12 to 17*		
Problems in barrio with:					
- conflict with neighbors	X			X	
- drugs		X	X	X	
- gangs				X	
- nightlife and prostitution				X	
- combination of above problems				X	
Years living in sector	X			X	
Proportion of children in sector whose families have suffered a violent act				X	
Proportion of children in sector whose families report drug or alcohol problems					X
Proportion of children in sector who participate in community organizations					X
Youth employment in the sector					X

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Table 2
Family Social Capital Variables
by Whether Significant and Included in Logistic Regression Analysis

Family Social Capital Variables	Included in Regression Analysis			Included in descriptive analysis	Rejected due to poor quality or colinearity
	Bogota	National			
	7 to 17	7 to 13	12 to 17		
Children have recreational book	x			x	
Parents use abusive behavior	x	x	x	x	
Family member has drug or alcohol problems	x			x	
One-parent family	x	x	x	x	
Number of children and youth living in household (sibship)	x	x		x	
Once parent has less than 2 days rest per week					x
Head vacations with family					x
Parents have recreational time					x
Aproximate time family members spend in child care					x
Parents buy books or newspapers					x
Head thinks it's important to:					
- complete secondary school					x
- buy newspapers					x
- that kids have recreational books					x
- have regular outings with kids					x
- that kids have toys					x
- have a desk					x
- have reading books					x

Table 3

Proportion of Children Not Attending School By Age

Bogota, 1991 and All Urban Areas, 1993

Age	Urban Areas [1]		Bogota [2]	
	% not attending	n = all	% not attending	n = all
6	14.8	1911	21.6	215
7	7.3	1946	9.4	242
8	6.0	2006	3.7	216
9	4.1	1886	4.6	228
10	5.1	2025	5.1	252
11	4.0	1969	4.1	245
12	5.8	2076	5.1	251
13	8.1	2086	4.7	222
14	11.3	1999	14.7	201
15	16.6	1875	20.3	230
16	25.6	1721	23.9	219
17	35.6	1707	37.4	229
7 to 13	5.8	13994	-	-
12 to 17	16.5	11466	-	-
7 to 17	11.0	21298	12.0	2535

Source: 1/ Encuesta Nacional de Calidad de Vida, Urbano, 1993.

2/ Encuesta Sobre Pobreza y Calidad de Vida. Bogota, 1991.

Note: Figures are calculated using expansion factors.

Table 4
Measures of Community Social and Financial Capital
By Alcaldia and in Ascending Monthly Expenditure
Children and Youth 7-17
Bogota, 1991

	Proportion of children aged 7-17 whose families report that their neighborhood /2 has					Children whose families suffered a violent act/3	% 7-17 not attending school	Average per capita monthly family expenditure/10000	n
Alcaldia	Prob. with conflicts among neigbors/2	Prob. with gangs/2	Prob. with drugs/2	Prob. with night life and prostitution/2	At least one of the neighborhood problems/2				
Cd. Bolivar	18.1	55.3	28.6	8.0	61.8	28.0	20.8	2.5	178
Rafael Uribe	15.2	41.4	31.1	7.6	56.1	33.5	7.1	2.6	134
Bosa	16.0	52.3	24.9	11.8	54.9	31.4	14.7	2.7	131
Usme	41.9	65.4	32.7	4.5	79.7	37.5	14.5	2.8	122
Sn.Cristobal	18.9	67.7	32.2	2.2	68.3	38.6	11.6	2.9	134
Kennedy	10.8	55.7	28.6	1.1	56.6	25.9	7.1	3.1	110
Sta.Fe	14.4	59.1	34.8	18.7	59.9	27.7	17.1	3.3	114
Candelaria	16.0	47.1	29.3	8.2	48.0	37.3	13.7	3.7	94
Tunjuchito	9.5	50.2	24.7	1.9	57.6	17.0	13.9	3.7	98
Engativa	10.2	40.0	22.0	5.9	46.8	28.3	11.0	3.8	135
Fontibon	14.8	44.2	20.3	1.0	49.6	21.6	8.0	4.4	115
Puente Aranda	8.1	42.3	20.0	10.9	47.1	26.8	7.2	4.5	134
Barrios Unidos	5.7	44.7	38.2	7.7	58.0	22.0	4.3	4.5	116
Suba	27.6	22.6	9.5	2.6	49.2	14.2	5.6	4.7	93
Martires	12.8	46.4	33.6	24.0	54.6	34.1	10.9	4.8	174
Antonio Nariño	5.7	36.0	17.5	14.1	50.6	31.1	7.4	5.6	136
Usaquen	12.6	26.4	14.4	0.0	35.9	43.4	17.2	7.2	82
Tausaquillo	9.1	18.5	14.7	15.4	35.4	32.6	4.1	9.2	344
Chapinero	6.5	26.6	12.9	28.4	41.5	21.3	4.2	12.7	63
Total	15.1	45.5	24.4	6.4	53.9	28.5	10.5	4.1	2507

Source: Encuesta sobre Pobreza y Calidad de Vida en Bogota, 1991

Notes

1/ Figures are calculated using expansion factors

2/ The specific question is: Which of the following are problems in your "barrio" or "sector": presence of gangs (pandillas), use or consumption of drugs (bazuco, marihuana, etc.), scandals or conflict between neighbors, neighbors, nightclubs or centers of prostitution, etc.?

