MOBILITY AND VULNERABILITY: RETHINKING THE POPULATION-ENVIRONMENT RELATIONSHIP IN METROPOLITAN SPACES

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Introduction

"Why do people, resources, and ideas move?" According to Cutter, Golledge and Graf (2002: 309), this is one of the ten great questions that society asks geographers today. Incessant movement has developed vast networks of interconnected individuals and groups that pull spaces together while they also keep them apart. In the process, these networks reorganize the ways we conceive of topological relationships. Movement is a major characteristic of liquid modernity and gives space a fluidity that solid modernity tried to tie down (Bauman, 2000). This new fluidity is a disconcerting experience for many people who are used to the security and rigidity of modern institutions (Bauman, 2007).

But to answer this important question we cannot reply with a simple structural answer such as: "Because that's the way today's society operates." Another important factor for establishing fluidity is the possibility to choose. In industrial society movement occurred in more fixed directions, but now, fluidity itself implies that there may be more freedom and more choices available so that movements can flow through space. In the final analysis, if this condition exists structurally, there is always a certain degree of choice involved.

The movements that interest us here are those involving mobility, that is, movements that have some relationship with everyday life and over which people have a certain degree of autonomy. The notion of movement in itself is physical – it is related to displacement. The concept of mobility, in contrast, is broader and involves both physical displacement and its representations and meanings (Cresswell, 2006). In this article, mobility will be understood as "The

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social relationship connected to changes in place. In other words, mobility will be considered here as the set of modalities by which members of a society deal with the possibility that they themselves or others can occupy a succession of different places." (Lévy, 2001:7 – our translation from original Portuguese). This stance implies leaving aside metaphoric conceptions such as “social mobility” and other such conceptual extensions, since these former ways of looking at the term reduce mobility to mere displacement. For Jacques Lévy, the solution is always to understand distances and movements in relation to places that engender distances.

Mobility is essential for structuring people's everyday lives. It is part of their essence and in this respect it is therefore both physical and social. In terms of its being physical, mobility involves existence and experience. In its social aspect, it consists of the spatiality that structures cities and comprises the materiality which interacts with the choices and actions of people and social groups. There is a need to integrate these two approaches, to go beyond the simplistic dimension of home-work-home that has usually characterized the idea of mobility in urban and regional studies. It is equally important to conceive of the meaning of mobility in society and contemporary metropolises, which are no longer merely industrial cities of modernity, since they now show traits that resignify the role of mobility in the structuring of urban morphology and everyday life in general. If, in pre-modern times and even at the beginning of modernity (Tuan, 1979), moving about (traveling, going out of the house) was associated with danger, today the image of mobility is that of progress and freedom (Cresswell, 2006). But these images are mixed together, and it is impossible to take a Manichaean position of associating danger to either mobility or non-mobility. There is an intrinsic relationship between mobility and vulnerability that must be considered, to help us better understand the meaning of the geographical and demographic processes that are occurring in large contemporary cities.

This paper seeks to raise these questions for discussion, based on research conducted in the Campinas Metropolitan Region (CMR), Brazil. This is a highly urbanized region situated about 60 miles north of São Paulo, the largest

metropolitan area in Brazil and the fourth largest in the world. The Campinas region is intimately related to global processes of internationalization and to contemporary patterns of mobility, since it is an area of important technological research and production. Based on a discussion of the meanings of mobility in the modern-day liquid world (Bauman, 2000), we attempt here to analyze a number of recent aspects of the demographic dynamics of the region. The objective is to isolate elements and discuss their meaning and repercussions on spatial organization and on the vulnerability of the population.

Mobility and Vulnerability in the Metropolis

Mobility has always been associated with the idea of the city, and it has grown with the cities themselves. A city is both concentration and potentiality, as it congregates people and things to make them available. With the evolution of transportation and communication, it is no longer necessary to be physically present in a city in order to have access to its goods and services, and this fact greatly amplifies the possibilities of accessibility and location. Large cities are the result of expanded mobility, which is one of their basic aspects. But, as Lévy (2001:8 – our translation from original Portuguese) points out, "The most effective technique for making mobility superfluous is exactly in mobility itself." Super-concentration in metropolitan areas also brings with it an almost insoluble paradox: the number of places keeps up with the numbers of persons who can potentially access them, but the more people there are, the less accessible the places become, since accessibility is unable to increase at the same pace as the need and desire for mobility.

The main reason for mobility as a factor in the formation of large industrial cities was commuting between home and work, and mass transportation became directly associated with the growing size of metropolitan areas. But with the flexibilization of the labor market and the reality of social insecurity, mentioned above, work ceased to be a basic reference around which family life was organized. Within the perspectives opened by new metropolitan space, the broad range of possibilities for choosing where to live is a new feature because, in solid modernity, the rigidity of production in urban space and urban allocation

was greater (Mello, 2007; Pires, 2007). The dissociation between home and work is a highly developed contemporary phenomenon in post-industrial countries, and becomes more evident in metropolitan areas in countries like Brazil, which have become integrated into the worldwide system, as is the case of the Campinas Metropolitan Region.

The dissociation between home and work, as well as the flexibilization of the labor market and the growing participation of women, increased formal education, and the need for education through various types of courses (Lévy and Authier, 1993) have contributed to the complexification of travel carried out by families or individuals on a daily basis. The emergence of the rhizome metaphor to understand the contemporary metropolis and society is expressed in urban morphology and in population mobility patterns (Castells, 1996). Campinas is a region that emerged with this new form of metropolization and in which intra-regional movement is the prevailing mode of mobility. This has resulted in a considerable fragmentation of the metropolitan fabric and the increasing importance of broad avenues and highways that connect the different pieces of the region, since It is expansion has not been as concentrated as in the industrial metropolitan models. In areas like the Campinas Metropolitan Region, which emerged strongly during the period of fluidity (post-1970), there is a greater presence of metropolitan processes throughout the region, making the relative weight of the central municipality (Campinas itself) less than in cities that developed during the preceding period. Instead of producing growth with a clearly delimited spatial epicenter (the metropolitan center), the Campinas Metropolitan Region shows dispersion and fragmentation of the metropolitan fabric that is based on other principles, such as cities at intermediate hierarchical levels and the implementation of important highways and expressways in the region (Pires and Santos, 2002; Caiado and Pires, 2006).

The results in terms of sub-standard infrastructure, difficulties in accessibility and mobility, and other risks deriving from this model are evident; social and urban deficiencies comprise a significant part of the landscape in zones of urban expansion (Ascher, 1995; Torres, 2002; Ojima and Hogan, 2008). These

processes often cause changes in the spatial distribution of the population, generating attraction, expulsion and retention, which have consequences for residential segregation and commuting and, consequently, in the overall transportation system and general patterns of mobility.

In view of this, the daily routes that people must follow are growing in length, duration and complexity (changes and transfers between transportation lines). Long periods are spent in cars or buses, either because the distances are great or because the slow traffic makes efficient movement impossible. Costs increase proportionally with the need for improvements in infrastructure. In addition, there are difficulties in **managing** public transportation: integration of municipal and regional systems (thus requiring metropolitan-scale management); traffic in general; and infrastructure of streets and highways. Public transportation systems in general present one of the most important challenges to be faced by an integrated region and consequently one of the most complex tasks for joint planning and management.

