TRANSBOUNDARY

IN THE PACIFIC BORDER REGIONS OF NORTH AMERICA

edited by
JAMES LOUCKY,
DONALD K. ALPER,
AND J. C. DAY

UNIVERSITY OF
CALGARY
PRESS

University of Calgary Press
2500 University Drive NW
Calgary, Alberta
Canada T2N 1N4
www.uofcpress.com

Library and Archives Canada Cataloguing in Publication

Transboundary policy challenges in the Pacific border regions of North America / edited by James Loucky, Donald K. Alper and J.C. Day.

Includes bibliographical references and index.
ISBN 978-1-55238-223-3

1. Environmental policy–North America–International cooperation. 2. Environmental management–North America–International cooperation. 3. Environmental protection–North America–International cooperation. I. Loucky, James II. Alper, Donald K. III. Day, John C. (John Chadwick), 1936–

GE190.N7T73 2007 363.7'0526 C2007-905579-6

The University of Calgary Press acknowledges the support of the Alberta Foundation for the Arts for our publications. We acknowledge the financial support of the Government of Canada through the Book Publishing Industry Development Program (BPIDP) for our publishing activities. We acknowledge the financial support of the Canada Council for the Arts for our publishing program.

Alberta Foundation for the Arts | Canada | Canada Council for the Arts | Conseil des Arts du Canada

Printed and bound in Canada by AGMV Marquis
This book is printed on FSC Silva Enviro paper

Cover photo top: Twin border roads, British Columbia/Washington State, set against Mount Baker, WA (photo by J.C. Day, August 2007).

Cover photo bottom: Border barriers between Tijuana and Otay Mesa, San Diego (photo by James Loucky, November 2001).

Cover design, page design and typesetting by Melina Cusano

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Acknowledgments

The magnitude of contemporary global economic developments and the gravity of environmental dilemmas underline how the capacity and health of natural systems are increasingly linked to the priorities and institutional arrangements of human communities. People are compelled to think and act in new ways, including through engaging more actively in international research and civic activities. Emerging from this sense of urgency as well as optimism about the potential synergies of cross-border efforts, this book represents a collaboration among scholars in the three countries of North America. Seeds for this book were nurtured further through a workshop on "Border Bio-Regions and Coastal Corridors" held in Bellingham, Washington, and Vancouver, British Columbia, in October 2001. Critical support was provided by a trinational grant awarded by the Bureau of Educational and Cultural Affairs, of the U.S. Department of State, to Western Washington University, Simon Fraser University, and El Colegio de la Frontera Norte (COLEF).

Many people contributed to the success of the transboundary activities reported in this book and to the book itself. The initial spark was set by Jorge Bustamante, founder of COLEF, who envisioned a time when cross-border and trinational knowledge would become standard for preparing new policy researchers in the countries of North America. We are grateful for the consistent support provided by Maria Urbina of the Bureau of Educational and Cultural Affairs, U.S. Department of State. Viva Barnes, Administrative Services Manager in the Department of Anthropology at Western Washington University, has been invaluable throughout the course of our efforts. We are also grateful to

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RECENT TRENDS IN MEXICO-U.S. BORDER DEMOGRAPHICS

Cristóbal Mendoza and James Loucky

Abstract

The extent to which there is a unique border region in sociodemographic terms carries strong implications for effective long-term planning and potential binational growth management strategies. The debate on demographics of the U.S.-Mexican border area has shifted from highlighting similarities across the border to emphasizing how trends in the border region follow respective national patterns rather than determining distinctive cross-border trends for the whole region. This chapter analyses recent Mexican and U.S. census data for the municipalities and counties in the large border region that encompass all or most of nine Mexican and five U.S. states. With the exception of migration, there is little evidence of a unified border region in demographic terms; rather there are striking differences in population distribution, density, and age profiles on both sides of the border, patterns which in turn impact use of resources and environmental health.

Introduction

The Mexico-U.S. borderlands are unique in many respects, and demography is no exception. Border populations within each country are often the result of long-distance migration from within Mexico and the United States, or from other countries. The international border milieu also connotes a geographic and cultural imprint on the population of the region, well documented in the literature and popularized in music and film. Reflecting how borders simultaneously integrate and separate, residents to a large extent share common characteristics associated with shared problems – such as versatility, transnational interactions, and accommodation (Martínez 1994) – at the same time that separateness and south-north symmetries prevail (Ruiz 2000). Still, conceptualizing and quantifying the border is difficult. This is in large part because cross-border statistical data are not often collected and because the census bureaus of Mexico and the United States conduct their respective surveys according to different interests and purposes. In addition, the bulk of border demographic studies have concentrated on one country or the other, with few exceptions (Weeks and Ham-Chande 1992; Howard 1994; Rubin-Kurtzman et al. 1996; Peach and Williams 2000). Nonetheless, it is possible to identify a number of comparable census variables across the border (Pick et al. 2000), in order to determine the extent to which there is a unique border region in sociodemographic terms.

In the last half century, the U.S.-Mexico border region has experienced some of the greatest population growth and economic expansion as anywhere in the world. In addition to consuming substantial amounts of natural resources, including water and energy, this dynamism causes serious pollution problems and overall deterioration of ecosystems. This chapter analyzes recent demographic trends on population distribution and growth, age structure, and migration in the U.S.-Mexico borderlands based on selected comparable census variables in each country. The objective is to identify the extent to which the international line demarcates demographically, as it does economically and politically, and conversely whether it is an effective deterrent to spatial diffusion in sociodemographic respects. These border demographic patterns in turn have significant implications for overall environmental impact or remediation in an extraordinary, and fragile, transnational region.

