

Shrinking cities South/North

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Shrinking cities South/North

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INTRODUCTION

*Ivonne Audirac and
Jesús Arroyo Alejandre*

In the late 1980s, urban decline and the shrinking of urban economies were identified as relatively recent phenomena inherent to industrialized countries. It was also diagnosed as coinciding with the end of industrialization (Clark, 1989). Although these assessments may have been correct for Anglo-American and European cities –as illustrated by Detroit, Berlin, Liverpool or Manchester– this conventional wisdom has been challenged by research documenting that the “shrinking cities” phenomenon’s scope and geography are global despite different causes and specific manifestations. This view has been advanced by a variety of groups such as the Shrinking Cities Project of the German Federal Cultural Foundation (Oswalt, 2006) and the Shrinking Cities International Research Network (SCiRN) founded in 2004 at the University of California, Berkeley in the United States. Collectively these groups’ initiatives, including this volume, aim to shed light on the global dimensions of a phenomenon which, until recently, was believed to be a rich nation’s isolated incident of localized urban misfortune that could be reversed given the right planning interventions and the right amount of federal assistance. The intractable decline and relentless depopulation of certain cities in the US, Japan, and Western and Eastern Europe have stimulated scholarly research into causal explanations and new ways of understanding urban decline beyond classic formulations. In the midst of this search, which is by no means complete or conclusive, “urban shrinkage” has acquired a new meaning connoting a variety of urban afflictions, challenges, and opportunities and has encompassed a global, transnational scope.

SHRINKING CITIES

Persistent economic downturn, de-industrialization, resident and business hemorrhage, abandoned structures, high unemployment, decaying infrastructure, beleaguered tax bases, concentration of the aging and poor populations, and segregation and blight occurring in Eastern European cities after the fall of the Berlin Wall spurred a heated German debate. The debate was about “raze and rebuild” as a solution to the old symptom of urban distress, which was new in its recalcitrant persistence and resistance to German economic unification and development policies. A total of more than 550 billion euros invested in East Germany from 1990 to 2003, primarily in infrastructure development (Knorr-Siedow and Droste, 2003), did little to stem the tide of east-west migration and depopulation of East German cities. These cities, which were already struggling with the effects of Post-Socialist institutional change, were not able to withstand the massive job losses and abrupt de-industrialization stemming from the obsolescence of its industrial base, which hampered the German Democratic Republic’s (GDR) efforts to catch up with the West. The words of an East German resident illustrate the plight of shrinking cities in this context:

We have lost all large companies either by their collapse or by their head-offices moving west. Of course, at an unemployment rate steadily above 20 percent they have left the estate, it is not incomprehensible that we are becoming an estate of the aged and the dissatisfied rest. All others have left already (in Knorr-Siedow and Droste, 2003: 24).

Thus, the term *Shrinking Cities*, of German coinage “Schrumpfende Städte”, emerges in the 1990s in the aftermath of the collapse of the Soviet Union and partly as a result of the massive, east-west migration that depopulated a large number of Post-Socialist cities. Among these, East German cities appeared as pioneer case studies of “urban shrinking” scholarly research in two fundamental ways: as “symptom” and as “remedy.” The first approach strives to identify and diagnose the causes e.g., post-industrial, social, demographic, and economic dynamics of growth and decline, at global and local levels. The second investigates the policy and planning interventions which could save the city and help regenerate it. Shrinking cities studies in the latter sense are part of the urban planning debate about “rightsizing” a city’s housing and infrastructure to fit a dwindling population. This approach also includes the strategies pursued by cities and regions to revive their shrinking places (Bontje, 2004).

SHRINKING CITIES AROUND THE WORLD

The German shrinking cities discourse was globally expanded by Oswalt (2006, 2009), Rieniets (2006), and associates of the Shrinking Cities project for the German Federal Cultural Foundation. After examining world statistics and an array of European, American and Asian case studies of cities, they concluded that “urban shrinkage” is a globalized development pattern. “Between 1960 and 1990 their number grew by 100%, whereas the number of growing cities only increased by about 60% during the same period. Thus, approximately every sixth large city (i.e., one with more than 100,000 inhabitants) in the world was a shrinking city” (Rieniets, 2006: 27). In the 1990s, the total number of shrinking cities arose as a result of the aforementioned, Post-Socialist, east-west, urban diaspora and as a consequence of European and North East Asian Pacific demographic transition characterized by steeply declining birthrates. By 2006, the same authors estimated that the total number of shrinking cities had almost doubled between 1990 and 2000, and that around the world more than one in four cities (larger than 100,000 people) was a shrinking city (Rieniets, 2006: 27). Today, this group further posits that the incidence of shrinking cities will intensify the world over as a consequence of the end of the growth era based on cheap fossil fuel. Beginning with the industrial revolution, this growth ushered a world of suburban expansion and rapid metropolitanization. However, with the onset of climate change effects, the number of shrinking cities is poised to soar, abetted by new rounds of deindustrialization and the restructuring of service economies. Ostensibly, this will result in suburban decline along with a tendency for populations to re-centralize and for polarization between haves and have nots to increase¹ (Oswalt, 2009).

¹ Oswalt (2009) presents these argument in six hypotheses : (1) Shrinking cities are qualitatively and quantitatively different from the urban decline experienced in the 20th century. In the 21st century shrinking cities represent the end of a growth era that began with industrialization 200 years ago. In the 21st century industrialized countries will bear the brunt of this change with the largest number of shrinking cities resulting from de-industrialization, suburbanization, and metropolitanization; (2) city shrinking processes will be de-stigmatized and considered as normal as growth processes. However the socioeconomic and social equity outcomes of these processes will involve conflicts; (3) shrinking cities, conceived as a component of the process of de-urbanization in the 21 century will increasingly affect suburbs and office districts. Increasing mobility costs and aging populations will reconcentrate people from the suburbs to the urban cores, while technological restructuring of the service sector will shrink conventional...

While the jury is still out on whether these end-of-era hypotheses will materialize in the next fifty years, United Nations data on urban agglomerations of one million inhabitants or more² provide a snapshot of current and potential future urban shrinkage based on population trends. While looking at this data, one must keep in mind two interrelated issues. First, that over the next 30 years nearly all growth is expected to occur in cities of the developing world, and that in the last 100 years the number of cities with a million people or more has increased from 16 to 431, with the majority of these cities located in developing countries. And second, that research and data for these cities have historically focused on urban growth accounted in terms of rural-urban categories with great neglect of intra- and interurban dynamics and lack of attention to population decline. This research gap is all the more paradoxical given the aforementioned rate of urbanization in developing countries, which have witnessed the rise of megacities and the quick transfer of manufacturing from industrialized countries in the last three decades of increased global economic integration between the North and the South. This gap in knowledge about the internal dynamics of cities in the South has recently been recognized by Montgomery *et al.* (2003), who assert that:

Urban growth is often accompanied by economic development, the restructuring and relocation of production, social and economic fragmentation, and spatial reorganization –and urban/rural dichotomies are increasingly inadequate even to describe these changes. In countries where the level of urbanization is already high, further measurement of change in the urban percentage adds little by way of insight. What is needed is a new emphasis on the inter- and intraurban differentials, and these are topics to which demographers have paid remarkably little attention (pp. 2-3).

...office complexes; (4) the end of the fossil energy era and climate change will exacerbate the shrinking cities phenomenon due to (a) climate effects related to water resources, flooding and natural hazards; and (b) decline of petroleum rich areas as their stocks deplete; (5) shrinking processes exacerbate uneven development and the emergence of polarized dual regions whereby shrinking ones are increasingly de-capitalized. This will lead to dual societies characterized by growth regions connected to global capital flows and shrinking regions locally dependent on leveraging homegrown capital for micro enterprises; (6) urban planning and architecture in shrinking cities will face new tasks associated with deconstructing and adapting to no growth conditions.

² The UN (2008) defines an agglomeration as containing the population within the contours of contiguous territory inhabited at urban levels of residential density without regard to administrative boundaries.

Thus, despite being the most comprehensive source of international data, UN urban agglomeration figures mask many intraurban and inter-urban differences. This limitation, plus the five-year interval of reported urban change, which is a narrow time period and does not account for the effects of the current global financial crisis, precludes definitive comparative analysis in a strict sense. Although the following international comparison offers a limited view of the international scope of urban growth and decline, this comparison is offered as a North-South backdrop to the shrinking city experience profiled in the chapters of this book.

For comparative purposes, Table 1 presents the countries and metropolitan areas referred to in several chapters of this book. São Paulo, Brazil; Guadalajara, Mexico; and Panama City, in the Republic of Panama are metropolitan areas with current growth rates above the one percent mark. However, according to UN projections, they are expected to grow at a slower pace in the period 2020 to 2025. This lends support to the observation that Latin America is going through different stages of demographic transition. The majority of the urban population of countries such as Brazil, Mexico, and Panama (among others) is in the second stage of demographic transition and moving into the third stage—characterized by lower fertility and mortality rates—while Argentina, Cuba, Chile and Uruguay have already entered the final stage of the transition—characterized by growing shares of the aging population (IDB, 2000). The traditional portrayal of Latin American primate cities teeming with population due to high birth rates and steep rural-to-urban migration, was until the 1980s somewhat accurate. However, a gradual decline of growth rates in primate cities as well as their corresponding diminishing dominance over the national urban system has been reported since the 1990s (Gilbert, 1994, 1996; Portes and Roberts, 2005; Aguilar, 1999; Cohen, 2003). Moreover, Latin American megacities like Mexico City and São Paulo, as well as second-tier cities like Guadalajara in the state of Jalisco, Mexico, have experienced population decline in the urban core accompanied by hectic outward urban expansion and expansive regional deconcentration to smaller nearby cities (Aguilar and Ward, 2003; Da Gama-Torres, 2008). The end of import substitution industrialization (ISI), the halving of fertility rates, and changes in the geographic patterns of foreign direct investment resulting from global industrial restructuring have greatly influenced the configuration, rate, and direction of rural and inter-urban migratory flows, which were in previous decades overwhelmingly oriented toward the largest conurbations (Portes and Roberts, 2005).

Table 1. Agglomerations referred to in this volume

Urban agglomeration	Country	Population (millions)			Average annual rate of change		Population residing in		2005-2010 2020-2025 pct points difference
		1975	2007	2025	2005- 2010	2020- 2025	(%) total population	(%) urban population	
Glasgow	United Kingdom	1.6	1.2	1.2	0.1	0.2	1.9	2.1	-0.1
Paris	France	8.6	9.9	10.0	0.2	0.0	16.1	20.8	0.2
Sydney	Australia	3.0	4.3	4.8	0.8	0.5	20.9	23.6	0.3
Ciudad de México (Mexico City)	Mexico	10.7	19.0	21.0	0.8	0.3	17.9	23.2	0.5
Detroit	United States of America	3.9	4.1	4.6	0.8	0.5	1.3	1.6	0.3
São Paulo	Brazil	9.6	18.8	21.4	1.3	0.3	9.8	11.5	1.0
Guadalajara	Mexico	1.8	4.2	5.0	1.7	0.5	3.9	5.1	1.2
Ciudad de Panamá (Panama City)	Panama	0.5	1.3	1.8	2.5	1.2	38.3	52.8	1.3

Source: UN (2008), Economic and Social Affairs, Population Division.

TYPIFYING GROWTH AND DECLINE AMONG URBAN AGGLOMERATIONS

Using an approach similar to the one devised by Glaeser and Shapiro (2003) to categorize city growth, Table 2 classifies urban agglomerations by growth type based on the agglomeration's rate of growth for the period 2005-2010. The classification is broken down by quartiles. The top quartile made of "high fliers" comprises the fastest growing cities, while the bottom quartile contains the "slow to shrinking" cities. The latter category is further subdivided into "slow growth," "very slow growth" and "stagnant and shrinking" city types based on the difference between city growth rates in 2005-2010 and their projected growth rates in 2020 to 2025. Of a total of 431 urban agglomerations of one million or more population (which include contiguous territory independent of jurisdictional boundaries)³ the majority (79%) is expected to grow at a slower rate in the first five years of the 2020s than in the 2005-2010 period. This suggests a generalized slowing trend for the largest cities in the world. The current median growth rate for these cities is 1.9 percent, 1.6 times higher than the projected growth rate for the 2020-2025 period. In terms of overall decline in population growth, 92 metropolises (21%) grouped in the "slow to shrinking" category show different levels of population change ranging from "slow growers" to "stagnant" and "shrinking" agglomerations.

Table 2. 2007 urban agglomerations (1 million or more) by rate of growth

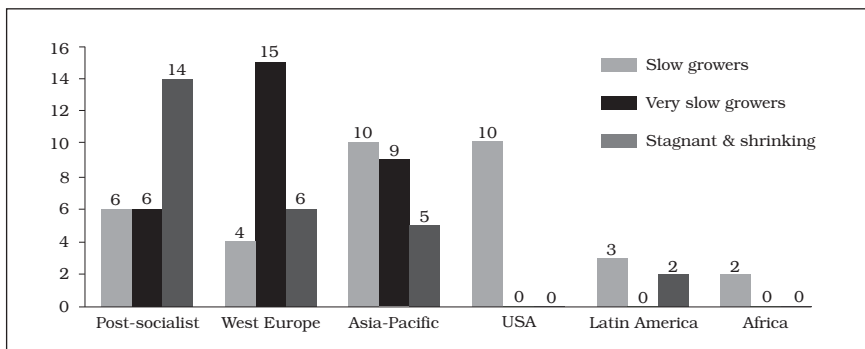
<i>Quartile</i>	<i>City type</i>	<i>Annual average % change 2005-2010</i>	<i>Number of agglomerations</i>	<i>Percent growing slower in 2020-2025</i>
4	High fliers	2.8 or more	99	0.97
3	Growers	2 to 2.7	107	0.89
2	Modest growers	1 to 1.9	133	0.76
1	Slow to shrinking	(.9 to -.07)	92	0.85
	Slow growers	.6 to .9	35	0.74
	Very slow growers	.1 to .5	30	0.83
	Stagnant and shrinking	0 to -0.7	27	–

Source. UN (2008), Economic and Social Affairs Population Division.

³ In the U.S. these are metropolitan areas, while in other countries they may be referred to the "greater" conurbation of the old established city, such as the greater Santiago or Buenos Aires.

Figure 1 presents the geographic distribution of these 92 cities in the category “slow growth to shrinking,” and Table 3 lists them by name along with their current and projected populations. More than one third of these 27 “stagnant & shrinking” cities are located in the Russian Federation, close to one fifth are in Western Europe (Italy, Denmark, and Belgium), 15% are in Eastern Europe (Czech Republic, Hungary, Serbia, Ukraine) another 15% are in East Asia (South Korea and Japan), and only two cities are in Latin America (Cuba and Uruguay). Undoubtedly, Post-Socialist urban change brought about by the disintegration of the Soviet Union in the late 1980s and 1990s and concomitant economic crises have spurred high waves of emigration, which, together with low fertility rates, resulted in intense depopulation of cities in Russia, the Baltic States, and other ex-communist countries. The graying of Western Europe, Japan, and South Korea, that is the aging of their population with sub-replacement fertility rates combined with low foreign immigration, have had a decisive shrinking effect on metropolitan agglomerations in this category.

Figure 1. Slow growing and shrinking agglomerations (1 million or more) 2005-2010 by world region



Source: UN (2008) Economic and Social Affairs Population Division.

Among “very-slow-growth” agglomerations (with annual percent rates of .01 to .05), Western Europe stands out with France (Paris, Marseille, Lille, and Lyon), Germany (Berlin, Hamburg), Greece (Athens), Italy (Napoli), the Netherlands (Rotterdam and Amsterdam), Switzerland (Zurich) and the UK (Birmingham, Glasgow, West Yorkshire, and London) as the region with the largest number of cities in this category. Although generalizations are fraught with caveats, Emmanuèle Cunningham-Sabot and Sylvie Fol’s des-

Table 3. Shrinking, stagnant, and very slow growing urban agglomerations of the world, 2007

Urban agglomeration	Country	Population (millions)			Average annual rate of change		Population residing in (%)		2005-2010	2010-2025	2005-2010	2020-2025
		1975	2007	2025	2005-2010	2010-2025	total population	urban population				
<i>Shrinking and stagnant</i>												
Yerevan	Armenia	0.9	1.1	1.1	-0.0	-	36.7	57.5	-0.0	-	-	-0.0
Bruxelles-Brussel	Belgium	1.6	1.7	1.7	0.0	-	16.7	17.1	0.0	-	-	0.0
La Habana (Havana)	Cuba	1.8	2.2	2.1	-0.3	-0.0	19.3	25.5	-0.3	-0.0	-	-0.3
Praha (Prague)	Czech Republic	1.1	1.2	1.2	-0.1	-	11.4	15.5	-0.1	-	-	-0.1
Kobenhavn (Copenhagen)	Denmark	1.2	1.1	1.1	-0.0	0.0	19.9	23.1	0.0	0.0	0.0	0.0
Budapest	Hungary	2.0	1.7	1.7	-0.4	-0.0	16.7	24.9	-0.4	-0.0	-	-0.4
Torino (Turin)	Italy	1.8	1.7	1.6	-0.2	-	2.8	4.1	-	-	-	-0.2
Roma (Rome)	Italy	3.3	3.3	3.3	-0.1	-	5.7	8.4	-0.1	-	-	-0.1
Milano (Milan)	Italy	3.1	2.9	2.9	-0.1	-	5.0	7.4	-0.1	-	-	-0.1
Kyoto	Japan	1.6	1.8	1.8	-0.0	-	1.4	2.1	-0.0	-	-	-0.0
Hiroshima	Japan	1.8	2.0	2.0	0.0	0.0	1.6	2.4	0.0	0.0	0.0	0.0
Busan	Republic of Korea	2.4	3.5	3.4	-0.6	-0.0	7.2	8.9	-0.6	-0.0	-	-0.6
Seoul	Republic of Korea	6.8	9.8	9.7	-0.1	-0.0	20.3	25.0	-0.1	-0.0	-	-0.1
Daegu	Republic of Korea	1.3	2.5	2.5	-0.1	0.0	5.1	6.3	-0.1	0.0	-	-0.1
Ufa	Russian Federation	0.9	1.0	1.0	-0.7	-0.0	0.7	1.0	-0.7	-0.0	-	-0.7
Sankt Petersburg (Saint Petersburg)	Russian Federation	4.3	4.6	4.5	-0.4	-0.0	3.2	4.4	-0.4	-0.0	-	-0.4
Novosibirsk	Russian Federation	1.3	1.4	1.4	-0.3	-0.0	1.0	1.3	-0.3	-0.0	-	-0.3
Samara	Russian Federation	1.1	1.1	1.1	-0.3	-0.0	0.8	1.1	-0.3	-0.0	-	-0.3
Nizhniy Novgorod	Russian Federation	1.3	1.3	1.3	-0.3	-0.0	0.9	1.2	-0.3	-0.0	-	-0.3
Omsk	Russian Federation	0.9	1.1	1.1	-0.2	-0.0	0.8	1.1	-0.2	-0.0	-	-0.2
Rostov-na-Donu (Rostov-on-Don)	Russian Federation	0.9	1.1	1.0	-0.2	-0.0	0.7	1.1	-0.2	-0.0	-	-0.2
Chelyabinsk	Russian Federation	1.0	1.1	1.1	-0.1	-0.0	0.8	1.1	-0.1	-0.0	-	-0.1
Beograd (Belgrade)	Serbia	0.9	1.1	1.2	-0.2	0.5	11.1	21.5	-0.2	0.5	-	-0.7

(Table 3. Continued)

Urban agglomeration	Country	Population (millions)				Average annual rate of change		Population residing in			2005-2010 2020-2025 pct points difference
		1975	2007	2025	2010	2005- 2010	2020- 2025	(%) total	(%) urban	population difference	
<i>Very Slow Growers</i>											
Dnipropetrovsk	Ukraine	1.0	1.1	1.0	-0.2	-0.0	2.3	3.3	-0.2		
Kharkiv	Ukraine	1.4	1.5	1.5	-0.1	-0.0	3.2	4.7	-0.1		
Manchester	United Kingdom	2.4	2.2	2.3	0.0	0.1	3.7	4.1	-0.0		
Montevideo	Uruguay	1.4	1.5	1.5	-0.3	0.1	45.3	49.1	-0.3		
<i>Very Slow Growers</i>											
Taipei	China	2.0	2.6	3.3	0.3	1.3	0.2	0.5	-0.9		
Pyongyang	Dem. People's Republic of Korea	1.3	3.3	3.6	0.5	0.5	13.9	22.3	-0.0		
Paris	France	8.6	9.9	10.0	0.2	0.0	16.1	20.8	0.2		
Marseille-Aix-en-Provence	France	1.3	1.4	1.5	0.5	0.3	2.3	2.9	0.2		
Lille	France	0.9	1.0	1.1	0.5	0.2	1.7	2.2	0.2		
Lyon	France	1.2	1.4	1.5	0.5	0.3	2.3	3.0	0.2		
Tbilisi	Georgia	1.0	1.1	1.1	0.3	0.0	25.0	47.6	0.3		
Berlin	Germany	3.1	3.4	3.4	0.2	0.0	4.1	5.6	0.2		
Hamburg	Germany	1.7	1.8	1.8	0.4	0.0	2.1	2.9	0.4		
Athina (Athens)	Greece	2.7	3.2	3.3	0.2	0.2	29.1	47.9	0.0		
Napoli (Naples)	Italy	2.1	2.2	2.3	0.1	0.0	3.8	5.6	0.1		
Osaka-Kobe	Japan	9.8	11.3	11.4	0.1	0.0	8.8	13.3	0.1		
Sapporo	Japan	1.8	2.5	2.6	0.2	0.0	2.0	3.0	0.2		
Fukuoka-Kitakyushu	Japan	1.9	2.8	2.8	0.3	0.0	2.2	3.3	0.3		
Sendai	Japan	1.6	2.2	2.3	0.4	0.0	1.8	2.7	0.4		
Nagoya	Japan	2.3	3.2	3.3	0.4	0.0	2.5	3.8	0.4		
Tokyo	Japan	26.6	35.7	36.4	0.4	0.0	27.9	42.1	0.4		
Rotterdam	Netherlands	0.9	1.1	1.1	0.3	0.2	6.1	7.5	0.1		

Amsterdam	1.0	1.0	1.1	0.4	0.2	6.3	7.7	0.2
Warszawa (Warsaw)	1.4	1.7	1.7	0.4	0.0	4.5	7.3	0.4
Incheon	0.8	2.6	2.6	0.4	0.0	5.3	6.5	0.4
Bucuresti (Bucarest)	1.7	1.9	1.9	0.1	0.0	9.1	16.8	0.1
Kazan	0.9	1.1	1.1	0.1	0.0	0.8	1.1	0.1
Moskva (Moscow)	7.6	10.5	10.5	0.2	0.0	7.3	10.1	0.2
Yekaterinburg	1.1	1.3	1.3	0.2	0.0	0.9	1.3	0.2
Zürich (Zurich)	0.7	1.1	1.2	0.3	0.4	14.8	20.2	-0.0
Birmingham	2.4	2.3	2.3	0.1	0.1	3.8	4.2	-0.0
Glasgow	1.6	1.2	1.2	0.1	0.2	1.9	2.1	-0.1
West Yorkshire	1.6	1.5	1.6	0.2	0.1	2.5	2.8	0.1
London	7.5	8.6	8.6	0.2	-	14.1	15.7	0.2

Source: UN (2008), Economic and Social Affairs, Population Division.

cription of shrinkage and growth in Glasgow and Paris (Chapter I in this volume), sheds light on the type of urban decline and urban restructuring affecting many large Western European agglomerations. The authors associate these changes with deindustrialization and the relocation or abandonment of heavy manufacturing; i.e., a shift from industrial to the service economy and the resulting structural unemployment that is now generational and stemming from the mismatch between industrial skills and those required by the new digital economy. This restructuring has also involved the sifting and sorting of newcomers, including international immigrants from Eastern Europe and developing countries, who have helped stabilize population losses. Low-income, foreign immigrants have taken up low-skill service jobs and residence in the more disadvantaged and precarious districts, while middle and high income residents have occupied the more affluent and prosperous areas. The gentrification of former shrinking and decaying areas has often been fostered by government sponsored regeneration schemes, for which Glasgow has earned acclaim, but also criticism for the displacement of poor and disadvantaged residents. In becoming post-industrial, both Glasgow and Clyde and the Parisian “red” suburbs of Saint Denis have transitioned from decaying industrial blue-collar shipyards, districts, and suburbs to a polymorphous archipelago of high-end residential and professional enclaves, advanced-services and city-spectacle centers surrounded by highly segregated and disadvantaged quarters. As in other Western European cities, the resulting urban landscape is fragmented into shrinking and fast growing areas, which are increasingly economically polarized and socially differentiated.

SLOW GROWING CITIES WITH LOCALIZED SHRINKING

The most widely known deindustrializing, shrinking cities in the US such as Detroit, Pittsburgh, Buffalo, Cleveland, Philadelphia, St. Louis, Chicago, and New-York-Newark, appear in Table 3 among “Slow growers,” i.e., agglomerations growing at .06 to .09 percent per year. Alongside these cities, two California agglomerations, Los Angeles-Long Beach-Santa Ana and San-Francisco-Oakland also emerge. While urban decline in the North Atlantic Seaboard and Great Lakes region has been amply documented, less is known about urban decline in these two California metros, which until the end of the 20th century were top centers of global capital investment, with high concentration in banking, finance and corporate management and new

economy businesses. Their growth was stunted by the real-estate boom and the recessionary effects of the early 2000s dot-com debacle, which drove a large number of middle class residents to seek housing and employment in other states. Thus, Los Angeles and San Francisco metropolitan areas have been subject to selective deindustrialization. In the view of one observer, Los Angeles' economy "has tanked faster than that of the nation, with unemployment now close to 10%. The port appears in decline, the roads in awful shape and the once potent industrial base continues to shrink... Particularly hard hit has been its base of middle-class families, which continues to shrink [while] roughly one-fifth of the population depends on public assistance or benefits to survive" (Kotkin, 2009: n.p). The shrinking of San Francisco and Los Angeles are instances of the digital economy's vulnerability to finance crises, global capital volatility, and selective deindustrialization in a global economy that increasingly links and delinks urban places from global circuits of production, trade and finance (Castells, 1996; Sassen, 2001).

Together with these slow-growing American agglomerations in Table 3, we find metropolises from all over the world whose growth has been decelerating for some time. In Western Europe we encounter Helsinki, Stockholm, Munich, and Lisbon, and a variety of Post-Socialist cities spanning a vast territory starting in Eastern Europe with cities such as Sofia, Bulgaria and Kiev in Ukraine and extending as far as Euro Asia with cities such as Baku in Azerbaijan and Almaty in Kazakhstan. In Asia, Chinese metallurgical and mining cities, such as Fushun and Benxi in Lianoning province in China's Rust Belt region, have been losing population to outmigration as a result of plant closings from China's efforts to revitalize old, moribund, and inefficient heavy industries in its north-east region (Asia Times, 2003; Wu, 2009). In South Korea, cities like Gwangju, Daejeon, and Ulsan are also slowing down, but without the absolute population losses experienced by Seoul (since 1990), Busan (since 2000), and Daegu (since 2000), where explosive metropolitan growth at the edges contrasts with steep shrinkage at the urban cores (National Atlas of Korea, 2009; Kim and Chung, 2004).

In Oceania, in Australian cities like Sydney and Adelaide a growing centralization of the affluent population has been accompanied by a selective dispersal of the poor population to the outer suburbs, which have been the areas most vulnerable to deindustrialization. In sharp contrast with the pattern of decline in old American shrinking cities, where decline has occurred in the inner city, Australian and Asian cities have tended to concentrate wealthy residents at the core and poor ones in middle and outer suburbs where minority

Table 3. (Continued) Slow growing agglomerations of the world, 2007

Urban agglomeration	Country	Population (millions)			Average annual rate of change		Population residing in		2005-2010 pct points difference
		1975	2007	2025	2005- 2010	2020- 2025	total population	urban population	
<i>Slow growers</i>									
Rosario	Argentina	0.9	1.2	1.4	0.8	0.5	3.0	3.3	0.3
Buenos Aires	Argentina	8.7	12.8	13.8	0.8	0.2	32.4	35.2	0.7
Adelaide	Australia	0.9	1.1	1.3	0.6	0.7	5.5	6.2	-0.1
Sydney	Australia	3.0	4.3	4.8	0.8	0.5	20.9	23.6	0.3
Baku	Azerbaijan	1.4	1.9	2.2	0.7	0.8	22.3	43.2	-0.2
Minsk	Belarus	1.1	1.8	1.9	0.8	0.0	18.6	25-5	0.8
Sofia	Bulgaria	1.0	1.2	1.2	0.8	0.0	15.5	21.9	0.8
Fushun, Liaoning	China	1.1	1.5	1.9	0.8	1.3	0.1	0.3	-0.5
Yongzhou	China	0.9	1.0	1.3	0.8	1.4	0.1	0.2	-0.6
Benxi	China	0.7	1.0	1.3	0.9	1.4	0.1	0.2	-0.5
Leshan	China	0.9	1.2	1.5	0.9	1.4	0.1	0.2	-0.5
Nampo	Dem. People's Republic of Korea	0.2	1.1	1.3	0.7	0.7	4.7	7.6	0.0
Helsinki	Finland	0.6	1.1	1.2	0.8	0.4	21.1	33.6	0.4
München (Munich)	Germany	1.3	1.3	1.3	0.7	0.0	1.5	2.1	0.7
Almaty	Kazakhstan	0.9	1.2	1.4	0.8	0.7	7.8	13.6	0.1
Monrovia	Liberia	0.2	1.0	2.1	0.8	3.4	27.8	46.7	-2.7
Ciudad de México (Mexico City)	Mexico	10.7	19.0	21.0	0.8	0.3	17.9	23.2	0.5
Dar-el-Beida (Casablanca)	Morocco	1.8	3.2	3.9	0.8	1.2	10.2	18.3	-0.4
Lisboa (Lisbon)	Portugal	2.1	2.8	3.1	0.9	0.2	26.5	45.0	0.7
Ulsan	Republic of Korea	0.2	1.1	1.1	0.6	0.0	2.2	2.7	0.6
Gwangju	Republic of Korea	0.6	1.4	1.5	0.8	0.0	3.0	3.7	0.8

Daejeon	Republic of Korea	0.5	1.5	1.5	0.9	0.0	3.0	3.7	0.9
Stockholm	Sweden	1.0	1.3	1.3	0.6	0.3	13.9	16.5	0.3
Kyiv (Kiev)	Ukraine	1.9	2.7	2.8	0.6	0.0	5.9	8.6	0.6
New York-Newark Los Angeles-Long Beach-	United States of America	15.9	19.0	20.6	0.7	0.3	6.2	7.6	0.5
Santa Ana	United States of America	8.9	12.5	13.7	0.7	0.3	4.1	5.0	0.4
Detroit	United States of America	3.9	4.1	4.6	0.8	0.5	1.3	1.5	0.3
Philadelphia	United States of America	4.5	5.5	6.1	0.8	0.4	1.8	2.2	0.4
Chicago	United States of America	7.2	9.0	9.9	0.9	0.4	2.9	3.6	0.5
Pittsburgh	United States of America	1.8	1.8	2.1	0.9	0.6	0.6	0.17	0.3
Buffalo	United States of America	1.0	1.0	1.2	0.9	0.7	0.3	0.4	0.2
St. Louis	United States of America	1.9	2.2	2.5	0.9	0.6	0.7	0.9	0.3
San Francisco-Oakland	United States of America	2.6	3.5	3.9	0.9	0.5	1.1	1.4	0.4
Cleveland	United States of America	1.8	1.9	2.2	0.9	0.6	0.6	0.8	0.3
Taskent	Uzbekistan	1.6	2.2	2.9	0.8	1.9	8.0	21.7	-1.1

Source: UN (2008), Economic and Social Affairs, Population Division.

and poor immigrants congregate. This has been partially the result of relocation of poor population to the periphery to make way for major redevelopment and urban renewal projects, such as Darling Harbour in Sydney (Robinson *et al.*, 2001; Baker *et al.*, 2000; Pacione 2005). These projects were undertaken as remedy to the shrinking inner city and industrial port facilities, which by the 1970s had decayed into empty warehouses and underutilized railroad tracks. Like Baltimore's waterfront redevelopment in the U.S. or that of the docklands and old wharfs of Glasgow and London, Darling Harbour in Sydney became an international symbol of successful urban waterfront regeneration with its concomitant displacement of poor populations.

As described in Chapter II by Cristina Martinez-Fernandez in this volume, urban shrinkage in Australian capital metropolises (e.g., Sydney and Adelaide) has followed a modified "doughnut" pattern with shrinkage found predominantly in the middle or inner suburbs surrounding the central city, while wealthy residents occupy the center. However, the most striking shrinkage has characterized smaller towns or clusters of small towns in rural regions suffering prolonged droughts—attributed to climate change. Another type of shrinkage is found in industrial centers typically affecting industrial and mining small- and medium-sized cities whose cycles of growth and decline have been pegged to the ups and downs of manufacturing and mineral global markets. Technological change has played an important role as well. Martinez-Fernandez's chapter focuses on Broken Hill, and Mt Isa—as case studies of industrial decline in remote mining towns in New South Wales and Queensland—and on Whyalla—a remote steelworks manufacturing center in South Australia.

URBAN SHRINKAGE IN THE SOUTH: AFRICA AND LATIN AMERICA

Next to the West African city of Monrovia in Liberia, Latin American cities such as Mexico City, and Buenos Aires and Rosario in Argentina appear as metropolitan areas whose growth is slowing down. Monrovia's current growth rate of 0.8% per year is temporary, since it is expected to grow at the rate of most African primate cities at 3.45% per year in 2020-2025, but it does illustrate that urban shrinkage in Africa—often a consequence of a reversal in the direction of rural-to-urban migration resulting from war, disasters, or civil conflicts (Kamara, 2005-2009)—is more transitory than in other world regions. Nevertheless, urban shrinkage in African countries is as susceptible to episodic deindustrialization as Latin American countries. Latin American

manufacturing exports have declined as a result of global competition, foreign export penetration, and displacement by Asian manufactures. Soaring resource and primary commodity exports to China have also tended to raise exchange rates, making domestic manufacturing sectors less competitive (Kaplinsky and Morris, 2006).

This last topic is broached in Ivonne Audirac's Chapter III in this volume, which argues that China's ascension in the world economy marks a second phase in the unfolding of globalization, since the fall of the Berlin Wall. Audirac offers a comparative overview of urban shrinkage in the North and South within a long-wave-cyclical framework of growth and decline driven by watershed changes in the nature and geography of industrial production –globalization being a key dimension of such change. Audirac argues, based on the latest scholarly research, that in the current phase of globalization, Latin American cities heavily inserted in the global circuit of production via value chains, are prone to experiencing bouts of suburban and periurban shrinkage as illustrated by Guadalajara's electronics and computer industry. Dubbed as "Mexico's Silicon Valley" due to the emergence of a domestic cluster of contract manufacturers organized around computer and electronics multinational corporations (i.e., IBM, Hewlett Packard, Motorola), the Guadalajara cluster progressively disappeared as value chains reorganized and foreign multinational contract manufacturers displaced the domestic ones. The reorganized global value chains relocated their operations to Asian cities in order to take advantage of China's comparative advantage.

LATIN AMERICAN INDUSTRIAL SUBURBS

Sergio Torres Moraes Chapter IV draws attention to São Caetano do Sul, an industrial suburb of São Paulo located in the ABC region,⁴ a region considered the cradle of the Brazilian automobile industry and labor movement. Since the 1950s, major foreign automobile manufacturers, such as VW, Mercedes and GM, established plants in this area near port and railroad infrastructure. São Caetano and the ABC region illustrate how the improvement of the Brazilian highway system in the 1960s prompted a first industrial relocation away

⁴ The acronym corresponds to the three cities in the region: Santo André, São Bernardo do Campo, and São Caetano do Sul.

from railroads to roads resulting in São Caetano's first urban restructuring. A second transformation took place in the 1980s, as Brazil liberalized import substitution policies and the automobile industry responded by relocating existing plants and establishing new plants in towns and cities outside the ABC region. In the aftermath, São Caetano faced mass outmigration of blue-collar jobs, negative population growth rates, vacant land, and idle facilities, including public schools. Meanwhile, the affluent population that remained has been aging and having fewer children. Despite democratic urban planning mandated by Brazilian legislation (known as the "statute of the city") and despite unique Brazilian-style inter-municipal initiatives in the ABC region, little has occurred regarding improvement of the conditions of low income populations in cities like São Caetano, where speculation in high-end real estate markets is on the one hand displacing poor residents, and on the other hand, hindering the reuse of industrial vacant land and decaying facilities.

In Chapter V, Sergio Flores Peña describes the evolution of Mexico City's industrial and residential suburbs of Naucalpan, Estado de México, a municipality located in the north-western region of Mexico City Metropolitan Area (MCMA). Flores Peña asks whether the historical infrastructural, sociospatial, and economic advantages conferred to Naucalpan by growth machines spearheaded by past Mexican presidents in the 1950s and 1960s and the resulting modern residential, commercial, and industrial agglomeration have been strong enough to withstand the economic challenges brought about by structural adjustment programs and Mexico's integration into the global economy. Flores Peña's thesis is that Naucalpan's strategic location within the MCMA in terms of transportation logistics, water supply, and access to national and Latin American markets, as well as its knowledge economy have shielded it from the potential urban shrinkage associated with industrial restructuring. Despite recent plant closings and losses in manufacturing, multinational corporations keep relocating operations to Naucalpan, which boasts a vibrant commercial center and high-end real estate markets, albeit surrounded by "popular" low-income and poor residential areas and a highly dynamic informal sector that bulges during economic crises absorbing the displaced and unemployed. Flores Peña's chapter concludes with a note of caution regarding premature or misinformed characterizations of urban shrinkage in places like Naucalpan, which rather than shrinking in economic activity are shedding off obsolete manufacturing functions and evolving into more advanced producer service centers.

THE LATIN AMERICAN CENTRAL CITY

The City of Panama offers an interesting case of revitalization of the central city, which in Latin America typically houses historic districts dating back to the 16th and 17th century Spanish and Portuguese colonial urbanization. Although their informal sectors have remained strongholds of economic activity, over the last forty years Latin American central cities have declined as centers of formal employment in industry and commerce (Gilbert, 1996; Ward, 2004). Beginning in the 1960s, as jobs and the affluent population suburbanized, the central city began to depopulate and deteriorate. Although not at the levels typically experienced by American cities, a similar process of outward migration of the affluent population and reoccupation by lower income populations has been at work. Loss of affluent residents to the suburbs began a filter-down process of the “elite” housing stock whose landlords converted to tenements known as “vecindades” and “casas de cuartos” and rented them to lower-income tenants. In many cities, public administrations often passed laws freezing rents, which precipitated a further deterioration of properties and landlord disinvestment. In the 1970s, the pendulum swung back, and several cities embarked in urban renewal programs aimed at eradicating overcrowded tenements –often hotbeds of crime and vandalism, albeit the only sources of affordable housing for poor city dwellers. Although such urban renewal schemes faded away during Latin America’s lost decade in the 1980s, UNESCO’s recognition of many Latin American historic districts as World Heritage Sites (WHS) in the 1990s unleashed a wave of public-private-partnership-based redevelopment projects and real-estate speculation. As described by Ariel Espino (in Chapter VI), Panama City’s historic center once recognized as a UNESCO WHS, began to attract the interest of developers leveraged by tax incentives, low-interest loans, and a new law that facilitated the eviction of tenants. However, rather than wholesale mass evictions, a complex informal process of negotiated evictions, compensations and relocations ensued between tenants, landlords, developers and the government. Predictably, urban shrinkage in 15% of the historic center became a byproduct of a speculative process and shady deals with vacated properties, whose owners never intended to rehabilitate and which in the end remained vacant and dilapidated. Ariel Espino describes the new policy and planning interventions that have sought, since 2004, to remedy these problems by penalizing vacant property holdings, providing affordable housing, and adopting bottom-up local economic development strategies.

LATIN AMERICAN URBAN SHRINKAGE: INSTANCES OF LOCAL AND REGIONAL RESTRUCTURING IN WEST CENTRAL MEXICO

Turning to migration flows in the West-Central region of Mexico, which encompasses nine states, Jesús Arroyo Alejandre and José Manuel Arroyo discuss, in Chapter VII, the influence that the socioeconomic development level of the region's municipalities have over the flows of inter-state and cross-border migration to the US. They find that US immigrants from this region are typically from higher-developed jurisdictions –rather than from the poorest and least developed ones– and that a perceived gap in economic opportunities between their community of origin and those found in the US is what motivates them to migrate even when they may enjoy a higher quality of life than their non-migrant counterparts. Arroyo Alejandre and Arroyo hypothesize that a demonstration effect, facilitated by telecommunications such as TV and the Internet, may be at work and may induce individuals to rely on historically established migration networks and flows in pursuit of a perceived better future across the border in the US. In terms of population shrinkage, they find that small towns in the West Central region keep losing population to the larger cities in the same region. Thus, they assert that in contrast with American and European reported cases of urban shrinkage, the pattern observed in this region of Mexico is that of rural rather than urban shrinkage. With the exception of the central cities of Guadalajara and Salamanca, which have been losing population to suburbanization for quite some time, the largest cities in the region keep growing, albeit at a slower pace.

In Chapter VIII, Raquel Partida Rocha discusses regional development in Mexico associated with the so-called Mexico's Silicon Valley located in the Guadalajara Metropolitan Area (GMA). She observes that with the increasing growth of the electronics industry in the GMA during the 1980s, the city had to adapt its industrial base to meet the needs of foreign markets. Partida Rocha's hypothesis revolves around the fact that local governments believed that the success of the massive exporting of goods manufactured by the electronics industry would have to be long lasting. Nevertheless, as illustrated by her study, the trade liberalization process undertaken by the Mexican government and the emergence of China as a key player in international trade had a negative impact on the economy. The closing of transnational electronics firms and the consequent job loss among low-skilled workers were some of the observable results. In this chapter, Partida Rocha seeks to explain the de-industrialization of the electronics industry located in the GMA in the

face of tougher competition from China and the possible emergence of a diversified information technology cluster in Guadalajara.

In Chapter IX, José Guadalupe Vargas Hernández elaborates on the economic and environmental impacts resulting from the privatization of a paper-manufacturing mill in the Mexican locality of Atenquique (in the state of Jalisco, Mexico). According to Vargas Hernández, Atenquique's transformations, after the industrial boom experienced by the state-owned paper company during the second half of the 20th century, were the outcome of economic processes brought about by globalization. The chapter focuses on the effects of globalization on the former employees of the paper company. As illustrated by Vargas Hernández, Atenquique's birth and growth in terms of population and socio-economic development were highly dependent on the paper company, which was initially state owned. After privatization of the paper firm, Atenquique—and the surrounding towns—saw a decline in population and economic growth, coupled with a deterioration of the environment.

The last chapter of this book offers a specific case study of an entire city's decline economically and demographically and clearly shows that the shrinking cities phenomenon is not exclusive to great metro areas. It further stresses the need for more research that helps understand the development processes of different types of urban agglomerations together with the interactions that take place within the regions in which they are located.

As a final consideration, it must be noted that to better understand phenomena such as shrinking cities, we need to study, as noted by Isard (1956: 287), "the propensity of men towards intricate forms and patterns of group existence, and into the socio-psychological and biological forces that, together with economic and other forces, govern the spatial patterns of population settlements". We also have to take into consideration the different socio-economic integration processes that have taken place in the last decades. That is, in an increasingly globalized world, urban and regional analyses can no longer rule out those interactions, as illustrated in several chapters of this book.

ENVOI

The collection of work gathered in this volume endeavors to advance the knowledge of shrinking cities beyond the traditional focus on American and European urban decline by including cities and regions in the South. The

contributions in this volume examine shrinking cities from a variety of perspectives; they draw parallels and similarities between the North and the South, but also emphasize the differences between the industrialized North and the industrializing South. In this introduction we have tried to provide a panorama of current urban manifestations of growth and decline including those presented in this book.

We used 2007 UN data on population and growth rate for the world's agglomerations of one million or more inhabitants as a backdrop for identifying metropolitan areas of the world which are growing very slowly and those which are stagnant or shrinking. In this tour around the world, we noticed that a combination of industrial restructuring and full demographic transitions with the graying of the population characterize shrinking, stagnant, and very slow growing cities in Western Europe, Japan and Post-Socialist cities (the latter stemming from the breakup of the Soviet Union). We also observed that among cities that are growing slowly, Los Angeles and San Francisco metropolitan areas exhibit a new type of shrinkage associated with selective deindustrialization and the recent shakeup of the new digital economy. In Asia we noted that agglomerations in China's north eastern Rust Belt are also shedding people as a result of China's restructuring of its heavy industry and that South Korean cities reveal the typical doughnut pattern of urban shrinkage in the central cities while experiencing exuberant growth at the fringe. This familiar pattern is present in Latin American cities like Mexico City and Guadalajara, but it is somewhat different in Australian capital cities, where the urban cores have retained affluent populations, while the inner suburbs have concentrated poor urban dwellers.

The contributions gathered here offer cases of urban shrinkage as "symptom" and "remedy" dispersed in three continents: Latin America, Europe, and Oceania. From Glasgow, UK and Paris, France to Panama City and Guadalajara, and from Mexico City and São Paulo to Atenquique, Mexico and Mount Isa, Australia, one conclusion can be drawn: that the futures and fortunes of megacities, large cities and towns in the North and South are increasingly intertwined in a global economy whose center of gravity has shifted from the North Atlantic to the Pacific Rim. A second conclusion is that urban growth and decline are intrinsically related as the "yin and yang" of cities. Intra- and inter-city migratory flows as well as international flows of population respond to a complex set of push and pull factors that requires a city-region or even a megaregion as a scalar framework, rather than the old urban-rural or urban-suburban dichotomies, in

order to better understand and manage growth and decline. A third conclusion is that, in spite of Latin American urban shrinkage being qualitatively and quantitatively different from that experienced in the U.S. and Europe, it nonetheless bears similarities in its spatial manifestation. The doughnut shape of the post-industrial metropolis depicts population loss in the inner city—usually the old, built-out part of the city subject to deterioration and decay, where poor dwellers can afford to live, but where high levels of crime also persist—while the city keeps growing and expanding inexorably at the edges. However, unlike their Anglo-American counterparts, Latin American as well as some Asian cities possess bustling downtowns sustained by vigorous informal economies and culturally rich historic centers, which tend to suppress the “raze” and “rebuild” thrust often invoked as remedy to shrinking cities. Instead of evicting, relocating and bulldozing schemes, redevelopment through community involvement and upgrading seem to result in more adequate and just interventions.

Inevitably, given the contributing authors’ research, a considerable portion of this book focuses on Latin American cities with a geographic emphasis on Mexico and Mexico’s West Central region. The content gathered here stems from papers presented and discussed in the research seminar “Shrinking Cities South/North” held in Florida State University on July 14-15, 2008 at the DeVoe Moore Center. The seminar was organized by Ivonne Audirac and sponsored by Florida State University’s College of Social Science and the Department of Urban and Regional Planning.

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PART 1

URBAN SHRINKAGE: SOUTH AND NORTH CONTRASTED

I. DE-INDUSTRIALIZATION AND ECONOMIC RESTRUCTURING: THE CASE OF TWO EUROPEAN SHRINKING CITIES¹

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Sylvie Fol**

The paper examines two cities –Paris in France and Glasgow in the UK– where the effects of de-industrialization are evident in a profound, but irreversible, way. The paper discusses first de-industrialization and its impact on urban areas, followed by an examination of the patterns of urban shrinkage and how the shrinkage has occurred in Glasgow and the Paris regions. Finally, it draws conclusions about the social aspects related to the ways the shrinkage has been managed.

DE-INDUSTRIALIZATION AND ITS IMPACT ON URBAN AREAS

De-industrialization has a profound impact on the social and spatial structures of urban areas. It involves massive transfer of capital from production economy to other sectors of the economy. Besides, it is accompanied by geographical shift of the former working-class residential areas to more attractive areas. While the central areas are, up to a point, re-occupied, along with the process of “gentrification”, the former industrial areas undergo continuous decline, as a result of economic restructuring and the racial and social characteristics of the working populace (Smith *et al.*, 2001).

In Europe, as in the USA, the new modes of accumulation of capital linked to the new high-tech sector investments with large added values, produce spatial patterns in urban areas that are characteristically polycentric (Champion, 2001; Audirac, 2005). In this new spatial configuration, the

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future of the older industrial areas continues to be uncertain. Smith *et al.*, (2001) show that the economic attractiveness of urban areas is strongly linked to a process of what they call “uneven development”, where social issues are of crucial importance.

The post-Fordist conversion of local production systems and their urban territories was accompanied by the appearance of poles of attraction within regional spaces, leading to accentuation of territorial imbalances. While the most emblematic centers (“*pôles d'excellence*”) have gained from these re-structurings in the last thirty years, certain long-standing industrial territories continue to remain as de-structured urban zones, where social differentiation among different zones has become more marked (Beckouche, *et al.*, 2001). Inequalities keep increasing in ever finer geographical scales, while a dynamic economy and precarious social status can coexist within the same territory. Former industrial areas are indeed caught up in a dual movement, one involving the “recycling” of the best-located sites leading to changes in the local economy and social composition, and the other involving de-valuation of less attractive spaces leading to concentration (or “polarization”) of the least well-off populations in certain zones (Haumont and Lévy, 1996). The economic development of certain privileged areas is accompanied at some places by concentration of unemployment and social problems, and at other places by marked pauperization. All this leads to a process of social and spatial fragmentation within the territory of a given *commune* or administrative district, wherein dilapidated quarters of impoverished people that are often on the fringes of the town are juxtaposed with quarters that have been re-occupied by middle- and upper-class populations, generally in town centers or nearby areas.

PATTERNS OF URBAN SHRINKAGE IN FRANCE AND GREAT BRITAIN

While city shrinkage is a common phenomenon in many countries in Western Europe, it takes a variety of forms depending on national, regional and local factors. The cities of France and Great Britain are clear examples of variations in shrinkage pattern.

Between 1990 and 1999, population growth in France remained high at the national level, although it slowed down a little when compared to that of the 1982-1990 period. The growth rate of 0.36% per year is among the highest in Europe. However, the 1999 census reveals that at the sub-national

level, about one-third of French urban areas shrank between 1990 and 1999 or, in other words, 112 out of 361 urban areas¹ lost part of their population (Julien, 2000).

The urban areas of France that undergo shrinkage are of three types. The first type comprises large urban areas whose decline is clearly the result of de-industrialization. Among the 52 large urban areas in France,² only 8 are shrinking, and almost all of them are located in declining industrial regions, such as Lorraine, Nord-Pas-de-Calais and Haute-Normandie. Economic development in these shrinking cities is traditionally based on mines, port industries, or some other industry. The crisis that occurred in these industrial sectors has led to economic, social, and demographic decline.

Most of the shrinking cities in France, however, belong to the second type, which comprises small urban areas.³ These are located in the middle of the country, from the Ardennes in the North to the Pyrenees in the South, passing through the Massif Central. In France, as in many other countries, urban growth is recently concentrated in littoral regions near the borders (especially Alsace and the Alps) where infrastructural facilities for transport are good. Growing urban areas are those located in the valleys along major roadways and linked by the TGV. Shrinking urban areas, on the other hand, are those which are isolated from infrastructure networks or urban networks. Most of them are located in the heartland of France.

The third type of shrinkage within urban areas is that in which the population of city centers declines and that of outer suburbs increases. This process, which is not peculiar to France, is mostly related to urban sprawl.⁴ This is particularly noticeable in fast growing regions such as those to the South of France (Bessy-Pietri, 2000). This type of shrinkage can also affect “first suburbs” —those places in industrial countries that were the first to develop after their city centers (Puentes and Warren, 2006). In France, these suburbs are characterized by strong industrial infrastructure and a large working class population, who lives in large housing estates called “*grands ensembles*”. The de-industrialization process, along with the “flight” of a large share of their inhabitants to the outer suburbs, led to a dramatic decline of these suburban towns in terms of demographic, economic, and social evolution.

² The largest urban areas are those with a population of more than 150,000 inhabitants.

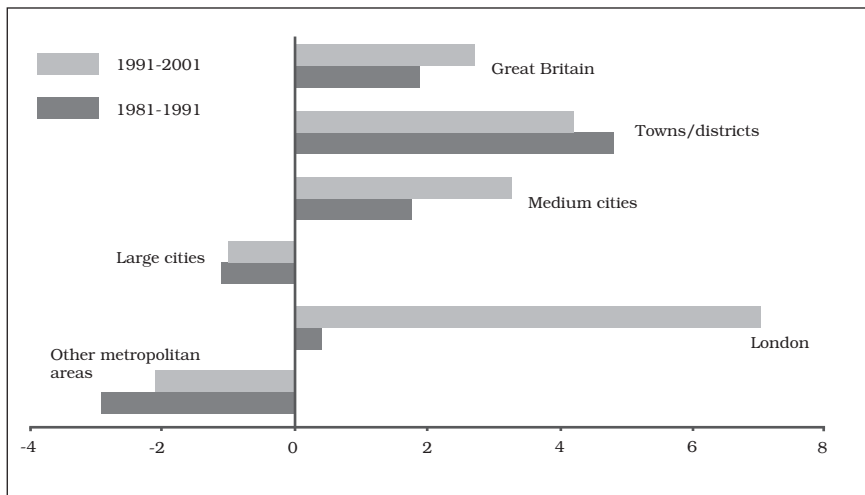
³ Most of them have less than 50,000 inhabitants.

⁴ In a number of urban regions, the growth of urban peripheries has been fed by the urban core's decline (Beauregard, 2003; Squires, 2002).

Great Britain is now a country of net immigration, with particularly high increase of population in London and many other settlements in the southeast. In England, the areas affected by shrinkage are the clusters of metropolitan and/or industrial areas in the middle and northern parts of the country; in Scotland, they are in the central belt and also, as in Wales, in certain peripheral areas such as the islands. While Scotland is most significantly affected by this decline, especially in Greater Glasgow and the Western Isles, the southern and southeastern parts of England show little signs of shrinkage because, with the exception of London, this area is made up of small rural and mixed/rural districts. The divide between the prosperous southeast and the deprived northwest has long been studied by British geographers (Bovaird, 1993; Massey, 1984; Massey and Allen, 1988). This skewed development, in terms of both economy and population, has now worsened, particularly in industrial sectors, because of economic downturn.

According to Lupton and Power (2004) and ODPM (2006), the urban population of Great Britain can be divided into four kinds of settlements:

Evolution of population 1981-2001



1. Major “Metropolitan Areas” that could also be called Conurbations. They include both the major metropolitan cities and their hinterlands. Their population is between 1 and 2.5 million. Eight of these metropolitan areas, including London, have experienced the biggest population growth. Of the remaining seven, six are shrinking.

2. Other Large Cities (“freestanding cities” such as Edinburgh or Nottingham). There are 14 such cities and their populations range from 150,000 to 450,000. They are typically large industrial centers or ports. Of the 14 large cities, 8 are shrinking.
3. Medium Cities. These can be small industrial centers, educational centers (like Oxford or Cambridge), or urban settlements serving rural hinterlands. They are places of growing population. There are 17 such Medium Cities.
4. The remaining are local authorities, towns, or districts that could not be elevated to city status because of their small size. They include new towns, seaside resorts, small industrial towns, and towns in rural areas. These are also places of growing populations.

THE EFFECTS OF DE-INDUSTRIALIZATION IN GLASGOW AND PARIS REGIONS

In France, as well as in Great Britain, certain municipal districts (*communes* in France) have entered into fierce competition for investment, a contemporary form of competition worldwide (McLeod *et al.*, 2003). Some towns have changed in a spectacular way in just around 15 years: they have mutated from declining industrial, working-class towns into shining examples of a dynamic model of local development based on international investments and promotion of certain leading activities (Fol and Sabot, 2003).

Glasgow: A post-industrial city

In Glasgow, former industrial areas witness considerable investment, via the conversion of abandoned industrial premises (where there are still communities of inhabitants with high rates of unemployment) into recreational space and housing where the cost of floor space is extremely high (Sabot, 1999).

After a period of spectacular economic development, various industries in Glasgow bore the full brunt of post-Fordist change, as evidenced by its becoming the biggest shrinking city in Europe, economically and demographically, in the 1970s and 80s. The population of Glasgow declined by 50% over the last 50 years, because of economic as well as demographic reasons: a low birth rate, a high death rate and emigration (for economic reasons, but also

because of the creation of new towns around Glasgow, which reinforced the demographic and economic decline of the city).