The importance of mobility and accessibility - or connectivity - should therefore be seen as one of the main issues to be faced in contemporary metropolitan regions, as organizing principles, and not merely results of metropolization processes. They are crucial in appropriating the metropolis within "democratic patterns of interaction and consumption." (Meyer, Grostein and Biderman, 2004:29-30 – our translation from original Portuguese). Obviously, accessibility and mobility can be undermined by the numerous factors that have to be taken into account when movement in metropolitan space is under discussion, such as income, gender, age, occupation and educational level, all of which are understood as essential factors (Vasconcellos, 2000). Each of these factors has its own specific dimensions in people's lives. Leaving aside the technical aspects of transportation, we can grasp the inhabitants' different needs and their many difficulties in accessibility by seeking a broader and more critical perspective of the problem. According to Vasconcellos (2001), these differences affect every sector of the population and vary according to the specific limitations and resources involved, and they characterize what we might call different vulnerabilities regarding mobility.

But the issue is even more complex. The processes that historically affect mobility, as well as the interrelationships among them, involve many other factors, beyond distance and proximity. The time spent commuting to and from work – constituting a specific kind of time budget (TB) – is essential for understanding accessibility and the interaction between time and space as people move about. A TB expresses a variety of situations involved in daily travel in terms of time, distance traveled, type of transportation and possible connections. And it can express social and demographic differences. According to Vasconcellos (2001, p. 123 – our translation from original Portuguese), when data are computed individually, that is, when only "movable" individuals (those who do the commuting) are included,

> the TB does not show much variation, about 60 minutes, regardless of place, means of transportation and income (it varies from 86 to 102 minutes in São Paulo). But, when the time spent per household is computed, travel time increases with income. Workers and students spend similar times in both cases, but poor households have fewer employed persons, lowering the household average. In São Paulo persons in low-income households spend 107 minutes per day commuting, as compared with 289 minutes per day by persons of upper-income households.

One of the possible ways of understanding these differences is in the investment dedicated to the home and to transportation. Higher-income families can afford to spend more time moving from one place to another, and they travel much longer distances (in São Paulo, the relative distance traveled per day increases from 16 km for lower-income households to 62 km for upper-income households). In contrast, families with lower incomes are less able to choose, and must keep their comings and goings to a minimum, limited by their concrete possibilities. Thus, they cannot move as far as the upper classes in terms of time, money, distance, family situation and gender (Vasconcelos, 2001).

This difference is also clearly grounded in the different ways populations make use of the communications media and transportation, which tend to increase their mobility and decrease their travel time. In this regard, higher-income populations tend to choose places of residence and work knowing that they can travel longer distances without this fact interfering so drastically in the quality

and time for moving about. At least this is the common sense view. But is it what really happens?

It might be necessary to set aside the idea that those with much higher incomes or greater rates of mobility are in such a favorable situation. Looking at mobility from a broader perspective will show that no one is in a truly comfortable situation with the hypermobility that characterizes our cities, where very few persons are entirely stationary, as Lévy (2001:16 – our translation from original Portuguese) has shown: "There is no [...] complete freedom for anyone. And almost no one is completely without freedom." Each person faces different risks and dangers that, consciously or not, affect quality of life.

Mobility influences the social reproduction of everyday life and life styles in different social classes (Jarvis, Pratt and Cheng Chong Wu, 2001). Mobility has become a "total social phenomenon," according to Bourdin (2001:66 – our translation from original Portuguese), and includes "life styles, individual experiences and ways of functioning of certain societies." Mobility strongly affects experience, generating a “mobility transition”, like a demographic transition. “Mobility, as a mode of organization, acts on place, but it does so in function of experience (and of life styles) whose constitution it allows." It is a basis for liquid modernity, and it even fluidifies spaces, making them permeable and placing territorial mobility at the center of contemporary society (Moreira, 2007).

Movement (related to speed and hypermobility), for example, establishes more ephemeral spatial and cultural relationships. Without time for involvement, relationships become more superficial and lead to vulnerability. Concern thus arises regarding the increasing separation between each person and his or her community, his or her place. It is not that the basic ties inherent to people and their environment become unimportant. To the contrary, they have never been so fundamental. But these ties have very limited breadth and gradually lose their effectiveness as protection, to the extent that distance and travel time increase. Therefore, in today's context of metropolitan mobility, people pass through entire regions when commuting from one place to another, and this reduces the effectiveness of mechanisms of existential protection, such as

one's home, community, family and place (Giddens, 1991; Marandola Jr., 2008).

This situation can be seen in the practices developed by international migrants to keep their identities from being lost in their new territories. The socialization of space and time expresses ephemerality and movement in a territory (Clemente, 2005). Small groups of migrants living in other countries, as well as others who are in frequent movement (sometimes, but not always, transnational), often find it difficult to solidify their identities, and this makes them more vulnerable to different risks. In view of this, social rites act as frontiers and help individuals delimit their new territories and remain in them. "We can thus conclude that communities that are aware of the fragility of the territory carry out constant ritualizations, day and night, to avoid getting lost in the de-territorializing activity that occurs in such places." (Clemente, 2005:3 – our translation from original Portuguese).

The solution for establishing relationships of protection in these cases is by reinforcing mutually supportive ties, such as friendships, culture and family. The systems of protection become dispersed in space, but the groups maintain networks of relationships that cannot be generically described as communities. The individuals have a few places of reference, but the figure of community, as a spatially located collectivity that provides security, a feeling of belonging and identity (Bauman, 2001), is not at all likely to be reestablished.

Mobility, as a significant factor of demographic distribution in space (Hogan, 1998), is also one of the most important phenomena in the distribution of hazards, in terms of persons, families, and specific areas. Migrants already tend to be vulnerable in new locations, due to their difficulties in adapting to the new environment and community. They lack culturally accumulated knowledge (Frémont, 1976; McPhee, 1990). In addition, the presence of large numbers of back-and-forth migrants in places of high pollution or environmental danger can contribute to the worsening of the problem due to their frequent lack of commitment or permanence (since they are always "just passing through") in their places of work or study (Hunter, 2004). Hogan (1994, 1995) showed this in his research on environmental pollution and commuting in the coastal city of

Cubatão, in the State of São Paulo, Brazil, in the 1980s, and described the perverse relationship between them. The resident population in contaminated areas, besides suffering losses in terms of income, environment and health, had to face a strong stigma that became well-known throughout the country. In contrast, better paid employees of the same companies in Cubatão did not have to "pay the price of pollution," as they were able to live in other, more pleasant areas and commute daily to the plants. In this case, mobility allowed this commuting population to spend shorter periods exposed to the dangerously saturated air, whereas the local population, generally with lower incomes, suffered the consequences. Places where many migrants live, but where they spend very little time at home, often face the same type of social disaggregation; this influences the way the community becomes involved (or not) in facing its environmental dangers and tensions.

Daily commuting between home and work also increases the "tunnel" effect. People commute long distances without establishing any real contact with the regions they pass through. Sometimes there is not even visual contact, since many of those who ride buses or trains rise early in the morning and spend a good part of their commuting trip sleeping until they get to their destinations. All this indiscriminate space, which has nothing to do with the commuters' intentional experience, is potentially dangerous because the passengers obtain no advantage from the mechanisms of protection related to these places and communities. There they are "without a place in the world" (in counterpoint to the rooting process involved in belonging to a community), and they are thus potentially more vulnerable. One of the ways to deal with this vulnerability is to take their surrounding world with them. Our automobiles traveling at high speeds along expressways often become intimate places, and might even remind us of our "intra-uterine life. They are a home away from home, in motion, and plugged into the world." (Bourdin, 2001:68 – our translation from original Portuguese).

