

The struggle to belong
Dealing with diversity in 21st century urban settings.

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*** Urban Growth and Social Network of Small Cities of the
estuarine region of Amazon River: The Case of the City of Ponta
de Pedras, Pará State, Brazil***

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ABSTRACT

In the Brazilian Amazon, towns with less than 20,000 inhabitants are predominant (84%), and those small cities can offer job opportunities, even in the informal sector, and more access to basic health and education services, attracting population from rural areas and surrounding cities. Considering these aspects, this paper intends to analyze the city of Ponta de Pedras, located on the island of Marajo, in the estuarine region of Amazon River. This city has a total population of 25,989 inhabitants, and 47.8% of this total is living in the urban area. According to the IBGE (2010), this municipality is the third largest producer of açai fruit in Brazil. This production has greatly influenced the changes that have occurred in the city, both in terms of growth of the urban area and in economic transactions. This research studied the growth of urban area, social situation and the existing infrastructure in order to promote an understanding in terms of socio-economic development and social networks that are established among urban residents and their local of origin, in case of immigrants. The methodology followed, basically, the urban growth mapping, using remote sensing data, survey of data at local government agencies, and application of questionnaire with 40 questions, mainly related to socio-economic status of residents, household conditions, social networks, flows that are established on the basis of activities economic, among others. This questionnaire was applied to 350 urban households, following a stratified sampling, according to the census sectors, ie to the most populated areas were applied more questionnaires. This research has revealed that urban residents perform activities related to extraction of açai fruit, the main product of the municipality or in formal sector. Many, if not most, formal employment in urban areas is offered by state and municipal public administrations. While maintaining strong social ties with relatives who live in rural areas of Ponta de Pedras, or in others (69% have relatives residing in rural areas), only 40% of urban residents provide some support for family members. In many situations, these links are maintained to support the resident as family than giving financial maintain.

Keywords: urban growth, social network, açai fruit.

1. Introduction

The Brazilian Amazon Region has been categorized as an urbanized forest since 1980, when the number of urban population went beyond the rural population (Becker 1985). Although it is still considered an “agricultural frontier” researchers have emphasized cities are increasing very rapidly (Becker 2005, Correa 1987, Sawyer 1987 and 1997, Browder and Godfrey 1990 and 1997, Browder 2002, Machado 1994). According to Costa and Brondizio (2011), “the intensity of the urbanization process in the Amazon region, however, has not been followed by proportional investments in urban infrastructure. As a result, Amazonian cities are deficient in terms of infrastructure and services, as well as employment”. These cities are an “El Dorado” for many immigrants, a protection against landlessness and a support for families to access urban services and employment expectation that doesn't exist or is more precarious in rural areas (Padoch et al 2008).

Costa and Brondizio (2009) affirmed these urbanization trends, however, particularly the spread and predominance of small towns, and are described by some as a “ruralization” process marked by the spread of unstructured small towns. Throughout their development cycles, these cities have received waves of small farmers leaving agrarian settlements for urban areas and groups of migrants attracted by a tertiary sector in development and, in many cases predominantly, public institutions (Sawyer and Carvalho 1986, Diniz 1997).

Costa and Brondizio (2011) pointed out that comparing, for instance, the Flood Area (Várzea) of Solimões and Amazon rivers, where are located the most ancient cities in the Region, with the whole Brazilian Amazon region in terms of rate of urbanization, we can visualize the rates are not the same: in 1970, while the Amazon region had a population predominantly living in the rural areas (63%), the municipalities located at the Várzea had around 57% of their population living in cities; in 1991, the region had more than 56% of its population living in urban areas, as well as the municipalities located at the Flood area, which had more than 67% of their population living in cities. In 2000 the rhythm of urban population growth kept raising and 68% of the total population in the Amazon Region was living in cities and in the Flood area this quantity was 79%.