Within two decades (1965-1985), the world-renowned Clydeside ship-building industry saw most of the shipyards closed down, following the demise of many of their sub-contractors. Consequently, there had been massive unemployment, and drastic drop in population. Besides, the whole area presented a ghastly appearance with a scattering of expansive industrial wastelands and abandoned commercial enterprises. This led to unprecedented decline in population, closure of schools, loss of social infrastructure, and the break-up of the historical community.

Between 1950 and 1996, total employment in Glasgow fell from 559,000 to 326,000 (its lowest figure) with the industrial sector losing 90% of its jobs. Only one shipyard survives today though under constant financial threat. It belongs to the trans-national BAE Systems-Surface Fleet solutions, specialized in the restricted, but highly political, market of design and construction of warships. Staff numbers keep fluctuating, subject to the vagaries of orders from the Royal Navy and other countries. The shipyard employs engineers and technicians, whose qualifications are far superior to those of the neighbouring population. Post-Fordist re-structuring of the areas, having connections with shipyards and heavy industries, has left in its wake sprawling areas of shrinking economy with a scattering of fragile islets of prosperity standing out as exceptions. The dual economic micro-spaces so created could be analyzed in accordance with the criteria proposed by Castells (2000, 2002). The advent of the information society –necessarily accompanied by spatial and social gaps in access to the networks– puts certain portions of a given space in “black holes” that are side-stepped by globalization, while others maintain their connection with the global space, although their future is constantly questioned. The evolution of the shipyards in Govan also signifies the impact of the globalization of production on a local area, and of the “vertical disintegration of transnational corporations, which are redefining their core competencies to focus on innovation and product strategy” (Gereffi *et al.*, 2005). According to the classification developed by these authors, this network relates to their last two categories: “captive value chains” on account of its narrow dependency with regard to buyers, and “hierarchy” on account of the great complexity of the finished product. These two positions are vulnerable, because they are not easy to maintain.

The other industrial wastelands (the docklands in this case), left behind by the closure of the shipyards, have slowly been rehabilitated under the authority of the city of Glasgow and economic development agencies. Numerous

prestige-industry zones have been created close to the city center, but they have not had much to offer in terms of jobs for the local inhabitants (except for cleaning and security jobs in the buildings). Wastelands, possessing strong urban potential (i.e. near the city center, with an attractive environment and good services), are reoccupied when the differential profit ratio (the difference between real and potential rental) is the greatest. This leads Smith (1979) to define this particular process of gentrification as a return of capital, not necessarily of population.

During the 1980s, the local authorities started a consumer-based recovery policy, based on retail development, tourism (hotels, restaurants), cultural industries (theater, music, arts, culture, media), and certain services like call centers (16,000 jobs in call centers), shared services, and public services (growth in education and services). Subsequently, employment rates did improve to reach 393,400 in 2004, but jobs in services had replaced those in industry, which then represented only 6% of total employment (Census).

Now population has stabilized with improvement in the birth rate. People from Eastern Europe are the largest source of immigration, and Glasgow welcomes asylum seekers. Also, a radical policy of outright gentrification on the banks of the Clyde, close to the city center, has been established by the Glasgow Municipality (Cunningham-Sabot, 2007). A series of high-rise luxury flats were constructed along the river, and former docks converted into marinas, where property prices are the highest in the area. Some are already complete and being lived in; others are still on the drawing-board. Local authorities, along with private sectors, have attracted a new type of population (professionals, engineers) by creating new housing schemes and new infrastructures. A new creative class is emerging and the city (its core) is no longer shrinking.

However, the new jobs and the qualifications they needed did not correspond to the jobs lost, and certain quarters of the city experienced structural unemployment that lasted for several generations, to which can be added other classic characteristics of multi-deprived areas (Pacione, 2004). It is a more polarized city: social and geographical improvements have not benefited all. Gaps are wider between the poor and poorly educated and some multi deprived areas are endemic. One of every five school leavers is in the NEET group (Not in Education, Employment or Training). Male life expectancy is 69 years in Glasgow (the worst in Scotland), but only 54 years in certain neighbouring localities, like Calton, in the East End of Glasgow, which is seven years less than that in Iraq. In Calton, 44% of the population is on incapacity benefit, 37% lives in a workless household and 30% of homes are occupied by a lone parent. Glasgow has about 15,000 intravenous drug users.

The restructuring of Paris industrial suburbs

In the 1960s, in Ile de France (Paris) area, industry moved progressively away from the capital city and the inner suburbs (Beaujeu-Garnier and Bastié, 1967). The loss of jobs in industry was compensated, at least initially, by creating jobs in services. This did not happen in a linear manner: while Paris lost jobs, the first and second suburban rings gained jobs. In addition, these movements affected different categories of workers in different ways. The jobs that were lost concerned production workers, while the jobs created had more to offer to the service branches of industry. In traditionally working-class territories, therefore, a big gap developed between the levels of qualification required for the new jobs and the qualifications of the resident populations. This ever-widening gap led to structural unemployment, which affected particularly the towns in the former “red” suburbs.

The town (*commune*) of Saint Denis developed later than Govan, at the end of the 19th century, housing large enterprises of metal-working, textile and chemical industries. It is one of the most densely populated towns of the Parisian inner suburban ring. Situated to the north of Paris, its early industrialization in relation to the rest of the Paris area enabled the creation of good transport facilities, along with ample land availability in the zone bordering Paris (known as the Plaine Saint-Denis). The population of Saint-Denis increased rapidly, approaching 100,000 toward the year 1950. In Saint-Denis, the shift of business began earlier than in the rest of the Paris area, and affected the main sectors of activity, such as heavy industry which was the main source of economy. From the early 1960s, the town entered a period of early, very pronounced de-industrialization. In the Paris area, heavy industry and large units were the first to be affected by their relocation in provincial areas (Beaulieu-Garnier and Bastié, 1967). However, not all the sectors of the local economy were affected by this relocation, because new business units were set up in Saint-Denis, around the same period, in the service sector. Thus, a full-scale reshaping of the economic landscape of the town was facilitated.

These changes obviously had considerable repercussions on employment. From the 1970s, this shift towards service activities became even more marked, but it was unable to compensate for the loss in industrial jobs. Between 1975 and 1992, the number of workers employed in industry decreased by about two-thirds. In the same period, the overall salaried workforce decreased by about 25%. The share of large firms in overall employment decreased markedly. The changes in the local job market profile, pushed the local residents into a disadvantageous position, because the newly created

local jobs required higher qualifications and greater skills than what they possessed. Also, the resident population was younger than the population commuting there to work. Thus in the 1999 census, of the 21% executive and managerial jobs, only 8% were given to residents. Blue collar jobs and low-grade white collar jobs constituted respectively 27% and 21% of the jobs on offer in Saint Denis, while these categories of workers accounted for 37% and 30% of the working population in Saint Denis. This discrepancy led to an increase in unemployment rates. While in 1982 Saint-Denis had about 5,000 unemployed, their number reached 6,500 in 1990 and 8,500 in 1999; that is to say more than 20% of the working population. Unemployment and precarious social status concerned mostly the young people (under 24 years), of whom 30% were immigrants and unemployed.

Changes in employment patterns were accompanied by profound changes in the population and in the town's social structure. Between 1968 and 1999, Saint-Denis lost more than 13,000 inhabitants. This loss was linked to growing migration of residents. The number of migrants increased from around 1,000 between 1962 and 1968 to 14,000 between 1990 and 1999. In the 1954 census, the worker (blue collar) population, whose proportion had not altered since 1936, was still 60% of the resident working population. However, changes in the population of Saint-Denis began in the early 1960s with the blue collar group giving way to low-category white-collar jobs, and to a lesser degree to highly qualified jobs. In 1999, the proportion of blue collar workers had fallen to less than 30%. In Saint Denis, non-French population was 12% of the total population in 1954, and more than 26% in 1999 (INSEE, 1999).

CONCLUSIONS: THE SOCIAL IMPACTS OF DE-INDUSTRIALIZATION AND URBAN SHRINKAGE

In the context of tense property markets, the inner suburbs of Glasgow and Paris were undergoing profound changes. The areas, which were once bristling with industrial activities and working-class population, are now gradually fragmenting. They are caught, on the one hand, in a process of growing pauperization, and on the other, gentrifying quarters with rising property values by virtue of their proximity to the city centers. Both these areas have been experiencing dramatic social imbalances. While the former working class is disappearing, except for the most underprivileged dwellers,

an influx of well-off population is occupying these spaces. The new service jobs that have been created have done precious little to solve the local under-employment problem. In Glasgow, as also in Saint-Denis, there is increasing polarization between the areas inhabited by the rich and those inhabited by the poor.

Former industrial cities have been caught up in a dual movement of social diversification and pauperization. Urban planning and economic regeneration, as conducted thus far, have not solved the problem of unemployment at the micro-local level. Local actors find themselves caught up in a dilemma between the implementation of anti-poverty strategies and the temptation of regeneration strategies based on modernization and the rise of the service economy. While some territories attract new investments, others continue to be the poorest in the urban region, struggling to deal with the consequences of socio-spatial fragmentation and tensions between economic redevelopment and social exclusion. However, as globalization and glocalization (Amin, 1994) fuel competition between cities for investment and skilled workers, rather than highlighting the social effects of de-industrialization, urban marketing of these places typically focuses on presenting glossy images of postmodernity.

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II. DE-INDUSTRIALIZATION AND DE-INNOVATION IN SHRINKING CITIES

*Cristina Martinez-Fernandez**

INTRODUCTION

This chapter aims to discuss de-industrialization as one of the main current shrinking processes in developed countries and to argue that disconnected innovation flows and the loss of innovative activity (de-innovation) can have a profound effect on the future of these cities.

The processes of de-industrialization and economic restructuring have affected developed countries in several ways, and it is at the local and regional levels that these effects are better understood. For most OECD countries, the transformation of industrial production into the knowledge economy has developed new industries, new business, and new forms of knowledge production and innovative activity. However, the fortunes of cities within these countries are far from homogeneous. While the most prosperous cities reap the benefits of globalization and the attraction of talent into a dynamic labor force, “shrinking cities” experience just the opposite – the negative effects of internationalization of markets, migration of production and the labor force, a weakened innovation system, and loss of city life vitality.

This chapter examines the demographic processes and patterns of shrinkage in Australia and then examines three cases of industrial center shrinkage: Broken Hill, Whyalla, and Mt Isa. It concludes that shrinkage of industrial centers often brings about an invisible and more profound demographic change than population migration, which is the loss of innovative activity. Indeed, innovative activity in industrial cities is not homogeneously distributed but heavily concentrated in the corporate site. Routes out of the shrinkage would need to increase the connectivity and innovation flows of indigenous business and the corporate site.

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PATTERNS OF SHRINKAGE IN AUSTRALIA

Shrinkage in Australia has peculiar characteristics, although it shares some of the elements we can observe in European cities. Australia has a current population of 21.8 million (ABS, Population Clock 21/08/09). Of this population 76.9% are Australian born and 23.1% are foreign born. Population growth in Australia significantly increased following the discovery of gold in 1851 and in the period immediately following World War II. These days, however, the fertility rate is low (1.76); this, combined with an increase in deaths from an ageing population, will result in the population growth rate falling below zero in the mid-2030s. Australia is one of the world's most urbanized countries: 85% of the population live in urban areas and 15% live in rural areas. Up to 70% of Australian land is arid and semi-arid; consequently, people concentrate in the coastal cities.

Demographic change in Australia is being driven by the following processes:

1. Capital city growth –Australia's capital cities are growing because of their real and perceived advantages in terms of employment and accessibility to services and amenities.
2. Coastal growth –The intense movement of people to coastal towns in the states of New South Wales and Queensland reflects the "glamour of the coast". More than 1.3 million people have moved to the corridor of the northeastern coastal strip of Australia since 1980 (Wahlquist, 1999).
3. Urbanization within regions –Chiefly inland "sponge" cities are benefiting from new residents moving in from their outlying towns. Dubbo in the state of New South Wales, Horsham in the state of Victoria, and Narrogin in Western Australia are examples of this movement.
4. Small town shrinkage –In the dryland wheat belt, 205 rural communities lost population from 1976 to 1997. Seventy of them suffered significant losses of up to 20% (Wahlquist, 1999). In 1999 alone, 245 Local Government Areas (LGAs) lost population (ABS, 1999). In many cases, these emigrants moved to nearby 'sponge towns.'
5. Youth migration –Among young people, there is a significant movement out of regional Australia into the big cities. This movement does not appear to be motivated by concern for jobs. In towns like Narrabri or Kalgoorlie-Boulder, there is a shortage of skilled labor even as youth migration continues. Up to 22% of Australian business owners in regional Australia are actively looking for staff overseas. The problem is

particularly acute in the mining centers in Western Australia (BRW, 2006: 60-61).

6. Fluctuation of mineral markets – Mining and related manufacturing centers in regional and rural Australia experience cycles of growth and decline as prices in international markets vary or because of changes in the corporate management of global mining assets.
7. Climate change – The effects of the worst drought in Australian history is influencing the mobility of farmers, who in some cases are abandoning the land with devastating consequences for Australian rural settlements and the sustainability of rural industries.
8. Policy change to government services – The reduction of government services and jobs in regional Australia is encouraging the mobility of individuals searching for better living conditions. Nearly 20,000 jobs were cut in the public sector between 1986 and 1996 in regional areas of the state of New South Wales alone (Wahlquist, 1999).

Population and employment change is more acute in remote and coastal regions, although it varies by state. Remote New South Wales, remote South Australia, and remote Tasmania have a negative balance, while coastal areas are booming. Some remote areas in Queensland, Northern Territory, and Western Australia are growing due to the mining sector boom (Garnaut *et al.*, 2001).

Examples of shrinkage are more common in areas outside the major cities, inner regional cities, and outer regional cities. However, some suburban areas of bigger cities have also experienced shrinkage. Three patterns of shrinkage can be identified:

1. Urban shrinkage is characterized by long-term population and/or economic decline of large cities or parts of large cities or metropolitan areas. It includes suburbanization change or the doughnut effect.¹ Examples of urban shrinkage are found in each Australian capital city and predominate in the middle suburbs surrounding the inner city (ABS, 1999, 2006c).

¹ A cake with a hole in the middle –with industries as well as the middle and upper classes leaving the downtown area, and the city’s wealth being located in the outer circle. This doughnut metaphor also describes the dramatic tax situation in the agglomeration with the population of the suburbs commuting to city to work, using its infrastructure and facilities, but not contributing through taxes.

2. Rural shrinkage is characterized by long-term population and/or economic decline of smaller towns or a cluster of small towns in a rural region. All states, except the Australian Capital Territory (ACT), have shrinking towns in their rural areas. Most towns are small agriculture or cattle-based communities, some with large farms suffering the effects of the prolonged drought. Australia is now in its worse drought condition on record, with low or no rainfall since 1999. Some larger towns have been particularly hard hit, such as Goulburn in New South Wales or Peterborough in South-Australia, which are regional centers and the trade base for primary industry products, education, and social life. Consequently, the impact of climate change is the greatest factor in their development right now.
3. Industrial center decline is characterized by long-term population and/or economic decline of small- and medium-sized cities servicing a mining site, a system of mining sites, mining settlements, or a manufacturing industry. Many of these cities experience periods of growth and shrinkage depending on international mineral and manufacturing markets.

Industrial center shrinkage

The dynamics of rural and industrial center shrinkage are poorly understood and not often discussed. Although most industrial centers share many of the characteristics observed in rural areas, such as remoteness, semi-arid lands, and water shortages, industrial centers have distinctive, quite unique features such as rich firm innovation systems that deserve to be discussed in more detail.

Three cases of industrial center shrinkage are further examined: Broken Hill, Whyalla, and Mt Isa. These cities were chosen because an analysis of aggregated data for each of the Census periods 1976-2001 and the most recent data for 2005 show that they suffered a severe population loss. These three cities are historical mining centers found in remote areas of the states of New South Wales, South Australia, and Queensland. Thus, the cities can well represent the 'typical' shrinking industrial city in Australia. Broken Hill and Mt Isa are dominated by mining activities while Whyalla is a manufacturing steelworks center. The shrinkage these cities experienced over the years is not homogeneous. All of them experienced periods of growth combined with periods of shrinkage mainly driven by changes in the resources industry or by price fluctuations in international mineral markets. The paradox for these

cities is that while their growth is limited by their remote location and the resulting gaps in services and transportation infrastructure, the impact of the internationalization of markets, new technologies, and knowledge migration can be even greater than experienced by the capital cities.

A distinctive characteristic shared by the three cities is the dominance of the local economy by one corporation. Broken Hill and Whyalla shared the distinction of being the location of the most iconic mining company in Australia: The Broken Hill Proprietary Company Limited (BHP), now BHPB after its fusion with the South African company, Billiton. The city of Mt Isa has been the base of the Mt Isa Mines (MIM) company for many years, until the facilities were acquired by the Swiss operator “Xstrata” in 2003. It is this parallel development path of these cities with the business cycle of their host corporations that differentiate them from other rural or urban shrinking cities and what also places them into the category of “corporate cities”. The parallel development with the hosted organization can be seen in the history of the city and its fluctuations in terms of population, employment, and economic activity. The result is a cultural footprint, quite unique, of corporate cities that could share more similarities with other corporate cities around the globe (many hosting the same multinational corporation) than with other types of shrinking cities in Australia.

Whyalla is a city on the western shores of Upper Spencer Gulf in South Australia, some 400 kilometres from the State capital, Adelaide. The Broken Hill Proprietary Company Limited (BHP) began to build a steelworks, harbour and blast furnace in 1915. At the outbreak of World War II the Australian Navy asked BHP to build shipyards next to the blast furnace site, and the first ship was built in 1941. This event marked the rapid development of Whyalla, with the first local government established in 1945. The end of the war that year brought changes again into Whyalla, and ships were now made for commercial purposes. In 1958 BHP decided to build an integrated steelworks in Whyalla and for nearly two decades the city experienced exponential growth. By the 1970s Whyalla’s population would reach more than 30,000 people; about 7,000 people were working for BHP. However, due to the ship-building slump in the late 1970s, the Whyalla shipyards closed down in 1978. The population declined to around 21,000 in 2005 (Whyalla City Council, 2006). The current operator of the Whyalla steelworks is OneSteel, and the facility is the engine room of OneSteel’s business, producing approximately 1.2 million tons of raw steel each year. These products service the construction and rail transport industries, with Whyalla Steelworks being the only manufacturer of rails in Australia (OneSteel, 2003).

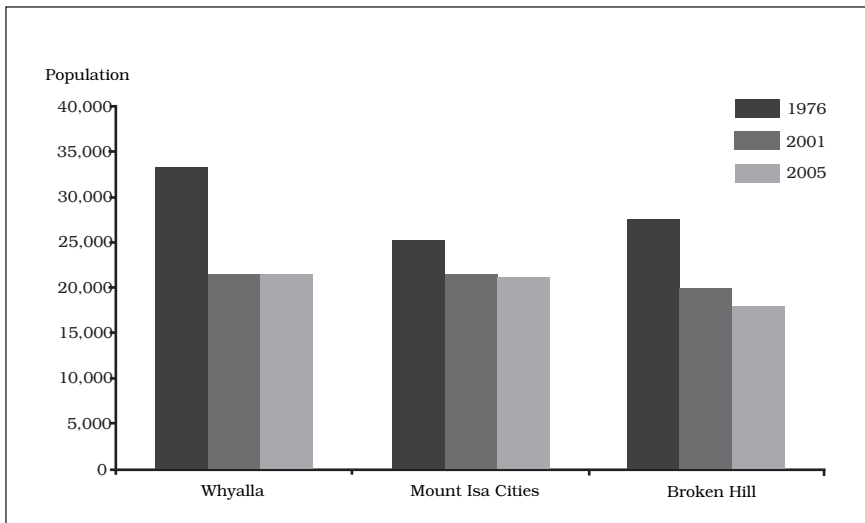
Broken Hill is the largest regional center in the western parts of the state of New South Wales, being 1,100 kilometres west of Sydney and 500 kilometers northwest of Adelaide. Broken Hill is Australia's longest-settled mining city, called over time variously as the "Oasis of the West", "Silver City" and the "Capital of the Outback". Mining has been the main industry since Broken Hill was founded in 1883; the famous BHP company (Broken Hill Proprietary) was founded in 1885 and it was the main mining operator until 1939. At its peak in 1952, the mining industry employed 6,500 people, with more than 30,000 people living in the city. Since then Broken Hill mines have been operated by 14 different mining companies and the population has steadily declined to an estimated 18,000 people in 2005 (Broken Hill City Council, 2006). Employment in the mining industry declined from 51.26% in 1954 to 7.57% in 2001, with less than 500 miners in the city now. Broken Hill once had the world's richest deposits of lead, zinc, and silver; mining currently still yields around two million tons annually, and a new mining company (Perilya) is operating the once-predicted 'mined out' sites; so there are some indications of a return of Broken Hill as a profitable mining center (BRW, 2006:68).

Mt Isa is the largest inland city in terms of population in north Australia. Founded in 1923 after the discovery of copper-silver-lead-zinc ore, Mt Isa has been dubbed the "Oasis in the Outback" and, in short, is known as "The Isa". The local Council was established in 1963 covering an area of 43,310 square kilometres and an estimated population of 15,192 (Kirkman, 1998). City status was proclaimed on 30th May 1968, and population growth in the area continued until the 1980s, passing the 30,000 mark (Mt Isa Council, 1998). Mount Isa Mines (MIM) was the only mine operating in town from 1924 to 2003 when Xstrata, a Swiss-based mining group, bought MIM. Mt Isa has continued losing population since the 1980s mainly due to different collapses of the metal markets; in 2006 the population count was 21,371 and the prediction for 2011 was of 21,240 people (Mt Isa Council, 2006). Mt Isa has become a regional center part of the MITEZ region (Mount Isa to Townsville Economic Development Zone) which comprises nine Local Government Areas in Northern and North-West Queensland and extends from Mt Isa in the west to the city of Townsville by the sea, covering an area of 271,732 square kilometres. Employment at the mine declined from the peak of 63.59% in 1954 to 9.73% by 2001; employment in services has become more important (18.73%).

Selected population, social, and economic indicators from 1954 to 2005 were collected for these cities. For all three cities population peaked between

the second half of the 1960s to the second half of the 1970s –mainly due to the establishment of mining activities. Since then there have been periods of growth but shrinkage has been continuous until today (see Figure 1), resulting in these cities ageing at a faster pace than the Australian average (> 65–13.1% in 2006). In Whyalla, the 20-45-years age group has declined consistently while there has been an increase in the elderly population. In Broken Hill there is a decline in all age groups but the 65-years-and-over group constitutes 18% of the population. Mt Isa has the up-to-45-years age group declining and the up-to-65-and-over group increasing.

Figure 1. Population decline 1976, 2001, 2005



Source. ABS Census data (1976, 2001, 2005 counts).

Although unemployment has declined in the last few years in these cities, the unemployment rate is still higher than the national average. At the same time the migrant population has increased. An interesting movement is also taking place in these towns; as the non-indigenous population moves out, indigenous populations (Aboriginal and Torres Strait Islander People) move in. For example, Broken Hill lost 1,256 of the non-indigenous population during the period of 1996 to 2001 (a -5.9% change), but the indigenous population experienced a 50.5% increase over the same period (Taylor, 2006: 36). Indeed, an examination of the mobility of the indigenous

population over the same period among a sample of similar regional centers shows that almost three quarters (72%) of the population growth of these towns was due to an expansion of indigenous people moving to more accessible areas generally, and into the regional centers for health, education and social services in particular (Taylor, 2006: 36). The indigenous population represents an important increase to the labor force for these cities and therefore helps explain the increase in unemployment, which is almost double among the indigenous population than among non-indigenous population (Taylor, 2006).

In the three cities there is a steep decline of mining and manufacturing, which results in a decline of knowledge-intensive business services (KIBS). More recently, however, these services have been increasing. KIBS include firms from the finance, insurance, property, business and communications and mining technology sectors. Notably, both the manufacturing and services sectors are increasing their use of knowledge-intensive services, and research into KIBS has clearly established the position of these organizations as co-producers of knowledge in the modern economy and as facilitators of innovation processes (Martinez-Fernandez and Miles, 2006; OECD, 2006). In particular, mining technology services (MTS) have a significant role in the innovation of the mining industry in Australia, influencing its transformation into the knowledge economy (Martinez-Fernandez, 2005). This is also a particularity of the “corporate city” which is not found in rural areas, and although KIBS cluster in the financial centers of capital cities, their influence in city development is of a different nature if compared with shrinking industrial cities.

In the three cities there has been an increase of “knowledge” workers but also a general increase of “routine” workers, which indicates that the transition into the knowledge economy needs both routine operations and knowledge intensity. Indeed, of the 1,255 demand for labor needed in Whyalla and the Upper Spencer Gulf Region out to 2010, 136 are managers, administrators and professionals, and 1,091 are routine workers (701 are laborers) (O’Neill, 2005: 58). At the same time it has to be acknowledged that the decline in population is not making it easy for industry to find the workers they need. The issue of the demand for routine workers also reflects organizational changes towards lean management that, in fact, can result in less knowledge workers managing a large routine workforce. The available pool of the indigenous population should provide some relief, but this is not really happening due to other complex issues related to skills training and workforce barriers for the indigenous population that will

require a different discussion. This labor market situation contradicts the emphasis government institutions are putting on the need for knowledge workers. Perhaps it is necessary to examine routine occupations with a broader perspective and consider whether these occupations hold the specific knowledge Australia desperately needs for the demand required by mining centers. In any case quite different policy responses are needed, especially in respect of immigration policy, mandatory detention centers (an available pool of routine workers), and workplace relations with indigenous Australians.

In summary, what characterizes shrinking industrial centers is the corporatization of the city, exacerbating the interdependence of population movements, mineral exploration, and heavy industry. This dependence on the main industry operating in town produces a parallel development between workforce fluctuations and population fluctuations. Thus, in these cities, the strategies of the main company can, to a great extent, determine future developments of the city and can have a great impact on urban management plans. Therefore, people living in these cities have very different 'realities' from people living in other cities where the economy is either much more complex or not dependent on one large dominant economic sector. Climate conditions, knowledge, education and health services, as well as transportation links are important factors but it is the parallel developments with the private sector operators (often a single corporation) that constitute the distinctive features of these cities. Embedded here is also the clustering of specialized KIBS in these cities, a 'second corporatization' that goes almost unnoticed by the city authorities.

The question here is whether "shrinking" is a problem that needs to be solved or an opportunity to create a different development path for the future of these cities. In a city dominated by a single firm, the fortunes of the city rise and fall with the fortunes of the corporation. There is nothing new about the fact that profitable firms spur local growth, for example through linkages between global players and local small- and medium-sized enterprises. However, a largely unexplored path is linked to local "innovation milieus" that tie firms to their locations and that serve to increase the profitability of capital investment. The literature on Regional Innovation Systems (RIS) has signalled the enormous implications of knowledge networks and flows on economic development (Cooke, 1999, 2001; Braczyk *et al.*, 2001; Martinez-Fernandez, Potts *et al.*, 2005). The geography of Australia and the historical development of one-firm cities in the mining and manufacturing sectors provide a good context for the study of this phenomenon. A step into this analysis is provided in next section.

INNOVATION ACTIVITIES IN INDUSTRIAL SHRINKING CITIES: A CASE STUDY

Innovation is an increasingly important determinant of economic growth (OECD, 2001, 2003), and so it would seem out of place in a discussion of shrinking cities. However, innovation activities can flourish even in shrinking industrial centers. The dilemma of the single-firm city shows this most clearly. Even when the firm is innovative, the city itself gets very little benefit from the innovative environment it harbors. This activity is sealed in the industrial site, flowing through business networks that bypass the city. Once again different realities coexist in the same geographic space but lack the connectivity of a functioning RIS. A strong RIS is one with systemic linkages among the sources of knowledge production (universities and research organizations), intermediaries (government and private innovation services), and firms (Cooke, 2001) that cut across individual firms. In cities dominated by a single firm, such networks are less likely.

Mt Isa is one of the shrinking industrial corporate cities that better exemplify the footprint of innovation activities. Mt Isa's urban development is driven by the City Council which has a vision for revitalizing the city as a regional center providing services in education, health, and mining technologies (Martinez-Fernandez, 2005). Tourism is the other key strategy by the Council; many mining assets are now owned and maintained by the city for tourism purposes. The city has physical and psychological features that form a different reality to people living in growing cities. Among the physical features is the wastage of infrastructure, from buildings and industry assets to community spaces that people are no longer using. Industry assets, for example, are expensive to maintain if they are to remain safe for tourism purposes. Among the psychological features are the loss of vitality, the lack of energy, and the lack of hope in the future. As people move out, these perceptions deepen in the heart of city dwellers.

Technological innovation in Mt Isa was driven by the MIM corporation, which was bought out by Xstrata. Xstrata's global strategy is linked to exploiting technological innovations, as in the purchase of MIM secured patents on the "ISA Smelt", one of the most advanced technologies worldwide, which were then sold or licensed to Chinese, South American, and US firms. MIM's "copper extractor" technology was similarly exploited. Xstrata's Australian headquarters in Brisbane has a group working on R&D technology development and in marketing the technology to other countries. The group looks for technological solutions all over the world, applies them to

their own mining sites, and advises other companies on marketing their own technology.

A second area in which corporate activities could impact the local innovation milieu is related to the presence of non-local MTS companies that provide technical and management expertise at mining sites. MTS companies working for the large mining company at a particular site at any one time create a network of knowledge-intensive service activities (KISA) (Martinez-Fernandez and Miles, 2006). Hundreds of contractors can be associated with the mine site without having any impact on the innovative capacity of the local economy. Their interaction with local businesses is limited to hospitality, retail, and office real state.

The relationship of the city to the mining site operators is one of dependency. The site operators have a high degree of influence over issues of concern for local politics. Housing markets, for instance, are traditionally dominated by corporate needs. MTS headquarters are predominantly located not in mining towns but in business centers and inner city locations. The sector is clustered in the cities of Sydney, Perth, and Brisbane, which reveals the importance of network connections to corporate headquarters and other KIBS often associated with financial centers. This internationalization of actors is vital for the innovation process of these companies (Martinez-Fernandez, 2005).

The case of Mt Isa exemplifies a unique characteristic of mining centers in Australia: they constitute hubs of knowledge intensity where internal and external experts prepare innovative solutions tailored to specific problems at the mine site. Knowledge travels through MTS companies flying from one mine site to the next, bringing the latest technological applications and a wealth of interconnections in the Australian mining “innovation milieu”. MTS companies are highly dependent on the integration of knowledge they learn from each contract, as the application of new solutions is frequently based on their previous experiences, and so the interactions between MTS firms and the mining company have a first-class level of innovativeness from which mining cities could benefit. However, these cities show little signs of knowledge transfer from the mine site. This is not surprising as the strategies and skills needed for the transfer of knowledge into the city businesses and organizations would be very different from those used for managing urban growth in these cities. More often than not, mining companies constitute mobile investment that flies in and flies out of the city searching for opportunities elsewhere, and so it is more in the hands of urban managers to look for the opportunity to capture a share of the technological and organizational

knowledge operating in the mine site. This, indeed, calls for a different way of managing the relationship between councils and corporations.

In sum, mining sites are innovation-intensive ecosystems that can be very profitable for global players. However, these firms exploit not only the natural resources they extract but also the benefits of high-frequency interaction that takes place at particular mining sites without leaving a lasting legacy of innovation behind for the local population. Innovations developed within the site do not “leak” out to the city in which the corporation is located. The city where the corporation is located receives only the side effects (e.g. the local expenditure) but not the key effects (knowledge and innovation) that keep a place competitive. These cities could well be considered at the edge of Castell’s “Informational City” (Castells, 1989), missing out on the sophisticated networks where highly competitive corporations are embedded (Castells, 2000a,b; 2004).

There is, therefore, a dual reality in industrial shrinking cities. Mining corporations can be thriving with intense knowledge-based activities inside the mines, imported from worldwide centers. Mining cities can be shrinking due to the mining not thriving or that little is “leaked” to the local economy except through hospitality, retail, and housing services. The lack of local embeddedness and the dominance by one corporation are factors that can lead to “shrinkage” even in the face of a growing corporation making profits through the application of knowledge-intensive technology/know-how in the mining localities.

The future of these cities may depend on connecting these different realities: rich innovation systems operating in mining sites with the regional innovation system, often comprising weak connections due to the remote location isolation, the fly-in/fly-out work-pattern of professionals, and the high mobility of residents –all factors affecting shrinkage. Connecting both systems will facilitate regional absorptive capacity of new knowledge and innovative activities, all elements of a different development path for these cities. Regardless of stopping urban shrinkage, it would lead to a more competitive and interesting place to live.

CONCLUSIONS

This paper has discussed factors impacting shrinkage in Australia, offering a typology of shrinkage in the Australian context. In particular, this paper

argues that the shrinkage of industrial cities is partly due to the disconnection of the knowledge-intensive activities undertaken by corporations in the industrial site that are not embedded in the cities where they are located. The corporations grow from making use of global knowledge networks, while the cities “shrink” because they are isolated from the truly global knowledge and the impact of that knowledge on other businesses and organizations in the cities. Industrial cities only receive part of the impact that is more “place-dependent” while the global knowledge where the corporation is embedded is “foot-loose”. This paper raises the following issues:

First, processes of shrinkage are interrelated to processes of growth; they are not isolated forces but complementary as shrinkage in regional centers is closely related to processes of urbanization and suburbanization in large metropolitan areas. The demand for services in health, education, environment, housing, and entertainment can be more important than access to employment. Shrinking cities can experience a shortage of skills due to the flight of population, but employment alone is not enough to stop migration, especially of the youth who want to move to cities that offer a greater variety of opportunities and living styles.

Second, industrial shrinking cities may constitute a special case of the corporate city with a disconnected Regional Innovation System (RIS). Mining cities or steel industry cities, for instance, are “skills-hubs” or “innovation-intensive” areas that largely remain locked in the mine site. There is an intellectual isolation from the businesses community in the city. While mining companies might be good corporate citizens participating in community projects, this participation is usually confined to the companies’ role as donors or capital providers. There is a ‘vacuum of knowledge’ with regard to the transfer of knowledge and innovation processes from the main industry to other businesses/organizations in the city. Technologies, organizational management techniques, and a vibrant intellectual life in the mining site usually stop at the gates of the mine. As a consequence, RIS in these cities are weak, and knowledge-circulation from scientists and knowledge workers stops at the gate of the mine and innovation transfer does not occur. Although city councils in these cities are well aware of the need for public-private partnerships for funding public projects, they are less aware of the need for urban management instruments oriented to capture and transfer knowledge and innovative performance.

Third, the study of shrinking cities and of the innovative strategies and alternatives to the current planning paradigm of growth is difficult to generalize on “best practices” as solutions are linked to the history and national

economic context of the place. Nevertheless, the development of indicators to look at shrinking cities across different countries offers an opportunity to extract common themes that might suggest the need for a shift in current planning paradigms for city growth and competitiveness. Planning in shrinking cities also needs to embrace the public in a vigorous way: residents who feel their hope for a better life is declining leave for better conditions elsewhere. Community engagement provides an opportunity for these residents to participate in the design of their future in the city, therefore providing some control about their own destiny.

Finally, policy makers in industrial shrinking cities should look at ways to increase the connectivity of their RIS. Specifically, the mining site or main manufacturing industry should be seen as a critical intellectual asset for the development of knowledge networks across the city and region, together with any research and education institution, scientists, industry associations, KIBS, and community and government organizations. The aim of the development of this network is to facilitate the flow of knowledge among different stakeholders in the city and the connection to other international networks through its more international participants, and ultimately to enrich the regional innovation system. These are the seeds for developing learning environments to hold innovation, creativity and vitality –all key factors to keep a place competitive.

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III. LONG WAVES OF INDUSTRIAL CHANGE AND URBAN RESTRUCTURING IN THE SOUTH AND NORTH: LATIN AMERICA IN THE SECOND PHASE OF GLOBALIZATION

*Ivonne Audirac**

INTRODUCTION

Shrinking cities –urban decline associated with severe contraction of the economic base, the shedding of jobs and population, increased poverty, tax base erosion, and dilapidation and abandonment of industrial infrastructure– have been traditionally regarded as a problem of industrialized countries in the North. The conventional wisdom perceives urban decline as aberrant and episodic (Beauregard, 2003) and as a consequence of post-industrial and post-socialist urban change circumscribed primarily to European and North American cities (Rybczynski and Linneman, 1999; Glaeser, 2007; Kabisch *et al.*, 2005; Lötscher, 2005). Echoing this view, the media has typically focused on the plight of cities like Detroit and Flint, Michigan or Youngstown and Cleveland, Ohio or the malaise of East German cities like Leipzig and Berlin as local misfortunes where bulldozing vacant properties and planned downsizing of the city have become the alternative of last resort after many failed attempts at city regeneration (Wilgoren, 2002; Lanks, 2006; Leonard, 2009). The economic geography of shrinking cities has remained largely US and Eurocentric, despite efforts by Phillip Oswalt (2006) from the German Federal Cultural Foundation (www.shrinkingcities.com) and the Shrinking Cities International Research Network (www.shrinkingcities.org) to raise awareness of the global scope and magnitude of the phenomenon. These groups have endeavored to understand urban shrinkage as an intrinsic component of urban growth with local to global scalar dimensions. This chapter contributes to this aim by sketching a comparative North-South overview of urban decline associated with industrial epochal changes.

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Based on recent scholarly literature documenting urbanization trends in Latin America, this overview presents the thesis that, nested within the fourth Kondrantieff's downturn, cities in Latin American countries that industrialized under import substitution industrialization (ISI) have experienced two waves of industrial restructuring since the 1980s. These changes had de-industrializing and industrial restructuring repercussions with important urban growth and decline outcomes. The first wave could be considered the result of a 20-year delayed post-Fordist restructuring of the largest industrial Latin American cities. After having grown dramatically since the 1900s, American old industrial rust-belt cities began to decline in the 1950s and continued to shrink thereafter, particularly with the onset of post-industrial restructuring in the 1970s. In contrast, a quite distinct process of urban restructuring and decline could be said to have occurred in Latin America. In addition to Latin America's debt crisis of the 1980s and the subsequent ISI breakdown, a key driver of this change was the first stage in the evolution of the global economy resulting from the global East-West competitiveness takeover of "lean production" over "mass production" (Womack *et al.*, 1990, Lo and Yeung, 1996) and the consolidation of the global economy into trading blocs. Underlying this transition were the information revolution (Castells, 1996), the weaving together of cities and regions across the globe via multinational corporations' global value chains (Gereffi, 2005) –taking advantage of the international division of labor and of fierce competition for investment capital among cities throughout the world– and the emergence of global cities in the North (e.g., New York, London, and Tokyo) as the world centers of financial control of the global economy (Sassen, 2001). The aftermath of these transformations was felt around the globe. Asia Pacific cities showed vibrant growth and industrial expansion in suburban and periurban areas, giving rise to borderless megacities (Yeung and Lo, 1996). Latin America experienced inner city depopulation with megacity deconcentration and primacy reduction (Gilbert, 1993; Portes and Roberts, 2005). And the US and Europe saw further shrinkage of old industrial centers and concomitant megalopolitan extension of city regions (Garreau, 1991; Bontje, 2001; Turok and Mykhnenko, 2007). A second driver, occurring in the 2000s and associated with a second stage in the evolution of the global economy, is the ascent of China as a major world player in manufacturing and trade (Henderson, 2008; Kaplinsky, 2008). This has had de-industrializing ramifications for countries like Mexico, whose post-ISI future was waged on the potential of becoming the US-preferred manufacturing partner in the NAFTA region. The shrinking of Guadalajara, Mexico's Silicon Valley in the electronics industry,

illustrates some of the urban boom and bust implications of Mexico's current loss of manufacturing competitiveness to China. The chapter closes with a synopsis of further potential implication for Latin American cities in a professed new world order (Henderson, 2008; Zhinbin Gu, 2006).

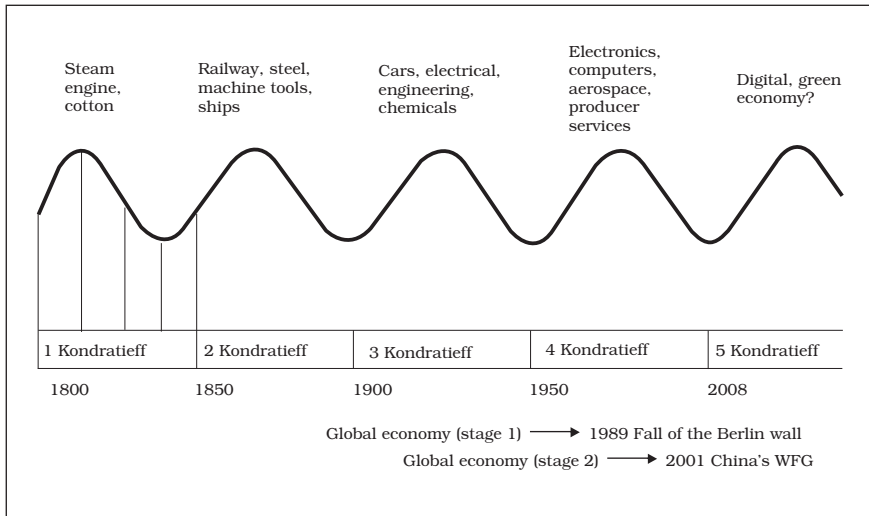
URBAN DECLINE AND THE FIRST SHOCK TO INDUSTRIAL GROWTH IN THE NORTH

Urban decline is not new. The history of urban development the world over is replete with cities, which for a variety of reasons ranging from famine and wars to natural hazards and epidemics, declined and recovered or declined and collapsed (Diamond, 2004). However, our modern understanding of urban decline as a socioeconomic, demographic, and environmental phenomenon is intimately related to the history of industrial urbanization in the North and South. With the advent of steam-powered mechanization in the mid-1800s, during the second Kondratieff wave¹ (K-2), unprecedented rates of urbanization emptied the countryside of the industrializing North, namely in Western Europe and North America (see Figure 1). Meanwhile, the agrarian South, namely Latin America and European colonies around

¹ K-2 is a short name for the 2nd Kondratieff or K wave. Historically, there are five K waves. K-5 corresponds to the fifth Kondratieff. Nikolai Kondratieff, a Russian economist, proposed in the early 1900s that business cycles followed upturn and downturn trends of 50 to 60 years in length. His theory inspired Joseph Schumpeter, who argued in the 1930s that major technological revolutions were the drivers of the upswings of these cycles. Kondratieff cycles have been controversial since there is no agreement in the theory's causal explanations or on the specific events that mark the peak and trough of these cycles. Despite these issues, the Schumpeter-Freeman-Perez Kondratieff reinterpretation has become widely accepted as a heuristic historical framework of five cycles corresponding to five ages: (1) industrial revolution; (2) age of steam and railways; (3) age of steel and electrical engineering; (4) age of cars, oil, and mass production; and (5) age of information and telecommunications. According to this view, the turning point from the 4th to the 5th Kondratieff should be occurring at the turn of the new millennium. The current global financial crisis seems to give credence to the observation that a Kondratieff cycle would last two generations. Those who grew up during a major global financial crisis would tend to experience a second one toward the end of their life. This paper heavily draws on Hall and Preston's (1988) use of Kondratieff waves as a historical framework to understand technological change and its territorial and geographic implications.

the world, exported natural resources and primary commodities needed for sustaining Northern industrial production and urban populations.

Figure 1. Kondratieff waves and recent stages of globalization



By the end of the K-2 (see Figure 1), at the beginning of the 20th century, cities in industrialized nations from England to Germany, the US, and Japan had developed around heavy industries such as shipbuilding, iron and steel, chemicals, and engineering. It was not until the Great Depression of the 1930s and the Second World War that the first global crisis of industrial capitalism took a toll on these cities. Economic decline, population loss, vacant properties, slum growth, social marginalization, and blight afflicted the cores of many industrial cities of the industrialized world. However, a widely shared faith in progress and modernization deemed this urban decline to be a transitory discontinuity of urban growth and prosperity (Beauregard, 2003; Matthews, 1991). Post-war, aggressive urban renewal projects in the US and urban regeneration programs in the U.K., coupled with intensive highway and freeway construction (during the upswing of the K-4), only exacerbated the tide of industrial de-concentration and residential suburbanization that had began decades earlier with the gradual shift in the organization of production from factories and railroads to branch plants, roads, trucks and cars (Hall and Preston, 1988; Soja, 2000; Teaford, 2006). The US was the precursor of this industrial shift, which ushered in the Fordist city and the city of Detroit as its emblem.

THE RISE AND FALL OF IMPORT SUBSTITUTION INDUSTRIALIZATION IN THE SOUTH AND ITS URBAN AFTERMATH

Facilitated by the post-war and ensuing Cold War periods, the South, that is, Latin America and the Asian new industrializing economies (NIEs) (South Korea, Taiwan, Hong Kong, and Singapore), India and South Africa, turned inward to incubate and protect their own heavy industries through ISI. They promoted their own waves of industrial urbanization and soaring rural-to-urban migration. This resulted in the growth of megacities and primate cities from Seoul to Mexico City and Buenos Aires to Mumbai. While the East Asian NIEs, spearheaded by Japan and bolstered by anti-communist US policy in Asia, selectively abandoned ISI in favor of strategic export manufacturing to the US and other developed countries, the rest of the South, with the exception of Chile, remained committed, until the end of the 1980s, to their fatigued ISI regimes.

By the 1970s, the industrial urbanization of the larger Latin American countries (e.g., Brazil and Mexico), increasingly financed by foreign private banks (awash in petrodollars) became progressively more dependent on multinational corporations' (MNCs) investment and licensing of new technology. This engendered vastly uncompetitive and technically lagging industrial sectors made of state-owned and privately owned companies. Brazil's sharp decline in industrial production in the 1970s and the ensuing industrial restructuring of the São Paulo metropolitan region—which some inaccurately likened to American and British deindustrialization—resulted largely from the debilitating blow that the oil embargo, massive external debt, and rampant hyper-inflation (Rodriguez-Pose and Tomaney, 1999) dealt to the country's ISI program.

In the 1980s, northern cities in the US and Western Europe wrestled with economic recession and new rounds of deindustrialization brought about by the post-Fordist shift to lean production, marking the end of the age of mass production and the downturn of the K-4. Meanwhile, the South, particularly Latin America, faced a “lost decade” of continental proportions precipitated by the region's debilitating international debt crisis, capital flight and disinvestment, and ISI breakdown. Negative growth and overall GDP shrinkage of -7.5% to -9.8% in the region brought a sudden setback to five decades of industrial urbanization and economic growth (see Table 1).

Although physically different from North American and European deindustrialization and demographically less acute, given higher fertility rates, Latin American urban shrinkage, an upshot of the 1980s' lost decade,

involved decaying urban infrastructure, disinvestment, massive capital flight, rampant unemployment, and increased inter and intramunicipal migration and international emigration to the U.S. and Europe (Cerrutti and Bertonecello, 2003; Padilla, 2007; Hanson, 2005). “Between 1980 and 1990, moderate poverty [in Latin America] increased by 54.1 million people and 37.1 million individuals slipped into the category of extreme poor. The most alarming increase in the numbers of extreme poor happened in Brazil, where 23.8 million people became poorer during this period” (Bulmer-Thomas *et al.*, 2006: 593).

Table 1. Latin American economic shrinkage during the “lost decade”

<i>Cumulative growth, GDP per capita (percent) 1981-1990</i>					
Argentina	-21.1	-2.11	Bolivia	-17.4	-1.74
Brazil	-4.6	-0.46	Chile	12.4	1.24
Colombia	17.9	1.79	Costa Rica	-5.8	-0.58
Cuba	27.8	2.78	Ecuador	-6.6	-0.66
El Salvador	-18.8	-1.88	Guatemala	-18.2	-1.82
Honduras	-8.2	-0.82	Mexico	-4.3	-0.43
Nicaragua	-33.5	-3.35	Panama	-2.4	-0.24
Paraguay	-0.8	-0.08	Peru	-28.9	-2.89
Uruguay	-1.4	-0.14	Venezuela	-19.4	-1.94
				-7.5	

Source. ECLAC (1995), Korzeniewicz and Smith (1996).

POST-FORDIST CHANGE, A SECOND SHAKEUP OF INDUSTRIAL ORGANIZATION

In 1989, David Clark wrote about declining British cities: “population levels are falling, the industrial base is shrinking, and the governmental and financial powers and autonomy of the city are being eroded”. With its gradual inception in the 1960s after the heyday of Fordist industrial growth, massive deindustrialization took its toll on many European and North American cities rooted in heavy 19th-century manufacturing and transportation technology. This heralded a break with the history of urban development as it was

known up to that date. The onset of this epochal change, also recognized as post-Fordist, varied by country. Its urban effects were regionally detected in the 1970s in the declining old cities of the American “rust belt” and in the old industrial cities of the European heartland, as well as in the concomitant rise of fast-growing cities in the American “sun belt” (from Miami to San Francisco) and warm-climate second-tier European cities (e.g., Montpellier, France). As the case of Great Britain and London illustrates, after two decades of post-war prosperity, the old manufacturing cities dramatically shrank economically (see Tables 2 and 3). An increase of service jobs, supplied by the growth of new service industries, was insufficient to counter the losses *en masse* in manufacturing due to closures, downsizing, and relocation of foundries, factories, and workshops to exurban, rural, and overseas locations. Consequently, economic contraction due to deindustrialization was accompanied with structural unemployment in large cities and with urban deconcentration as households and firms moved to the metropolitan peripheries and smaller cities. In the US, this outward movement of the population in the 1970s was baptized the “rural renaissance” (Frey, 1995) and “deurbanization” in Western Europe as major urban centers lost population to towns in their rural hinterlands and to previously unindustrialized regions (Cheshire and Hays, 1989; Turok and Mykhennko, 2007).

Table 2. Great Britain: manufacturing employment change, 1960-1981

	<i>Employment</i> (`000)		<i>Change 1960-1981</i>	
	1960	1981	(`000)	Percent
London	1,338	650	-688	-51.42
Conurbations	2,282	1,295	-987	-43.25
Free-standing cities	1,331	950	-381	-28.63
Large towns	921	756	-165	-17.92
Small towns	1,631	1,609	-22	-1.35
Rural areas	527	655	128	24.29
Great Britain	8,031	5,916	-2,115	-26.34

Conurbations: Manchester, Merseyside, Clydeside, W. Yorkshire, W. Midlands.

Free-standing cities: other cities population > 250,000.

Large towns: 100,000 to 250,000 population.

Small towns: districts including at least one town with 35,000 to 100,000 population, plus coalfield areas.

Rural areas: districts in which all settlements < 35,000 population.

Source: Clark (1989: 50).

Table 3. Greater London employment change, 1973-1983

	<i>Number employed</i>	<i>Employment change 1973-1983</i>	
	<i>1983</i>	<i>Number</i>	<i>Percent</i>
Manufacturing	594,000	-330,086	-36
Construction	144,000	-53,073	-27
Gas, electricity & water	41,000	-15,156	-27
Transport & communications	340,000	-79,672	-19
Distributive trades	459,000	-69,939	-17
Financial, professional & miscellaneous services	1 468,000	70,284	5
Public administration & defense	3 366,000	-31,700	-9
All industries	3 366,000	-506,739	-13

Source. Clark (1989: 51).

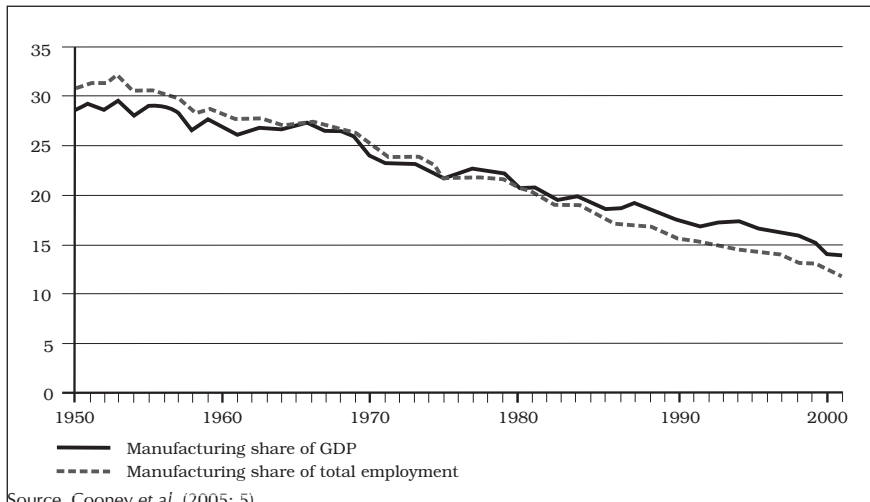
This population dispersion away from major cities to smaller cities and rural towns in an accelerated pattern of urban deconcentration was also dubbed “counterurbanization” in the U.S. and the UK Counterurbanization was believed to be driven by individual preferences for low-density locales and a dislike for big cities and to be a reaction to the post-oil crisis recession, which in some circles was associated with the fifth Kondratieff (Rostow, 1975; Hall and Preston, 1988; Clark, 1989), depending on the particular author’s assumptions.

Although there is agreement on the 50–60-year length of Kondratieff cycles of economic prosperity and depression and on the view that major technological revolutions are the drivers of the upswings of these cycles, such as the diffusion of the steam engine coinciding with the first Kondratieff from 1790 to 1874; the second, with the diffusion of the railroad; and the third, with electricity, chemicals, and the automobile; there is less unanimity on the timing of the fourth Kondratieff’s downswing and its end of cycle. Its upswing is generally associated with the diffusion of mass production after 1945, and although there is a relatively large consensus that, by the 1980s, the upswing was over, authors differ as to the length of the peak of this wave. Thus, later Kondratieff reinterpretations of counterurbanization and historically unprecedented urban shrinkage attributed them to the restructuring of the North Atlantic Seaboard manufacturing base, whose Fordist heyday had been reached in the 1950s at the beginning of the 4th Kondratieff, but whose decline had been gradually brought

on by a new stream of industrial development based on microelectronics (Hall and Preston, 1988) (see Table 4 and Figure 1). In sync with the larger aforementioned urban-industrial restructuring tendencies, the innovation epicenter of this new industrial wave began in the North Atlantic Seaboard in the 1950s in the Boston-New York corridor. This spawned the growth of the MIT-related Route 128 agglomeration in exurban Boston, then moved to the Pacific coast to the small city of San Jose, California. Here, the Stanford University-based Silicon Valley industrial agglomeration thrived, not only due to the infusion of US Department-of-Defense dollars (among many other things), but also to its proximity to Asia. By the 1980s, the mass production of chips, computers, and consumer electronics had dramatically shifted to Asia, where Japan could respond with blazing speed to market demands through flexible production systems (Hall and Preston, 1988: 284).

The observed industrial decline and restructuring of major cities in core economies of the North were strongly influenced by two factors. One was the early dispersion of manufacturing to countries in the South. This dispersion was spearheaded by core country MNCs, which, starting in the 1960s, took advantage of Asian and Latin American export processing zones (i.e., the maquiladora program along the US-Mexican border). This facilitated a historical North to South switch in manufacturing for re-export to the North (Smith and Feagin, 1987). The second factor was the Japanization of production (Kenney and Florida, 1993). This enabled not only the Asian NIEs of Hong Kong, South Korea, Singapore, and Taiwan, but also Chinese firms to introduce “lean production” earlier than American and European firms (Chen *et al.*, 1997). Japanese and Asian NIEs’ MNCs diffused the system of lean production, which typically involves just-in-time (JIT) inventories, zero-defect policies, *jidoka* (automation), and most importantly, cross-geographic arbitrage—that is, the comparative advantage offered by the new international division of labor that resulted in the relocation of plants to places with abundant and cheaper labor supplies. This tightly wove together countries and cities throughout Asia Pacific and the rest of the world (Yeung and Lo, 1996). This global reorganization shift had strong competitiveness consequences for US manufacturing, not only affecting traditional industries such as steel, machine tools, automobiles, and consumer electronics but also impacting emerging, high-technology, electronics products—as witnessed by loss of export share and negative trade balances, particularly to China (Hall and Preston, 1988; Kenney and Florida, 1993; Engardio *et al.*, 2004).