Haesbaert (2004) calls attention to the importance of immobility for understanding mobility and seeks to minimize the position that mobility only disaggregates and de-territorializes. In many cases, he says, immobility

operates as a weakener of place and territory. The possibility of mobility lets people find resources beyond their more immediate territory, meeting needs and maintaining elementary relationships, acting like a protective cocoon. According to Haesbaert, in today's fluid globalized system, immobility has become fraught with danger, since it can mean a lack of participation in the hegemonic system around us. In this case, there is an inversion of processes:

> [...] 'To territorialize oneself' means to define frontiers and control clearly delimited and continuous spaces. But these delimitations and fixations can represent more 'de-territorialization' than territorialization. Our territories are constructed more in movement and in discontinuity than in fixation and continuity. Persons who do not participate in 'global' movements and who remain in more 'immovable' or in insecure and 'uncontrolled' mobility, may be more vulnerable to de-territorialization. (Haesbaert, 2004:252-253 – our translation from original Portuguese)

For Bourdin (2001), this happens because we no longer establish relationships with places and territories solely in fixedness: both types of relationships are also established in movement. Mobility is therefore an ambivalent factor in terms of processes of existential security/insecurity. On the one hand, mobility can weaken and dilute the importance of place, neighborhood and city, taking people far from their primary relationships, including family and neighbors. On the other hand, it is mobility which permits access to other sources of security, such as employment, education, medical care and to family and friends, themselves now dispersed in the metropolis. If the "we" is dispersed throughout the metropolis, this is what makes mobility possible. Understanding the implications of belonging, place and identity is more important in evaluating risk than the dissolution of basic ties. People cannot live without such ties, without some form of collective and individual identification. If, in the metropolis, this identity is neither in the place nor in the neighborhood, we make use of other means to consolidate our ties. In the metropolis, ties can be dispersed but they can nonetheless be as present as in a small town or a rural area. They are of a different nature, but they can nonetheless "provide people with roots" (Marandola Jr., 2006).

Both ideas must then be questioned, namely, that mobility is risk and fixedness is protection. According to Lévy (2001), we can see mobility from three points of view: as possibility, as competence and as capital. Mobility as possibility is

simultaneously on the material plane of spatial structure and in lifestyles. Mobility first exists in potential (accessibility), on the basis of which it may or may not be exercised. The multiplicity of movements which increasingly characterizes the population's daily comings and goings, the modes of transportation and the possibility of different daily routes make it possible to integrate what is desired, what is possible and what has been achieved, into a relationship that is reflected in mobility patterns. Mobility as competence implies people's ability to carry out their desired movement or even to identify possibilities. It is closely tied to the situation/position in metropolitan space) or to one's social situation/position, which provides greater or less accessibility. Competence is not an individual process, but above all social, because it must be managed publicly in promoting the possibility of mobility for people and places. Finally, mobility as capital is the "set comprised of the possibility, the competence and the arbitrations that competence allows over possibility," thus becoming the social capital that gives individuals the role of actors in designing their own mobility (Lévy, 2001:14 – our translation from original Portuguese).

Mobility is exercised differently depending on each person's or group's existential conditions. One's position and situation in the region also directly influence these possibilities. It is therefore essential to understand the spatiality involved, as it constitutes the basic collective substratum in which movements take place. But we cannot exaggerate the importance of this structure, because the dynamism of metropolitan regions goes far beyond commuting (for work or study) and long trips. This type of approach reinforces the explanatory models based on the simplistic opposition between center and periphery, and such models reduce the complexity of today's metropolitan space. This space may have evolved from a solar network to a dendritic or multiple circuit network, which reveals many flows and connections not considered in traditional models of spatial networks and interactions. In the Campinas Metropolitan Region the dendritic pattern seems to describe the relationship between the municipality of Santa Barbara D'Oeste and that of nearby Americana and, from there, with Campinas, whereas a multiple-circuit pattern more clearly shows the relationships among the cities of the Northwest microregion, which is the most

integrated portion of the Campinas region. A look at recent demographic dynamics of the Campinas Metropolitan Region, especially in the Northwest microregion, will allow us to discuss in detail the role of mobility in structuring metropolitan space, as well as other aspects that affect vulnerability related to everyday life in a contemporary metropolis.

Recent Demographic Dynamics in the Campinas Metropolitan Region

As of the 1970s, the State of São Paulo, which is the most industrialized in Brazil, began a process known as the "interiorization of development," which essentially consisted of a plan to move as many industrial companies as possible from the over-crowded state capital of São Paulo and its Greater Metropolitan Area, or Region, to smaller cities farther inland. (This process can also be understood as a project for the industrialization and growth of smaller cities). This project also involved demographic movement, which peaked in the late 1970s, but continued with a certain stability into the 1990s. A demographic and economic redistribution thus took place in the state (Pacheco *et al.*, 2000). This process was accompanied by changes in traditional demographic dynamics, such as an exodus from rural to urban areas. The process eventually waned, and urban migration from smaller cities in the interior of the state to the São Paulo Region also declined (Camarano and Abramovay, 1999). Many people left Greater São Paulo, moving farther inland, while others moved from the municipality of São Paulo to other cities in the same metropolitan region (Baeninger 2000a, 2000b). This process can be described as metropolitan involution, or demetropolization (Santos, 1994).

These new processes, already present since the late 1970s and further accentuated during the 1990s, intensified urban growth in the interior and in coastal areas of the state, incorporating a range of processes that gave this vast area a dynamic character that was able not only to attract population, but especially to retain it, even in the smaller towns and the rural areas (Camarano and Abramovay, 1999). Rural migration to cities continues, but not at such high rates and no longer directed to São Paulo itself. This is because there are new dynamics which permit people to stay in rural areas, and because there are

simply not as many people left to migrate. In addition, with new dynamic interior cities, the exchanges among them as well as exchanges within and between sub-regions of the state have intensified and have played a fundamental role in the spatial redistribution of the population over the last ten years (Pacheco *et al.*, 2000; Baeninger, 2000b; Cunha *et al.*, 2000).

In this process, two large cities in the State of São Paulo, together with their surrounding regions, have undergone enormous demographic growth, namely, Campinas, inland and to the north, and Santos, a port city to the south, on the Atlantic Coast. Both of these new metropolitan regions are reflections of these processes, and they now share functions with the gigantic São Paulo Metropolitan Region itself. In this regard, Pacheco *et al.* (2000) call attention to the rapid growth of the Campinas Metropolitan Region, which was more directly involved in the process of interiorization of industry, becoming a regional hub of a complex network of services. Many of the migrants who left São Paulo moved farther inland to Campinas, and to Santos, on the coast, in that order (Baeninger, 2001), contributing to the formation and consolidation of the metropolitan regions comprising and surrounding these two cities. In fact, the institutionalization – i.e., the creation of official Metropolitan Regions – of these two metropolitan cities in the state is a consequence of the process of "interiorization" and of the restructuring of the São Paulo Metropolitan Region, which enabled it to flexibilize its production system (Soja, 1989). Not only did entire industries move inland. They also changed the dynamics in their respective regions and their intra-urban relationships. The result was the densification of the urban network in the state, thus modifying migratory processes and the spatial distribution of the population.