Early sociodemographic studies of northern Mexico focused on its particularities with respect to the close proximity to the United States (Bustamante 1981; Ham-Chande and Weeks 1988). The essence of the argument was that strong interaction effects of movements of people, capital, and goods across the international line influenced population patterns in the region. Even if explicitly stated, this literature considers diffusion effects from the U.S. to Mexico to be the basis for change. For example, an early demographic transition in northern Mexico compared to the rest of the country was attributed to spatial congruity of the two nations (Coubès 2000). In the 1990s, sociodemographic studies of northern Mexican states also began comparing trends in the region with those elsewhere in the country. These studies generally concentrated on single events, as Quilodrán (1998) did for marriage, and in general devoted little attention to interconnections between events in, or parts of, the region. An exception is the work of Estrella et al. (1999), which analyzes the impact of migration on fecundity and family patterns in northern Mexico.

In the United States, on the other hand, studies of the sociodemography of the Southwest concentrate on migration and ethnicity, with the flow of undocumented workers and the use of the Spanish language being the most popular topics (Bean et al. 1992), in addition to poverty (Betts and Slottje 1994; Ward 1995). While not always stated clearly in the debate on poverty, the interconnections of immigration and Mexican proximity to the U.S. are generally assumed. Certainly this coincides with popular views about migration in U.S. border towns (Vila 2000). Yet the debate on the relationship between poverty and migration goes beyond the border area. For instance, Sassen (1996) argued that structural conditions of urban labour markets, rather than characteristics of the labour force, are the fundamental reasons for the precariousness and downgrading of jobs in the United States.

The debate on border demographics has been influenced by parallel controversy regarding the definition and extent of the border region (Ham-Chande and Weeks 1988; Martínez 1994; Zenteno and Cruz 1992). Some authors (Bustamante 1989; Herzog 1990) assert the existence of a common U.S.-Mexico region contiguous to

the international border, while others (such as Alegría 2000) criticize such conceptualizations as lacking a convincing theoretical base or empirical frame of reference. Resolution of the debate requires delineating and comparing the essential demographic features of this huge area, one that is situated north and south of an international border that extends nearly three thousand kilometres.

Population Distribution, Density, and Growth

In the extensive Mexico-U.S. border area, which covers all or part of nine Mexican and six U.S. states, population – and associated demand for available or imported resources, along with pollution – is heavily concentrated in binational corridors (figs. 3.1 and 3.2).

- *Californian cities along the Pacific coast.* The area from Los Angeles to Tijuana is a densely urbanized region (258.4 inhabitants/km^2), with a population of nearly 20.5 million people in 2000, twice the size of countries like Portugal or Cuba. With the exception of Tijuana, this area experienced lower annual growth in the 1990s than in the 1980s. However the area continues to grow rapidly in absolute numbers, with the regional population increasing by almost 4 million from 1980 to 1990, and by more than 2 million in the 1990–2000 period. San Diego and Tijuana represent the fastest growth of all. In the 1980s, San Diego experienced the highest increase in absolute numbers of any border city (636,170 people), though Tijuana grew fastest overall in relative terms (4.8%). Tijuana's growth accelerated still further in the 1990s, in both absolute numbers (526,859) and in relative terms (5.3%).
- *Texas–Tamaulipas–Nuevo León corridor.* The region extending from Dallas to Monterrey, and including Austin, San Antonio, and the two Laredos, had a population that rose from 7 million (7,238,570) in 1980 to 12 million (12,095,423) in 2000. While this corridor lacks the urban and geopolitical continuity that characterizes the California coast, traditional economic relations between Monterrey and the U.S. southwest justify considering the cities along Interstate 35 in Texas and Route 84 in Tamaulipas–Nuevo León as a unique region. Monterrey's manufacturing growth has depended heavily on export industries, and on migration and easy transportation links between San Antonio and northern Mexico (Cerutti 2001). Commensurate population growth is evident mainly in the 1990s. Comparing urban areas in relative terms, the Austin–San Marcos Metropolitan Area experienced the highest annual growth rates in both periods (3.7% in the 1980s and 3.9% in the 1990s). For other metropolitan areas (the Laredos, Killen-Temple, Dallas, Fort Worth–Arlington, and San Antonio), growth was also more pronounced in the 1990s than the 1980s.
- *Border cities.* Except in the case of the Californias and Ciudad Juárez–El Paso, border communities do not constitute extremely high-density zones, but they nonetheless significantly affect regional population as well as urbanization. The so-called "twin cities" of San Diego–Tijuana, Mexicali-Calexico, Ciudad Juárez–El Paso, Laredo–Nuevo Laredo, Reynosa-McAllen, and Matamoros-Brownsville had a combined population of almost 9 million people in 2000. In absolute numbers, these cities experienced similar annual growth rates in the 1980s and 1990s, of 2.9 per cent and 2.8 per cent respectively. All Mexican border cities gained more population in relative terms in the 1990s than in the 1980s, with Nuevo Laredo leading the way, accelerating from 0.8 per cent annual growth in the 1980s to 3.5 per cent in the 1990s. For U.S. border towns, east-west differences are evident, with relatively greater growth between San Diego and El Paso in the 1990s, compared to a slower rate of growth in the westerly Texas border towns in the 1990s. Other notable centres of population seen in figure 3.1 are the state capitals of Saltillo, Coahuila, and Chihuahua in northern Mexico, and Las Vegas, Tucson, Phoenix, Albuquerque, Corpus Christi, and Amarillo in the U.S. southwest.

