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Social Capital, Urban Settings and Demographic Behavior in Latin America

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Abstract

Based on probabilistic samples of 12,000 adults in eight Latin American countries, this article studies two dimensions of social capital—(1) community participation and (2) trust in neighbors— and their relation with urbanization, fertility, out-migration, and crime. Its purpose is to determine whether social capital explains some of the differential demographic behavior of urban populations. The data show that social capital clearly declines with urbanization, although the urban-poor show a bit higher community participation. There is a clear gradient of increased crime and reduced social capital related to urbanization. The relationship between social capital and fertility and migration is less clear and often restricted to certain sub-populations. The urban-poor do not exhibit demographic behavior significantly different than the expected given its compositional and spatial characteristics.

Basándose en muestras probabilísticas de 12.000 adultos de ocho países latinoamericanos, se estudian dos dimensiones del capital social –(1) participación comunitaria y (2) confianza en los vecinos– y su relación con urbanización, fecundidad, emigración y crimen. El objetivo es determinar el grado en que el capital social explica el comportamiento demográfico diferenciado que presentan las poblaciones urbanas. Los datos muestran que capital social claramente disminuye con la urbanización, aunque los pobres de las ciudades exhiben una participación comunitaria algo mayor. Se observa una clara gradiente de mayor crimen y menor capital social asociados a urbanización. La relación de capital social con fecundidad y emigración es menos clara y con frecuencia restringida a ciertas subpoblaciones. Los pobres de las ciudades no muestran un comportamiento demográfico significativamente distinto de lo esperado dadas sus características composicionales y espaciales.

Keywords

Social capital, Latin America, urbanization, out-migration, fertility, crime

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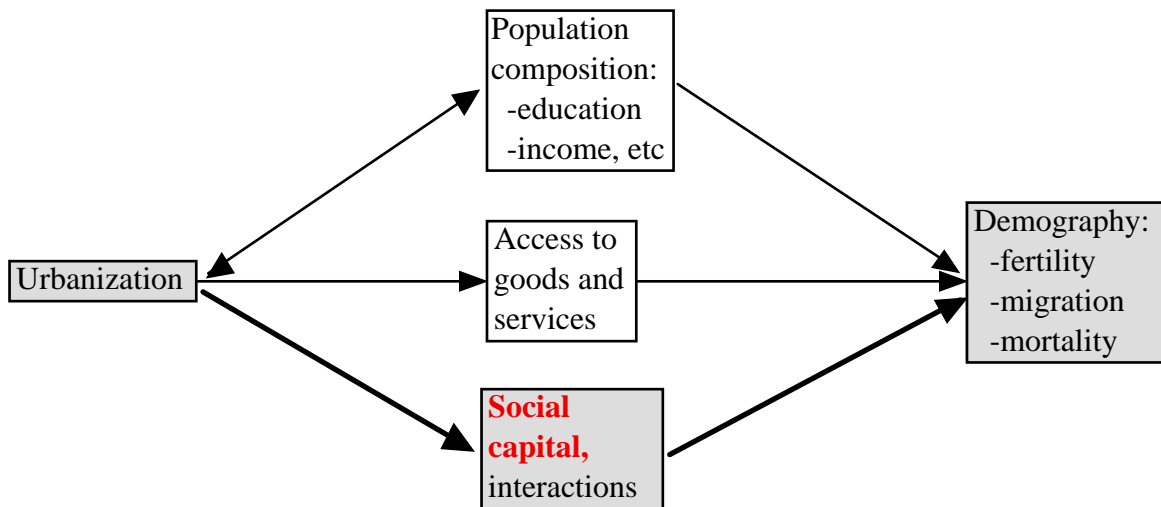
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Introduction

Social Capital has become an influential concept in a variety of disciplines in the social sciences. The landmark works by Bourdieu (1986), Coleman (1988) and Putnam (1993) postulate that social capital – i.e. social networks, reciprocities, mutual trust, and their value for achieving common goals – is key in understanding economic development, democracy, population health, crime and other processes. Little is known, however, about the relationship between social capital and demographic behaviors, in particular regarding decisions to procreate or to migrate.

This article explores the following postulates with data from eight Latin American countries: (1) urbanization often brings losses in the stock of social capital, although among the urban poor the situation may be different; (2) urbanization usually associates itself with lower fertility, higher out-migration, and higher man-made mortality (violence and accidents); (3) although some of these urbanization “effects” may be just compositional (i. e. due to education, income, occupation, and the like) others may be genuinely due to intrinsic characteristics of urban settings, such as accessibility to certain places and services, as well as the particular way in which urban neighbors relate to each other and accumulate social capital. The causal diagram in Figure 1 summarizes these relationships that frame the present study.

Figure 1. Causal diagram of urbanization, social capital and demography



The main purpose of this article is thus to explore the relationship between social capital and demography in the Latin American context, particularly, whether social capital is affected by urbanization and whether it is one of the mechanisms explaining urbanization differentials in demographic variables. In addition, the article explores whether the urban poor differ in their stock of social capital, and the extent to which those differences result in differential demographic behavior of this group.

The concept of social capital

Social capital is both a new and an old concept. It is a subset notion of the concept of “social cohesion” developed by Durkheim (1897) in the late 19th Century, which refers to the absence of latent social conflict and the presence of strong social bonds. A cohesive society is one with an abundance of “mutual moral support, which instead of throwing the individual on his own resources, leads him to share in the collective energy and supports when his own is exhausted” (cited by Kawachi & Berkman, 2000: 175).

In the 1970s, the parallel works by Bourdieu, Coleman and Putnam introduce explicitly the concept of social capital to revalorize social relationships analogous to the concepts of physical and human capital. This article does not intend to participate in the debate on the differences among these or other authors in their concept of social capital but to rescue some common denominator. In a vague sense, social capital has to do with the value of “trust and networks.” In Putnam’s (2001:1) words “...the central idea of social capital is that networks and the associated norms of reciprocity have value.” Social capital is thus a feature of social organizations that facilitates coordination and cooperation for mutual benefit; it is people acting together to pursue shared objectives (Putman, 1993). For Bourdieu (1986: 119) “social capital is the sum of resources ... by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition”. In the work of Coleman (1988) social capital has to do with levels of trustworthiness, extent of obligations, norms and effective sanctions, as well as information channels. For Portes (1998:8) an author often critical of social capital debates, social capital is “the ability to secure benefits through membership in networks and other social structures.” Studies in Latin America have focused on the relationship between social capital and poverty and its importance in policies of poverty reduction (Atria et al., 2003; Lomnitz, 1988; Arriagada, 2005).