This process not only favored the growth of medium-sized cities,, also meant that the rate of rural migration slowed down (Camarano and Abramovay, 1999). Migration from rural areas now represents a very small part of the newer processes of population redistribution in the state; the most important directions of intra-state demographic movements are urban-to-urban. The recent dynamics in the Campinas Metropolitan Region are related to these processes: (1) the region is one of the main destinations of the metropolitan

desconcentration of the São Paulo Metropolitan Region; (2) population redistribution among the cities in the region is now important; and (3) the relative weight of the municipality of Campinas itself has declined. This is summarized in Tables 1 and 2.

Table 1 – Total population and relative distribution (%) – Campinas Metropolitan Region – 1970-2007

Cities	Population											
	1970	%	1980	%	1991	%	1996	%	2000	%	2007	%
Americana*	66.316	9.74	122,004	9.56	153,779	8.25	167,945	8.02	182,084	7.80	199,094	7.55
Artur Nogueira	10,171	1.49	15,941	1.25	19,306	1.04	26,019	1.24	33,089	1.42	39,417	1.49
Campinas*	375,864	55.21	664,559	52.05	846,434	45.39	908,906	43.39	967,921	41.41	1,039,297	39.41
Cosmópolis	12,110	1.75	23,232	1.82	35,999	1.93	39,880	1.90	44,397	1.90	53,764	2.04
Eng, Coelho	**	**	**	**	6,501	0.35	8,736	0.42	10,025	0.43	12,729	0.48
Holambra	**	**	**	**	5,410	0.29	6,653	0.32	7,231	0.31	9,111	0.35
Hortolândia*	**	**	**	**	85,859	4.60	115,720	5.52	151,669	6.50	190,781	7.23
Indaiatuba*	30,537	4.49	56,237	4.40	100,948	5.41	121,906	5.82	146,826	6.29	173,508	6.58
Itatiba	28,376	4.17	41,631	3.26	61,587	3.30	71,590	3.42	80,884	3.46	91,382	3.47
Jaguariúna	10,391	1.53	15,210	1.19	22,594	1.21	25,399	1.21	29,450	1.26	36,801	1.40
Monte Mor	7,960	1.17	14,020	1.10	25,559	1.37	30,849	1.47	37,111	1.59	43,290	1.64
Nova Odessa	8,336	1.22	21,893	1.71	34,063	1.83	37,424	1.79	42,066	1.80	45,102	1.71
Paulínia	10,708	1.57	20,755	1.63	36,706	1.97	44,431	2.12	51,242	2.19	73,118	2.77
Pedreira	15,053	2.21	21,383	1.67	27,972	1.50	31,890	1.52	35,242	1.51	38,152	1.45
Sta, B, D'Oeste*	31,018	4.56	76,621	6.00	145,266	7.79	161,060	7.69	169,735	7.27	184,318	6.99
Sto. Ant. de Posse	7,799	1.15	10,872	0.85	14,253	0.76	14,897	0.71	18,145	0.78	19,824	0.75
Sumaré*	23,074	3.39	101,834	7.98	141,011	7.56	168,058	8.02	196,055	8.40	228,696	8.67
Valinhos	30,775	4.52	48,922	3.83	67,886	3.64	74,608	3.56	82,773	3.54	99,040	3.76
Vinhedo	12,338	1.81	21,641	1.70	33,612	1.80	38,625	1.84	47,104	2.02	57,837	2.19
Total MR	680,826		1,276,755		1,864,745		2,094,596		2,335,019		2,637,268	
Other regions in State	17U,091,122		23,763,957		29,724,180		32,026,290		34,631,508		37,190,422	
State Total	17,771,948		25,040,712		31,588,925		34,120,886		36,966,527		39,827,690	
Share CMR/State	3.83		5.10		5.90		6.14		6.32		6.62	
Total State Population not incl. São Paulo Region	9,637,218		12,451,987		16,143,984		17,537,652		19,133,016		20,603,760	
Share CMR/pop. not incl. São Paulo Region	7.06		13.25		11.55		11.94		12.20		12.80	

Source: Baeninger (2001) and Contagem da População (Brazilian Census Office (IBGE) 2007).
* The Population Count for 2007 did not include the municipalities with over 100,000 inhabitants. The data for them are shown as estimates by the Brazilian Census Office (IBGE).
* * Municipalities dismembered during or after 1991.

Table 2 – Annual growth rates (%) –
Campinas Metropolitan Region – 1970-2007

Cities	Growth rates			
	1970-1980	1980-1991	1991-2000	2000-2007
Americana*	6.29	2.13	1.89	1.28
Artur Nogueira	4.60	1.76	6.17	2.53
Campinas*	5.86	2.22	1.50	1.02
Cosmópolis	6.73	4.06	2.35	2.77
Engenheiro Coelho	**	**	4.93	3.47
Holambra	**	**	3.28	3.36
Hortolândia*	**	**	6.53	3.33
Indaiatuba*	6.30	5.46	4.25	2.41
Itatiba	3.91	3.62	3.07	1.76
Jaguariúna	3.88	3.66	2.99	3.23
Monte Mor	5.82	5.61	4.23	2.22
Nova Odessa	10.14	4.10	2.37	1.00
Paulínia	6.84	5.32	3.78	5.21
Pedreira	3.57	2.47	2.60	6.08
Santa Bárbara D'Oeste*	9.46	5.99	1.74	1.18
Santo Antônio de Posse	3.38	2.49	2.72	1.27
Sumaré*	16.01	3.00	3.73	2.22
Valinhos	4.74	3.02	2.23	2.60
Vinhedo	5.78	4.08	3.82	2.98
Total MR	6.49	3.50	2.53	1.75
Other regions in the state	3.35	2.06	1.71	1.02
State Total	3.49	2.13	1.76	1.07
State Population exc. Greater São Paulo	2.60	2.39	1.91	1.06

Source: Baeninger (2001) and Contagem da População (Brazilian Census Office (IBGE) 2007).
* The Population Count for 2007 did not include municipalities with over 100,000 inhabitants. The data from them are shown as estimates by the Brazilian Census Office (IBGE).
* * Municipalities dismembered during or after 1991.

The Northwest microregion consists of the municipalities of Americana, Sumaré, Santa Barbara D'Oeste and Nova Odessa, and represents the most dynamic part of the Campinas Metropolitan Region, in both its internal and external processes. These four municipalities represent 24.94% of the total population of the Campinas Metropolitan Region, while Campinas itself represents 39.44% and the remaining 14 municipalities, only 35.62%. The Municipality of Americana polarizes this microregion, marked by proximity (only 13 km separates the municipalities farthest apart - Sumaré and Americana) and the intensity of population exchanges. The cities showed higher annual

growth rates during the period of metropolization, with the period between 1970 and 1980 the most significant: 9.46% in Santa Barbara D'Oeste, 10.14% in Nova Odessa, 16.01% in Sumaré and 6.29% in Americana. This latter city, as a sub-regional pole, has always shown less intense growth, whereas the others (especially Santa Barbara D'Oeste and Sumaré) still maintained high growth rates during this period.