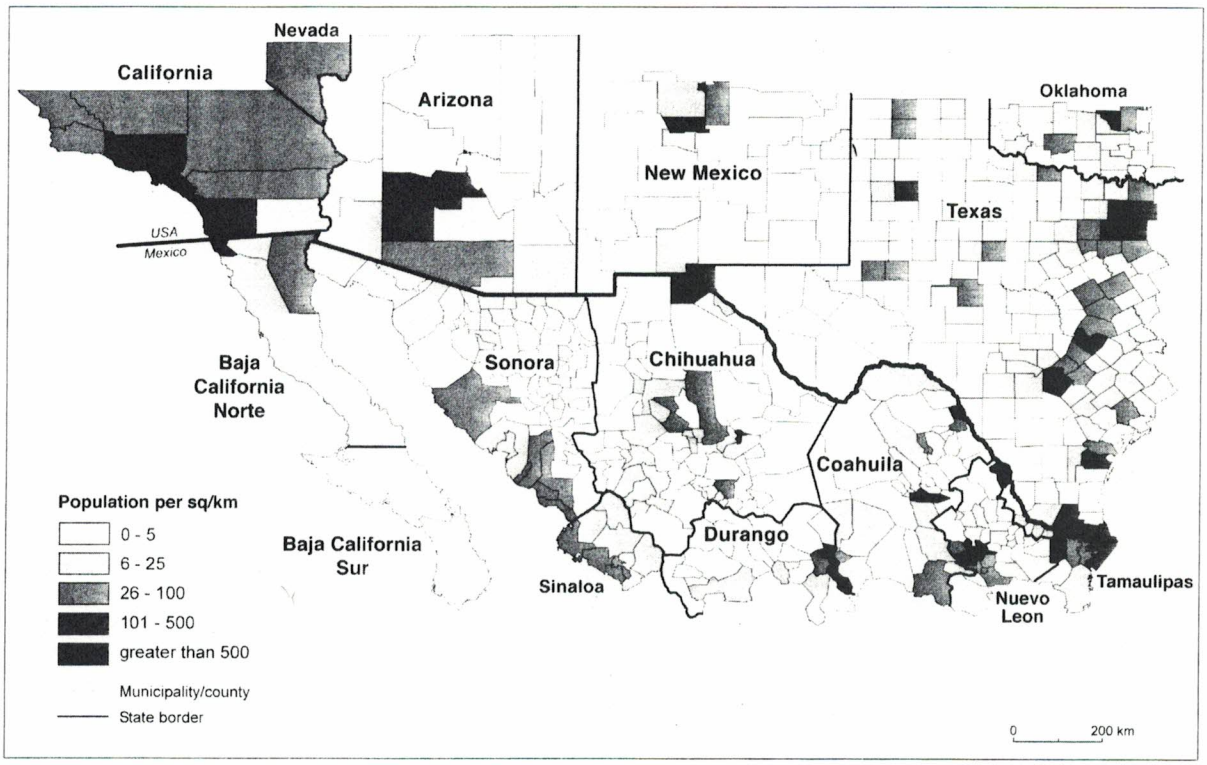

Figure 3.1 Population Density (1990)

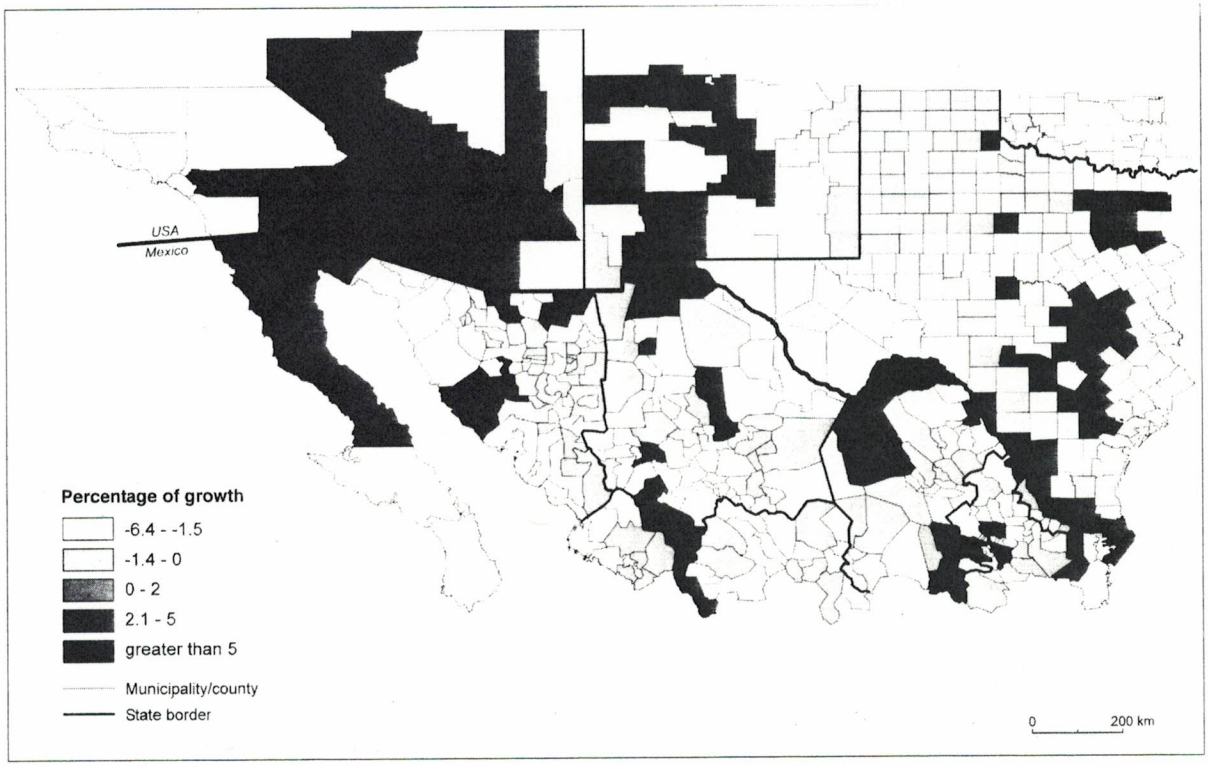

Figure 3.2 Annual Growth Rate (1990)