Links with demography

The literature linking social capital to migration is substantial. Most of it considers social capital as networks of migrants and knowledgeable individuals that facilitate both the origin and destination of migration. (Hugo, 1981; De Jong, 2000; Massey & Espinosa, 1997; Palloni et al, 2001). This literature usually shows that social ties have a direct effect on facilitating people migration. They “lower the costs and risks of movement and increase the expected net returns of migration...and gives access to an important kind of financial capital (foreign employment) which offer the possibility of accumulating savings abroad and sending remittances home” (Palloni et al, 2001:1263-1264). Social capital in this literature is thus a factor favoring migration and creating a sort of autonomous feedback that perpetuates the process in cumulative causation (Massey et al., 1994).

This literature assumes the existence of a common social goal—successful migration. One can think, however, of situations in which social capital in the place of origin may reduce the pressure to out-migrate by offering support to those who stay. The result in this case will be staying in the community. One can also think of situations in which social capital at the destination may be a trap that creates ghettos and reduces assimilation (Brenes, 2005; Portes & Sensenbrenner, 1993). It thus seems that social capital can be either a positive or a negative force on migration, depending on the shared goals in the networks.

There is also substantial literature suggesting that social capital reduces crime and violence, the main causes of death among young adults, and improves population health. Most of this literature focuses on the spatial differences in mortality and health that are not explained by individual or compositional characteristics. Social capital is a major explanatory construct in the broadly cited book by Wilkinson (1996) on inequality and health, in which geographic differences in health seem significantly determined by social inequalities and relative (rather than absolute) income. Wilkinson shows that it is not the richest countries that have the best health indicators but those with the smallest income differences and that egalitarian societies are more cohesive; i.e., with higher stock of social capital. Social inequality in the work by Wilkinson undermines social networks, which increases crime and reduces health and well-being of the whole society. Kawachi *et al.* (1997) provide empirical support to these postulated relationships by showing a strong correlation between mortality, inequality and social capital among the states of the USA. Macintyre and Ellaway (2003) argue that both “who you are” and “where you are” explain geographical variations in health. Sampson complements the former observation postulating that “collective aspects of neighborhood life such as social cohesion, spatial diffusion, support networks, and informal social control” –all elements of social capital theories-- are at the root of “neighborhood effects” on health (Sampson, 2003: 135). Moreover, Sampson *et al.* (1997) singles out “collective efficacy” as the key aspect of social capital influencing crime rates and public health. His argument is in line with the seminal work by Granovetter (1973) underscoring the strength of “weak ties” to explain network’s

influences. The weakening of social capital with migration from the countryside to the cities that affect the urban poor in Latin America has been linked to the increased violence in the region (McIlwaine & Moser, 2001)

Research on social capital and fertility is harder to find. In a way, diffusionist, or social interaction, explanations of adoption of birth control implicitly acknowledge the importance of social networks and social capital as factors that accelerate fertility transition (Rosero-Bixby & Casterline, 1994; Montgomery & Casterline, 1996; Bongaarts & Watkins, 1996). More cohesive and socially integrated societies would move faster from high to low fertility levels by facilitating interaction diffusion effects.

The above explanation, however, applies only when birth control is an innovation, and its diffusion is a common goal facilitated by social capital. After completing the fertility transition, in low fertility societies, with “unwanted infertility” instead of “unwanted fertility”, the effect of social capital on fertility may be positive. A reason for this could be reverse causation: couples have children to increase their social capital. According to Schoen et al. (1997) the social value of children is an important factor motivating childbearing. Astone et al. (1999:2) also postulate that “formation of sexual partnerships, the birth and rearing of children [] constitute major forms of investment in social capital.” But causation may also go in the other direction, with social networks as sources of resources that reduce costs of having children, especially in some harsh circumstances. Evidence from Russia, Bulgaria, Hungary and Poland suggests “that the availability of at least one helpful network partner has a positive impact on women’s intention to have a second child” (Bühler & Fratzak, 2004:13). Having access to social capital can also reduce single mother’s work-family conflicts and facilitate childbearing (Ciabattari, 2004). There is yet another possible connection between social capital and fertility: social networks and cohesion may be a dissuasive factor of adolescent pregnancy, especially in contexts where adolescent fertility is high and neighborhoods are considered socially disorganized (Gephart, 1997; Sucoff & Upchurch, 1998; Upchurch et al., 1999).

Urbanization and social capital

“[New York] is a splendid desert—a doomed and steeped solitude, where a stranger is lonely in the midst of a million of his race,” wrote Mark Twain in 1867 (cited by Putnam 2000: 207). Social capital is clearly lower in the big city than in small towns. “The resident of a major metropolitan area is significantly less likely to attend public meetings, to be active in community organizations, to attend church, to sign a petition, to volunteer, to attend club meetings, to work on community projects, or even to visit friends. Metropolitan areas are less engaged because of where they are, not who they are... Living in a major metropolitan agglomeration somehow weakens civic engagement and social capital.” (Putnam, 2000: 206). Some characteristics of urban settings that can deplete social capital stock are diversity, residential mobility, and migration by weakening the basis for cooperation in city neighborhoods (Montgomery, et al., 2003: 70). It is paradoxical that close proximity and high population density of cities have decreased, instead of increasing, the density of social connections. Anonymity and freedom are nice assets of city life but they also lower social capital. It is fair, however to mention that some authors have found that some forms of social participation may increase with levels of urbanization (Fischer, 1982).

Does the broadly observed depletion of social capital in large cities of developed countries repeat itself in the Latin American context? How about among the urban poor? This article intends to answer these questions as a first step for determining the degree in which this is a mechanism explaining differential demographic behavior of cities.

Measuring social capital

Social capital being an abstraction and a relatively new concept, there is no consensus on how to measure it objectively, in contrast with the other capitals—physical, financial, and even human. The problem of operationalizing it in part comes from the immaturity of the concept and the vagueness of its definition

(Schuller et al., 2000: 26). Under these conditions, the issue of validity is real, although hard to solve. Does the chosen indicator measure what is supposed to measure? Social capital has no gold standards or objective landmarks available to check validity.

