

ARTICLE

# Personal Networks and Urban Poverty: Preliminary Findings

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This article presents results of ongoing research into personal networks in São Paulo, exploring their relationships with poverty and urban segregation. We present the results of networks of 89 poor individuals who live in three different segregation situations in the city. The article starts by describing and analysing the main characteristics of personal networks of sociability, highlighting aspects such as their size, cohesion and diversity, among others. Further, we investigate the main determinants of these networks, especially their relationship with urban segregation, understood as separation between social groups in the city, and specific forms of sociability. Contrary to much of the literature, which takes into account only segregation of individual attributes in the urban space (race, ethnicity, socioeconomic level etc), this investigation tests the importance both of networks and of segregation in the reproduction of poverty situations.

Keywords: Social networks; Urban poverty; Urban segregation; Sociability; São Paulo.

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## Introduction

Recently, a diverse set of studies have considered the importance of social networks to the sociability of individuals and to their access to a wide variety of tangible and intangible goods. In debates on poverty and inequality, relationship networks are frequently cited as key factors in obtaining work, in community and political organization, in religious behaviour and in sociability in general. Despite this, a descriptive and detailed analysis of personal and social networks is absent from the debates, especially because they are mainly referred to in a metaphorical way. This absence is

particularly important because networks have increasingly entered debates on public policies targeted at fighting poverty — especially through the idea of social capital — both as factors that contribute to their implementation and upon which these policies should act.<sup>1</sup>

Seeking in part to fill this lacuna, this article presents results of research on 89 networks that are part of ongoing study on personal networks of individuals living in poverty in São Paulo. Three different urban contexts were selected for testing the impact of the socio-spatial dimension on the structure and organization of personal networks of low-income individuals — tenements located in the central area of the city, a segregated shantytown (Vila Nova Esperança, in Taboão da Serra) and a shantytown that is integrated in urban terms (Vila Nova Jaguaré, in São Paulo).

Studying how personal networks of poor individuals are structured can help to understand people's life trajectories, their everyday lives and their survival strategies, improving our knowledge on reproduction of poverty and inequality. A relational perspective allows for a more heterogeneous and complex understanding of poverty, complementing approaches focused on economic aspects. Thus, analysing sociability patterns of people living in poor conditions seems to be a very important issue for the formulation, implementation and evaluation of public policies.

The research has several additional objectives. Firstly, the investigation intends to describe and analyse the principal characteristics of personal networks of sociability for the first time in Brazil,<sup>2</sup> highlighting aspects such as their size, cohesion and diversity, among others. Further, the research also intends to investigate the principal determinants of these networks, especially their relationship with social segregation in urban spaces and specific forms of sociability, such as attendance at places of worship and frequenting associations. It is worth noting that segregation is understood here as the isolation of social groups in space and the existence of a certain internal homogeneity in each region. Contrary to much of the literature on the subject, which takes into account only segregation of individual attributes in the urban space (race, ethnicity, socioeconomic level etc), this investigation tests the importance of networks in overcoming individuals' condition of spatial isolation.

Besides this introduction, the first part of the article briefly reviews the literature on personal networks. The next section presents the methodology and describes the fieldwork. The principal characteristics of networks are analysed in the third part of the article. In the fourth section, a typology of networks is developed according to certain characteristics, considering their variability across the areas studied. The principal results are summarised at the end of the article.

## **Networks, Sociability and Public Policy**

The recent inclusion of networks in public policy debates seems associated with a shift in policies to combat poverty. From a social assistance and individual perspective dominant until the 1980s, with an emphasis on the economic dimension of poverty, the policies started to include other aspects. In Brazil, the criticism of social policies developed during the military regime has stimulated this shift

(Draibe 1989a, 1989b). International debates started to include social dimensions relevant both to sociology (Wilson 1987) and economics, highlighting elements such as *neighbourhood effects*, *role model effects* and *peer group effects* (Brooks-Gunn and Duncan 1997).

Recently, social networks have appeared in studies that incorporate the concept of social capital and its potential for the design, implementation and evaluation of public policies, a concept popularised by the studies of Pierre Bourdieu, James Coleman and Robert Putnam. Otherwise, social capital has been used in studies that focus on networks of social relations, trying to understand the role of social capital as a source of resources and social support for individuals, groups and communities (Burt 1992; Lin 2001).

Thus, policies started to include relational elements in two ways: firstly, as a tool for improving the implementation's effectiveness, as in the case of the incorporation of non-governmental organizations in the policy of combating AIDS (Trotter 1999). Relational aspects can also assist in customising policies according to cultural aspects, for example, contracting members of the community for health and education programs (Lotta 2006). On the other hand, in the international literature about social capital, networks appear as one of the dimensions that should be considered in programs to combat poverty and to promote social justice (Policy Research Initiative 2005a, 2005b; Cechi, Molina, and Sabatini n.d.; Perri 6, 2005; Levitas et al. 2007; Jha et al. 2007; Atria et al. 2003; Arriagada 2005). In Brazil, networks have been incorporated into programs to combat poverty in incipient fashion.<sup>3</sup> Contributing to the understanding of how networks really work and their role for public policies is one of the objectives of this research.

The first step is to distinguish between two types of network that usually interact in social situations involving poverty: personal and community networks. In spite of the fact that certain dynamics are associated with community networks (especially those that are thematically delimited), it is also important to consider the connections that individuals build in their personal networks. In this sense, we want to discover how different social links interconnect, as in the case of survival strategies and the improvement of living conditions, as well as how personal networks integrate individuals living under spatial segregation situations.

We start by analysing the literature on personal networks and patterns of sociability. According to different authors, space has a great influence on sociability in contexts of urban poverty. The relationship between networks and space is complex and should be analysed from two distinct perspectives: firstly, as a spatial attribute of networks and, secondly, as the potential effect of space on networks. We call this first dimension localism, understood as a major presence of individuals from the same location in a given network. The second dimension is related to urban segregation understood as spatial isolation of social groups in the city as a whole, i.e., on the scale of macro-segregation, which involves the distance of these localities in relation to the centre. In spite of this distinction, these two dimensions are often entangled in several studies, and the dimension of localism is rarely approached. Although networks tend to be local, the results indicate that personal networks vary widely in their general

characteristics, but not according to segregation. Only further development of research with a larger number of cases and diverse urban contexts will allow one to deepen these preliminary results.

Studies such as those by Briggs (2001), Espinoza (1999), Pavez (2006) and Fontes and Eichner (2004) have highlighted the effects of homophily in personal networks. This refers to the tendency of individuals to construct and maintain links with individuals with similar social characteristics or attributes (McPherson et al. 2001).<sup>4</sup> Homophily is important for understanding the reproduction of urban poverty. For example, these kinds of interactions can become social resources that help individuals “get by” in times of scarcity (Briggs 2001, 2005).