3/ The specific questions upon which the variable is based are: During the year, of which of the following violent acts has a member of the family been a victim: assault, robbery, rape, homicide, physical injury from an attack, kidnapping, extorsion, disappearance, aggressive conduct, abuse or negligence by the police, other?, and During the year has a member of the family died violently?

Table 5
Measures of Community Social and Financial Capital
By Urban Area,1993
Children and Youth 7-17

Urban Area	Prop. of children aged 7-17 whose families report that their neighborhood has /2		Children whose family suffered a violent act/3	% 7-17 not attending school	Average per capita monthly family expenditure /10000	n
	Prob. with gangs/2	Prob. with drugs /2				
Bogota	57.4	33.4	24.0	7.8	8.5	4097
Cali	48.3	38.9	19.7	10.4	7.5	3481
Medellin	31.6	26.5	19.4	12.5	5.3	3922
Barranquilla	48.6	30.9	11.8	10.6	3.9	3169
Other Urban	28.4	18.2	14.4	13.2	4.9	6636
Total	38.6	25.2	17.5	11.4	6.0	21305

Source: Encuesta Nacional de Calidad de Vida, Urbano, 1993

Notes:

1/ Figures are calculated using expansion factors.

2/ The specific question is: Which of the following problems occur near to your home: presence of gangs, sale or consumption of drugs (bazuco, marihuana, etc.)?

3/ The specific question upon with the variable the variable is based is: During the year, of which of the following violent act has a member of the family been a victim: assault, robbery, homicide, physical injury from an attack, kidnapping, extorsion, disappearance, abuse by the authorities, expropriation of property, other?

Table 6
Family Social, Human and Financial Capital Measures
By Alcaldia and in Ascending Monthly Expenditure
Children and Youth 7-17
Bogota, 1991

Alcaldia	Percentage of children aged 7-17 whose families:				Number of Children 0-17 in household	Average years family has lived in sector /3	Female head's education average years	% 7-17 Not attending school	Average per capita family expenditure	n
	Do not have reading books, dictionaries or encyclopedias	Report abusive behavior toward children /2	Include members with alcohol or drug problems	Include only one parent						
Cd. Bolivar	52.2	44.9	6.5	18.0	2.17	11.1	5.1	20.8	2.5	178
Rafael Uribe	30.8	32.1	0.0	21.3	1.94	13.7	5.7	7.1	2.6	134
Bosa	34.9	37.0	2.9	11.0	1.99	9.5	5.6	14.7	2.7	131
Usme	33.4	44.4	6.3	25.8	1.86	7.9	5.6	14.5	2.8	122
Sn. Cristobal	48.1	24.2	2.9	27.1	1.97	12.4	4.9	11.6	2.9	134
Kennedy	42.1	32.9	4.8	17.8	1.69	14.3	6.2	7.1	3.1	110
Sta. Fe	62.2	46.7	5.1	49.2	2.16	9.5	4.5	17.1	3.3	114
Candelaria	48.5	51.3	2.0	42.6	1.62	10.7	6.8	13.7	3.7	94
Tunjuelito	38.4	31.2	6.0	24.3	1.74	12.2	6.6	11.9	3.7	98
Engativa	41.1	17.3	0.6	25.1	1.74	12.3	7.4	11.0	3.8	135
Fontiboa	39.8	30.9	6.1	16.6	1.91	11.6	7.8	8.0	4.4	115
Puente Aranda	39.1	23.3	0.0	24.0	1.55	12.4	8.1	7.2	4.5	134
Barrios Unido	39.2	26.7	0.0	20.7	1.79	13.7	8.0	4.3	4.5	116
Suba	45.5	25.2	5.3	17.2	1.79	10.5	6.9	5.6	4.7	93
Martires	47.5	20.9	6.6	24.3	1.70	9.9	7.2	10.9	4.8	174
Antonio Nariñ	49.9	23.2	6.6	21.4	1.34	13.6	8.2	7.4	5.6	136
Usaquen	35.8	21.0	6.9	12.5	1.92	8.5	8.4	17.2	7.2	82
Tausaquillo	30.9	13.0	2.8	28.5	1.25	11.8	11.6	4.1	9.2	344
Chapinero	23.5	5.1	1.9	23.3	1.05	12.9	11.8	4.2	12.7	63
Total	41.5	28.4	3.7	21.6	1.81	11.7	6.8	10.5	4.1	2507

Source: Encuesta sobre Pobreza y Calidad de Vida en Bogota, 1991

Notes

1/ Figures are calculated using expansion factors.

2/ The information for this question is based on whether the last move of the family was from a different "sector"

3/ Abusive families include those who use kicks, hit with objects (wire, sticks etc.), use a belt, or other severe forms of punishment with their children aged 17 or less. The specific question is How do you correct or punish your children aged below 18: verbal reprimand, restriction of activities, slaps, with a belt, kicks, hit with objects twice, sticks, etc.), in some other way, you do not punish them?