Considering these aspects, this paper intends to analyze the city of Ponta de Pedras, located on the island of Marajo, in the estuarine region of Amazon River. According to the IBGE (2010), this municipality is the second largest producer of açai fruit in Brazil. This production has greatly influenced the changes that have occurred in the city, both in terms of growth of the urban area and in economic

transactions. This research studied the growth of urban area, social situation and the existing infrastructure in order to promote an understanding in terms of socio-economic development and social networks that are established among urban residents and their local of origin, in case of immigrants.

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2. – The Flood Region (Várzea) of Solimões and Amazon Rivers

Flood areas are considered low and flat lands alongside a watercourse, which are intermittently flooded by rivers overflow. In terms of Amazon Basin, this area is one of the richest ecosystems considering its biological productivity, biodiversity and natural resources. More than 1.5 million of local inhabitants, known as riverain (ribeirinhos), survive using its resources. It also occupies more than 300,000 Sq kilometers, throughout Amazon-Solimões river channel and its main tributaries, equivalent to around 6% of the surface of the Brazilian Legal Amazon (ProVárzea 2008).

According to the Brazilian Ministry of Environment (IBAMA 2008), although the Amazonian Várzea has a high productivity and natural resilience, the current process of development is leading these areas to gradual degradation. The main reasons of these degradations include deforestation process, rivers silting up, cattle contributing to water degradation, and destruction of marginal lagoons as a result of agricultural and urban expansion (LIMA 2005).

The first city founded in the Brazilian Amazon Region (BAR) was Belém, created in 1616 as a fortification to guarantee the Portuguese possession and protect the entrance of Amazon River from any attempting of attack (Penteado 1968). Many others cities in this Region were created as a protection to Portuguese possessions, such as Santarém created in 1661, Manaus in 1669, Tabatinga in 1730, and Macapá in 1738 (CNM 2007). Considering 760 seats of municipalities (the Brazilian Institute of Geography and Statistics (IBGE) defines as city all

administrative seats of a municipality) of the BAR, 64% of cities created from 1616 to 1800 are located in the Amazonian Flood area, and among the oldest five cities, four are situated in the Várzea.

The municipality and city of Ponta de Pedras is located on Marajó Island, in the estuarine region of the Amazon River, Brazil, and approximately 40km in lateral distance and 60 km by boat from the state capital Belém (figure 1). Founded in 1737 as the village of Mangabeira, Ponta de Pedras was emancipated as a municipality in 1877. The economy has been marked by different economic periods: rubber exploration, logging forest products, heart of palm, manioc production, cattle production, and more recently intensive açaí fruit production (*Euterpe oleracea* Mart). These economic phases reflect and have influenced, to some extent, local demographic dynamics.

3. The City of Ponta de Pedras in The Estuarine of Amazon Region Context

“Itá is situated in the sub-region known as the Lower Amazon... It is a small town with about five hundred inhabitants, yet it is the seat of a municipality...the street facing the river is unpaved, ... many of the buildings are in bad repair, and one or two are ready to fall...” (Wagley 1953, p25).

Wagley’s description of “Itá” (Gurupá) continues to speak loudly about the reality of many Amazonian cities to date, including the case study of Ponta de Pedras. This municipality in 1920, while still suffering the impact of the rubber economy crash, had about 6,683 inhabitants. Renewed attention to rubber exploitation and a growing cattle economy precipitated a significant population growth (raised 72%) by 1940, including one strongly dominated by rural residents (which comprised 89% of the total population). Total population fluctuated between 10,000-20,000 inhabitants until the 1970s and was still marked by strong rural dominance. With the onset of the açaí fruit economy during the mid-1970s, the municipality has experienced increasing urban expansion and as well as an increase in migration to Belém, the nearby capital city. Yet, as the value of açaí fruit continues to grow and dominate the regional economy, particularly since the mid-1990s, Ponta de Pedras not only confirmed to experience urban but also rural population growth. The number of urban and rural households during 1991 and 2010 increased 117% and 35%, respectively, and, contrary to regional trends,

Ponta de Pedras had an impressive growth of its rural population (a 30% increase) while at the same time experiencing declining deforestation and an increasing forest economy based on açai fruit production (Brondizio 2008).