Working with ego-centred networks of a low-income community in Recife, Fontes and Eichner (2004) highlight their localism, i.e., most relations are with members of people’s own community, principally neighbours and relatives. The authors also find a high homophily of sex, age and schooling level. In this sense, Dujisin and Jariego (2005) stress that space can both facilitate and limit the formation and preservation of personal relations. The authors call attention to the fact that some factors may reduce the impact of space, since relations can create opportunities for the development of other relations in other contexts, in the sense of social and territorial bridges. Therefore, the literature considers the heterogeneity of networks as crucial for overcoming poverty (“getting ahead”), especially if they work as “bridges” (Briggs 2003, 2005), particularly when associated with “weak ties” in the labour market (Granovetter 1973).

Analysing networks of low-income immigrant women who live in neighbourhoods with a high concentration of social housing, Dominguez (2004) reviews the relevance of personal networks in the building of trajectories of social mobility. The author highlights the importance of socially heterogeneous networks, mainly ones that include links with individuals with different socioeconomic characteristics, not only to improve opportunities, but also to access cultural repertoires and information. Furthermore, Ferrand (2002) indicates the relevance of the presence of internal and external relations to the locality that can work as territorial bridges.

Based on survey data and examining the arguments of Wellman (2001), Espinoza (1999) states that geography still defines limits for social interactions, mainly in contexts of poverty where interactions are principally door-to-door. This pattern of relations occurs either as a characteristic of local sociability or as result of the absence of resources that allows other forms of “place to place” contact. Ferrand (2002) also defends this interpretation, affirming that investigating microstructures of relations within communities teaches us about the meso-structures that connect communities to their social contexts more broadly. Each community will have specific patterns of linkages with broader urban and social contexts, creating a relationship between segregation and social networks that can only be analysed in actual cases.

Another set of questions relates to the impact of social events on personal networks. In studies on personal networks, distinct dimensions are analysed as determinants of the characteristics of networks, as will be discussed below.

Firstly, we highlight the study by Blockland (2003) about a working-class neighbourhood in Holland, cited previously. The author uses Ulf Hannerz's classification of networks (specialized, integrated, encapsulated and isolated) to highlight different types of personal networks present. For her, though these types are constructed on individual trajectories (that she calls "social experience"), elements such as the occurrence of events — migration, loss of employment and sociability encounters, among others —, life cycle and attributes such as gender also have an influence.

With respect to life cycle, Bidart and Lavenu (2005) analysed the impact on networks of the passage from youth to adult life in France, considering events such as finishing school life, beginning to work, migrating, marrying etc. The authors state that networks of low-income individuals decrease earlier due to the fact that reductive elements of networks occur sooner in the life cycle.

On the other hand, Grossetti (2005) evaluated the association between origination contexts of relations that constitute personal networks and the life cycle, finding a clear predominance of familial ties in childhood, a multitude of ties originating through "network" (new ties acquired through existing ties of the ego) and through study in adolescence, and later, a relative rise in the importance of the work context, especially for individuals with higher levels of schooling. For this author, life cycles also influence the size of networks, though this varies according to the social position of individuals. This study revealed that the importance of originating contexts of ties (familial, school, work, networks) varies socially: relations of sociability or those that originate through network decrease with education, while educational, work and associational ties tend to increase.

Moore (1990) used data from Social General Survey of 1985 to explore the difference between the personal networks of men and women. The results suggest that, in the case of the United States, women's networks are in general more strongly based on relatives (persons in the family), while men's networks rely more on work colleagues.

Campbell and Lee (1992) and Espinoza (1999) follow the same line of work as Fontes and Eichner (2004), and emphasise the dimension of social support. The first two maintain that individuals at a lower socioeconomic level return to neighbourhoods, as this constitutes a source of emotional and practical support, the intensity of these ties being very important. Espinoza (1999) in his study on access and individual networks of a low-income community in Santiago (Chile) shows that the strength of ties is the most salient characteristic of neighbourhood ties, influencing the probability of establishing relations, including through marriage. As Campbell and Lee (1992) point out, people do not choose between infinite possibilities, as there are social and economic constraints that limit the alternatives available.

Campbell and Lee (1992) stress another relevant dimension for understanding the sociability of poor individuals: the cost of maintaining ties to different socioeconomic groups. This is due to the fact that maintaining active relationships involves communication and transport costs, among other costs that tend to be relatively higher for individuals on low incomes. In this sense, interaction tends to occur between individuals who live in proximity to one another and who display similar characteristics. Hence,

the characteristics of individuals' networks do not appear to be exclusively related to the building of contacts or networks in their trajectories, but also to the cost of maintaining contacts.

Lastly, Ferrand (2002) analyses how the migratory process, understood as a process of adaptations to a new cultural, social and relational environment, induces greater or lesser social integration that may change non-local networks. In this process, the difficulty for individuals to maintain ties in their original networks is emphasised, as well as the heterogeneity in the composition and structure of networks of immigrants with distinct origins. Nevertheless, time appears to have a tendency to minimise these characteristics, inducing the enlargement of the network, as well as a greater presence of non-fellow countrymen.

### **Some Conceptual Definitions and Research Procedures**

Some conceptual definitions and procedures used in the research are presented below. In the first instance, personal networks are not conceived here as a synonym of ego-centred networks. Studies that work with ego-centred networks using survey data usually approach networks through a given ego and only include individuals located one step from him/her and the existing ties between them. In our comprehension, an important part of the individual's sociability occurs in wider circles, so we adopted here personal networks, which include individuals who may be distant by more than one step from the ego. Therefore, personal networks researched are larger and more far-reaching than ego-centred networks. By proceeding in this way, we obtained networks with much variation in size, which can include more than 100 individuals and have diameters larger than ten steps.

The networks are built through the entry of persons belonging to different contexts, such as family, neighbourhood and church, among others, or even contacts that lead to contacts (network). These networks are organized in different spheres of sociability, understood as a region of sociability generally organized by some process of specialization (functional, practical, cultural or of ideas, among others), and this specialization of social activities is understood in a wider sense, including circles of interest (circles of friends) and specific institutions (like family). Spheres embrace a certain group of individuals and organizations and the relations they maintain among themselves (of various types and in constant transformation), as well as jointly determined identities, groups of signs and discursive patterns in the sense of Mische and White (1998) and White (1995). In this sense, spheres are similar to the network domains of these authors, though they seek to describe contexts that are more specific, structured and long lasting. In some cases the superimposition of spheres may occur due to the participation of individuals in more than one context of sociability at the same time — individuals that we call multiplex and are able to mediate between the different contexts in which they act.