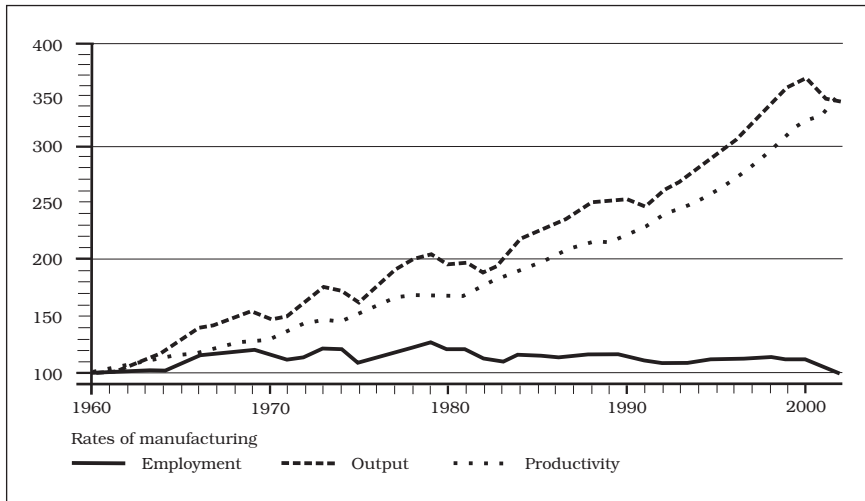
Figure 2. U.S. Manufacturing share of GDP and total employment, 1950-2003



Although the US gross number of industrial jobs from 1960 to 2005 has remained relatively stable at about 15 million, its share of total employment dropped from 30% in the 1950s to less than 15% in 2000 (Figure 2). Despite a declining share of total employment, manufacturing output has kept pace with GDP increase (Figure 3), largely thanks to increases in labor productivity. However, the US trade deficit in manufacturing has soared since the 1980s, particularly in consumer, automotive products, and even capital goods (Cooney *et al.*, 2005). In 2005, a congressional report noted that manufactured imports had recently exceeded 60% the level of exports at more than one trillion dollars per year. The report blamed the strength of the dollar vis-à-vis other currencies but added that “while concern is often expressed about the trade deficit and ‘foreign outsourcing’ of US manufacturing jobs, it is not often noted that manufacturing employment is declining in virtually all major industrial countries, as well as many developing countries, especially China” (Cooney *et al.*, 2005: 62). This observation lends credence to the notion that the gradual competitive takeover of “lean production” over “mass production” –diffusing from the East to the West– has materialized the proverbial “do more with less and do it faster” in major branches of industry around the world. However, this global shift and reorganization of production has left behind a glut of mass production

capacity both in plants and workforce in the North and South wherever firms have become lean or displaced (Womack *et al.*, 1990; Womack and Jones, 2003; Engardio *et al.*, 2004).

Figure 3. U.S. Manufacturing employment, output, and labor productivity, 1960-2003



Source. Cooney *et al.* (2005: 8).

The urban effects of this gradual industrial restructuring are most strikingly apparent in regions that thrived during the halcyon days of mass manufacturing, i.e., the old industrial centers of Europe (Clark, 1989) and North America (Cowie and Heathcott, 2003). Nonetheless, cities in the South, which industrialized under mass production ISI regimes, were not spared and the consequences have been pervasive.

Table 4. South/North long waves of urban growth and decline and industrial change

<i>Kondratieff Industrial organization</i>	<i>Third 1895 Pre-Fordist (1890-1939)</i>	<i>Fourth 1945 Fordist (1945-1973)</i>	<i>Fifth 2000 Digital-ecological (2002-)</i>
Transport Infrastructure	Ports, railways, steamship	Ports, railways, highways	Cargo airports; highways, rail, container ports, standardized containerization
System of production	Craft-based production	Mass production	Lean production industrial outsourcing
North/South trade system	Post-colonial	International	Globalized Global value chains Massive off shoring of manufacturing & services
Multinational corporations		Vertically integrated and overseas wholly owned subsidiaries	The leading firms in global networks of value chains
Key industries	Steel, machine tools	Automobiles, electrical engineering	Aerospace, electronics, computers, telecommunications, producer services
Leading countries	Germany, United States	United States	Japan China
Path breaking shocks	Great depression & world wars	Cold-war, oil crisis	Fall of the Soviet Union Trade blocs 2008 Financial crisis

NORTH					
Urban growth	Industrial core cities early suburbanization; New York, Chicago, Pittsburgh, Berlin	Massive suburbanization, Detroit	Edge cities, rise of sun-belt regions global cities	Networked cities, megalopolitan growth	
Urban decline	Aberrant cities	Core industrial cities London	Post-socialist cities Central cities and first tier suburbs, Detroit, Youngstown	Shrinking cities	
SOUTH					
Latin America	Primary commodity export to Europe and the United States	Import substitution industrialization (ISI) Export processing zones	1980s "lost decade" debt crisis	ISI liberalization and free trade, China effect: commodity export growth, de-industrialization (Mexico, Brazil)	
Urban growth	Administrative, port cities and resource extraction cities	Growth of primate and megacities	Growth slows down	Growth of 2nd tier cities and metropolitan periphery	
Urban decline		Rural towns due to rural to urban migration	Decentralization and reduced urban primacy massive intercity, interregional and international migration	Post-ISI urban restructuring contraction in urban cores and periurban boom & bust	

Source: Hall and Preston (1988: 21, table 2.2), and Malecki and Moriset (2008: 26, table 2.1).

Table 5. China's trade with the United States (\$ billion)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
US Exports	13.1	16.3	19.2	22.1	28.4	34.7	41.8	55.2	65.2	71.5
% change	-8	24.4	18.3	15.1	28.5	22.2	20.6	32.1	18.1	9.5
US Imports	81.8	100.0	102.3	125.2	152.4	196.7	243.5	287.8	321.5	337.8
% change	14.9	22.3	2.2	22.4	21.7	29.1	23.8	18.2	11.7	5.1
Total	94.9	116.3	121.5	147.3	180.8	231.4	285.3	343.0	386.7	409.2
% change	11	22.6	21.4	21.2	22.8	28	23.3	20.2	12.7	5.8
US balance	-68.7	-83.7	-83	-103.1	-124	-162	201.6	-232.5	-256.3	-266.3

Sources. US International Trade Commission, US Department of Commerce, and US Census Bureau; U.S.-China Business Council (<http://www.uschina.org/statistics/tradetable.html>).

GLOBAL INDUSTRIAL RESTRUCTURING AND CHINA'S WORLD EFFECT

The consolidation of a global capitalist economy after the fall of the Soviet Union also brought the rise of trading blocs (i.e., NAFTA, EU, and Asian-Pacific) and with it the shedding of ISI programs by most countries in the South. These programs were shed either voluntarily, as in Chile, or under structural adjustment reforms. Like most of the rest in Latin America, these countries embraced neoliberal² free trade policies and joined the General Agreement on Tariffs and Trade (GATT) and later the World Trade Organization (WTO). The World Bank and the International Monetary Fund claimed many beneficial effects of the switch to export-led free trade, deregulation of labor markets, and the downsizing of the public sector. The expected benefits included (1) further reduction in urban primacy –as new export development centers would absorb population growth; (2) declining unemployment and formal employment– as tax and labor inducements would attract new investment, creating new jobs and raising demand for labor; and (3) diminution of poverty

² Neoliberal policies endorse a greater reliance on markets, world trade and export-based development and a retrenchment of the state's role in a country's social welfare provision. As practiced in Latin America, in order to control hyperinflation and stabilize the economy, neoliberal policies under structural adjustment reform designed by the International Monetary Fund and the World Bank involved the abandonment of inward-looking import substitution industrialization, privatization of government-owned enterprises, drastic budget austerity measures, opening the economy to foreign trade, and widespread deregulation.

and inequality—as employment growth would boost wages. However, of these expectations, only the first one—urban primacy decline—has so far taken shape. The employment and poverty and inequality reductions have not been realized as anticipated. In fact, one of the most comprehensive studies of the evolution of Latin American cities after free-market reforms (Portes and Roberts, 2005) concludes that losses in employment in the public sector and old ISI industries were not compensated for by jobs created in the post-ISI industrialization period. Consequently, a rise in open unemployment and an ever-increasing informal sector have remained pervasive characteristics of Latin American cities, whose legendary levels of inequality have escalated rather than decreased (Portes and Roberts, 2005).

In the global lean-production era, Latin America's post-ISI industrialization—heavily dependent on foreign direct investment by MNCs—rapidly restructured to allow industrial sectors, such as the automobile, electronics, and apparel and textile industries, to participate in global production chains through industrial upgrading³ (Gereffi, 2005). The urban effects of this change have been accompanied by decay and obsolescence of old ISI industrial sites—typically located in metropolitan cores and in old industrial suburbs such as Azcapotzalco in Mexico City⁴—and by rapid expansion of the

³ Industrial upgrading is “the process by which economic actors—nations, firms, and workers—move from low-value to relatively high-value activities in global production networks” (Gereffi, 2005: 171). This process is highly dependent on government business policies, technology, and workers' skills. Upgrading generally involves a move from less to more skilled production processes in a specific industry (e.g., from assembly to original equipment manufacturing [OEM]).

⁴ A blogger describing Mexico City as a shrinking city wrote in 2008: “Mexico city is commonly recognized as a monster megalopolis, but actually, some parts of the city are shrinking. Azcapotzalco, along with other inner-city areas, has been steadily losing population since the 1980s. The city has tried to fight the emptying of these areas with measures such as the bando dos (edict 2), implemented in 2000 and dropped last year after criticism surrounding speculation, which restricted the construction of new housing in the city to the central delegaciones. Azcapotzalco has had its share of hopeful regeneration projects, such as the recent tecnoparque, a wannabe cutting-edge office park built in an old industrial lot. Despite the efforts, Azcapotzalco still has an eerie character, the whole area gives out a sense of abandon. The metro refinera, once a key transport node for the local industrial workforce, is now practically a ghost station, a striking underground vault with a four-story electrical escalator worthy of a futurist film set, hanging under an enormous concrete dome, plunging down more than 30 mts into the ground, peopleless.” <http://sweetlittlegame.blogspot.com/2008/01/mexicoshrinking-city.html>.

urban periphery where new industrial parks and plants have proliferated (Aguilar and Ward, 2003; Portes and Roberts, 2005; Audirac, 2003). This has further emptied the central city and inner suburbs, which have already shown a generalized pattern of population and business loss to outer suburbs since the 1970s. In some cities, like Mexico City, this was partially the result of natural disasters such as earthquakes, but also of major road construction (*ejes viales*) and government efforts to eradicate decaying *vecindades* (tenements), which effectively removed vast swathes of low-income rental housing stock (Gilbert, 1996) (see Table 6).

Table 6. Population decline in the central city, 1960-1990

	1960s	1970s	1980s
Bogotá	1974-1973	1973-1985	1981-1992
Central City	-2.2	-1.3	
Inner ring	0.0	-1.1	
Lima	1961-1972	1972-1981	1981-1992
Central City	0.6	0.4	-0.9
Inner ring		0.2	-1.6
Mexico City	1960-1970	1970-1980	1980-1990
Cauahatemoc	-1.4	-2.0	-2.2
Inner ring	0.2	-1.4	-2.0
Second ring	2.5	-0.1	-1.6
Santiago	1960-1970	1970-1982	1982-1992
Commune of Santiago	-2.2	-1.8	-1.4
Inner ring	n.a.	0.0	-0.7
São Paulo	1960-1970	1970-1980	1980-1997
Historic center	-1.4	0.0	n.a.
Inner city	0.7	2.2	0.9
Inner ring	0.1	1.3	3.6
Immediate ring	2.8	1.3	3.6

Source. Gilbert (1996: 99).

In addition to contributing to the demographic decline of central city and old suburbs, post-ISI industrialization abetted the weakening of «old-style» primacy in cities like Buenos Aires, Santiago, Mexico City, and São Paulo, whose metropolitan periphery and satellite cities received the new growth and expanded the urban region in megapolitan fashion (Garza, 2000; Aguilar and Ward, 2003). A similar trend of urban core decline has been observed in second-tier cities like Guadalajara, Mexico (Rodríguez Bautista and Cota Yanez, 1999) fostered by population suburbanization and post-ISI periurban growth.

However, this industrial growth in Latin America is proving to be susceptible on the one hand, to boom-and-bust processes associated with

the vagaries of ever-shorter product life cycles under global chain production systems, and on the other, to China's global competitive take-over as the preferred lean-production manufacturing region of the world (Henderson, 2008; Jenkins and Dussel, 2007; Kaplinsky, 2008). In this context, the fate of Guadalajara, Mexico's Silicon Valley is illustrative.

Table 7. Latin American trade balance with China, 1995-2004

	1995	2000	2001	2002	2003	2004
Argentina	96.9	319.7	706.9	1 054.2	2 281.9	2 402.6
Bolivia	-4.7	6.1	1.8	2.7	-5.0	6.0
Brazil	469.1	397.9	983.9	1 536.7	3 699.0	5 009.3
Chile	-108.2	555.0	487.6	566.9	961.1	1 987.8
Colombia	-38.5	-123.9	-180.00	-258.0	-337.8	-454.0
Costa Rica	7.1	-54.9	-36.7	103.0	462.4	486.9
Cuba	67.2	-147.3	-219.1	-194.8	-115.8	-135.9
Dominican Republic	-38.1	-74.5	-38.1	-103.7	-144.6	-217.2
Ecuador	-15.9	5.3	-106.1	-181.1	-199.6	-251.4
El Salvador	-31.2	-62.2	-99.2	-130.7	-155.5	-193.1
Guatemala	-11.6	-134.0	-162.8	-244.0	-303.8	-349.8
Honduras	-31.2	-62.1	-65.0	-58.1	-74.5	-111.5
Mexico	-0.5	-847.0	-1 056.8	-1 749.2	-1 590.4	-2 833.1
Nicaragua	-5.3	-42.7	-34.4	-49.1	-69.0	-98.6
Panama	-585.4	-1 289.1	-1 238.0	-1 269.8	-1 451.5	-2 172.0
Paraguay	-78.3	-82.7	-69.3	-71.2	-113.5	-176.6
Peru	313.8	415.9	320.8	484.5	406.2	1 106.0
Uruguay	38.0	-141.7	-93.4	-16.8	-51.9	-99.2
Venezuela	-53.1	-161.7	-297.8	-188.1	342.9	142.5
Total	-82.0	-1 524.0	-1 195.6	-766.6	3 540.9	4 048.5

Source: IMF - Jenkins, Dussel and Mesquita (2006).

Latin American deindustrialization resulting from China's global presence is affecting countries like Mexico, which is losing manufacturing competitiveness to Chinese exports in two important ways: one, loss of U.S. electronics manufacturing foreign direct investment (FDI) to China (Dussel, 2005, 2008), and two, penetration of Chinese imports through trade and unquantifiable smuggling (Jenkins and Dussel, 2007; Mesquita Moreira, 2007). Of all Latin American countries, Mexico has the highest trade deficit with China (see Table 7), while other countries like Argentina and Brazil compensate for similar losses with sizable exports of raw materials to China (Jenkins, Dussel and Mesquita, 2006). Plant closures

and export production job relocation to China have created an instance of urban fringe industrial shrinkage. In the electronics sector, Guadalajara “lost during 2001-2003 more than 45,000 jobs and \$5,000 million to Asia, and particularly to China” (Dussel, 2005 in Jenkins, Dussel, and Mesquita, 2006: 19). Mexico’s share of US imports of PCs fell from 14% in 2001 to 7% in 2006, while China’s share increased threefold from 14% to 45% during the same period (Dussel, 2008).

GUADALAJARA, MEXICO’S SILICON VALLEY: A CASE OF PERIURBAN SHRINKAGE

In the mid-1960s, an emerging information, computer, and telecommunication electronics (ICT) industry began in Guadalajara with Motorola and Burroughs Mexican affiliates locating plants at the edge of the city near residential suburbs, followed thereafter in the 1970s and 1980s by Kodak, IBM, Hewlett-Packard, Wang and Tandem, which opened plants in periurban locations with easy road access to the airport, ports, and major highways. By 1993, as Mexico joined NAFTA, liberalizing trade and deregulating ISI requirements on MNCs⁵, IBM and Hewlett-Packard began outsourcing manufacturing functions to local firms and spearheading the creation of an industrial cluster of domestic suppliers and contractors.⁶ More than 40 firms initially made up this cluster, which during its heyday at the end of the 1990s, reached a total of 320 firms (Audirac, 2003) that generated close to 100,000 jobs and more than \$2,707 million dollars in exports (Dussel, 1999) and earned international media recognition as “Silicon Valley South”. During this period, a series of new industrial parks housing domestic and foreign electronics firms populated Guadalajara’s metropolitan periphery along the metropolitan beltway (*anillo periférico*) (Audirac, 2003).⁷ While this was happening, however, the global electronics industry had been reconfiguring; the leading US-based multinational firms

⁵ Restrictions on domestic market access and foreign ownership of domestic firms required R&D investment and a percentage of domestic content on export production.

⁶ Mexican contract manufacturers of printed circuit boards (Encitel and Mextel), computers and peripherals (Unisys), hard drives (Compuworld), and suppliers of cables and harnesses (Electronica Pantera).

⁷ In the *municipios* of Zapopan, Tlaquepaque, and Tlajomulco.

pulled out of manufacturing and outsourced it to a handful of giant global contract manufacturers (CMs) (Gereffi, Humphrey and Sturgeon, 2005). By the end of the 1990s, a few US-based CMs such as Solectron, SCI-Sanmina, Flextronics, PempStar, and Jabil Circuit dominated electronics manufacture and assembly worldwide. They displaced practically all Mexican CMs and suppliers as Guadalajara's lead MNCs shifted outsourcing from domestic contractors and suppliers to these giant firms.⁸ By 2003, the accession of China to the WTO in 2001, four-times-cheaper hourly wages, and the huge Chinese market beckoned several US-based CMs from Guadalajara to China. While original lead MNCs like Motorola, NEC, and Lucent shut down their Guadalajara plants, IBM and Hewlett-Packard streamlined their Guadalajara operations to call-center and marketing activities (Gallagher and Zarsky, 2007). From 2002 to 2006, Guadalajara's electronics industry contracted more than 50% (Palacios, 2006; Dussel, 2008). In the aftermath, the industry restructured, on the one hand downgrading to assembly operations,⁹ and on the other, upgrading to niche US markets, where delivery time is Mexico's comparative advantage.

CONCLUSION

This chapter outlined and briefly accounted for three waves of industrial change with important repercussions in urban growth and decline affecting cities in the North and South. Light comparisons between American, European, and Latin American cities were made to illustrate some of these changes from Fordism to post-Fordism, resulting in part from the East-West takeover of mass production over lean production, the urban effects of Latin America's ISI liberalization, and the current second phase of globalization spearheaded by the rise of China as a new driver of the global economy with potential for realigning extant development trajectories in

⁸ U.S.-based global contract manufacturers control a significant share of the world's electronics manufacturing capacity by selling manufacturing services to lead MNCs like IBM, Hewlett-Packard, and Nortel.

⁹ According to Partida (2004), Guadalajara's electronics industry employed 80,000 people in 2001. Plant workers are hired by domestic and American affiliates of staffing agencies. Most workers are hired under temporary contracts with little or no benefits. Staffing agencies provide a new form of flexible labor brokerage to electronics MNCs.

the North and South. The boom and bust of Guadalajara, Mexico's Silicon Valley was presented as a case of periurban industrial shrinkage brought about by the recent transformations in electronics global value chains, which reconfigured to take advantage of Asian comparative advantages, particularly those offered by China.

Expert opinion is divided on whether Latin American cities like Guadalajara will survive the onslaught of Chinese manufacturing competition and displacement in US markets, as well as the towering trade deficit that Mexico and the rest of Latin America have with China. The latter deficit in a variety of manufactures ranging from computers and scientific instruments to shoes, toys, and furniture is compounded by illegal imports (contraband) of Chinese products, which have begun to bust the Brazilian and Mexican clothing and textile industries (Jenkins, 2009). Chinese import penetration also threatens interregional Latin American trade integration (i.e., Mercosur) as Brazilian exports to Argentina, for example, are being displaced by Chinese imports (Jenkins, 2009). China's high demand for primary commodities from Latin America and Africa also risks subverting economic diversification efforts by driving countries in the region to specialize in resource and primary commodity exports. "Thus trade with China is reinforcing the pattern of specialization which has emerged in [Latin America] since the lost decade of the 1980s" (Jenkins, 2009: 8). In sum, China's role as a global powerhouse, which Henderson (2008) associates with a new phase of globalization, and which this paper dubs a "second" phase, is starting to have important industrial and development consequences for both the North and the South. While countries with strong natural resource and agricultural export sectors in the South will compensate for losses in manufacturing exports, the latter sector, a driver of urban industrial growth, will tend to shrink (Hanson and Robertson, 2006), as witnessed in Guadalajara's Silicon Valley. This industrial shrinkage may be transitory or permanent, depending on a host of internal and external factors. However, its urban decline effects cannot be dismissed. As cities link and delink from global circuits of production and trade, their populations are more exposed to the benefits and risks of global economic integration. Regarding generalized benefits, the record in Latin American cities is mixed, with the latest research showing that benefits of global integration accrue to the top decile of the population, while low-income populations remain overexposed to the downward effects of recession, rationalization, and productive reorganization (Portes and Roberts, 2005).

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IV. INEQUALITY, URBAN SHRINKAGE, AND URBAN POLICIES IN BRAZIL

*Sergio Torres Moraes**

INTRODUCTION

This study intends to clarify the reasons for the increase in socioeconomic inequality in Brazil following globalization. It also discusses how these events affected urban morphology and population mobility in Brazilian metropolitan areas.

The territorial dynamics of Brazilian cities cannot be understood without considering the enormous socioeconomic inequality generated from the long-standing historical, economic, and political processes. A better understanding of the economic transformation that occurred in the last three decades and the adoption of neo-liberal economic reforms in Brazil (and in most of Latin American countries) is important to build a comprehensive framework to explain the industrial and demographic shrinkage in the continent.

This study starts with a brief overview of the history and current socioeconomic context of Latin America and Brazil. In the second part, the work addresses how increasing inequality associated with macroeconomic choices might specifically have influenced population mobility and urban morphology in Brazil. Finally, it will discuss some government attempts to deal with the problem.

BRAZIL INEQUALITY LEGACY AND OLIGARCHY PERMANENCE

Many of the reasons for Latin America's high degree of inequality are historical, relating to the region's particular forms of colonization and slavery,

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which established an unfair social and economic structure that remains today in spite of modernization.

The path of modern Brazilian politics is a strong example of oligarchy permanence. From the proclamation of the Republic in 1889 up to 1988, the right to vote was harnessed to education, but the aristocracy did not make any major attempt to expand basic education (Ribeiro and Soares, 2003). Therefore, by restricting the right to vote for illiterates, the Brazilian aristocracy guaranteed the exclusion of the majority of the population from political participation, and the great mass of poor workers spent the 20th century with very limited citizen rights.

Another important issue related to the increment of inequality is the land ownership in a patrimonial society, such as the Brazilian one. Until 1850, land occupation in Brazil was the legitimate form of getting ownership. At that time, urban regulations started to be created to form a capitalist real estate market and to ensure that the city's "better slice" would be in the elite's hands, expelling the low-income blue-collar workers from the well-structured city centers (Maricato, 2003).

In these contexts, it is understandable that the search for ways to escape from various conditions of subservience has stimulated the great migratory movements that defined Brazil's internal migratory patterns.

Particularly, in the second half of the 20th century, a very intensive urbanization occurred, mainly due to a change in the Brazilian economic base from agriculture to industry. Moreover, the arrival of neo-liberal economic policies had a strong impact on low-income workers, increasing socioeconomic inequality within metropolitan areas and decreasing the growth index of large cities in Brazil.

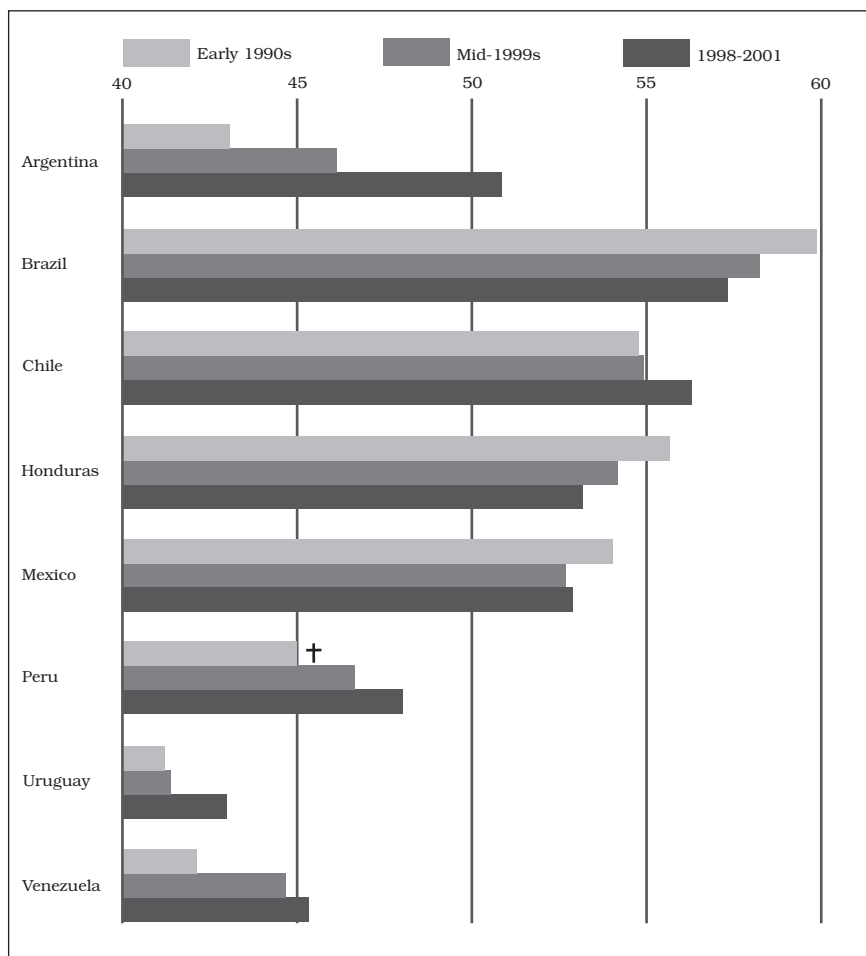
Although some countries (Brazil among them), since the early 1990s, have decreased inequality by implementing strong social policies, most Latin American countries continued to experience further widening of this gap.

In Brazil, the adoption of neo-liberal economic policies in the 1980s has brought benefits for some regions of the country, but it also played a determinant role in increasing inequality, mainly in the urban areas, contributing to shape an unequal territorial pattern, which has been segregating the poor population in non-structured areas.

It is very interesting, as highlighted by Maricato, that neither the private real estate market nor the housing public policies assisted the great contingent of poor people who reached the cities between 1960 and 1980. The Brazilian government (mainly the municipal administrations) has tolerated,

but also neglected, the illegal settlements in the peripheries as a way to perpetuate privileges and investments for the elite (Maricato, 2003).

Figure 1. Unequal places
Gini Index¹



¹ The lower the number the more equal the distribution of income.

⁺ Selected regions.

Source. World Bank.

Unfortunately, this tolerance and the lack of policies for housing alternatives affected negatively the overall environment of the cities. Therefore,

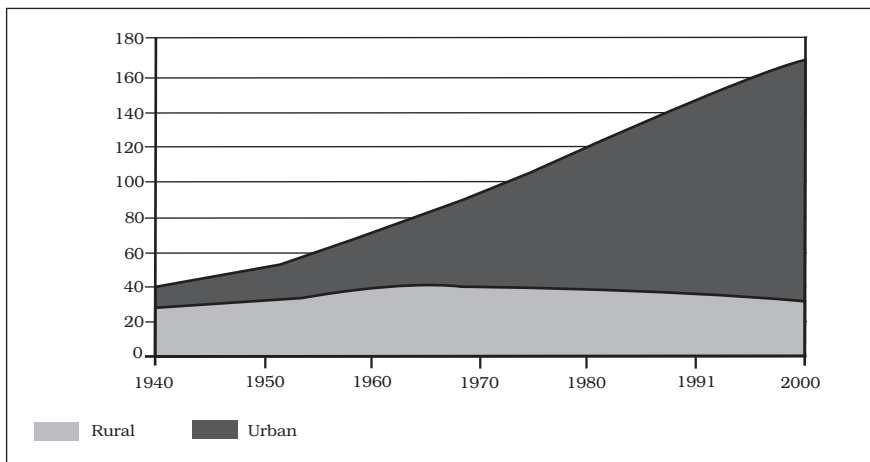
more than two decades before the “Washington Consensus,” Brazilian cities witnessed a development process that led to a landscape of urban socioeconomic segregation, inequality, crime, and diseases.

In spite of many socialist attempts for social reforms in the last decades, modern Brazil has not been able, until now, to overcome the social exploitation established from the very beginning of its colonization.

SOME ISSUES IN SOCIOECONOMIC AND TERRITORIAL DYNAMICS IN BRAZIL

Since the 1940s, 83% of the Brazilian population has been living in urban areas. Huge urban growth, due to national economic policies (Import Substitution Industrialization-ISI) that in the 1970s further enlarged the industrial parks in the big southeastern cities, attracted additional millions of people from rural areas (by 1980, almost 43 million rural people had moved to the cities). This important migratory dynamics within the country has changed the territorial and social structure of Brazilian cities and helped the industrial development of the southeast part of the country (particularly the São Paulo metropolitan area) until the late 1980s.

Figure 2. Rural/urban population dynamics in Brazil, 1940-2000
(millions)



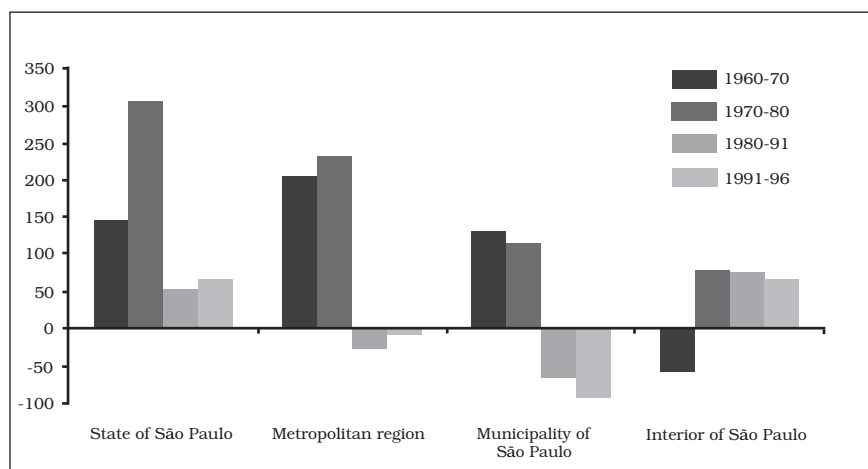
Source. IBGE, Demographic Census 1940, 1950, 1960, 1970, 1980, 1991, 2000.

Looking forward to better quality of life and job opportunities, the rural population foresees an “urban paradise that has materialized as a nightmare” (Milton Santos’ metaphor in Maricato, 2003). The cities were not prepared physically, politically, or economically to receive such a large contingent and, at the middle of the century, the city’s periphery swelled and concentrated a huge number of poor people, previously spread in rural areas (Maricato, 2003).

In the second half of the 1970s, the high economic inflation and the increased external debt led to huge economic distortions, making speculations in the inflationary game more profitable than productive activities (Rodrigues-Pose and Tomaney, 1999). This had a strong impact on increasing social inequality and creating a disincentive to industrial production.

The relative economic stability reached in the late 1980s and the economic macro policies aiming at foreign direct investments (FDI) favored a relative dispersion of economic activities in the southeast states, from the metropolises outward the hinterland, redirecting the migratory flows (Perillo and Perdigão, 1998).

Figure 3. Evolution of net migration. State of São Paulo. Metropolitan Region. Municipality and the interior, 1960-1996



Source. Perillo and Perdigão (1998).

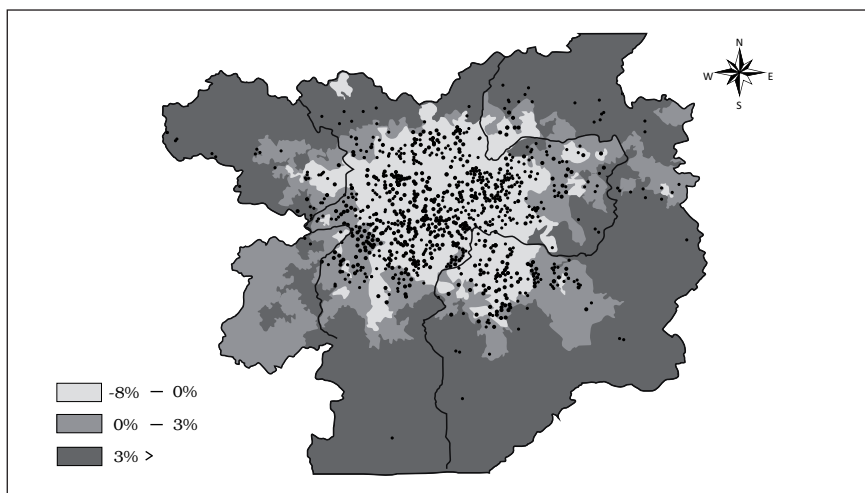
Even though there were benefits brought to some areas by capital mobility, there was also a negative impact on the already well-structured industrial areas where highly skilled workers lost their jobs. The Metropolitan Region of São Paulo is a strong example: it has negative migratory balance caused by

this dispersion toward the state hinterland. The urban crises, the lack of economic opportunities, social inequality, and its territorial consequences ended up pushing the population from the central metropolitan areas (Brito, 2006).

Despite the urban crisis, the land market has always played an important role to establish a pattern of occupancy and mobility in Brazilian cities. Many subcenters in the metropolitan area of São Paulo and São Paulo itself watched their city centers decay since the 1970s. At the same time, an active real estate market shifted to new urban areas, inducing relative mobility of the elite within the metropolitan area.

In an important study, Torres (2007) tried to relate urban growth/shrinkage to real estate investments and spatial patterns. His data showed that population growth happened mostly in areas where the price of land was low and that population decreased where real estate investments grew most significantly.

Map 1. Real estate investment (1985-2003) and rate of population growth of census survey areas (1991-2000). São Paulo's urbanized area



Source. IBGE, *Demographic census 1991 and 2000*, IBGE, São Paulo; also *Embraesp Bulletin 1985-2003*, São Paulo.

The data gathered by Torres also indicated that, between 1995 and 2003, the residential real estate market in the Metropolitan Region of São Paulo built nearly 400,000 residential units, used 3 million square meters of floor area, and almost had US\$10 billion in private investment. Torres noticed

that the bulk of such investment took place in areas that lost a significant share of their population between 1991 and 2000.

In spite of such investment, there is the fact that in the Metropolitan Region of São Paulo, access to housing credit demands a family income of at least 10 minimum wages. We know, however, that only 40% of the population reaches that requirement. The public investment in housing did not reach 5% of the remaining population and the house deficit in the ABC region in 2008 was around 68,000 units (Maricato, 1999).

At the same time, the real state market in the ABC region keeps selling around 800 medium-class housing units a month (Creci SP, 2009). It seems then that the real estate market production is not likely connected to the population territorial dynamics, since the housing units built by private companies and aimed exclusively at medium- and high-income markets are not affordable to poor families. Besides, the lack of land regulation enforcement and zoning that raises housing prices in infrastructured city areas keep pushing poor people to the periphery.¹

This is causing a “new kind” of gentrification and creating an informal land market in the fast-growing peri-urban areas.

GLOBALIZATION AND BRAZILIAN INDUSTRIAL AND URBAN DISPERSION

In the late 1980s, the federal Brazilian government started to implement a great fiscal reform with the goal of economic liberalization. This process, initiated in 1985 under Sarney's government, continued throughout the 1990s. A progressive demise of import prohibition and reduction of import tariffs broke away from the “protectionist import substitution industrialization” (ISI) policies and drove the country toward an attractive and permissive new economic panorama for “foreign direct investments” (FDI). This placed the country into the “new economic order” dictated by the “Washington Consensus” (Rodrigues-Pose *et al.*, 2001).

Even though the modernization of the outdated Brazilian industrial park could be seen as a positive attribute of the emerging international market, the territorial effects of the globalization process for developing countries are much contested. On one hand, it could reduce inequality by putting the

¹ In 2008, in the ABC region, 9% of the overall region population (around 255,000 people) lived in the slums (Correia and Siviero, 2008).

country into the world economy and transferring better wages from north to south. On the other hand, the FDI's search for better locations (low wages, fiscal incentives, better accessibility) within the country could decentralize industrial poles, punishing the former industrialized regions with highly skilled workers (Rodrigues-Pose and Tomaney, 1999).

In developing countries such as Brazil, the complexity of the de-industrialization phenomenon could not be simplified by comparisons with developed countries (such as the US or UK) where the process of de-industrialization has never been overcome by other economic sectors. Cases such as the ABC region in São Paulo are described by some authors as a "productive restructuration" (Campolina and Campolina, 2007). Data show that the reduction of industrial activity was not accompanied by a strong loss of productivity and the economy was sustained by other sectors (see Table 1).

Table 1. Changes in industry within São Caetano do Sul, 1991-2005

	<i>Commerce</i>	<i>Construction industry</i>	<i>Industrial jobs</i>	<i>Services</i>
1991	7,948	2,177	23,777	24,325
1999	9,236	2,488	14,684	46,685
2005	14,264	5,942	19,187	64,758

Source: Seade - Government of the State of São Paulo.

Other studies, such as those of Rodrigues-Pose and Tomaney (1999), do not agree with these data and state that in the ABC region, financial services, real estate services, and, above all, business services and services to industries are clearly underdeveloped.

Rodrigues-Pose and Tomaney (2001) also noticed that the municipalities hosting the largest industrial complexes in the ABC region in São Paulo metropolitan area have lost much of its gross value added to the rest of the state between 1980 and 1983. For these authors, the tertiarization of the economy (much of it absorbed by the informal sector) is not sufficient to compensate for the loss of well-paid industrial jobs.

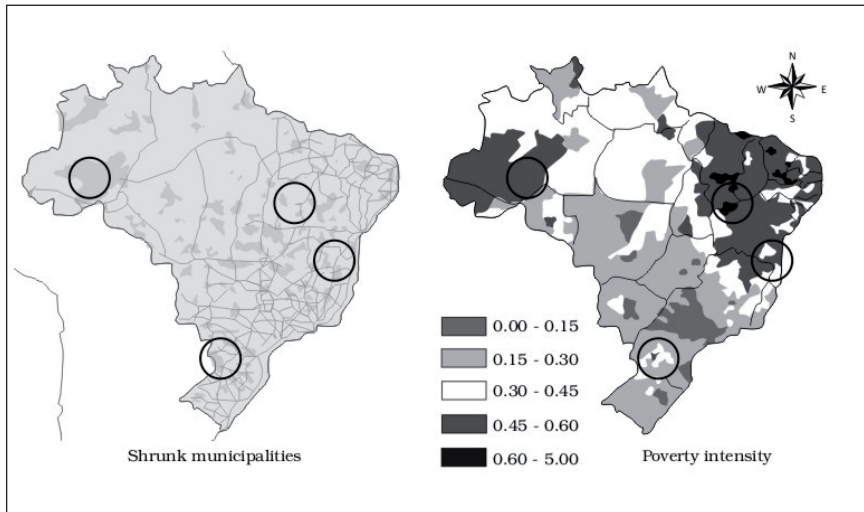
Urban shrinkage in Brazil

A recent analysis published by the Brazilian Institute of Geography and Statistics (IBGE, by its abbreviation in Portuguese) shows that 27.2% of the 5,560

municipal districts in Brazil (with 1,496 cities) had a population reduction between 1991 and 2000 (IBGE, 2004). However, these numbers do not imply real socioeconomic shrinkage for larger urbanized areas. Almost all (99%) of the actually shrinking municipal districts have fewer than 50,000 inhabitants and, in many of them, their urbanized areas have continued growing while the rural areas have emptied.

Other recent government research has raised the alert about the strong decline in birth rate, showing a continued decrease in births since the 1980s. Nowadays, Brazil's index is 2.1 children per woman, compared with 3.5 in 1984. At this pace, the country will start to lose population by 2035. Although the declining birth rate has not yet appeared to affect territorial patterns, the broader phenomenon of population shrinkage in urbanized areas has already caused a decline in economic growth. Comparing the map of population decreases with that of poverty intensity, we can detect clear correlations (Map 2).

Map 2. Population evasion and poverty relationship



Source. IBGE, 2004 and IBGE/IPEA/João/Pinheiro, 1996.

As viewed above, in Brazil, the concept of urban shrinkage does not follow the patterns found in Europe or the US, although several issues related to globalization can be used to explain the population mobility between Brazilian cities.

Several scholars in Brazil have been studying the industrial dispersal toward the hinterland and its consequences. The so-called phenomenon of “dispersal urbanization” has been observed not only under the globalization perspective but also under endogenous factors such as public policies targeting industrial decentralization, the development of medium-sized cities in the hinterland of the State, as well as changes in technical spatial patterns of industrial plants after the 1970’s (Reis, 2006).

Reis’ studies (2006) raised some interesting issues related to population mobility, focusing on the new territorial reorganization in terms of regional infrastructure. Although not significant in number, Reis’ study highlights the importance of the elite’s mobility. Trailed by the higher income population, services and commerce have also left the city’s central area, creating new “subcenters” and leaving behind considerable amounts of idle housing.

The low quality of life due to the city’s congestion and the hazards of everyday routine are also indicated as one important issue related to medium- to high-income population evasion from the city centers. This population leaves metropolitan areas, seeking a new way of life in closed condominiums or smaller cities.

In fact, it is noticed that the high- and medium-income areas of the city are experiencing the bulk of population losses, except for a few edge cities nearby, beyond the first ring suburb. It is also related to a strong speculative real estate process (Torres, 2007).

In Brazil, where there are few housing credits for low-income residents, the gentrification of urban sectors contributes to the displacement of low-income residents away from central areas, thereby increasing the number of slums in the city periphery.

Thereby, the areas unavailable for the private real estate market and the public areas usually located in depreciated areas shelter the poor population: brown fields, edge of streams, hillsides, lands subject to floods or fragile environments (where the absence of protection legislation and fiscalization defines depreciation) (Maricato, 2003).

An unfair territorial dynamics, generated by the Brazilian land oligopoly, the government’s incapacity to produce jobs, the highly speculative real estate market, the lack of housing credits to low-income workers, and the inadequate use of land policies has led to the emergence of empty rural towns, emptied and decaying (or sometimes gentrified) metropolitan areas, dispersal (and expansive) urbanization and swelling slums in the metropolitan outskirts.

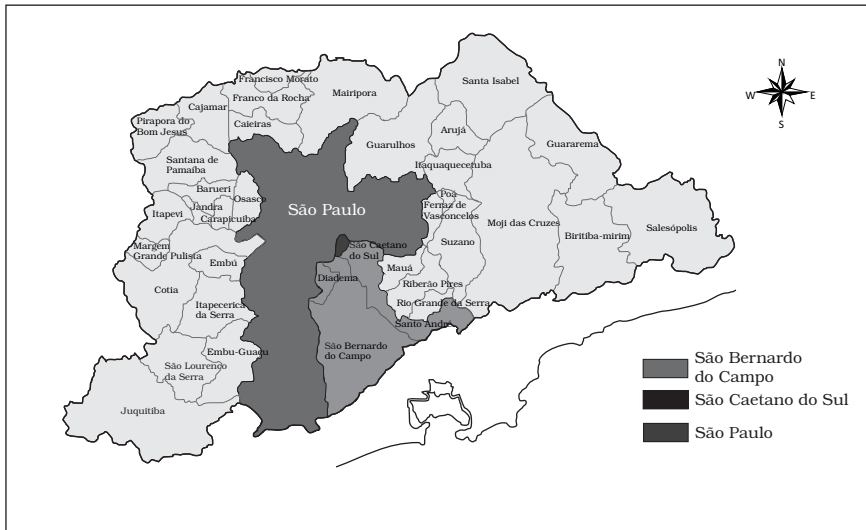
A CASE OF URBAN SHRINKAGE IN BRAZIL – SÃO CAETANO DO SUL

São Caetano do Sul is located near the southeast end of the city of São Paulo and within the limits of the São Paulo metropolitan area, in a region known as ABC, which concentrates the automobile industry under ISI (old plants). The city could be one of the prime examples to illustrate the effects of Brazilian de-industrialization.

In the 1930s, General Motors pioneered the Brazilian Fordist industry, settling its first plant in São Caetano do Sul, adjacent to the railroad that led to the biggest Brazilian port, Santos. In the following years, mainly under the Juscelino Kubitschek government (1956-61), the ABC region sheltered several international automobile enterprises such as VW, Mercedes-Benz, and Ford and became a major Brazilian industrial center.

São Caetano has a small territory (15 square kilometers) and struggles to find space to grow. Its 154,000 inhabitants have a high-income profile and the city has the status of being the cradle of Brazilian industrial development and the Brazilian labor movement in the last century.

Map 3. São Paulo Metropolitan Region



But São Caetano do Sul currently finds itself in an odd but not surprising situation: at the same time that there has been a decrease in population (between 1991 and 2000, it recorded a negative annual growth of almost 1%)

there was an idleness of public services, especially public schools. There has also been an increase in the construction of apartment buildings, which are not accessible to blue-collar residents. The population is aging, becoming wealthier, and having fewer children (Cf. Medice, 1993).

São Caetano's shrinkage originated much before the "new world order" led by neo-liberal policies. Yet, under the Kubitschek government, macroeconomic policies expanded to the national road system, which started to substitute railroads as the principal transportation mode in the country.

Within this context, several important industries (General Motors among them) that originally chose to locate in the city because of its proximity to the railroad, which led to the port, moved away in the 1960s to be closer to newly developed highways.

This first industrial relocation had a significant impact on the urban areas along the old railroads and may be considered as the beginning of the emptiness and degradation of vast portions of the territory in former railroad-adjacent areas.

The process of liberalization of the Brazilian economy in the 1980s certainly played a significant role in the São Paulo Metropolitan Region's loss of economic power. FDI impacted other regions in the state and in the country with less-skilled population in a process some authors have named "reverse polarization" (Rodrigues-Pose and Tomaney, 1999).

Reverse polarization is highly evident in the Sao Paulo ABC region, which is likely to have been the most negatively affected in this process. Despite having the country's higher skilled workforce, this region watched their automobile multinationals relocate their plants or start new plants in less expensive and less unionized regions of Brazil (e.g., Minas Gerais, Rio de Janeiro). As a matter of fact, large industrial complexes and the network of small and medium-sized enterprises that developed around them in the ABC region became less competitive as a result of high wages and the development of structural bottlenecks associated with congestion, lack of space, strong and conflict-prone trade unions, and overall low quality of life (Rodrigues-Pose *et al.*, 2001).

In the 1970 census, São Caetano presented an index of demographic growth that was lower than the other municipal districts of the area; since 1980, it has shown an absolute decrease in number of inhabitants. São Caetano do Sul's 1980 census showed 163,282 inhabitants; the 1991 census showed 149,436, and the most recent data (2006) reflected a total of 137,277 inhabitants (Table 2).

Table 2. Changes in the population of São Caetano do Sul over time

	1980	1991	2000	2006
Aging index (%)	31.42	53.49	89.53	106.94
Population Annual Geometric Growing Index - 2000/2006 (in % a.a.)				-0.36
São Caetano do Sul				
Population Annual Geometric Growing Index - 1991/2000 (in % a.a.)			-0.70	
Population Annual Geometric Growing Index - 1980/1991 (in % a.a.)		-0.81		
Urban Population	163,268	149,436	140,241	137,277

Source. Seade - Government of the State of São Paulo.

In the 1980s, the growth of commerce, services, and industrial diversity (Table 2) helped the municipal district achieve growth in its percentage of professionals with higher incomes, resulting in the largest IHD among all cities in the country in 2003. However, the high level of São Caetano's quality of life has not attracted new residents because the real estate market has raised the price of land and housing. The high housing cost and low birth rate are considered to be among the primary causes of São Caetano's population loss.

Trying to reverse the effects of industrial decay, the leftist political-administrative continuity (led by the City of Santo André) inside a sociopolitical context unique in Brazil, set up an intermunicipal consortium with the intention of planning interventions at the regional level for the Basin of Tamanduateí River. This program sought the eradication of illiteracy and developed a plan to integrate public health services, a program for the social reintegration of homeless children, programs for professional qualification, initiatives to increase productivity chains, and, in the municipal context, collaborative budgets (Somekh and Campos, 2001).

In spite of the relative success of these actions, local authority planners recognize that even this body will find it difficult to halt the tide of restructuring flowing over the region. They also recognize that this is a first step toward the creation of a permanent forum for all the actors involved in the development of the area that may resume industrial development.

Many development proposals for the ABC municipalities (for instance, the 1996 International Planning Contest for the Tamanduateí Basin Restruc-

ture and the 2005 São Caetano Technological District) failed because they have produced unrealistic projects that have not considered the local real estate market. Additionally, the difficulties of getting financial and political support for infrastructure projects and dealing with construction already in progress (shopping centers, business centers, and universities) have quashed many of the administration's dreams (Somekh and Campos, 2001).

Particularly, São Caetano do Sul has been trying to cope with the shrinkage problems by requiring more commercial than residential occupancy in the central areas (a 70% to 30% ratio) and reducing the floor area of new residential buildings.

The city is also trying to attract (2005) new technology industries through public-private partnerships. The idea is to build a new technological pole as well as high-income, gated residential condominiums on an old, unused industrial area. However, even though a technological pole might bring 'new oxygen' to the city's economy, it might increase social inequality and the gentrification process.

It is important to emphasize that São Caetano's wealth has not reached everyone in the city. The poor continue to lack access to housing and, consequently, continue to be expelled to the edge of the metropolis.

THE "STATUTE OF THE CITY"

Many city administrations in the metropolitan regions that are concerned about the impact of shrinkage are trying to cope with the problem by invoking a new federal law (#10257/2001) known as the "Statute of the City."

It is not the aim of this study to explore the infinite possibilities offered by the law to regulate and democratize urban land. Rather, it is cited in this context because it is aimed at promoting land reform in urban areas and is considered crucial in changing the elitist nature of previously existing policies and programs. It is regarded a better tool that enables city administrators to deal with housing inequality and strong speculation in the real estate market.

The law revises a chapter of Brazil's Constitution (1988): it incorporates provisions that have legitimized a broad array of new grassroots claims for social welfare policies. Specifically, the Statute of the City elaborates on the principle of "social function of property and of the city", and it provides a "range of legal, urban, and fiscal instruments to be used by

municipal administrations, especially within the context of their master plans, to regulate, induce, and/or revert urban land and property markets according to criteria of social inclusion and environmental sustainability” (Fernandes, 2007).

In many cities of the ABC region, including São Caetano do Sul, the Statute of the City has been used to make possible the establishment of public-private partnerships and the development of ‘void’ areas.

Unfortunately, many administrations have failed to take advantage of these new opportunities because of the difficulty of breaking the urban land oligopoly, the lack of public resources, and their own inadequate use of legal tools.

In São Caetano do Sul, for instance, despite the fact that the Statute of the City legally requires municipal administrations to reserve infra-structured land for low-income housing, the city’s new master plan does not include any, revealing the clear intention of the city’s administration to preserve the gentrification process.

CONCLUSIONS

This paper has intended to clarify how socioeconomic inequality and globalization may have affected urban and regional morphology and population mobility in Brazil.

The economic decline of the 1980s and 1990s, the rise of globalization, the retreat of social policies, and an elitist and incomplete welfare state contributed to more recent increases in income inequality. Brazil’s territorial patterns have replicated the dynamics of socioeconomic inequality. Specifically, the dynamics of the real estate market have kept infrastructured areas in the elite’s hands. In this process, fragile environmental areas (mainly in the city’s outskirts) became a necessary alternative to illegal low-income occupancy.

We can also point out at least five main factors that affect shrinkage in Brazil: 1) the strong speculative land market targeted at the medium- and high-income population; 2) industrial restructuring due to FDI; 3) intraregional imbalance between cities’ net economies, promoting migration from towns and rural areas to medium cities (lack of jobs for young people); 4) lack of housing policies for the low-income population; and 5) congestion in metropolises, low quality of life, and insecurity.

As a result of these trends, city cores have been losing population, thus raising land prices and increasing gentrification. Meanwhile, the blue-collar residents have migrated to the outskirts of the city, illegally occupying environmentally fragile areas.

While a progressive new law (Statute of the City) brings good initiatives on the table, such as legal requirements for low-income housing within infrastructured areas and new legal mechanisms to avoid real-estate speculation, a more effective monitoring of municipal efforts to comply with the law is required. More broadly, it is difficult to evaluate whether the new law can reverse centuries of inequality and confer real citizenship to Brazil's poor.

For example, the establishment of public-private partnerships to revitalize shrunken areas, as in the case of Santo André and São Caetano do Sul in the ABC São Paulo region, might set up patterns of development that continue to gentrify large urban areas by promoting the construction of gated residential areas and "big box" enterprises. Yet, given that the new law was established less than a decade ago, more time is necessary before we can properly evaluate the effectiveness of the Statute of the City in reversing shrinkage, revitalizing abandoned urban areas, and preventing gentrification.

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V. ARE FIRST GENERATION SUBURBS OF MEXICO CITY SHRINKING? THE CASE OF NAUCALPAN

*Sergio Flores Peña**

INTRODUCTION

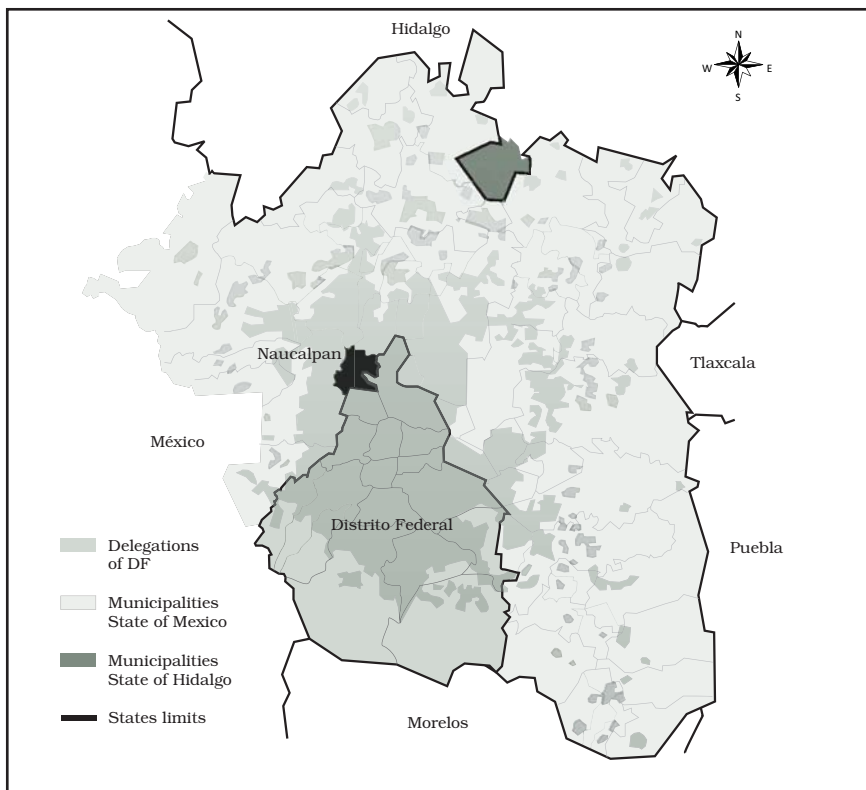
During the 1950s, industrial substitution policy was consolidating what would be known later as the “Mexican Miracle” of the 1960s. However, this economic bonanza was only one of the many transformation processes affecting the basic structure of the Mexican society. Along with industrial growth, there was the “green revolution” of the agricultural sector with technical modernization and export orientation. Simultaneously, an urban middle class, highly tied to the expansion of bureaucratic positions emerged as domestic markets consolidated. Such changes implied an equally dramatic process of population growth and its distribution in space. While Mexico as a whole grew at a demographic rate of 3% or more, the main cities, particularly Mexico City, Guadalajara and Monterrey, grew at twice that rate. It was in this context that suburbs appeared in Mexico City.

Naucalpan, State of México, is a municipality located in the north-western edge of the Federal District (DF), where Mexico City was founded and historically developed (see Map 1). It is traversed by the road to the city of Querétaro, which eventually continues to reach Laredo Texas, and the American east coast –this connection was the main link to the US economy and the main economic corridor between the two countries. Naucalpan’s topography is a continuation of the hilly west side of Mexico City. As the home of the wealthiest Mexicans, it provided a great opportunity for middle-to-high-end real-estate development. During the 1950s (known as the Uruchurtu era), the government of the Federal District (DF) implemented an urban policy aimed at modernizing the city in an “orderly manner”, which in practice, meant

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massive investments in public services and infrastructure for the inner city, while drastically restricting new developments (Mata, 2002).

Map 1. Naucalpan's Location in MCMA



Source: <http://www.flickr.com/photos/21903848@N08/2109697134/>.