Viewed conjointly, the populations of all border regions increased in both decades, though the trend was towards slower growth in the 1990s for some cities, especially in the west. Overall the region remains scarcely inhabited. Almost all New Mexican counties, northern Arizona, and most of western Texas had five or less inhabitants per km^2 in 2000. For northern Mexico, non-border inland Sonora, plus large parts of Chihuahua, Baja California Sur, Durango, and Coahuila exhibit the same pattern of low population density. The exceptions are zones of rapid rural-urban and urban-urban migration, where high densities place corresponding stress on limited resources such as water. Most notable are the municipalities of Tijuana and Monterrey, which had densities exceeding 500 inhabitants per km^2 in 2000, while in the U.S., densities reached as high as 500 inhabitants per km^2 in Los Angeles and Orange Counties on the California coast and two counties in the Dallas–Fort Worth Consolidated Metropolitan Area.

The polarization of population growth is evident in the fact that many border regions with low population densities experienced negative annual growth rates during the 1980–2000 study period (fig. 3.2). Sonora, for instance, displays high population growth along the Pacific coast and the border area, in contrast to inland areas of the state. Similarly, whereas west-Texas rural areas experienced depopulation in the 1990s, middle-sized cities such as Amarillo, the Dallas–San Antonio corridor, and the border towns gained new inhabitants.

By contrast, the areas with the fastest population growth are Tijuana and Las Vegas. Las Vegas, habitable only because of a huge draw on the Colorado River, had the largest annual growth of all counties and municipalities in the border. Clark County, where Las Vegas is located, almost doubled its population in both the 1980s (from 463,087 to 741,459 in 1990) and the 1990s (increasing by another 634,306); in relative terms this was an annual growth of 4.7 per cent for the 1980s and 6.2 per cent for the 1990s. Tijuana, a municipality whose irregular topography makes building difficult and which lacks the natural harbours of Ensenada to the south and San Diego to the north, experienced spectacular growth in both absolute and relative terms between 1980 and 2000. Clearly, population growth or decrease relates to factors other than traditional geographical conditions.

Age Structure and Migration

The age structure is dramatically different on the two sides of the border, with Mexicans being considerably younger than their American neighbours. For the United States, the proportion of population under five years is 10 per cent or lower throughout the region, with the exception of three border Texan counties, which have high immigration from Mexico (fig. 3.3). This contrasts sharply with Mexico, where this is the case only in small rural municipalities which are depopulating, such as in the Tarahumara mountains and the Chihuahua desert. This north-south contrast is also clear when viewing the population that is 65 and older (fig. 3.4). Those 65 and older constituted more than 5 per cent of the total population in every county in the U.S. southwest in 2000, with the exception of Denton County in the Dallas Metropolitan Area. Most counties have at least 10 per cent who are 65 or more, and many have over 20 per cent. In contrast, no municipality in the Mexican border region has 20 per cent of its population aged of 65 or more, and most have less than 10 per cent. For example, Baja California has no municipality with more than 5 per cent of people of this age.

Clearly, counties on both sides of the border are in different stages of the demographic transition. In Mexico, younger people move north for jobs, while the U.S. side attracts older persons, both those moving for employment as well as retirees, including so-called "snow birds" escaping to what has become known as the "sun belt."

Apart from these major cross-border differences, more subtle similarities regarding age structure patterns across the border are also evident. For example, areas with large indigenous populations, such as Navajo County in Arizona or Guadalupe y Calvo in Chihuahua, stand out as having higher percentages of children and fewer old people than the rest of the U.S. southwest and northern Mexico. This explains differences in age structures within the rugged Sierra Madre Occidental in Mexico. Population growth is negative toward the north, while the mountainous Baja Sierra Tarahumara in southern Chihuahua shows considerable positive population growth. This is associated with sizeable indigenous Tarahumara and Tepehuan communities, with shorter life expectancy, higher fertility, and low emigration combining to produce younger populations.