The empirical data generated from interviews with a semi-open questionnaire is the basis for our analysis. The questionnaire includes general characteristics of interviewees, their familial composition and occupational trajectory, among other items of information that help understanding

the pattern of relations. A tool for collecting relational data was also used, including a generator of names and attributes of the individuals in the networks. After these procedures, we reproduced each network using social network analysis techniques. Approximately 30 networks were constructed for each urban context selected, totalling 150 networks. Roughly 30 individual middle-class networks were used as general control parameters. This article presents information related to 89 interviews conducted in three poor urban contexts — tenements located in the São Paulo city centre, Vila Nova Jaguaré and Taboão da Serra.

The relational information was obtained from interviews in two phases. The first phase consisted in asking interviewees to provide a group of names for each sphere of sociability set out as relevant (familial, neighbourhood, friendship, associative, leisure, study, professional, among other) in order to compose the initial set of names of the interview. In the next round, these names were presented to the interviewees and they were asked to designate up to three names associated with each name. The names that appeared which did not make up a part of the initial list were included and submitted to a new round of interviews up to three times. By this method, we obtained information concerning only the presence or absence of ties inside a given personal network. Next, interviewees were asked to classify the ties according to three attributes: origination contexts of relations, whether the individual is outside or inside the area and the sphere of sociability to which he/she belongs.

A database was organized with all the material collected, including information on general characteristics of the interviewee and data relating to his personal network, such as the number of ties and the diversity of spheres, among other characteristics. Basic statistics of social network analysis were generated from this database using Ucinet.<sup>5</sup> The next sections present analyses based on this information.

## Description of research fields

This section briefly presents the principal characteristics of each urban context chosen.

With close to 12,000 inhabitants, Vila Nova Jaguaré shantytown is one of the largest and oldest in the municipality of São Paulo. The shantytown displays a high level of socioeconomic heterogeneity, a characteristic present in various contexts of urban poverty, especially in shantytowns (Saraiva and Marques 2005). Besides displaying various local hazards, the shantytown's surroundings are predominantly middle-class. It is not far from the richest area of the city, which confers it a relatively favourable position within the city from the point of view of spatial segregation. The shantytown grew in an area of 150,000m<sup>2</sup> (approximately 93 square miles) donated to the city for the establishment of a leisure area during the area industrialisation in the mid-1940s. The vacant land started being invaded in the 1950s. The shantytown expanded due to the growth of industrial work in the region until the mid-1980s. However, with the crisis of the early 1990s, the area became denser and, in general, poorer.

The oldest areas of the shantytown have better housing conditions, reasonable access to

infrastructure, urban services (water, sewage, lighting, garbage collection and paved streets) and diversified retailing. The more recent and poorer residents are concentrated in the low-lying areas and live under more precarious housing situations, threatened by the risk of floods and landslides. The shantytown was the focus of some housing projects during Mayor Celso Pitta's administration (1997-2000), ending with the construction of 260 housing units under Mayor Marta Suplicy (2001-2004). Furthermore, during the Suplicy administration, the shantytown was included in an urbanization program, which began a process of regeneration of some households in risk areas.

The second area studied is Vila Nova Esperança, a shantytown located between the cities of Taboão da Serra and São Paulo. Around 400 families live there, most of which arrived within the last ten years, i.e., since the occupation began. Vila Nova Esperança displays internal heterogeneity and its surroundings are characterised by the presence of lower middle-class neighbourhoods, with scarce work opportunities. The area finds itself in an institutional vacuum as a result of its location on the border of two municipalities. Besides, the area displays peri-urban characteristics and the infrastructure is rather precarious. The streets are unpaved and the population has a significant public transport problem, given the isolation of the area from access routes to other neighbourhoods, which leads adults and children to walk daily along a dirt road without lighting. The result of these characteristics is relative isolation and spatial segregation that worsens the situation of precariousness and vulnerability of its inhabitants. A part of the area was decreed an Ecological Reserve by the city administration, in order to counter the expansion of the shantytown and to foster improvements in the area.

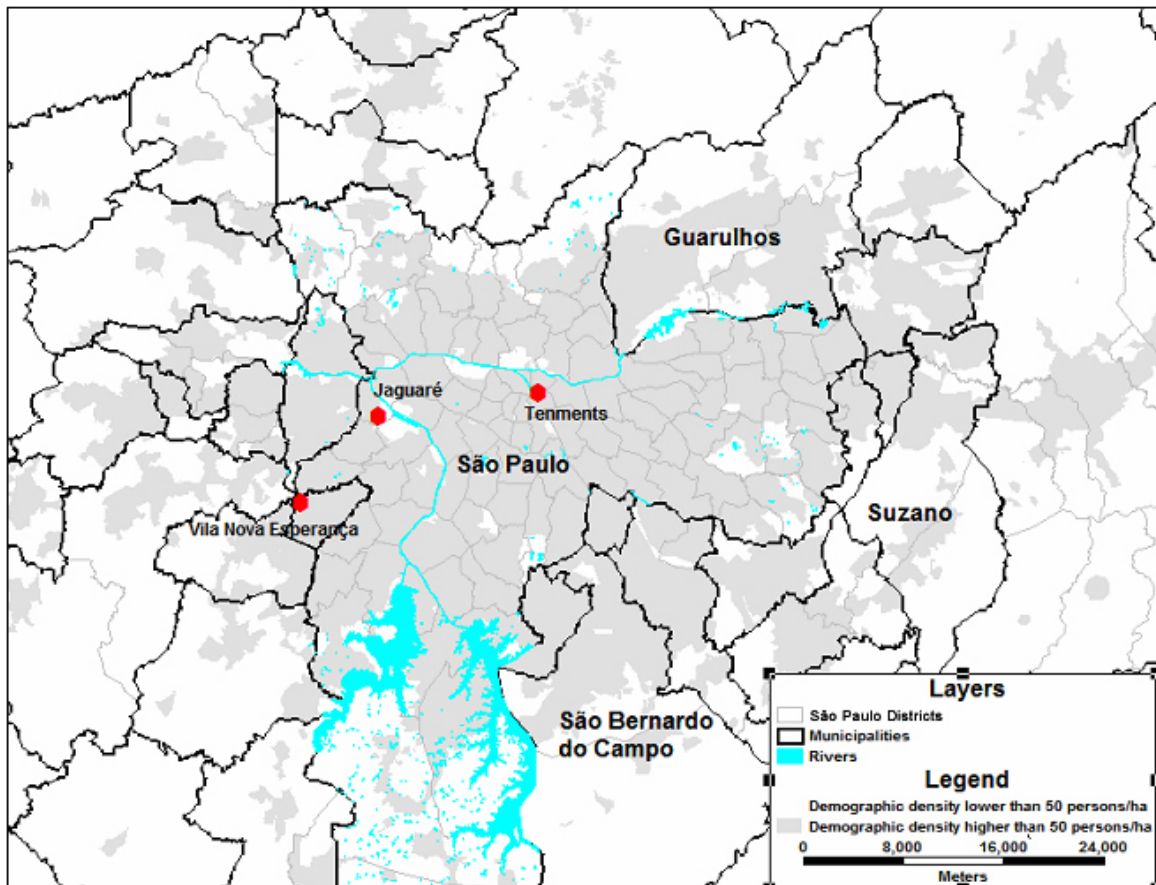
Lastly, the interviews conducted in tenements in the central areas of the city of São Paulo address a third type of living condition, characterised by a combination of accessibility — possibilities for socioeconomic integration and access to urban services — and highly precarious housing conditions. Despite a lack of homogeneity between the tenements even in the best situations, they are considered to offer precarious living conditions due to the common use of equipment or resources (bathrooms and kitchens), over-occupation, precarious plumbing and electric installations, the absence of privacy and the high turnover of occupants. For some, especially the inhabitants of basements, the situation is worse still, since humidity and total lack of ventilation and insulation have made this situation dramatically precarious.