As all roads “lead to the north” and especially the northwest (see Map 1), the first choice for new developments, residential and otherwise, was Naucalpan: just a few steps beyond the present Mexico City boundary, traversed by the main road and railway, and free of all restrictions. Subsequently, Naucalpan flourished as a booming industrial town with many new middle-to-high-class residential areas. By the 1960s, it became the most industrialized municipality of the country, surpassing Guadalajara and Monterrey.

However, the picture changed in the 1980s, when the expansion of the services economy and a relative relocation within the city produced signs of

population stabilization and decline, which continue to this date. Currently, Naucalpan faces the dilemma of what to do next as it contemplates redevelopment alternatives, along with the pressure from existing industries for the preservation and maintenance of industrial areas as well as residents' opposition to major new developments.

Historically, Naucalpan was the initiator of the industrial expansion of Mexico City's Metropolitan Area (MCMA) towards the north, and has enjoyed a position of leadership that has proven fundamental in achieving the desired economic development.

Currently, five entities, including Naucalpan (four municipalities of the State of México and one delegation of the DF), account for 71% of the industrial products of the MCMA. These comprise Azcapotzalco (DF), Naucalpan, Tlalnepantla and Ecatepec, on the northern edge of the Federal District, and Cuautitlán Izcalli, further north, along the highway to Querétaro (PUEC, 2006a).

As usually portrayed in various essays, shrinkage is basically understood as relatively large shares of population loss, resulting from the process of global economic restructuring, which implies the reorganization of economic, political and social life in specific places. In some of them, the resulting population loss is usually tied to the demise of economic "relevance" –a spatial mismatch that devalues labor capacities and turns fixed capital obsolete in the form of built environment. In this chapter, we attempt to establish the conceptual base for understanding the transformations in urban form and activity patterns in the perimeter of Naucalpan as a component of Mexico City's Metropolitan Area.

The issue addressed here is how changes in economic activity patterns combined with changes in urban form are shaping the future conditions of those who live in Naucalpan. However, the central question on this subject relates to the kind of shrinkages that result from certain kinds of urban restructuring processes, and their implication for wider and more relevant themes of social welfare and sustainability. In this respect, the case study of Naucalpan can help us understand a concrete manifestation of the process of economic restructuring providing us with the empirical evidence that can allow us to refine, adjust and even reassess theoretical formulations.

The analysis of situations, actors and processes is presented in eight parts. We begin with a discussion of the conceptual approach used to situate the notion of "shrinking cities" within the Latin American context. In the second section, we present an overview of the national policy of industrialization through import substitution as the foundation for the industrial development

of Naucalpan. Section three explains Naucalpan's urban form and the nature of its socio-spatial dynamics, while sections four and five describe and discuss the social and economic trajectory of Naucalpan in relation to the national economic policies and the way alliances and specific interests worked to produce recent conditions and change processes. Section six presents the current conditions of development based on empirical data gathered from recent studies of manufacturing and services in order to address the initial question about shrinking conditions. Finally, sections seven and eight offer some conclusions about the notion of shrinking and the process of structural change in Naucalpan.¹

CONCEPTUAL APPROACH: THE CITY AS A SPACE OF RELATIONSHIPS

In this work, we have framed the analysis of "urban shrinking" in the wider concept of the social division of labor as the varying geography of opportunity offered by an economic arrangement in a given place (a city) at a given time. This site-specific economic arrangement –part of a general (global) economic space– is then characterized as a set of productive and distributive relationships, spatially organized for the appropriation of rent (Camagni, 2004). In this sense, an analysis of the shrinking conditions of a city is nothing more than the analysis of the specific relationships in an urban territory or in a fraction of it under one public administration (local government), as in the case of Naucalpan in the MCMA.

The conceptual approach centers on the interrelation between the processes of economic change and those of territorial transformation, whose particular combination in a given institutional setting and time period produces differentiated results of wealth generation and quality of life.

On the consumption side, Naucalpan shows a highly polarized situation. Around half of the developed area is occupied by middle- to high-income residents, with patterns of consumption influenced by global symbolic content. In this context, globalization can be observed in the consolidation of Plaza Satélite, which is the most important (shopping) center for luxury goods consumption in the whole northwest region of MCMA. It is also a source of "distinction" or social positioning (Bourdieu, 1988) as a recognized place

¹ All the economic and demographic data were taken from Mexico's Population and Economic Census, edited by INEGI.

of centrality and prestige in the metropolitan region. Together, the upscale residential areas, the Plaza Satélite commercial and services center, and the commercial corridor along the highway to Querétaro form the older core of the most prosperous suburban section (the northwest) in the MCMA (see Map 2).

Map 2. Urban structure and central elements



Source. Developed by the author based on the PMDU of Naucalpan.

The other half of Naucalpan’s developed territory is occupied by the low-income groups, with some living under poverty conditions. This section houses a good portion of those who work in the industrial and commercial activities in the municipality. However, their consumption patterns are hardly related to those previously described. They rely mostly on the traditional city center for services and shopping and reside in a place that looks like “anywhere” in México (great diversity of small businesses, architectural types and different quality levels, intense use of commercial signs, heavy traffic and congestion), with no noticeable architectural features other than the building of the municipal government (*Palacio Municipal*). This population is certainly oriented towards basic consumption (wage goods) and can be the most affected by economic restructuring.

This very polarized pattern of socio-spatial differentiation defines, in principle, the urban form of Naucalpan and the possibilities of its evolution. The “modern-well-to-do” area that surrounds the main road towards Querétaro is basically dominated by “station wagon urbanism” and formerly young suburbs of lesser economic possibilities (Weiss, 1988). This area comprises all formal (legal) subdivisions that are functionally organized South-North, following the highway, and enjoying access to downtown Mexico City. It forms part of a well-known conservative conglomerate that perceives land-use change (density and activity) as a threat to the quality of life of the area. Zoning controls and single-family detached houses are key symbols of prestige, fiercely defended by the community.

The other half of Naucalpan, composed of middle-income to poor residential settlements—many of them in the process of becoming formal neighborhoods—has traditionally relied on state support to improve its material conditions. As the mix of neighborhood economic activities expands with the growth of home-based businesses, residents’ concerns are geared towards any public measure, service or work that will expand the likelihood of their access to opportunities for better or additional sources of income. However, for these groups, the local (municipal) government has very little to offer, as most of the investment programs related to public works and services fall outside its jurisdiction.

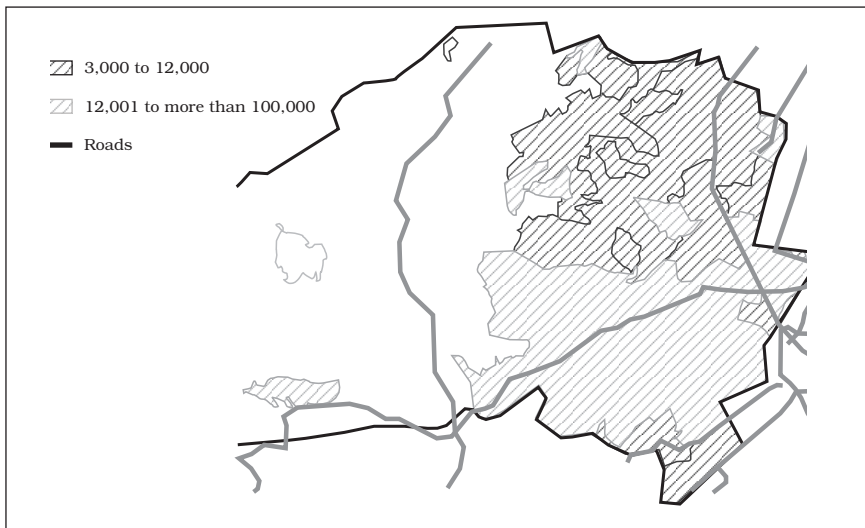
Therefore, public demands from poor settlements are mostly for public services. Their strategies seek access to mainstream economic opportunities which are clearly restricted by the way they are functionally connected to the “modern-well-to-do” areas (along the Querétaro highway), where industrial parks and residential subdivisions are located. The physical link between both groups is the highway to Toluca, which defines an East-West axis of territorial organization and intersects the South-North axis precisely at the traditional city center anchored by the City Hall building (*Palacio Municipal*). Along this road, one can see the extension (towards the west) of the traditional center as an urban corridor of lower profile, mostly made of small retail shops and fewer services (see Map 3).

As a result of the current urban socio-spatial conditions, Naucalpan demonstrates two different faces of consumption-based local economic activity. On one hand, we can observe a prosperous, regionally based center of luxury goods and services, originally associated with upscale residential areas that explain its symbolic (central) position in Mexico City as a whole. This area’s expansion is tied to the transformation of the entire northwest sector of the MCMA. Juxtaposed to it is a mix of low-income and basic consumption and

production sttlements, some of them still in the process of achieving adequate living conditions and relying on state support and on the expansion of the well-to-do neighborhoods in order to gain access to urban infrastructure, services and jobs.

Given this dual pattern of development of Naucalpan’s urban fabric, its future also depends on the degree of obsolescence brought about by real-estate life-cycles and differences in the aging processes of the housing stock. As they reach the fifth decade of existence, the oldest and most prestigious subdivisions, –built during the late 1950s and 60s– are likely to face demand for products in the real-estate market that are more appealing to the life-style preferences of the upwardly mobile professional singles, new couples or smaller families (one or two children). Failing to do so may initiate a housing filtering down process to a new population of lower economic means and of diminished symbolic status (PUEC, 2006a).

Map 3. Distribution of urban areas by income



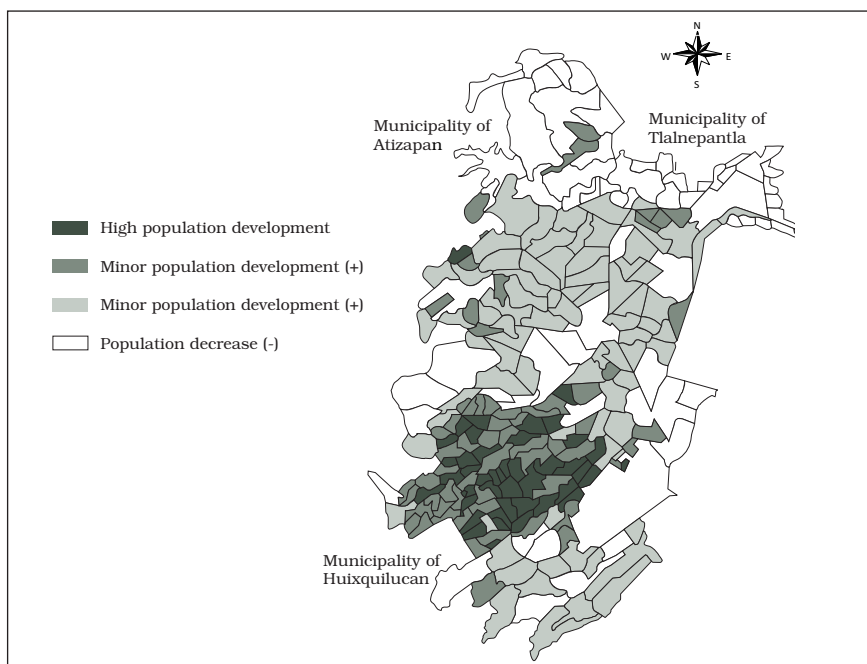
Source. Developed by the author based on data from SCINCE 2000.

The consequences of aging are different for the low-income areas. Dwelling in such conditions corresponds to an open process in time, where community organizations and government programs combine with households’ initiatives in a discontinuous, although sustained, process of home improvement and neighborhood upgrading. The most relevant disruption of

this process comes from reduction in public assistance, although community and household contributions are maintained to sustain residents' livelihoods. Formal real-estate markets are not much of a factor in this process because they are unable to perform in a socio-economic context unattractive to conventional ways of credit and finance.

During times of economic hardship, many small businesses turn to informality for survival, as this allows them to keep the income that otherwise would be dedicated to comply with fiscal obligations (Bustamante, 2008). As part of this process of informalization, many businesses relocate to their owners' homes. New employees are hired in the vicinity, forming an economic network partially based on extra economic relations, oriented to accomplish business survival and to meet labor's basic needs. Problems and confrontations arise when actions, from the market or the state (or both), block or restrict pathways to social mobility. This often leads to the appearance of resistance movements.

Map 4. Population growth by census tracts

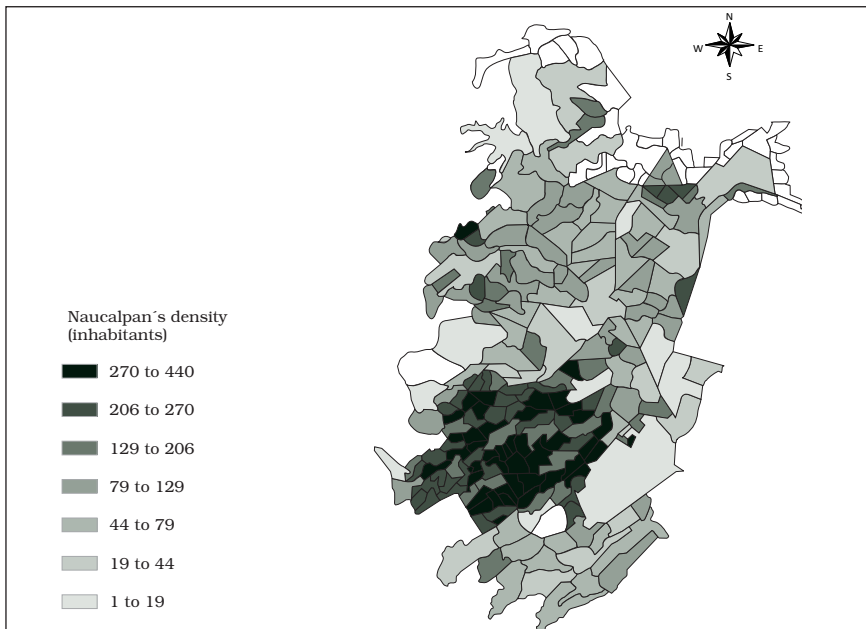


Source. Developed by the author based on data from INEGI, 2000.

However, the poor and low-income areas are far from being homogeneous. They actually comprise a wide variety of material and mobility con-

ditions, very different in nature from the “landscapes of despair” found in cities in developed countries (Wallis, 2007). Location –as access to services and opportunities of the formal city– plays an important role in the process of neighborhood improvement. Living conditions worsen in neighborhoods located farther away from the road to Toluca, which is the organizing axis of the whole area. Although mobility cannot be considered as a rigid pattern, it is generally time–distance governed. Those who settled last form the outermost settlements, and have the least accessible locations and the worst of conditions (see Maps 3, 4 and 5).

Map 5. Population density by census tracts



Source. Developed by the author based on data from INEGI, 2000.

THE PRODUCTION OF NAUCALPAN'S COMPETITIVE ADVANTAGES

Industrialization in Naucalpan started in the early 1940s as a result of the expansion of the local economy derived from external sources, and the consolidation of Mexico City as the most important market and economic center of

the country. In the drive for modernization of the country as a whole, central government officials considered the primacy of Mexico City inconvenient.² Since then, decentralization of (Mexico City) industrial activities became an ever-present feature of the discourse and policies of economic development in Mexico. The first step in this direction was the introduction of the Law of Fiscal Exemption for Industrial Activities (1940), which offered tax breaks to all new industries located outside the Federal District (i.e., outside Mexico City's boundary in that time).

The rapid expansion of the local market (Mexico City grew at an annual rate of 7% during the 1920s and 3% in the 1930s) led to a simultaneous expansion in most industries. For those in need of new spaces, Naucalpan was the best location. It was tax-free, located right on the outskirts of the city, and was easily connected with the main internal markets: old cities of the central region and the emerging regional centers of Guadalajara and Monterrey (Garza, 1987 and 2003; Bustamante, 2008). Furthermore, a more relevant and persistent competitive advantage emerged for Naucaplan: its location in relation to Mexico City. The following year (1941), a new law was issued for the promotion of industry, deemed necessary for the promotion of new productive sectors and indispensable for the country's industrial development. The Law of New and Necessary Industries (LNNI) offered tax breaks of 5, 7 or 10 years to new industries in compliance with the criteria for being "new or necessary." Since there were no geographical restrictions for the law's application, more than 70% of all the new industries were located in Mexico City and its surroundings, once again favoring Naucalpan and other similar locations.

However, the definitive consolidation of Naucalpan as a site of privilege for industrial development and living conditions came during the 1960s and 1970s, at the height of the import substitution period. The final years of the 1940s witnessed the rising of the developmentalist state responsible for steering the national economy into modernization. Apart from the programs of fiscal incentives already mentioned, the federal administration of Miguel Alemán (1946-1952) executed a number of major public works aimed at creating the conditions for development and modernization. To facilitate decentralization, a network of roads was built all over the country, public services were expanded in the emerging urban centers, and the river basin development plans were continued (Grijalba, Usumacinta and Fuerte). How-

² Many of the pacific "caudillos" (former regional military leaders from the Mexican Revolution of 1910) were now living in their states of origin and claiming a share of the benefits derived from this new form (modern) of prosperity.

ever, a good portion of this effort benefited Mexico City and its surroundings, particularly Naucalpan –with urban motorways (*Periférico* and *Viaducto*) and the international airport in terms of transportation infrastructure, and on the social side, with housing complexes for public employees, hospitals, schools and the Ciudad Universitaria campus of the National University (UNAM by its Spanish acronym).

By the end of this period, Naucalpan was linked to the wealthy west and southwest parts of the city –including the new university campus– by the *periférico* (ring road) freeway, and to downtown, the international airport, and the city’s east exit by the *Viaducto* freeway. As will be seen later, this process of construction of the competitive advantages of Naucalpan was not free from the interests of “political-entrepreneurs,” as represented by President Miguel Alemán himself and by his predecessor, Manuel Avila Camacho. The relocation in 1947 of the bullring of the former Hacienda la Herradura, property of President Alemán, from the would-be parcels of Ciudad Satélite to the Cuatro Caminos site located on the jurisdiction’s old highway, marked the beginning of Naucalpan’s dominant position in the MCMA as we know it today. It launched the site planning for the development of the estates of both presidents (Camacho, 2008).

In the 1950s, the new central administration (1952-1958) widened and diversified the policies for industrial expansion with two additional instruments. The first was a guarantee fund for the financing of new industrial initiatives of small and medium-sized businesses (Fondo de Garantía de Inversiones, FOGAIN), and the second was a trust fund for the creation of infrastructure in the form of industrial parks and cities (Fideicomiso de parques y ciudades industriales, FIDEIN). In addition to these policies, which were created in 1953, there were other industrial policies that played a role in promoting concentration, such as lower prices for electricity and natural gas, better communication and transportation services, and lower tariffs for railroad shipments.

These policies highlight how instruments –in principle, oriented towards the promotion of industrialization in the entire country– ended up allocating most of their resources to Mexico City and its immediate surroundings, as in the case of Naucalpan. Although by 1954 the law of fiscal exemption was canceled for the DF, the effect of such a measure was almost unnoticeable because of inefficiencies in small- and medium-sized targeted cities and because agglomeration economies more than offset the law’s tax breaks. The only areas that benefitted from the measure were DF’s neighboring municipalities (Naucalpan, Tlalnepantla, Cuautitlán, Ecatepec, Tul-

titlán) that could take advantage of both tax breaks and access to markets, infrastructure and to lobbying for key government decisions (Lavell, 1972). From 1940 to 1964, two-thirds of the investment supported by the Law of New and Necessary Industries (LNNI) was concentrated in the MCMA (*Ibid.*).

A similar situation was observed with regard to credits granted by FOGAIN during the period 1953–1970, when more than 50% of all grants were contracted with firms located in the MCMA.³ Similarly, 95% of all the industrial area built under FIDEIN from 1960 to 1969 (14 industrial parks) was located in the MCMA (Garza, 1984). This was the period of the construction boom that built the northern industrial “belt” of Mexico City: the Vallejo Industrial District and its adjacent areas in Azcapotzalco and Gustavo A. Madero in DF, and the industrial parks of Naucalpan, Tlanepantla and Ecatepec in the State of Mexico.

From the early 1960s to the end of the 1970s, the northern periphery of Mexico City was consolidated as the most important concentration of industrial activities in Mexico. In 1975, industry in the MCMA represented 54% of the national industrial output, 25% within the boundaries of DF and the remaining 29% in the surrounding municipalities of the State of Mexico (Garza, 1985). The rate of the newly created firms illustrates the nature of the transformations: the national stock of industrial firms grew by 8,650 units during the 1960–1970 period, and almost quadrupled in the following decade with 33,185 new firms that nearly doubled the output value. In Naucalpan, the number of industrial firms grew from 7 units in 1956 to 1,158 in 1975, 2,034 in 1980, and peaked at 2,429 in 1989.

Urban population growth vis-à-vis the expansion of urban markets, explains much of the evolution of Mexico City and its urban hinterland. From 1940 to 1970, the number of cities, with population equal or greater than 15,000 inhabitants, more than tripled from 55 to 174 and absorbed 66% of the nation’s population growth, equivalent to 18.8 million people. While this was one of the foundations of “success” for national industrialization, it was also the beginning of the MCMA’s transition from a monocentric system with Mexico City as the nucleus, to a polycentric one based on a few other cities with an older and dominant principal center (Garza, 2003).

Industrial development, though important, is not sufficient to explain the dominant position of Naucalpan in MCMA and the comparative advantages upon which it was built. We have already seen how its relative position changed after a number of projects concerned with infrastructure and public

³ In the following decade, this percentage was reduced, but kept at relevant figures.

works were executed during Alemán's administration. Those public works were the basis for Naucalpan's genesis—since a significant portion of its territory was family property of former presidents, Alemán and Avila Camacho—and were the living proof that modernization (through industrialization) was attainable and could be seen, felt and lived. Hence, Naucalpan was endowed with the symbolic value and associated public investments, which rendered it more dominant than the neighboring municipalities of Tlalnepantla and Ecatepec—also subjected to similar pressures of industrial expansion. The symbolic endowment came in the form of urban developments that provided living space for consumption and social reproduction to all those families associated with the new (modern) way of living. For Cardoso and Faletto (1969), it was an “island of modernity” that legitimized a modernization project based on an alliance of foreign capital (MNCs), national industrialists, the elite labor movement, and the (developmentalist) government. The construction of the Ciudad Satélite (Satellite City) was the keystone of such a vision. The conversion by the federal government in 1957 of the road to Querétaro into a toll expressway created the continuity of the periferico ring road through Naucalpan (and the rest of the northwest area of the MCMA), and consolidated this major artery into the development backbone of the MCMA. Not surprisingly, the same road crossed through the middle of Ciudad Satélite. Ciudad Satélite, planned and designed by the leading planners and architects of the time, was modeled after the English Garden Cities in its new towns' version, but it was also strongly influenced by the American suburbs of the late 1920s (the Radburn Idea of Wright and Stein) with its characteristic “superblocks”, cul-de-sacs and the differentiation between car and pedestrian traffic and an extensive use of linear parks inside the superblock (Birch, 1980). This new pattern of urban design became one of the symbolic characteristics of the well-off areas of Naucalpan and the whole northwestern region of the MCMA. By 1958, Ciudad Satélite was already a high-end real-estate market. It marked the beginning of a process that is still in existence and that clearly portrays the manner in which the competitive advantages of a place within a region are produced.

Following the opening of Ciudad Satélite, there was a cascade of new land development projects in the area. In 1958, the “Satélite's Towers” were built by including a new element of public art as symbolic representation of a modern lifestyle in Naucalpan. With the start of development projects like Lomas Verdes, Fuentes de Satélite, Bosques de Echeagaray, La Florida, etc., a process was initiated, which is still ongoing, although somewhat reduced. This process has produced an unusual pattern of land occupation where more than half of the residential areas are inhabited by families with an

economic profile of middle to high income (see Map 3). The symbolic capital attached to a place or locality, which provides the condition of dominance, was achieved with the construction of the “Plaza Satélite” shopping center aimed at luxury consumption. With this event, the image of a modern and progressive area emerged through the efforts of developers and settlers, who now proudly claim that the Satélite area (northern portion of Naucalpan) is distinguished by its culture (of consumption), its social status (as modern well-off) and its appearance (of an American suburb). Distinction in this sense becomes a self-reinforcing process with concrete material implications for the settlers. As argued by Bhagwati (2004) and others, the wage of an individual depends not only on education, experience and talent, but also on where he/she lives and works.

Public works and infrastructure projects were always present and contributed to the competitive edge of Naucalpan. In 1973 the municipality was endowed with former ejido land, where two important recreational areas (Naucalli and Los Remedios Parks) and the UNAM campus of Acatlán were built. These major urban development projects reinforced the competitive aspects of Naucalpan’s quality of life and knowledge economy. By 1980, Naucalpan had gained a solid position as the leading and most prestigious area of the northern periphery of the MCMA with clear and identifiable elements of symbolic representation in housing and land development, economic activity (industry), luxury consumption, education and recreation. By blending all these attributes, Naucalpan developed as the ideal living place for many of the upwardly mobile “techno-bureaucrats” of northern Mexico City. This also raised its economic profile due to an unusually large percentage of middle to high income residents. Similarly, the Asociación de Industriales de Naucalpan –a very strong guild of industrial entrepreneurs of national relevance– a large number of universities for human capital formation, a scientific research center in Acatlán (UNAM), and a reasonable supply of recreational options –an outstanding example among these being the Naucalli Park, equally contributed to Naucalpan’s leading position.

Concurrent with the aforementioned indicators of modernity were the informal settlements that occupied the southwestern part of the municipality as an extension of the old village (downtown) of Naucalpan on former ejido lands. Residents’ reaction against the state government’s toleration and, at times, promotion of these settlements spurred a movement of political opposition against the ruling official party. Since then (mid 1970s), Naucalpan has been one of the strongholds of the PAN political party (conservative right) and the geographic origin of what later became known as the “blue corridor”

(because of the color of the party) formed by the MCMA's northwestern municipalities where PAN dominates.

In 1982, the Cutzamala Aqueduct started to operate supplying water at the rate of 16 cubic meters per second to Mexico City; such a flow was intended to assure the MCMA of water availability in an effort to stop overexploitation of underground waters (Legorreta *et al.*, 1997). Owing to the topographic conditions, the main supply line to the metropolitan municipalities of the State of Mexico in the MCMA was accessed through Naucalpan's mountains, thus giving a privileged position to the municipality in terms of water availability. Until today, in a context characterized by chronic problems of water supply, Naucalpan boasts having ample water availability for new developments (PUEC, 2006a).

In 1984, Naucalpan's link with the central areas of Mexico City was improved with the extension of the Metro System (subway) and the building of the Cuatro Caminos terminal station (Camacho, 2008) precisely on the border of the DF, along the *Periférico* freeway. Because of the high intensity of traffic at the freeway exchange,⁴ the site became one of the "gates" to downtown Mexico City and an intermodal site for traffic flowing from many different places of the northern periphery. With time, the area has changed to a place for offices and commercial activities, although many of them are informal.

THE EFFECTS OF THE STRUCTURAL ADJUSTMENT PROGRAMS

Reorganization of industry and economic activities at the end of the twentieth century in Mexico cannot be explained without considering the effects of the structural adjustment programs (SAPs). SAPs were designed by the World Bank in 1980, based on the experience gained from the stabilization programs of the IMF implemented during the 1970s. Their ultimate purpose was to overcome the international crisis of profitability (sustained reduction in the rate of profit) by allowing a new wave of economic growth through the opening of new markets. The purpose of the SAPs was to achieve two main conditions and implement three main policies. First and foremost was the opening of internal markets to the world economy. The second involved the cancellation of import barriers, price controls and all kinds of

⁴ Mexico City is still highly centralized in terms of specialized services and commerce (Reyna, 2008).

public subsidies. These two conditions were the basis for the next tier of development policies aimed at:

1. Reducing domestic expenditures (subsidies to imports, manufacturing and consumption) in favor of production and savings.
2. Changing the pattern of exports and imports substitution to open up the economy to international competition.
3. Restructuring international debt and attracting international investment for new development.

These programs were a precondition for SAP's debt restructuring and payment guarantee, and resulted in a global set of new market-based economic development policies emphasizing incentives to economic agents, selective subsidies, and limited regulations. Incentives were mainly applied to capital investment, better governance for economic growth and relaxation of institutional structures hampering new investments, technology development and acquisition, fusion of firms and economic restructuring. Subsidies were mostly for labor training and productivity, but also in the form of state supply of key productive assets. The strengthening of regulations was required for environmental protection, health and security (SAPRIN, 2002).

SAP strategies applied to improving cities' competitiveness resulted in a decentralization policy based on the privatization of public functions and on the cancellation of social programs (markets, clinics, schools, nutrition, families, etc.). However, privatization had to redefine the purpose (functions) of local governments (devolution) to allow for the market to provide public facilities, and for change in the legal and regulatory framework (deregulation) that would allow private firms to construct and operate public utility systems. The expected outcome was a quick expansion of the local private sector (corporations and family-held businesses) through reduction of expenditure in social programs and public services. This, in turn, would generate economic growth and new public revenue, improve local governments' general financial health and the capacity to attract new development. Lastly, recommended use of labor-intensive technologies would improve formal employment levels.

Far from a "win-win" solution, SAPs produced cycles of economic contraction and currency devaluation for more than a decade (1982-1995). During those years, the Mexican economy was characterized by a drastic reduction in local investment for development, because the available capital was mostly dedicated to (international) debt obligations. A series of currency devaluations were implemented to promote exports (reducing imports and internal

consumption) and direct foreign investment (reducing the value of labor reproduction) to improve the balance of payments. This resulted in extremely high rates of inflation and in the impoverishment of a significant part of the population. Under this set of conditions, although severely restricted by the same SAPs' conditional ties, foreign investment was the only available source of financing for development (Bustamante, 2008).

By the end of the twentieth century, the cumulative effect of all these conditions highly favored places with an inherited capacity to support new economic development as a result of the investment policies exercised during the import substitution period; particularly those bolstering important agglomeration economies.⁵

The processes of territorial transformation of economic activities can be considered slow and intergenerational, and are mostly determined by inherited circumstances and support initiatives (policies) of the state (Marshall in Bustamante, 2008).⁶ The impediments to the geographical transfer of agglomeration economies (Scott, 2002) turn the central places of major urban areas into "innovation transmitters" that favor the creation of new firms and businesses. Those are the places of greater prosperity, where accumulated infrastructure, knowledge and opportunities for social exchange create the highest potential benefit. The localized nature of agglomeration economies—at specific points or areas in space—makes certain places more productive than others and, in time, these places become capable of supplying services and products to other regions and cities. The complexity level

⁵ In this respect, the process of territorial evolution of economic activities can be observed from the recognition and adaptation to possibilities (advantages) offered by different places as a result of a particular historical trajectory. Each level of territorial organization (scale)—country, region, city-region, metropolitan area, municipality, city, district, zone or place—strives to make the best possible use of its inherited (accumulated in time) stock of common wealth and goods (Harris, 1997). In this sense, the location of economic activity and manufacturing, in particular, is a far more complex process—not economically determined—than has been considered in conventional "Location Theories" (Richardson, 1978; Goodall, 1977).

⁶ Common interests and values (culture) are major components of the accumulated knowledge and capacities of organizations, which are essential for the pursuit of new economic endeavors. A given social organization, responsive to a set of values, becomes a crucial screening device for the processes of innovation and progressive accumulation of knowledge. It is the basis of collaborative strategies—between individuals, groups and firms—for the active defense of symbolic aspects of power (politics and policies) and culture, which may determine local innovation capacity.

of agglomeration economies and the negative externalities of congestion and other environmental costs make certain metropolitan locations more attractive for any given economic activity.

Therefore, Naucalpan can be said to be located at the core of the positive effects produced by industrialization policies because of the added powering effects of two fundamental factors: the spillover (locational externalities) derived from its proximity to Mexico City, of which it became a part since the metropolization process started in the 1950s, and the interest of key actors –former presidents– who were in a position to favor consolidation as the major centrality of the new suburbs of MCMA. The question to be addressed now is whether all these advantages, historically given, were insufficient to provide Naucalpan with the basis to compete in the new global economy, and hence, corroborate if Naucalpan, a symbol of modernity through industrialization, is currently undergoing a process of general decline that we have characterized as “shrinking.”

IS NAUCALPAN ACTUALLY SHRINKING?

There are several ways in which the question of urban shrinkage has been addressed. Most of them consider de-industrialization and disinvestment in general as the basic forces that drive a sustained and progressive situation of decline, which is ultimately expressed in a cumulative process of urban decay and outmigration. We have already established the historical trajectory of Naucalpan in the framework of wider processes of development in Mexico and the role of the MCMA within it. In the following paragraphs, we will review some empirical facts of the last two decades in an attempt to understand recent performance conditions of the municipality and to identify mismatches and dysfunctionalities that allow us to confirm or reject the applicability of the “shrinking city” notion to our case study.

*Demographic changes*⁷

As mentioned in the introduction section of this paper, one of the reasons for examining Naucalpan from the shrinking-city perspective was the fact that in the last decade, the municipality showed a negative population balance

⁷ All population figures are from official INEGI documents.

with a 7% population loss. Naucalpan's growth initiated during the 1950s, when it almost tripled its population, increasing from 29,876 to 85,828 inhabitants. It was the beginning of a sustained period of growth that peaked in the late 1970s, reaching up to 730,170 inhabitants in 1980. This growth was 8.5 times higher than that registered in 1960, and equivalent to a sustained annual rate of 11.12%. However, it came to an end during the final years of the 1990s, and during the early years of the new century (2000-2005), the population fell from 858,711 to 821,442, with a loss of 37,269 inhabitants and a negative growth rate (-0.88). Although at first glance, this seems to be the start of a process of decline and population loss, when seen through the lens of more detailed demographic change in Mexico, another dimension emerges. The fact that Mexico's population is expanding at increasingly smaller increments and growing into an older age structure is an essential part of our interpretation.

Fertility rates in Mexico are rapidly declining from more than 6 children in 1960 to 2.7 in 2000 and an estimated 2.1 in 2005. Such a change involves the adoption of new social attitudes and values. It is the result of a wide use of contraceptives and the growing improvement in the position of women in society, who now look for smaller families. While in 1960, 43.9% of women age 40-49 had 6 or more children, in 2000 that percentage decreased to 25%. The probability of having more children has clearly diminished by the second and third child. This behavior is stronger in cities with more than 100,000 inhabitants, where the probability of having more than three children is sharply lower than in the rest of the country, mainly because more than 62% of fertile women use contraceptives (Paz, 2001).

Economic and welfare conditions are also the contributing factors and are directly related to the case of Naucalpan. Human-development conditions for the MCMA are similar to those of Cyprus and Spain in Europe (Tuirán, 2001). If the current trend in fertility rates is maintained, it is soon expected to reach the condition of stability with only two children on average (Paz, 2001). Improvements in education show important changes equally biased towards the larger population centers. The rate of inhabitants attending a classroom of any kind was found to be 88.1% in places with 2,500 inhabitants or less, and 95.2% in places with more than 100,000 inhabitants (Gutiérrez, 2001). Permanent single status is a growing reality, which is also associated with the improvement in the social condition of women and urbanization. Its effect was observed to be twice as large in places with more than 100,000 inhabitants than in those with 2,500 or less inhabitants. For larger urban agglomerations, in Mexico, this condition was found to be similar to that of

Western Europe, and for the DF, it was observed to be similar to that of Ireland in the 1990s, known for its high percentage of single women, surpassed only by the Nordic countries (Welti, 2001). New lifestyles have also been emerging: in the same decade (1990-2000), single-person households grew from 4.9% to 6.4%, showing a 30% increase (López, 2001).

Changes in the labor market are a part of this new reality. The rate of participation of women rose by 5% during 1990-2000 (from 31 to 36%), although still at a level substantially lower than men (71 to 78%). The most important change in this respect included the rise in the proportion of households headed by women, from 17.3% in 1990 to 20.6% in 2000. For metropolitan areas, this number is estimated to be around 25% (one in four households).

Although census data are not conclusive enough regarding the causes of such trends, it is generally presumed that they are driven by a growing practice of marriage breakups (stimulated by outmigration), the single-mother phenomena, and most importantly, the growing acceptance of new forms of households with women in the role of heads or unique providers (*Ibid.*).

A 1999 survey on family roles showed that 32% of women and 24.5% of men accepted males in the role of housekeeper and females in the role of provider. It is clear that this is a societal trend because the level of acceptance increased with the decrease in the age of the subjects interviewed. Among young people, the percentage of approval was 60% for women and 58.9% for men. The same survey revealed that 73.5% of women and 91.1% of men supported the idea of women working if they wanted to (*Ibid.*).

Economic crises have demographic impacts too, and families adjust to economic stress by increasing the number of income earners in the family as a defensive measure for the maintenance of welfare conditions. From 1977 to 1999, the average number of income-receiving members in the household grew from 1.53 to 1.79 (Cortés, 2001).

The cumulative effect of these changes and trends has been a shift towards smaller households from 5.8 members in 1970 to 4.4 in 2000 (Schteingart, 2001). Furthermore, we observe a generalized decrease in family size with an increased number of working members, where women participate in an unknown manner. New forms of household and household composition, e.g., single parent and permanent single (one member household), are now a part of daily life scenarios.

In the case of Naucalpan, these changes are more accentuated. While at the national level, the average size of the household decreased from 4.86 to 4.4 members, in Naucalpan, it decreased from 4.83 to 4.18 members for

the 1990-2000 period, reaching 3.94 members in 2005. When we apply these household-size figures to the population recorded in 2005, we observe a situation of growth in the number of households from 206,006 to 208,488. Based on this evidence, we can conclude that demographic change in Naucalpan is an expression of general trends of demographic transition of the country as a whole, and that a more detailed analysis that considers the new conditions of family size and structure, would give an alternative picture. In this respect, we can state that Naucalpan still attracts new population, but primarily to new medium-to-low income settlements, worsening the problem of social differentiation and segregation.

Manufacturing sector

During the early years of the current century (1999-2003), Naucalpan seemed to enter a process of economic decline, with a loss of 185 units from a high of 2,104 to a low of 1,919 firms. At the same time, the average decline of employees per firm from 38 to 34, could be considered a symptom of disinvestment, which is part of an ongoing shrinking process (PUEC, 2006c). However, a closer look at the same figures suggests changes in the local organization of manufacturing that may appear to cause an apparent loss of economic drive, while activities related to manufacturing could be actually growing. In this respect, Bustamante (2008) reported that changes brought about by globalization and the opening of the local economy to international markets, have produced a rather complex pattern of firm inter-relationships that can hardly be captured by conventional statistics. This, in fact, challenges the widely accepted view of de-industrialization in metropolitan areas. According to Bustamante, industrial reorganization of the textile industry of the MCMA, which is one of the leading industries in Naucalpan, involves the simultaneous occurrence of all kinds of interfirm relationships through the global space economy (see *supra*, p. 10). These relationships may be of various types: vertical, horizontal, internal to the firm, internal to the region or local area, and between all kinds of firms (classified by size as big, medium, small, and micro).

One of the main features of these changes is an ongoing process of technology transfer and assimilation, directly tied to the opening of the national market to international competition, which enables local firms to compete for international manufacturing contracts. Most of the usual domestic firm innovations are related to internal reorganization for the adoption of flexible labor practices and software for “just-in-time” performance, complemented by a selective acquisition of machinery. In a competitive world governed by

project contracts –uncertain and discontinuous– the purchase of new machinery or technology requires a very large sales commission; otherwise, the international contractor may resort to outsourcing or subcontracting. The effect of the latter results in a new economic ecology of networked manufacturing firms, where all kinds of firms collaborate in all sort of ways. Big firms may subcontract smaller ones, but the opposite holds equally true. In this process of adaptation to the new (restructured) economic environment, some firms specialize in certain tasks and may find it unnecessary and expensive to operate in a formal manner, withdrawing to informality. Informality, in this context, becomes an adaptive strategy to the conditions of increased competition –national as well as international– in a local environment. It keeps firms from being overregulated by rules inherited from the import substitution period. It also shelters them from the disadvantages associated with the drastic reduction of the role of the national government as provider of incentives and new infrastructure for production (*Ibid.*).

Becoming informal is one of the most frequent survival strategies in manufacturing. Firms and workers themselves make administrative changes to be written-off from official records and fiscal registries to avoid payments of taxes, social security, and the like. Usually, these kinds of adaptive measures involve relocating the business, mostly to the house of the owner (of the workshop) or to that of one of the workers. Another frequent strategy is the already mentioned practice of subcontracting. These changes produce an apparent de-industrialization, because productive units are not longer visible and fragmented tasks are often very difficult to differentiate from services. Changes in manufacturing are also derived from the reorganization of multinational corporations (MNCs), which redistribute production and administrative tasks in order to strengthening their competitive position in world markets. This kind of vertical redistribution (the multi-plant arrangement) looks for places with privileged conditions for production, such as Naucalpan.

Being in Naucalpan allows MNCs to have direct access to the central region of Mexico, which represents a market of around 25 million people. In addition, it is a location (MCMA) with easy access to federal government decision-making levels, well connected to all the main ports and regions of the country by highways, and to USA and the rest of the world by plane. In addition to good connectivity, the MCMA offers a good stock of well-trained people, high-quality areas for living and amusement, and a well-developed culture of entrepreneurship dominated by the manufacturing sector. A very illustrative behavior of this type of MNCs' adaptive behavior is given by KORES, the Austrian company of stationary products, which is located

in Naucalpan. For KORES, Mexico is the most important market in Latin America, and their biggest factory is located in Naucalpan (around 1,000 employees) from where they supply their products to other markets in the hemisphere: Argentina, Peru, the US and Central America. In 2008, despite the fall in the use of paper products and the outbreak of the ongoing crisis, the company grew at an attractive rate of 8%. Several adjustments can explain such a positive situation:

1. Relocation of manufacturing: The company relocated the production of all the different types of mechanic pencils and correcting fluids to Mexico, joining the already existing production lines of adhesive pencils;
2. Substitution of products: With the change in consumer demand, the products that they offered also changed: liquid glue changed to solid presentation and liquid correcting changed to dry correcting;
3. Attention to markets of old products in developing economies: Banks and public institutions in Mexico and Latin America still demand products like carbon paper and typewriter ribbon due to slow technological turnover.

In this new pattern of corporate organization, headquarters in Austria make design innovations to be manufactured in Mexico. In the words of the official responsible for KORES operations in Mexico, “[Naucalpan] is the strategic place to be in” (*Reforma*, 11/03/09). This example illustrates the nature of the benefits offered by Naucalpan to MNCs and why rather than withdraw from the region, current economic conditions may make them expand existing operations to maintain, and even improve, their competitive position.

The same logic behind the reorganization of KORES Corporation is changing Naucalpan into a logistics and distribution center –it is in a privileged position to produce and distribute throughout Mexico’s central region. A consequence of this emerging role is the growing pressure to use the former industrial facilities for storage and distribution. A convenient location for these activities means significant savings and increased profits, because it implies shorter and more fluid routes of access and delivery leading to reduced expenditure in fuel, auto-parts, maintenance, etc. Therefore, logistics firms bid higher for the use of premises located inside industrial parks and adjacent to the Periferico ring road, which confers them excellent accessibility to central Mexico City and the rest of MCMA. The move from manufacturing to storage and distribution thus produces an upward push in the value of property inside the industrial parks that are no longer used for

manufacturing. Because this fragmentation of tasks and the new conditions of competition have camouflaged the reorganization of industry by firms moving to informality and less visible areas. During the 1999-2003 period, wholesale firms grew from 163 to 264 units, with an increment of 61%. Along with the additional pressure for space from a growing professional and corporate service sector, Naucalpan has become the most expensive industrial corridor of the whole MCMA (Colliers International, 2005).

Physically, this transformation appears in the form of a growing presence of tertiary activities inside industrial areas. The trend is clearly illustrated by changes observed in the two biggest industrial parks, Alce Blanco (AB) and Fraccionamiento Industrial Naucalpan (FIN), from 1993 to 2005. In AB, the reduction in land occupied by industrial activities (basically manufacturing) was from 88% to 42%, while commerce and services grew from 12% to 58% (32% commerce and 26% services). For FIN, the reduction in industrial land use was from 73% to 56%, while tertiary activities increased from 27% to 44% (32% commerce and 12% services) (PUEC, 2006c).

One of the points to be noted is the essential role played by agglomeration economies in supporting the new economic ecology brought about by exposure to international competition, with special reference to its impact on the survival of small firms.

Agglomeration economies offer advantages to firms (positive externalities) that originate in the concentration of activities and population. They have three basic sources of origin (Camagni, 2005):

1. **Scale:** Usually internal to the firm; they appear when a minimum level of demand (threshold) is reached and develop regions specialized in particular products;
2. **Location:** External to the firm but internal to the sector; they are based on proximity and complementarities between the firms causing reduced transaction costs, a more productive labor pool, specialized services and informal knowledge diffusion that facilitates innovation; in addition, they promote the consolidation of complexes (e.g., petrochemical, auto industry, food processing, tourist resorts);
3. **Urbanization:** External to the firms and to the sector; advantages stem from the presence of generic infrastructure and public services that generate benefits to all firms, from a good relationship between government and firms and a consolidated structure for consumption; advantages that promote larger concentrations of people, businesses and complementary activities (metropolization).

While scale and location economies can be associated with the consolidation of industry, it is clear that in the global economy, an adequate combination of location and urbanization economies is the key to competitiveness. Naucalpan has benefited from location economies generated by public policies in support of industrialization (import substitution). Urbanization economies were originally attained from urban spillover into the MCMA from Mexico City's central areas, but increasingly they now appear as a regular part of the local (municipal) economic life. Concentration of firms and services in space represents the opportunity for sharing the cost of adjusting – reorganizing and restructuring – to the global/open economy, while proximity creates the conditions for everyday contacts that enable firms to have access to technical knowledge and strategic alliances for the reduction of risk, uncertainties and cost. Proximity, in this respect, works as a kind of low cost “just in time” technology.

The critical role played by agglomeration economies –since small and modest firms are willing to pay relatively high rents in exchange for the “bundle” of positive externalities associated with preferred locations– in combination with the impossibility of relocating to other places and scarcity of well-equipped areas, aggravated by the reduction of public investment in social and productive infrastructure, has resulted in a heightened desirability of those few good locations. A survey in the textile industry of MCMA revealed the importance of good location. Regardless of the size of the firms, owners and managers interviewed consistently stressed the value of keeping an advantageous place, even if the actual manufacturing operation was moved to other premises. Entrepreneurs may look for alternative uses or complementary activities for the specific location, but giving it up is out of the question (Bustamante, 2008). It is therefore reasonable to generalize that in Mexican cities, the desirability of good locations is (almost) everlasting.

The point of this discussion is to highlight the crucial role of the historical trajectory of a city or place, which, given favorable economic and institutional circumstances, unchains a reinforcing cumulative process that turns certain places increasingly more appealing for the attraction and creation of new activities. Based on all these arguments, we can conjecture that Naucalpan's loss of industrial units and employment, as recorded during 2000-2005, may be inaccurate. On the other hand, it is very clear why big multinational businesses have maintained and, at times, expanded their operations in Naucalpan. Based on these facts, it is doubtful that manufacturing in Naucalpan is undergoing a shrinking process.

Tertiary sector and the spatial-concentration effect

We have already observed the evolution of the industrial sector and the way it has been reshaped by the effects of its integration into international markets. Next, we will analyze the performance of the tertiary sector of Naucalpan, by emphasizing the services component. We note that the reorganization of economic activity has made it increasingly difficult to differentiate manufacturing from services performed inside the firm or outsourced, such as administrative and clerical work, marketing, and research and development, among others (Méndez, 1998). While outsourcing explains a lot about the expansion of service activities, it also demonstrates that traditional statistical forms have become increasingly ineffective for properly tracking changes of behavior of such activities. The boundary between manufacturing and services has grown ever more diffuse.

Although producer services, in general, refer to those products of labor that are of intangible nature, they have become detached (spatially and functionally) from the actual line of production, becoming businesses of their own. Parallel to what we saw in manufacturing, the integration with the global networked economy redefines the importance of services to a higher level and promotes the emergence and consolidation of centralities. Working with international markets raises the complexity of business transactions, which also increases the type of high-level functions to be performed by the branches of the MNCs and the need for highly specialized services. This sequence of effects demonstrates a constantly growing demand for services such as: insurance, banking and financial, accounting and professional associations (Sassen, 2005). In Naucalpan, the four most important services in terms of output value are: finance and insurance, information processing, transportation and real-estate (PUEC, 2006b).

The location of services tends to favor the principal urban concentrations inherited from the industrial phase –as in the MCMA and Naucalpan– promoting the consolidation of megalopolises or multicentered urban regions (Sassen, 2005). Certain locations –cities and urban centralities– emerge as urban economic nodes of specific services (banking, professional), because they take advantage of the inherited complementarities with the industrial economy, demonstrating a path-dependent evolution, as shown in the case of Naucalpan.

Business location is determined by conditions produced by earlier economic activities, to which the incoming ones have to adjust. This concentration effect becomes a self-reinforcing process, because services tend to concentrate

in cities of greater size. As urban concentrations grow, services grow in diversity and degree of specialization. Given an assertive public management, this process can be the backbone of a competitive strategy for the attraction of new businesses and for increasing the local levels of employment and wealth (Begg, 2002). Competition varies in scale according to the specific product and the kind of firm producing it. Certain aspects of competition extend beyond the city boundaries and reach the scale of what is called the “urban region”. However, it is important to address the relevance of local governments, because they are essential in coordinating key local actors. Competitiveness, in this respect, is a highly localized process that promotes specialization and efficiency (Scott, 2001).

The way that local authorities manage inherited advantages plays an important role in shaping the business climate that allows firms to operate –and compete– in a collaborative environment –as opposed to a condition of isolation– in a city or in an urban region. Such conditions of collaboration work mostly to the advantage of firms with very low levels of competitive resources, i.e. firms of small size. In such cases, actions by the local authority producing a system of positive externalities for firms (i.e., promotion of new investment, new development, collaborative institutional environment, etc.), leverage a quasi-market for small firms that liberates them from restrictions associated with their size. They expand the organizational and technical capacities of firms by reducing the bias effect against economic units of smaller size, and thus favor the creation of new ones. In Naucalpan, business support services grew at a spectacular rate from 1999 to 2003. The number of firms in this category grew from 116 to 332, while the number of employees multiplied by almost a tenfold, from 1,314 to 12,923, making the average number of employees per firm increase from 11 to 39 (PUEC, 2006b).

In the global networked economy, capital flows to a limited set of fixed destinations in cities, establishing a hierarchical order according to the local capacities to leverage this kind of global financial operations. These fixed destinations are intraurban nodes that change the economic dynamics of the city or urban region, intensifying the centrality of such places as well as affecting the functional qualities of the local urban space (Camagni, 2005). While analyzing these effects, one has to bear in mind that not every economic activity is global, and that such effects are limited to certain strategic activities linked globally by MNCs, networks of firms or exchange terms.

This re-centering of functions requires highly developed systems of information and communication technologies (ICT). As ICT are not easily

found everywhere, the articulation of the network, for the continuous flow of information, gives birth to a differentiated concentration of functions in the nodes that make the operation of a system possible. This system is simultaneously physically dispersed and functionally concentrated. Global corporations spatially distribute manufacturing and service operations, while they concentrate command and control functions as well as all kinds of “dematerialized” (intangible) production, such as financial operations, and specialized corporate services. Therefore, demand derived from these new (networked) forms of operations has a direct impact on the urban pattern and the consolidation and distribution of centralities. Though centralities are basically a bundle of agglomeration economies, and a massive concentration of information, they make CBDs and nodes within an urban region, the principal components of the system. Moreover, they are more diversified by the effects of ICT and the control functions over large territorial areas because physical proximity is no longer the determinant factor (Sassen, 2005).

Node location is not random. Their location takes advantage of local infrastructure, particularly that which increases network connectivity to other cities (fast trains, freeways, airports) reinforced by digital connectivity that allows the integration to the global network. The “trans-territorial center” based on ICT has emerged from these conditions, where the highest hierarchy involves principal financial centers and international businesses that integrate other cities to conform to the emerging regional hierarchies. Such is the case of Mexico City (MCMA), where Naucalpan seems to perform the function of a complementary node. At the intra-urban level, emerging locations favor the possibility of key face-to-face personal contact, which facilitates collaboration in scales and places of economic interest. For this reason, the consolidation of intra-urban nodes needs to provide a number of privileged areas of high environmental quality that combine working facilities with entertainment and leisure in proximity to high-end residential areas. This, as we have seen in the case of Naucalpan, gives a symbolic value much appreciated by people and firms involved in the global economy. The symbolic capital that once determined the dominant position of Naucalpan in the northwestern expansion of Mexico City has been reshaped and revalued as a second-tier center of services linked to the persistence of manufacturing and the emergence of logistic operations.

Permanence and consolidation of a reduced number of urban centralities in economic space comes from the fact that nodes are the connection between wealth produced in a place and the world market. Their small number results from the networked organization of production and economic

activities, which no longer depend on proximity, but on consolidated markets (areas) controlled by way of ICT. These nodes need to take advantage of the existing infrastructure concentrated in old industrial centers. Nodes with better digital connectivity and positive externalities for the new operational forms (agglomeration and locational economies) may turn into urban centralities with a renewed drive as a result of the following three processes (Sassen, 2005).

Performance of financial and control/command functions. All coordination operations require highly talented and innovative services in areas such as advertising, marketing, accounting, legal services, economic forecasting and all other kinds of corporate services. Naucalpan, regardless of its proximity to Mexico City's CBD, is unquestionably a center for subcontinental corporate services. Data about service performance reveals an increase in the local importance of these types of trades.

Capacity for information processing is also another important aspect of central functions. It allows corporations to take advantage of specialized information, but it demands highly skilled people to judge, interpret and assess the value of different sources. When well-performed, this capacity can give a quality of leadership to the centrality. It strongly depends on the local capacity to produce the type of skills demanded by the particular mix of economic activities in that central location, the social infrastructure that facilitates formal and informal ways of capturing valuable information, and the degree of global connectivity that puts these capacities to work at the global economic level.

For Naucalpan, the capacity for information processing may be one of its best inherited advantages from the import-substitution period. As observed earlier, it has consolidated as a higher education center with 21 universities and has a long tradition of business associations, local leadership and collaboration with local authorities, built by the very influential Naucalpan Association of Industrialist (Asociación de Industriales de Naucalpan). Central coordination also requires technical capacities, state-of-the-art premises, and infrastructure that facilitates knowledge transmission to make the best use of ICT advances in competing with other centers. Naucalpan offers a good pool of qualified labor with 24% of its population having college or higher education – a percentage that is almost 50% higher than the average for the whole MCMA (PUEC, 2006a).

Consolidation of markets. The merging, acquisition and strategic alliances among firms require the support of very specialized services in legal, fiscal

and governmental affairs. In relation to other corporate services previously mentioned, these specialized services are only found in places where the control functions of firms cluster within a large enough market region. In this sense, MNCs not only compete but also collaborate among themselves. Otherwise, they would have to bear on their own the extraordinarily high cost of these kinds of (in house) services. Naucalpan, in this respect, is basically a manufacturing location and depends completely on the capacities of Mexico City's corporate services, where most of the corporations have their local headquarters. However, strategic alliances, merger and acquisition decisions are mostly made at the highest level of the hierarchy, usually hiring services of the same level located in the few global centers of the world (London, New York, Tokyo, Frankfurt, and others).

Subculture of global businesses. MNCs promote loyalty to the corporation over and above notions of local (national or regional) identity, which becomes relevant only when it serves the interest of the company. They need to facilitate –and at times provide– opportunities to disseminate corporate practices and values among the local managerial employees, who will later promote them among lower echelons of the workforce. A good part of this global business atmosphere is based on the possibility of accessing entertainment and cultural events at an equally global level, such as professional sports, rock concerts and musical events, avant-garde performances and art, first-class museums, and so on. In this respect, Naucalpan benefits again from its location inside the MCMA, taking advantage of the wide range of events offered in Mexico City. With regard to the provision of courses and conferences of “global leaders,” the Industrial Association, along with the pool of universities, locally complement their wide availability in Mexico City. From this perspective, it is not surprising that one of the main proposals of Naucalpan's Plan for Economic Development is the promotion of the city as a world-class cultural and entertainment center (PUEC, 2006a).

CONCLUSIONS

The central question that this study attempted to address was whether the city of Naucalpan, Mexico, is undergoing a process of urban shrinkage. We considered the term “shrinking” as a general situation of decay that results from local deficiencies in adjusting to the global working of the economy.

Such failings make a city ineligible as a place for production, capital investment, or as a pool of skilled labor that may be attractive to the leading economic forces. The loss of economic significance is generally manifested in a progressive loss of population, and ultimately, in the abandonment of the place. Extreme examples of this condition are dying mining towns that are no longer viable to operate.