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Table 7

Family Social and Financial Capital Measures
By Urban Area
Children and Youth 7-17
1993

Urban Areas	Percentage of children aged 7-17 whose families:			Number of Siblings 0-17	Mother's education average years	% 7-17 Not attending school	Average per capita family expenditure	n
	Report abusive behavior toward children /2	Include members with alcohol or drug problems	Include only one-parent					
Bogota	17.8	3.2	21.8	1.56	7.5	7.8	8.5	4097
Cali	28.9	2.4	25.1	1.53	6.5	10.4	7.5	3481
Medellin	31.7	7.1	27.6	1.55	6.3	12.5	5.3	3922
Barranquilla	24.1	1.7	22.8	1.97	6.3	10.6	3.9	3169
Other Urban	31.1	3.8	23.0	1.78	5.9	13.2	4.9	6636
Total	27.3	3.8	23.4	1.67	6.4	11.4	6.0	21305

Source: Encuesta Nacional sobre Calidad de Vida, Urbano, 1993.
Notes:
1/ Figures are calculated using expansion factors.
2/ Abusive families include those who use kicks, hit with objects (wire, sticks, etc.), use a belt, or other severe forms of punishment with their children aged 17 or less. The specific question is: How do you correct or punish your children aged below 18: verbal reprimand, restriction of activities, slaps, with a belt, kicks, hit with objects (wire, sticks, etc.), in some other way, you do not punish them?

Table 8

Community Social Capital and Family Human Social and Financial Capital
By School Attendance among Children and Youth 7-17
Bogota, 1991

	7 - 13		12 - 17	
	In School	*Out of School*	*In School*	*Out of School*
Community Social Capital				
Neighborhood Problems with Conflict among Neighbors /4	14.8	16.1	13.3	16.5
Neighborhood Problems with Drugs and Alcohol /4	23.4	23.2	23.8	23.8
Neighborhood Problems with Gangs /3	43.1	41.1	42.2	41.6
Neighborhood Problems with Nightlife and Prostitution /4	5.5	4.9	5.6	6.4
Family suffered a Violent Act /4	28.0	28.6	28.5	35.5
Family Social Capital				
Abusive Family /2	31.3	50.7	23.2	38.2
Family does not have Reading Books	31.4	56.0	52.7	66.3
Family Problems with Alcohol	4.2	12.3	3.3	4.5
Two Parent Family	81.5	68.6	76.8	69.7
Education of Female Head (average years)	7.0	4.7	6.8	5.6
Other				
Number of children 0-17 in household	1.8	2.3	1.7	2.5
Years lived in community /2	11.1	10.2	12.8	11.9
Per capita family expenditure	4.1	2.6	4.4	3.3

Source: Encuesta Sobre Pobreza y Calidad de Vida, Bogota, 1991.

Notes.
1/ Figures are calculated using expansion factors
2/ Abusive families include those who use kicks, hit with objects (wire, sticks, etc.), use a belt, or other severe forms of
punishment with their children aged 17 or less. The specific question is: How do you correct or punish your children aged below
18: verbal reprimand, restriction of activities, slaps, with a belt, kicks, hit with objects (wire, sticks, etc.), in some other way, you
do not punish them?
3/ The specific question is. Which of the following are problems in your "barrio" or "sector": presence of gangs (pandillas), use
or consumption of drugs (bazuco, marihuana, etc.), scandals or conflict between neighbors, nightclubs or centres of prostitution?
4/ The specific questions upon which the variable is based are: During the year, of which of the following violent acts has a
a member of the family been a victim, assault, robbery, rape, homicide, physical injury from an attack, kidnapping, extorsion,
disappearance, aggressive conduct, abuse or negligence by the police, other?, and During the year has a member of the family
died violently?

Table 9
Community Social Capital and Family Human Social, and Financial Capital
By School Attendance among Children and Youth 7-17
Urban Areas, 1993

	7 - 13		12 - 17	
	In School	*Out of School*	*In School*	*Out of School*
Community Social Capital				
Neighborhood Problems with Drugs and Alcohol /4	23.8	29.7	23.1	27.0
Family suffered a Violent Act /4	7.5	6.9	7.5	8.0
Family Social Capital				
Abusive Family /2	30.2	46.3	21.7	28.9
Two Parent Family	79.0	67.0	75.6	70.1
Education of Female Head (average years)	6.7	3.8	6.6	4.4
Other				
Number of siblings 0-17	1.8	2.3	1.6	1.8
Per capita family expenditure	5.9	3.5	6.4	4.9

Source: Encuesta Nacional de Calidad de Vida, Urban, 1993.

Notes:

1: Figures are calculated using expansion factors.

2: Abusive families include those who use kicks, hit with objects (wire, sticks, etc.), use a belt, or other severe forms of punishment with their children aged 17 or less. The specific question is: How do you correct or punish your children aged below 18: verbal reprimand, restriction of activities, slaps, with a belt, kicks, hit with objects (wire, sticks, etc.), in some other way, you do not punish them?

3/ The specific question is: Which of the following problems occur near to your home: presence of gangs, sale or consumption of drugs (bazuco, marihuana, etc.)?

4/ The specific question upon which the variable is based is: During the past year, of which of the following violent acts has a member of the family been a victim: assault, robbery, homicide, physical injury from an attack, kidnapping, extorsion, disappearance, abuse, by the authorities, expropriation of property, other?

Table 10
Means and Standard Deviation of Dependent and Independent Variables
Bogota, 1991

Variable	Mean	SD
Gender (Male=1)(%)	46.00	0.50
Age	11.91	3.10
Age Squared	151.66	75.90
Per capita family expenditure/10,000	4.52	4.20
Education of female head	7.27	4.50
One-parent family (%)	23.90	0.43
Years in community (%)	11.56	9.80
Children 0-17	1.74	1.30
Conflict among neighbors (%)	13.90	0.16
Does not have books, dictionaries, encyclopedia (%)	41.50	0.49
Abusive family (%)	28.40	0.45
Alcohol problem in family (%)	3.90	0.19
Dep. Var.: Out of school %	10.6	0.31

Source:Encuesta sobre Pobreza y Calidad de Vida, Bogota, 1991.