Although migrants represent the major population, tenements do not represent a transitional situation at the moment of arrival in the city, though migration between tenements is very frequent (Kowarick 2005). These persons value their relative advantage in location, as living in the city centre implies a reduction in time and money spent on transport, greater opportunities for work, access to public resources and services and more recreation options. Still, they pay dearly for these advantages: since housing legislation considers the majority of tenements illegal, the residents, accustomed to verbal contracts, pay extortionate rents, on average higher than those charged in the formal market. Living in tenements also implies a specific type of sociability, because the precarious and transitory nature of the residential space and the lack of privacy often result in conflicts with neighbours.



Map 1 shows the location of these three areas in the Metropolitan Region of São Paulo.

MAP 1. Metropolitan Region of São Paulo



Source: Center for Metropolitan Studies (Cem/Cebrap) 2007

## Basic Characteristics of the Networks

The selection of interviewees in each of the fields attempted to include the variability observed in terms of sex, age, familial structure, insertion in the labour market, etc. In each field, we began the interviews with individuals who were contacted in previous research or who were approached directly on the streets. We then proceeded the interviews looking for desirable profiles in terms of variability in social situations, without using formal sampling techniques. So, the results presented below are not representative for each area or for the whole poor population of São Paulo.

The result was a sample made up mostly of women — 57%, versus 43% of men — most of whom married or with partners — 60.7% of this group, rising to 70% in Jaguaré and falling to 55.2% in the tenements. The age of the interviewees ranged from 12 to 72, with an average age of 36, though the interviewees in the tenements were younger on average — 32 years of age, versus 38 in Jaguaré

and 37 in Taboão. As would be expected, the average schooling levels of the sample were rather low — 5.4 years of study, with little variation in the three locations: from 4.7 years in the tenements to 6.5 in Jaguaré. Per capita family incomes were equally low and varied even less — from R\$ 255,60 in Jaguaré to R\$ 228,70 in Taboão (values for September 2006).

With respect to the labour market, the predominant group were generally unregistered workers<sup>6</sup> (22.5%) — especially in the tenements (31.0%) — and those with no links to the labour market (housewives, students and retirees), who represented 23.6%. Other important groups were independent workers (21.3%) and formally registered workers (16.9%). The unemployed reached 6.7%, though there were far fewer unemployed in Taboão (3.3%). The high proportion of independent workers indicates unemployment hidden by intermittent jobs with low pay and no protection. The majority of those employed obtained work through network contacts (73.5%), with a much higher proportion in the tenements (93.9%). A large majority of people work in the same area where they live (61.8%); only in the case of Taboão — the most spatially segregated area — there are more people who work outside their area (56.7%). The average per capita family income is higher in the case of registered workers (R\$ 401,50), followed by owners of small businesses (R\$ 277,90).

Besides the general characteristics of the interviewees, we analysed the characteristics of their personal networks. The networks have on average 54 nodes — individuals in the networks — ranging from 15 to 119 persons and from 42 to 578 ties.<sup>7</sup> The average diameter<sup>8</sup> is 6.6 (ranging from 3 to 12). The average density<sup>9</sup> of the networks is 0.083 and the average degree<sup>10</sup> is 3.7 (ranging from 1.9 to 5.7). On average, the networks have 3.9 spheres of sociability (ranging from 2 to 7) and 4.4 initial contexts of entry of nodes (ranging from 2 to 7). These data suggest the existence of great variability in the personal networks, due to individual characteristics (sex and age, among others) and social dimensions such as spheres of sociability and the degree of residential segregation. Next, we test the importance of these dimensions.

Considering the concentration of persons in different spheres, neighbourhood appears to be the most important, with 35.3%, followed by family, with 34.0%. Work is another important sphere (8.0%), with other spheres containing a far lower percentage of people. In general, the significance of neighbourhood and family can be considered an indicator of a certain endogamy in networks, which in this case means social isolation. These results highlight the local character of these networks and seem to confirm the findings of other studies, which deal with personal networks in poverty contexts (Briggs 2001; Espinoza 1999; Fontes and Eichner 2004).

A less significant part of the networks, 7.4%, concerned contacts with other migrants hailing from the same region of Brazil (henceforth referred to as “fellow countrymen”). This result seems to follow the same direction of Ferrand (2002), since the proportion of persons with the same origin who still remain in networks is relatively low, despite the large number of migrants in our sample. This may be due to the fact that a majority of these migrants has been living in São Paulo for more than ten years, which probably leads to the establishment of new relations in the city and to the diminution

of the proportion of fellow countrymen in their networks.