However, our contention is that such notion is conceptually too broad and strongly rooted in the experience of western capitalist countries. In this respect, we argue that negative economic and demographic balances, in a given period and place, are not sufficient indicators of a general process of urban decline. Doing so in developing country societies risks missing the real dynamics of change, and would most certainly lead to the application of inadequate development policies.

Naucalpan's case study helped us understand concrete expressions of local change under conditions of global economic restructuring and provided us with new elements to refine, or even rethink some theoretical formulations. To overcome a biased application of the notion of urban shrinkage, we framed the analysis within the wider concept of the social division of labor and its spatial expression, and the spatial division of labor, which enabled us to characterize productive and distributive relationships in time and space. From this perspective, we depicted the spatial organization of the city and its processes of transformation –social, economic and cultural– in terms of specific relations of power and economic interest, for the purpose of social control, income generation and appropriation of ground rent. A key to this interpretation was the understanding of the city as a space of relationships and the product of changing specific social relations, which accumulate in time as built environment.

Thus, the city or urban territory that we analyzed can be described as a composite of social relationships with economic (functional-productive) and organizational (hierarchical-distributive) attributes. We also examined the trajectories and key actors essential in understanding the nature of local adaptive strategies for the restructuring of the world economy. In the case of Naucalpan, we illustrated how historical circumstances promoted its emergence as one of the leading centers of industrial production in the country, supported by its advantageous location in relation to Mexico City, and by the symbolic capital derived from an institutional environment that allowed prominent politicians to personally benefit from public investment. These conditions in the long run produced a collection of competitive advantages that played a major role in Naucalpan's adaptation to the new global

economy. The process of adjustment to global competition was built on the economic strengths inherited from the previous phase of industrialization.

In Mexico, as in most developing countries, well-equipped competitive locations are few and became even more so due to the effect of SAPs, which drastically reduced public expenditure in social and economic infrastructure. As private investment is highly dependent on public works and services, successful places that thrived during Mexico's industrialization have inevitably become platforms of the new economy. Naucalpan is an example of this evolution towards a second-tier central node for the northern part of MCMA. Without losing its original role as an industrial center, it has fostered the growth of new business support and professional service activities. Most recent studies on the evolution of manufacturing in Naucalpan revealed an extensive transformation of economic units and the re-organization of production as a result of international competition, assimilation of new technologies, and growing practices of flexible employment and outsourcing. Combined with a rigid regulatory framework, these transformations make informality one of the frequent survival adaptive strategies of small firms.

Becoming informal expands the division of labor as small firms tend to specialize in tasks rather than in full processes of production. As these small units are not visible, official statistics show signs of de-industrialization, while in reality, manufacturing tends to expand because of the permanence—and expansion—of MNC's operations. The selective relocation of production operations in places like Naucalpan supports this restructuring of production. Thus, informality is not a deviation or inadequate response to globalization, but a direct consequence of the transformation of the spatial division of labor according to the capacities of different territories. The appearance of new specialized services in Naucalpan can be explained by these facts. Advanced specialized services are tied to production areas even though their location is based on positive externalities derived from good access to relevant transportation and communications networks, agglomeration economies, and high quality—prestigious—living conditions. The very factors that promote renewed centrality attract logistics operations of storage and distribution, which along with the new wave of services, occupy old industrial areas and increase the price of land.

The restructuring of Naucalpan is inevitably affected by other structural conditions such as population trends, which, when observed in relation to the general process of Mexico's demographic transition, reveals a situation where Naucalpan is attracting new households. The case study of Naucal-

pan's evolution, here described, suggests that the term "urban shrinking" as a category for defining the condition of decline of a city or region based on some negative statistics, may miss some of the critical aspects of the nature of restructuring processes. Therefore, an approach based on the notion of social division of labor and its spatial expression is suggested for attaining a more accurate assessment of the processes of transformation that may provide a more solid foundation for policy-making.

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VI. THE DEVELOPMENT OF AFFORDABLE HOUSING IN THE HISTORIC CENTER OF PANAMA CITY: SEARCHING FOR NEW MODELS OF ECONOMIC DEVELOPMENT AND SOCIAL INTEGRATION

*N. Ariel Espino**

INTRODUCTION

Latin American cities have not been spared from the processes of urban sprawl and central-city deterioration that have affected so many urban centers worldwide. Among the casualties of these processes one must include the old colonial cores of the region's main cities, which transitioned, during the first half of the twentieth century, into crowded, low-rent (or squatted) slums. As a cheap housing option for the urban poor and rural immigrants, these neighborhoods stood, for many decades, as one of the few alternatives to the vast, self-built periphery of the region's cities, and offered the possibility of living close to traditional employment concentrations and pedestrian flows. As distinct urban environments – in terms of their density, location, building typology, and tenure choices – they fostered the development of recognizable, and sometimes vibrant, urban cultures.

The unique beauty and historic resonance of the colonial cores in the context of modern urban growth became obvious in the latter half of the twentieth century, which prompted numerous historic preservation efforts. The economic potential of these urban districts as tourist destinations was also identified early on. The well-known, 1967 document *Normas de Quito* (“Norms of Quito”), drafted by a regional chapter of the International Council on Monuments and Sites (ICOMOS), was adamant in defending this urban architectural heritage and denouncing its destruction by modern infrastructure and development projects as economically foolish.

Since then, many historic centers in Latin America have been the focus of government and private initiatives seeking to rehabilitate their

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building stock and position them to service the tourism industry. In many cases, these efforts have led to the displacement of low-income residents or of residential activities altogether, that is, to a gentrification and tertiarization of the historic district (Scarpaci, 2005). Other Latin American historic centers, however, have resisted these processes, which are characteristic of North American experiences. In an important comparative study, Ward (1993) identified various factors that in his opinion prevented gentrification in these centers along the lines of the Anglo model: the weakness of the planning powers of the State in the region; an insufficient rent gap (i.e., a drop in value of the properties that could create an attractive differential for speculation); and a low demand for luxury apartments in the area, that is, a small number of potential gentrifiers. The Latin American upper classes tended to be too classist and racist, they valued prestigious residential locations above and beyond any other advantage that the urban center could offer, and they refused to reside in areas characterized by a strong popular culture. The upper classes were small to begin with, and the few upper-class artists and bohemians that might have been able to create a serious demand for housing preferred the established, high-status residential areas outside the historical districts.

The recent development of the historic center of Panama City (the *Casco Antiguo*) is an interesting case that makes it possible to re-evaluate this discussion and examine the regional models that are being used, or could be used, in historic-center conversion processes. In contrast to the situation in other Latin American cities (e.g., Mexico City, Quito) in the twentieth century, the historic center of Panama City did not become the starting point for a concentric urban expansion that preserved the relevance of the city center as a commercial or government hub. Starting with the construction of the Panama Canal (1904-1914) and the establishment of the Canal Zone under US jurisdiction, the city had to expand longitudinally along the coast, leaving the historical center at the west end of the urban area –a situation that marginalized it geographically and, ultimately, functionally as well. By the mid-twentieth century, the historic center had ceased to be a multifunctional urban center and was becoming an ordinary, increasingly poor residential neighborhood of renters, punctuated by the buildings of the few government agencies that had not moved to the new urban center of gravity located in the modern area to the East. These factors facilitated a process of gentrification starting in the decade of the 1990s that resembled the North American cases and which succeeded in overcoming the limitations of the local market thanks to the influx of what was chiefly a foreign clientele. Additionally, in

2004 the central government began a program of affordable housing that has introduced a degree of social diversity that runs counter to the prejudices identified by Ward. This experience, then, makes it possible to explore the prospects of a housing policy that is less segregationist than is customary in the region, and the possibilities of implementing urban renewal processes that are less socially exclusionary.

This study is the result of interviews and direct experience in the historic center. Between 2004 and 2009, the author directed the *Oficina del Casco Antiguo (OCA)*, a government agency dedicated to renewal of the area. Many of the interviews were conducted by Ana Lorena Alfaro, research assistant and director of social-welfare projects for OCA. The persons interviewed include investors, real estate agents, government employees, and historic center residents. The study was sponsored by the Latin American program of the Lincoln Institute of Land Policy.

The next section presents a summary of the history of the historic center and the most recent development policies and trends. This is followed by a presentation of factors that can have a special effect on the success or failure of the initiatives described: the vision of the economic elites, the vision and needs of the poor, security problems, and costs of the projects.

A SHORT HISTORY OF THE HISTORIC CENTER AND SURROUNDING AREAS

What is today the historic center of Panama was built in 1673, as a replacement for the original city founded in 1519 and destroyed in an invasion by pirates. The transit of South American silver and European goods through the isthmus (the center of the Panamanian colonial economy) ended before the middle of the eighteenth century, and thereafter the economy of the city declined throughout the remainder of the colonial period. The city began to recover in the mid-nineteenth century, when it again became a transfer point, first with the discovery of gold in California (when the isthmus became the most efficient connection between the two coasts of the United States), and thereafter because of the French and US Canal projects. When the US canal project was begun in 1904, most of the urban residents were still living within the confines of the colonial city center and the adjacent, poor outskirts of Santa Ana (Tejeira Davis, 2001).

Like its colonial predecessor, this city was quite diverse, both functionally and socially (Castillero Calvo, 1994). The economic elite, which in the

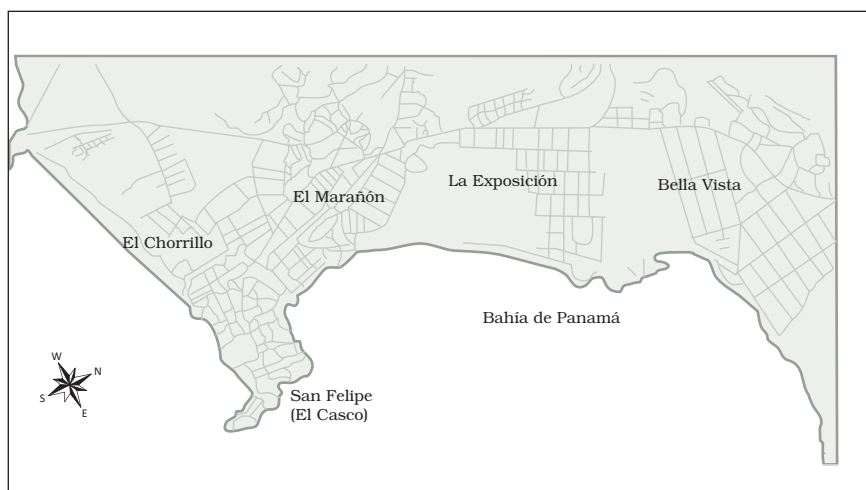
colonial past had included rental floors for stores and families of modest incomes in their residential buildings, had begun to build small, semi-detached “mansions” in the old city. These dwellings stood side by side with large *casas de cuartos* (boarding houses with shared bathrooms), which housed domestic workers, artisans, and other members of the middle class. The demand for working-class housing exploded with the start of the US canal project and the arrival of thousands of workers, most of them immigrants from the Caribbean countries. In what was to become one of the most lucrative local businesses of the canal-construction period (Uribe, 1990), the elite of the city took advantage of the situation to build large working-class districts (El Chorrillo and El Marañón) to the north and west of the old colonial city. The two-story houses in these neighborhoods were built entirely of wood, were separated by one-meter-wide passages, and consisted of long rows of rental rooms running back from a narrow facade toward the street. The rooms measured three meters by three meters, and bathrooms were shared (Tejeira Davis, 1990).

In the decade of the 1920s, the economic elite of the capital began their exodus from the old colonial center toward the new American-style suburbs (Bella Vista, La Exposición) being built to the north of the El Marañón working-class district (Figure 1). The new suburbs finally offered the possibility of single-family luxury housing surrounded by greenery in a socially exclusive neighborhood, that is, the residential model that had been so difficult to accommodate inside the dense and diverse colonial center. By 1950, the exodus of the elite had been completed, and the colonial city had become a large rental-housing district that housed a large proportion of the middle class and immigrants from the provinces (Tejeira Davis, 1996). However, certain key institutions of the government (e.g., the Presidential Palace) remained in the area.

For many families, the historic center was simply a temporary step in a trajectory of social and geographical mobility toward new middle-class suburban neighborhoods. Many immigrants from the provinces found decent temporary housing in the historic center, which facilitated their initial integration into urban life and economy. Because of its more aristocratic origins, the housing in Casco Antiguo was of better quality than that of the El Chorrillo and El Marañón canal-worker districts. By the 1970s, however, in part due to the freeze on rents, being a landlord had ceased to be a profitable business, and many property owners abandoned their buildings, thereby facilitating squatter occupation and the creation of an informal “rooming” market. The State began to use private buildings to house victims of fires in El Chorrillo and El Marañón, which were rapidly falling victim to the prob-

lems of deterioration and overcrowding. In some cases, the State (through the Ministry of Housing) paid rents to the owners of buildings used for housing the homeless; in other cases the buildings were seized *de facto* under a populist discourse. The local authorities (*concejales*, city councilors) began to use the buildings of the historic district as resources for offering housing to residents, relocating families, and garnering votes.

Figure 1. Panama City in 1925*



* The colonial core is surrounded to the west and north by the workers' neighborhoods of El Chorrillo and El Marañón. The new, high-income suburbs of La Exposición and Bella Vista drive the exodus of the elite.

Eventually the El Marañón working-class neighborhood disappeared completely under the flames and pickaxes, but El Chorrillo survived, and, beginning in the 1940s, became a sort of experimental ground for public-housing projects under various government administrations (Espino, 1990). The neighborhood retained certain stability due to the presence of the central headquarters of the armed forces at its center, the true seat of power after the military coup of General Omar Torrijos in 1968. In December 1989, the headquarters were bombed during the North American invasion that targeted the government of General Noriega. The attack caused a fire that destroyed several blocks of canal-era houses, leaving 12,000 persons homeless overnight. The partial reconstruction of El Chorrillo, under a program of the United States Agency for International Development (USAID), became

yet another chapter in the story of public low-income housing for the area (Caja de Ahorros, 1991).

In 1976, the historic center was declared a Historic Monument Complex as part of an ambitious restoration plan that sought to emulate the successes of other historical centers of the region, such as Viejo San Juan in Puerto Rico. With a loan from the Inter-American Development Bank (IADB), churches and squares were restored, monuments were acquired, infrastructure repaired, and plans drawn up. The project was not completed, and the private sector, which held close to 90% of the properties, also did not react to the initiative. During the 1980s, a decade of political and economic crisis for Panama, the government's efforts were paralyzed, and it was not until the beginning of the 1990s that the private sector began its first renovation projects.

The first private projects consisted of luxury condominiums, establishing a model that survives to this day. Initially the projects were concentrated in the eastern part of the district, near the government buildings and the sea, that is, the "safest" part of the area. The market was local and limited. Among the new residents was Rubén Blades, the famous salsa singer and composer, who had lived in the neighborhood as a child.

In 1997, UNESCO declared the area a World Heritage Site, which set off a wave of projects and speculation. New legislation approved that same year offered tax and financial incentives for the restoration of buildings and facilitated the eviction process. Investors were able to obtain low-interest-rate loans for the purchase and rehabilitation of properties. Purchasers of restored apartments were also able to obtain low-cost mortgage loans. Restored buildings were exempted from real estate taxes for a number of years, and there was a similar exemption for the profits of businesses that were established in the buildings.

Evictions were permitted only in cases in which restoration was imminent and the owner had a project that had been properly approved by the National Office of Historic Heritage (*Dirección Nacional del Patrimonio Histórico* –DNPH) of the National Institute of Culture (*Instituto Nacional de Cultura* –INAC). The Ministry of Housing had to undertake a survey of the families who occupied the property, and in this way help determine which of them were eligible for a compensation payment that was established by law. This compensation was limited to families who had rented in the past; it was proportionate to the number of years the family had been a tenant, and had to compensate for the years of rent delinquency. Families could not in any case take more than six months to vacate the building. The Ministry

of Housing had to assist families who had no real housing options. Once the building had been vacated, the owner had two years to restore it. After this period, the owner was subject to an annual fine of between \$1,000 and \$10,000 if the building still had not been restored.

The financial compensation plan was included at the insistence of organized neighborhood groups that had been resisting evictions. Additionally, the legislation included a provision that all government-owned residential properties were to be used for development of affordable housing projects for neighborhood residents. It was known that the State owned an undetermined number of residential properties that it had inherited from the former North American railroad company.

The new legislation succeeded in providing impetus for private investment, but it created problems of its own.

1. Most of the investors did not follow the eviction process established in the law, to a great extent because they sensed, correctly, that the Ministry of Housing would not do its part. Neither the central nor the local government was willing to risk the political fallout that would result from their involvement in mass evictions. Additionally, the financial compensations established in the law were problematic right from the start, because, given the situation of non-payment of rent that had reigned in the neighborhood for more than 10 years, few families were actually entitled to any compensation. Some owners stopped collecting rent, in the knowledge that the default created would in the future be deducted from the compensation. Ultimately, investors truly interested in rehabilitation opted to negotiate with the families outside the government and the law. Some owners with political connections succeeded in relocating families to nearby government projects, but most of them had to handle the process directly. The owner, or the owner's lawyer, met with the families and negotiated compensation and a deadline for departure. The residents knew the law and were anticipating monetary compensation, regardless of their actual right to it. Thus the final effect of the law, in the eyes of the residents, was to legitimize some form of compensation. This informal mechanism has characterized the eviction and conversion process to date.
2. However, many owners had no real interest in developing properties in the short term, and were focused more on emptying the buildings and speculating with the incentives. Many buildings were emptied but not restored. Some were flipped between fictitious companies to gain access to the low-interest loans. For seven years the State did not apply any

penalties, and by 2004 more than 100 historic center buildings (15% of the total) were vacant or dilapidated. UNESCO and neighborhood associations filed numerous reports and complaints.

GOVERNMENT POLICIES AND TRENDS SINCE 2004

The situation in the historic center has changed drastically in recent years because of various factors. First, an unprecedented real estate investment boom has begun in Panama City, the result of the explosion of tourism and a growing market of foreign retirees and second residences for North Americans and Europeans. As a result, the demand for luxury apartments in Casco Antiguo exceeds the supply, and the price of these apartments has tripled in the past three years. The market is now large and basically foreign. Additionally, the DNPH has begun to assess penalties for abandonment of properties (more than 60 fine assessment proceedings are on course), which has stimulated sales and rehabilitation projects.

In addition, the State has finally begun an affordable housing program in the area, as required by the law. The basis of the program is the 38 residential-type properties that the OCA identified in a judicial investigation in 2005. These properties are concentrated in the Las Explanadas area between 10th St. and 12th St. (the historic center extends from 1st St. To 15th St.). To date, five buildings have been restored, adding a total of 52 one -and two-bedroom apartments and two stores to the housing stock (see annex). Three more buildings are undergoing rehabilitation, which will add another 32 units.¹ These units are rented to families who were already residents of the area, and the rents are compatible with the historical prices (around \$1.50 per square meter). The State has also transferred some of its properties to the private sector for the construction of units for sale, provided they qualify as affordable housing according to the parameters of current legislation. A group of investors has also begun building affordable housing projects on private properties. A six-unit building has already been completed, and two other buildings, with a total of 22 apartments, are about to get under way.

Lastly, State policy with respect to the historic center has changed to include a strong social-policy component. For the first time, the historic

¹ The projects are carried out by the Ministry of Housing and the OCA, with financial and technical assistance from the government of Andalucía.

center renovation effort has been seen as an integral and inclusive development project rather than as simply a monument restoration project or a luxury tourist development. This shift in focus has taken the form of the inclusion of low-income residents in a series of training, education, and employment programs. The training programs include the *Escuela Taller* (a building restoration training school operated in collaboration with the Spanish government) and courses in tourism, hotel operation, English, cooking, construction, and secondary-school completion studies. A special effort has been made to channel graduates of these courses toward the new jobs being created by the hotel industry and restaurants in the area. Significant work has also been done with the youth gangs of the neighborhood, whose members have been offered training and employment in the OCA projects. There has also been special support for small businesses in the neighborhood in terms of training and new opportunities for income. A strong cultural calendar of festivals, concerts, and flea markets has improved the prospects of these neighborhood businesses.

These new efforts that combine luxury renewal with social projects enable us to evaluate the possibilities of more equitable urban renewal models for the urban centers of the region. Is a more diverse city possible in Latin America? What would it look like? What are the necessary conditions? What are the obstacles?

As was to be expected, the historic center affordable housing program encountered criticism and opposition from its very beginning. Since the start of government and private interest in the district, there had been a consensus of opinion among the parties that the rehabilitation of the neighborhood required the complete eviction of the poorer residents, a vision that, however, was seldom articulated formally or explicitly in media communications or in official documents. This silence was broken with the start of the projects. An editorial in one of the principal newspapers of the country summarized the common position:

The idea of building houses in the \$14,000 price range in the historic center is not a good one. The value of the area has been increasing in recent years, thanks to a fortunate combination of good initiatives and good luck. [...] The attractive incentives for investments in the area are another decisive factor behind the success of the idea to convert it into a kind of Viejo San Juan, the model that inspired the initiative. [...] Another problem, which the Puerto Ricans were able to resolve after an initial period, is occupation of condemned buildings by tenants who are

paying nothing. They have to be compensated generously and moved to a decent location. So the idea of worsening the situation by building affordable housing is contrary to the strategy laid out for the area, and it could be a disincentive for investors. (Editorial, *El Panamá América*, 6 December 2004)

The presumed incompatibility or instability of an economically diverse neighborhood is the central argument here (Van Weesep, 1994). The answer requires a more detailed analysis from the point of view of the groups involved.

A DIVERSE CITY

The vision from “above”

The reluctance of the economic elite to share their residential space with low-income groups, highlighted by Ward, is not unique to the Latin American region, and occurs in every part of the world in various forms. Residential segregation in modern cities is also not merely a result of social inequality. Rather, it arises from the nature of the relations among the social classes in modern societies, and the way in which residential location has become a symbol of social status (Espino, 2005b, 2008).

The cities of the United States are definitely segregated, although the relatively large size of the middle class and their neighborhoods (consisting usually of family-owned, single-family homes) gives an impression of significant prosperity and equality. In Europe, ambitious affordable housing policies have also succeeded to a certain extent in equalizing social-class differences in urban areas. In general, the urban societies of Latin America have not succeeded in developing a numerically large middle class or public housing programs on an adequate scale. Therefore, what predominates in the urban landscape is the precarious housing of the poor, a type of housing from which the wealthy minority always seeks to segregate itself. This dichotomy is responsible for an intense social-class consciousness, and also for a vibrant popular culture.

As Perin (1977) has argued in the US context, the relationships between residents with different social or economic characteristics should emerge, in the ideal case, from daily interaction. When residential segregation or high mobility prevent this from happening, people inevitably rely on the reigning stereotypes to evaluate other groups, which in the case of the urban poor and

their neighborhoods, tend to be overwhelmingly negative (Gans, 1995). In other cases, however, the stereotypes can take a more positive spin, as Lewis pointed out many years ago (1966) for the intensely divided Latin American social landscape. In contexts like these, the culture of the poor—who constitute the majority—can take on an aura of virtue. The poor are not only discriminated against and oppressed, they are also seen as the representatives or depositories of virtues that are absent from (or present only to a lesser extent) other social classes—virtues such as authenticity, unrepressed joy or sensuality, spontaneity, courage, generosity, and faith. Latin American people frequently celebrate these traits in their popular heroes, the lengthy list of which includes political leaders, sports figures, and musicians.

In Casco Antiguo, the affordable housing program has been supported by a certain segment of the community of investors and high-income residents because they know their neighbors or because it guarantees the survival of at least part of an appreciated world of popular culture. These supporters often refer to the “flavor” of the neighborhood, reflected in the old men talking in the plazas, the children playing in the streets, the street businesses, and the “open door” lifestyles.² European buyers enjoy the presence of children, which would be lost in a neighborhood inhabited solely by retirees. Clients of this type often tell real estate agents that the local community is one of the attractions of the historic center. Moreover, some investors (usually also residents of the neighborhood) are aware of the negative impacts of their more lucrative projects and invest in affordable housing projects as a matter of principle. Many high-income residents also benefit from employing local residents in their houses.

It is important to note that the population that moves into the historic center tends on average to be atypical, whether because they are foreigners, have a stronger social conscience, or are more tolerant of the “disadvantages” of the historic center—social diversity, lack of parking spaces, mixed use, and higher noise levels—that frighten away most of the Panamanian middle and upper classes.

From a strictly economic point of view, social projects serve as triggers for the spread of rehabilitation. These projects, located in the most deteriorated areas (the western section, starting from 9th St.), have been followed

² Reports by European travelers during the colonial era note that the doors of the houses in the area are left open during the day, so that people can go in and out without announcing their presence (Castillero Calvo, 1994: 279). This custom is still common in some provincial villages and low-income urban neighborhoods.

by the high-income projects typical of the historic center (condominiums and hotels). In both the government and the privately-built affordable housing projects, the residents tend to be families who have lived in the area for many years. For these households, the new units represent a significant improvement in their quality of life, independent of the condition of the rest of the street. Once the appearance of the street begins to improve, other, higher-income types of projects (and residents) appear. Affordable housing has consequently become the spearhead for investment and recovery in certain areas of the historic center.

The presence of these affordable housing projects has no negative impact on the values of the surrounding private properties. Since they always involve rehabilitation of historic buildings, the affordable housing projects cannot easily be distinguished visually from the private, higher-end projects. Prices of individual buildings have continued their inflationary trend, and the social prestige of living in the historic center continues to increase. One could argue that this can probably be ascribed to the fact that affordable housing projects constitute an important, if smaller, investment in the present and the future of the neighborhood. This is a point to which we shall return in the following text.

The vision from “below”

The traditional residents of the historic center can be divided into two major groups. The first group, composed in large part of older adults, feels a special fondness for the neighborhood. They cannot imagine themselves living elsewhere, and see expulsion from the neighborhood as an attack on their identity and personal well-being.³ These residents know their neighbors well and have long-standing friendships in the neighborhood.

Another group takes a more pragmatic view and lives in the area largely because of its supply of free or very low-cost housing. A study on the historic center done in 2003 revealed that less than 10% of heads of families had technical or university degrees, and only one-third had completed primary school. More than 80% of the families had incomes of less than \$250 per month, and 20% of the heads of families had no jobs or fixed income (ECODIT, 2003).

³ For example, a 67-year-old woman says, “I don’t want to leave this neighborhood, it would be like my heart was being torn out.” Another says, “I’m nobody outside San Felipe” (the popular name for the neighborhood and the urban district).

These families are always alert to any opportunity to move to a better place, particularly by taking advantage of potential compensation. In the hope of receiving compensation, many of them go on living longer than is necessary in buildings that are in very bad condition. Some people occupy a room in the neighborhood even though they have housing in the outskirts of the city, simply to be closer to their work. Compensation payments are typically used to start construction of a house on a lot on the outskirts of the city, to build an addition to a relative's house, to make a downpayment on the purchase of a new house, or to rent another room nearby or in another central-city area. In the past, many evicted familiars moved to another location in the neighborhood where they could be able to collect eventually another compensation payment. But this option is becoming increasingly difficult because of the current pace of investment. For many families, a move out of the historic center represents an opportunity to "get something of their own", that is, take a step toward owning a house that they can leave to their children. Many people turn their backs on the neighborhood because of the presence of gangs, the consequent insecurity, or the noise of the neighbors. However, because of the informal rather than legal nature of monetary compensation, the payments rarely meet people's needs or expectations.

A large part of the ambiguous attitude toward the neighborhood can be ascribed to the deplorable condition of most of the housing. The typical building in the historic center is a labyrinth of dark, dank rooms with shared bathrooms on the inner courtyards. The bathrooms are usually in very bad condition, and are a constant source of conflicts among neighbors. (The improvement most appreciated by the residents of the new affordable housing units is the private bathroom.) Many buildings are currently genuine death traps.

A move to other parts of the city involves considerable expense for everyone, and especially for people with deep roots in the neighborhood. Panama City is a markedly segregated city, in which families with more resources occupy the city center while the poor occupy the outskirts. Given the historic lack of highway infrastructure, sources of jobs are concentrated in the city center, and trips from the outskirts to the center tend to be very lengthy.

As usually happens in many low-income neighborhoods of the city, families in the historic center obtain their income from a combination of formal and informal employment. In most cases, the informal businesses are operated out of the house. These businesses tend to be run by women, particularly single mothers, since they represent income sources for child-care obligations. (Professional child-care options tend to be scarce or very expensive.) Informal businesses are of two types. Some of these businesses, such as sewing or the

repair and making of shoes, are oriented toward the “outside” world, and serve a metropolitan clientele. Other businesses, for example, certain types of food sales, serve a clientele that is mostly local. Residents of the lower floors have a special advantage, as it is obviously easier to wait on customers from these locations. Some families in the new affordable housing projects have installed businesses on the lower floors, including shoe repair, dressmaking, food sale, and craft shops.⁴

While some types of informal business depend more directly on the neighbors, the growing affluence of visitors to the historic center unquestionably represents an extraordinary opportunity to improve the possibilities of these business enterprises. Ironically, when these favorable conditions usually appear, the population in this type of neighborhood starts to be displaced. The annex show the lives of four workers or business persons in the historic center: a cleaner, a dressmaker, a sidewalk vendor, and the owner of a food stall. In the first case, S.Q., a single mother and long-time resident of the historic center, cleans the offices of two companies that have recently moved to the area. Because of the start of a private project, however, she had to relocate to a government housing project on the outskirts of the city. Her life is still oriented around the neighborhood comprising her children’s school, her parish, and her friends. But now she has to invest more than 40% of her income and five hours a day to commute. H.A.B. and M.S.G. still live in the historic center and operate businesses that obviously depend on pedestrian traffic in the area, something that is not guaranteed in case of a move. The situation of M.S.G. is more critical, since the principal clientele of her lucrative food stall is government employees (there are almost two thousand of them in the historic area), who cannot afford the lunches served in most of the nearby restaurants, generally intended for tourists and diners from upper social classes.

These examples are an eloquent illustration of the delicate interdependence between the informal sector, the city centers, and low-cost housing. The debate on urban segregation in the industrialized world tends to emphasize the costs that segregation imposes on the poor in terms of social isolation. The segregation of the poor in separate, isolated areas makes it difficult to form connections and social relations with members of other classes, a situation that limits the educational and economic opportunities of the poor (Briggs, 2005). So the poorest areas become “*areas of concentrated disadvantages*” (Healy, 2003: 53). But in cities that have an informal economic sector of

⁴ In luxury apartment projects, in contrast, the ground floors tend to be used as commercial space, since it is felt that an apartment on that level would be very noisy and would have little privacy.

importance, additional aspects need to be factored into this discussion: the typical inefficiency of the urban transport systems and in particular the interdependence of work space and residence that is needed by the informal economy (Pearce-Oroz, 2005). One of the advantages of the middle class and the poor in the more industrialized cities is their ability to separate their residence from their place of employment. For the informal worker, however, the location of the residence can be critical, since it requires the characteristics of a business location: centrality and access to urban pedestrian and vehicular flows.⁵ The economic potential of enterprises based on the residence is obviously very limited if the immediate neighborhood is their only market. In this regard, the historic centers offer unique advantages, since they combine local, urban, and tourist flows. The availability of affordable housing in the city centers thus becomes a matter of vital importance. Consequently, the general discussion of the informal sector and the entrepreneurial initiative of the poor generated by authors like De Soto (2000) must be complemented by a discussion of urban location of affordable housing. The effects of urban segregation (that is, not only the availability of housing, but above all its *location*) must be analyzed together with the more common discussions on residential property tenure and titles.

Access to customers of metropolitan or international origin obviously constitutes another excellent complement for businesses that are of a more neighborhood variety. These businesses are always necessary for the viability of public housing projects, especially when they share the urban space with other social classes, as is currently the case in Casco Antiguo. To date, the OCA has relocated two neighborhood businesses to one of the Ministry of Housing projects: a grocery store and a barber shop. The low-income neighborhood grocery stores are important insofar as they offer goods in quantities smaller than those available in the typical supermarkets that are used by the middle and upper classes. The neighborhood store, for example, allows its customers to buy one stick of butter (instead of a quarter of a pound), one egg (instead of one dozen), or three sheets of paper (instead of a ream), a system more in line with domestic economies characterized by low, insecure, or fluctuating

⁵ As was noted by Peattie (1994), for low-income urban residents housing is more than just a consumer good, it is a resource that permits integration into the urban economy –see, for example, the case of El Chorrillo, documented in Williamson (2007). As I have argued before, spatial and esthetic distinction and separation of residence and workplace is historically a luxury of the middle and upper classes, and is, at the same time, an expression of their tastes and resources (Espino, 2005a).

income. These establishments have very long hours (5:30 a.m. to 10:00 p.m.), which make them centers of neighborhood interaction and keep the streets active and more secure.

The neighborhood businesses benefit in this case from the agglomeration of affordable housing projects. While the State-owned properties do not uniformly occupy a sector of the historic center, they are concentrated, as already indicated, in a single area. This has made it possible to facilitate interaction among residents of similar lifestyles, without leading to total segregation from other social classes.⁶

In summary, affordable housing projects in the historic center are of great value for its inhabitants by virtue of their center-city location, the social contacts they facilitate, and the possibilities they offer for a prosperous informal or residential business. While there are unquestionable benefits in the urban agglomeration of this type of housing, success ultimately depends on its integration to a continuous urban fabric that permits interaction with various local and urban groups.

The analysis of this possible formula for success is concluded in the following section with a vitally important subject that has not been discussed yet: safety.

GANGS AND DRUGS

One of the most serious problems facing the poorer neighborhoods of Panama City is the presence of violent gangs that rob and traffic in drugs. It is possible to obtain the recent history of this phenomenon from some of its participants.

Before the US invasion of 1989, the distribution of drugs in the city was controlled from the headquarters of the armed forces, controlled at that time by General Manuel Antonio Noriega. Distribution in the city was in the hands of several gangs who reported directly to army officials, the only people who had contact with the Colombian suppliers. After the destruction of the army in 1989, the distribution network continued for several years in this centralized manner.

⁶ Authors who have carefully analyzed the subject of urban segregation agree in calling attention to the social benefits of a certain degree of agglomeration. However, this must be balanced by appropriate heterogeneity on the urban-district level (Espino, 2008).

By the end of the century, however, this distribution network had already begun to unravel, and various groups had begun to establish independent relations with a number of suppliers. The new gangs began to steal the shipments of other groups (actions known as *tumbes*), and the typical territorial battles began. The neighborhoods were divided into territories controlled by various groups, and shootouts emerged as a way of controlling the territories and settling personal or group grudges. While thefts (e.g., from business) also form part of gang activity, residents have been affected chiefly by the shootouts, which not only endanger the life of passersby and residents but also make public areas unusable.

The distribution business can be lucrative. In 2003 (the year of our source), a kilogram of cocaine could be bought from a supplier for \$3,000. A kilo could be transformed into 22.50-gram packets, which could be sold for \$200 each, generating a total of \$4,400, or a profit of \$1,400. This quantity could be sold in two days. The sale of smaller, \$2.00 packets, and the manufacturing and sale of crack (*piedra*), could also be lucrative. Between 400 and 500 units of *piedra* could be manufactured from 50 grams of cocaine. At a selling price of \$2.00 each, the complete operation could generate approximately \$600 in profits. The customers were typically residents of the neighborhood or the adjacent areas, or residents of middle-class and upper-class neighborhoods who negotiated on the spot or ordered the drugs sent to their homes.

In 2004 the historic center was divided into four territories that had been formed barely two years earlier. The groups were composed of young people (chiefly males and their girlfriends) between the age of 9 and 25, with each group living in its own building. Because of the possibility offered by the neighborhood for squatting of buildings, these groups typically took over a house by threatening and throwing out the other residents for use as a headquarter from which they structured their territory. The income was invested in frequent parties and night-outs, and in purchases of clothes, television sets, and sound and video equipment. The groups' living conditions (e.g., housing) were usually not much better than those of their neighbors.⁷ Many of the members became addicts. Some neighbors benefited from gifts or from their protection (for example, protection from inspectors or bill collectors for the water and electricity utility suppliers) and in exchange collaborated

⁷ Money made it possible above all to acquire the goods and the prestige that allowed its possessors to be part of the *farándula* (the "celebrity crowd"), that is, a person respected and admired in the environment and the group. Vigil (2003) offers a description of the mentality and the motivations of this type of urban group.

in hiding drugs or arms during police raids. Opportunist robbery of tourists was another common activity. The minors were generally the more violent members of the group, since the law deals less harshly with this population.

In 2004, the OCA began social integration programs and eviction actions to deal with this problem. Job training programs, jobs, psychological counseling, and detox programs were offered to young people who voluntarily consented. The experience to date has enjoyed a high level of acceptance, since many of these young people desire a change in lifestyle, particularly once they have children. Gang life is dangerous and, for many of them, shameful as well. It is also clear that it is relatively easy to identify those involved (the groups, and their leaders) since this information tends to be a matter of general knowledge in neighborhoods.

Naturally, not all the members of these groups are responsive to these efforts, and a percentage of these young people will always have to be dealt with exclusively at the law enforcement level. Working with the Ministry of Housing and the police, the OCA has evicted three residential groups of this type. While some of the individuals involved are now in OCA and Ministry programs, inevitably others have simply transferred their activities to a new residence. In other words, the improvement in the safety of the historic center has been earned at the expense of greater insecurity in another low-income neighborhood of the city.⁸

Working with gangs thus requires a purposeful, interdisciplinary, and continued effort. It also requires the availability of jobs for this population group, although this is never enough; personalized follow-up of these young people is also essential. But this type of work today seems also unavoidable if the goal is renewal, social diversification, and an improvement in the quality of life in low-income neighborhoods of the city.

COMPARATIVE COSTS OF HOUSING PROJECTS

Is there a way of comparing the costs of affordable housing projects in the historic center with the typical government housing projects on the out-

⁸ Some of the young people who participated in the OCA projects and programs stopped robbing in the neighborhood, but transferred their criminal activity to other areas of the city (usually shopping centers). They did this to avoid problems with the OCA (and, ultimately, to avoid being deprived of their new benefits) and "out of respect" for the re-socialization project.

skirts of the city? Can the costs of these projects be reasonably competitive? Is there any additional advantage, in terms of costs, in rehabilitation as a housing-policy option?

It is difficult to answer these questions, since properties in neighborhoods like Casco Antiguo vary enormously in terms of their features, and the quality of the infrastructure and urban services in the various neighborhoods of the city also varies widely. Table 1 compares four projects executed by the Ministry of Housing in recent years. It is obvious that the costs vary significantly, even within the same neighborhood.

Table 1. Comparative costs of recent affordable housing projects built by the State

<i>Project</i>	<i>Cost of renovation or construction</i>	<i>Number of units</i>	<i>Cost per unit</i>	<i>Description</i>
Casa Rosada	\$232,746	8	\$29,093	Renovation of historic building in Casco
San Felipe Neri	\$77,732	8	\$9,716	Renovation of historic building in Casco
Casa Miller Phase I	\$114,737	24	\$4,781	New construction of apartment building
Las Garzas Phase II	\$142,372	25	\$5,695	Semi-attached houses in urban periphery. Partially existing infrastructure was improved to very basic standards

Several points can be highlighted:

1. In historic districts like Casco Antiguo, no two buildings are the same. There is a great variety of materials and standards (e.g., wood versus masonry), and striking differences among buildings on any individual block, because they were constructed for groups with very disparate incomes. This means that rehabilitation costs can vary considerably.
2. Public housing projects on the city periphery always include a component of self-help. For example, the Las Garzas houses do not include finishing (stucco, tiles, etc.), and has to be provided by the occupant. For obvious reasons, savings of this type are not feasible in projects involving historic buildings or multifamily housing.
3. The quality of the infrastructure and the urban services varies considerably between the center and the periphery. What qualifies as acceptable in the outlying areas (e.g., gravel streets in Las Garzas) cannot be

compared with what is available in the inner city. Other advantages of a central location, such as access to better services or lower transportation costs, also have to be taken into account.

CONCLUSIONS

This work has been an effort to analyze the recent case of the historic center of Panama City as a starting point for thinking about the possibilities of urban re-investment processes and programs that are not limited to luxury conversions and which include major social-policy components. The analysis has examined the advantages offered to the poor by central location, the ideological positions taken by the wealthy with respect to urban diversity, the safety challenges in low-income neighborhoods, and the relative costs of rehabilitation of historic buildings.

In summary:

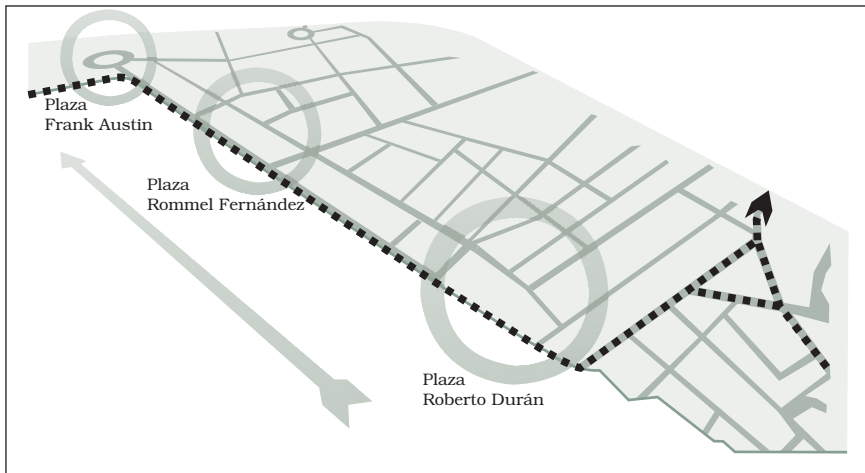
1. Some high-income groups (including foreigners) may have an inclination toward, or special tolerance for, social-class diversity in residential neighborhoods, and this can be very valuable for the promotion of affordable housing projects in historic or inner-city areas.
2. Central location can be very important for low-income groups, because of its importance in terms of social connections, lower transportation costs, and development of a successful informal or small-enterprise economy.
3. The costs of central low-income housing can be competitive with those of the typical projects on the city outskirts, provided the benefits offered by central location (infrastructure, services, savings, opportunities) are calculated and are included in the analysis.
4. The safety problems now affecting low-income neighborhoods of Panama City must be resolved if urban-diversity policies are to be successful.

Naturally, policies of this type have to deal realistically with the limits imposed by the circumstances in each individual neighborhood. The affordable housing program in Casco Antiguo benefits from the strength of the luxury market there, and from the fact that it occupies only a small part of the area; ultimately, a small percentage of the historic center buildings will be developed for such housing. In other neighborhoods the proportion may be the opposite, which can worsen the problems with which the urban-diversity

ideal must contend. How can neighborhoods where low-income groups constitute the majority population (i.e., which do not offer greater advantages for other social classes) also benefit from urban flows and contacts among social groups?

In these cases we need, perhaps, to explore the aspects of these neighborhoods that may have a broad cultural resonance for local visitors and outsiders, in this way incorporating large urban flows. This has been done by OCA and the Ministry of Housing in their urban proposal for the El Chorrillo working-class neighborhood adjacent to the historic center. The plan includes, for example, the creation of new public spaces dedicated to popular heroes who were born in the neighborhood, for example, boxer Roberto Durán and soccer player Rommel Fernández, and other spaces for major public events such as holidays or festivals.⁹ El Chorrillo has a rich history, and despite its social stigma and its reputation of being unsafe, is widely known for its gastronomic culture and its musical artists.

Figure 2. El Chorrillo master plan



Finally, social diversity initiatives must form part of broader and better documented discussions on the urban social structure and its costs. Studies

⁹ The plan was developed with the collaboration of students of Pennsylvania State University (PSU), under the direction of Prof. Bret Peters, and various Panamanian universities. Funds were provided by the OCA, the Ministry of Housing, and PSU.

that document statistically the costs and benefits of the location of affordable housing, both in the center city and on the outskirts, are urgently needed. In light of the results of this work, it does not seem to make much sense to implement affordable housing policies that do not take these considerations into account.

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ANNEX

S.Q.'s Life:

She is a single mother with two sons (ages 8 and 14) and two daughters (ages 10 and 12). She lived 18 years in a building on 4th St. (Casco) where all her children were born. Her partner was a construction worker. They split up because “he drank too much.” Back then, S. Q. worked a maid. She was later hired to do the cleaning for two businesses in Casco. Her monthly income is \$420.00. She liked living in Casco because,

I know the people and I saw my children grow here. Everything is close by (school, park, church, stores, supermarket, health center). We have parks for children to play.

In the year 2005 she had to vacate the building, which was converted to a high-end condominium. She acquired a new house (a semi-attached unit) through MIVI, in Pacora (eastern periphery). She pays \$30 a month. She feels very proud and satisfied for having obtained a house of her own, which she can pass on eventually to her children. The two younger children still attend school in Casco, however, and travel with their mother every weekday, including Sundays, to the parish. A significant part of her life is still spent in Casco, even though commuting is time-consuming and costly.

At the beginning, my body and legs hurt; I was very tired. Now, after some time, I don't feel like that, it doesn't bother me. The kids are happy in Pacora. They have their own room and take care of the house.

The new costs and commuting time are summarized in the following table. Commuting costs (\$180.00) now absorb 43% of her income. She spends 5 hours daily in commuting.

Wakes up	Leaves house	Arrives at work	Cost per person	Daily commuting cost	Monthly commuting cost
3:45 a.m.	5:00 a.m.	7:00 a.m.	\$2.00 al día	\$6.00	\$180.00
Returns 5.00 p.m	Leaves work 8.00 p.m.	Arrives home 3 hours	Time consumed see above		

D.A.'s Life:

D. A. is a seamstress who has worked in the Casco for 40 years. In 2006 she had to leave the building, which was bought by a European group. She was able to rent another space in a private building that was not facing immediate renovation work. The rent is \$115.00 per month. Her income is \$300–\$400 per month. She lives in Parque Lefevre (urban neighborhood to the east) and spends \$26.00 per month in transportation, but commuting time can be as high as 4:45 hours daily.

She has spent her entire working life in Casco, although she has adapted to the changes that have taken place over time.

I've worked as a seamstress since I got married. I make dresses, bags, and children's clothes. I used to have two employees, but they're gone now because of the evictions. I used to work for moneyed people and workers from the neighborhood, but I had to shift to crafts, and that's how my business survived. There's a lot of tourists now, and I can sell to them. This area didn't use to be commercial, this was residential, there were beauty parlors.

My father had a shoe store on Central Avenue. He used to make shoes, custom-made, and according to the style people requested. He had a lot of work, and we helped him, that's how I learned to run my business. He lived here all his life, until he retired.

I always lived here, until I got married. I left with my husband, but my business was here, so I arrived early in the morning and left at night.

The location helps me, there's a lot of tourists. They walk around and see the merchandise, and buy. People come by themselves.

H. A. B.'s life:

H.A.B. is retired, and has been selling goods from the sidewalk of his building for the past 18 years to supplement his income. He sells candy, cigarettes, combs, lighters, matches, soap, and *pixbaes*. He makes around \$225 per month. His building is in Central Ave., between the City's Art Center and

a high-end renovation project being built by a European group of investors. In his opinion, the only thing he needs for his business to survive is

a lot of passing people.

M.S.G.'s life.

M.S.G. is retired and has been living in Casco for 27 years. She has a food stall on the sidewalk of her building. Every noon, she installs a barbeque under a tent, and sells meals with chicken, pork, meat, potato salad, and rice. She sells almost 100 meals every day. Preparations start at 5:00 a.m. and service at 11:00 a.m. Her clients are government employees, tourists (she has some deals with tourist guides), and residents. Daily profits can be as high as \$100. The business provides the income for her son's family and another unmarried son. She says her success is due to the fact that the food is tasty and of high quality, and that the area is full of workers.

Here, the food from restaurants is very expensive, and government employees prefer this one because it's cheaper. There are a lot of government employees here. I sell to them, and treat them well. If there's a lot of activity, we sell.

PART 2

DIMENSIONS OF REGIONAL AND URBAN CONTRACTION IN WESTERN MEXICO

VII. DEPOPULATION OF SMALL AND MEDIUM SIZE CITIES IN WEST CENTRAL MEXICO¹

*Jesús Arroyo Alejandro**
*José Manuel Arroyo Sánchez***

ABSTRACT

Depopulation of small and medium size cities will be analyzed in the context of migration flows from these cities to the United States and to large metropolitan areas of Mexico, using the West Central Region of Mexico as the framework of this study. The essay argues that structural changes in the economy of these cities, caused by the increased openness process and market-oriented policies in Mexico, have transformed the patterns of regional development, as cities win or lose economic opportunities during the rapid growth of imports and exports. It is also argued that this tendency, together with the low economic growth of the Mexican economy during the last decades, has increased migration to the United States from some small and medium size cities with their consequent depopulation. In particular, we discuss whether the patterns of socioeconomic development at the municipal level are related to population trends, including out-migration. It is assumed that investments and the flow of goods and services are being concentrated

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¹ For purposes of this paper, small and medium size cities will be municipalities with less than 100,000 inhabitants, while those with more than 100,000 inhabitants will be considered big cities.

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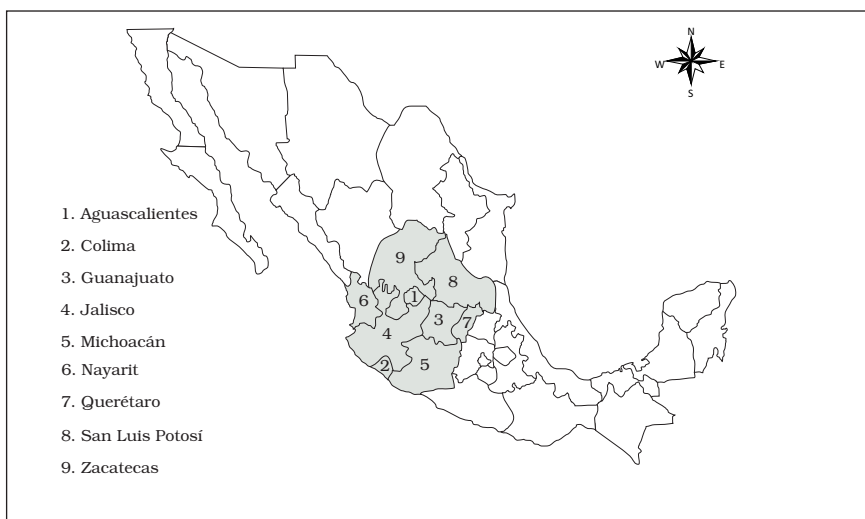
in the biggest urban areas, which are the beneficiaries of foreign trade and the development of the service economy.

INTRODUCTION

As reported by the Shrinking Cities Project of Germany's Federal Cultural Foundation, about 370 cities with more than 100,000 inhabitants have lost more than 10% of their population in the last 50 years. In some cases, cities, such as Detroit in the United States, have been losing population for more than 50 years.

In Latin America, the shrinking city phenomenon has not been as widespread as in other places in the world. Cities in central Mexico and some others in the northern part of Central America seem to be losing population, but aside from those areas, it is not likely that Latin America's cities will be replicating the shrinking trend in the United States or Europe, especially when it comes to the magnitude of the population loss.

Map 1. Location of the West Central Region (WCR) of Mexico



In this paper, we analyze the West Central Region (WCR) of Mexico, a region that, for more than 50 years, has been sending off thousands of

people to the United States. As defined by Mexico's National Population Council (CONAPO, its Spanish acronym), the WCR comprises the states of Aguascalientes, Colima, Guanajuato, Jalisco, Michoacán, Nayarit, Querétaro, San Luis Potosí, and Zacatecas, although, for many years, the most important interstate interactions occurred among Aguascalientes, Colima, Jalisco, and parts of the states of Durango, Guanajuato, Michoacán, Nayarit, and Zacatecas. This is the area that began its development as a region more than 500 years ago, when it was known as New Galicia, within the realm of the Spanish empire.

MIGRATION IN THE WCR OF MEXICO

Due to the magnitude of migratory flows in the WCR, one can surmise that the cities of this region have the potential to experience the shrinking city phenomenon.²

According to CONAPO's estimations, the WCR presents the highest levels of out-migration to the United States (see Table 1). Eight of the nine states of the region present a high to very high degree of migration intensity, and out of those nine states, four present the highest levels of migration intensity in the country (Zacatecas, Michoacán, Guanajuato and Nayarit), according to the migration intensity index.³ The rest of the West Central states present a high degree of migration intensity, except for Querétaro. Only one state that does not belong to this region, Durango, shows a higher level of migration intensity than other states in the WCR, but it must be noted that it is a neighboring state of Zacatecas, Nayarit, and Jalisco.

² It is important to note that cities in Mexico are defined in terms different from those used in other parts of the world. The smallest administrative unit in Mexico is the municipality (*municipio*) and, in some cases, a municipality is the equivalent of a city. But, in other cases, cities comprise many municipalities or parts of different municipalities, which sometimes are located across state lines.

³ The index of migration intensity is constructed using the principal component method and it uses four different migration indicators: a) households with emigrants that stayed in the United States during 1995-2000; b) households with emigrants that returned to Mexico during 1995-2000; c) household members with U.S. resident status who returned to Mexico before the time of the census; and d) households that received international remittances.

Table 1. Migration intensity to the United States, by Mexican State, 2000

<i>Federal state</i>	<i>Index of migration intensity</i>	<i>Degree of migration intensity</i>
Zacatecas	2.58352	Very high
Michoacán	2.05950	Very high
Guanajuato	1.36569	Very high
Nayarit	1.27041	Very high
Durango	1.09000	Very high
Aguascalientes	1.03883	High
Jalisco	0.88785	High
Colima	0.80260	High
San Luis Potosí	0.67344	High
Morelos	0.51921	High
Guerrero	0.42772	High
Hidalgo	0.39700	High
Chihuahua	-0.00082	Medium
Baja California	-0.00104	Medium
Querétaro	-0.04158	Medium
Oaxaca	-0.26377	Medium
Sinaloa	-0.26620	Medium
Puebla	-0.42263	Medium
Tamaulipas	-0.42994	Medium
Coahuila	-0.47955	Medium
Sonora	-0.63929	Low
Nuevo León	-0.66630	Low
Veracruz	-0.70717	Low
Tlaxcala	-0.73806	Low
México	-0.74732	Low
Baja California Sur	-0.86434	Low
Distrito Federal	-0.90984	Very low
Yucatán	-1.08207	Very low
Quintana Roo	-1.14632	Very low
Campeche	-1.19328	Very low
Chiapas	-1.24572	Very low
Tabasco	-1.27065	Very low

Source. CONAPO estimations based on the 10% sample of the XII General Population and Housing Census, 2000.

That the region presents the highest level of out-migration is not surprising, since, traditionally, the WCR has had the highest levels of emigration to the United States. Albeit the differences in magnitude, intensity, and migrant characteristics, it has been a continuous phenomenon since the 1950s, becoming part of the culture and everyday life of the region.

When it comes to internal migration, according to Partida Bush and Martínez Herrera (2006: 168-172), there was a sustained increase in inter-

state immigration flows up until 1990. Since then, there has been a clear decline in internal immigration at the national level, trends that were replicated in the WCR (see Appendix I). Jalisco, the biggest state of the WCR in terms of population, had a strong decline in immigration flows during the 1980s, but, in the last 10 years, the reduction of immigration flow to the state has been less sharp than that in other Mexican states. The flow has actually represented an increase when compared with states such as the Distrito Federal (Mexico City) and the Estado de México.⁴ With respect to internal emigration, it must be noted that out-migration from Aguascalientes, Guanajuato, Michoacán, San Luis Potosí, and Zacatecas has been decreasing permanently since the 1960s.⁵

Net migration data (see Table 2) shows that Aguascalientes, Colima, Guanajuato, Jalisco, and Querétaro have had positive balances in the last decade, while Nayarit and San Luis Potosí have had gains in the last 5 years. As noted by Partida Bush and Martínez Herrera (2006: 171), Aguascalientes, Guanajuato, and Querétaro went from negative balances (up until 1995) to positive balances in the last 10 years. In the case of Colima, it has had positive balances for 30 years now. States such as Michoacán and Zacatecas, which have presented negative balances up until 2005, have reduced them drastically. It is easy to see that net migration has produced a positive balance for the region as a whole, and that it is in international migration where the region presents a negative net migration balance.

If one takes a look at the municipalities' migration intensity index (see Appendix II), one can see that 57% of them presented a high to very high degree of migration intensity, while only 15% presented a low to very low index. All of the four smallest municipalities (1-2,499 inhabitants) presented a high to very high degree of migration intensity, 72% in the case of municipalities with a population size ranging from 2,500 to 14,999 and 55% for municipalities with 15,000 to 99,999 inhabitants. Of the largest municipalities (100,000 and more inhabitants), 43% presented a low to very low migration intensity, with 14% of the municipalities having high to very high degree of migration intensity (see Table 3).