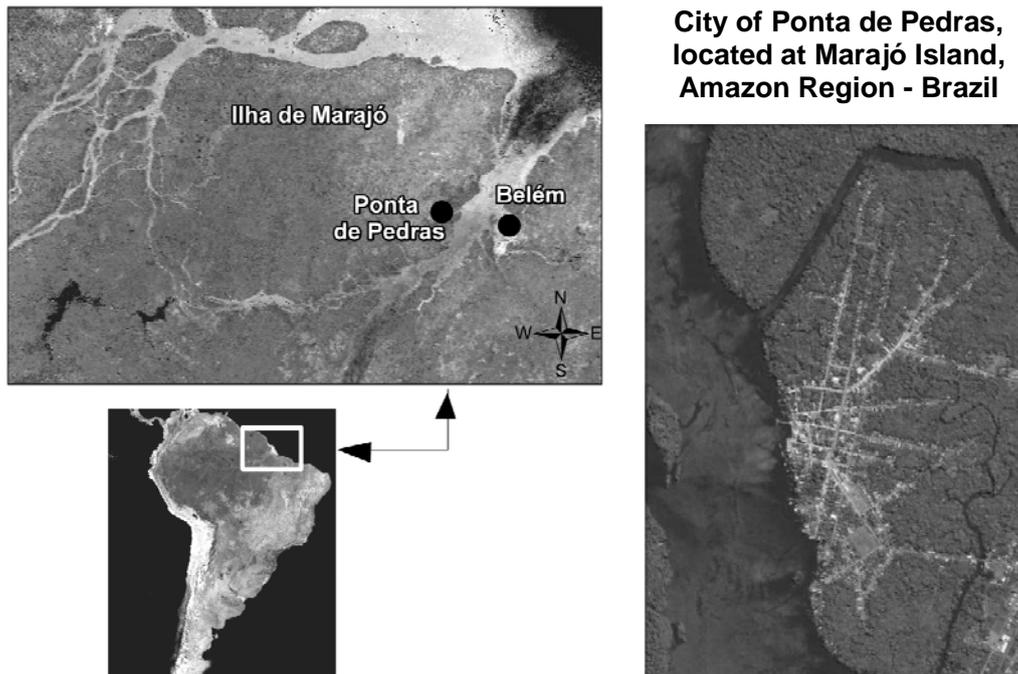


Figure 1 – City of Ponta de Pedras, Brazilian Amazon Region

Between 1969 and 2010, the town of Ponta de Pedras experienced a growth of 3.02 km² of its urban area, representing an increase of almost 900% compared to the urban area in 1969. This growth corresponded, at the same period, to an increase in 10,421 inhabitants, to a urban population of 2,003 inhabitants, as observed in 2010 Brazilian Census. Figure 2 shows the street lines in different years, since 1969 up to 2010, and a comparative graphic of rate of urban population and urban area growth. This expansion was particularly significant between 1991 and 2010, when the urban area grew approximately 407% and urban population increased more than 111%. The spatial pattern of urban development also evolved during this time, as the number of streets increased outward from the original city area in a highly variable manner, as axes of urban growth and expansion have followed both flooded area and uplands areas (Figure 3).