Note: Figures are calculated using expansion factors

Table 11

Means and Standard Deviation of Dependent and Independent Variables
Urban Areas. 1993

Variable	7-13		12-17	
	Mean	S.D.	Mean	S.D.
Gender (Male=1)(%)	51.1	0.5	50.3	0.5
Age	10.1	2.0	14.3	1.7
Age2	105.9	40.5	208.6	48.9
Per capita family expenditure /10,000	4.8	5.0	4.9	4.9
Education of female head	7.0	4.1	6.5	4.1
One-parent family(%)	16.6	63.0	21.5	59
Siblings 0-17	1.79	1.30	1.59	1.30
Abusive family(%)	30.9	0.46	22.7	0.42
Drug problem in sector(%)	27.0	0.21	26.5	0.21
Dummy for Cali	16.4	0.37	16.3	0.37
Dummy for Medellin	17.8	0.38	18.5	0.39
Dummy for Barranquilla	14.7	0.35	14.2	0.35
Dummy for Rest Urban	30.1	0.46	30.1	0.46
(Excluded category is Bogota)				
Dep. Var.: Out of school (%)	5.3	0.22	14.4	0.35

Source: Encuesta Nacional de Calidad de Vida, Urbano, 1993.

Note: Figures are calculated using expansion factors

Table 12
Logit Regressions on the Probability of Not Attending School,
Children and Youth 7-17
Bogota. 1991

	Basic (1)		With Alcaldia Dummies (2)		With Alcaldias and Strata Dummies (3)		Poorest Strata (With alcaldias dummies) (4)		Richer Strata (With alcaldias dummies) (5)	
	Marginal Changes	Z	Marginal Changes	Z	Marginal Changes	Z	Marginal Changes	Z	Marginal Changes	Z
Community Social Capital										
Conflict among neighbors	4.46	2.07	4.48	1.95	4.02	1.76	22.46	3.17	-3.66	-1.51
Family Social Capital										
No books, Dictionary, Encyclopedia	3.10	3.93	2.99	3.81	2.75	3.48	4.78	1.89	2.22	2.98
Abusive family	2.82	3.32	2.66	3.23	2.55	3.13	4.17	1.49	2.52	3.24
Alcohol problem in family	5.02	3.09	4.63	3.02	4.60	2.95	1.46	0.31	5.77	3.97
One-parent family	2.41	2.85	2.75	3.40	2.71	3.32	0.34	0.12	2.83	3.54
Other Control Variables										
Years in community	-0.10	-2.33	-0.09	-2.03	-0.09	-1.92	-0.06	-0.38	-0.08	-2.14
Children 0-17	0.97	3.45	0.92	3.34	0.87	3.16	2.35	3.11	0.62	2.18
Per capita adult family income	-0.71	-5.50	-0.69	-5.79	-0.66	-5.33	-1.26	-1.92	-0.47	-5.22
Education of female head	-0.27	-2.34	-0.23	-2.01	-0.19	-1.60	-0.36	-0.77	-0.10	-1.08
Gender (Male=1)	0.92	1.24	0.94	1.32	0.94	1.33	3.36	1.38	0.62	1.00
Age	-6.35	-5.72	-6.21	-5.78	-6.20	-5.81	-16.44	-4.88	-3.84	-3.94
Age2	0.30	6.62	0.30	6.64	0.30	6.66	0.78	5.46	0.18	4.51
Constant	18.59	2.92	21.25	3.42	22.28	3.54	52.21	2.72	14.70	2.63
Number of Observations	2,327		2,327		2,327		640		1,673	
Chi2 (degrees of freedom)	219.97	(12)	211.83	(30)	209.51	(35)	99.59	(25)	100.26	(30)
Pseudo R2	0.2154		0.2305		0.2340		0.2513		0.2409	

Source: Encuesta sobre Pobreza y Calidad de Vida, Bogota, 1991.
Note: 1/ Calculated using Robust Huber-White Standard Errors
2/ Calculated at means of independent variable
3/ Bogota is geographically divided into strata that differ based on access to public services. The strata are numbered from lowest (1) to highest (6), and there is a relationship between poverty and strata. The poorest are strata 1 and 2, the richer are strata 3 to 6.