The statistics show that migration to the United States is more important in the smaller municipalities of the region (less than 100,000 inhabitants). But, what are the main causes of emigration flows from these municipalities to the United States? If poor socioeconomic conditions (as measured

⁴ See Partida Bush and Martínez Herrera (2006).

⁵ *Ibid.*

Table 2. Interstate net migration rates, 1995-2005, West Central Region
(percentage)

Federal state	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Aguascalientes	61.2	58.6	56.6	54.4	52.7	50.7	48.8	48.1	46.7	45.0	43.7
Colima	47.0	44.7	42.3	45.5	48.3	51.5	53.8	56.3	59.1	62.1	64.8
Guanajuato	7.3	8.5	9.6	8.4	7.6	6.4	5.5	4.4	3.6	2.6	1.7
Jalisco	6.5	5.4	4.5	3.9	3.3	2.7	2.2	1.7	1.2	0.9	0.4
Michoacán	-11.9	-11.3	-10.6	-9.8	-9.2	-8.6	-8.0	-7.5	-7.1	-6.9	-6.7
Nayarit	-7.2	-7.3	-7.1	0.5	8.0	15.7	23.7	31.0	39.0	45.9	52.6
Querétaro	78.3	77.8	77.2	74.3	72.0	70.0	68.1	65.9	63.8	62.0	60.5
San Luis Potosí	-22.5	-23.0	-23.5	-19.5	-15.7	-11.8	-7.8	-3.7	0.3	3.6	6.5
Zacatecas	-30.7	-26.7	-22.9	-19.6	-16.6	-13.8	-11.7	-9.1	-6.6	-3.7	-1.8

Source: CONAPO, Indicadores demográficos, 1990-2030.

Table 3. Migration intensity, by municipality's population size, 2000, West Central Region

Migration intensity	1-2,499		2,500-14,999		Population size 15,000-99,999		100,000 and more		Total	
	%		%		%		%		%	
Very high	0	0	52	31	36	15	1	2	89	19
High	0	0	71	42	97	40	5	12	173	38
Medium	4	100	30	18	76	32	18	43	128	28
Low	0	0	12	7	23	10	18	43	53	12
Very low	0	0	5	3	9	4	0	0	14	3
Total	4	100	170	100	241	100	42	100	457	100

Source. CONAPO estimations based on 10% sample of the XII General Population and Housing Census 2000.

by the marginalization index) is the cause of higher migration levels (as measured by the migration intensity index), then there would be a high and negative correlation between the marginalization and the migration indexes. Since there is not a very high correlation between CONAPO's marginalization index (see Appendix II)⁶ and the migration intensity index, it cannot be said that the socioeconomic conditions of the smaller municipalities are the only cause of the migratory flows to the United States. In the case of the largest municipalities, a positive and quite high correlation was found (0.62)—a situation that was expected since most of them present negative marginalization and migration intensity indexes.⁷

In the case of the smaller municipalities, one could argue that there are two types of emigration flows: a) emigration caused by relatively poor socioeconomic conditions (especially the towns that present a high marginalization index or low socioeconomic development, and a high to very high migration intensity index), and b) traditional emigration flows (especially the towns that present a low to very low marginalization index and a high to very high migration intensity index).

THE COMPARATIVE SOCIOECONOMIC DEVELOPMENT LEVEL INDEX FOR THE WCR OF MEXICO

If one analyzes the patterns of comparative socioeconomic development levels⁸ from 1970 to 2000 (see Appendix III), one can see that the relative

⁶ CONAPO uses nine indicators to construct the marginalization index: 1) Percentage of illiterate population 15 years old or more, b) percentage of the population 15 years old or more with uncompleted Elementary School studies, c) percentage of private housing occupants without ducted water, d) percentage of private housing occupants without drainage nor private toilet services, e) percentage of private housing occupants with dirt floor, f) percentage of private housing occupants without electricity, g) percentage of houses with a certain level of crowding, h) percentage of the occupied population with an income of up to two minimum wages, and i) percentage of the population living in localities with less than 5,000 inhabitants. See CONAPO (2001: 15).

⁷ Using data from Appendix II, we found a correlation coefficient between the migration intensity index and the marginalization index of -0.1486 for small and medium size municipalities, which has the expected negative sign.

⁸ The Comparative Socioeconomic Development Level Index is constructed using the principal components technique and the variables included are: a) percen-...

proportion of municipalities with high to very high socioeconomic development has increased from 41.2% in 1970 to almost 64% in 2000 and decreased from 41% to 20.4% in the case of municipalities with low to very low socioeconomic development.

It must be noted that the highest levels of socioeconomic development are present within certain subregions containing the largest municipalities, while the less developed municipalities tend to be dispersed and isolated from the largest concentrations of population. Since the 1970s, two subregions have had great socioeconomic interaction: a) the south of Querétaro with the center of Guanajuato and b) Guadalajara's metro area with other large and medium size municipalities in Jalisco (Ocotlán, Tepatitlán, Ciudad Guzmán, Puerto Vallarta, Ameca, and Tuxpan) and with Nayarit's capital city, Tepic. For the year 2000, an important high development subregion encompasses the center of Querétaro, the center of Guanajuato, the north of Jalisco, the metro area of Zacatecas (in the state of Zacatecas), and almost all of Aguascalientes. Another important high development subregion is integrated by the municipalities in the north of Michoacán and the center of Jalisco.

There is a more or less clear relationship between a high or very high socioeconomic development level and specialization in manufacturing and/or services (See Appendix IV). This is the case of some of the municipalities north of Michoacán that specialized in the manufacturing industry and tourism, the coastal municipalities of Colima, Jalisco, and Nayarit (dedicated to tourism) and 11 other municipalities specializing in services. With the exception of Colima's municipalities, all of the municipalities that specialized in mining show low and decreasing socioeconomic development levels.

Smaller and dispersed municipalities show no convergence towards the socioeconomic development levels of the high development subregions, which have been basically the same since the 1970s. The municipalities with a high to very high socioeconomic development level present large concen-

...tage of literate population 15 years old or more, b) percentage of population 15 years old or more with post-elementary school studies, c) percentage of private housing occupants with ducted water, d) percentage of private housing occupants with drainage, e) percentage of private housing occupants with private toilet services, f) percentage of private housing occupants living in their own homes, g) percentage of private housing occupants with three or more rooms, h) percentage of the occupied population with an income of more than two minimum wages, i) Unikel's urbanization index, j) percentage of the occupied population working in the manufacturing industry and the services sectors, and k) percentage of the occupied population working as professionals or technicians.

trations of population, are specialized in manufacturing or services, and are located where the most important transportation infrastructure is found. On the other hand, the municipalities with a low to very low socioeconomic development level present a dispersed population, have poor transportation infrastructure, and have agriculture as their only way of survival.

From 1970 to 1990, most of the municipalities show very little increments in their socioeconomic development levels (see Appendix V). Some municipalities such as those in the northern portion of Michoacán, the south and center of Jalisco, and the southern part of Nayarit show decrements in their development levels. As for the 1990 to 2000 period, most of the municipalities with increments in their socioeconomic development levels are located in Jalisco and north of Michoacán and Aguascalientes, whereas most of the municipalities with decrements in their development levels can be found south of Michoacán, north of Jalisco, south and north of Zacatecas, and north of San Luis Potosí.

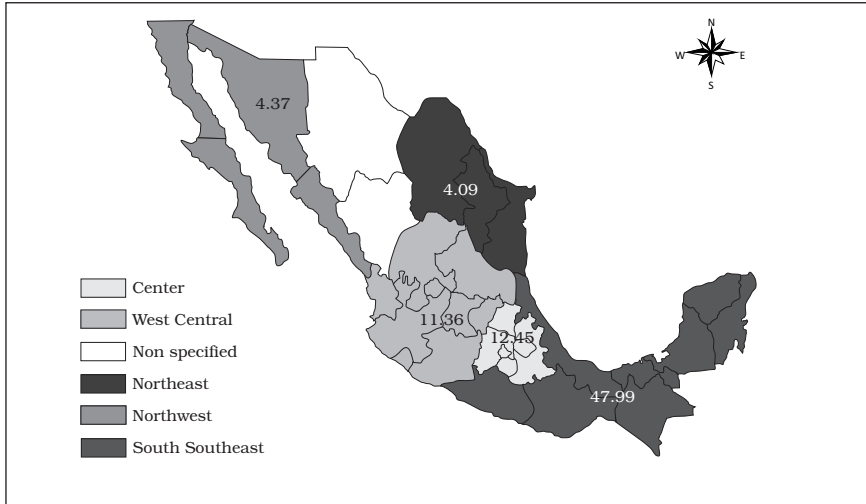
Low socioeconomic development could be the most important reason for the very high migration index in the case of some smaller municipalities, such as those located in certain areas of the states of Michoacán and Zacatecas,. But this is not so in some areas of Guanajuato as this state has the largest number of emerging municipalities with high to very high socioeconomic development levels. The latter could be a case where traditional emigration flows play a more important role.

TRADITIONAL EMIGRATION FLOWS FROM THE WCR OF MEXICO AND THE MIGRATION DECISION

Traditional emigration flows are the result of historical trends and migration networks that have characterized some areas of Guanajuato, Jalisco, Michoacán, and Zacatecas since the 1950s. These flows are not related to poor levels of socioeconomic development in the places of origin but are the result of the gap between the quality of life offered in the United States and the lack of better options in Mexico. That is, people in certain areas of the WCR—even when they enjoy a better quality of life than in other regions—tend to have great incentives to emigrate in order to take advantage of the better-paid job opportunities offered in the United States because of the migration network that has been built over the years by multiple generations of emigrants.

This seems to be the case in some parts of the WCR, considering that only 11.36% of that region’s inhabitants live in extreme poverty conditions, which is low when compared with the south-southeast, a region with lower migration intensity than the WCR (see Map 2).

Map 2. Percentage of people living in extreme poverty, by region, 2000



Source. CONAPO estimations based on INEGI’s XII General Population and Housing Census 2000. Note: Regions of Mexico: Centro = Center; Centro Occidente = West Central; No especificado = Non-specified; Noreste = Northeast; Noroeste = Northwest; and Sur Sureste = South-Southeast.

As pointed out by PNUD (2007: 20), “some people, even when they have the possibility to migrate, decide to stay in their places of origin, while some other people migrate even when they have constraints to do so. Evidence of this is that the population in poverty conditions is less prone to migrate, although it also depends on the level of poverty. In this case, inequality of available opportunities in different regions would be the key factor to analyze”. In this sense, migrating to the United States means an improvement in the quality of life when compared with the set of opportunities found in the place of origin, even when the available ones are better than those found in other places within the same region or country.

There may be another factor influencing migration from the WCR: an amplified demonstration effect due to increased access to information and communication technologies (ICTs). ICTs such as the Internet and television create even higher incentives to migrate because now, people have a better

feeling of the living standards and habits in other places with the resulting change in consumption habits, as they tend to imitate what they have seen through TV or the Internet. As an example, according to OECD (2007), Mexico had the 2nd highest monthly broadband price per megabit/second but it also had more broadband subscribers than more developed countries such as Australia and Sweden (and not far from Holland, Spain, and Canada), even though Mexico had the lowest broadband growth and penetration of all the countries surveyed. Duesenberry's demonstration effect suggests that individuals or households imitate the consumption levels of their neighbors by emphasizing income as a determinant to consumption. Consequently, the average propensity to consume does not fall, and individuals or households will devote more income to consumption if they live in communities where that income could be seen as relatively low. In this sense, the migration decision could be in part a result of the demonstration effect. And if one considers that globalization through ICTs makes it easier for people to adopt habits and fashions from other places within the same country and in other countries, the consequence is the exacerbation of the demonstration effect. This is particularly the case of the WCR, where relatives of migrants receive remittances that allow them to have a comparatively higher standard of living, a situation that creates incentives for non-migrants to leave their places of origin in order to obtain higher incomes in places where these are higher (such as the United States).

THE MIGRATION THEORY OF SELF-SELECTION AND EDUCATIONAL LEVEL OF MIGRANTS

One of the most important research streams in migration studies is led by Borjas, who argues that the type of people who migrate to the United States from any particular country will depend on the income distribution of the country of origin, what is known as "self-selection". Therefore, in poor countries where the returns to education and wage dispersion are relatively high, migrants will be "negatively selected". That is, the people with the highest incentives to migrate to the United States will be individuals with a below-average level of skills in their countries of origin. In contrast, in rich countries where the returns to education and wage dispersion are relatively low, migrants will be "positively selected". That is, the people with the highest incentive to migrate will be those individuals with an above-average level of skills in their countries of origin.

Studies such as those of Lindstrom and Massey (1994), Borjas (1987), and Borjas and Katz (2005) try to demonstrate that migrants from Mexico (and other countries) are negatively selected by showing that the average migrant to the United States has a lower educational level than the average non-migrant. As evidence of the “negative selection” hypothesis, some of those studies found that the economic performance of the new immigrants has deteriorated, at the same time that the sending countries are increasingly poor nations and not rich or middle-income countries. Such finding is consistent with the idea that returns to education are higher in Mexico than in the United States and for that reason, the wage gain from migration is proportionately lower for Mexicans with higher levels of education than for those with lower levels of education.

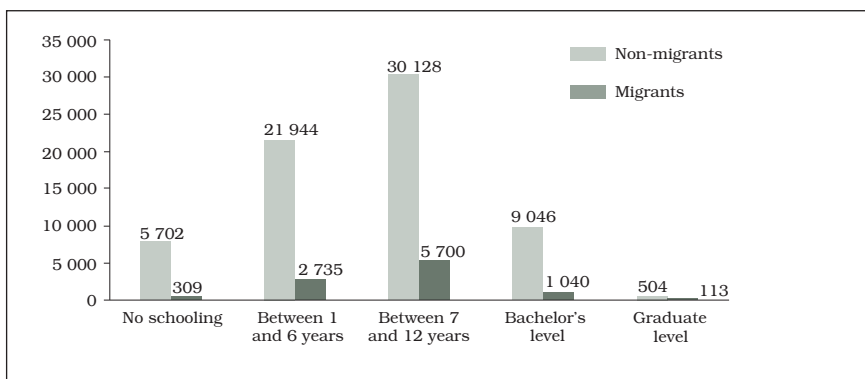
Chiquiar and Hanson (2005), however, have made two findings in relation to the “self-selection” of Mexican migrants: a) Even though Mexican migrants have lower educational levels than United States citizens, they have, on average, a higher education level than the citizens of Mexico. According to their study, Mexican individuals with a level of schooling of 12 to 15 years are an overrepresented group in the United States, and b) income differences between the United States and Mexico are decreasing with respect to age and education. That the wage differential between Mexico and the United States is decreasing with respect to education and that the probability of Mexico-United States migration increases with education suggest that the costs of migration play a central role in the determination of who migrates.

Since Mexico has high returns to education and wage dispersion, it is an ideal candidate for “negative selection” of migrants. However, recent literature on Mexico-United States migration has documented increasing migration of people with high levels of schooling (see, for example, Cuecuecha, 2005). Nevertheless, if one considers the low returns to education of Mexicans in the United States, it can be argued that we are facing a “brain drain and waste” phenomenon.

By using the United States’ CPS data and Mexico’s population count from 2005 (see Figure 1), it can be found that the percentage of people with a level of less than 7 years of schooling is higher for non-migrants than for migrants (42% against 30%), and that the percentage of people with a level of schooling of over 12 years is practically the same for migrants and non-migrants (14%). Most Mexican migrants have 7-12 years of schooling (56%), that is, secondary education. Together, the migrants with a level of education of more than 7 years represent 70% of all Mexican migrants in the United States, significantly higher than the percentage of non-migrants with a

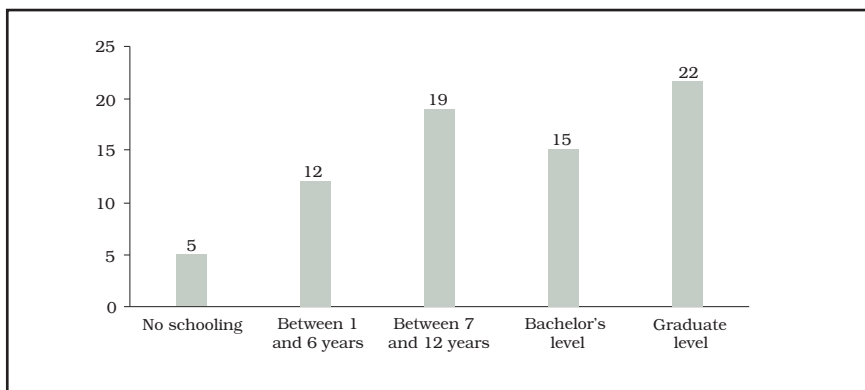
schooling level of more than 7 years (59%). In relative terms (see Figure 2), the migrant population with a level of less than 7 years of schooling represents 11% of the non-migrant population with the same level of schooling, 19% in the case of the 7-12- year level and 15% for people with a level of over 12 years of schooling (22% when one considers graduate-level studies only).

Figure 1. Level of schooling: Non-migrant and migrant populations of Mexico, 2005



Source. Elaborated with data from the U.S. Current Population Survey (CPS), March 2006, and with the INEGI's II Population and Housing Count 2005.

Figure 2. Level of schooling: Migrant population as a percentage of the non-migrant population of Mexico, 2005



Source. Elaborated with data from the U.S. Current Population Survey (CPS), March 2006, and with the INEGI's II Population and Housing Count, 2005.

THE CITIES OF THE WCR OF MEXICO AS POLES OF ATTRACTION AND THE DEPOPULATION OF SMALLER TOWNS (URBAN AND NON-URBAN)

Although we do not know the state of origin of the Mexican migrant population by level of schooling, it can be inferred that the percentages presented above (see Figure 2) can be representative of the nine states considered in this study, since these present the highest migration intensity indexes. Thus, it can be said that the migration decision, in some cases, has to do more with improvements in the quality of life than with the socioeconomic conditions of the places of origin. This means that some migrants just want to find opportunities better than the ones already available. Besides, the cost of migrating to the United States can also prevent the poorest people from leaving their places or origin. This is supported by the fact that the southern states of Mexico (where most of the people in extreme poverty live) do not present migration intensity indexes as high as that of the WCR (see Table 1). Since the WCR has had a positive interstate migration balance (at least for the last 10 years), it is easy to see that the socioeconomic condition of the region as a whole is better than that in other regions, but not so good for the people who migrated that, despite the set of opportunities available in their home states, decided that the United States could provide even better opportunities.

What does this mean for the cities of the region? It means that they are still attracting people from smaller towns. If one uses CONAPO's population projections (see Appendix II), it can be seen that all of the municipalities with less than 2,500 inhabitants will reduce their population by 2030, 90% in the case of the municipalities within the 2,500-14,999 population range, 73% in the case of the municipalities within the 15,000-99,999 population range, and 29% in the case of the biggest municipalities of the region. Considering that, for some municipalities with more than 100,000 inhabitants, out-migration is directed towards neighboring municipalities (inner-city migration), it can be said that cities in the region are still important poles of attraction for smaller towns.⁹ This is precisely the case of the municipality of Guadalajara, the biggest one in the region in terms of population. The Guadalajara metro area is composed of the following municipalities –all projected to have population increments (except for Guadalajara)– Guadalajara, Zapopan, Tlaquepaque, Tonalá, Tlajomulco, and El Salto. The municipality of Guadalajara registered a population decrease in 2005 and is projected to have even greater reductions

⁹ Cities and metro areas in Mexico are composed of various neighboring municipalities (as classified by CONAPO).

in the future. This is because Guadalajara has no more space to grow and has become a commercial area rather than a residential one: some people prefer to live in other municipalities, but they work in Guadalajara. This translates into higher population increments in the case of Guadalajara's neighboring municipalities. In sum, the Guadalajara metro area is still an attraction pole, especially for people from smaller towns, whether they are located in the region or not.

Of the 15 largest municipalities in the region, only two are projected to have population decrements in the future (the above mentioned Guadalajara and Salamanca) and the rest (León, Zapopan, San Luis Potosí, Aguascalientes, Querétaro, Morelia, Tlaquepaque, Irapuato, Celaya, Tonalá, Tepic, Uruapan, and Puerto Vallarta) will actually have important increments in population size.

The shrinking city phenomenon that is happening in northeastern United States, the Ruhr region in Germany, or other regions in the world is not likely to happen in the WCR soon. What we see is a decline of the smaller urban towns and the rural towns as a result of past economic policy measures.

Following in the footsteps of most countries in Latin America, Mexico adopted the Import Substitution Industrialization (ISI) model from the 1940s to the beginning of the 1980s. The industrial policies at the time favored the subsidization of local industries (especially infant industries) that produced substitutes of foreign goods (except for capital goods that were not produced in the country) in order to develop internal markets. One of the measures taken to protect the local industries was the application of heavy barriers to trade—particularly higher tariffs to non-capital imports—and the overvaluation of the local currency through a fixed exchange rate regime that allowed the manufacturers to import capital goods. Since there was an emphasis on industry, an unintended consequence of the application of the ISI model was the decline of commodities production and therefore a decline of rural areas. An enormous exodus from the rural to the urban areas began more or less at the same time the effects of the ISI policies were felt by the Mexican economy (the 1950s). These migration flows left agriculture in a state of abandonment. One also has to consider that, during the 1970s, there was a marked increase in migration flows from the WCR to the United States, a period characterized by recurrent economic crises.

The patent failures of the ISI model and the influence of the neoliberalist ideology during the 1980s triggered a change in Mexico's economic policies. This included the economic liberalization of the country and a more active participation in international trade. Since 1986, when Mexico entered the

General Agreement on Tariffs and Trade (GATT), the precursor to the World Trade Organization (WTO), the country has become a champion of free trade by signing more trade agreements than any other nation in the world. The accelerated openness process, coupled with an increasing economic integration of the world, meant that the regions of Mexico were going to compete not only among themselves but also against other regions at the international level. The overprotection of certain sectors of the Mexican economy during the decades preceding the adoption of the neoliberal model, including the different activities of the primary sector, became a problem that has yet to be solved. In the case of the rural areas, where most of the activities of the primary sector take place, these were not ready to face the challenges of competing in a globalized environment, since most of the rural producers were used to being subsidized and protected by commercial barriers.

In this sense, only certain industries and services, located in big cities of Mexico, have been successful in competing at the international level. This situation has only caused an ever increasing exodus from the smaller towns and rural areas to the cities and to the United States. Most of the infrastructure and investments today are still being concentrated in the same places that concentrated them in the first place before the advent of the neoliberal model. Mexico's slower growth pace in the last decades (with an average GDP growth of approximately 2%) has resulted in the deterioration not only of the situation in rural areas but also of certain industries and services located in certain urban areas.

In the case of the WCR, one can say that certain subregions, such as the Guadalajara metro area, have been favored by the economic processes that have taken place in the last decades by becoming the so-called Silicon Valley of Mexico. For example, Zapopan, a municipality that is part of the Guadalajara metro area and for many years was known as the "corn village" (as it used to be the main producer of corn and an agricultural hotspot in Mexico), has now abandoned a great deal of agricultural activities in favor of the manufacturing of semiconductors and other high-tech components. Zapopan became part of the globalized knowledge economy that makes use of ICTs, which have been the staple of globalization in the last decades. The fact that Zapopan diversified its economy did not mean that other places in the region would take advantage of the opportunity to produce corn, considering that most rural areas lack the proper infrastructure and the people with proper skills to compete in the production of this and other agricultural products, not to mention industrial goods or services. A consequence of the inability of the smaller towns (especially the rural areas) to compete in the knowledge

economy of the globalized world has been an ever increasing migration flow directed towards big cities of Mexico and to the United States. Decentralization of economic activities and heavier infrastructure investments in the most relegated areas of the WCR remain the challenges being faced by current and future inhabitants of the region, together with maintaining the competitive edge of their big cities.

CONCLUDING REMARKS

It would be difficult to say that the big cities of the WCR are shrinking: what we see is a strengthening of their attraction potential due to the structural changes in their economies that have been the result of market-oriented policies of the last two decades. Migration to the big cities and to the United States is likely to increase in the future, with depopulation of rural towns and small and medium size cities as one of the consequences. In the case of migration to the United States, it seems that it is, to a greater extent, less determined by socioeconomic conditions and more by the eagerness of people to enjoy a standard of living similar to that found in other places (a consequence of the demonstration effect). This is supported by the fact that the flow of immigrants with higher educational levels has grown over the years. This poses certain challenges for future structural changes in the WCR: how to improve the investment potential and infrastructure of smaller towns, how to decentralize economic activities while at the same time increasing the competitiveness of the region as a whole, and how to create incentives for non-migrants from smaller towns (rural communities and small and medium size cities), especially those with higher educational levels, to counteract the attraction of the big cities of Mexico and the non-decreasing appeal of the United States.

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Appendix I. Population growth rates, West Central Region of Mexico

Federal state	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<i>Aguascalientes</i>																
Inter-State Immigration Rate*	1.31	1.28	1.23	1.20	1.16	1.13	1.10	1.07	1.01	0.96	0.91	0.86	0.81	0.76	0.72	0.67
Inter-State Emigration Rate*	0.56	0.55	0.54	0.53	0.52	0.52	0.51	0.50	0.47	0.43	0.40	0.37	0.33	0.30	0.27	0.24
Inter-State Net Migration Rate**	0.75	0.72	0.69	0.66	0.64	0.61	0.59	0.57	0.54	0.53	0.51	0.49	0.48	0.47	0.45	0.44
International Net Migration Rate**	-0.39	-0.37	-0.36	-0.39	-0.43	-0.44	-0.45	-0.47	-0.45	-0.41	-0.47	-0.42	-0.41	-0.43	-0.43	-0.44
Total Growth Rate**	2.98	2.94	2.88	2.76	2.65	2.54	2.44	2.33	2.32	2.36	2.30	2.20	2.05	1.92	1.81	1.74
<i>Colima</i>																
Inter-State Immigration Rate*	1.63	1.60	1.57	1.54	1.50	1.47	1.44	1.40	1.35	1.29	1.23	1.18	1.13	1.09	1.05	1.00
Inter-State Emigration Rate*	1.02	1.02	1.01	1.01	1.00	1.00	0.99	0.98	0.89	0.81	0.72	0.64	0.57	0.49	0.43	0.36
Inter-State Net Migration Rate**	0.61	0.59	0.56	0.53	0.50	0.47	0.45	0.42	0.46	0.48	0.52	0.54	0.56	0.59	0.52	0.65
International Net Migration Rate**	-0.95	-0.88	-0.81	-0.76	-0.71	-0.65	-0.59	-0.54	-0.53	-0.51	-0.57	-0.52	-0.51	-0.53	-0.55	-0.57
Total Growth Rate**	1.84	1.85	1.85	1.81	1.77	1.74	1.71	1.68	1.70	1.77	1.75	1.69	1.58	1.48	1.41	1.37
<i>Guanajuato</i>																
Inter-State Immigration Rate*	0.55	0.54	0.53	0.52	0.51	0.50	0.49	0.48	0.44	0.41	0.37	0.34	0.30	0.27	0.23	0.20
Inter-State Emigration Rate*	0.52	0.50	0.48	0.46	0.45	0.43	0.41	0.39	0.36	0.33	0.31	0.28	0.26	0.23	0.20	0.18
Inter-State Net Migration Rate**	0.03	0.03	0.04	0.05	0.06	0.07	0.08	0.10	0.08	0.08	0.06	0.05	0.04	0.04	0.03	0.02
International Net Migration Rate**	-0.59	-0.65	-0.69	-0.76	-0.83	-0.88	-1.00	-1.14	-1.20	-1.22	-1.34	-1.22	-1.18	-1.14	-1.11	-1.10
Total Growth Rate**	1.90	1.83	1.75	1.64	1.52	1.41	1.31	1.20	1.14	1.14	1.00	0.92	0.79	0.68	0.60	0.55
<i>Jalisco</i>																
Inter-State Immigration Rate*	0.74	0.72	0.70	0.68	0.66	0.64	0.62	0.60	0.56	0.52	0.48	0.44	0.40	0.37	0.33	0.29
Inter-State Emigration Rate*	0.62	0.61	0.60	0.59	0.58	0.57	0.56	0.55	0.52	0.49	0.45	0.42	0.39	0.35	0.32	0.29
Inter-State Net Migration Rate**	0.12	0.11	0.10	0.09	0.08	0.07	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.01	0.01	0.00
International Net Migration Rate**	-0.58	-0.58	-0.57	-0.59	-0.61	-0.60	-0.60	-0.61	-0.61	-0.61	-0.69	-0.60	-0.58	-0.57	-0.57	-0.57
Total Growth Rate**	1.89	1.85	1.80	1.72	1.64	1.56	1.49	1.41	1.39	1.41	1.33	1.26	1.14	1.03	0.95	0.90

<i>Michoacán</i>																
Inter-State Immigration Rate*	0.65	0.63	0.62	0.60	0.59	0.58	0.56	0.55	0.51	0.47	0.43	0.39	0.34	0.30	0.25	0.21
Inter-State Emigration Rate*	0.78	0.77	0.75	0.73	0.71	0.70	0.68	0.66	0.61	0.56	0.51	0.47	0.42	0.37	0.32	0.28
Inter-State Net Migration Rate**	-0.13	-0.13	-0.13	-0.13	-0.12	-0.12	-0.11	-0.11	-0.10	-0.09	-0.09	-0.08	-0.07	-0.07	-0.07	-0.07
International Net Migration Rate**	-0.50	-0.63	-0.75	-0.90	-1.05	-1.17	-1.28	-1.39	-1.52	-1.66	-1.84	-1.74	-1.72	-1.71	-1.69	-1.69
Total Growth Rate**	1.81	1.66	1.50	1.30	1.11	0.91	0.73	0.53	0.40	0.31	0.16	0.07	-0.08	-0.21	-0.30	-0.36
<i>Nayarit</i>																
Inter-State Immigration Rate*	1.04	1.04	1.02	1.02	1.01	1.00	0.99	0.98	0.97	0.96	0.96	0.95	0.94	0.93	0.92	0.92
Inter-State Emigration Rate*	1.10	1.10	1.10	1.09	1.08	1.07	1.06	1.05	0.97	0.88	0.80	0.71	0.63	0.54	0.47	0.40
Inter-State Net Migration Rate**	-0.06	-0.06	-0.07	-0.07	-0.07	-0.07	-0.07	-0.07	0.01	0.08	0.16	0.24	0.31	0.39	0.46	0.53
International Net Migration Rate**	-0.87	-0.89	-0.89	-0.93	-0.97	-0.97	-0.99	-1.01	-1.10	-1.19	-1.39	-1.36	-1.40	-1.45	-1.50	-1.56
Total Growth Rate**	1.32	1.28	1.23	1.13	1.04	0.96	0.88	0.79	0.77	0.78	0.68	0.61	0.50	0.39	0.31	0.27
<i>Querétaro</i>																
Inter-State Immigration Rate*	1.48	1.46	1.44	1.42	1.40	1.38	1.37	1.35	1.29	1.23	1.17	1.11	1.06	1.00	0.95	0.90
Inter-State Emigration Rate*	0.66	0.65	0.64	0.63	0.61	0.60	0.59	0.58	0.54	0.51	0.47	0.43	0.40	0.36	0.33	0.30
Inter-State Net Migration Rate**	0.82	0.81	0.80	0.79	0.79	0.78	0.78	0.77	0.74	0.72	0.70	0.68	0.66	0.64	0.62	0.60
International Net Migration Rate**	-0.04	-0.08	-0.10	-0.15	-0.21	-0.23	-0.26	-0.29	-0.29	-0.31	-0.44	-0.33	-0.30	-0.27	-0.26	-0.26
Total Growth Rate**	3.17	3.11	3.04	2.94	2.83	2.73	2.64	2.54	2.49	2.49	2.38	2.30	2.17	2.05	1.96	1.91
<i>San Luis Potosí</i>																
Inter-State Immigration Rate*	0.68	0.66	0.64	0.62	0.59	0.57	0.55	0.53	0.50	0.47	0.44	0.42	0.39	0.37	0.34	0.31
Inter-State Emigration Rate*	0.88	0.86	0.85	0.83	0.82	0.80	0.78	0.76	0.69	0.63	0.56	0.49	0.43	0.36	0.30	0.25
Inter-State Net Migration Rate**	-0.20	-0.20	-0.21	-0.22	-0.22	-0.23	-0.23	-0.24	-0.19	-0.16	-0.12	-0.08	-0.04	0.00	0.04	0.07
International Net Migration Rate**	-0.59	-0.61	-0.61	-0.64	-0.68	-0.69	-0.68	-0.67	-0.73	-0.79	-0.92	-0.89	-0.93	-0.98	-1.02	-1.06
Total Growth Rate**	1.60	1.56	1.50	1.41	1.32	1.24	1.16	1.07	1.05	1.06	1.00	0.92	0.79	0.68	0.59	0.54
<i>Zacatecas</i>																
Inter-State Immigration Rate*	0.64	0.63	0.62	0.61	0.60	0.60	0.58	0.57	0.53	0.49	0.45	0.40	0.36	0.31	0.27	0.23
Inter-State Emigration Rate*	1.14	1.09	1.05	1.00	0.95	0.90	0.85	0.80	0.73	0.66	0.59	0.51	0.45	0.38	0.30	0.25
Inter-State Net Migration Rate**	-0.50	-0.46	-0.42	-0.38	-0.35	-0.31	-0.27	-0.23	-0.20	-0.17	-0.14	-0.12	-0.09	-0.07	-0.04	-0.02
International Net Migration Rate**	-1.30	-1.32	-1.33	-1.36	-1.39	-1.39	-1.41	-1.43	-1.45	-1.46	-1.64	-1.55	-1.53	-1.52	-1.52	-1.54
Total Growth Rate**	0.65	0.64	0.62	0.56	0.51	0.46	0.41	0.36	0.37	0.43	0.31	0.24	0.14	0.05	-0.02	-0.07

* Times 1,000. ** Times 100.

Source: CONAPO, Indicadores Demográficos, 1990-2030.

Appendix II. Demographic indicators, by municipality, 2000 (unless otherwise indicated)

Municipality	Federal state	Population 2000	Migration intensity index	Degree of migration intensity	Marginalization index	Degree of marginalization	Population 2005	Projected population 2030	Projected Growth rate 2000-2005
Guadalajara	Jalisco	1 646,319	-0.242	Low	-2.0295	Very Low	1,622,737	1,216,292	-1%
León	Guanajuato	1,134,842	-0.2935	Low	-1.5816	Very Low	1,283,143	1,914,461	13%
Zapopan	Jalisco	1,001,021	-0.2885	Low	-1.9487	Very Low	1,152,569	1,680,215	15%
San Luis Potosí	San Luis Potosí	670,532	-0.3455	Low	-1.9015	Very Low	735,886	894,270	10%
Aguascalientes	Aguascalientes	643,419	-0.1868	Low	-1.8714	Very Low	726,390	987,109	13%
Querétaro	Querétaro	641,386	-0.5166	Low	-1.8791	Very Low	732,222	1,046,221	14%
Morelia	Michoacán	620,532	-0.0401	Low	-1.7003	Very Low	684,705	824,904	10%
Tlaquepaque	Jalisco	474,178	-0.3792	Low	-1.5571	Very Low	560,653	898,842	18%
Irapuato	Guanajuato	440,134	0.0511	Medium	-1.2392	Low	468,124	505,939	6%
Celaya	Guanajuato	382,958	0.2231	Medium	-1.5165	Very Low	417,948	448,077	9%
Tonalá	Jalisco	337,149	-0.2855	Low	-1.4236	Very Low	405,663	674,933	20%
Tepic	Nayarit	305,176	0.0407	Medium	-1.7089	Very Low	337,617	427,182	11%
Uruapan	Michoacán	265,699	0.1755	Medium	-1.1621	Low	281,837	298,266	6%
Salamanca	Guanajuato	226,654	0.1239	Medium	-1.2226	Low	236,367	219,051	4%
Puerto Vallarta	Jalisco	184,728	-0.3373	Low	-1.7633	Very Low	219,462	360,375	19%
Fresnillo	Zacatecas	183,236	0.0241	Medium	-0.9511	Low	198,176	239,854	8%
Soledad de Graciano Sánchez	San Luis Potosí	180,296	-0.305	Low	-1.7098	Very Low	225,796	419,431	25%
San Juan del Río	Querétaro	179,668	-0.0617	Low	-1.2945	Very Low	207,912	309,869	16%
Lázaro Cárdenas	Michoacán	171,100	0.1326	Medium	-1.3465	Very Low	166,037	124,273	-3%
Zamora	Michoacán	161,918	0.2981	Medium	-1.2625	Low	171,816	175,213	6%
Ciudad Valles	San Luis Potosí	146,604	-0.2797	Low	-0.8975	Low	158,229	170,555	8%
Pénjamo	Guanajuato	144,426	0.1948	Medium	-0.2757	Medium	140,887	95,286	-2%
Guanajuato	Guanajuato	141,196	-0.3186	Low	-1.3166	Very Low	154,364	186,105	9%
Zitácuaro	Michoacán	138,050	0.0683	Medium	-0.5327	Medium	138,467	120,143	0%

Allende	Guajuato	134,880	0.2664	Medium	-0.4275	Medium	140,747	133,958	4%
Silao	Guajuato	134,337	0.1159	Medium	-0.7165	Low	148,257	189,538	10%
Valle de Santiago	Guajuato	130,821	0.5578	Medium	-0.5752	Medium	129,922	86,519	-1%
Colima	Colima	129,958	0.1618	Medium	-1.7992	Very Low	133,020	138,035	2%
Dolores Hidalgo	Guajuato	128,994	1.0114	High	-0.2191	Medium	135,703	114,245	5%
Lagos de Moreno	Jalisco	128,118	0.8769	High	-0.9009	Low	139,912	139,210	9%
Manzanillo	Colima	125,143	-0.2096	Low	-1.5225	Very Low	137,499	226,635	10%
Zacatecas	Zacatecas	123,899	0.0297	Medium	-1.881	Very Low	133,102	141,934	7%
Tlajomulco de Zúñiga	Jalisco	123,619	0.0218	Medium	-1.199	Low	212,422	688,046	72%
Tepatlilán de Morelos	Jalisco	119,197	0.8539	High	-1.3198	Very Low	127,258	123,144	7%
Apatzingán	Michoacán	117,949	0.5342	Medium	-0.7665	Low	116,698	86,021	-1%
Acámbaro	Guajuato	110,718	2.1941	Very High	-0.886	Low	104,068	63,352	-6%
Guadalupe	Zacatecas	109,066	-0.2555	Low	-1.6562	Very Low	129,293	204,322	19%
Hidalgo	Michoacán	106,421	1.0635	High	-0.4824	Medium	110,879	90,841	4%
San Francisco del Rincón	Guajuato	100,239	0.4488	Medium	-1.1159	Low	104,476	106,688	4%
Tecmán	Colima	99,289	0.3563	Medium	-0.8422	Low	99,154	94,387	0%
San Luis de la Paz	Guajuato	96,729	1.1871	High	-0.1297	Medium	102,057	84,802	6%
San Felipe	Guajuato	95,359	0.9964	High	0.2329	High	97,055	70,470	2%
Santiago Ixcuintla	Nayarit	94,979	0.32	Medium	-0.5746	Medium	86,634	52,341	-9%
Salvatierra	Guajuato	94,558	1.0873	High	-0.8071	Low	93,608	57,664	-1%
Tamazunchale	San Luis Potosí	89,074	-0.65	Very Low	0.5008	High	95,151	120,021	7%
Rioverde	San Luis Potosí	88,991	0.8635	High	-0.4704	Medium	87,143	47,725	-2%
Zapotlán el Grande	Jalisco	86,743	-0.0604	Low	-1.6243	Very Low	96,183	108,365	11%
La Piedad	Michoacán	84,946	1.1121	High	-1.3943	Very Low	91,425	82,478	8%
Ocotlán	Jalisco	84,200	0.3436	Medium	-1.4894	Very Low	89,997	94,344	7%
El Salto	Jalisco	83,453	-0.3241	Low	-1.266	Low	110,072	239,374	32%
Cortazar	Guajuato	81,359	0.9759	High	-0.9807	Low	83,977	64,120	3%
Villa de Alvarez	Colima	80,808	-0.052	Low	-1.8697	Very Low	98,971	200,780	22%
Abasolo	Guajuato	79,093	1.9862	Very High	-0.2133	Medium	78,169	48,097	-1%
Matehuala	San Luis Potosí	78,187	0.4338	Medium	-1.2711	Low	83,282	78,904	7%
Pátzcuaro	Michoacán	77,872	0.0679	Medium	-0.8184	Low	80,733	84,618	4%
Arandas	Jalisco	76,293	1.539	High	-0.8439	Low	80,408	64,319	5%
Corregidora	Querétaro	74,558	-0.3011	Low	-1.5542	Very Low	102,301	253,975	37%
Yuriria	Guajuato	73,820	0.9068	High	-0.3952	Medium	65,691	39,468	-11%
Puruándiro	Michoacán	71,770	2.7042	Very High	-0.5388	Medium	66,030	39,852	-8%

Municipality	Federal state	Population 2000	Migration intensity index	Degree of migration intensity	Marginalization index	Degree of marginalization	Population 2005	Projected population 2030	Growth rate 2000-2005
El Marqués	Querétaro	71,397	-0.502	Low	-0.5082	Medium	80,170	114,354	12%
Zacapu	Michoacán	69,700	0.3623	Medium	-1.2811	Very Low	71,511	64,094	3%
Maravatío	Michoacán	69,382	0.6003	Medium	-0.1047	High	71,081	66,538	2%
Apaseo el Grande	Guanajuato	68,738	0.2946	Medium	-0.5917	Medium	74,502	85,482	8%
Comonfort	Guanajuato	67,642	1.4028	High	-0.2354	Medium	70,682	53,670	4%
Compostela	Nayarit	65,943	0.7854	High	-0.9307	Low	63,973	43,368	-3%
Santa Cruz de Juventino Rosas	Guanajuato	65,479	0.7276	High	-0.365	Medium	70,812	71,623	8%
Pinos	Zacatecas	64,415	0.8589	High	0.358	High	66,789	56,878	4%
Jesús María	Aguascalientes	64,097	0.3383	Medium	-1.1414	Low	81,936	167,336	28%
Sombrerete	Zacatecas	61,652	0.8819	High	-0.5989	Medium	59,198	35,897	-4%
Sahuayo	Michoacán	60,894	0.6437	Medium	-1.1811	Low	62,600	51,913	3%
Bahía de Banderas	Nayarit	59,808	0.6828	Medium	-1.2318	Low	82,211	151,988	37%
Río Grande	Zacatecas	59,330	2.6517	Very High	-0.9448	Low	58,312	35,525	-2%
Tacámbaro	Michoacán	59,192	0.7204	Medium	-0.24	Medium	60,627	51,104	2%
La Barca	Jalisco	59,086	2.1874	Very High	-1.0928	Low	60,282	37,890	2%
Los Reyes	Michoacán	57,006	0.894	High	-0.788	Low	52,910	31,978	-7%
Apaseo el Alto	Guanajuato	56,817	0.8142	High	-0.5096	Medium	58,453	41,041	3%
Aneca	Jalisco	56,681	1.0507	High	-1.2641	Low	55,030	33,385	-3%
Jerécuaro	Guanajuato	55,311	1.2179	High	0.4154	High	48,049	28,689	-13%
San Juan de los Lagos	Jalisco	55,305	0.7667	High	-1.0291	Low	57,528	48,686	4%
Jerez	Zacatecas	54,757	1.6038	High	-1.2324	Low	53,337	32,454	-3%
San José Iturbide	Guanajuato	54,661	0.9239	High	-0.4743	Medium	59,627	68,772	9%
Amealco de Bonfil	Querétaro	54,591	0.1819	Medium	0.5973	High	57,129	53,417	1%
Jacona	Michoacán	54,130	0.4423	Medium	-1.0969	Low	60,334	80,854	11%
Tala	Jalisco	53,616	0.6537	Medium	-1.2431	Low	56,606	53,562	6%
Zapotlanejo	Jalisco	53,461	0.3877	Medium	-0.8533	Low	56,241	53,931	5%
Uriangato	Guanajuato	52,931	0.7942	High	-1.1973	Low	53,668	37,316	1%
Romita	Guanajuato	51,825	1.0715	High	-0.1996	Medium	51,252	31,537	-1%
Atotonilco el Alto	Jalisco	51,798	1.2721	High	-0.8573	Low	52,669	36,130	2%

Cadereyta de Montes	Querétaro	51,790	1.2321	High	0.1425	High	57,397	64,262	11%
Calvillo	Aguascalientes	51,291	2.9032	Very High	-0.8113	Low	50,975	31,320	-1%
Autlán de Navarro	Jalisco	50,846	0.9036	High	-1.3709	Very Low	53,630	48,603	5%
Tequisquiapan	Querétaro	49,969	-0.5498	Low	-0.8885	Low	55,305	73,297	11%
Xilitla	San Luis Potosí	49,578	-0.6561	Very Low	0.8305	High	51,057	57,646	3%
Pedro Escobedo	Querétaro	49,554	-0.1998	Low	-0.6721	Medium	56,747	86,606	15%
Zinapécuaro	Michoacán	48,917	2.6741	Very High	-0.4609	Medium	44,617	14,025	-9%
Mexquique de Carmona	San Luis Potosí	48,392	2.3738	Very High	0.2228	High	48,847	30,174	1%
Moroleón	Guanajuato	47,132	0.7137	Medium	-1.4185	Very Low	47,367	32,803	0%
Colón	Querétaro	46,878	-0.4596	Low	-0.0726	High	52,027	71,578	11%
Encarnación de Díaz	Jalisco	46,421	0.4574	Medium	-0.7138	Low	47,599	34,710	3%
Villagrán	Guanajuato	45,941	0.5182	Medium	-0.9355	Low	50,040	56,068	9%
Huetamo	Michoacán	45,441	1.5257	High	0.1195	High	42,205	25,530	-7%
Purísima del Rincón	Guanajuato	44,778	-0.1705	Low	-1.0045	Low	55,768	105,597	25%
Chapala	Jalisco	43,444	0.2968	Medium	-1.5499	Very Low	43,810	36,504	1%
Migüica	Michoacán	42,877	0.7697	High	-0.4921	Medium	41,044	25,807	-4%
Aquismón	San Luis Potosí	42,782	0.0717	Medium	1.5245	Very High	45,603	49,363	7%
San Blas	Nayarit	42,762	0.339	Medium	-0.6691	Medium	38,718	23,357	-9%
Tecuala	Nayarit	42,237	0.398	Medium	-0.787	Low	38,335	23,141	-9%
Rincón de Romos	Aguascalientes	41,655	0.9007	High	-1.1243	Low	45,731	51,915	10%
Tamazula de Gordiano	Jalisco	41,111	0.666	Medium	-0.9278	Low	37,095	22,130	-10%
Poncitlán	Jalisco	40,827	0.1656	Medium	-0.7329	Low	44,097	51,424	8%
Villa de Reyes	San Luis Potosí	40,602	0.2561	Medium	0.0752	High	42,428	37,223	4%
Ciudad Fernández	San Luis Potosí	39,944	1.85	High	-0.6185	Medium	41,239	24,029	3%
Loreto	Zacatecas	39,921	0.1915	Medium	-0.7601	Low	43,721	52,447	10%
Ebano	San Luis Potosí	39,687	0.1475	Medium	-0.4769	Medium	38,922	25,103	-2%
Tarimbaro	Michoacán	39,408	1.1552	High	-0.4935	Medium	50,572	76,459	28%
Santa María del Río	San Luis Potosí	39,066	1.6486	High	0.2433	High	37,897	23,218	-3%
Salvador Escalante	Michoacán	38,331	1.1141	High	-0.1809	Medium	38,869	27,603	1%
Manuel Doblado	Guanajuato	38,309	2.6159	Very High	-0.2723	Medium	35,219	21,338	-8%
Ojocaliente	Zacatecas	38,219	2.0879	Very High	-0.646	Medium	37,996	25,455	-1%
Buenavista	Michoacán	38,188	1.1457	High	-0.2865	Medium	38,553	30,778	1%
Teocaltiche	Jalisco	37,999	1.2228	High	-0.6816	Medium	37,466	22,813	-1%
Teonalistlán	Aguascalientes	37,763	1.4958	High	-0.5837	Medium	40,841	40,018	8%
Xalisco	Nayarit	37,664	0.2469	Medium	-1.2918	Very Low	42,772	54,351	14%
Tarimoro	Guanajuato	37,418	2.7331	Very High	-0.3881	Medium	33,986	20,524	-9%

Municipality	Federal state	Population 2000	Migration intensity index	Degree of migration intensity	Marginalization index	Degree of marginalization	Population 2005	Projected population 2030	Growth rate 2000-2005
Acaponeta	Nayarit	36512	0,0039	Medium	-0,8023	Low	35,358	27,879	-3%
Jiquilpan	Michoacán	36389	1,0388	High	-1,1563	Low	32,687	19,624	-10%
Turicato	Michoacán	36072	0,9778	High	1,0395	High	32,457	19,477	-10%
Jocotepec	Jalisco	35713	0,5583	Medium	-1,0024	Low	38,076	40,005	7%
Tequila	Jalisco	35502	0,0777	Medium	-1,0159	Low	38,722	45,814	9%
Ayotlán	Jalisco	35432	0,5349	Medium	-0,5645	Medium	35,606	25,309	0%
Tamúín	San Luis Potosí	35087	-0,0711	Low	-0,2415	Medium	35,988	32,320	3%
Valparaiso	Zacatecas	35048	1,1075	High	-0,2123	Medium	33,141	20,032	-5%
Rosamorada	Nayarit	34683	0,1716	Medium	-0,1946	Medium	32,901	21,859	-5%
Villa de Ramos	San Luis Potosí	34432	0,3733	Medium	0,287	High	34,954	24,954	2%
Tomatlán	Jalisco	34329	0,6704	Medium	-0,1913	Medium	32,508	19,609	-5%
Pabellón de Arteaga	Aguascalientes	34296	0,8089	High	-1,3611	Very Low	39,031	51,477	14%
La Huacana	Michoacán	34245	0,5306	Medium	0,5359	High	32,474	21,660	-5%
San Diego de la Unión	Guanajuato	34088	1,7159	High	0,3119	High	34,767	23,816	2%
Tuxpan	Jalisco	33162	-0,4035	Low	-1,1301	Low	32,996	26,715	-1%
Tangancicuaro	Michoacán	32821	1,1794	High	-0,5917	Medium	30,685	18,598	-7%
Villanueva	Zacatecas	32140	1,4122	High	-0,681	Medium	29,491	17,709	-8%
Villa de Cos	Zacatecas	32125	0,134	Medium	-0,0425	High	31,041	22,289	-3%
Cihuatlán	Jalisco	32019	0,0665	Medium	-1,1094	Low	30,860	22,275	-4%
Calera	Zacatecas	31897	0,3564	Medium	-1,2249	Low	36,232	48,235	14%
Jaral del Progreso	Guanajuato	31803	1,1668	High	-0,8442	Low	32,096	19,845	1%
Axtla de Terrazas	San Luis Potosí	31405	-0,8318	Very Low	0,3861	High	33,261	42,622	6%
Tuxpan	Nayarit	31202	0,6665	Medium	-0,9692	Low	29,073	13,833	-7%
Paracho	Michoacán	31096	1,4548	High	-0,3405	Medium	32,136	25,532	3%
Sayula	Jalisco	30995	0,0897	Medium	-1,2925	Very Low	34,519	42,475	11%
Chilchota	Michoacán	30711	0,0416	Medium	0,0142	High	30,774	27,684	0%
Ciudad del Maíz	San Luis Potosí	30603	0,1199	Medium	0,1077	High	30,355	20,476	-1%
Ario	Michoacán	30584	0,4058	Medium	-0,1962	Medium	31,944	28,670	4%
Contepec	Michoacán	30107	-0,2101	Low	0,2708	High	31,156	32,476	3%
Nochistlán de Mejía	Zacatecas	29282	2,5885	Very High	-0,7988	Low	26,812	16,096	-8%

Huimilpan	Querétaro	29140	0,1708	Medium	0,1777	High	32,857	46,696	13%
Zapotiltic	Jalisco	28981	0,468	Medium	-1,2061	Low	27,787	16,806	-4%
Armería	Colima	28574	0,7362	High	-0,7089	Low	25,467	14,439	-11%
Matlapa	San Luis Potosí	28319	-0,8273	Very Low	1,0072	High	30,089	42,647	6%
Jalostotlán	Jalisco	28110	2,0603	Very High	-1,0539	Low	28,615	19,331	2%
San Miguel el Alto	Jalisco	27666	1,3736	High	-0,9895	Low	27,270	16,604	-1%
Ezequiel Montes	Querétaro	27598	-0,0803	Low	-0,5553	Medium	34,548	70,010	25%
Tamasopo	San Luis Potosí	27390	0,8018	High	0,4683	High	27,252	16,784	-1%
Pinal de Amoles	Querétaro	27290	-0,1315	Low	1,1594	Very High	26,049	18,152	-5%
San Martín de Hidalgo	Jalisco	27286	2,3473	Very High	-1,0524	Low	24,804	14,833	-9%
Ojuelos de Jalisco	Jalisco	27230	0,854	High	-0,2564	Medium	28,297	23,663	4%
Cuauhtémoc	Colima	26771	0,6588	Medium	-1,2963	Very Low	25,814	20,233	-4%
Yurécuaro	Michoacán	26691	0,3908	Medium	-0,9813	Low	26,541	19,935	-1%
Del Nayar	Nayarit	26649	1,2454	High	2,477	Very High	30,546	44,115	15%
José Sixto Verduzco	Michoacán	26500	2,039	Very High	-0,5927	Medium	24,373	14,699	-8%
Cocula	Jalisco	26460	1,0597	High	-0,9836	Low	25,551	15,491	-3%
Salinas	San Luis Potosí	26405	1,2454	High	-0,1779	Medium	27,181	17,629	3%
Cuitzeo	Michoacán	26269	2,0354	Very High	-0,5769	Medium	26,413	16,250	1%
Tangamandapio	Michoacán	26245	0,7138	Medium	-0,1648	Medium	24,716	15,002	-6%
Zacoalco de Torres	Jalisco	25829	1,335	High	-0,9182	Low	25,820	16,408	0%
Tancitaro	Michoacán	25670	1,3506	High	0,1265	High	26,304	18,831	2%
Cuerámaro	Guanajuato	25610	2,4647	Very High	-0,5164	Medium	24,435	14,921	-5%
Tlalpujahua	Michoacán	25392	-0,5405	Low	0,1914	High	25,807	25,396	2%
Ixtlán del Río	Nayarit	25382	0,6312	Medium	-1,2997	Very Low	25,963	21,845	2%
Guadalcázar	San Luis Potosí	25359	1,2465	High	0,7874	High	25,199	15,516	-1%
Tepalcatepec	Michoacán	24135	1,2048	High	-0,5347	Medium	22,644	13,730	-6%
Tuxpan	Michoacán	23959	0,455	Medium	-0,3011	Medium	24,753	21,565	3%
Quiróga	Michoacán	23893	0,963	High	-0,3985	Medium	23,686	15,292	-1%
Parácuaro	Michoacán	23868	1,1507	High	0,022	High	23,190	14,641	-3%
Yahualica de									
González Gallo	Jalisco	23773	1,7205	High	-0,8075	Low	23,201	14,117	-2%
Jalpa	Zacatecas	23470	1,4787	High	-0,8902	Low	23,200	14,707	-1%
Tlaltenango de									
Sánchez Román	Zacatecas	23456	1,5413	High	-0,8385	Low	22,072	13,327	-6%
Arteaga	Michoacán	23386	0,557	Medium	0,3776	High	21,714	13,554	-7%
Nahuatzen	Michoacán	23221	0,3121	Medium	0,341	High	25,183	27,805	8%