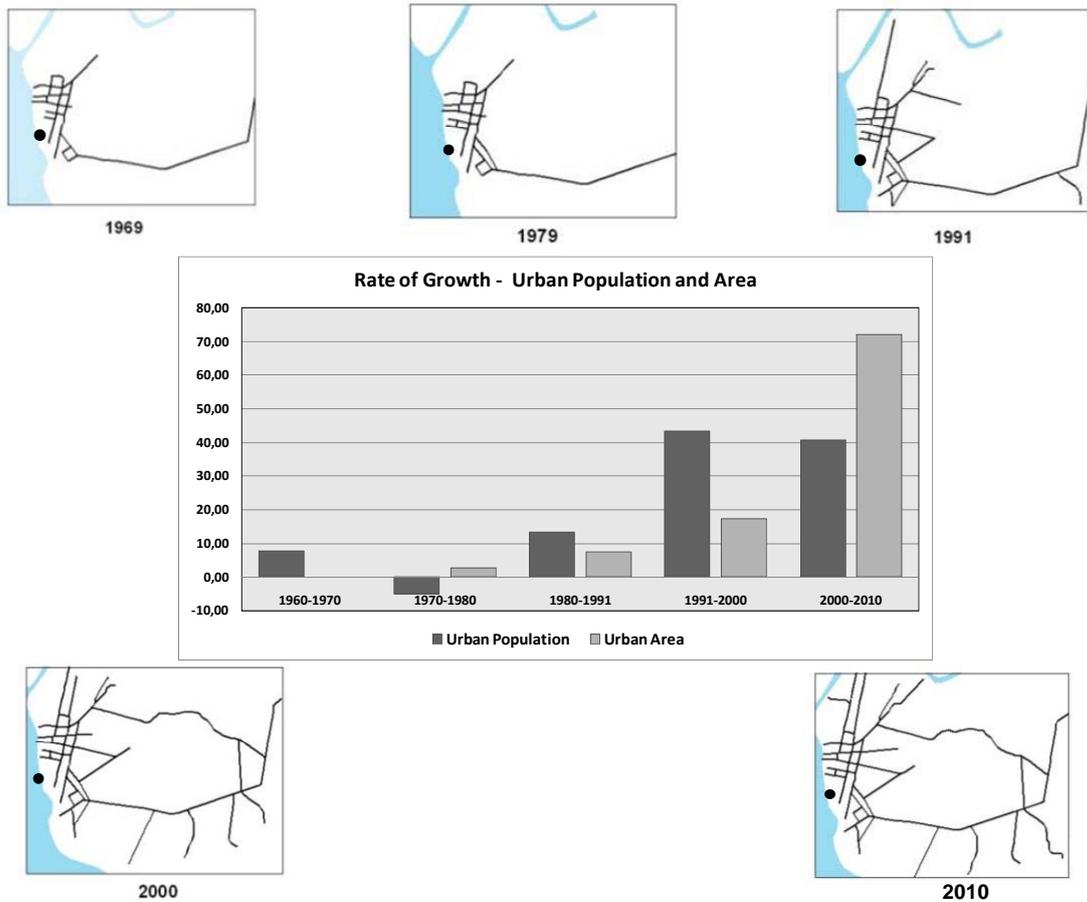


Figure 2 – Spatial and population evolution of Ponta de Pedras, 1969-2010. In the maps, the original city location noted by dark spot along waterway.



Figure 3 – Pictures of expansion areas in Ponta de Pedras: (a) wood houses, homegardens of açai palm and wood sidewalks connecting houses, in a flooded area; (b) concrete house located in an upland area.

This type of urban form is peculiar, but to some extent familiar to many other riverine towns of the Amazon that are closely connected to waterways that facilitate access to transportation and resources. Such urban growth includes small wood houses precariously connected to raised pathways that are, in turn, connected to unpaved streets lacking sewage systems. Availability of piped water and electricity typically varies according to age and stage of occupation (Figure 3). In Ponta de Pedras, the sewage system is installed in less than 20% of urban households, and only 6.7% is served with waste city-collection. However, 74% are connected to piped water systems and around 30% of households have street lighting and electric energy. Finally, less than 5% of streets are paved.

As in rural riverine areas, raised urban houses along floodplain areas experience daily flooding and are surrounded by açai palm homegardens (açazais) in a similar fashion to their rural counterparts. In upland areas, the urban landscape is marked by mixed construction along dirt roads occasionally shaded by dispersed açai palm areas and smaller homegardens. In spite of continuous growth since the 1980s, much of the local urbanization has been informal; in some parts, urbanization has occurred spontaneously, while in other parts, it has been marked by the opportunism of land speculators or politicians and often lacks titles and registration with the city. Yet, many of these areas receive water and electrical connection from state agencies, which further legitimates and attracts new residents and investors (e.g., sharecroppers who buy urban lots) as an investment. The spontaneity and non-regularity of settlements are reflected in the urban housing tax (IPTU) collected by the Municipal Government, which currently represents only 0.04% (R\$ 4,081.31, approximately US\$ 2,304.13) of the annual budget of the municipality (Secretaria do Tesouro Nacional, 2008).