A good practice is to follow the paradigm and use those indicators more often used by other researchers. This approach has the additional advantage of enabling comparisons. There are two dimensions of social capital measured by almost all major research efforts in the field: (1) trust and solidarity among fellow citizens and (2) density of associational membership. The seminal work by Putnam on democracy in Italy (1993) defined and used these dimensions. Inglehart (1997) also used them since the first wave of the World Values Survey (Inglehart, 1997), as well as Kawachi et al. (1997) who took the data from the USA surveys conducted in 1986 to 1990 by the National Opinions Research Center. The European Social Survey 2002-3, conducted in 21 countries, also measured these indicators, along with two additional dimensions (Fernández *et al.*, 2004). A group of researchers from the World Bank included them among the six dimensions of their proposal for an integrated questionnaire to measure social capital (Grootaert *et al.* 2003).

An important measurement aspect of social capital in which there is some degree of consensus is its collective character. In contrast with human capital, it is not lodged within individuals, it is social, it is an ecologic characteristic, a feature of the collective that must be measured at the aggregated level (Kawachi & Berkman, 2000).

Data and Methods

This article analyzes a database of about 12,000 interviews carried on probabilistic samples of adults in six Central American countries--Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama--plus Mexico and Colombia in March 2004, as part of a study of democratic values by the Latin American Public Opinion Project (LAPOP) currently in Vanderbilt University, web page:

<http://www.lapopsurveys.org>.

Sampling size is about 1,500 in each country. The samples represent the countries' populations of voting-aged adults i.e., citizens aged 18 and over, except in Nicaragua where the voting age starts at 16. The 120 Nicaraguans under the age of 18 were excluded from all analyses. The study was based on a common questionnaire and sample design, although each country was able to include specialized questions focusing on its particular interests. All samples were of multi-stage, stratified probability design, with quotas by age and gender at the level of the household (Seligson, 2005).

Given their objectives, the surveys lack refined indicators of demographic behavior and, to a lesser degree, of social capital. However, they have the advantage of comparability, assured by their common sampling design, questionnaire, and timing.

Demographic indicators

The indicator of fertility used in this article is the number of children of respondents aged between 18 and 39 years, of both sexes. By restricting ages up to 40 years, this indicator reflects recent fertility experience. The questionnaire did not ask items to improve this measure by taking into account child mortality and children fostering, as demographic surveys routinely do. As a validity check, the comparison of national averages for this variable with the countries' total fertility rate by 2000 (CELADE, 2001), showed a high degree of congruence, with a Spearman correlation coefficient of 0.93.

There are two indicators of out-migration available in these surveys: (1) intention to out-migrate to the US in the coming three years among respondents aged 18 to 39 years (aged 40 and older are excluded since this question is probably not relevant for them, given the very low migration rates at those ages) and (2) whether the family received remittances in the last year. This article uses these indicators as proxies

of out-migration. The comparison of national averages with the corresponding percent of native population counted in the USA census of 2000 (Census, Bureau, 2005) resulted in Spearman correlation coefficients of 0.42 for migration intention and 0.83 for remittances. The low correspondence of migration intention is mostly due to Colombia, which has the lowest proportion of migrants in the USA and the third highest migration intention in this data set. Excluding Colombia, the Spearman correlation climbs to 0.79.

No direct indicators of mortality are available in this data set. This article instead focuses on crime and violence, which is the most important cause of death among young adults and it has epidemic proportions in Latin America (Roberts, 1997). The indicator available in the survey is being a victim of violent crime in the last year. The Spearman correlation coefficient with the national rates of homicide (PAHO, 2005) is a low 0.32, because of deficiency in the vital statistics of countries like Nicaragua, as well as the large number of deaths associated to the guerrilla warfare in Colombia, which are not counted in this data set.

Three out of these four dependent variables are binary-response variables, which this article modeled with logistic regression. The indicator of fertility is always a positive and integer count modeled here assuming a Poisson distribution.

Social capital indicators

This article measured two dimensions of social capital for each respondent with: (1) a scale of participation in community organizations, and (2) an indicator of trust-mistrust in fellow neighbors. To take into account that social capital is a collective construct, the article did not use directly respondent-level indexes but their average in each sampling cluster. The median size is nine respondents per cluster, with a range of 5 to 23. In averaging the cluster indicators, the index-individual was excluded; i.e. the average is for all the other adults in the same sample cluster. In this way this article avoids endogeneity or reverse causation. For example, by not considering the victim's mistrust but the mistrust of neighbors, it avoids in part the problem that mistrust in neighbors may come from having been a victim of crime.

The survey contains a block of eleven items to measure frequency of participation in civil society (5 items) and types of active (yes/no) contribution to solve community problems in the previous year (6 items). After normalizing responses and conducting factor analysis and Cronbach's Alpha tests, this article formed an optimal scale of community participation by adding six items. The scale has an Alpha of 0.87 that denotes high internal validity. The six items included in the scale, which ranges from 0 to 0.89, and have a mean of 0.22 and a standard deviation of 0.14 after averaging by cluster, are as follows:

1. Frequency of attendance to a committee for community improvement.
2. Having worked to resolve a community problem
3. Having donated money or materials
4. Having done personal work or manual labor
5. Having attended community meetings
6. Having helped to organize a problem-solving community group

The classic question on measuring trust is to ask, as these surveys have: "Now talking about the people from around here, would you say that the people of your community are very trustworthy, somewhat trustworthy, little trustworthy or not at all trustworthy." One important detail is that the surveys used here introduced the word "community" into the questions, whereas in the standard item asked by other surveys, this term is missing. Thus, the question is not about people in general, but people from the community. The result of this change is substantially higher trust levels than in prior surveys in Latin America and elsewhere. In these surveys the percentage that trust people (neighbors are "very" or "somewhat" trustworthy) goes from a high 77% in Costa Rica to a low 50% in Nicaragua. By comparison, the average for 21 European countries is 37%, range 75% in Denmark to 18% in Poland (Source: European Social Survey 2002-2003, in Fernández et al., 2004: table 3).

The surveys asked two additional questions on trust often used in other studies:

- Whether in most instances people are only worried about themselves or try to help others; and
- Whether most of the time people would or would not try to take advantage of someone if they had the opportunity.

Regarding the question that if most people can be helpful, the average in Latin America resulted in 34% compared to 34% in Europe. Regarding the question that if most people can be fair, the Latin American average resulted in 35% compared to 47% in Europe.