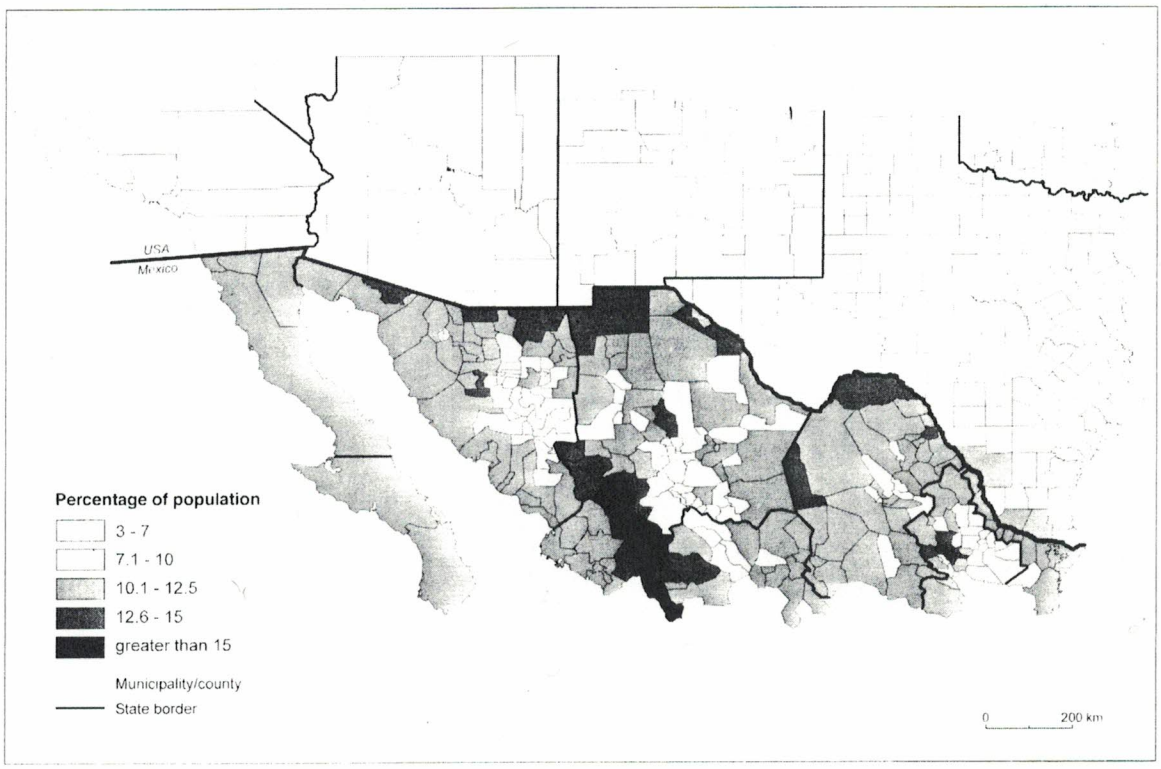

Figure 3.3 Population Less Than 5 Years Old (2000)

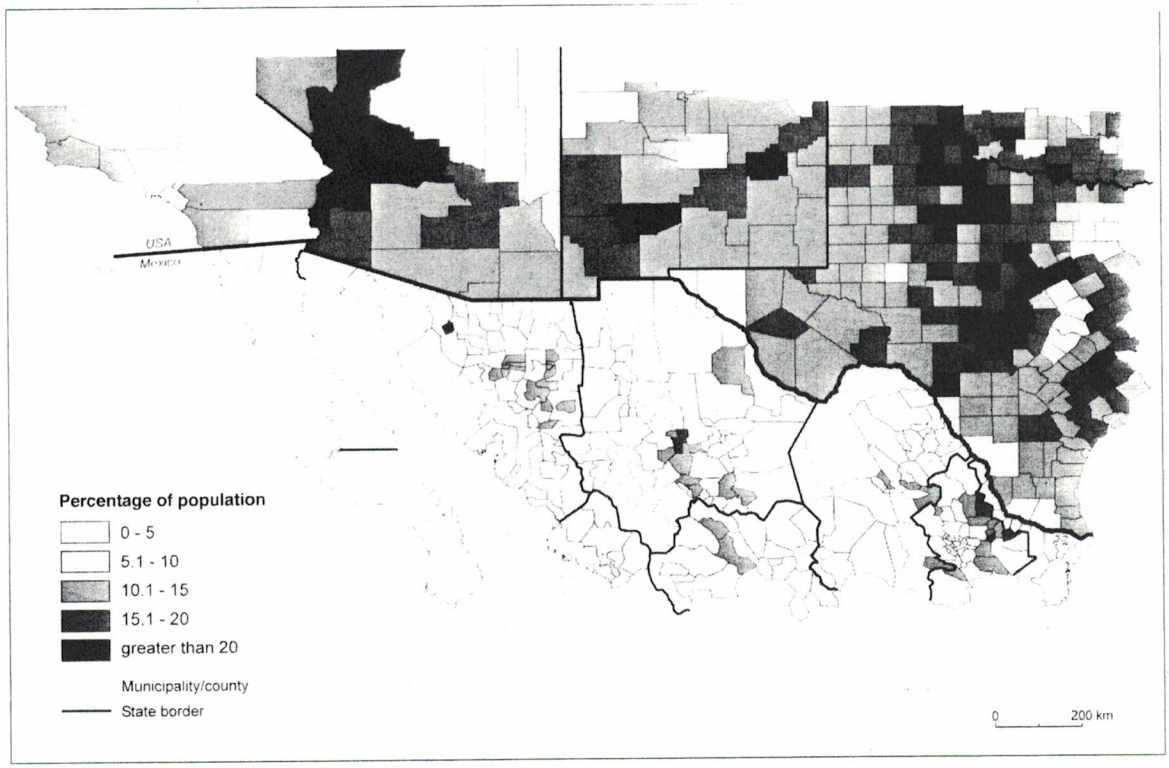

Figure 3.4 Population Greater Than 65 Years Old (2000)

Beyond national differences, then, variance in migration behaviour among "sending" communities is also critical to examine. Generally speaking, cities on both sides of the border have younger age components in their population structures than rural peripheries, though this is truer for the United States than for Mexico. Indeed differences are more striking between rural and urban areas in the U.S. southwest than in Mexico, where the pattern is less clear. This perhaps relates to dissimilarities in migration behaviour in the two countries. Although the trend seems to be changing (Marcelli and Cornelius 2001; Lozano 2002), men are still overrepresented in international out-flows from Mexico (Durand et al. 2001; Mendoza 2005). The relatively early age of marriage and childbearing in many rural areas also helps explain the younger age structure. On the other hand, migration does not completely break the complex network of extended families in Mexico. Indeed, many such arrangements actually cross the border, with multiple family and household arrangements easing and channeling migration and return migration. Flexible labour market practices on the Mexican border, in addition to growing insecurity in maquila or maquila-related jobs, also influence "flexible" patterns of migration and mobility. In other words, migration patterns in Mexico may be the primary reason for high percentages of children in the total population of rural Mexico, while small proportions of people 65 and older are a consequence of shorter life expectancy in rural Mexico compared with urban Mexico or the rural United States.