Taking into consideration the internal/external duality indicated by Ferrand (2002), it is notable that the personal networks collected have on average 58.2% of persons internal to the area, though the presence of these varies widely among the interviewees — from 8.9% to 100%. This localism is also present in terms of leisure activities: the majority of the interviewees who had these activities conducted them in their own area (61.4%). This information suggests that a significant proportion of networks are principally local (in the first sense of relations between networks and space as described above) and socially homogenous, confirming the hypotheses raised in the last section and contradicting Wellman's descriptions.<sup>11</sup>

One of the principal dimensions that divide the networks is the interviewee's sex. Homophily of gender (individuals that connect with persons of the same sex) is very high in networks (62.3%) and there are no striking differences between the three areas researched. Women tend to have larger networks (with more nodes and ties), which are denser and more centralized.<sup>12</sup> The diversity of spheres and contexts is similar for women and men. With respect to spheres of sociability, women tend to have more ties than men in the spheres of neighbourhood, friendships and church. Women also have more individuals entering the network through other existing contacts, as well as more individuals external to the area. In contrast, men have more individuals in the spheres of family and leisure (especially when frequency of attendance at bars and soccer games were considered). Considering the context of acquiring the ties, men's networks have more family and leisure, including many more fellow countrymen. These characteristics suggest that women maintain more intense sociability than men.

Besides describing the general characteristics of personal networks, we constructed indicators using data on individual's situations. It is important to consider that the levels of precariousness founded in our fields are rather high in terms of income, housing conditions, family arrays and insertion in the labour market. So we tried to differentiate the worse situations with specific indicators.

First of all, to highlight the vulnerability in family arrangements, we created an indicator of familial precariousness for situations in which a single adult with small children composes the family nucleus. In our sample, 11.2% of the interviewees experience familial precariousness, which affects only women and is absent in the population researched in Jaguaré.

Considering housing, we define as precarious the situation of living in a small wooden house (shack) or in the case of tenements, in a room without a bathroom. This type of precariousness is present in 36.0% of the sample and is obviously more common in the tenements, according to the definition of the indicator (66% of the interviewees are in this condition) — again, women are more subject to this type of precariousness.

The most common condition of precariousness relates to participation in the labour market. We have defined the following conditions of precariousness: living on wages earned informally, from odd jobs or employment as an unregistered worker. This condition occurred in 67.1% of those with links to the labour market, but is more prevalent in the tenements (82.6%). Further, when the

average per capita family income was less than or equal to the average minimum wage (R\$ 175, 00) we considered that the individuals were precarious from the point of view of income — almost half the interviewees (46.1%) experienced precariousness of income. In Jaguaré this proportion was 50% and, again, women were more subject to this form of precariousness.

Lastly, when individuals experienced two or more of the above conditions of precariousness, their social situation was considered precarious in general. This condition occurred in 48.3% of the sample, reaching 58.6% in the tenements. The relationship between the presence of social precariousness and the size of networks was confirmed by tests of averages, which suggested that individuals in a precarious situation have networks with a smaller number of nodes than individuals without general precariousness (69 against 56 nodes, a significant difference of 95% reliability).

It is important to stress that many of these results will be completed in further analyses that will include other fields.

## Typology of Networks

In order to consider all of these dimensions in a combined way and identify types of networks, a cluster analysis was carried out from the characteristics of the personal networks using SPSS software for K-means. For the creation of network typologies the following variables were used: number of nodes in the network; number of ties in the network; average degree of the network; clustering coefficient; centralization index of the individual network;<sup>13</sup> total number of spheres, total number of contexts; proportion of persons external to the area; proportion of fellow countrymen; gender homophily (%) — with men, if the ego was a man and with women, if the ego was a woman. Attribute variables were not included in the construction of groups, but were used later in the analysis to characterize the groups socially.

After various tests, the best solution was found with the four groups<sup>14</sup> presented below. For each group, we present the network and the trajectory of an individual belonging to the group that he/she typically characterizes — or, rather, which displays these characteristics closest to the group average.

### **Network Type 1 - Small local networks with social isolation, high precariousness and extreme poverty**

This group includes 16 cases and is characterised by very small networks (only 27 nodes, the lowest average of all the groups), high centralization around the ego and low numbers of spheres of sociability. They present the lowest number of spheres of sociability and of contexts of origination of ties, but a high presence of fellow countrymen in the networks.

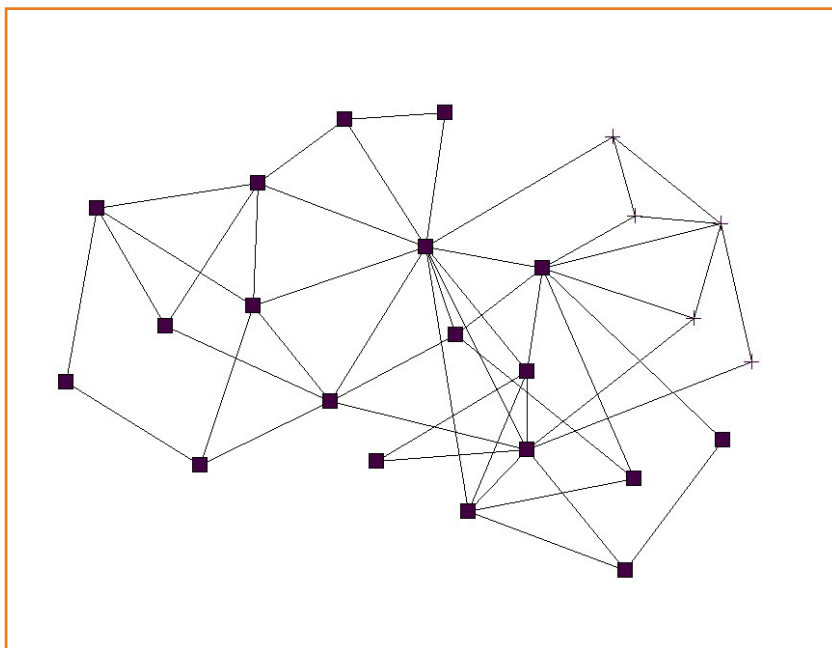
The average interviewee age tended to be a bit higher than average, and the level of schooling,

slightly lower. The average per capita family income is the lowest observed in the groups. In terms of links with labour market, there are many independent workers — including many itinerant salespeople — and the level of unemployment is higher than average. The individuals in this group tended to be subject to all forms of precariousness — familial, housing, work, income and social.

It is observed that the distribution of persons in the network according to different spheres confirms the predominance of the spheres of family and friendships, and in few cases, of neighbourhood and church. In terms of the context of initiation of ties, once again there is a greater predominance of family, and few network and work contexts. This is the group that has the lowest proportion of ties arising from other ties (“network”), which is compatible with a situation of social isolation. In this group, leisure activities tended to occur inside the areas.