Table 13

Logit Regressions on the Probability of Not Attending School,
Urban Areas, 1993

| | Children and Youth 7 - 13 | | | | | | | | | |
| | Basic (1) | | With Community Strata Dummies (2) | | Small Urban Areas (Strata 0) (3) | | Poorest Strata (1 and 2) (4) | | Richer Strata (3 and 6) (5) | |
	Marginal Changes	Z	Marginal Changes	Z	Marginal Changes	Z	Marginal Changes	Z	Marginal Changes	Z
Community Social Capital										
Drug problem in sector	2.81	4.46	2.85	4.49	2.36	2.71	4.03	2.66	1.78	1.64
Family Social Capital										
Abusive family	1.15	4.51	1.11	4.40	1.17	2.57	1.64	3.01	0.35	0.95
One-parent family	1.51	4.78	1.15	4.75	0.42	0.88	1.97	3.00	1.70	4.42
Other Control Variables										
Per capita family expenditure	-0.34	-4.19	-0.37	-4.92	-1.08	-7.03	-1.43	-5.67	-0.44	-1.21
Education of female head	-0.48	-10.13	-0.47	-10.41	-0.39	-4.25	-0.95	-8.12	-0.13	-2.55
Siblings 0-17	0.44	3.91	0.41	3.82	-0.70	-0.44	0.55	2.55	0.25	1.40
Gender (Male=1)	0.64	2.66	0.63	2.65	0.45	1.17	1.09	2.02	0.45	1.32
Age	-3.54	-4.91	-3.50	-4.92	-2.02	-1.94	-6.08	-3.77	-2.05	-2.12
Age2	0.18	4.95	0.18	4.96	0.10	1.84	0.31	3.83	0.11	2.26
Dummy for Cali	-0.21	-0.48	-0.27	-0.58			-0.82	0.92	-0.07	-0.13
Dummy for Medellin	0.10	0.22	0.09	0.20			0.54	0.62	-0.37	-0.74
Dummy for Barranquilla	-0.01	-0.01	-0.12	-0.26			-0.90	-1.03	-0.08	-0.13
Dummy for Rest Urban	1.01	2.55	0.98	2.19			0.17	1.68	0.02	2.93
(Excluded category is Bogota)										
Constant	10.85	3.22	11.81	3.20	8.91	1.71	23.11	3.02	3.51	0.71
Number of Observations	11320		11320		2324		4000		4996	
Chi2(13)	592.14		592.14		443.82		322.49		84.43	
Pseudo R2	0.1333		0.1333		0.1833		0.1308		0.0587	

Source: Encuesta Nacional de Calidad de Vida Urbana, 1993

Note: 1. Calculated using Robust Huber-White Standard Errors.

2. Calculated as means of independent variable.

3. Bogota is geographically divided into strata that differ based on access to public services. The strata are numbered from lowest (1) to highest (6), and there is a relationship between poverty and strata.

The poorest are strata 1 and 2, the richer are strata 3 to 6.

Table 14

**Logit Regressions on the Probability of Not Attending School,
Urban Areas, 1993**

	Youth 12-17									
	Basic (1)		With Comm. Strata Dummies (2)		Small Urban Areas (Strata 0) (3)		Poorest Strata (1 and 2) (4)		Richer Strata (3 and 6) (5)	
	Marginal Changes	z	Marginal Changes	z	Marginal Changes	z	Marginal Changes	z	Marginal Changes	z
Community Social Capital										
Drug problem in sector	5.26	3.85	5.01	3.60	7.79	2.60	3.42	0.98	3.84	2.29
Family Social Capital										
Abusive family	2.45	3.98	2.21	3.59	2.09	1.41	3.88	2.73	0.30	1.06
One-parent family	3.59	5.76	3.55	5.67	1.13	0.74	6.11	3.97	2.89	4.24
Other Control Variables										
Per capita family expenditure	-0.94	-5.35	-0.87	-4.41	-0.88	-1.05	-2.73	-4.97	-0.43	-3.68
Education of female head	-1.12	-11.68	-1.06	-10.76	-1.52	-5.14	-1.69	-6.56	-0.49	-5.35
Siblings 0-17	0.71	3.13	0.71	3.12	0.31	0.57	1.25	2.44	0.06	0.25
Gender (Male 1)	2.72	5.12	2.07	3.60	0.71	0.57	4.64	3.51	2.42	4.20
Age	4.57	-1.31	4.82	-1.46	-1.39	-0.18	-9.66	0.08	-8.19	-2.11
Age2	0.28	2.50	0.30	2.66	0.18	0.69	0.20	0.73	0.37	2.80
Dummy for Cali	1.22	1.29	1.38	1.38			-0.33	-0.16	1.54	1.52
Dummy for Medellin	2.91	3.50	3.02	3.41			4.39	2.15	2.05	2.51
Dummy for Barranquilla	-0.65	-0.65	-0.37	-0.37			-2.73	-1.23	-0.77	-0.16
Dummy for Resi Urban	1.57	1.79	2.08	2.06			3.57	1.44	3.68	3.73
(Excluded category is Bogota)										
Constant	-6.16	-0.26	3.94	-0.16	-26.66	-0.42	-60.17	-1.02	31.15	1.11
Number of Observations	11320		9414		1873		1132		4409	
Chi2(13)			1309.55		254.93		471.24		404.92	
Pseudo R2			0.1737		0.1512		0.1548		0.1652	

Source: Encuesta Nacional de Calidad de Vida, Urbana, 1993
Note: 1 Calculated using Robust Huber-White Standard Errors
2 Calculated at means of independent variable
3 Regions geographically divided into strata that differ based on access to public services. The strata are numbered from lowest (1) to highest (6), and there is a relationship between poverty and strata
The poorest are strata 1 and 2 the richer are strata 3 to 6

Table 15
Drop-out Rates for Children and Youth 7-17
By Differences in Family and Community Social Capital
Bogota, 1991

(marginal changes at mean of independent variables based
on simulations from logit models)
(Corresponds to column 2 of Table 12)