For the United States, by contrast, rural areas experience a more typical process of depopulation, with more young people leaving to cities and older people remaining to live our increasingly long life expectancies in rural areas. The great percentage of older people is also the consequence of internal patterns of migration, with retired people increasingly on the move today, including to locations like southern Arizona with their clear attraction of mild weather.

Here it has been suggested that younger populations are not necessarily associated with high immigration counties or municipalities (witness the immigration of retired people in the United States), while an older age structure is not always linked to emigration (because of patterns like early age for first child and union in Mexico). More localized analyses are required to separate out the determinant power of various factors (including immigration, emigration, and the characteristics and volume of flows) for explaining the different age structures in the two countries. Such demographic and social characteristics must, in turn, be considered in both macro- and micro-level analyses of the environmental correlates associated with population growth in the borderlands.

Ethnicity and Destinations

Censuses only give a rough approximation of migration, which is in fact the most difficult demographic phenomenon to measure. In both the United States and Mexico the census asks place of birth and residence, as well as ethnicity. But relations between ethnicity and migration are diffuse, and links to perceptions of environment and related patterns of resource consumption are even less straightforward. Focusing on the percentage of people born out of the state of residence in 1990 as a rough index of the sheer volume of immigrants (either from another state or abroad) reveals that for the United States nearly the entire border region is one of high immigration (fig. 3.5 and 3.6). This is especially the case for southern California, all of Arizona except counties with a strong indigenous presence, most of New Mexico except counties in the north (with high Hispanic non-Mexican populations), and many Texas counties, including Dallas. The highest rates are in Las Vegas Metropolitan Area (80.7% of the population of Clark County, around Las Vegas, was born outside Nevada). Similarly 83.8 per cent of the Mohave county population was born outside Arizona. In both cases, the bulk of immigrants are born in the U.S.A., since only 3.6 per cent of Mohave and 9.5 per cent of Clark are native of another country.

As a substantial portion of immigrants is not foreign-born and interstate movements are not recorded in these figures, differences of immigration rates between Texas and the other southwestern states may relate strongly to the size, shape, and internal population distribution of the areal units employed in migration analysis. These limitations can also be observed in northern Mexico. The largest border cities, Tijuana and Ciudad Juárez, have roughly the same population,

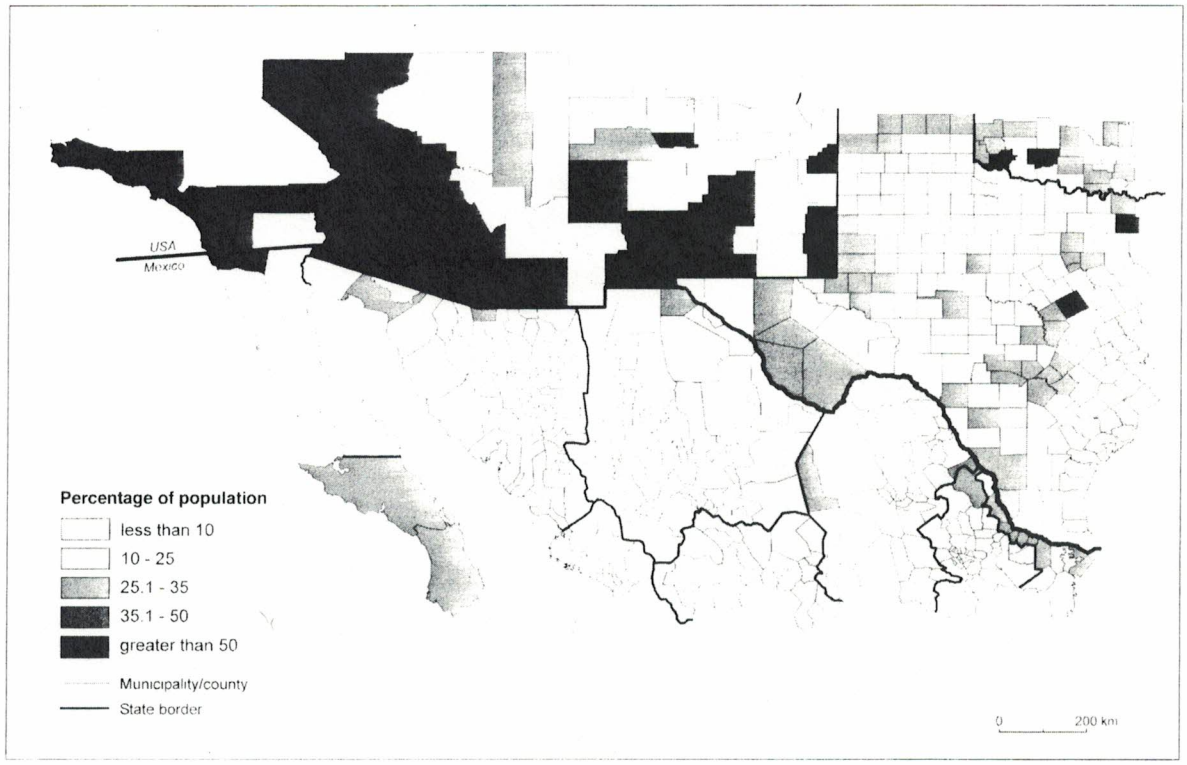

Figure 3.5 Population Born Out of State (1990)