Ponta de Pedras has a precarious and highly political formal employment basis marked predominantly (95% of formal jobs) by the public municipal sector (Table 1). The municipality is highly dependent on federal subsidies, as it lacks the ability to produce the necessary resources, even for basic services, despite an active and strong resource economy. As a consequence, public employment is used as a political tool to create alliances and favoritism, particularly in election years. Informal work and income from resource extraction and agricultural work is prominent, along with additional economic activities such as hired labor, street vending, arts and crafts, smuggling and piracy (e.g., CDs and DVDs and electronic goods), and a flourishing direct sales market (e.g., sale products from Avon, Hermes, and several other companies) (Figure 4). As a result income generated by households in 2000 is stunted if we consider Perz's (1999: 189) assumption that income represents a good measure of the "capacity for households to improve

housing quality or purchase amenities and health care”: in 2010, according to our survey 77% of the urban families earned less than 2 minimum salaries (corresponding to US\$ 304.00 in July 2010).

Tabela 1: Jobs per activity sector in Ponta de Pedras

IBGE Economic Sectors	1985	%	1990	%	1995	%	2000	%	2005	%
Mineral Extractive	0	0.0	0	0.0	174	77.0	0	0.0	0	0.0
Industrial Sector	2	1.3	7	2.7	0	0.0	7	1.5	0	0.0
Public utility/Industrial Service	8	5.0	10	3.8	12	5.3	3	0.7	4	0.3
Commerce	1	0.6	1	0.4	0	0.0	6	1.3	11	0.8
Services	13	8.2	14	5.3	8	3.5	6	1.3	17	1.2
Public Administration	135	84.9	231	87.8	0	0.0	415	91.4	1,343	95.5
Farming and cattle raising, fishing, and extractive vegetation activity	0	0.0	0	0.0	32	14.2	17	3.7	31	2.2
Total	159	100.0	263	100.0	226	100.0	454	100.0	1,406	100.0

Source: RAIS (2005) / MTE, Brazil.



Figure 4 – Street vendors selling a variety of goods in Ponta de Pedras

Despite offering precarious services and conditions for its residents, Ponta de Pedras continues to attract individuals and families in search of a better life, secure housing, access to water and electricity, access to education, and, perhaps most important to many, to share a part of modernity represented by an active and rather festive urban social life. As a local pun goes “in the middle of nothing, anything is something” particularly in relation to even more precarious in rural areas.

The Urban Inhabitant of Ponta de Pedras and Their Social Network

The strong ties between rural and urban areas in other parts of the Amazon (WinklerPrins 2002; Dufour and Piperata 2004) also are prevalent in Ponta de Pedras, as evidenced by preliminary results from a recent survey (July 2010) about connections between rural and urban areas and its importance for the city economy. Our focus here was to illustrate the importance of urban/rural social networks (family and kinship, extended family, and friendship) and the economy of açai, which has changed the city. For all 350 surveyed urban households, we found that 49% of all individuals were born in the city of Ponta de Pedras, 31.4% were born in rural communities of the municipality of Ponta de Pedras, 9.7% were born in the capital of the state of Pará, Belém, and 6.5% were born in municipalities of the Marajó Island (figure 5). This information permits us to verify that migration is much stronger between regional municipalities and the reason for that is motivation for improving their lives in terms of opportunities, even though the city of Ponta de Pedras does not offer adequate urban services and facilities.