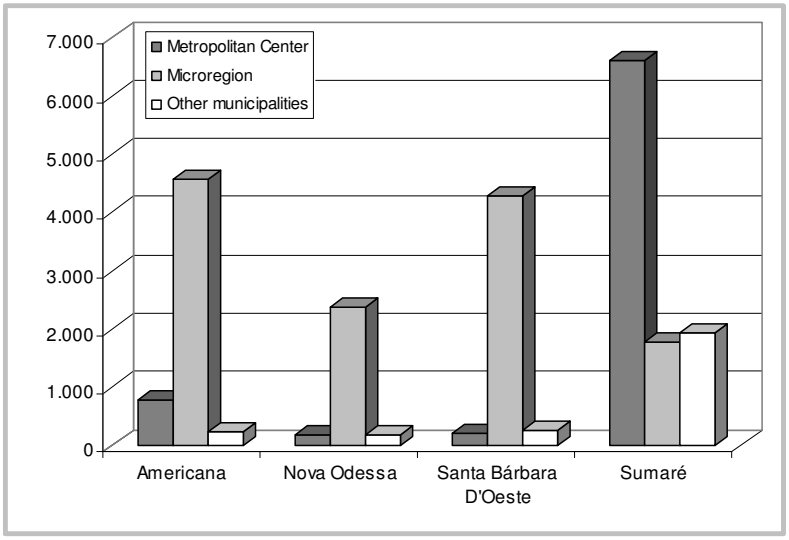
It is clear that the demographic processes of the microregion, especially those referring to redistribution of population in space and in intra- and even inter-state migration, reflect the intra-metropolitan context. Baeninger (2001) identifies Campinas as an important migration destination since the 1970s and as the municipality most responsible for "transferring" population to the cities around it, especially those bordering on it. This process is seen as the basis for the "peripherization" of the metropolitan region, since the populations "pushed out" of Campinas consist mostly of low-income families who are forced to seek less expensive housing in other, nearby municipalities (especially Sumaré, Hortolândia and Monte Mor). At the same time, these sectors of the population remain within the dynamics of Metropolitan Campinas, commuting there daily for work or study. Baeninger points out that Campinas was responsible for over 50% of the intra-regional migrants residing in the nineteen municipalities of the metropolitan area. This fact may indicate that Campinas represented an intermediate stage between the origin and final destination of migrants who moved to the Campinas Metropolitan Region. Campinas thus shows the highest net losses among the municipalities of the Campinas Metropolitan Region. Baeninger suggests that:

> To have an idea of the extent of this process of "expulsion" of the population to other municipalities in the region, it suffices to note that of the total intra-regional migration in the 1970s, 41.6% left the municipality of Campinas to other nearby municipalities. Forty-five percent moved from one surrounding municipality of the region to another, and only 13.4% moved from surrounding municipalities to Campinas. (Baeninger, 2001:342 – our translation from original Portuguese)

During the 1980s, 45.3% left Campinas for other nearby municipalities; 45.4% moved from one nearby municipality to another; and 9.3% moved from a nearby municipality to Campinas. There was thus an increase in departures from

Campinas and in moves from one local municipality to another, and a significant reduction in the growth rate of Campinas itself. This process can also be noted in the origins of migrants between 1995 and 2000, in the data from the 2000 Census. The majority of migrants were from the microregion itself, 56% of all migrants; 33% from Campinas; and 11% from other cities and even other states in Brazil. If we focus on the process in each municipality we see that Sumaré maintains an intense relationship with both the microregion and with Campinas itself. This is due to the fragmentation of its urban fabric, with part of its area under the direct influence of Campinas to the South (the conurbation spreading outward from Campinas) and another part that maintains direct relationships with the microregion, conurbated with Nova Odessa to the North. Figure 1 systematizes these data, showing that, except for Sumaré, most migrants came from cities in the region. But even in Sumaré this flow is significant, although it is lower than that seen in the other localities. Among migrants from within the region, almost half (48%) were from Americana, which explains its ties with the microregion.

Figure 1 – Northwest Microregion (2000) – Municipality of residence of migrants from other municipalities of the Campinas Metropolitan Region on July 1, 1995



Source: Demographic Census (IBGE 2000). Special tabulations.

The largest contingent of migrants from outside the Campinas Metropolitan Region moved to Sumaré, and at a much higher rate in both relative and

absolute terms than those seen in the other municipalities. Of these, 33% came from the São Paulo Metropolitan Region and 25% from other municipalities in the State of São Paulo. This is a good indication of the role that Sumaré continues to play as an attraction area for migrants, especially related to its industrial park, which includes both traditional and modern companies (Mendes and Sampaio 1992). Flows involving other municipalities of the CMR are insignificant in comparison with the exchanges between municipalities of the microregion.

Campinas also continues to be an important center for attracting migrants from farther away, since only 10% of its migrants come from the other 18 municipalities in the metropolitan region in the 1995-2000 period. Nineteen percent came from the São Paulo Metropolitan Region, while the greatest share (27%) moved from other parts of the State of São Paulo. This suggests the existence of two different processes: the importance of Campinas and its metropolitan region carry in Brazil's interregional migration (18% came from the Northeast, 11% from the Southeast, 9% from the South, 4% from the Central-West, and 2% from the North), and the importance of other destinations in the Campinas Metropolitan Region in attracting these contingents, especially from within the region. The main direction of intra-metropolitan population movement is not to the municipality of Campinas, but to the Northwest microregion.

The intimate relationship between Santa Barbara D'Oeste and Americana can be seen in the data on moves within the microregion. Americana is the origin of 91% of the migrants who move to Santa Barbara, whereas the latter is the origin for 78% of those moving to Americana. The exchange between the two municipalities is the most accentuated of all the intermunicipal streams, reflecting a situation of conurbation that has produced an urban entity that operates as one, evidenced by its common lifestyles and life spaces.

These significant migratory flows between municipalities create ties that are established by the migrants themselves, who, moving to areas close to those they left, continue with activities, places and relationships in their former municipalities. The four municipalities in the Northwest microregion (Americana, Sumaré, Santa Barbara D'Oeste and Nova Odessa) correspond to a single and

integrated real-estate and commercial market. This also gives the movements involved an intra-urban character, a greater fluidity of urban space and a permanence of places established in the microregion, as shown by data on commuting and mobility.

Fluidity and Permanence in Metropolitan Space

The daily movement of people from one area to another for work or study gives a metropolitan region cohesion in terms of experience. Known as the daily rhythmic movement (Beaujeu-Garnier, 1958), it refers to back and forth movements (*navettes* in French), similar to the oscillation of a pendulum, whence its most common translation in Portuguese: *pendularidade*. In English it is *commuting,* implying the exchange of persons (workers or consumers) and/or goods between cities on a daily basis. This type of movement is the best expression of the relationship that cities establish among one another, as "pools" of jobs or as regions structured around a pole. Commuting also underscores the role that individual choice, including the choice of life style, plays in the structuring of people's daily lives.

The Campinas Metropolitan Region is clearly a unified job market where companies installed close to one another can benefit from concentrations of workers. For this reason, the high density of material and immaterial flows, and the relationships with other metropolises help identify the spatiality of these metropolises (Lencioni, 2006). People also have more options in terms of where to live, considering, according to Beaujeu-Garnier (1958), factors ranging from place of work, availability of housing for different income levels, emotional attachment in terms of places where people grew up, advantages in using inherited property, and many others. In her classical text on population geography, Beaujeu-Garnier emphasizes the complex matrix that involves such choices, and does not limit her considerations to mere land prices or availability of housing. "Individual tastes" are important because they can counterbalance or minimize problems related to certain risks.