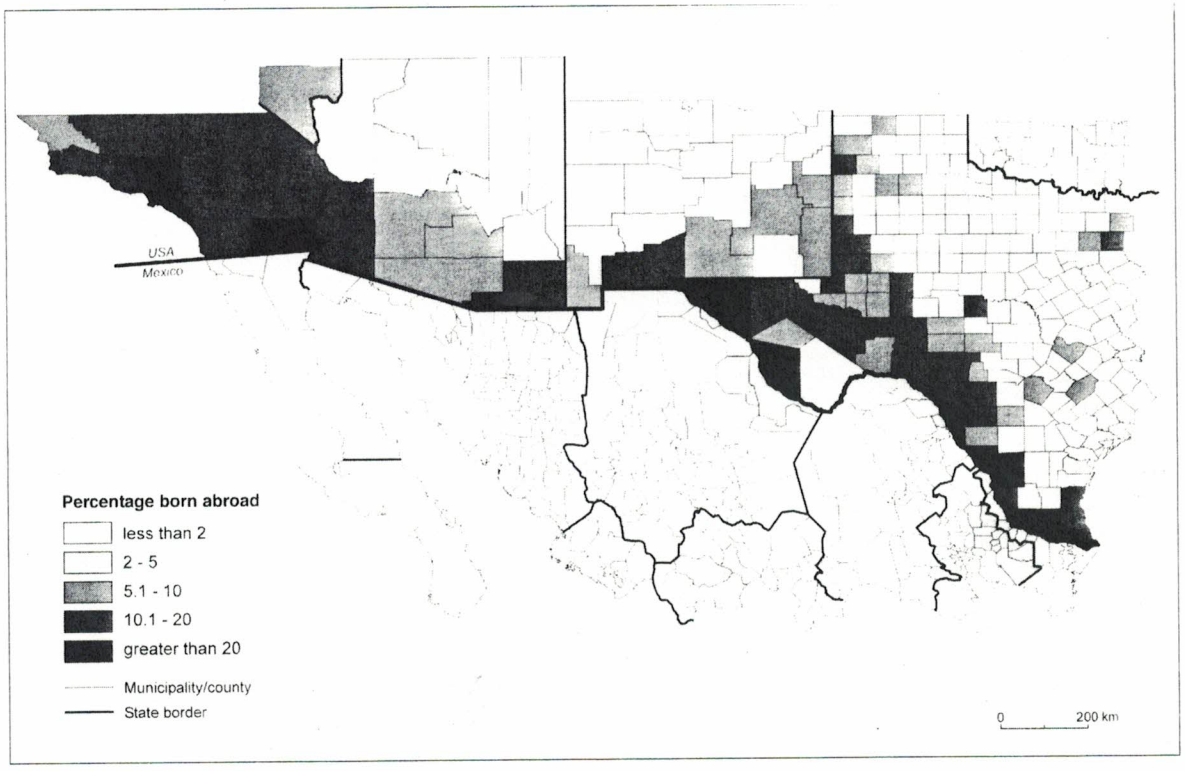

Figure 3.6 Population Born Abroad (1990)

but substantial differences in immigration numbers and rates (fig. 3.5). Tijuana, as well nearby Ensenada and Tecate, stands out with respect to percentage of people born outside of Baja California. In 1990, this was 57.3 per cent for Tijuana, in contrast to Juárez, which had only 31.7 per cent of its population from out of Chihuahua. Data on the most "recent" immigrants, in the period 1995–2000, reveal that Tijuana attracted more immigrants (163,194) compared to Juárez (128,967). Juárez, on the other hand, benefited from greater interstate movement, with 11.3 per cent of those (age five or more) who changed residence originating from another Chihuahua municipality, compared to only 3 per cent of Tijuana immigrants originating from elsewhere in Baja California (Mendoza 2001).

Besides sheer number of immigrants, environmental impacts also relate to asymmetries in settlement patterns. Many factors combine to enhance immigration as well as determine destinations. First, labour migration is derived from new economic activities set up in the region (particularly manufacturing and assembly industries in Mexico), together with established ones (such as leisure). Secondly, the older age structure on the U.S. side (fig. 3.4) suggests that migration unrelated to labour constitutes a remarkable share of new immigrants. This explains the position of Arizona as well as Las Vegas as significant new immigration areas in the 1990s. Finally, recent immigrants seem increasingly likely to migrate to more rural or medium-sized metropolitan areas. While Los Angeles County stands out as the highest immigration county in 1985–1990 (with an inflow of 1,058,836 new residents from outside California in that period), the decentralization process evident around Los Angeles shows signs of moving beyond the state. For Texas, immigration concentrates along the San Antonio–Austin–Dallas corridor, with the medium-sized metropolitan area of Killen-Temple standing out as the single most important immigration area, beyond the counties proximate to the border with Mexico itself.

As for Mexico, figure 3.5 shows clearly that northern Baja California is an immigration area. In 1990, 40 per cent or more of the population of three of its four municipalities (Tijuana, Tecate, and Ensenada) was born out of the state. Other border municipalities also stand out as immigration areas, including Ciudad Juárez, Nogales, and San Luis Colorado (all of which received more than 10 per cent of its 1990 population from out of state in the previous five

years). In effect, border cities contrast with non-border cities within their respective states, which have had comparatively less capacity to attract immigrants of some medium-sized non-border cities in northern Mexico. High immigration into Mexican border towns in the 1980s and 1990s relates directly to economic cycles (Ruiz 2000). The devaluation of the peso, with devastating effects elsewhere in Mexico, had positive effects in the export-oriented industries of the border region, resulting in a peaking of migration inflows into border municipalities at a time of the most dramatic economic crisis (e.g., Coubès 1997). As NAFTA opens all of Mexico to free trade with the United States, and as cross-Pacific trade expands, more labour-intensive industries may shift elsewhere to take advantage of lower wages, and consequently have an impact on decreasing immigration to border towns. Still, border employment continues strong in places such as San Diego–Tijuana, where 7.6 per cent of the Tijuana labour force was employed in San Diego in the first trimester of 1999 (Mendoza 1999). Certainly, as Rubin-Kurtzman et al. (1996) pointed out, migration and transborder mobility are key elements to demographic behaviour such as population growth in the border region.