The importance of açai production to their lives could be visualized when we asked them about income, and if they have economic activities related to açai production. The results showed 95% of all individuals have an employment activity, although 75% are informal employment, 10% are government employees, and 15% are retired. When asked if they had activities linked to açai production, 56% answered “yes”, by the majority (52%) working as “batedor de açai”, to produce açai pulp, which is exported.

We tried to recognize if they had relation with parents that live in rural communities asking to the individuals who had relatives living in rural areas (75% of all families) if they do trade with them. The answers suggest there strong link between urban

and rural areas because 80% of the families had some kind of trade with them, and it is connected to açaí production or trade.

Data from this survey showed this urban – rural relationship between families are strong but not to send money to them or even resources. It is more important in terms of maintain their connection with the açaí production. It is a seasonal activity and it does not interrupt their official job.

Many individuals travelling to Belém (80%) do so for the purpose of açaí fruit commercialization (açaí producers or middleman, or to work in Belém market) or carriers, or to have healthcare.

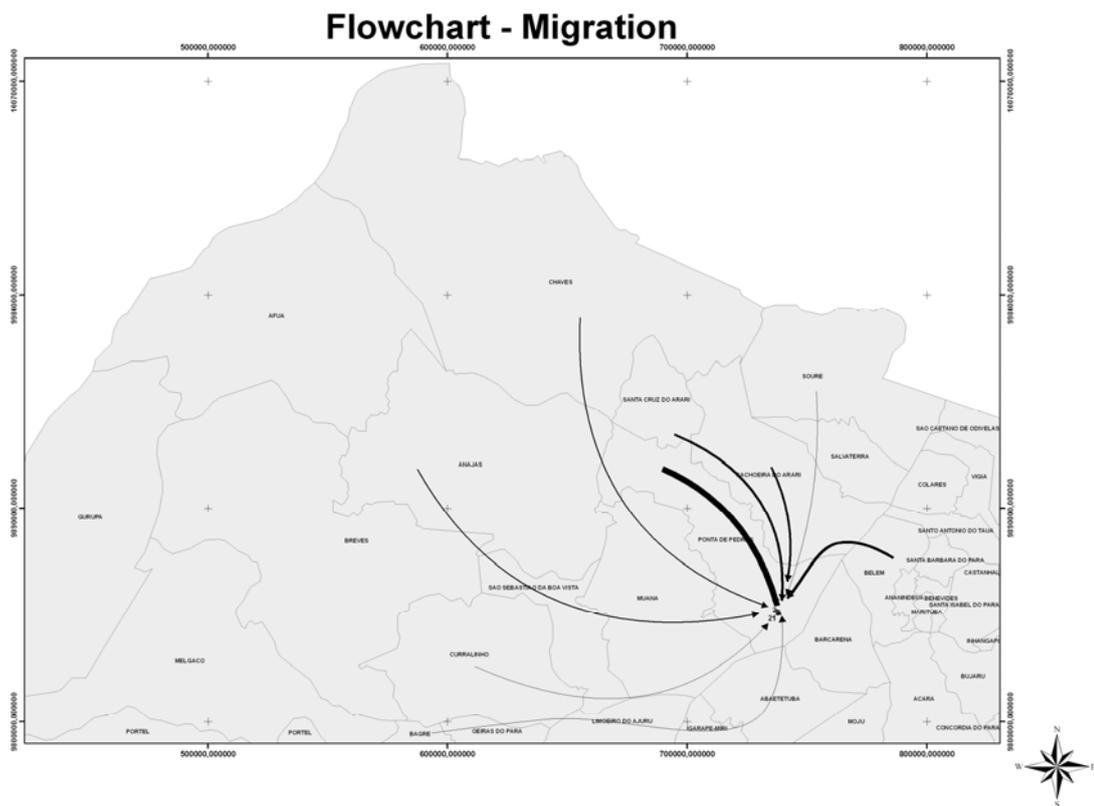


Figure 5 – Flowchart showing migration movement

4. Discussion and Concluding Remarks

Deforestation and the potential impacts of global climate change continue to merit close attention to the Amazon. In this paper, however, we join other researchers in calling more attention to the importance and role of urbanization and its dynamics in the region. The quality, generalized problems, and future

consequences associated with phenomenal rates of urban expansion mirrors in magnitude few other regional problems. Urbanization, in all its dimensions, is a fundamental aspect of the broader social and environmental equation shaping the region's present and future. Our analysis aimed at providing a multi-level perspective to urban dynamics in the region, thus linking processes emerging from the very local to the region as a whole.