<i>Municipality</i>	<i>Federal state</i>	<i>Population 2000</i>	<i>Migration intensity index</i>	<i>Degree of migration intensity</i>	<i>Marginalization index</i>	<i>Degree of marginalization</i>	<i>Population 2005</i>	<i>Projected population 2030</i>	<i>Projected Growth rate 2000-2005</i>
Coeneo	Michoacán	23,221	2.6364	Very High	-0.294	Medium	20,159	12,019	-13%
General Francisco R. Murguía	Zacatecas	23,112	3.8589	Very High	-0.3545	Medium	21,456	12,916	-7%
Jalpan de Serra	Querétaro	22,839	0.7455	High	0.0505	High	22,447	15,486	-2%
La Huerta	Jalisco	22,827	0.7391	High	-0.7216	Low	20,739	12,392	-9%
Venustiano Carranza	Michoacán	22,512	1.884	High	-0.8109	Low	21,581	13,139	-4%
El Grullo	Jalisco	22,499	1.1564	High	-1.2029	Low	22,115	13,670	-2%
San Martín									
Chalchicuautla	San Luis Potosí	22,373	-0.7255	Very Low	1.09	Very High	22,089	19,713	-1%
Aquila	Michoacán	22,152	-0.249	Low	1.4359	Very High	21,440	19,322	-3%
Zaragoza	San Luis Potosí	21,962	-0.5081	Low	0.1259	High	22,766	23,013	4%
Ruiz	Nayarit	21,722	0.8563	High	-0.4176	Medium	21,247	13,268	-2%
Coalcomán de									
Vázquez Pallares	Michoacán	21,706	0.4677	Medium	0.0592	High	18,841	11,230	-13%
General Pánfilo Natera	Zacatecas	21,689	2.3413	Very High	-0.1733	Medium	21,599	13,200	0%
Miguel Auza	Zacatecas	21,671	0.7448	High	-0.8807	Low	21,009	12,766	-3%
Ixtlahuacán de los									
Membrillos	Jalisco	21,605	0.1114	Medium	-1.2707	Low	23,536	27,423	9%
Casimiro Castillo	Jalisco	21,577	0.6775	Medium	-1.0293	Low	19,522	11,643	-10%
Tolimán	Querétaro	21,266	-0.5654	Low	0.11	High	24,059	35,679	13%
Cotija	Michoacán	21,169	2.2968	Very High	-0.681	Medium	18,771	11,241	-11%
Jamajá	Jalisco	21,157	1.4345	High	-1.1482	Low	21,483	17,666	2%
Charcas	San Luis Potosí	21,070	-0.406	Low	-0.1893	Medium	20,599	15,105	-2%
Degollado	Jalisco	21,044	2.6025	Very High	-1.5617	Medium	19,587	11,767	-7%
Ocampo	Guanajuato	20,984	2.9814	Very High	0.0849	High	20,846	12,848	-1%
Santa María del Oro	Nayarit	20,849	1.7417	High	-0.3797	Medium	21,629	13,444	4%
Sain Alto	Zacatecas	20,775	1.0565	High	-0.0018	High	19,710	11,919	-5%
Cerritos	San Luis Potosí	20,703	1.5916	High	-0.8374	Low	20,674	12,747	0%
Villamar	Michoacán	20,579	1.9039	Very High	-0.2943	Medium	16,364	9,557	-20%
Peribán	Michoacán	20,256	0.6504	Medium	-0.8759	Low	21,215	20,742	5%

Acatlán de Juárez	Jalisco	20,236	0.3609	Medium	-1.4841	Very Low	22,609	26,392	12%
Ahualulco de Mercado	Jalisco	20,118	0.759	High	-1.3146	Very Low	21,535	21,589	7%
Penjamillo	Michoacán	20,097	2.4146	Very High	-0.2595	Medium	17,149	10,192	-15%
San Francisco de los Romo	Agascalientes	20,066	1.4097	High	-1.0723	Low	28,350	72,184	41%
Tototlán	Jalisco	20,034	1.5591	High	-0.785	Low	19,948	12,557	0%
Gabriel Zamora	Michoacán	20,015	0.2472	Medium	-0.3414	Medium	20,248	20,101	1%
Doctor Mora	Guanajuato	19,943	0.6187	Medium	0.2959	High	21,461	21,372	8%
Tancanhuitz	San Luis Potosí	19,904	-0.7084	Very Low	1.0366	High	20,845	24,394	5%
Moctezuma	San Luis Potosí	19,904	0.9781	High	0.726	High	18,782	11,431	-6%
Jesús María	Jalisco	19,842	1.2024	High	-0.3592	Medium	18,330	11,009	-8%
Tizapán el Alto	Jalisco	19,766	2.4308	Very High	-0.8667	Low	19,319	11,766	-2%
Huanímaro	Guanajuato	19,693	4.3302	Very High	-0.3868	Medium	18,802	11,481	-5%
Pajacuarán	Michoacán	19,688	2.7622	Very High	-0.5392	Medium	18,723	11,390	-5%
Aguilla	Michoacán	19,645	1.0328	High	0.0691	High	16,837	10,001	-14%
San Lucas	Michoacán	19,506	1.9201	Very High	0.2946	High	17,334	6,308	-11%
Ixtlahuacán del Río	Jalisco	19,503	2.1886	Very High	-0.4039	Medium	18,497	11,171	-5%
Alvaro Obregón	Michoacán	19,502	2.3565	Very High	-0.5463	Medium	18,945	11,568	-3%
Landa de Matamoros	Querétaro	19,493	1.1419	High	0.6161	High	19,263	13,577	-1%
Juan Aldama	Zacatecas	19,387	2.5211	Very High	-0.9773	Low	18,772	11,402	-3%
Comala	Colima	19,384	0.4349	Medium	-0.7683	Low	19,622	18,906	1%
Acatit	Jalisco	19,282	2.1821	Very High	-0.7471	Low	18,804	11,428	-2%
Ahualulco	San Luis Potosí	19,192	0.9142	High	0.6211	High	17,883	10,853	-7%
Charo	Michoacán	19,169	1.0805	High	-0.2623	Medium	19,579	15,094	2%
El Naranjo	San Luis Potosí	18,898	0.8701	High	-0.4578	Medium	18,701	11,508	-1%
Cárdenas	San Luis Potosí	18,824	0.5811	Medium	-0.89	Low	18,160	11,117	-4%
Ocampo	Michoacán	18,804	-0.4479	Low	0.2107	High	20,912	30,708	11%
Coquimatlán	Colima	18,756	0.5619	Medium	-0.8056	Low	17,625	12,165	-6%
Jungapeo	Michoacán	18,586	1.157	High	-0.0583	High	18,780	13,547	1%
Panindícuaro	Michoacán	18,504	1.5384	High	-0.2556	Medium	16,309	9,751	-12%
Magdalena	Jalisco	18,177	0.5925	Medium	-1.1518	Low	19,068	17,909	5%
Tanlaías	San Luis Potosí	18,137	-0.8208	Very Low	1.26	Very High	19,403	28,364	7%
Tuzantla	Michoacán	18,103	1.3274	High	0.948	High	15,850	9,453	-12%
Tecalitlán	Jalisco	18,047	0.7985	High	-0.577	Medium	16,485	9,861	-9%
Mazapil	Zacatecas	17,860	-0.3132	Low	0.2767	High	16,086	9,683	-10%
Victoria	Guanajuato	17,764	0.1165	Medium	0.6372	High	19,296	23,447	9%

<i>Municipality</i>	<i>Federal state</i>	<i>Population 2000</i>	<i>Migration intensity index</i>	<i>Degree of migration intensity</i>	<i>Marginalization index</i>	<i>Degree of marginalization</i>	<i>Population 2005</i>	<i>Projected population 2030</i>	<i>Growth rate 2000-2005</i>
Vista Hermosa	Michoacán	17,687	0.3885	Medium	-0.8723	Low	17,639	12,945	0%
Colotlán	Jalisco	17,557	1.2014	High	-1.0817	Low	16,701	10,092	-5%
Cuquío	Jalisco	17,554	1.6344	High	0.0532	High	16,570	9,998	-6%
Coxcatlán	San Luis Potosí	17,352	-0.8106	Very Low	0.8088	High	17,415	16,840	0%
Ezatlán	Jalisco	17,342	0.6777	Medium	-1.2685	Low	17,707	15,100	2%
Senguío	Michoacán	17,181	-0.0975	Low	0.2411	High	16,318	11,736	-5%
Tiquicheo de Nicolás Romero	Michoacán	16,656	1.2286	High	1.13	Very High	14,230	8,442	-15%
Madero	Michoacán	16,620	1.9524	Very High	0.6687	High	16,012	9,761	-4%
Penamiller	Querétaro	16,557	0.9828	High	0.3258	High	17,201	14,916	4%
Tepezalá	Aguaascalientes	16,508	1.4803	High	-0.6561	Medium	17,504	14,425	6%
Indaparapeo	Michoacán	16,341	1.682	High	-0.3286	Medium	15,399	9,348	-6%
Cherán	Michoacán	16,243	0.1358	Medium	-0.2716	Medium	15,925	13,184	-2%
Jala	Nayarit	16,171	0.5355	Medium	-0.443	Medium	16,265	12,961	1%
Cedral	San Luis Potosí	16,153	0.5044	Medium	-0.5933	Medium	17,084	15,945	6%
Cuautilán de García Barragán	Jalisco	16,097	1.133	High	0.7895	High	16,565	12,792	3%
Tecolotlán	Jalisco	16,074	0.8876	High	-0.9531	Low	15,293	9,241	-5%
Tampacán	San Luis Potosí	16,008	-0.843	Very Low	0.7596	High	16,125	16,454	1%
Villa Corona	Jalisco	15,936	2.5018	Very High	-1.079	Low	15,418	9,353	-3%
Epitacio Huerta	Michoacán	15,923	-0.1492	Low	0.4503	High	16,089	14,659	1%
Rayón	San Luis Potosí	15,790	3.2246	Very High	0.0637	High	14,912	9,084	-6%
Villa Hidalgo	Zacatecas	15,746	2.5569	Very High	-0.0103	High	17,173	13,637	9%
Tabasco	Zacatecas	15,681	2.1773	Very High	-0.5461	Medium	15,058	9,132	-4%
Purépero	Michoacán	15,666	1.2083	High	-1.2517	Low	15,429	9,484	-2%
Unión de San Antonio	Jalisco	15,664	1.3609	High	-0.3891	Medium	15,639	9,545	0%
Tapalpa	Jalisco	15,480	0.3571	Medium	-0.1784	Medium	16,193	14,601	5%
Zapotlán del Rey	Jalisco	15,478	1.2122	High	-0.3813	Medium	16,407	16,168	6%
Villa Hidalgo	Jalisco	15,381	0.7539	High	-1.0264	Low	17,220	20,381	12%
Ahuacatlán	Nayarit	15,371	1.5227	High	-0.9334	Low	14,388	8,748	-6%

El Llano	Agascalientes	15,327	1,8667	High	-0.5195	Medium	17,161	19,467	12%
Nuevo Parangaricutiro	Michoacán	15,280	0.8352	High	-0.7335	Low	16,161	14,813	6%
Angamacutiro	Michoacán	15,108	1.4557	High	-0.304	Medium	12,835	7,608	-15%
Villa Hidalgo	San Luis Potosí	14,989	1.3638	High	-0.1377	Medium	14,252	8,689	-5%
Ecandureo	Michoacán	14,915	3.0592	Very High	-0.6134	Medium	12,868	7,663	-14%
Churumuco	Michoacán	14,866	1.1832	High	1.182	Very High	14,091	8,555	-5%
San Julián	Jalisco	14,760	1.8723	High	-1.1605	Low	13,368	7,975	-9%
Villa de Arriaga	San Luis Potosí	14,623	0.2407	Medium	0.4802	High	15,121	12,350	3%
Mezquitic	Jalisco	14,614	0.4378	Medium	1.8978	Very High	15,698	16,195	7%
El Arenal	Jalisco	14,523	0.7394	High	-1.2836	Very Low	13,082	13,082	4%
Tierra Blanca	Guanajuato	14,515	0.1596	Medium	0.736	High	16,252	21,041	12%
Villa García	Zacatecas	14,443	0.8337	High	-0.611	Medium	16,522	17,840	14%
Jiménez	Michoacán	14,430	2.7518	Very High	-0.5115	Medium	13,136	7,915	-9%
Tanhuato	Michoacán	14,413	1.1882	High	-0.8435	Low	14,696	10,675	2%
Ixtlán	Michoacán	14,393	2.6459	Very High	-0.4502	Medium	13,143	7,920	-9%
Huehuetlán	San Luis Potosí	14,289	-0.2899	Low	0.9662	High	14,972	15,246	5%
Venado	San Luis Potosí	14,205	0.1939	Medium	0.2957	High	14,170	9,705	0%
Pihuamo	Jalisco	14,115	1.6521	High	-0.545	Medium	12,165	7,177	-14%
San Vicente									
Tancuayalab	San Luis Potosí	14,107	-0.623	Very Low	0.3927	High	13,690	10,729	-3%
Unión de Tula	Jalisco	14,054	2.304	Very High	-1.1439	Low	13,385	8,088	-5%
Pánuco	Zacatecas	13,985	-0.0993	Low	-0.168	Medium	15,031	16,680	7%
Coahuayana	Michoacán	13,974	1.0604	High	-0.4509	Medium	12,085	7,189	-14%
Santa Ana Maya	Michoacán	13,952	1.3981	High	-0.5075	Medium	12,317	7,365	-12%
Mascota	Jalisco	13,873	0.8852	High	-1.0281	Low	13,361	8,358	-4%
Noria de Ángeles	Zacatecas	13,814	1.7731	High	-0.2044	Medium	13,392	8,135	-3%
Talpa de Allende	Jalisco	13,797	-0.019	Low	-0.4207	Medium	13,811	11,327	0%
Villa de Arista	San Luis Potosí	13,747	-0.4647	Low	0.1411	High	14,287	15,430	4%
San Gabriel	Jalisco	13,736	1.2768	High	-0.4101	Medium	13,548	8,250	-1%
Tampamolón Corona	San Luis Potosí	13,722	-0.7441	Very Low	1.0937	Very High	14,038	15,049	2%
Queréndaro	Michoacán	13,438	2.6181	Very High	-0.6008	Medium	12,684	7,697	-6%
Tanquián de Escobedo	San Luis Potosí	13,354	-0.1856	Low	-0.1258	Medium	13,602	11,527	2%
Taretan	Michoacán	13,287	1.2178	High	-0.5836	Medium	12,546	7,609	-6%
Irimbo	Michoacán	13,260	2.8816	Very High	-0.0472	High	11,753	7,039	-11%
Erongarícuaro	Michoacán	13,161	1.635	High	-0.1576	Medium	13,173	8,092	0%
Ayutla	Jalisco	13,135	1.7858	High	-0.7114	Low	12,474	7,533	-5%

Municipality	Federal state	Population 2000	Migration intensity index	Degree of migration intensity	Marginalization index	Degree of marginalization	Population 2005	Projected population 2030	Growth rate 2000-2005
Trancoso	Zacatecas	13,080	0.5021	Medium	-0.753	Low	15,365	22,659	17%
La Yesca	Nayarit	12,940	1.489	High	1.0024	High	12,206	7,438	-6%
Ziracuaretiro	Michoacán	12,879	0.137	Medium	-0.1658	Medium	13,947	17,011	8%
Tinguidín	Michoacán	12,833	1.3075	High	-0.6884	Medium	12,565	7,685	-2%
Santo Domingo	San Luis Potosí	12,755	2.5855	Very High	0.3022	High	11,619	7,022	-9%
Gómez Farías	Jalisco	12,705	0.588	Medium	-0.6153	Medium	12,852	9,774	1%
Juchipila	Zacatecas	12,669	2.475	Very High	-1.1973	Low	11,850	7,145	-6%
Arroyo Seco	Querétaro	12,667	1.6829	High	0.2771	High	12,683	8,633	0%
Cosío	Aguaascalientes	12,619	0.4526	Medium	-0.7715	Low	13,796	15,306	9%
Amatitán	Jalisco	12,509	0.2453	Medium	-1.1027	Low	13,544	15,860	8%
Tzintzuntzan	Michoacán	12,414	0.1796	Medium	-0.1137	Medium	12,457	10,941	0%
Villa Purificación	Jalisco	12,357	1.1383	High	0.1677	High	11,289	6,758	-9%
Amatlán de Cañas	Nayarit	12,088	1.5398	High	-0.6111	Medium	10,730	6,442	-11%
Chalchihuites	Zacatecas	11,927	3.3445	Very High	-0.4716	Medium	10,787	6,460	-10%
Villa González Ortega	Zacatecas	11,870	2.1243	Very High	-0.5733	Medium	11,939	7,310	1%
Teocuitatlán de Corona	Jalisco	11,817	1.4609	High	-0.4761	Medium	10,554	6,283	-11%
Huandacareo	Michoacán	11,808	2.3629	Very High	-0.7544	Low	11,229	6,831	-5%
Juanacatlán	Jalisco	11,792	0.695	Medium	-1.4248	Very Low	12,049	10,224	2%
Tingambato	Michoacán	11,742	0.1552	Medium	-0.3817	Medium	12,742	14,834	9%
Concepción del Oro	Zacatecas	11,728	-0.7375	Very Low	-0.9827	Low	12,050	12,922	3%
Juárez	Michoacán	11,648	1.7776	High	-0.1217	Medium	12,053	7,449	3%
Tarandacuao	Guanajuato	11,583	1.3416	High	-0.7353	Low	10,557	6,382	-9%
Quitupan	Jalisco	11,528	2.5888	Very High	0.0368	High	9,021	5,197	-22%
Luis Moya	Zacatecas	11,418	1.4888	High	-0.848	Low	11,121	6,772	-3%
Xichú	Guanajuato	11,323	0.9006	High	1.1673	Very High	10,830	6,616	-4%
Tocumbo	Michoacán	11,315	0.9548	High	-0.879	Low	10,129	6,077	-10%
Marcos Castellanos	Michoacán	11,235	1.4095	High	-1.3266	Very Low	11,122	6,816	-1%
Tzitzio	Michoacán	11,124	0.402	Medium	1.4985	Very High	9,743	5,812	-12%
Mazamitla	Jalisco	11,004	1.0967	High	-0.9086	Low	11,696	9,636	6%
Chavinda	Michoacán	10,968	2.4009	Very High	-0.8103	Low	9,879	5,939	-10%

Villa Juárez	San Luis Potosí	10,956	3,1362	Very High	0.1471	High	10,033	6,071	-8%
Morelos	Michoacán	10,914	4,4722	Very High	-0.1544	Medium	8,933	5,254	-18%
Charapan	Michoacán	10,898	0.2305	Medium	0.5463	High	11,004	8,437	1%
Santa Catarina	San Luis Potosí	10,830	1.6253	High	2.1203	Very High	11,025	7,112	2%
Cuathtëmoc	Zacatecas	10,824	1.0638	High	-0.6049	Medium	11,373	10,967	5%
San Cirro de Acosta	San Luis Potosí	10,493	3.2464	Very High	-0.0937	High	10,059	6,148	-4%
Pueblo Nuevo	Guanajuato	10,398	1.136	High	-0.3639	Medium	9,955	6,081	-4%
Villa de Guadalupe	San Luis Potosí	10,378	1.0494	High	0.5489	High	9,513	5,752	-8%
Carácuaro	Michoacán	10,351	1.9883	Very High	1.0159	High	9,554	5,770	-8%
Coroneo	Guanajuato	10,347	0.6266	Medium	-0.0198	High	11,046	9,775	7%
Huajicori	Nayarit	10,294	-0.4356	Low	1.0311	High	10,724	14,327	4%
Angangueo	Michoacán	10,287	-0.1331	Low	-0.3014	Medium	10,193	9,154	-1%
Jilotlán de los Dolores	Jalisco	10,280	0.6668	Medium	0.6351	High	8,924	5,276	-13%
Tumbiscatio	Michoacán	10,153	0.5546	Medium	1.0958	Very High	8,711	5,174	-14%
Huaniqueo	Michoacán	10,153	2.3945	Very High	-0.1693	Medium	8,051	4,701	-21%
Acutzitio	Michoacán	9,933	0.217	Medium	-0.229	Medium	10,158	8,705	2%
Cojumatlán de Régules	Michoacán	9,905	1.8214	High	-0.5802	Medium	9,603	5,861	-3%
Catorce	San Luis Potosí	9,889	-0.4165	Low	0.2937	High	9,394	6,185	-5%
Morelos	Zacatecas	9,755	-0.126	Low	-1.2642	Low	10,660	14,703	9%
Numarán	Michoacán	9,703	0.091	Medium	-0.5374	Medium	9,563	7,335	-1%
Monte Escobedo	Zacatecas	9,702	2.219	Very High	-0.3874	Medium	9,044	5,451	-7%
Brisetas	Michoacán	9,641	0.8286	High	-0.6655	Medium	9,690	7,373	1%
Tierra Nueva	San Luis Potosí	9,582	2.3776	Very High	0.3195	High	9,157	5,593	-4%
San Antonio	San Luis Potosí	9,363	-0.8642	Very Low	1.1093	Very High	9,489	10,481	1%
Tolimán	Jalisco	9,277	1.6184	High	0.154	High	8,911	5,393	-4%
Teul de González									
Ortega	Zacatecas	9,174	2.0291	Very High	-0.5102	Medium	5,401	3,246	-41%
Copándaro	Michoacán	9,151	2.6441	Very High	-0.0625	High	8,336	5,020	-9%
Cabo Corrientes	Jalisco	9,133	-0.2419	Low	0.3395	High	9,191	8,286	1%
Susupuato	Michoacán	9,085	1.3421	High	1.1703	Very High	7,973	4,758	-12%
Huejuquilla el Alto	Jalisco	9,047	1.8285	High	0.0278	High	8,149	4,862	-10%
Tepechitlán	Zacatecas	8,972	2.3476	Very High	-0.4972	Medium	8,161	4,893	-9%
Tlazalca	Michoacán	8,830	1.991	Very High	-0.3961	Medium	7,114	4,178	-19%
Nuevo Urecho	Michoacán	8,821	0.3394	Medium	0.3576	High	7,964	4,783	-10%
Alaquimes	San Luis Potosí	8,781	2.5569	Very High	0.7729	High	8,045	4,866	-8%
Nocupétaro	Michoacán	8,724	0.9908	High	1.2563	Very High	7,887	4,742	-10%

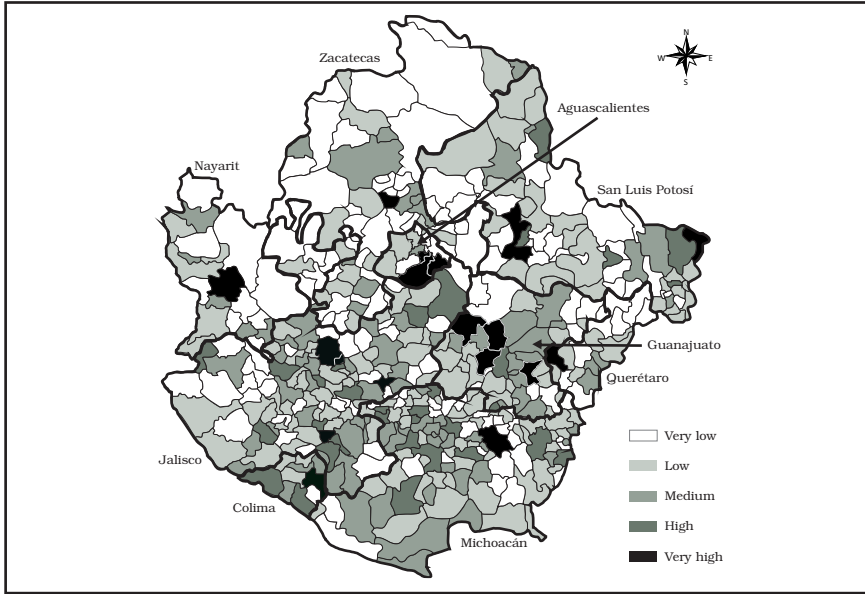
Municipality	Federal state	Population 2000	Migration intensity index	Degree of migration intensity	Marginalization index	Degree of marginalization	Population 2005	Projected population 2030	Growth rate 2000-2005
Atoyac	Jalisco	8,697	0.8404	High	-0.4767	Medium	8,074	4,846	-7%
Hostotipaquillo	Jalisco	8,659	0.4144	Medium	-0.2112	Medium	8,396	5,802	-3%
San Juanito de Escobedo	Jalisco	8,610	1.2163	High	-0.9956	Low	8,501	5,747	-1%
Cañitas de Felipe Pescador	Zacatecas	8,522	0.6542	Medium	-0.9596	Low	8,056	4,868	-5%
Minatitlán	Colima	8,466	0.9904	High	-0.6838	Medium	7,661	4,659	-10%
Tepeongo	Zacatecas	8,446	2.3634	Very High	-0.3735	Medium	7,332	4,349	-13%
Teuchitlán	Jalisco	8,361	2.373	Very High	-0.9292	Low	7,895	4,760	-6%
Genaro Codina	Zacatecas	7,974	0.2754	Medium	0.0769	High	7,541	4,885	-5%
San Pedro Lagumillas	Nayarit	7,753	1.5303	High	-0.687	Medium	7,297	4,442	-6%
San Joaquín	Querétaro	7,665	0.7487	High	0.5061	High	7,772	6,768	1%
Vanegas	San Luis Potosí	7,533	0.3327	Medium	0.379	High	7,243	4,460	-4%
Chucándiro	Michoacán	7,463	2.6083	Very High	0.0129	High	5,843	3,397	-22%
Tonila	Jalisco	7,374	0.0838	Medium	-0.8358	Low	7,296	5,281	-1%
Apozol	Zacatecas	7,371	3.6633	Very High	-0.5155	Medium	6,149	3,615	-17%
San José de Gracia	Aguascalientes	7,244	1.092	High	-0.7662	Low	7,708	7,559	6%
Veragrande	Zacatecas	7,228	0.9052	High	-0.5964	Medium	8,347	10,230	15%
Tenamaxtlán	Jalisco	7,179	1.8503	High	-0.7344	Low	7,141	4,782	-1%
Santiago Maravatío	Guanajuato	7,151	3.66	Very High	-0.4548	Medium	6,556	3,971	-8%
Churintzio	Michoacán	7,077	3.0302	Very High	-0.7771	Low	5,761	3,398	-19%
Méxicoacán	Jalisco	6,974	1.8627	High	-0.4071	Medium	6,261	3,741	-10%
Chinicuila	Michoacán	6,870	2.5439	Very High	0.8141	High	5,616	3,298	-18%
San Nicolás Tolentino	San Luis Potosí	6,793	2.2119	Very High	0.1384	High	5,792	3,443	-15%
Huiramba	Michoacán	6,711	1.4099	High	-0.235	Medium	7,365	6,911	10%
San Sebastián del Oeste	Jalisco	6,577	1.3773	High	0.0293	High	5,826	3,461	-11%
Lagumillas	San Luis Potosí	6,538	1.8494	High	0.7976	High	5,842	3,512	-11%
Zapotitlán de Vadillo	Jalisco	6,533	0.0048	Medium	0.2116	High	6,446	4,381	-1%

San Diego de																										
Alejandria	Jalisco	6,384	1,7676	High	-0.5164	Medium	6,266	3,808	-2%																	
Huejúcar	Jalisco	6,273	2,7196	Very High	-0.7407	Low	5,427	3,212	-13%																	
Tuxcueca	Jalisco	6,109	1,3177	High	-0.8302	Low	5,861	3,552	-4%																	
El Limón	Jalisco	6,026	2,8076	Very High	-0.8252	Low	5,546	3,329	-8%																	
Atemajac de Brizuela	Jalisco	5,958	0,4751	Medium	0.1192	High	6,291	6,315	6%																	
Valle de Guadalupe	Jalisco	5,958	1,194	High	-0.8252	Low	6,101	4,430	2%																	
Villa Guerrero	Jalisco	5,938	2,3111	Very High	0.1371	High	5,328	3,181	-10%																	
Tonaya	Jalisco	5,928	1,9175	Very High	-0.6858	Medium	5,653	3,419	-5%																	
Juchitán	Jalisco	5,831	0,5554	Medium	-0.6339	Medium	5,412	3,254	-7%																	
Valle de Juárez	Jalisco	5,758	2,5708	Very High	-0.8598	Low	5,328	3,206	-7%																	
Concepción de																										
Buenos Aires	Jalisco	5,726	0,7507	High	-0.6615	Medium	5,344	3,217	-7%																	
Moyahua de Estrada	Zacatecas	5,704	1,7808	High	-0.5801	Medium	4,799	2,825	-16%																	
Chiquilistlán	Jalisco	5,536	0,8669	High	-0.0623	High	5,209	3,137	-6%																	
Amacueca	Jalisco	5,494	1,5346	High	-0.5481	Medium	5,177	3,122	-6%																	
General Enrique																										
Estrada	Zacatecas	5,486	0,4496	Medium	-0.8268	Low	5,704	5,566	4%																	
Ixtlahuacán	Colima	5,478	0,9374	High	-0.2292	Medium	4,894	2,966	-11%																	
Atengo	Jalisco	5,394	2,2189	Very High	-0.0631	High	5,031	3,025	-7%																	
Bolaños	Jalisco	5,377	-0,5496	Low	0.8597	High	5,131	3,449	-5%																	
Huanusco	Zacatecas	5,254	2,6099	Very High	-0.3452	Medium	4,423	2,603	-16%																	
Jiménez del Teul	Zacatecas	5,235	1,0508	High	0.6262	High	4,948	2,993	-5%																	
Atarjea	Guanajuato	5,198	0,5221	Medium	0.9777	High	5,119	3,264	-2%																	
Lagunillas	Michoacán	5,136	1,7432	High	-0.2907	Medium	4,903	2,985	-5%																	
Villa de la Paz	San Luis Potosí	5,135	0,3684	Medium	-0.7694	Low	5,057	3,470	-2%																	
Totatiche	Jalisco	5,089	2,6192	Very High	-0.4021	Medium	4,378	2,589	-14%																	
Apulco	Zacatecas	4,976	1,4034	High	-0.0119	High	4,854	2,955	-2%																	
Armadillo de los Infante San Luis Potosí	San Luis Potosí	4,889	0,5517	Medium	0.2992	High	4,616	2,813	-6%																	
Guachinango	Jalisco	4,769	2,5948	Very High	-0.1937	Medium	4,264	2,543	-11%																	
Santa Catarina	Guanajuato	4,533	1,0292	High	0.2825	High	4,599	3,223	1%																	
Cañadas de Obregón	Jalisco	4,407	2,0379	Very High	-0.4575	Medium	4,063	2,449	-8%																	
Benito Juárez	Zacatecas	4,368	1,6274	High	-0.5157	Medium	4,001	2,401	-8%																	
San Cristóbal de																										
la Barranca	Jalisco	4,348	0,7298	High	0.0711	High	3,416	1,967	-21%																	
Atenguillo	Jalisco	4,318	1,3843	High	-0.7982	Low	4,171	2,530	-3%																	

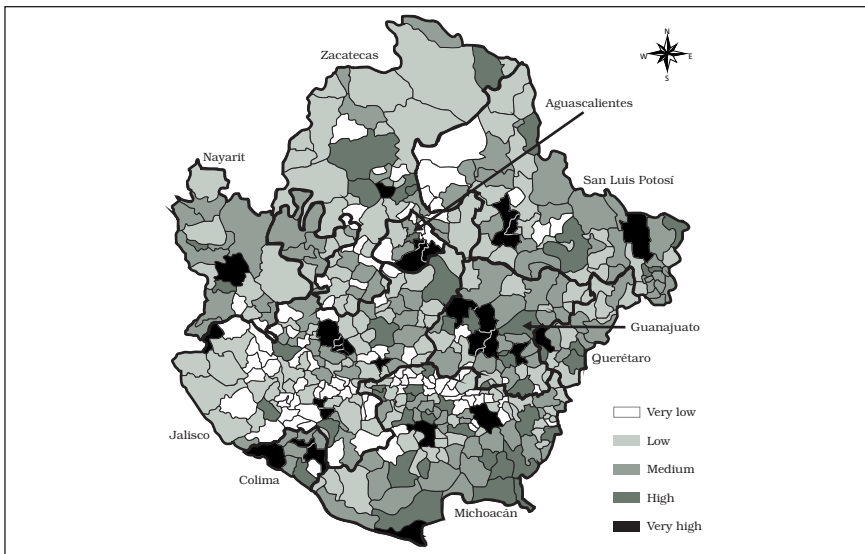
Municipality	Federal state	Population 2000	Migration intensity index	Degree of migration intensity	Marginalization index	Degree of marginalization	Population 2005	Projected population 2030	Growth rate 2000-2005
Santa María de los Angeles	Jalisco	4,204	1.9482	Very High	-0.2622	Medium	3,795	2,266	-10%
Zináparo	Michoacán	4,084	3.0501	Very High	-0.6965	Medium	3,356	1,983	-18%
Tuxcacuesco	Jalisco	4,024	1.6102	High	0.1361	High	3,842	2,321	-5%
San Martín de Bolaños	Jalisco	3,977	0.3306	Medium	-0.1141	Medium	3,353	1,970	-16%
Mixtlán	Jalisco	3,938	1.9849	Very High	-0.3956	Medium	3,408	2,014	-13%
Chimaltitán	Jalisco	3,926	1.1195	High	1.0156	High	3,493	2,082	-11%
La Manzanilla de la Paz	Jalisco	3,813	1.8124	High	-0.8349	Low	3,680	2,232	-3%
Trinidad García de la Cadena	Zacatecas	3,547	2.4216	Very High	-0.7995	Low	3,071	1,821	-13%
San Marcos	Jalisco	3,497	0.7976	High	-0.7635	Low	3,569	2,882	2%
Cerro de San Pedro	San Luis Potosí	3,404	-0.0763	Low	-0.6878	Medium	3,330	2,338	-2%
Techaluta de Montenegro	Jalisco	3,204	2.0237	Very High	-0.7438	Low	3,095	1,876	-3%
Atolinga	Zacatecas	3,199	2.3922	Very High	-0.2806	Medium	2,819	1,680	-12%
El Salvador	Zacatecas	3,101	-0.7444	Very Low	0.2084	High	2,941	2,328	-5%
Mezquital del Oro	Zacatecas	3,004	2.1991	Very High	-0.1206	Medium	2,571	1,520	-14%
Momax	Zacatecas	2,916	2.2275	Very High	-0.6346	Medium	2,736	1,652	-6%
Aporo	Michoacán	2,826	0.7133	Medium	-0.0053	High	2,737	1,674	-3%
Santa María del Oro	Jalisco	2,769	1.2117	High	0.8005	High	2,695	1,643	-3%
Melchor Ocampo	Zacatecas	2,720	-0.3501	Low	0.5234	High	2,572	1,937	-5%
Cuautla	Jalisco	2,477	2.9642	Very High	-0.3608	Medium	2,110	1,243	-15%
Ejutla	Jalisco	2,155	3.2333	Very High	-0.683	Medium	1,942	1,160	-10%
El Plateado de Joaquín Amaro	Zacatecas	2,018	3.4556	Very High	-0.1461	Medium	1,687	993	-16%
Sustitacacán	Zacatecas	1,346	3.073	Very High	-0.5028	Medium	1,259	760	-6%

Source: CONAPO, 2008.

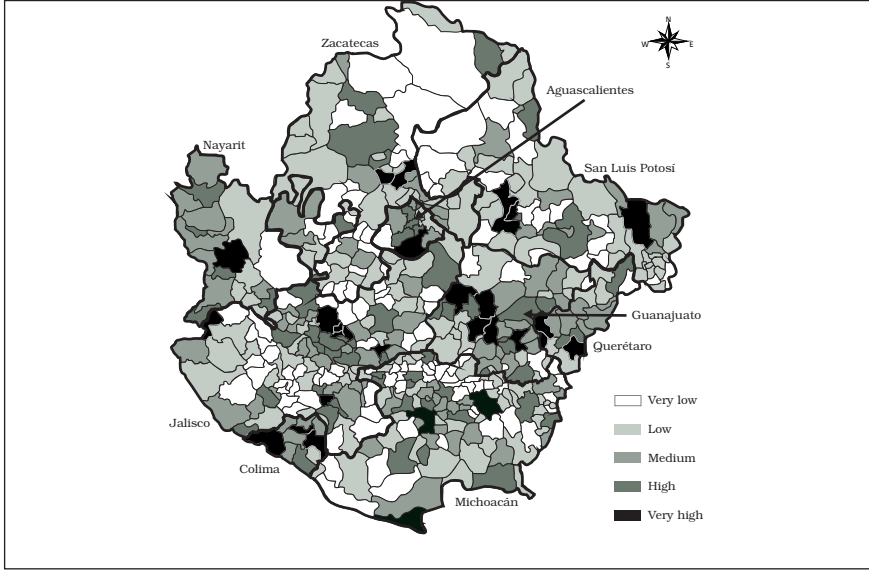
Appendix III. Comparative socioeconomic development level index, by municipality, West Central Region of Mexico (1970)



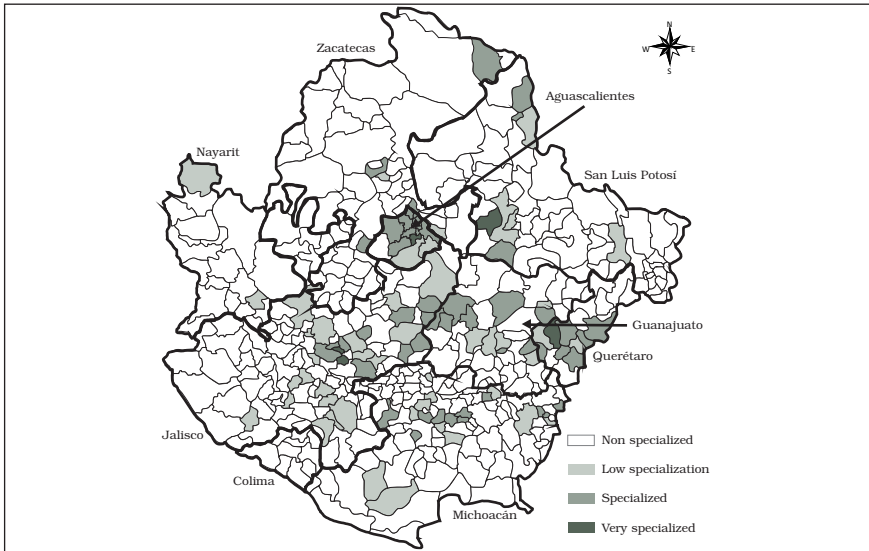
Appendix III. Comparative socioeconomic development level index, by municipality, West Central Region of Mexico (1990)



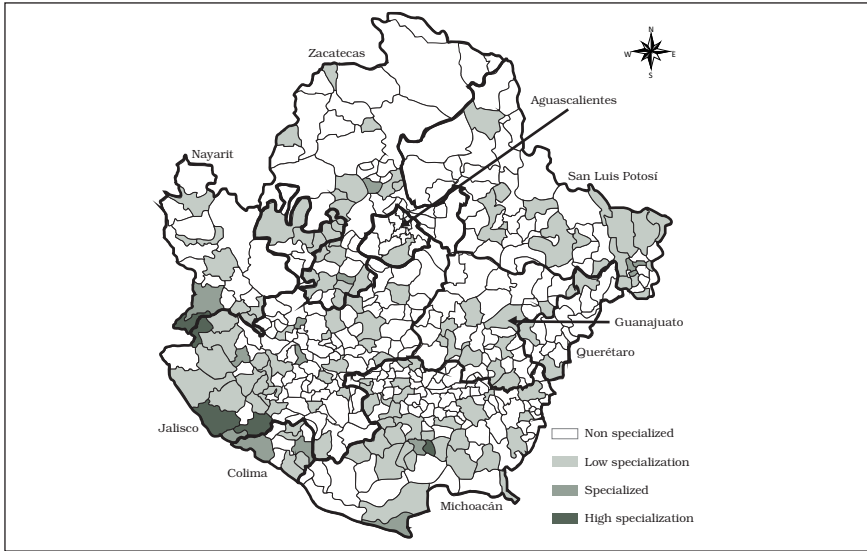
Appendix III. Comparative socioeconomic development level index, by municipality, West Central Region of Mexico (2000)



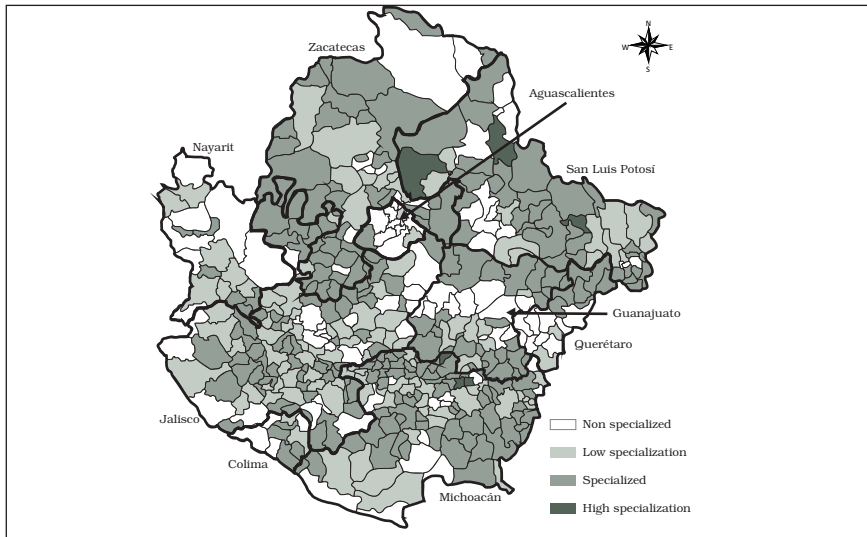
Appendix IV. Comparative socioeconomic development level index, by municipality (2000) in relation to economic specialization (1999), West Central Region of Mexico (industrial specialization)



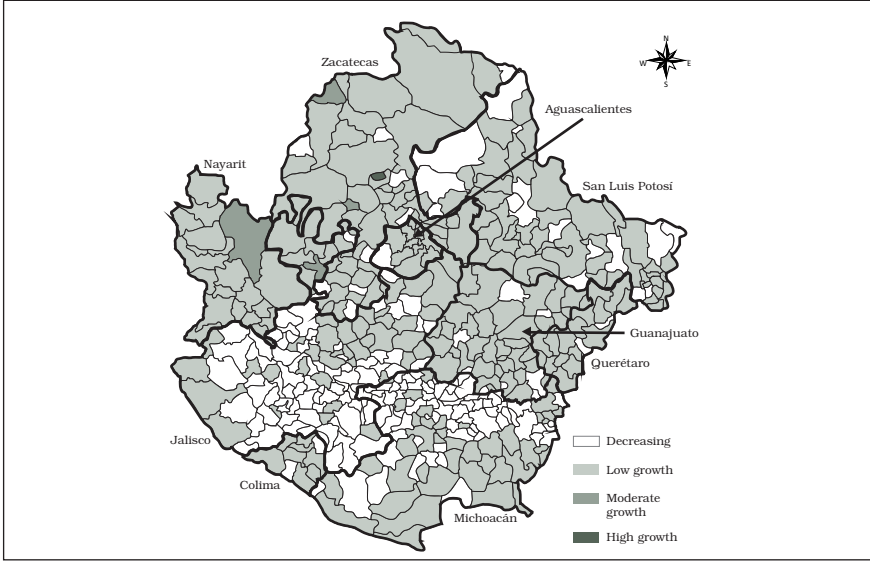
Appendix IV. Comparative socioeconomic development level index, by municipality (2000) in relation to economic specialization (1999), West Central Region of Mexico (services specialization)



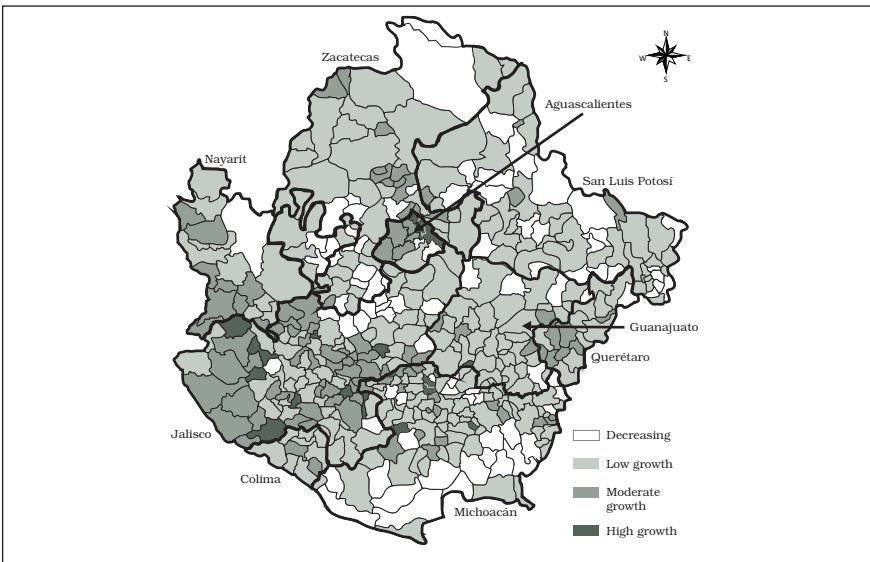
Appendix IV. Comparative socioeconomic development level index, by municipality (2000) in relation to economic specialization (1999), West Central Region of Mexico (commerce specialization)



Appendix V. Comparative socioeconomic development level index growth, by municipality (1970-1990), West Central Region of Mexico



Appendix V. Comparative socioeconomic development level index growth, by municipality (1990-2000), West Central Region of Mexico



VIII. DE-INDUSTRIALIZATION OF THE GMA: THE CASE OF THE ELECTRONICS INDUSTRY IN THE FACE OF CHINESE COMPETITION

*Raquel Partida Rocha**

INTRODUCTION

In this chapter, we seek to examine the global and regional development transformations specifically associated with the Guadalajara Metropolitan Area (GMA) located in the state of Jalisco in western Mexico. Of all cities in the Mexican Republic, the GMA distinguishes itself for its manufacturing trade, especially in terms of producer services supporting the electronics sector: outsourcing, sub-hiring, and research & development (R&D). The productive restructuring process of the eighties transformed the GMA into a region that specialized in the production of electronic computer equipment, information technology services, and next-generation-computer-platforms R&D, which necessitated the promotion of regional and urban development by federal and state authorities. These public interventions aimed to provide an urban and industrial infrastructure that would enable the city to face the challenges brought about by globalization.

Currently, the analysis of the city must be conducted using a multidimensional approach that comprises economic, political, social, and cultural dimensions to assess whether the concept of the city has changed or whether the metropolitan area has experienced a decline in economic and social transformation. Even though the causes of urban decline are many and complex, there is a common denominator: affected by globalization, the city experienced losses. Marked by the loss of job opportunities and population out-migration, many cities have shrunk and have undergone manufacturing post-industrial change. One such change is the transformation of the *Fordist* labor production scheme into the flexible specialization scheme influenced

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by the use of information technologies. These processes, among others, have depleted the essential investment and capital facilities of many urban areas, thereby forcing cities, citizens, and heads of government to fend for themselves in the struggle for global capital.

The state of Jalisco and the GMA were well aware of this process: with the arrival of the electronics industry in the 1970s, the city adapted to a productive industrial scheme for exports in terms of two dimensions: the physical infrastructure that facilitated the sector's operation. Thus enabled the city to have a more efficient logistics system through courier services, open distribution and storage centers, and enhanced air and surface transportation, and to construct industrial parks, malls, residential areas, golf courses, entertainment centers, and the like. The second involved a skilled labor pool formally trained in electronics at universities and research institutions. Guadalajara aimed to become a global city by generating a complete infrastructure to support the development of an intensive electronics manufacturing and service industry employing both highly skilled and unskilled labor forces. However, this phase did not last long, given the opening up of trade, globalization, and the appearance of China in the world market. These developments had direct effects including the shutdown of transnational electronic firms such as OM, Motorola, Burroughs, Wang, Cherokee, CP Claire, Philips, Lucent Technologies, and Solectron. As a consequence, the GMA was affected by employment loss, an uncompetitive labor force, and a de-industrialization process affecting the local electronics sector.

This article attempts to describe the de-industrialization effects suffered by GMA's electronics sector in the face of competition from China. It is well known that, during this period, several changes occurred not only in the economic structure of the country but in the world economy as well when China positioned itself as a massive manufacturer of consumer goods such as textile, footwear, electronics, and automotive, among others. The presence of the Chinese economy, which took over manufacturing within the new international division of labor, is, without a doubt, a compelling factor behind Guadalajara's electronics sector decline and it raised the question of what role should the GMA play to stave off decline, particularly when local governments assumed that the success of the massive electronics export would last forever. After September 11, 2001, the sector went through an economic crisis forcing it to focus on preserving the most secure activities. The de-industrialization process started with the exodus of enterprises to China and the shutdown of local companies that backed up the operation of major firms. Consequently, employment decelerated.

In spite of the city's efforts to rescue the electronics industry by assisting and promoting its conversion toward software production, the city now seeks to become a "city of knowledge". The GMA is facing one of its worst crises in history: employment, city infrastructure, and public works are declining and thus the recent de-industrialization process of the electronics industry has made the metropolitan industrial crisis obvious. Responding to this crisis, the tertiarization thesis, brought about by the exodus of manufacturers from urban areas and the development of activities that offer services to a population with new lifestyles (Cota and Rodríguez, 2009) has been invoked in new proposed functions of the city that would be based on the generation of services to satisfy new social needs.

The Chinese economy is an important topic in economic and labor as well as post-industrialization analyses, given its great impact on local transformations. At a given time, globalization seemed to favor developed countries, but now, China is one of the winners, as it undoubtedly modified and drove down the cost of manufacturing processes worldwide. Several studies have been conducted on this topic, e.g., Lütjer's (1997) work at the Frankfurt Institute in Germany and Dussell (1999) and Palacios *et al.* (2003) in Mexico's National Autonomous University (UNAM) who have examined the impact of the Chinese economy on Mexico and its employment repercussions.

This chapter is divided into three sections: the first is a characterization of the electronics sector before the crisis and deals with the first generation firms; the second describes the boom and bust phases of the electronics industry in the region underpinned by the North American Free Trade Agreement (NAFTA) and the existence of a physical and educational infrastructure which served as scaffold to the formation of an electronics cluster; and the third describes the emergence of information technology (IT) activities as the electronics sector reconfigured in response to China's challenge. We conclude with a general reflection.

THE FIRST GENERATION OF ASSEMBLY PLANTS (*MAQUILADORAS*) FOR EXPORT (1970-1995)

The electronics industry in Guadalajara was born from an export-oriented *maquiladora* model (Spanish initials, IME) implemented in Mexico during the 1960s and the import substitution model that prevailed at the time. These industries were organized under a *Fordist* production system. They were

established basically in what we know today as the GMA, where Motorola and Burroughs, two of the world's most important electronics semi-conductor firms were sited. The growth of this activity was caused by two factors. On the one hand was the urgent need of developing countries to attract new foreign direct investment and thus, the appearance of transnational firms and assembly plants in the region. On the other hand, Guadalajara was investing in the infrastructure supporting Guadalajara Industrial Zone (GIZ) where Burroughs, at the end of the 60s, and IBM, in the Jalisco Industrial Park (JIP), in the mid-70s, set up their enterprises. It was imperative to take advantage of these infrastructure expenditures generated by the state and federal governments to attract investments from multinationals. Likewise, other major public works, such as the creation of the city's international airport, the increase in electric power and water supplies, the opening of ports to international trade, giving easy access to the northern, western, and eastern borders were being consolidated. The city even had a sound financial infrastructure. This was Guadalajara in the seventies. That is, while the border states of the country were implementing the Border Industrialization Program (BIP) geared toward absorbing Mexico's migrant labor force, the state of Jalisco had already consolidated industrial, technical, and academic support, with a trained workforce and an important reserve of workers. Besides taking advantage of local stimuli and inputs, according to Wilson (1996), electronics firms decided to transfer their business to Guadalajara to escape the fast labor turnover along the northern border. Together, all these factors gave birth to the first stage of the electronics industry in the western part of the country. In its first period, the industry focused mainly on the final stages of assembly production, which were neither profitable for foreign companies nor had much added value. Market forces were supposed to generate a structure of productive chains, but instead, the result was an electronics industry whose terminal plants were defective and inefficient (Warman, 1994: 420). In fact, the electronics industry of that period stood out for its telecommunications and informatics products manufactured under a process similar to the *maquiladora* process taking place in the northern border. Since 1965, this area had emerged as a manufacturing region that specialized in electronics consumer products such as televisions, radios, videos, tape recorders, as well as some components for the automotive industry (Carrillo, Mortimore and Alonso, 1999; Contreras, 2001).

During the first generation, the electronics industry succeeded in becoming a significant source of income and employment, accelerating the growth of exports from Jalisco. Later on, the strong presence of transna-

tional companies was felt in Jalisco. The electronics industry was now using intermediate and final manufacturing processes and most of the production output was being exported. These companies were not operating under a *maquiladora* system but rather under the auspices of the Mexican legislation that offered many business options. The export-oriented *maquiladora* model (IME) had very little connection with the local economy and had a low degree of national integration. In this sense, the local electronics industry was organized as a disconnected company cluster.

Table 1. First generation electronics companies in Guadalajara

<i>Firm</i>	<i>Year opened</i>	<i>Products</i>	<i>Closed</i>
Motorola	1969	Semiconductors	2001
Burroughs	1969	Semiconductors	1998
General Instruments	1971	Power sources	2005
CP Claire	1999	Power sources	2006

Source. Own research.

Many of these firms no longer exist in the city; their industrial buildings were sold to other firms of the same sector. For example, Motorola sold its facility to the transnational company OM, and General Instruments sold its assets to CP Claire.

In fact, the “take-off” of the electronics sector suffered an abrupt change of direction when China made its appearance in the world market by competing in the manufacturing of components in the mid 1990s. The lower prices and higher quality and precision of the Chinese products attracted multinational investment. Jalisco began to lose competitiveness to China and by 2006 all first-generation firms were gone. The grounds on which these manufacturing plants were built were redeveloped into housing subdivisions or shopping malls, e.g., *La Ciudadela* where Motorola used to be located.

THE SECOND GENERATION: THE COMPUTER ELECTRONICS BOOM (1982 TO 2003)

It could be said that 1982 was the year of the consolidation of the sector when Hewlett Packard (HP) settled in Guadalajara to manufacture printers and

computers. This date is important since HP stands out as a leading development force in California's Silicon Valley and the San Francisco Bay Area. After HP set up its plant, many other firms followed suit. Furthermore, HP, Motorola, Burroughs, and General Instruments endorsed the state of Jalisco's electronics industry policy, thus attracting other computer companies such as Wang (and IBM converting from typewriters to personal computers), Compubur, Tandem, and Shizuky, to name a few.

After joining the General Agreement on Tariffs and Trade (GATT), Mexico's trade opened to the world economy and fundamental changes occurred in business models. On a global scale, the use of microcomputers and fiber optics and integrated services digital networks (union between computer and telecommunications) started to expand. With the establishment of HP and IBM in the GMA's region, exports became the focal point of the state economy. The electronics firms quit integration with national suppliers in order to link imports and exports under an international production scheme that was very similar to a *de facto* model of an assembly plant (*maquiladora*), but not *de jure* (Warman, 1994: 405).

At this stage, the computer electronics activity generated and exported a diversity of products including answering machines, PC servers, assemblies, circuits, telephones, suppressors, electronic cables, and plastic parts, which took advantage of potential global markets through public support of export schemes such as the High Volume Exporting Companies Program and the Temporary Import Program for Export (Spanish initials, PITEX). These programs undoubtedly represented an effort by the federal and state governments to stimulate the computer industry in the region by creating the institutional support for public and private partnerships destined to promote the growth of this sector. In 1994, after the signing of the North American Free Trade Agreement (NAFTA), electronics production bounced back after the big companies in the GMA benefited from equipment and computer purchases made by the public sector and from NAFTA's accelerated tariff reduction (mainly on finished equipment, since local manufacturers were producing final equipment parts only). This period was characterized by a new political state power that promoted the electronics industry and fostered new enterprises and educational and labor institutions that would help strengthen the project of a modernized, more competitive, cluster-type electronics industry. At the same time, as shown in Table 2, other transnational enterprises or subsidiaries called the Original Equipment Manufacturers (OEMs) opened plants in Guadalajara. These manufacturers such as IBM, HP, Siemens, and Kodak are technological leaders in the computer market (CADELEC, February 20, 2002).

As shown in Table 2, key world-level electronics firms settled or relocated operations to the GMA. Similar to the first generation firms, the electronics firms that closed down during this period sold their buildings to other multinational firms. For example, AT&T sold its facilities to Lucent Technologies. These transactions were carried out from US corporate head-quarters. Another type of enterprises that settled in the region, called the Original Regional Equipment Manufacturers (OREMS), were Mexican firms that strove to stay in business.

Table 2. Transnational OEMs in Jalisco

<i>Firm</i>	<i>Country</i>	<i>Year opened</i>	<i>Products</i>
HP	USA	1982	Printers and computers
IBM	USA	1971	Computers, thinkpads
Kodak	USA	1970	Printers, scanners film and disposable cameras
ATT	USA	1992	Closed
Lucent Technologies	USA	1998	Closed
Wang	EUA	1985	Closed
Siemens VDO	Germany	1962	Engines, panels, low tension equipment
Hitachi Global Storage Technologies	Japan	2005	Sliders
Technicolor	France	2005	DVDS and blue ray
BDT	USA	2005	Power sources
Intel	USA	2006	Semiconductors

Source. Own research.