The three items do not constitute a completely reliable scale (Cronbach's Alpha is 0.52). This finding is not new; in most surveys in which these three items have been included, the reliability of the series to form a scale is lowⁱ. There is an important group (about 60%) of respondents that somehow gave contradictory or ambivalent answers. For example, 36% said that neighbors are very or somehow trustworthy and also said that people try to take advantage of others. Conversely, 9% said that neighbors are not trustworthy and, paradoxically, that people do not try to take advantage of others. Given these uncertainties, this article created an indicator of trust-mistrust with three categories:

- Those who trust (coded 1) if responses to the three questions consistently denoted trust: neighbors are somewhat or very trustworthy and people try to help others in most instances and people do not try to take advantage of others. Fourteen percent of respondents fall into this category, range 10% in Nicaragua to 16% in El Salvador.
- Those who mistrust (coded -1) if responses to the three questions consistently denoted mistrust. Twenty-two percent fall into this category, range 13% Costa Rica to 29% Panama.
- All the others (coded 0), who are essentially ambivalent (64%)

This index is named "net trust minus mistrust" since its average shows the difference in the proportions between trust and mistrust.

Control variables

Table 1 shows the mean values of the control variables used in this article to isolate net effects of social capital on demographic behavior as well as those to study urbanization effects. Most are self-explanatory. The study defined three urban settings: Metropolitan areas (27%), other cities (32%), and rural areas (40%). Metropolitan areas are the countries' capitals, plus cities with more than one million inhabitants, namely: Guadalajara, Monterrey, Ciudad Juarez and Puebla in Mexico, San Pedro Sula in Honduras, and Medellin, Cali and Barranquilla in Colombia.

A wealth index was defined by adding 14 goods in the household (mean 5.0, ranging from 2.9 in Nicaragua to 7.7 in Costa Rica), including: the number of TV sets (up to three), a refrigerator, a telephone line, a cell phone, vehicles (up to three), a washing machine, a microwave oven, drinking water inside the residence, a toilet inside the residence, and a computer.

This article also identified an "urban-poor" group of respondents using the wealth index. Urban poor are those living in cities (metropolitan or not) and with a wealth index lower than fiveⁱⁱ. This group averages 18% for the eight countries, ranging from a low 2% in Costa Rica to a high 36% in Nicaragua.

The variable religiosity was built with information on church attendance. Low-religiosity individuals are those who seldom or never attend church. High-religiosity respondents are those with weekly attendance: 41% ranging from 26% in Panama to 53% in Guatemala. In addition, the variable protestant faith distinguishes all respondents with affiliation to Christian, non-Catholic churches, which is a fast-growing group in Latin America. It ranges from 5% in Mexico to 33% in Guatemala.

Satisfaction with life is on a one-to-four scale with answers being: 1 = highly unsatisfied, 2 = some unsatisfied, 3 = some satisfied, and 4 = highly satisfied. This index of happiness ranges from 3.0 in Nicaragua to 3.5 in Costa Rica.

The information on wealth, education and rural residence in table 1 suggests there are two groups of countries: (1) more developed countries (MDC) including Mexico, Costa Rica and Panama, and (2) less-developed countries (LDC) including Guatemala, El Salvador, Honduras, and Nicaragua.

Table 1. Averages of control variables by country

Control variables	All	Mex-ico.	Guate-mala	El Sal-vador	Hond-uras	Nica-ragua	Costa Rica	Pana-ma	Colo-mbia
N. Observations	11,889	1,542	1,637	1,527	1,441	1,237	1,492	1,630	1,383
Urban setting									
Metropolitan	0.27	0.31	0.18	0.23	0.22	0.15	0.44	0.39	0.26
Other cities	0.32	0.38	0.27	0.34	0.26	0.42	0.18	0.30	0.47
Rural area	0.40	0.31	0.55	0.43	0.52	0.43	0.37	0.30	0.27
Urban poor	0.18	0.09	0.18	0.20	0.23	0.36	0.02	0.15	0.25
Age years	38.7	39.2	37.7	37.9	40.6	36.4	40.4	40.2	36.8
Female	0.52	0.50	0.52	0.53	0.53	0.54	0.51	0.50	0.50
Married	0.62	0.69	0.67	0.56	0.63	0.61	0.62	0.62	0.56
Education years	7.62	8.22	5.70	7.29	5.77	6.33	8.28	9.96	9.25
Wealth index	5.04	6.63	4.01	4.32	3.51	2.92	7.74	5.84	5.06
Religiosity									
Low	0.26	0.22	0.19	0.32	0.21	0.33	0.34	0.28	0.24
Middle	0.33	0.40	0.28	0.26	0.28	0.33	0.24	0.46	0.37
High	0.41	0.38	0.53	0.42	0.51	0.35	0.42	0.26	0.39
Protestant faith	0.21	0.05	0.33	0.27	0.31	0.25	0.15	0.18	0.10
Satisfaction with life	3.28	3.15	3.25	3.16	3.23	3.04	3.53	3.41	3.46

Regression models

The article estimated linear regression models on the two indexes of social capital to understand their determinants and covariations with control variables.

To study the effect of social capital on fertility, Poisson regression models were estimated. For the effects on the other three demographic indicators, logistic regression models were estimated. Given that the indicators of social capital are averages by cluster and thus, their variances are not independent—a classic heteroskedasticity problem, the regressions weighted each observation with the square root of cluster size (Hanushek & Jackson, 1977: 152). These weights were normalized in order to reproduce the original sample size. The regression models were estimated using the computer software Stata (StataCorp, 2002).