In the tradition of urban studies, commuting appeared as a major factor for understanding regional relationships in areas of intense industrialization that

require large numbers of low-paid workers whose reproduction a single city cannot always guarantee. Land prices fall proportionately with distance from the center of the metropolis, making peripheral locations an opportunity to buy better lots or build better houses in less fashionable neighborhoods (Moura, Branco and Firkowski, 2005). Since automobiles are among the most important types of transportation, especially in countries like Brazil, the role of 'individual tastes' is becoming increasingly important. An automobile is an extremely flexible means of transportation that allows diversification of routes and addresses the flexibilization of the labor market. In view of this, commuting can be best understood as a way of life and, as such, must be considered together with general mobility processes and patterns (Moura, Branco and Firkowski, 2005).

Changes in commuting are closely related to changes in urban forms and institutions, through the regionalization of everyday life that accompanies the dispersion of industrial activities, leisure, commerce and real-estate ventures (Monclús, 1998). Commuting becomes an essential factor for understanding the large new urban agglomerations, as it permits the establishment of new relationships among municipalities and undertakings of all types, directly influencing the urban fabric (Ojima, 2007).

Commuting is one of the most important demographic movements in large urban centers, together with short-distance migration (Baeninger, 2004). These two processes, operating in conjunction, not only determine the distribution of spatialities; they also influence the forms of habitation and existential security or insecurity by both producing and mitigating risks (Marandola Jr., 2008).

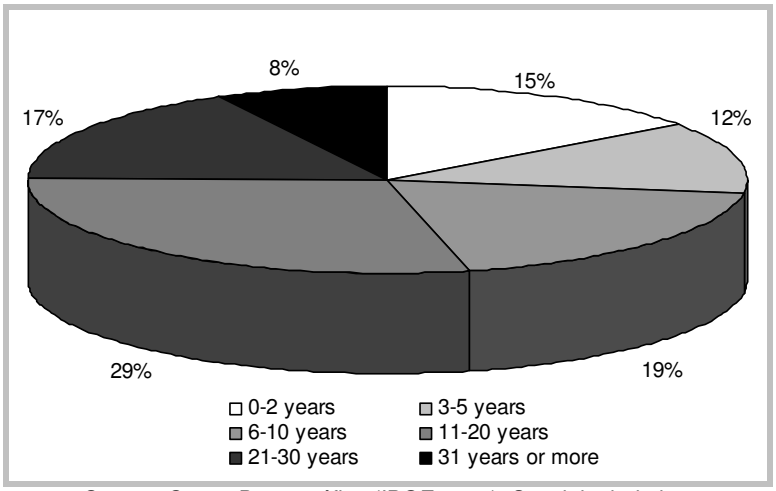
Some studies have shown the significant lack of concern that commuters have for their workplaces, since they see their presence there as ephemeral. As a result, they do not become involved in demands or political struggles for improvements in environmental conditions. A good example is the case of Cubatão (Hogan, 1994, 1995), mentioned above. The reverse may also be true, since growing numbers of workers choose to live in towns or neighborhoods due to accessibility, without necessarily establishing any links with the place. In this regard, Ascher (1995) calls the home the only established point in the

metropolis, and it is becoming increasingly isolated. In this respect, migrants, who make up a large part of the population of the Campinas Metropolitan Region, arrived during the last 10 or 20 years, and constitute two problems: 1) a lack of emotional relationship with the places in which they live, and 2) considerable commuting, which brings with it no attachment or responsibility regarding the workplace. There is a wide gap between these two points (house and job), separated by important avenues or expressways, with serious air pollution and industrial concentration which do not mobilize the population, which relates to these places only in passing. They are spaces without relationships, and not places which concern people.

In the Northwest microregion of the Campinas Metropolitan Region these phenomena, which indeed structure the region as such, can be seen quite clearly. Of its 589,940 inhabitants in 2000, 372,907 were migrants (not born in the municipality of current residence), 36% having arrived during the last 10 years (Figure 2). Looking at the data by municipality, we can see that the patterns are very similar, with a significant flow in recent years, showing that the high rates of migration continue toward these cities. Migration to Americana has been more stable, resulting in a growth rate lower than that of other municipalities in the region (Figure 3).

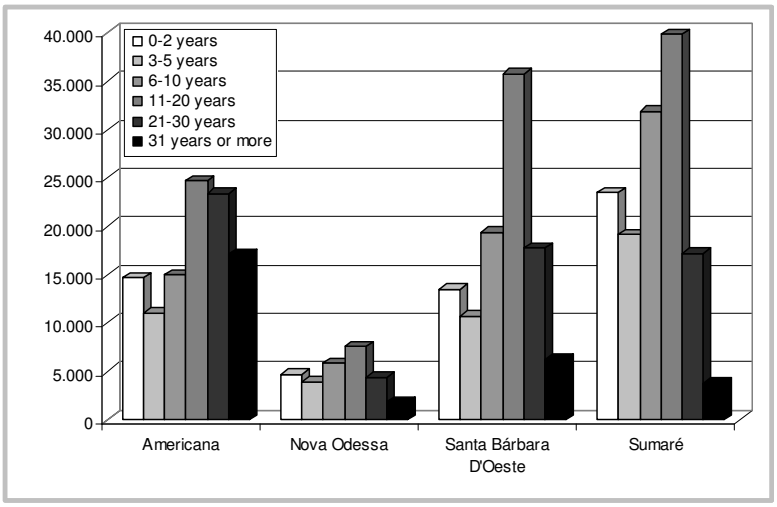
Looking at the data on commuting, one can see the strong relationship that exists among the municipalities of the region, a relationship that, with the exception of Sumaré, surpasses contacts with Campinas (Table 3). Americana and Sumaré are the two municipalities with the greatest diversity of relationships, with significant flows in all directions, even considering the general pattern followed in the Campinas Metropolitan Region as a whole (Table 4). Nova Odessa is connected most directly with Americana (2,688) and Sumaré (1,106) whereas Santa Barbara D'Oeste has a more dependent relationship with Americana, sending 78% of the total number of persons who leave the municipality to work or study. There is also considerable movement in the opposite direction, but not as intense. Santa Barbara D'Oeste was the destination of 3,015 persons who live in Americana, indicating an organic relationship, although Americana clearly exercises the dominant attraction.

Figure 2 – Northwest Microregion – Length of residence in the municipality of persons born in a municipality other than that of current residence. [1]



Source: Censo Demográfico (IBGE 2000). Special tabulations.

Figure 3 – Municipalities in the Northwest Microregion – length of residence in the municipality of persons born in a municipality other than that of current residence – 2000



Source: Censo Demográfico (IBGE 2000). Special tabulations.

[1] The source of this information is question V0416 of the Brazilian census: time of residence in the municipality. This refers to the number of completed years the person has lived continuously in the municipality of current residence, or the number of years of residence after the last return move to the municipality of current residence for those who moved to another municipality or to a foreign country and then returned.

Table 3 – Commuting for reasons of work or study – Northwest Microregion – 2000

Place of residence	Place of work or study			
	Campinas	Northwest Microregion	Other cities in Met. Reg.	Other cities
Americana	1,574	5,706	3,544	3,020
Nova Odessa	538	3,873	330	607
Sta. Bárbara D'Oeste	784	20,825	280	2,799
Sumaré	23,428	4,393	4,490	1,617

Source: Censo Demográfico (IBGE 2000). Special tabulations.