Table 3. Mexican OEMs in Jalisco in 2008

<i>Firm</i>	<i>Year opened</i>
Resser	n.d.
ATR	n.d.
Industrias Idear	n.d.
BTC	n.d.
Mexmal	2003
GPI	1994
Pegasus Control	n.d.

Source. Own research.

Moreover, since the end of the 1990s, Contract Manufacturing Services (CMS) enterprises have boomed in the electronics sector and have benefited from the consolidation of this sector in the region, i.e., they were then part

of the global electronics production system in this industry. They are mainly North American investment companies that manufacture products for different brands, such as Solectron, Flextronics, Samina-SCI (*Ibid.*). Five of them have been identified in the GMA (Table 4).

Table 4. CMS enterprises in Jalisco

<i>Firm</i>	<i>Country</i>	<i>Year opened</i>	<i>Products</i>
Jabil	USA	2001	Electronics design, and product management services
Solectron	USA	1998	Closed
Flextronics	USA	1997	PCB-cables injection
Sanmina	USA	1998	Electronic Manufacturing Services
Continental	USA	2006	

Source. Own research.

The third type of companies, Enterprise Management Solutions (EMS), was linked to companies that manufacture a diversity of inputs for the computer and telecommunication industry such as Mti, Pemstar, Usi, Yamaver and Telect (which also had a strong presence at the end of the 1990s). Among these companies there is a strong presence of transnational capital, as shown in Table 5.

Toward the end of the 1990s, suppliers to OEMs, CMS, and EMS emerged on the scene. They manufacture basic electronic inputs. Their supplies vary from labels, to cardboard boxes, to packaging and plastic injection molds. Acoustic Control, Estatec, and Sistemas y Accesos Controlados (Controlled Systems and Accesses) were among these suppliers and their activities focused mainly on office equipment, cardboard packaging, and plastic injection. Both national and foreign investment were present among these firms such as Electrónica Ikon and Micro-Empaques de Occidente (Western Micro-Packaging). In this sector, we have identified as many as 17 enterprises (Table 6).

This period was marked by the strong presence of vertical and horizontal linkages and, undoubtedly, the region was strengthened by the development of this sector. But, however strong the cluster may have been, electronics was the sector that suffered the most from the closing of multinational firms, given China's fierce competitiveness. Nonetheless, this led to the diversification of the sector, i.e., production of computers was left behind and firms in the aerospace, medical, and automotive industries were opened.

Table 5. EMS in the electronics cluster in Jalisco

<i>Firm</i>	<i>Country</i>	<i>Year opened</i>	<i>Products</i>
Cherokee	USA	1992	Power sources
Chomerics Parker	USA	2000	Manufacturing of electromagnetic interferences
Digital Power/Ecuaria	USA/Singapore		Power sources
Yamaver	Japan	1996	Plastic precision parts injection molds
Lodan	USA	2000	Fiber optic cables and connectors
Mem			Assembly and mounting of electromechanical parts, cables and harnesses
Mexikor	Mexico-Spain	1998	Electronic circuit assembly
Modus Media International	USA	2001	CDR duplication, diskette replication, assembly, fulfillment and supply chain management
Benchmark	USA	1999	
Molex	USA	1989	Electronic equipment assembly
Multek	USA		PCB
Pemstar	USA	1994	PCB assembly
Pantera	Mexico	1989	Harnesses and cables
Foxcon	USA	2004	Mother board
Loga Mex	Mexico	n.d.	Cables and harnesses
Resser	Mexico	n.d.	Electronic alarms
SCG	USA	1987	Product transistor and rectifier manufacturing
Sumida (previously CP Claire)	Japan	2002	Inductors, power sources
USI	Taiwan	2001	SMT assembly
Adelsa	USA	2002	Semiconductors and PCB caspem
Vogt	Germany	1997	PCB

Source. Own research.

Furthermore, by the mid 2000s Jalisco lost its competitiveness against other Mexican states. As Ruiz Durán (2008) points out, industrial development policies were no longer the responsibility of the federal government but rather a decision of each state government. Therefore, the rules of the game had changed and Jalisco saw dozens of enterprises shutting down. The sector that once had generated 80,000 direct and indirect jobs had now reduced employment by up to 60%. The same thing was true for companies and OEMs, EMS, and SS; dozens of manufacturing buildings were totally abandoned, only a few CMS have managed to keep afloat. The blow was so strong that Hitachi and Solectron laid off masses of workers. There was nothing the local governments could do to stop the firms from leaving for Asia. The reasons were always the same: cost, flexibility, speed of delivery, and a well-defined competitiveness policy. This downfall of Jalisco and GMA’s electronics sector may be characterized as an example of de-industrialization.

Table 6. ss enterprises in Jalisco electronics cluster

<i>Firm</i>	<i>Country</i>	<i>Year opened</i>	<i>Products/Services provided</i>
Antiestatic	Mexico	1998	Manufacturing of antistatic packaging
Bradford	USA	1994	Manufacturing packaging
Brands Electro	Scotland	2000	Plastic and label commercialization
Empaques Diga	Mexico	1999	Packaging manufacturer of self-adhesive foam tape rolls, plates and parts
FCD	USA		Packaging solutions
Maquiser	Mexico	1991	Assembly, equipment manufacturing, adaptation of in line equipment
Matecmex/Altetec	Mexico	1989	Label products
Microempaques	Mexico		Cardboard boxes and packaging
Sales Link	Mexico	n.d.	CDs, DVDs and accesories manufacturing
Universal Scientific	Taiwan	1997	Manufacture, assembly and repairment of informatic processor equipment repair
Servi Altec Tech	Mexico	1989	Electronic labels Electronic plastic molds and products manufacturing
Triquest	USA	1992	Plastic injection
United Plastic	USA	1999	Resins and polypropilene
Usco	USA	1994	Special exporting packaging
Ureblock	USA	1999	Packaging

Source. Own research.

THE THIRD GENERATION: IT FIRMS IN JALISCO (2002 TO 2008)

The third-generation industries of this sector focus on information technology and include: a) software industries, b) informatics services, and c) telecommunications. Some firms manufacture basic controls for automated machinery, from informatics systems to software programs and applications. Software industries refer to firms that design and produce software products or offer custom programming. Informatics services, on the other hand, have to do with the production, support, and application of services on or for the Internet. Telecommunications refers to enterprises offering products and services for radio and television, including cinema and entertainment.

Besides the 65 IT firms, there are 12 more that provide services to this industry. Their services range from personnel outsourcing, distribution, and commercialization to brokerage services and tax consultancy (Table 8).

Table 7. 2006 IT firms

<i>Software industries</i>	<i>Number</i>
Software	32
Software and hardware	3
Software and informatics services	9
Informatics services	13
Hardware	6
Telecommunications	2
Total	65

Source. Own research.

Table 8. Enterprises servicing the IT industry

<i>Firm</i>	<i>Services provided</i>
América II de México, S. de R.L. de C.V.	Purchase, sales, distribution, electronic components import & export
Aqua Limp, S.A. de C.V.	Personnel outsourcing
BT Company México S. de R.L. de C.V.	Purchase of electronic components, surplus and rejects, recycling, no personnel hiring
Despacho Milán Brito	Tax consultancy and accounting services
Electrónica NSC de México, S.A. de C.V.	National semiconductor integrated circuits commercialization
Fernández Michel y Asociados	Consultancy services
Future Electronics México, S.A. de C.V.	Distribution and commercialization of more than 100 different brands of electronic components
Grupo Eduardo Díaz	Broker agency services, international logistics, stock management
Marfil Repts., S.A. de C.V.	Distribution and sale of electronic components cable coaxial, fiber optic, multi-conductors, EMI/RFI suppression ferrites, terminals, connectors, headers, terminals, printed circuit cards, switches, etc.
Max Web Rep.	Consultancy
Operaciones logísticas Internacionales, S.C.	Broker agency operation services
PITEX and Assembly Plants (maquiladoras)	Consultancy
Soluciones Express	Personnel outsourcing
TATA	Consultancy services

Source. Own research.

It is noteworthy that informatics services is in third place among IT firms, with 13 domestic and multinational firms providing this type of service exclusively, and nine others that combine software development and

informatics. In all, there are 22 enterprises developing informatics services. What follows is a description of each subsector.

SOFTWARE COMPANIES

The growth in this subsector lessened the impact of the crisis and shrinkage of the electronics industry at the local level. State and entrepreneurial policies have stimulated software production. Furthermore, during Vicente Fox's mandate, a Software Industry Program (Spanish acronym: PROSOFT) was created and it greatly benefited the GMA. Of the 29 firms (Table 9) that develop software, five develop administrative software (Aspel, Computación en Acción, Siac Software, Sincrettec and Level 5); one, medical software (Medisit); and only one concentrated on software specialized application and not development.

Table 9. Software companies in Jalisco

<i>Firms</i>	<i>Firms</i>	<i>Firms</i>	<i>Firms</i>
Computación en Acción	E-Quality	Smartware	Information System, Consultancy
Asesoría Limac	Intel	Level 5	MBGE
GC Teleinformática	Lockideas	Quantum	Joint Consultants
Servicrece	Sincrettec	Innevo	Medisist
Siac Software	Soluciones Tecnológicas	Cymaq	GPI
FEE de México	Union Tec Mex	Insoft	Besoft
Advanced Technology Research	Devor	Interair	Cybergy

Source. Own research.

There are also other companies that engage in some type of informatics services and development of software for use in website and webpage design. There is one enterprise that develops software for the Internet, and two companies that carry out automation processes (Table 10). Arquitectura en Sistemas Computacionales, DISC and IBM are the only three software and hardware companies.

One of the characteristics of these software industries, according to our interviews, is their size; they range from small to medium enterprises with two to 120 workers. While 30% of these companies earn at least one million

pesos annually, another 30% earn beyond one million pesos. Furthermore, in general, the capital used to start this type of business is a direct investment of the business owner, i.e., domestic and local capital investment. These enterprises have high-value employees, since most of them have university degrees in computer sciences and system engineering, among others. The following enterprises fall within this category (Table 11).

Table 10. Software and informatics service developing enterprises

<i>Firms</i>	<i>Services provided</i>
Computerland	Network installation, webpage creation, sale of computer equipment
Toracom	Software and software for Internet
Innox	Software and automation
SIDEC	Software, software for Internet, automation and sale of equipment
Computools	Software, network installation and automation
Pantalla Gráfica	Software, network installation
Comsol	Software, network installation, webpage creation and marketing through Internet
Electronicos on Line	

Source. Own research.

Table 11. Local software industries

<i>Firms</i>	<i>Services provided</i>
ASCI	Software and hardware testing
ADIT	Software and electronics design
SF Electronics	Electronic applications, smart card
Technology Solutions	Design and development of automated systems
SERIE	PCB's and electronics design
INSOL	System design and development
ATR	Hardware and software design
Gollet	PCB's and electronics design
Mixbaal	IC's and electronics design
Mexikor	PCB's and electronics design
Resser	Hardware and software design
Pegasus Control	Measuring equipment (electronic and mechanical design)
Industrias Idear	Hardware and software design
DSPr Design Master	Electronic design
Arteche	Measure and technology, electrical equipment
Electronic and Digital Design Center	Electronic design
CTS/CINVESTAV	IC's, PCB design
Competitive Global	Mechanical design
DDTech	Electronics design and firmware

Source. Research Directory: "Electronics Skilled Labor Market in Jalisco".

We also have identified important international software firms in Table 12.

Table 12. Multinational software industries

<i>Firms</i>	<i>Services provided</i>
Global Vantage	Mechanical, aerospace and embedded software design
Intel GDC	IC's design
Freescale	Electronics applications and IC's design
IBM	Software
Siemens VDO	Hardware and software design

Source. CADELEC Directory 2008.

INFORMATICS SERVICE INDUSTRIES

The informatics service enterprises are a new type of local businesses that offer not only services related to the Internet and machinery and equipment automation but also information storage such as database, among others. The following enterprises focus exclusively on informatics services (Table 13).

Table 13. Informatics services industries

<i>Services</i>	<i>Number</i>	<i>Firms</i>
Automation	5	Festo Neumatic, Cotsí Automatización Control, Farga, Athomex, Norgreen
Network repairation	3	Informática, Sistemas Sotomayor, Gama Sistemas
Network installation	2	ASCII
Support and computer	2	PC. Argos, G y G
Webpage creation/design	2	Ads, Righthner
		Asesoría Empresarial, Consultores en TI

Source. Own research.

As shown, this subsector specializes in entertainment telecommunications. Their main activity is to reproduce and translate DVDs and CDs for the Latin American continent. This industry is made up of large multinational firms with foreign capital investment and these firms hire more workers than any other enterprise. Such is the case of Technicolor that employs approximately 2,000 workers. In fact, given the number of establishments that

offer informatics services and software, we can say that there is a strong drive toward these enterprises.

We can see that telecommunication enterprises are having a considerable rebound in the city, even though this is not a sector with much presence in the economic life of the entity as shown in Table 14.

Table 14. Telecommunication companies

<i>Firms</i>	<i>Products</i>
Caber Electrónica	Components
Modus Media	DVD
Sales Link	CDS and DVD

Source. Research Directory: "Electronics Skilled Labor Market in Jalisco".

Within the framework of the *New Economy*, Jalisco and the GMA's IT sector generated some institutional networks and entrepreneurial and labor associations that contribute to strengthening the state economy. In fact, a series of formal and informal articulations at different levels among enterprises, government institutions, entrepreneurial associations, and educational and labor centers has transformed the region, reaping many benefits. The concentration of many IT companies has allowed the sector to diversify its products (Table 15).

Table 15. Electronic products in the GMA 2008

<i>Products</i>	<i>Products</i>
PCS	PCBAS
CDS & DVDs	Servers
Storage systems	Sliders/actuators
Robotic tape libraries	Set top boxes
CDS	Internet access boxes
Paper handling solutions	Air bag systems
ABS systems	Automobile immobilizers
Cameras	Telecommunication servers
IP hubs, telephones	Docking stations
Cell phones	Medical equipment
Handhelds	Routers & firewall
Printers	Juke boxes
Vending machines	Relays

Source. Own research.

These enterprises are now located in buildings formerly occupied by some multinational firms; these have been renovated for this type of investment. For example, Tata is located in a building that used to house IBM in Guadalajara. Software Park is located in a building built in the 1980's, Plaza del Angel, which used to be a small shopping mall. There are many interesting examples of such facility reuse and conversion.

CONCLUSION

We can conclude that the GMA's electronics industry in the state of Jalisco, having gone through three phases in the last three decades, has succeeded in overcoming some of the problems brought about by the many transformations affecting this sector. On the one hand, the de-industrialization of the *Fordist*-type manufacturing sector gave way to a specialized and flexible sector, which is based on small and medium enterprises that hire highly skilled employees. The electronics industry, without these adjustments, would never have overcome China's strong competitiveness. The project of the federal and state governments to promote specialized regions such as Jalisco, in foreign exports and trade, was devised at the beginning of the 1980s focused on growing a computer manufacturing industry. However by the end of the 1990s it faced the challenges of achieving process maturity based on a diversity of activities. As several authors (Rajha, 2001) have pointed out, there are several types of clusters in the IT world. Jalisco's emerging IT cluster is at an intermediate stage and we expect that, in the near future, it will consolidate into a major cluster. The intent to describe the electronics industry in three periods: the first, during imports substitution; the second, the opening to the global economy; and the third, competition with China is to examine the evolution of the sector. As mentioned earlier, the production scheme during the first phase was a vertical *Fordist*-type where institutions were separated from each other and lacked a common project. On one hand, we had the enterprises, the unions, and governments, and on the other hand, the entrepreneurial associations. At that time, the federal and state governments took the lead in locating enterprises. Now, this has changed: there is an industrial organization oriented toward a flexible specialization, with horizontal structures where the weight of economic development promotion does not fall only on local government entities but also on stakeholders as a whole, from educational services to finances, labor, enterprises, among

others. In the past, that vision was not as clear as it is today. On the other hand, it should be pointed out that the crucial moment of Jalisco's electronics sector take off occurred after the signing of the NAFTA, in the mid-1990s, when investments started flowing in. At that time, we witnessed the creation of a communication and transportation infrastructure necessary to develop a new economic project in the region.

It is important to recognize the institutions that assisted in the creation of this sector. We are aware that this first stage in our research mentions only some institutions that have supported the cluster, and that a more detailed study must be carried out to analyze the level of relationship that existed among the different sponsoring institutions and electronics and IT enterprises. It would be beneficial to know the degree of integration of the enterprises with the different institutions in order to assess the degree of performance of the cluster. This, without a doubt, is a commitment we have to take on; perhaps, the fourth phase of this research could be a follow-up study of the behavior of the sector in the face of the current world economic recession. The truth is that the de-industrialization of the sector occurred in two phases and we are likely to witness a third one.

Finally, it is obvious that, in the third phase of the GMA's electronics sector, the electronics employee has become a global worker *i.e.*, Mexican engineers with specialization in electronics left for Canada and the United States during the economic crisis in search of work. Likewise, the GMA electronics sector receives workers from India. It is a boomerang effect, coming and going, we send our workers and we receive theirs. In the past, this was unseen: most foreign employees were then occupying executive positions; nowadays we find foreigners in production areas. The global electronics industry has given a new twist to the word "employee", workers are now global and flexible.

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IX. SHRINKAGE OF ATENIQUE 'S ENVIRONMENTAL AND ECONOMIC DEVELOPMENT IN AN ERA OF GLOBALIZATION

*José Guadalupe Vargas Hernández**

INTRODUCTION

Atenique is a major paper- and lumber-producing town, and it was founded as one of the first industrial enclaves in the Southern region of Jalisco. During the 1990s, in Mexico, a period of restructuring started in paper mill companies, a process that has been characterized by large corporate-owned companies consolidating to become larger, more vertically integrated, more transnational, less diversified, and leaner. These changes and developments were caused by the long term trends of the economic process of globalization. As the economic processes of globalization continue, its effects on local communities are uncertain to their residents' perceptions (Brady and Wallace, 2000: 91), and global competition and capital mobility have changed the incentives of new corporate owners to take into account community concerns (Miller, 2006). This paper aims to analyze the development process of Atenique and how those changes have affected the livelihood and welfare of its inhabitants.

A Mexico-based forest products private company recently purchased the paper mill in the town of Atenique, a small community in the Southern region of the state of Jalisco. When the paper mill company was founded, it

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was state-owned and financially supported housing, schools, and other community activities for its employees and workers. However, the state-owned company was sold to a private corporation and after the transfer of ownership, employees began to distrust and fear the new corporate owners. The effects of globalization, focusing on how owned corporations are perceived as they take over state-owned companies, have been reported by most of the literature on the subject.

It has been said that, in Atenquique, the inhabitants used to live like one big family. Family meetings were characterized by the warm environment of friendship, the spirit of solidarity at work, and the affinity of aspirations. This unity and fraternity of Atenquique led the *Compañía Industrial de Atenquique, S.A. (CIDASA)*, a paper mill factory, to provide the township with adequate infrastructure, buildings, and facilities for workers and their families; the company also set up restaurants, movie theaters, casinos, and reading rooms. It offered swimming pool facilities, football fields, basketball courts, gyms, etc., to foster sports among the population living in Atenquique (Medina Enríquez, 1988).

To develop social relationships among the population, the company supported the formation of clubs in which workers, employees and their families were given membership to participate in debating competitions, poetry competitions, conferences, and theater performances. Famous writers, poets, and intellectuals were encouraged to attend these functions, and music concerts were also held. Employees and workers formed the 'Mariachi Atenquique' who used to perform every Sunday evening in the downtown area. Dancing schools also received support. In short, social and cultural activities were held in Atenquique as part of an effort to promote a better quality of life. This coincided with the time when the economic and environmental development of Atenquique was on the rise.

CIDASA was structured under the dominant ideological paradigm of the Mexican Revolutionary State concerned for the welfare of employees, workers, and all the stakeholders. In fact, the company was a public and a state-owned enterprise, and it was concerned about creating employment and about the welfare of the post-revolutionary generations of Mexicans living in the Southern region in the state of Jalisco. However, this situation does not exist anymore. The economic and environmental development of Atenquique and the surrounding region of Southern Jalisco have been shrinking and the main turning point has been the privatization of CIDASA, as a result of economic globalization.

MATERIALS AND METHODS

The methodology used was descriptive and exploratory. A sample of 40 company workers who lived in Atequique were chosen to be interviewed. The sample represented 3% of the total work force at the time the firm was a state-owned enterprise, and 9% of the current work force after being privatized. The interviews were conducted in two different periods: 10 of them were conducted on December, 2008 and 30 interviews were conducted on August, 2009. To be selected for the interview a worker must have worked in the company and lived in the town of Atenquique during the period of time when the firm was state-owned.

The interview contained five questions:

1. Since when have you lived in Atenquique?
2. Since when have you worked in Atenquique?
3. What are the most important changes while you lived in Atenquique?
4. What are the most important labor changes that you have witnessed in your work?
5. Have these labor changes affected you positively or negatively?

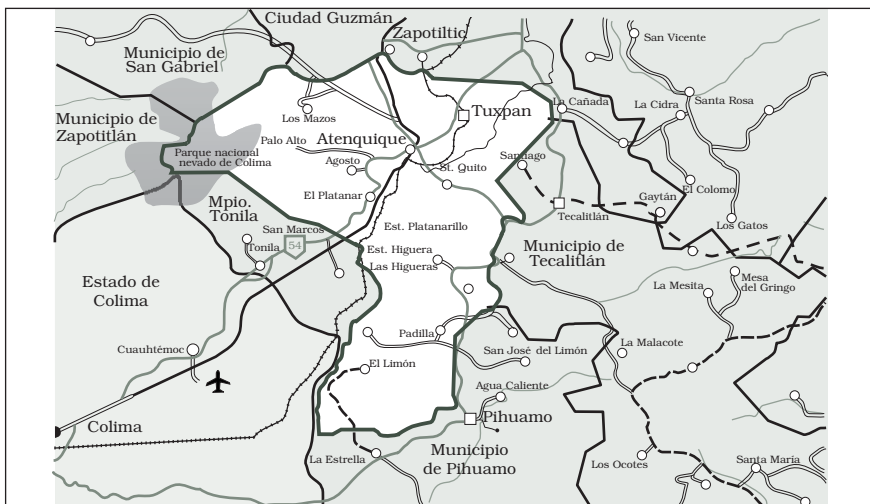
LOCATION OF THE VILLAGE OF ATENQUIQUE

The village of Atenquique (19° 32' N, 103° 30' W), is located in the southern part of the state of Jalisco, at the Eastern foothills of the Colima peaks, over the middle of the ravine of a precipice, at 1,030 meters above sea level. The precipice of Atenquique is 24 kilometers long and is located on the East bank of the Nevado de Colima volcano near other precipices. The Plátanos and Arroyo Seco rivers, form the Atenquique Basin. The Atenquique basin is shaped like a long funnel, running from West to East and joining the Tuxpan River. Atenquique is located 7 miles (11.3 kilometers) west of Tuxpan, on Mexico's Highway 54.

The Volcán Colima is a dormant volcano and is the most active in Mexico. Currently, it is approaching its climactic phase and a major eruption could occur in the next decade. Volcanic debris flows are likely to occur in the two major areas of drainage to the east and west of the volcano, at Tuxpan river and Armería river respectively. Unfortunately, as a large lumber-producing town, Atenquique is at high risk for moderate to large lahars because it is

near the volcano and at the bottom of a deep canyon. At this location, the hydraulic radius of the largest lahar (108 m^3) would be about 75 meters and that of the intermediate flows (107 m^3) would be about 40 meters. Atenquique would be inundated and devastated by such mudflows (Sheridan *et al.*, no date). The largest lahar (108 m^3) would have a peak depth of about 60 meters and a run of about 120 kilometers, reaching the sea. The smallest lahar (105 m^3) would have a peak height of about 7 miles and would only reach a distance of about 15 kilometers.

Figure 1. Map of Atenquique and surroundings



Source. Google Maps (2010).

BRIEF HISTORY OF THE TOWN

Atenquique was the site of the Battle of Atenquique in 1858. Before the construction of the paper company, this village only had 50 inhabitants. The village was created in 1946 as a consequence of the installation of the paper mill –CIDASA– as a strategic point to take advantage of the water of two rivers, the Atenquique and the Tuxpan, vital for industry. CIDASA was inaugurated in the month of October, 1946 and became the largest in the Southern region of Jalisco. Immediately after the establishment of the com-

pany, Atenquique had more than 4,000 inhabitants. Since then, the labor force has come from neighboring cities and towns.

On October 16th, 1955, an intense storm that lasted three days, suddenly originated a series of flows of rubble and debris, devastating almost the entire village of Atenquique. On the same date, a strong current and flooding from the Atenquique creek caused several deaths and destroyed the church, a school, businesses, shops, buildings and about 20 homes. A hill of high inclination collapsed near the village and buried most of a church that today only shows its highest part from the central garden. It also affected the industrial plants and killed 23 people and some were saved only because they took shelter under the bell tower of the church. The flooding left desolation and affected the operations of the paper company for two months. The railroad, as well as various roads, was truncated and material damages were estimated at 10,000 million pesos at that time. This catastrophic event made it necessary to build Atenquique anew (*Redacción del Sur*, 2005). The inhabitants helped repair the damages to the company.

After the installation of the paper company in Atenquique, which had hitherto only been a camping spot, the population doubled in the 20 years from 1950 to 1970, and the town consolidated itself as a center of regional attraction. However, the last censuses and population counts show a declining trend in population (see Table 1).

Table 1. Population of Atenquique

<i>Atenquique</i>	1990	1995	2000	2005
Total population	1,645	1,237	1,143	849
Men	–	622	562	423
Women	–	615	581	426
Total households	–	301	291	227
Total inhabited households	–	301	291	231

Source. INEGI (1990, 1995, 2000, 2005).

During the 1990s there were more than 301 households with a total population of 1,645. In 2000, there were 291 households with a population of 1,143. The last census only registered 231 households and 849 inhabitants. The decline in population is also observed in nearby localities. Table 2 lists the larger localities of the 82 in the municipality of Tuxpan, where Atenquique is located.

Table 2. Population of the main localities of the municipality of Tuxpan (1990 and 1995)

<i>Name of localities</i>	<i>Population (Year/inhabitants)</i>	
	<i>1990</i>	<i>1995</i>
City of Tuxpan	25,895	26,219
Atenquique	1,645	1,237
La Higuera	1,479	1,410
San Juan Espanatica (El Pueblito)	908	792
Pozo Santo	868	-
Platanar		582

Source. INEGI (2000).

In the case of Atenquique, there were 1,645 inhabitants in 1990, while in 1995, there were only 1,237, marking the beginning of a trend towards a shrinking population.

Comparing the population attending school that Atenquique had in 1988 and the population attending school in 2007, the results are:

<i>Year</i>	<i>Population attending school</i>	<i>Total population</i>
1988	750	3,700
2007	-611	-3,390

Source. Own estimations after performing a census.

THE HISTORY OF THE COMPANY

Although the Nevado de Colima area was declared a “protected zone” in 1934 and considered a national park during the time of President Lázaro Cárdenas, the decree was modified two years later in 1936 to give a company in Atenquique an opportunity to exploit the forests. On August 3rd, 1936, the National Park El Nevado was created by decree, as there was a strong interest in the health of the forest area.

The land reforms implemented in Mexico during the 1930s and 1940s gave shares of communal land (*ejidos*) to poor peasants (*ejidatarios*). To

exploit their land, the *ejidatarios* cleared the forest and leveled the ground through irrational felling of large forest surfaces.

In 1940, the large owners of property organized themselves in the enterprise Unión Forestal de Jalisco y Colima to maintain control of forest resources and for protection against possible risks. Unión Forestal de Jalisco y Colima was formed on September 14th, 1940 with the association of the larger landowners of Southern Jalisco who controlled the forests, not only of the volcanoes of Colima but also in the mountains of the Sierra del Tigre, El Halo and La Leona.

On November 26th, 1940, the decree was modified again and on September 7th, 1941, CIDASA was founded to take advantage of the forest resources of Southern Jalisco. The decree established the concession for forest exploitation in Southern Jalisco for 50 years in favor of CIDASA for the manufacture of chemical celluloses, mechanical parts, paper, synthetic fibers, and diverse plastic materials.

The paper company in Atenquique was created by local investors and promoted by members of the German military. The Mexican federal government granted 1'080,000 hectares in a free concession for free exploitation for 50 years. This extension represented 1.7% of the forests on Mexican territory.

The industrial company of Atenquique was a state-owned paper mill enterprise. From the beginning, it had been given fiscal incentives. The company diversified its production activities in a conglomerate that had among its activities, lumber exploitation, cellulose extraction, and packing manufacturing.

On March 22nd, 1945, an industrial forest exploitation unit was created in favor of CIDASA with a concession for the exploitation of timber on a surface of 225,000 acres. This area was spread over 17 municipalities in the Southern region of Jalisco, with annual production varying between 60 and 70% of the total production of the state. On March 27th, 1945, the Industrial Unit of Forest Exploitation (known as UIEF, its acronym in Spanish) was created by decree to consolidate the control of forests. In 1945, the Technical Forestry Direction was created with employers paid by CIDASA, which became the organization in charge of technical surveillance of exploitation. Between 1946 and 1948, the first forest inventory named General Project of Land Use was carried out.

There was a world paper crisis in 1954 that benefited the expansion of CIDASA. Because of this, forest exploitation was consolidated as the main economic activity, given its potential and magnitude. In 1963 and 1964, the CIDASA plant was modernized and expanded. The second forestry inventory

took place from 1964 to 1968. As an immediate consequence of these agreements, the exploitation of forest resources was accelerated. By 1969, the modernization of the plant was consolidated, incorporating new techniques and processes.

In 1971, CIDASA became a para-state enterprise due to financial problems. In 1972, another decree widened the uses of the exploited lumber by the UIEF. In the beginning, it was allowed to be used for the elaboration of cellulose, cardboard, and paper, but after the 1972 decree, it could be used for wood, triply, and other products. Later, a manufacturing plant of triply was installed, even though the sacred firs¹ used by the plant were scarce after fierce exploitation.

Relationships between the inhabitants of neighboring municipalities, more specifically between the cities of Tuxpan and Ciudad Guzmán, were considered a familiar communion because the company was “the heritage of our fathers”. General wages were in the range of 150 and 160 pesos (about 15-16 US dollars) per day, although some workers earned more than 300 pesos (30 US dollars), justified by their high productivity and personal qualifications.

The company was an economic empire in the Southern region of Jalisco because it used resources that belonged to the holders of the right to exploit a plot of land (known as *ejidatarios*) and small property owners, conceded to it by a decree.

After the Mexican economic and financial crisis of 1982, the economic policies addressed the problem by gradually dismantling the State, by selling and privatizing public enterprises, by merging, transferring, canceling and/or settling down major companies and taking minor companies out of the para-state sector. However, despite the economic crisis of 1982, CIDASA was still making profits (Gabayet, 1988).

In 1990, under the ongoing structural reforms and privatization programs, CIDASA, the most important conglomerate producing paper in Latin America, was sold to GIDUSA. Grupo Industrial Durango, S.A. (GIDUSA) was founded in 1980 and was the only one producer that vertically integrated the entire productive process of cardboard making and packing from lumber exploitation, the making of cellulose, manufactured paper, and other products. The firm provided 65% of the packing made of cardboard utilized by the Mexican export sector, 80% of the Mexican packing utilized by the Maquiladora sector and 40% of the packing consumed in the country. GIDUSA is a major lumber company and the major manufacturer of brown paper and

¹ Sacred firs are known as *oyameles* in Mexico.

cardboard packing in Latin America. It also owns 26 manufacturing plants in Mexico and five more in the United States.

GIDUSA also owns Productora e Importadora de Papel (PIPSA), which controls 90% of the newsprint paper in the national market. In 1998, Bancomext gave 80 million US dollars to GIDUSA in order to pay its bank debts after its shopping spree for PIPSA. The federal government remitted their debts for the acquisition of PIPSA, even though it was sold off at half its value (*Proceso*, 1999).

Problems at GIDUSA began in the third week of April, 2001, when 97 out of 650 workers were fired. Their contracts were rescinded without any reason and this was followed by the firing of another 30 workers. On April 21st, after the company stopped production due to maintenance, it was declared to be uncompetitive. At this point, the workers went on strike outside the facilities of the company, awaiting a solution to the conflict.

The firm shut down its operations on April 26th, 2001, firing employees and workers. After half a century of operations, GIDUSA closed its doors. It transpired that the company had taken equipment out of the plant, which in turn had triggered protests from the employees.

Under the argument that the company was operating at high costs, the plant was shut down and 900 employees were fired. It was quite difficult to think that an industrial group such as this had economic difficulties. Actually, the main reason to close the plant at Atenquique was the high cost of its manpower (*Milenio Diario*, 2001).

There were two different versions with regard to the reasons for the closure. The workers argued that the ambition of the shareholders and managers from GIDUSA was the main cause.

The second version argued that it was due to a weakness in the traditional collective labor contract signed 55 years ago with an addendum of benevolent clauses that benefited the employees and workers as the result of negotiations between the labor union and the representatives of the state and the company. However, it was argued that higher labor costs were the result of the lack of flexibility to change labor culture. The owners argued that the oldest and least competitive labor contract in the national paper mill industry existed in Atenquique. The firm declared that the collective labor contract included clauses, terms, and benefits that were difficult to understand (*Milenio Diario*, 2001) in an economy that was highly competitive and had thrown open its borders to imports.

The company argued that the lack of profitability was due to high labor costs. Therefore, the origin of the conflict was to eliminate the collective con-

tract and to hire personnel under a new scheme of labor conditions designed to lower labor costs. However, the company accepted that the main problem was the age of workers, who were older than 35 years. The threat was to relocate the plant to a place where the company could achieve higher profitability. The message was clear: to suspend the labor contracts that threatened the principles of productive efficiency. The closure of the Atenquique plant meant that the labor rights achieved in half a century could be nullified by a management that had fired 650 union workers, 120 employees of trust and 130 temporary workers.

The collective contract set a daily production limit of 240 tons of paper, while before the strike the production was more than 350 tons.

During the visit of the Governor of the State of Jalisco to Tamazula de Gordiano, a neighboring city, Guillermo Legarreta González, and the General Secretary of the National Union of Paper industries explained the situation of the workers at GIDUSA. The Governor had a dialogue with the workers of the firm and offered support to solve the conflict (Comunicación Social, 2001). During the labor conflict, the Municipal President of Tuxpan, Tranquilino Rúa Laureano, affirmed that the workers had his moral support to find a way out of the conflict.

On May 16th 2001, State Congressman, Ramón León Morales, submitted a point of agreement to the Permanent Commission of the Congress, which was turned over to the Social Welfare and Labor Commission. The mandate of this point of agreement was to find a solution to maintain the source of labor and to respect the labor and contractual rights of employees and workers.

However, after several meetings between the managers and the employers to settle the amount to be paid to the fired workers as liquidation, no agreement was reached. After the paper plant was closed and all its workers had been fired, it was announced that the Economic Promotion Secretary of the Jalisco State Government would sustain the economic reactivation programs to create employment in Southern Jalisco after the closure of the GIDUSA plant.

In meetings between the Secretary of Labor, leaders of the Union, and representatives of the village of Atenquique, the company accepted to pay for maintenance of primary services. They also agreed to review the collective labor contract to settle benefits to workers in order to reduce the cost of paper production. Also, the company agreed to sign a new contract hiring all the employees. The Secretary of Labor had to intervene to conclude the agreement after the workers agreed to receive only a portion of their benefits as part of the deal to settle the collective labor contract.

The labor conflict in the GIDUSA paper plant was part of the strategy of the company to overcome the collective labor contracts to reduce labor costs. All the workers and employees were fired ending the collective labor contract that had been in force for 55 years, at an estimated cost of 160 million pesos. Once this collective labor relations issue was settled, Atenquique could open the plant without the heavy burden of payment of labor benefits.

On the 3rd of September, 2001, GIDUSA declared that it was ready to open again (*El Financiero*, 2001) investing 50 million dollars (Rodríguez, 2001). The company's name was changed to Compañía Papelera de Atenquique, S.A. de C.V. The new company began operations in September 2001 with about 50% of the labor force. Since then, the management of the firm has been requesting new attitudes towards multifunctional job assignments, supported by programs of training and productivity. Overall, salaries are lower than before. In February 2007, the firm changed its name again, to ATENSA, S.A. de C.V., Empaques de Cartón Titán, S.A. de C.V.

RESULTS AND DISCUSSION

Reviewing the data from the individuals living in Atenquique and working at the company reveals that 96% of them began living and working there before the crisis. The older interviewees commented that they had started to work in this company or in other companies within the same group, such as Unión Forestal de Jalisco y Colima, Aserraderos Técnicos, etc.

Another important change commented on was the closure of the Section XI of the Union Workers in the year 2001, when most of the workers were fired. To disband the Workers Union, the company closed its operations and declared bankruptcy. Only a part of the union workers were hired under contract, just to find that after the end of this contract, they would be transferred to another company in the group, with the same terms and conditions under a new contract.

Answers to question "What are the most important labor changes that you have witnessed in your work?" implied explicitly the time when the interviewee began to work for the company and the required competencies for good performance and higher productivity at work. Other answers reported that the most important changes for the employees and workers who lived in Atenquique were the adjustment and adaptation to the work, job promotions

in the company, changes in the information and data systems, personnel reduction, and new hires.

Out of 40 interviewees, 37 agreed that the turning point was in September 2001 when after the crisis, the Union was eliminated and the company under a new name began operations again, hiring workers without experience and without fringe benefits and job requirements. The pressures were higher on efficiency, productivity, with less resources and new challenges. The employers kept the same wages, while the workers had lower salaries and fewer fringe benefits than when the company was owned by the Mexican State.

They also agreed that there was more pressure and the labor environment and labor climate were tense and stressful in contrast to the times when the company was owned by the Mexican State: employees and workers had a more relaxed environment, less pressure on assignments and more personnel had been assigned to perform the same duties. Now under the new management, the stress levels increased when the employees and workers were required to take care of resources and some fringe benefits such as tires for cars, gas bonuses, profit sharing, etc., had disappeared.

Four of the interviewees captured the situation stating that during the earlier period, supervision was difficult because the operative personnel with Union membership were lazy and negligent. When the new company started in September 2001, after the declared bankruptcy and crisis of the former company, all the personnel with union membership were fired, some of them were rehired but most of the personnel were new hires.

Responses to the question "Have these labor changes affected you positively or negatively?" could also be analyzed in terms of their personal job experiences at the company, more participation of workers, earning more money, more labor options, learning more, and the opportunity to have a job. 28 of the interviewees declared that the labor changes at the company had favored them because they have received more training. Seven of the respondents concluded that they had been more motivated by all the events caused by the globalization changes, commercial treaties, and unemployment, which had caused the people to value the sources of jobs more and they appreciated the struggle of the company to survive in the Southern region of Jalisco.

Five interviewees reported that labor changes had benefited them because they had achieved promotions, in rank and salaries; yet another declared that although the labor changes were more stressful and there was more pressure, he perceived that the changes had been positive. He also argued that because of the devaluation of the acquisitive power of wages, he

had to achieve the goals set to keep the job. In general terms, those employed at the company perceived that since they had started to work they had improved in terms of attitude and productivity, which is positive. Personnel had acquired more abilities and had become multifunctional: a mechanic now knew welding, painting, etc. Earlier, he had always worked with a partner, but now, he worked alone.

Among the negative effects of the labor changes at the company, reported by 39 out of 40 interviewed, were that they worked under more pressure, worked longer than the ordinary labor day of eight hours, without receiving overtime payment or negotiation of worked hours in exchange for more flexible time when required for personal problems such as health attention, etc. Other effects were lower salaries and less employees and workers. An interviewee declared as negative, job pressure and stress in achieving productivity goals, better results at less costs.

Another negative aspect reported by an interviewee was that the labor environment is difficult and stressful. The managers of the company were obliged to show profits by pressing and obligating personnel to perform better. He states that "it has been managed psychologically to make us believe that we are the owners of progress and we are responsible for good results". The emphasis was on always improving productivity, and it was an objective that was constantly scaled upwards.

REGIONAL ECONOMIC AND ENVIRONMENTAL DEVELOPMENT

Economic impact

Atenquique had a preponderant role in the provision of paper during the second-half of the last Century, but also it had a large impact on the economy of more than 1,750 workers' families, and through the process of trickle down, on the local and regional businesses; although it also contributed to social differentiation (Gabayet, 1977; Gabayet y Rodríguez Aviñoá, 1977).

Once the "economic engine of Southern Jalisco" closed its doors, after operating for more than 55 years, the labor conflict turned into a social and economic clash not only in the region of Southern Jalisco, but also at the level of the State of Jalisco. The labor conflict had not only an economic impact, it had other implications: 95% of the workers of the company in Atenquique were from Tuxpan, a municipality with 33,000 inhabitants.

The cultivation of sugar cane and vegetables is the main economic activity of Tuxpan.

From March 1995 to December 2000, investments in the Southern region of Jalisco added 55 million US dollars, which represented 98% of the total investment in the State of Jalisco. (Secretaría de Promoción Económica del Gobierno del Estado de Jalisco, 1995-2001).

The company provided more than 1,000 jobs in the form of direct employment and more than 4,000 jobs indirectly and this had an economic impact not only in Atenquique but in the neighboring cities of Tuxpan and Ciudad Guzmán and the towns of Zapotiltic and Tecalitlán. It was calculated that the economic spillover was around 150 pesos daily per employee on average, which amounts to 750,000 per day or 22'800,000 per month.

The loss of salaries affected 650 workers and 300 employees, and had an impact on the living standards of 4,750 inhabitants. It was estimated that 4 out of 10 families in the municipality of Tuxpan depended on the Atenquique worker's income. More than 600 families were directly affected in terms of their income. The immediate impact on the local economy of Tuxpan was a 60% fall in sales and this in turn had an impact on sales, which decreased in the regional market of Ciudad Guzmán. Although there were no estimates, the percentage must have been a little less than the figure for Tuxpan.

A study commissioned by the State Legislature concluded that the multiplication effects of the spillover of salaries was estimated at around 800,000 pesos per month only in the municipality of Tuxpan, but it should be considered to have had an impact on Mazamitla, Tecalitlán, Tamazula de Gordiano, Tolimán, Zapotiltic, Zapotlán el Grande and some locations in the State of Colima, limiting consumption and eroding living conditions.

The economic effects of the labor conflict were visible at the *tianguis* (the street market) on Sunday, where fewer customers than before went to buy. The earned wages had an impact on the direct economic sustainability of families and also indirectly, as it was dependent of the labor conflict. For example, as a consequence of the labor conflict, there was an estimated reduction of around 40% in the income of restaurants.

The average seniority of workers and employees who had a legitimate aspiration to achieve pension was around 20 years of service. Most of these workers had not had any other opportunity to be employed or to start their own businesses because of the backwardness in terms of economic development of the region. Because of this condition the region has been favored in fiscal terms.

The social impact as analyzed by the State Legislature implied that the closure of the company could be the origin of disintegration, and would

lead to health, nutrition, education, migration and criminal problems. The Economic Promotion Secretary announced that problems would be diagnosed to find solutions and economic alternatives for the problems derived from the firing of workers.

The Municipal President of Tuxpan suggested that some corrective measures had to be taken in order to attract more investments to the municipality and to avoid being highly dependent on one company. Korean entrepreneurs involved in the metal mechanics industry wanted to establish a plant in the municipality of Tuxpan. It was viewed as an alternative to create employment, but unfortunately, the negotiations went wrong. In fact, the Municipal President, Rúa Laureano, had bet on the Korean investment, which should have generated 3,000 jobs in the short term and 10,000 in the long term, although women were to be employed. This plant could have interrupted the trend toward migration of the younger generation, a movement that leaves behind towns without young men.

The future of the population of Atenquique is uncertain. Houses built by the firm during the 1940s and given to the workers, employees and managers, are now in process of deterioration and destruction. When the General Director was interviewed regarding this situation (*El Sur*, 2007), he commented that housing restoration and rehabilitation was not a priority. He also added that around 1,750 people working for CIDASA and its sister firm Forest Union, were in need for housing and accommodation. Nowadays, less people than before are living in Atenquique and they prefer to live in the nearby cities and towns where they can fulfill more easily their expectations. Thus, houses that are not going to be repaired and left behind are a reminder of the golden times when the inhabitants of Atenquique enjoyed a prosperous life.

Environmental impact

From the second half of the past century, the environmental degradation in the area has been significant and has reached alarming dimensions, surpassing the capacity for natural regeneration of forest communities. The most serious problem of the southern region of Jalisco has been the irrational deforestation, which started with the opening of the CIDASA (now GIDUSA). The Federal Government also modified the limits to shrink the protected area, from 2,300 meters above sea level to 3,000 meters. These limits have never been well defined and have always been confusing.

Thus, the company took advantage of the National Park and brutally ruined the forest resources of the Nevado de Colima's area. When it started to exploit the forest, it had the capacity to transform around 200,000 cubic meters of lumber per year, which meant an enormous quantity of trees was being felled.

The abundant supplies of ecological resources, without almost any restrictions, led the company to overexploit more than 230,000 cubic meters of lumber annually, above the sustainable capacity for regeneration of forests. In this way, Atenquique raised its production to more than one million cubic meters of lumber, five times more than the regenerative capacity of the forest. This caused an ecological debacle.

As a result of 50 years of forest exploitation, the secondary vegetation and deforested areas were utilized for agriculture and cattle, infrastructure, and commercial exploitation. The company sub-utilized the forest resources, not having any plans for the production of byproducts derived from lumber. The company exploited pine for manufacturing paper and the holm oak for the furniture industry, but never exploited hundreds of tons of wood shavings that were wasted. Although it should be mentioned that local communities have taken advantage of them.

Many owners of forests decided to exploit the resources on their own, leading to the establishment and proliferation of sawmills around Ciudad Guzmán, where more than 25 were operating and exploiting the forests for no reason, argues García de Alba (2004). This irrational exploitation of forests is the cause of sudden landslides of rubble and debris. Once the natural forest disappears, the roots of the trees cannot retain material and cannot maintain a compact ground. Because of the high slope of the hills, the water erodes the ground and causes the removal of materials.

Several systems of forest management were implemented based on the needs, such as the Mexican Method of Irregular Forests Use (Método Mexicano de Ordenación de Bosques Irregulares or MMOBI), Forestry Development Method (Método de Desarrollo Silvícola or MDS), Jalisco's Coastal Plan (Plan Costa de Jalisco), Integral Management Plan for the Region of Atenquique (Plan de Manejo Integral para la Región de Atenquique or PMIFRA), Forestry Conservation and Development System (Sistema de Conservación y de Desarrollo Silvícola or SICODESI), Integral Management System (Sistema de Manejo Integral or SIMANIN). However, the results of implementing these plans have not been positive, corruption being the main possible factor.

After the earthquake of Armería on January 21st, 2003, the geomorphology dynamics of the Atenquique basin had been accelerated. These

dynamics can generate flows of detritus in the short term, as it had occurred in October, 1955, which led to the large-scale destruction of Atenquique. Natural phenomena, such as the shifting of hills and solifuction –when the materials suddenly and quickly disintegrate– create floods, which are the cause of natural disasters.

The other area of high landslide concentration is along a 6 km stretch of the Barranca de Atenquique, a deep, steep-sided canyon cut into the eastern flank of the Nevado de Colima. On the southern flank of the Volcán de Fuego and along several smaller canyons to the south of the Barranca de Atenquique, moderate landslide concentrations have evidently involved similar materials to those along the Barranca de Atenquique.

GIDUSA's spilling of sewage on the Tuxpan river polluted the running waters, putting at risk many forms of life, mainly animals (García, 2004).

FINDINGS

As an industrial enclave, Atenquique reorganized its activities focusing on the exploitation and production of forest and timber. The reorganization contributed to a drastic differentiation of the working class in the region.

The transfer of ownership from the State to a private firm had several implications for the workers and employees. Under a re-engineering program, redundant personnel were fired, salaries and wages were lowered, and fringe benefits were reduced. As a consequence, free housing for the worker's families was not provided anymore and the town started to shrink.

One relevant finding derives from the analysis of data, which confirms a trend toward a decline in population and shrinkage in housing. This trend started immediately after the company was transferred to a private ownership.

More important is the deterioration of infrastructure, including schools, casinos, sewage, electricity, and so forth.

During the second-half of the last century, Atenquique used to have an important role in supplying the paper needs of Mexico, but that is not the case anymore. While it is narrowly tied to the availability of natural resources and under the pressure of the economic processes of globalization, the economic growth and environmental development of Atenquique are weak and unstable.

RECOMMENDATIONS AND POLICY IMPLICATIONS

At the macro level, it is necessary to change the existing framework of the Mexican Constitution and the regulatory national and state laws regarding environmental, natural resources and sustainability issues. More specifically, it is necessary to change the law concerning the conservation of forests, in such a way that the exploitation of lumber should be more rational and should follow the principles of community sustainability. New legislation and the creation of new institutions to foster the sustainable development of forests and jungles are needed.

Forests have been raised to the category of a national security issue with full recognition of their implications on economic development, and under this banner, the federal government took up the Forestry National Plan. However, there is evidence from different studies that disproves the official figures and proves that the forest issue has fallen to priority number 40 or lower under the federal government, paving the way for the total extinction of forests and jungles. The causes of forest and ecological deterioration and its implications on economic growth and social development are linked to the application of inappropriate public policies. Public policies are desperately needed to improve the economic growth and social development of the communities that have depended largely on natural resources at protected natural reserve areas.

The government budget for forestry has to be increased from the current 0.01% of the overall budget, and support programs are also required to be targeted broadly at forest areas. Financing to bring change is lagging far behind. PROFEPA, the Federal Agency for Natural Resources Protection, has the duties of environmental surveillance and auditing, industrial inspection, managing formal complaints and implementing revisions of legal dispositions. It faces many challenges in procuring environmental justice and has been charged with corruption. Corruption is endemic among officials because of the low salaries of the inspectors; to cut down corruption, action is required to raise wages. Illegal activities involving timber extraction in forest communities cause deterioration of forests and disrupt community life. The new measures with over-regulation have proved to be more harmful to community practices for sustainable management and use of natural resources.

Deforestation will remain a major problem in Southern Jalisco with serious consequences in terms of soil erosion, which in turn threatens biodiversity, causes the disappearance of natural habitats and creates a change of microclimates. A number of initiatives are required to solve the problems

of illegal activities in timber extraction, such as illegal wood cutting from protected forest land areas. The forests around the cities, townships, and villages have been devastated by small scale logging concessions. Actions aimed to slow down deforestation and to increase reforestation should be encouraged and taken not only by local governments but also by communities and small private land owners and holders of communal land (*ejidal*). Local governance, forest management programs and incentives to foster the sustainable use of natural resources are required for the practice of community forestry. In places where community forestry is practiced, local governments and landholders tend to protect natural resources.

Communities in Southern Jalisco, such as Atenquique, that had earlier been dependent on forestry and lumber for income, need to diversify into economic activities such as environmental and rural tourism, and have to take advantage of the surrounding regions by organizing nature treks. Forestry can be linked to ecotourism and other environmental activities and non-timber products such as botanicals, art crafts, etc. Besides, local governments should promote alternative employment programs based on the sustainable management of natural resources.

One of the main implications of the findings of this paper is that natural resources management should be the foundation for any strategic planning of regional development involving all the actors and agents in order to generate the appropriate conditions for the welfare of the community.

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ACRONYMS¹

AB	Alce Blanco Industrial Park (Mexico)
ABC region	Santo André, São Bernardo do Campo and São Caetano do Sul in Brazil
ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
BHPB	Broken Hill Proprietary Billiton Co.
BIP	Mexico's Border Industrialization Program
CBDs	Central Business Districts
CIDASA	Atenquique's Industrial Company
CIES	Centro de Investigação e Estudos de Sociologia (Research and Sociology Studies Center)
CMS	Contract Manufacturers
CMS	Contract Manufacturing Services
CONAPO	Mexico's National Population Council
CPS	Current Population Survey of the United States
DF	Federal District
DNPB	Panama's National Office of Historic Heritage
EMS	Enterprise Management Solutions
FDI	Foreign Direct Investment
FIDEIN	Fiduciary for the Study and Promotion of Parks, Industrial Cities and Commercial Centers
FIN	Naucalpan Industrial Park (Mexico)
FOGAIN	Fund for the Financing of New Industrial Initiatives of Small and Medium-Size Businesses
GATT	General Agreement on Tariffs and Trade

¹ The acronyms do not always correspond to the English language.

GDR	German Democratic Republic
GDP	Gross disposable product
GIDUSA	Industrial Group of Durango
GIZ	Guadalajara Industrial Zone
GMA	Guadalajara Metropolitan Area
GM	General Motors Company
HP	Hewlett Packard
IADB, IDB	Inter American Development Bank
IBGE	Brazilian Institute of Geography and Statistics
ICET	Telecommunications and Computer Electronics Industry
ICOMOS	International Council on Monuments and Sites
ICT	Information and Communication Technology
IHD	Index of Human Development
IME	Export Oriented Maquiladora Model
IMF	International Monetary Fund
INAC	Panama's National Institute of Culture
INEGI	National Institute of Statistics, Geography and Informatics
ISI	Import Substitution Industrialization
JIP	Jalisco Industrial Park
JIT	Just in Time Inventories
KIBS	Knowledge Intensive Business Services
KISA	Knowledge Intensive Service Activities
LGAs	Local Government Areas
LNNI	Law of New and Necessary Industries
MCMA	Mexico City Metropolitan Area
MDS	Forestry Development Method
MIM	Mount Isa Mines Co. (Australia)
MITEZ	Mount Isa to Townsville Economic Development Zone (Australia)
MMOBI	Mexican Method of Irregular Forest Use
MNCs	Multinational Corporations
MTS	Mining Technology Services
NAFTA	North American Free Trade Agreement
NEET	Not in Education, Employment or Training
NIE	New Industrializing Economies
OCA	Panama's Office of the Antique Center
ODPM	Office of the Deputy Prime Minister of the United Kingdom
OEMs	Original Equipment Manufacturers
OECD	Organization for Economic Co-operation and Development

OREMs	Original Regional Equipment Manufacturers
PCJ	Jalisco's Coastal Plan
PITEX	Mexico's Temporary Import Program for Export
PMDU	Municipal Plan of Urban Development
PMIFRA	Integral Management Plan for the Atenuique Forest Region (Mexico)
PROFEPA	Mexico's Federal Agency for Natural Resources Protection
PROSOFT	Mexico's Software Industry Program
PUEC	Programa Universitario de Estudios sobre la Ciudad (University Program of City Studies, Mexico)
R&D	Research and development
RIS	Regional Innovation Systems
SAP	Structural Adjustment Programs
SAPRIN	Structural Adjustment Participatory Review International Network
SCiRN	Shrinking Cities International Research Network
SICODESI	Forestry Conservation and Development System
SIMANIN	Integral Management System
SS	Service suppliers
TGV	Great Velocity Train
TV	Television
UIEF	Industrial Unit of Forest Exploitation
UN	United Nations
UNAM	Mexico's National Autonomous University
UNESCO	United Nations Educational, Scientific and Cultural Organization
US	United States
USA	United States of America
USAID	United States Agency for International Development
VW	Volkswagen Company
WCR	Mexico's West Central Region
WTO	World Trade Organization
WHS	World Heritage Site

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SERIE MIGRACIÓN Y DESARROLLO URBANO-REGIONAL

El proceso multidimensional del desarrollo está profundamente ligado a la migración entre países, regiones o localidades. Producto de la desigualdad, la migración se genera en los espacios que enfrentan dificultades e incluso la imposibilidad de desarrollarse y se dirige hacia aquellos que concentran la riqueza. La serie Migración y Desarrollo Urbano-Regional, impulsada por la Universidad de Guadalajara, el Programa para México de la Universidad de California en Los Ángeles (UCLA) y el PROFMEX/World (Consortio Internacional de Investigación sobre México), difunde diversos puntos de vista y perspectivas de análisis académico que tienen como eje estas complejas relaciones.

Dirigen esta serie y coordinan su comité editorial James W. Wilkie de UCLA y presidente del PROFMEX y Jesús Arroyo Alejandre, miembro de este Consorcio y profesor del Departamento de Estudios Regionales-INESER del Centro Universitario de Ciencias Económico Administrativas de la Universidad de Guadalajara. Los volúmenes publicados en ella son distribuidos por las editoriales que colaboran en su edición y en línea a través de una página *web* que ofrece también los volúmenes de la Serie Ciclos y Tendencias en el Desarrollo de México, dirigida asimismo por los profesores Wilkie y Arroyo.

1. *Principios de estudio regional. Espacios concluidos en red y regiones sin límites*, Margarita Camarena Luhrs y Teodoro Aguilar Ortega (coords.), Universidad de Guadalajara, UCLA Program on Mexico, PROFMEX/World, Juan Pablos Editor, 2009.
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