Family and Social Capital	7-17 (Percentage Change)
No Abuse	8.8
Abuse	13.3
No Books	12.7
Books	7.9
No Alcohol Problems in Family	9.9
Alcohol Problems in Family	19.3
One year in Community (Low)	11.2
Twenty years in community (High)	9.1
Education of Female Head = 16 Years (High)	7.0
Education of Female Head = 5 Years (Low)	10.6
High Education of Female Head, No Abuse	5.9
High Education of Female Head, Abuse	9.3
Low Education of Female Head, No Abuse	9.1
Low Education of Female Head, Abuse	13.8
High Education of Female Head, Books	5.2
High Education of Female Head, No Books	8.8
Low Education of Female Head, Books	8.1
Low Education of Female Head, No Books	13.1
High Education of Female Head, No Alcohol	6.7
High Education of Female Head, Alcohol	14.0
Low Education of Female Head, No Alcohol	10.2
Low Education of Female Head, Alcohol	20.0
Poverty and Family Social Capital	
90th Percentile	4.6
10th Percentile	13.3
90th Percentile, No Abuse	3.9
90th Percentile, Abuse	6.2
10th Percentile, No Abuse	11.6
10th Percentile, Abuse	17.2
90th Percentile, Books	3.3
90th Percentile, No Books	5.7
10th Percentile, Books	10.3
10th Percentile, No Books	16.4
90th Percentile, No Alcohol	4.4
90th Percentile, Alcohol	9.7
10th Percentile, No Alcohol	12.8
10th Percentile, Alcohol	24.4

Table 15 (Continued)
Drop-out Rates for Children and Youth 7-17
By Differences in Family and Community Social Capital
Bogota, 1991

(marginal changes at mean of independent variables based
on simulations from logit models)
(Corresponds to column 2 of Table 12)

Family and Community Social Capital	7-17 (Percentage Change
No Neighbor Problems	9.2
Neighbor Problems	17.8
High Education of Female Head. No Neighbor Problems	6.2
Low Education of Female Head. No Neighbor Problems	9.5
High Education of Female Head. Neighbor Problems	12.8
Low Education of Female Head, Neighbor Problems	18.4
No Neighbor Problems, No Abuse	7.8
No Neighbor Problems, Abuse	12.0
Neighbor Problems, No Abuse	15.7
Neighbor Problems, Abuse	22.4
No Neighbor Problems, Books	7.0
No Neighbor Problems. No Books	11.4
Neighbor Problems, Books	14.3
Neighbor Problems. No Books	21.7
No Neighbor Problems, No Alcohol	8.8
No Neighbor Problems, Alcohol	17.6
Neighbor Problems, No Alcohol	17.2
Neighbor Problems. Alcohol	30.6
Composite	
Best Case Scenario 1/	2.6
Worst Case Scenario 2/	56.8
Predicted Value of Y	10.3

Source: Encuesta Nacional sobre Pobreza y Calidad de Vida. Bogota, 1991; and Table 18
Notes:
1/ Best Case Scenario means: Two-Parent Family; One Sibling; No Abuse; Books; No Alcohol.
Problems in Family
Mother's Education High; Twenty Years in Community; No Problems with Neighbors;
and 90th Percentile.
2/ Worst Case Scenario means: Mother-only Family. Four Siblings; Abuse; No Books. Mother's
Education Low
One Year in Community; and 10th Percentile.
3/ Figures are calculated using expansion factors.

Table 16

Drop-out Rates for Children and Youth 7-17
By Differences in Family and Community Social Capital
Urban Areas, 1991

(marginal changes at mean of independent variables based
on simulations from logit models)
(Corresponds to column 2 of table 12)

Family Social Capital	7 to 13 (Percentage Change)	12 to 17 (Percentage Change)
No Abuse	4.6	14.0
Abuse	6.7	17.3
Education of Mother = 16 Years (High)	0.8	4.2
Education of Mother = 5 Years (Low)	5.1	14.8
High Education of Mother, No Abuse	0.7	3.9
High Education of Mother, Abuse	1.0	5.1
Low Education of Mother, No Abuse	4.4	14.0
Low Education of Mother, Abuse	6.4	17.5
Poverty and Family Social Capital		
90th Percentile	2.7	9.3
10th Percentile	6.4	18.8
90th Percentile, No Abuse	2.4	8.7
90th Percentile, Abuse	3.0	9.7
10th Percentile, No Abuse	5.6	17.9
10th Percentile, Abuse	8.5	22.7
Family and Community Social Capital		
No Drug Problems in Neighborhood	4.1	12.9
No Drug Problems in Neighborhood	9.9	20.2
High Ed'n of Mother, No Drug Problems in Neighborhood	0.6	3.5
High Ed'n of Mother, Drug Problems in Neighborhood	1.6	6.3
Low Ed'n of Mother, No Drug Problems in Neighborhood	3.9	12.9
Low Ed'n of Mother, Drug Problems in Neighborhood	9.7	20.7
90th Percentile, No Drug Problems in Neighborhood	2.1	8.0
90th Percentile, Drug Problems in Neighborhood	5.4	16.6
10th Percentile, No Drug Problems in Neighborhood	4.9	13.6
10th Percentile, Drug Problems in Neighborhood	12.3	25.9
No Drug Problems in Neighboorhood, No Abuse	3.5	12.2
No Drug Problems in Neighboorhood, Abuse	5.1	15.2
Drug Problems in Neighboorhood, No Abuse	8.6	19.2
Drug Problems in Neighboorhood, Abuse	12.1	23.3
Composite		
Best Case Scenario 1/	0.2	1.6
Worst Case Scenario 2/	21.4	36.0
Predicted Value of Y	5.5	14.8