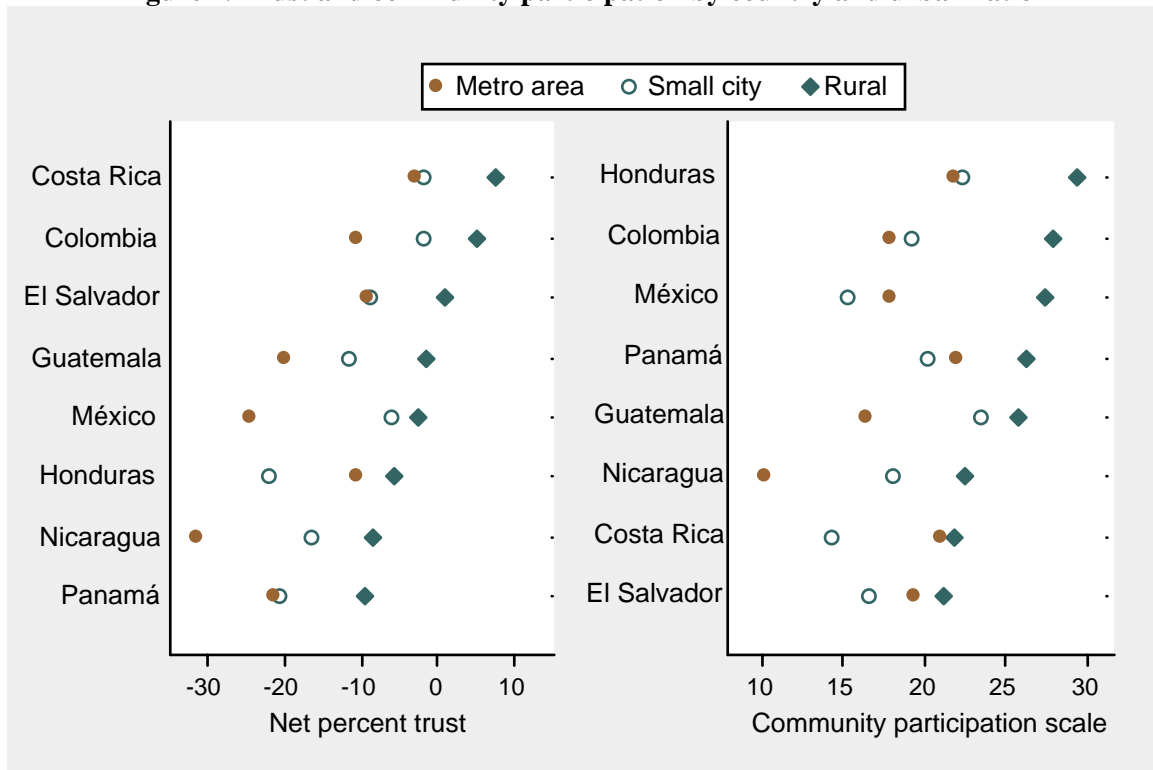
In preliminary regression analyses, all possible first-order statistical interactions with the social capital indexes were considered. This assessment of interactions included those with the dummy variables for the eight countries, which was an indirect test for whether countries can indeed be pooled. The final regressions presented here show only those interactions statistically significant at $p < .05$.

Results

Trust and community participation are indeed two different dimensions of social capital in the data set, orthogonal between them, with a correlation of only 0.06. It is thus appropriate to model them independently.

Social capital, in its two dimensions, is clearly lower in metropolitan areas compared to rural areas in all eight countries (Figure 2). Intermediate cities behave somewhat erratically. Social capital in them is always lower than in rural areas, but compared to metropolitan areas sometimes it is lower, sometimes (especially regarding participation) it is higher. The highest stocks of social capital occur in rural areas of Costa Rica for trust and in rural areas of Honduras for community participation. Managua, the capital of Nicaragua, is at the bottom in the two dimensions of social capital.

Figure 2. Trust and community participation by country and urbanization



Multiple regression models (Table 2) confirm the differences by country and urbanization. The models also show that the urban poor have significantly higher than expected community involvement (3.2 percent points higher) but they do not differ in terms of trust. Note that in these analyses social capital is not taken as a collective characteristic but as residing in the individualsⁱⁱⁱ. The dependent variables are the individual levels of trust or participation. The cluster levels of social capital are included in the regressions as explanatory variables and these are the most powerful predictors of individual levels of trust or participation. As a matter of fact, about half the variance explained by the regression models come from the group-level indicators.

Table 2 also shows that older and more religious people have higher stocks of social capital in its two dimensions, whereas with people of Protestant faiths these stocks of social capital are lower. Males, married and more educated persons have the highest involvement in community affairs, but they do not differ in terms of trust. The existence of these associations makes it mandatory to control these individual-level characteristics in the main analyses.

How do the four demographic indicators behave regarding social capital and urbanization? In a first, univariate approach, Table 3 shows that metropolitan areas, compared to rural areas, have substantially lower fertility levels (1.3 children vs. 2.0), as well as higher out-migration (both indicators: intentions and remittances), and substantially higher crime rates: victimization is almost 3 times higher. The urban poor, compared to metropolitan areas, have higher fertility levels (39% or 0.51 children higher), similar out-migration intentions and, surprisingly, a bit lower crime rate than the average crime rate in metropolitan

areas. One wonders if the lower crime rate is result of lower reporting to interviewers, an effect found in crime data in the U.S.

Table 2. Multiple regressions on the two indicators (per 100) of social capital

Variables	Trust	(P> t)	Participation	(P> t)
Community trust or participation	40.1	(0.00)	43.2	(0.00)
Country				
Mexico	0.0	Ref.	0.0	Ref.
Guatemala	-0.3	(0.90)	3.9	(0.00)
El Salvador	3.9	(0.06)	1.8	(0.09)
Honduras	-3.1	(0.15)	5.3	(0.00)
Nicaragua	-1.5	(0.52)	3.8	(0.00)
Costa Rica	4.4	(0.04)	-0.8	(0.45)
Panama	-5.0	(0.02)	0.9	(0.41)
Colombia	4.0	(0.06)	1.5	(0.17)
Urbanization				
Metropolitan area	-8.2	(0.00)	-8.7	(0.00)
Other cities	-4.9	(0.01)	-8.3	(0.00)
Rural area	0.0	Ref.	0.0	Ref.
Urban poor	-0.2	(0.91)	3.2	(0.00)
Age years	0.4	(0.05)	1.2	(0.00)
Age square	0.0	(0.24)	0.0	(0.00)
Female	-1.3	(0.21)	-7.6	(0.00)
Married	0.9	(0.46)	2.6	(0.00)
Education years	-0.1	(0.63)	1.0	(0.00)
Wealth index	-0.1	(0.64)	0.3	(0.03)
Religiosity				
Low	0.0	Ref.	0.0	Ref.
Middle religiosity	4.9	(0.00)	2.6	(0.00)
High religiosity	8.6	(0.00)	5.7	(0.00)
Protestant faith	-3.7	(0.01)	-1.6	(0.02)
Satisfaction with life	7.7	(0.00)	1.1	(0.00)
Constant	-39.5	(0.00)	-26.3	(0.00)
(N)	(11 852)		(11 852)	

To take a first look of the effects of social capital, Table 3 dichotomizes the two indicators of social capital into categories of approximately the same size denoting low and high trust or participation in the vicinity of the respondent. The differences in all four demographic indicators are modest, if any, in both trust and participation. However, this result should not be taken at face value. It is possible that third variables are concealing some differences. For example, Table 3 reveals that there is a great diversity of demographic behaviors by country. Fertility ranges from 1.3 children in Colombia to 2.0 in Honduras, remittance reception, from 5% in Colombia and Costa Rica to 23% in El Salvador, and violent crime is more than 50% higher in El Salvador, Honduras and Nicaragua than in Costa Rica and Panama. If, for example, there were a congruence of a country with high crime and low social capital, this congruence could reduce the univariate difference in crime by social capital observed in Table 3. Country and other effects, such as age and sex, must therefore be controlled, because they can affect both demographic behavior and social capital. Multiple regression models control these confounders and estimate the net effects of social capital.