Table 4 – Commuting according to major destinations – Campinas Metropolitan Region, 2000

Place of residence	Place of work or study			
	CMR	São Paulo	Others	Total
Americana	7,804	3,181	221	**11,206**
Artur Nogueira	2,697	401	42	**3,140**
Campinas	16,820	13,059	1,036	**30,915**
Cosmópolis	3,783	633	57	**4,473**
Engenheiro Coelho	145	268	26	**439**
Holambra	217	64	13	**294**
Hortolândia	30,487	1,663	164	**32,314**
Indaiatuba	3,119	3,046	93	**6,258**
Itatiba	749	1,924	42	**2,715**
Jaguariúna	1,168	402	40	**1,610**
Monte Mor	3,192	353	22	**3,567**
Nova Odessa	4,741	535	55	**5,331**
Paulínia	2,627	426	84	**3,137**
Pedreira	781	421	0	**1,202**
Santa Bárbara D'Oeste	21,889	2,977	127	**24,993**
Santo Antônio de Posse	967	336	6	**1,309**
Sumaré	32,311	2,052	176	**34,539**
Valinhos	7,647	1,697	50	**9,394**
Vinhedo	2,410	2,151	19	**4,580**
Total	**143,554**	**35,589**	**2,273**	**181,416**

Source: Sobreira e Cunha (2007)

Sumaré, due to the fragmentation of its urban fabric, is part of both the Northwest Microregion (with significant exchanges with Americana and Nova

Odessa), and the area of direct influence of Campinas. The Origin-Destination Study[2] of 2003 shows that most commuter destinations along or close to the Anhanguera Highway (in the outlying districts of Matão, Maria Antônia and Área Cura) are toward Campinas. The center of Sumaré and the district of Nova Veneza maintain much less intense contact with Campinas, though this commuting is still more important than that to Americana. This reinforces the importance of migration from Campinas to Sumaré (it is the municipality whose migrants have lived there for the shortest length of time) at the same time that it connects as closely with Americana as it does with Nova Odessa, for example (Table 5). On the other hand, this contradicts the idea that the existence of a subregional pole in the Campinas Metropolitan Region might represent independence of Nova Odessa in relation to the municipality of Campinas. The weight of Campinas is well-known, but this does not mean that other processes might not also be exerting centripetal forces that compete with the centrality under discussion here.

Sumaré is a case for specific study because it serves as a thermometer for current changes in the Campinas Metropolitan Region. The real-estate market in Sumaré was characterized until the late 1990s especially by the sub-division of standard-size lots and by illegal land occupation. Recent years have seen new high-rise housing projects for middle and upper-middle income groups (Pires, 2007), investments which have benefited from the regional market. They offer a broad variety of housing options for high-income families. Fifteen or twenty years ago, very few families would have considered Sumaré as an interesting place to live, but with an accumulation of disadvantages in Campinas (violence, heavy traffic, pollution and high prices of land and construction) plus easy automobile transit between cities, it has become a viable option. The real-estate market of the microregion is in full development, with a strong repressed demand, especially for middle and upper-income groups. However, despite the close relationships between Sumaré and Campinas, intra-microregional

[2] Origin-Destination research is a survey in metropolitans areas designed to identify directions and frequency of dislocations for all kinds of reasons, as well as the means of transportation used; it provides information on many aspects of mobility and spatial interactions. In the CMR only one O-D research has been carried out, in 2003.

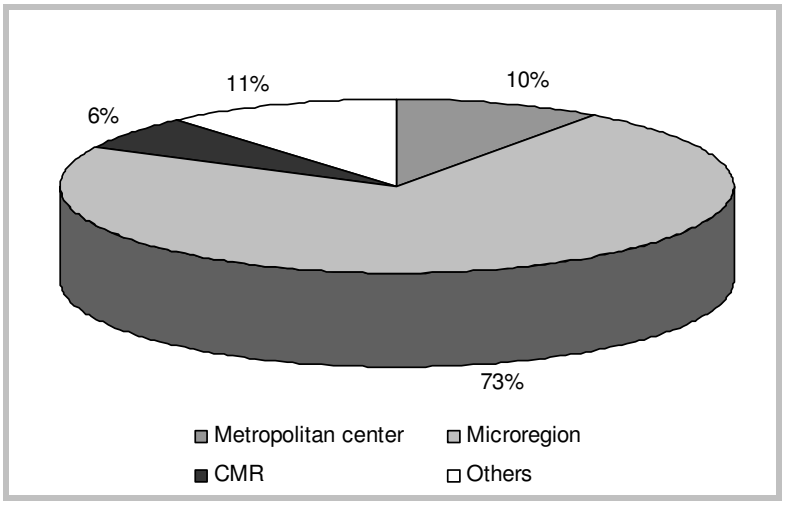
commuting is more significant than commuting to Campinas, representing 73% of the total number of destinations (Figure 4). This reinforces the stronger linkages and interdependence which exist among the cities.

Table 5 – Destination of movements from Sumaré to Campinas (Southeast) and to Americana (North), by O-D Zone – 2003

O-D Zone	Campinas	Americana
Central region	3,235	1,731
Nova Veneza and Picerno	5,457	1,413
Matão / Maria Antônia	15,083	399
Área Cura	15,083	340
Urban expansion area	30	93
Total	**38,888**	**3,976**

Source: Pesquisa Origem-Destino (Emplasa 2003). Special tabulations.

Figure 4 – Northwest Microregion – destination of commuters – 2000



Source: Censo Demográfico (IBGE 2000). Special tabulations.

The link between recent migration and commuting is well-known. People who have lived in the region for less time commute more, and this rate falls to the extent that families become more consolidated in the city (or move on).[3] This

[3] Another possibility to be investigated is the relationship between commuting patterns and urban-regional history, since more commuting today may the conjunctural result of the larger migrant cohorts of recent years. Earlier, less intense migration may have led to greater local integration and local employment, hence lower commuting levels. More recent migrants may not experience the same opportunities in their place of current residence, sustaining today's commuting.

happens for two reasons: either because they set down roots in the city and prefer to frequent local places, or because they never reached the point of consolidating ties in the city. This latter situation, which results in not staying in the city for very long, means that they do not set down roots. Most of the commuters in the microregion are migrants, 87% of the total number of persons who work or study in other municipalities.

Table 6 shows the total number of these trips per municipality in the microregion by length of residence in the municipality. Americana, with its more consolidated demographic growth and its condition as a sub-regional pole, shows the highest percentage of non-migrants who commute (38% of all commuters in 2000). The commuters who arrived in Nova Odessa (1,926) during the last two years before the census date (in 2000) represented 32% of the total. Santa Barbara D'Oeste has a lower proportion of non-migrant commuters and, like the other municipalities, the majority of migrants have lived there for less than 10 years (36%). Nevertheless, a high proportion of commuters have lived there for 11 to 20 years, responsible for 33% of commuting trips. In Sumaré, although this relationship is less noticeable, 48% have lived there for 10 years or less, and the highest percentage have lived in the municipality for 6 to 10 years (23%).