Source: Encuesta Nacional sobre Pobreza y Calidad de Vida, Bogota, 1991, and Table 18
Notes:
1/ Best Case Scenario means: Two-Parent Family, One Sibling, No Abuse, Books, No Alcohol, Problems in Family,
Mother's Education High, Twenty Years in Community, No Problems with Neighbors, and 90th Percentile
2/ Worst Case Scenario means: Mother-only Family, Four Siblings, Abuse, No Books, Mother's Education Low,
One Year in Community, and 10th Percentile
3/ Figures are calculated using expansion factors

Figure 1

Proportion of Children Not Attending School and Total sample Size
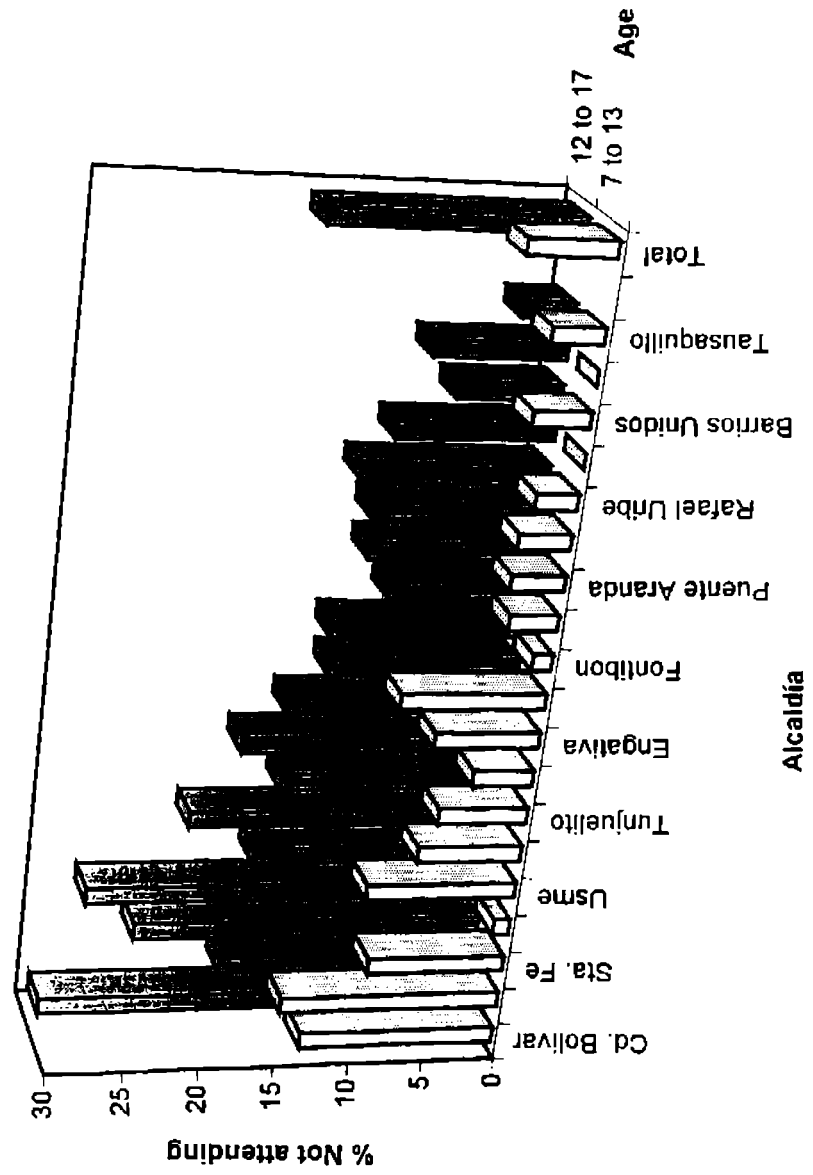By Age Group and Alcaldia
Bogota, 1991
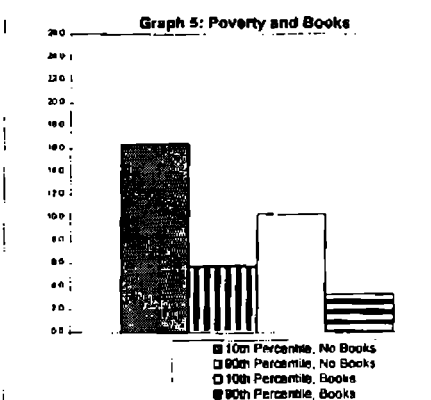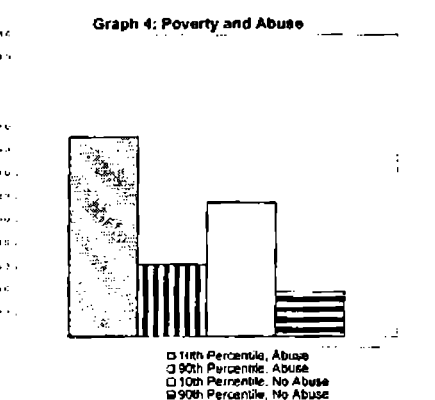
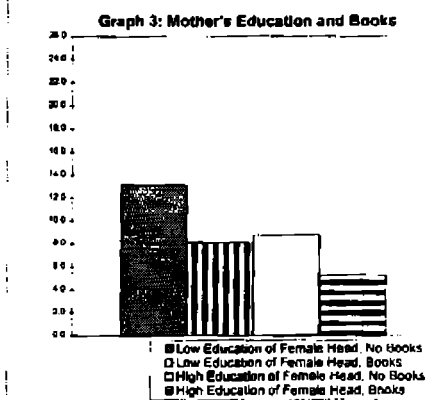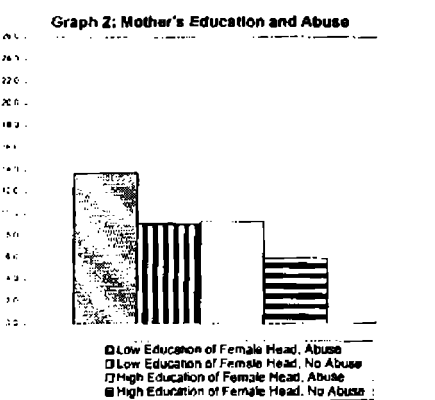## *Figure 2*
Simulated Drop Out Rates for Bogotá
7-17