Table 3. Demographic indicators by urbanization, social capital groups and country.

Variable & categories	(N)	Children	Migration intention	Remittances	Victim of violence
Total	(12,037)	1.64	25.7	11.8	4.7
Urban setting					
Metropolitan	(3,306)	1.31	27.0	11.8	7.9
Other Cities	(3,903)	1.47	28.4	14.3	4.5
Rural	(4,828)	2.00	22.6	9.7	2.7
Urban poor	(2,170)	1.82	27.8	10.1	5.8
Trust					
Low	(6,385)	1.63	26.4	12.3	5.3
High	(5,651)	1.65	24.9	11.2	4.1
Participation					
Low	(6,072)	1.54	25.4	12.4	5.1
High	(5,964)	1.74	25.9	11.1	4.3
Country					
Mexico	(1,555)	1.50	17.7	10.5	4.8
Guatemala	(1,684)	1.99	25.2	12.9	4.3
El Salvador	(1,530)	1.50	34.8	23.1	5.8
Honduras	(1,477)	2.03	26.3	16.9	5.8
Nicaragua	(1,266)	1.75	31.2	15.0	5.7
Costa Rica	(1,499)	1.37	18.9	5.5	3.7
Panama	(1,639)	1.62	20.6	5.9	3.7
Colombia	(1,387)	1.28	30.7	5.2	4.1

Note: for the variables children and migration intention, the number of observations is approximately half since include only respondents under 40.

A first set of models presented in Table 4 does not include social capital among the explanatory variables. These models check some traditional associations, such as the effect of urbanization or education on demographic behavior. Table 4 shows the rate ratios for fertility and odd ratios for the other three variables estimated within the regression models. The explanatory variables of interest in this analysis are urbanization and urban poor. Fertility and intention to migrate do not show significant differences by urbanization after controlling for compositional factors such as education or age. Reception of remittances tends to be lower in metropolitan areas compared to rural areas and, especially, intermediate cities. There is a clear gradient of higher crime with urbanization: metropolitan areas present higher figures than both small cities and rural areas, and small cities have intermediate figures. These results came from multiple regression models and show effects above and beyond socioeconomic or individual characteristics. It seems that some of the univariate differences by urbanization seen before in Table 3 were merely compositional, such as the higher education of urban populations. Being urban poor, in turn, does not make any significant difference in any of the four demographic indicators.

Table 5 shows the full multiple regression models, with social capital and significant interactions. The following analysis focuses on the effects of the two indicators of social capital, which are net effects, above and beyond socioeconomic and individual characteristics.

Table 4. Multiple regressions on demographic indicators with no effects of social capital

Variables	Children RR	P> z	Migration intention OR	P> z	Remitt ances OR	P> z	Victim violence OR	P> z
Country								
Mexico	1.000	Ref	1.000	Ref	1.000	Ref	1.000	Ref
Guatemala	1.006	(0.87)	2.021	(0.00)	1.837	(0.00)	1.163	(0.38)
El Salvador	1.042	(0.31)	2.991	(0.00)	3.948	(0.00)	1.415	(0.04)
Honduras	1.057	(0.16)	2.226	(0.00)	2.666	(0.00)	1.552	(0.01)
Nicaragua	1.007	(0.86)	2.601	(0.00)	2.417	(0.00)	1.532	(0.03)
Costa Rica	1.023	(0.60)	1.086	(0.54)	0.389	(0.00)	0.708	(0.08)
Panama	1.160	(0.00)	1.251	(0.07)	0.568	(0.00)	0.695	(0.05)
Colombia	0.961	(0.35)	2.163	(0.00)	0.527	(0.00)	0.825	(0.31)
Urban setting								
Metropolitan	1.034	(0.35)	0.894	(0.27)	0.800	(0.04)	2.826	(0.00)
Other cities	1.017	(0.63)	0.987	(0.90)	1.156	(0.14)	1.411	(0.03)
Rural area	1.000	Ref	1.000	Ref	1.000	Ref	1.000	Ref
Urban poor	0.971	(0.40)	1.177	(0.14)	0.872	(0.25)	1.133	(0.45)
Age years	1.498	(0.00)	0.995	(0.92)	0.948	(0.00)	1.017	(0.34)
Age square	0.994	(0.00)	1.000	(0.86)	1.001	(0.00)	1.000	(0.11)
Female	1.339	(0.00)	0.569	(0.00)	0.991	(0.88)	0.481	(0.00)
Married	2.112	(0.00)	0.579	(0.00)	0.832	(0.01)	0.749	(0.00)
Education yrs	0.951	(0.00)	1.027	(0.00)	0.997	(0.72)	1.022	(0.10)
Wealth index	0.960	(0.00)	1.062	(0.00)	1.173	(0.00)	1.037	(0.14)
Religiosity								
Low	1.000	Ref	1.000	Ref	1.000	Ref	1.000	Ref
Middle	0.956	(0.07)	0.930	(0.31)	1.087	(0.31)	0.916	(0.46)
High	1.002	(0.95)	0.888	(0.11)	1.112	(0.18)	0.960	(0.73)
Protestant faith	1.027	(0.27)	1.165	(0.04)	1.040	(0.60)	1.220	(0.09)
Satisf. with life	0.951	(0.00)	0.760	(0.00)	1.090	(0.04)	0.773	(0.00)

RR = rate ratio from Poisson regression. OR = Odds ratio from logistic regression

The relationship between social capital and fertility is weak. Full community participation increases fertility by 11%, although this effect is not significant. Living in a neighborhood where everybody fully trusts each other increases fertility by 14% compared to an ambivalent neighborhood and by 29% compared to a fully untrusting neighborhood. This effect is statistically significant, but it only occurs in the four less-developed countries (LDC = Guatemala, El Salvador, Honduras and Nicaragua). In the four more developed countries (MDC = Mexico, Costa Rica, Panama, and Colombia) the effect of trust reverses to a fertility reduction of 11%, as shown by the interaction term in Table 5.