In spite of their different histories and ages, Amazonian cities have more in common with each other than not. The majority of cities and towns have inadequate infrastructure to offer their respective population, such as water and sewage systems. They also have a heavy dependency on government subsidies and an inability to generate and reinvest resources locally. By 2000, more than 90% of municipalities had less than 10% of households connected to public sewage systems and around 40% of them had less than 30% of households with treated water. For a region where 64% of the population lives in urban areas, the implications of these deficiencies to health and overall quality of life are significant, particularly as this number continues to increase. However, while the regional scenario appears hazy it is important to recognize the role of state-level agencies and other efforts that have been working to improve access to treated water and electricity.

Currently, the Brazilian government has created programs, such as the Rapid Growth Program (Programa de Aceleração do Crescimento – PAC), which is directed at improving urban infrastructure. The scale and direction of investments, however, remains unclear. The Amazon region also has received investments aimed at expanding access to electricity (The “Light for All” program, or “Luz Para Todos”). While these initiatives can help to solve current infrastructure constraints, ultimately, the long-term quality of life prospects for Amazonian cities will depend on their capacity to generate resources through services and transformative industries while decreasing their dependency on federal subsidies.

With an urban population increasingly dependent on the informal economic sectors, families dependent on welfare programs, and cities dependent on Federal and State Government subsidies to combat these infrastructure deficiencies, prospects for change and improvements are limited. The situation of Ponta de Pedras illustrates this reality of the region. Ponta de Pedras, and other parts of the Amazon estuary region, have been living with the açai fruit economy one of its strongest and most inclusive economic periods during the past two decades, and arguably the best economic period for the region in almost a century. Production intensity and circulation is impressive, yet, the municipality has no ability to capture even the slightest return, either in the form of taxes or in the form of employment in industry dedicated to product development, marketing, and transformation. Public

employment in Ponta de Pedras corresponds to over 90% of the formal sector. Preliminary analysis of our recent survey indicates that in many rural communities, or for many households in all communities, welfare programs such as Bolsa Familia comprise the predominant source of household income, followed by açaí fruit production. Municipalities in the Amazon estuary area continue to suffer the consequences of a regional economy based low value resource export and absence of transformative industry.

In order to cope with such economic disadvantages, Amazonian families, particularly in the Amazon estuary, are increasingly articulating their lives by expanding their social networks to multiple cities and areas to compensate for local deficiencies through access of resources and services from this expanded social network (Padoch et al 2008). People move more frequently between rural and urban areas, and between small, medium, and large cities. Rural areas have also become an increasingly important part of this network of movement, representing a point of departure and return and a safety net of resources and economic opportunities, in many cases supporting families living in urban areas.

While it takes little effort to observe that for most of the region the so-called rural-urban continuum is a present reality, it creates different demands for services, the question remains whether Amazonian cities are able to improve their services and infrastructure over time. The non-selective nature of regional problems and dependency of cities in federal subsidies indicates a pessimistic scenario. A comparison between our results and other efforts (Perz 2000, Browder and Godfrey 1997, Sawyer 1987, Becker 1978 and 1985) indicate that the regional urban infrastructure continues to be deficient at best, and worsening in many cases. Yet, cities still offer an attractive prospect to many, if not most in the region. Rural families benefit economically and socially from urban connections. They access particularly health and education, and informal employment, even more precarious in rural areas. To many, cities emerge as an “Eldorado” of modernity, a prospect to a larger connection to the globalized world, and eventually a chance to improve lives. Any attempt to understand and contribute to the future of the region requests close attention to these processes.

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