Graph 1

□ Abuse
■ No Books
■ Alcohol Problems in Family
■ Education of Female Head = 5 Years (Low)
■ One year in Community (Low)
■
■ 10th Percentile

■ No Abuse
■ Books
□ No Alcohol Problems in Family
■ Education of Female Head = 15 Years (High)
■ Twenty years in community (High)
■
■ 90th Percentile

Graph 2: Mother's Education and Abuse

□ Low Education of Female Head, Abuse
□ Low Education of Female Head, No Abuse
□ High Education of Female Head, Abuse
■ High Education of Female Head, No Abuse

Graph 3: Mother's Education and Books

■ Low Education of Female Head, No Books
□ Low Education of Female Head, Books
□ High Education of Female Head, No Books
■ High Education of Female Head, Books

Graph 4: Poverty and Abuse

□ 10th Percentile, Abuse
□ 90th Percentile, Abuse
□ 10th Percentile, No Abuse
■ 90th Percentile, No Abuse

Graph 5: Poverty and Books

■ 10th Percentile, No Books
□ 90th Percentile, No Books
□ 10th Percentile, Books
■ 90th Percentile, Books

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Figure 3

Simulated Drop Out Rates

Urban Areas, 7 - 13

Figure 4
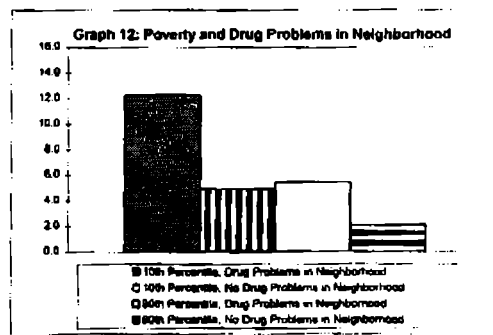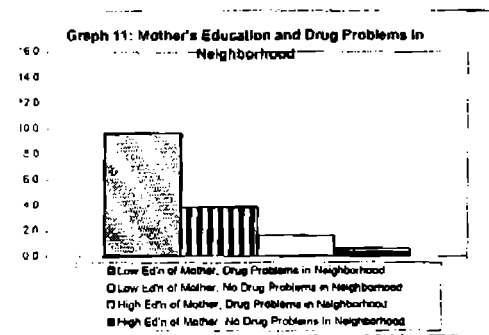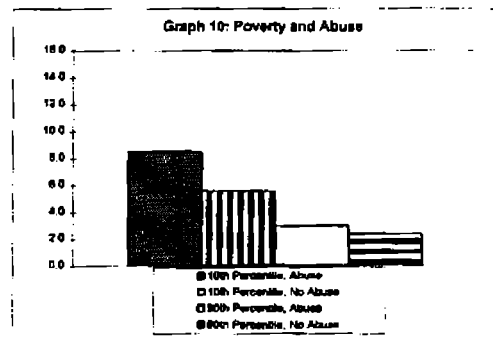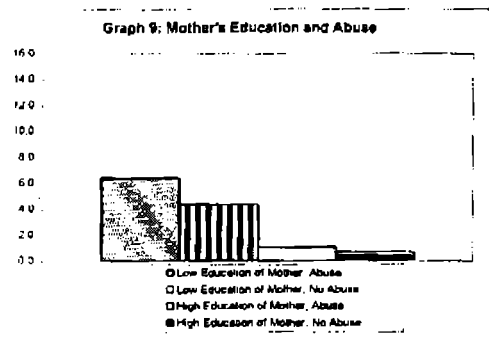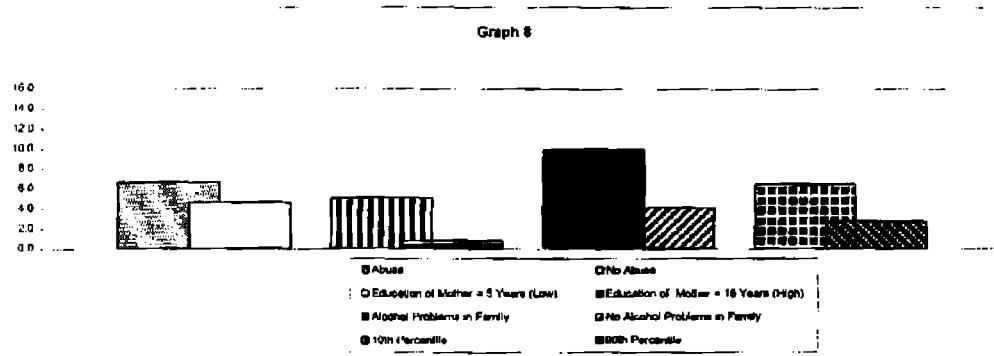
Simulated Drop Out Rates

Urban Areas , 12-17