This group, which is more present in the tenements (seven cases) but also in Jaguaré (five cases) and in Taboão (four cases), can be illustrated by interviewee 58. He is male, 45 years old, born in São João do Meriti, Rio de Janeiro, but raised in Natal, Rio Grande do Norte state, to where he moved at the age of 2. He has lived in São Paulo for twenty years, of which twelve in a tenement. He is married, has a teenage son and a daughter by his current partner, and a 21-year-old son by a previous one, with whom he does not have contact. He has five brothers and two sisters in Natal. He studied until the 4th grade and has been a self-employed painter for 15 years. He worked previously as an assistant to a metalworker in the south zone of the city. He had no work when interviewed. The following sociogram represents his network, with men represented by squares and women by plus signs.

FIGURE 1. NETWORK OF EGO 58



His network has five women. It includes 24 nodes and 100 ties, clustering of 0.376 and

centralization of 32%. The most important spheres are family (54%) and work (29%), and these are also the most relevant contexts for the initiation of ties (with 54% and 33%, respectively). The majority of nodes (70%) do not live in tenements.

## **Network Type 2 - Large local networks with poverty**

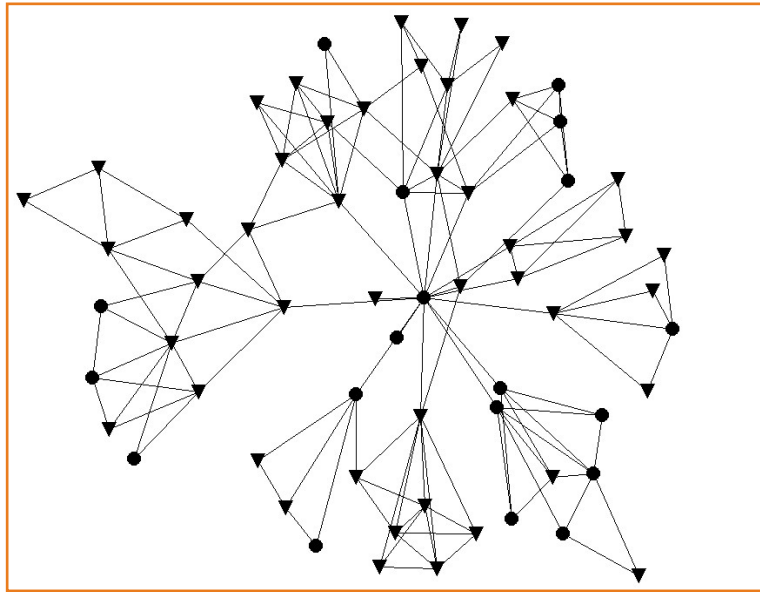
This group, which includes nine cases, is characterised by the largest networks in terms of nodes (with an average of 85) and ties (an average of 402 links) and by a higher average degree. They display the largest diameters, the smallest average centralization around the ego and low clustering. They are networks of a local type, since they have a lower presence of persons external to the area of the ego. The presence of fellow countrymen is also relatively small in these networks.

Considering the different spheres of sociability, church and neighbourhood spheres are highlighted in this network type and there is a low presence of persons in the friendship sphere. On the other hand, the low presence of persons arising from family, church and neighbourhood is confirmed.

This group presents very low income and schooling (being the second worse group in terms of these characteristics), a greater presence of black people and a great presence of people without religion. In terms of links with formal labour market, unregistered workers predominate — with presence of cleaners hired per day standing out — and access to work existing ties of the ego (through networks contacts). Considering the diverse situations of precariousness, this group stands out for having the highest level of work precariousness of all the groups, and also for low levels of housing and income precariousness. They do not present familial precariousness.

This group, which is present in the tenements (five cases) and Jaguaré (three cases), but virtually absent in Taboão (one case) can be illustrated by case 5. Case 5 is a 46-year-old woman who has lived in São Paulo since she was 18 years old, when she migrated from Pernambuco state. She has lived in a tenement for seven years, but previously lived outside the region. She worked for 12 years at the same company, a wedding dress store where she was contracted as a registered worker. Before that, she spent four years working for this same business, after a brief return to her city of origin. She left work due to health problems that began with the death of her husband. Prior to that, the son who lived with her was killed, generating not only a psychological episode but also a financial one. Son and mother survived together: with her pension, the interviewee paid for food, while her son's salary covered the rent. Before this situation, the owner of the tenement "contracted" her to clean and take care of the tenement, in addition to collecting the rent. She has a monthly per capita income of R\$ 133,00. She lives with her two granddaughters.

FIGURE 2. NETWORK OF EGO 35

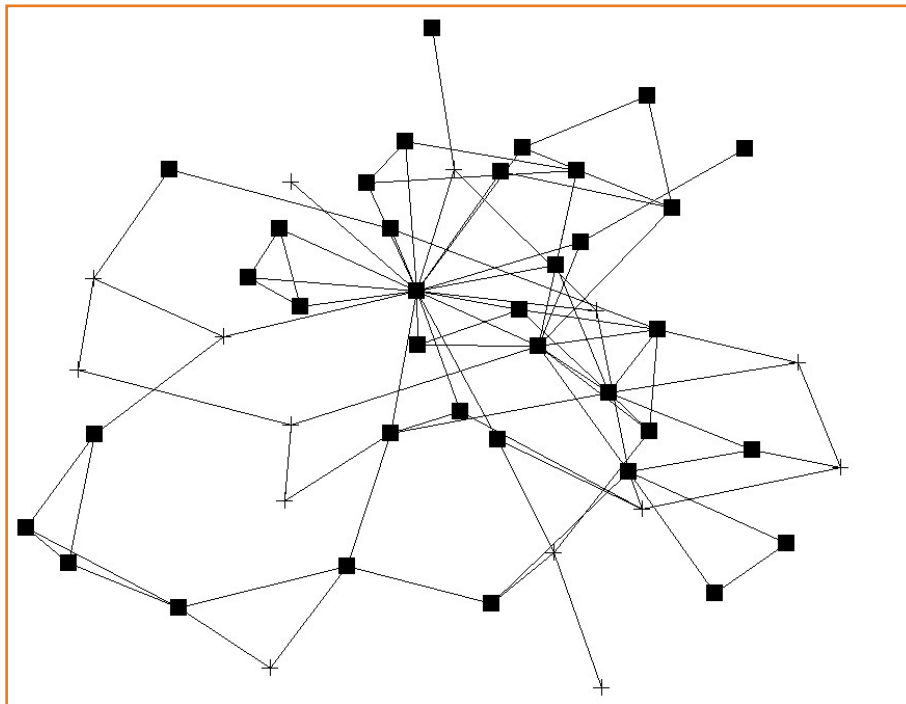


Her network includes 82 nodes and 380 ties, clustering of 0.523 and centralization of only 10.59. Almost the entire network includes individuals who were acquired through other ties and 85.37% of the nodes do not belong to the circuit of nearby tenements. The following sociogram shows her network. The inverted triangles represent persons outside the tenements, and the circles, those who live in tenements.