The effects on the two indicators of out-migration are not clear-cut. They vary across the two dimensions of social capital, countries, and urban settings, as shown by the interaction terms in Table 5. Only for Mexico are there clear indications that both dimensions of social capital increase the two indexes of out-migration: the odds of migration intention and remittance reception are about six-fold higher in Mexican communities with full community participation or trust. In the other countries the only significant effect on intentions to migrate is a negative one of trust. On remittances, the migration-enabling effect of community participation disappears in the four LDCs and the one of trust occurs only in rural settings. Social capital thus appears as a factor favoring out-migration only in very specific settings or countries and dissuading out-migration in countries other than Mexico and with high levels of trust.

Table 5. Multiple regressions on demographic indicators including social capital effects

Variables	Children RR	P> z	Migration intention OR	P> z	Remitt- ances OR	P> z	Victim of violence OR	P> z
<i>Social capital</i>								
Participation	1.113	(0.12)	1.333	(0.21)	5.613	(0.00)	0.725	(0.35)
Trust	1.135	(0.01)	0.695	(0.00)	1.707	(0.00)	0.548	(0.00)
<i>Country</i>								
Mexico	0.967	(0.37)	0.403	(0.00)	0.377	(0.00)	0.870	(0.43)
Guatemala	1	Ref.	1	Ref.	1	Ref.	1	Ref.
El Salvador	1.022	(0.55)	1.480	(0.00)	2.024	(0.00)	1.248	(0.20)
Honduras	1.043	(0.21)	1.097	(0.41)	1.521	(0.00)	1.385	(0.06)
Nicaragua	1.008	(0.83)	1.297	(0.02)	1.382	(0.01)	1.247	(0.24)
Costa Rica	0.996	(0.92)	0.560	(0.00)	0.150	(0.00)	0.669	(0.05)
Panama	1.109	(0.01)	0.613	(0.00)	0.210	(0.00)	0.604	(0.01)
Colombia	0.942	(0.13)	1.162	(0.18)	0.196	(0.00)	0.834	(0.36)
<i>Urban setting</i>								
Metropolitan	1.029	(0.42)	0.941	(0.56)	1.077	(0.66)	2.573	(0.00)
Other cities	1.023	(0.51)	1.018	(0.86)	1.317	(0.07)	1.343	(0.07)
Rural area	1	Ref.	1	Ref.	1	Ref.	1	Ref.
Urban poor	0.976	(0.50)	1.144	(0.20)	0.831	(0.10)	1.101	(0.55)
Age years	1.495	(0.00)	0.997	(0.94)	0.951	(0.00)	1.016	(0.35)
Age square	0.995	(0.00)	1.000	(0.79)	1.001	(0.00)	1.000	(0.12)
Female	1.347	(0.00)	0.580	(0.00)	0.982	(0.77)	0.487	(0.00)
Married	2.105	(0.00)	0.584	(0.00)	0.800	(0.00)	0.743	(0.00)
Education yrs	0.951	(0.00)	1.022	(0.01)	0.997	(0.72)	1.021	(0.12)
Wealth index	0.961	(0.00)	1.065	(0.00)	1.171	(0.00)	1.036	(0.15)
<i>Religiosity</i>								
Low	1	Ref.	1	Ref.	1	Ref.	1	Ref.
Middle	0.956	(0.07)	0.904	(0.16)	1.048	(0.56)	0.889	(0.31)
High	0.996	(0.87)	0.860	(0.04)	1.070	(0.39)	0.948	(0.65)
Protestant faith	1.032	(0.18)	1.135	(0.09)	1.067	(0.38)	1.209	(0.09)
Satisf. with life	0.950	(0.00)	0.767	(0.00)	1.086	(0.04)	0.778	(0.00)
<i>Interactions with participation</i>								
Mexico			5.139	(0.01)				
LD countries					0.166	(0.00)		
Metropolitan					0.291	(0.04)		
Other cities					0.721	(0.52)		
<i>Interactions with trust</i>								
Mexico			3.997	(0.00)				
Colombia							3.338	(0.05)
MD countries	0.785	(0.00)						
Metropolitan					0.607	(0.11)		
Other cities					0.550	(0.02)		

RR = rate ratio from Poisson regression. OR = Odds ratio from logistic regression

LDC = Guatemala, El Salvador, Honduras, and Nicaragua. MDC = Mexico, C. Rica, Panama, and Colombia.

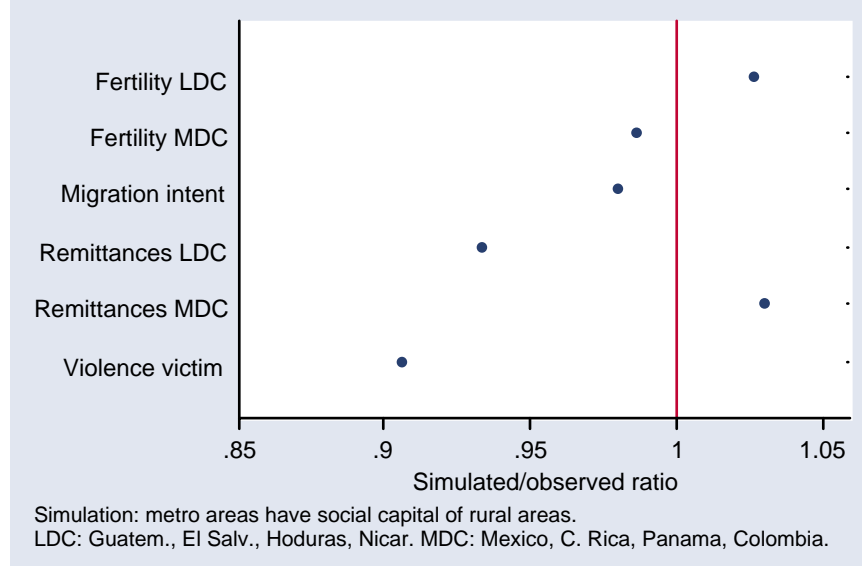
The clearest effects of social capital are on crime. Substantially lower odds of victimization are linked to communities with high trust. In communities with the highest value in the scale of trust (one) the odds of victimization are almost half those in communities with zero in the scale of trust. The effects are not

statistically significant, although in the same direction, for community participation. There is, however, an exception to the dissuasive effect of trust on violence—Colombia, as shown by the interaction term. However, Colombia may be a peculiar country because of the probable importance of the guerrilla warfare in the indicator of violence.