Particularities of the border region are also found in international immigration (fig. 3.6). With few exceptions, Mexican border municipalities are the only ones with more than 2 per cent of their populations being born abroad. This is a consequence of the number of Mexican-Americans, and to a lesser extent other Americans, who live in Mexico's border towns. Transnational families are increasingly frequent (see Ojeda and López 1994, for a Tijuana case study), while women residing in border towns sometimes also use facilities in the United States for giving birth (González 1992). There is also a border effect on the U.S. side, seen more clearly in the east, with the percentage of those born abroad decreasing as one moves further from the international border. A notable exception is San Diego, with its relatively low foreign-born population (at least compared to Orange–Los Angeles and Imperial Valley). The opposite tendency is observed in Texas non-border cities, with substantial numbers of people in San Antonio, Austin, Corpus Christi, and Dallas who were born outside the United States.

Certainly high volumes of migration seem to be a key demographic phenomenon in the border region. Yet migration flows have different characteristics, both internal and international in the

United States, and mainly internal movements in Mexico and labour-oriented flows in northern Mexico. Along with contrasting differences in age structure, the significant human movement on both sides of the border has both immediate and long-term environmental consequences that cannot be underestimated.

Conclusions

Population growth in the U.S. southwest and northern Mexico has two distinctive dynamics. From a demographic point of view, growth is less concentrated in the United States than in Mexico. To the north, some rural areas are gaining population (especially in Arizona and New Mexico, but not in Texas). This relates to both economic and non-economic reasons, such as the leisure industry in Las Vegas and the appeal of mild weather, respectively, as well as cultural considerations. Furthermore, rural life is traditionally idealized in the United States. Rural Mexico, by contrast, remains underdeveloped in both real and imaginary terms, and consequently is of little interest for urban dwellers. Extreme geographical conditions appear to have had less impact on settlement patterns in the United States (as the growth of Las Vegas demonstrates) than in Mexico, where deserts and mountains remain scarcely inhabited and in a process of depopulation (with the exception of indigenous areas). The border region is a notable exception to this, however, largely because of the presence of introduced manufacturing capacity to take advantage of cheap labour and proximity to supplies and markets to the north.

Similarly, age structures on both sides of the border are substantially different. Mexico's northern region is younger than the U.S. southwest as a consequence of differentials in fertility and mortality, which are particularly striking between rural areas on either side of the border. Migration dynamics also operate in different ways on both sides of the border. Urban-rural movement in the United States offsets migrations in the opposite direction, contributing to population growth as well as aging of rural populations. For Mexico, emigration effects in sending areas are masked by younger marriage and childbearing rates as well as the fact that children often remain with grandparents when parents migrate.

The only sociodemographic phenomenon for which there is not a clear north-south divide is migration. Certainly migration and mobility characterize the borderland to such extent that they are key to understanding most other trends in the region (Rubin-Kurtzman et al. 1996). However, whereas flows are internal of origin in Mexico, both internal and international movements are relevant in the U.S. southwest. The complexity of extended family practices, plus considerable flexibility in the labour market of Mexico's border towns, make it difficulty to clearly delimit how migration operates in Mexico. The difference between the two migration systems is clear, however, when observing places of destination for immigrants, with flows being channelled into both rural and urban areas in the United States but only to urban areas in Mexico.

In short, the international line that separates the United States and Mexico also separates two distinctive sociodemographic systems. The high volume of human migration and mobility is the single feature in common, but the characteristics of the flows are so different so as to seem even to reinforce the dissimilarities in the implications of migration on both sides of the border. Nonetheless, internal migration continues to be hardly seen as problematic in either country, despite the negative consequences it may imply for destination places. This is especially true for towns and cities on Mexico's northern border, where continuing internal in-flow cities have experienced dramatic impacts on housing and services in municipalities that can hardly manage current structural deficiencies in public services. As for the contentious issue of U.S.-Mexico migration, actors and factors obviously go far beyond the border itself. Besides labour requirements, relative earnings, and the vitality of various sectors in a globalizing economy, differentials in fertility and age structure between the two countries are also changing. Decreasing fertility in Mexico is reducing the size of the young population, suggesting that labour surpluses will continue to be less robust in the future, with a predictable decline in cross-border flows beyond what immigration policies devolve. The debate that swirls around immigration almost seems to spotlight the glaring absence of an equally significant need: for cohesive policy discourse about the close relationship between environmental and economic health.

In a setting where a fine ecological balance is precarious at best, rapid demographic growth undermines even the most well-intended environmental planning. Water, in particular, is key to survival. It has deteriorated seriously in both volume and quality, through haphazard sprawl, industrial and agricultural pollutants, and rampant exploitation of rivers as well as ground water (including for high users like suburban lawns, golf courses, and hospitals). By virtue of its economic and settlement attractiveness – and as long as such logic remains unchecked – the region will inevitably experience even more profound ecological problems (Blake and Steinhart 1994; Ganster et al. 2000; Herzog 2000; Ruiz 2000). Demographic change, fuelled by growth and demand for retirement amenities in the north, and growth and continuing socioeconomic needs in the south, necessitates cross-border cooperation in research and policy formulation as well as effective and innovative infrastructure, especially in high-density border corridors where environmental impacts are most severe.

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