**Network Type 3 - Mid-sized networks, with varied sociability, social integration and predominantly male**

This group, which includes 38 cases — the largest group —, is characterised by medium (average) to small sized networks (48.2 nodes on average), with few ties (161 ties on average), centralized around the ego and with average clustering. The networks present an even greater diversity of spheres and contexts, as well as the greatest proportion of persons external to the area and many fellow countrymen. This group is characterised by the presence of men well above the average.

FIGURE 3. NETWORK OF EGO 22



In various spheres of sociability, it is observed that the concentration of persons is average, yet the group concentrated most persons in the spheres of leisure, study and association. In the case of the context of initiation of ties, the strong presence of family, neighbourhood and church contexts stand out, as does the weak presence of the network context.

In socioeconomic terms, this group exhibits the best indicators of income and schooling. It presents the lowest average age and the lowest presence of black people of all the groups. There is also the highest concentration of Evangelicals, though the frequency of worship is not very high. Considering the linkage with the formal labour market, this group concentrates the highest proportion of registered workers, the highest proportion of unemployed and an above-average concentration of students. It rarely presents situations of precariousness, except for housing precariousness.

This group is most present in Jaguaré (16 cases), though some cases also appear in Taboão (12 cases) and in the tenements (10 cases). The group can be illustrated by case 22.

The interviewee is 47 years old, has been married for 22 years and has two sons. For thirty years he has lived in Jaguaré, to where he immigrated from Paraíba state following his father, who settled in the neighbourhood in the 1950s. He also has a daughter from his first marriage who lives in Paraíba and visits every now and then to see the grandchildren. He lives in a home with his wife, their sons and his mother-in-law. The interviewee studied only until the 3rd grade and works for a construction company in Osasco. He is a registered worker. Cousins and friends of his also work for this company and recommended him for the job. He has always worked as a registered bricklayer's assistant, for different employers. His wife started working five months ago as a seamstress in Vila Olímpia. His daughter works as a cook and his son is a student. His first point of contact in the neighbourhood is



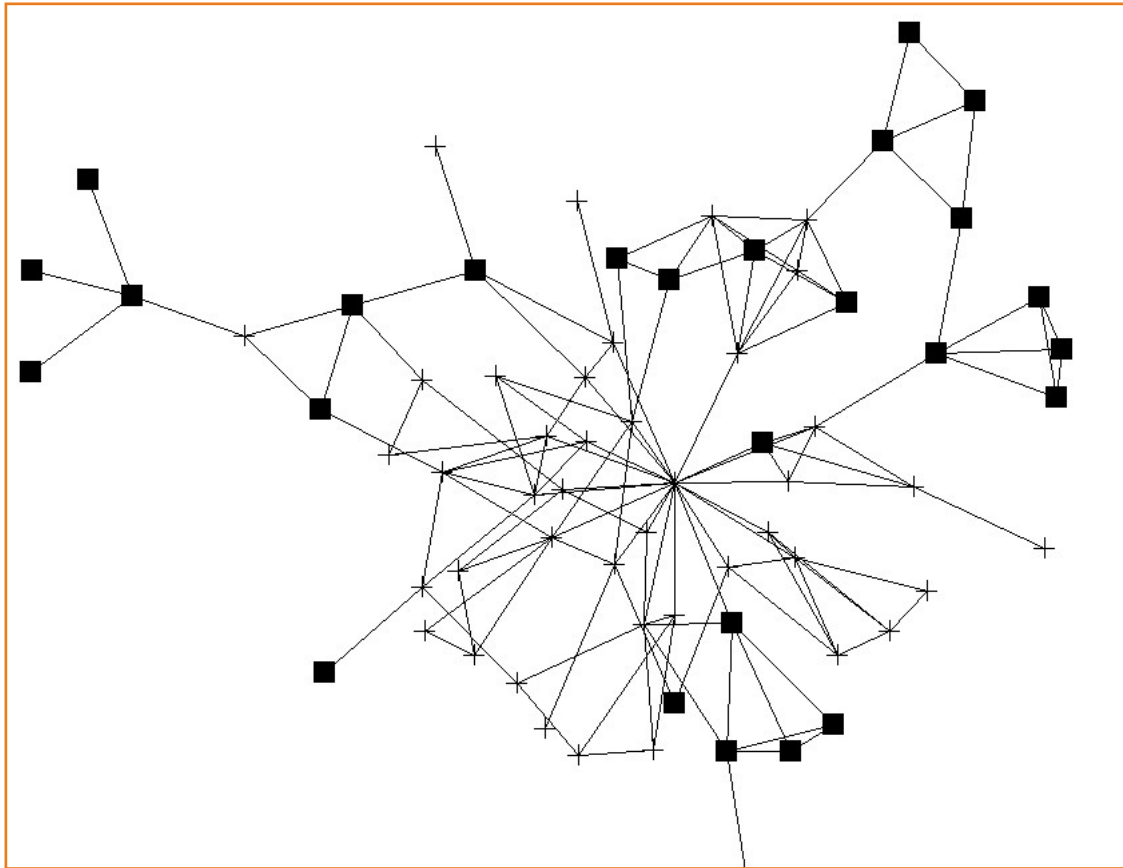
his father's bar and he sometimes visits a brother in Osasco. The interviewee symbolically organizes his own network according to who is and who is not from Paraíba.

His network has 50 nodes, 180 ties, clustering of 0.329 and centralization of 34.86. The individuals are distributed in various spheres, though the family predominates (56%), and also appears as the most important means of his acquisition of ties. The majority of the nodes in the network (76%) live in the same shantytown in Jaguaré and 72% of the nodes are men. The following sociogram presents his network, with men represented by squares and women by plus signs.

#### **Network Type 4 - Mid-sized networks, with varied sociability, social integration, familial precariousness and predominantly female**

This group, with 26 cases, is characterised by medium to large-sized networks (68 nodes and 271 ties on average) with a high degree of nodes and many ties. They stand out even more due to the high level of clustering and of centralization. Furthermore, this group is characterised by networks with a greater presence of women, despite the low gender homophily. The presence of fellow countrymen is the lowest observed and the presence of persons external to the area is great.

Figure 4. Network of ego 75



In socioeconomic terms, the interviewees display relatively high income and schooling levels — the second highest and the highest, respectively, among the groups analysed. The average age is high and there is a strong presence of black people. As for the labour market, unregistered workers and small business owners predominate, and many obtain work through networks.