Going back to the main objective of this article—the role of social capital in the differential demographic behavior of cities—the data show a clear erosion of social capital in metropolitan areas compared to rural areas. The picture is not clear, however, regarding the impact of social capital on demographic behavior, especially for fertility and out-migration. To determine the meaning of the effects of social capital found in the previous regression analyses, the four demographic indicators were re-estimated in metropolitan areas under a hypothetical scenario in which social capital in these areas is higher and equal to that of rural areas in the same country. With these hypothetical values of social capital, the demographic indicators were re-estimated using the coefficients of the four multiple regressions presented in Table 5. Figure 3 summarizes the results of this deterministic simulation. The simulated increase of social capital in metropolitan areas has little effect (3% or less) on fertility, migration intent, and remittances. An exception is remittances in the group of LDCs, which would decrease by 7%. This result means that out-migration from metropolitan areas of poor countries may be in part a product of the erosion of social capital.

In contrast with fertility and out-migration, there is a clear reduction of 9% in the likelihood of being a victim of violent crime with the hypothetically higher values of social capital in metropolitan areas (Figure 3). In other words, the data show that the lower social capital in Latin America cities increases crime but have little effect, if any, on migration and fertility.

Figure 3. Ratios of simulated to observed demographic indicators in metropolitan areas



Discussion

Although Social Capital has become an influential concept in the social sciences, little is known of its relationship to demographic behavior. Based on data from probabilistic samples of 12,000 adults in eight Latin American countries, this article studied two dimensions of social capital—(1) community participation and (2) trust in neighbors—and their relation with urbanization, fertility, out-migration, and crime. It tried to determine whether social capital explains some of the differential demographic behavior of urban populations. The data show that social capital clearly declines with urbanization, although the

urban-poor show a bit higher community participation. There is a clear gradient of increased crime and reduced social capital related to urbanization. The relationship between social capital and fertility and migration is less clear and often restricted to certain sub-populations. The urban-poor do not exhibit demographic behavior significantly different than the expected given its compositional and spatial characteristics, and social capital does not help to explain their demography.

Social capital is a resource available to individuals to reach certain goals shared with others e.g., getting a job, having a better life, educating children, and avoiding crime. The problem with fertility and migration probably is that there are no common, universal goals. Perhaps a universal goal regarding fertility is that couples were able to have just the children they wanted, no more, no less, and social capital may help to reach this goal. However, in some communities, this could mean that it helps couples to have fewer children while in other communities the dominant goal may be to help couples to have the desired first or second child. By the same token, in some communities the common goal regarding out-migration could be to help people to leave whereas in others it could be to stay. Because of this lack of common universal goals in migration and fertility one does not observe a clear effect of social capital on them. The situation is distinct with crime; there is a universal common goal—to avoid it—and thus one sees a clear effect of social capital.

To see an effect of social capital on fertility and migration one probably needs to model the gap between what is desired and what is being achieved. Concepts like “unmet needs” or “unwanted situations” may be more appropriate dependent variables to see an influence of social capital. A much more refined measurement of demographic intentions and achievements than the available in this data set would be necessary to study these effects.

The validity of this article’s indicators of social capital is certainly an issue. Do they really measure social capital? The indicator of trust was a very demanding one on responses’ consistency. Only responses that were consistent in three different questions were accepted. However, this left about two-thirds of respondents as “ambivalent” or “neutral” in the issue of trust which may hide some of the effects of this factor. The measure of community participation was based on six items with a high degree of internal consistency as shown by the Cronbach’s Alpha of 0.87. However, one has no means of checking its external validity. Having a high level of participation, may be an empty concept reflecting little more than ritual behavior, instead of genuine involvement in community issues or the existence of networks and solidarity linkages. The comparison by countries showed that Costa Rica has the highest level of trust, which is consistent with its democratic traditions and confidence in institutions. However, regarding community participation, the highest scores occurred in contexts where there are no signs that would lead one to expect this.

This article used cluster’s averages of trust and participation, instead of the individual responses. It did so because of the collective character of social capital and to avoid endogeneity or reverse causation (i.e., to resolve, at least in part, the problem that high trust is caused by low crime and not vice versa). What would have happened if one had taken the individual scores? To respond, this article re-estimated the regression models and found that using the aggregate-level indicators reduced the significance of community participation effects, but increased the effects of trust. No-aggregate or individual-level indicators of social capital showed, however, clear effects on fertility. This article’s main conclusions would not have changed if it had used individual-level responses.

The cross-sectional nature of the data may also be an issue. Strictly speaking, one should not draw conclusions of causality from cross-sectional data. The only good data to establish causality are randomized controlled trials, almost impossible to conduct in social sciences. The relationships identified in this article are only associations. Although association is not proof of causality, the lack of association is a strong signal of absence of causal links. The negative result in these data of a clear association between social capital and fertility and out-migration is a strong signal that the causal effect does not exist, at least not in a general, simplistic way. In turn, although the association found between social capital and reduced crime in theory may come from reverse causation, that possibility was diminished by the use of aggregate levels of social capital to explain individual levels of crime. If reverse causation

existed, it would be difficult to conceptualize sociologically how individual level experience with crime can reduce social capital in the group (other than by spatial autocorrelation).

The loss of social capital in urban settings seems clear and undisputable in this data set. Latin America does not differ in this regard from other regions. This decline in social capital seems to be important for the higher crime rates in cities, but, again, it does not appear to affect fertility or out-migration.

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Endnotes

ⁱ That the items do not constitute a reliable scale does not mean they are uncorrelated. As much as 67% of the variation in the three items can be explained with a single index (the principal component of factor analysis). The indicator of trust computed in this article has correlation coefficients with the three survey items ranging from 0.63 to 0.67.

ⁱⁱ Urban-poor is actually an interaction variable of being poor and living in cities. As such, it intends to capture specific effects of being “urban-poor” above and beyond the effects of being urban and being poor. In other words, it intends to assess whether the urban-poor behave differently than expected from their economic status and place of residence.

ⁱⁱⁱ It would not make sense to explain aggregate levels of social trust and participation with individual levels of education and age.