Table 6 – Northwest Microregion – Total commuting trips by length of residence in the municipality – 2000

Municipality of residence	Non-migrants	0 to 2 years	3 to 5 years	6 to 10 years	11 to 20 years	21 to 30 years	Over 30 years
Americana	3,592	1,266	815	997	1,455	1,223	439
Nova Odessa	1,177	1,926	638	684	1,212	521	67
Sta. Bárbara D'Oeste	4,350	2,450	2,438	3,876	7,783	2,899	297
Sumaré	4,174	4,336	3,971	7,462	8,790	3,256	319

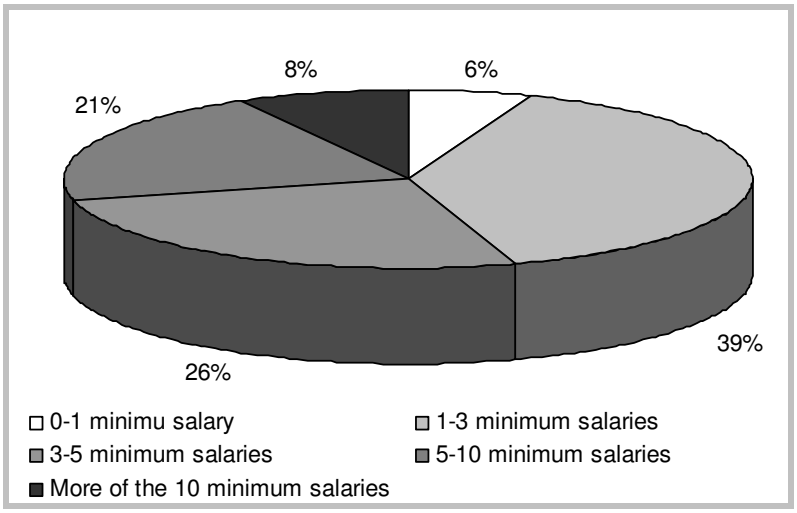
Source: Censo Demográfico (IBGE 2000). Special tabulations.

In terms of income, the most significant difference is that non-migrant commuters are more likely to have low incomes (Figures 5 and 6). It is worthy of note that 39% of migrant commuters earn less than 1-3 minimum salaries per month.[4] These percentages are higher in Santa Barbara D'Oeste and Sumaré, which play the role of the "poor periphery" that supplies non-specialized labor to Americana

[4] The minimum salary, in 2000, was the equivalent of US$83.

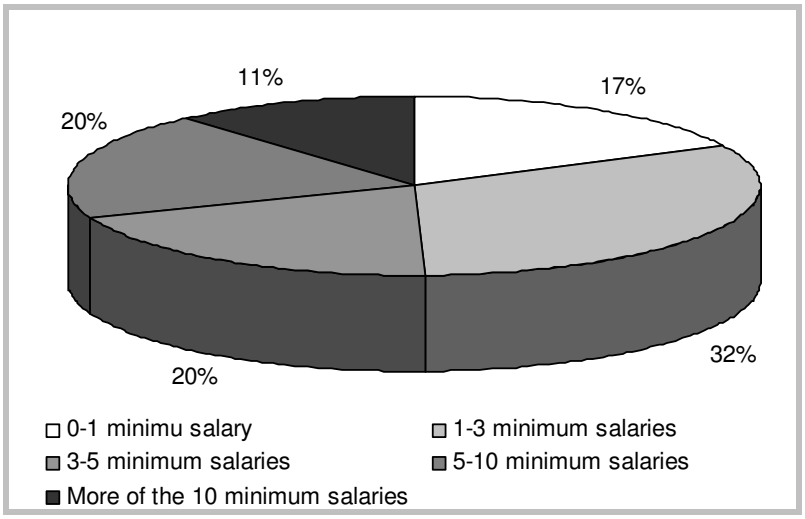
and Campinas. Among non-migrant commuters, 32% received 1-3 minimum salaries per month, while 17% did not even receive one minimum salary.

Figure 5 – Northwest Microregion – Total commuting of migrants by income – 2000



Source: Censo Demográfico (IBGE 2000). Special tabulations.

Figure 6 – Northwest Microregion – Total commuting of non-migrants by income – 2000



Source: Censo Demográfico (IBGE 2000). Special tabulations.

Does the proportion of persons with such low incomes who commute in the metropolis indicate a situation of vulnerability? Or might this mobility operate to mitigate risk? If income is not an indicator that distinguishes migrants from non-

migrants, what explains these individuals' vulnerability? Are migrants better off? And are those who live in the city but do not commute at a disadvantage, with fewer contacts to help in mitigating hazard? In terms of the cities, what are the consequences of more, or less, commuting? How is the fluidity of space constituted in these terms?

Research perspectives

The questions raised here are as important as the preliminary answers presented above. Some of the conclusions suggest the need for more research or for broadening that already carried out or underway. But, in general, they call attention to the relationships between mobility and vulnerability as a central theme for conceiving the metropolis and contemporary society. In the Campinas Metropolitan Region, especially in its Northwest microregion (with cities so close together) a number of state-provided social services (such as health and education) cannot be satisfied where other everyday activities are carried out. In this case, many families must go to great lengths to expand their capacity for mobility in order to obtain services that are far from their homes and also far from one another. Resolving structural problems (such as those related to pollution, public health and infrastructure) is also compromised with this fragmentation. Extending the reach of the state over such distances, and often beyond the timeframes and planning of local governments, affects the population unfavorably and increases exposure to environmental hazards, health and factors of social protection. Avenues often evolve into highways, and vice-versa, in the process of metropolization of the region, and this can also be a risk factor.

In this situation, the risks of landslides, floods and other environmental hazards can make people much more vulnerable, to the extent that governmental presence becomes rarefied and spread out. Experience has shown that not even hazards related to transportation and expressways have been adequately addressed, as is evident in the constantly rising rates of pedestrian accidents, traffic accidents and congestion.

If, on the one hand, high mobility is a positive and desirable factor, because it facilitates access to services, jobs, housing, education and leisure, on the other hand, risks increase in proportion to the distances traveled, the number of trips made, and high costs (distance, slow traffic, toll fees). Many persons in the region have quite precarious life spaces, traveling long distances from one point to another, and often go to or through three different cities on the same day. These life spaces increase risk, although there may be variables that can reduce vulnerability to such hazards (such as being able to afford insurance, access to adequate means of transportation, enough time to rest between activities, etc.). The difference in vulnerability along these long daily routes, in terms of hazards associated with mobility itself, changes little from one social class to another. The most significant factors in this equation are related to personal characteristics, age and moments in individual life cycles, that are more directly related to the way they move about on foot and in vehicles. There are fewer risks for those who have to get about by public transportation, but other risks arise, depending on the type of transportation used. This research can provide rich detailed information, which may elucidate aspects of the environmental tension lived by people in their diverse metropolitan situations, both at fixed points and during moments of dislocation within the region.

In this respect, a very complex situation emerges which goes beyond the available data. There is a need to investigate the relationships among the people in these places, spaces and routes, in order to better understand how the relationship between population and environment operates. Such research could be very valuable in exposing details of the urban experience, which could clarify aspects related to the environmental tension that people face in their varying situations in metropolitan space.

The home emerges as a key point, where people are protected and take care of themselves. People seek to live well, and they idealize their dreams in their houses. There they can get away from their hectic daily life, the noise of motors and flooded streets. But paradoxically, it was the search for a place to live that brought them to the big city, and where they live is an important factor in the difficulties and risks they face. It is in people's homes that vulnerability takes on

greater importance, in the sense that it is there that they must be less vulnerable. But this is not always the case today. Houses are no longer protected fortresses. They are where family systems act in their attempt to reduce risks. When the family circle fails, communities are called into action, and then successively higher levels of social organization, until one comes to the upper spheres of political responsibility. The lowest unit of this hierarchy, therefore, is the home.

It is clear that studies of urban life are an important step for a better understanding of the metropolitan experience and of the environmental tension that populations experience every day. Such studies will also be able to show why certain risks are acceptable while others are not, and in what aspects the diverse urban populations (in their varying lifestyles) are more, or less, vulnerable to the complex environmental set of dynamics discussed here.

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