Within the spheres of sociability, the strong presence of neighbourhoods, association and study stand out, as well as the small presence of persons from the family sphere. Participation in associations also stands out in this group. In terms of the context of initiation of ties, neighbourhoods and network stand out. There is also some association and leisure, and a little participation of family and work.

This group presents familial precariousness and some income precariousness, but no housing or work precariousness.

This group is most present in Taboão (13 cases), but also appears in Jaguaré (6 cases) and in the tenements (7 cases). It may be illustrated by case 75. Case 75 is a young person (13 years old), born in the interior of Bahia state, who has been in Taboão for two years. Her parents remain in Bahia, in the city of Salvador. She came to Vila Nova Esperança with a sister to live with another sister. She lives in a brick house in an alley in the most established part of the shantytown. She currently lives with a sister and a nephew, who she looks after during the day. The monthly per capita family income is R\$ 170,00 (including her sister's salary of R\$ 350,00 from her job as a domestic cleaner and R\$ 60,00 from the *Bolsa Família* [Family Grant] program). She studies in the nearest city public school and is

in the 5th grade. She has many friends in the neighbourhood and also participates in a church youth group. She confirms that she does not have a religion. Her main leisure activities are with neighbours and take place in the neighbourhood, though she adds that she goes shopping sporadically.

Her network has 69 nodes and 264 ties, clustering of 0.486 and centralization of 24.50. The most dominant sphere is that of neighbours (55.1%), though study is also important (21.7%). The contexts accompany the spheres with the most important being neighbourhood (53.5%) and studies (20.3%). A large part of the ties involve persons also from Vila Nova Esperança — 69%. The following sociogram presents her network, with women represented by plus signs and men by squares.

### Summarising the Evidence

The results allow one to highlight the heterogeneity of poor people's personal networks, as much in terms of size, average number of nodes and ties, as in diversity of spheres and contexts of ties. In this sense, some attributes seem to influence the networks, such as sex, religion and, in some cases, the migrant status. These aspects should be examined further in future analyses. The results indicate that, even in contexts of poverty, there is significant diversity both in terms of structure and patterns of sociability of personal networks. This heterogeneity allowed the delimitation of four distinct types of personal networks with specific characteristics.

Localism is one of the most common characteristics of the networks, since they were found to be heavily structured around ties that occur in a specific area, restricted to spheres of sociability that tend to endogamy, such as neighbourhood and family. This evidence contradicts with Wellman's hypothesis and matches other studies that have analysed poor people's personal networks (Briggs 2001; Espinoza 1999; Fontes and Eichner 2004). This leads to important consequences for public policies that aim to fight poverty and promote social justice, since most poor individuals' relations tend to be highly homophilic, including in spatial terms.

On the other hand, the distribution of cases in the three areas of research does not suggest the existence of a strong and direct relationship between segregation and types of network, since there are different types of network in more or less segregated locations. Further development of this investigation will make it possible to test the validity of these preliminary conclusions. In short, in spite of finding a major element of localism, as explained above, the study did not detect a strong impact of segregation across personal networks.

With regard to public policy and the promotion of social justice, though we do not have sufficient knowledge to substantially understand the relationships with networks, we can move forward on certain elements. The use of networks for helping policies can be a beneficial route as long as it can take advantage of the variability of personal networks, operationally incorporating different types of networks in existence. From the point of view of urban poverty reproduction, even though the study has not concerned itself with the dynamics of ties, there are networks (Type 1) characterised by a high

degree of isolation, which suggests an incapacity or a great difficulty for these individuals to mobilize resources, even for survival (social support). Yet, other networks (Types 3 and 4) appear to access different elements, including the diversity of spheres and the connection with non-local contexts. In this case, heterogeneity in social relations appears to make a difference, which indicates that the inclusion of relational elements in the analysis of poverty demands disaggregating this category into different situations.

Notwithstanding the fact that the preliminary results presented here point to the importance of networks in the reproduction of poverty, they also suggest that to influence or produce networks — as public programs to combat poverty would like to do — is a highly uncertain activity, and one that depends on various conditions over which state policies have little control at present. The construction of these types of programs appears to depend on interventions that must be continuous and sustainable over time, focused on sociability and closely linked to local conditions and dynamics.

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## Notes

- 1 See Policy Research Initiative (2005a, 2005b), Cechi, Molina and Sabatini (n.d.), Perri 6 (2005), Levitas et al. (2007), Jha, Rao and Woolcock (2007), Rao and Woolcock (2001). International organizations such as the World Bank and the Economic Commission for Latin America and the Caribbean (ECLAC) are sources for studies that use the concept of social capital (and social networks as one of its dimensions) as a tool for understanding poverty and improving the effectiveness of policies designed to combat it (Atria et al. 2003; Arriagada 2005).
- 2 A previous study carried out in Recife dealt only with ego-centred networks (Fontes and Eichner 2004). Personal networks are not restricted to the immediate contacts of individuals and the ties among them (these are egonets) but also take into account relations from these contacts in a wider ambit, not establishing the borders of the network in advance. This will be explained more fully in this paper.
- 3 See for example: <http://www.acaofamilia.prefeitura.sp.gov.br/portalfamilia/Default.aspx?idPagina=1655>
- 4 The presence of homophily has been discovered in a vast array of network studies. Within their extensive review paper, McPherson, Smith-Lovin and Cook (2001) cite over one hundred studies that have observed homophily in one form or another. These include age, gender, class, organizational role and so forth.
- 5 Ucinet is network analysis software (Borgatti, Everett, and Freeman 2002.)
- 6 These are workers involved in informal employment relations. They do not have access to labour rights such as unemployment insurance, vacations or any kind of job security.
- 7 These are the actual relations between the nodes, or between persons in the network. In sociograms, they are the lines that link nodes.
- 8 The largest distance among the smallest distances between nodes.
- 9 This indicates the relations that exist against the total number of relations possible.
- 10 This corresponds to the number of nodes directly related to a given ego.
- 11 According to Wellman (2001), sociability today is less associated to physical location than it used to be. Communities did not disappear but have been transformed from door-to-door to place-to-place and sociability happens around what he calls personal communities. Despite analysing a local community in Canada, Wellman intends for his arguments to be general.
- 12 A very centralized network indicates ease of contacts and the prominence of many actors in the network. On the individual level, this signifies exactly that a given actor has more contacts than others, and is therefore prominent.
- 13 For a reference of the technical measures and indicators used here, see Wasserman and Faust (1994).
- 14 Preliminary tests identified one outlier with a large number of nodes, which was initially removed in order not to bias the analysis. It was subsequently reintegrated into the group of larger networks.

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