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Mexican Internal and International Migration:
Empirical Evidence from Related Theories

A dissertation submitted in partial satisfaction of the
Requirements for the degree Doctor of Philosophy
In Urban Planning

by

Elsa Beatrice von Scheven

2015

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ABSTRACT OF THE DISSERTATION

Mexican Internal and International Migration:
Empirical Evidence from Related Theories

by

Elsa Beatrice von Scheven

Doctor of Philosophy in Urban Planning

University of California, Los Angeles, 2015

Professor Leobardo F. Estrada, Co-Chair

Professor Paul M. Ong, Co-Chair

This dissertation brings together three independent essays that employ Mexican and U.S. Census data to explain the migration of Mexicans, while moving toward a conceptual integration of alternative theoretical traditions.

To address internal migration within Mexico, essay 1 utilizes a locational choice model to test the self-selection hypothesis of the human capital model of migration, finding that as expected, Mexican internal migrants are sensitive to regional variations in returns to skill. The macro-level results of essay 1 also suggest that there is an over-supply of more

highly educated people in Mexico's richer regions, as well as an over-supply of less educated people in poorer regions. This imbalance caused richer regions to export many highly skilled individuals to poorer regions and vice versa.

To address the international migration of Mexicans, essays 2 and 3 test Light's network saturation and deflection theories, using empirical data to ascertain whether/how well their predictions can explain the dispersion of Mexican immigrants away from traditional settlement states and toward new settlement states. Performing wage- and human-capital analyses as well as a settlement choice analysis, the findings of essays 2 and 3 suggest that the economic and political factors predicted by these theories did contribute to this dispersion. Essay 2 finds that Mexicans earned less, paid higher rents, and had lower returns to skill where Mexicans were more densely settled; and essay 3 finds that Mexicans were less likely to settle in states that did implement above-federal minimum wages, thereby presumably reducing the employment opportunities of Mexican immigrants there. Additionally, the results of essays 2 and 3 suggest that the dispersion of Mexican immigrants to non-prime U.S. states is consistent with the expectation of the self-selection hypothesis that Mexican international migrants are likewise sensitive to regional variations in returns to skill.

The results of all three essays, thus, support the related and compatible theories tested, and looking at these theories together, when thinking about the behavior, over time, of large, network-driven migration flows in response to changing economic and political circumstances may be able to contribute to a future theoretical reconciliation at a higher unity.

The dissertation of Elsa Beatrice von Scheven is approved.

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More concretely, Essay 2 of this dissertation is a reprint of the article that appeared in the *International Migration Review* in 2008, called: “*Mexican Migration Networks in the United States, 1980–2000*” (by Ivan Light and Elsa von Scheven. IMR Volume 42 Number 3 (Autumn 2008):704–728. © 2008 by the Center for Migration Studies of New York. DOI: 10.1111/j.1747-7379.2008.00143.x).

And Essay 3 of this dissertation is the version that was accepted to the journal *Sociological Perspectives*, and not the published version which appeared there in 2012, and that was called “*MINIMUM WAGE AND MEXICAN AND CENTRAL AMERICAN INFLUX*” (by ELSA VON SCHEVEN and IVAN LIGHT, which appeared in *Sociological Perspectives*, Vol. 55, Issue 4, pp. 613–636, ISSN 0731-1214, electronic ISSN 1533-8673. © 2012 by Pacific Sociological Association. DOI: 10.1525/sop.2012.55.4.613)

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In these 2 articles I conducted the quantitative analysis, and the written text was drafted jointly by me and by Professor Light, while, as just mentioned, the research questions directly come from Professor Light.

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1. INTRODUCTION

This dissertation examines macro-economic factors that influence the migration choices of Mexicans within Mexico and within the United States. At the societal level, migration facilitates the matching of labor to economic development and this promotes efficiencies of production. At the individual level, migration enables workers to maximize their earnings (net of costs) by locating in areas that offer the greatest return to their human capital. The central argument is that regional differences in economic opportunities encourage movement in a systematic and predictable fashion towards areas with the greatest return.

This dissertation also tests the self-selection theory of the human capital model of migration, which (following the argument above) expects that migrants will judge differences in opportunities and rewards at home and at potential destinations and then choose to locate where they can obtain the highest earnings relative to their skill level. The self-selection hypothesis, therefore, predicts that migrants will settle where they can obtain the highest returns to their skill.

To test this hypothesis, this dissertation first examines migration within Mexico (essay 1). This hypothesis had never been tested before in Mexico even though the internal migration within Mexico in 2003 was somewhat larger in volume than the international migration from Mexico to the United States in that year (National Research Council 2003). Yet, the year 2003 was a high – volume year for migration between Mexico and the United States.

This dissertation is internally organized into 3 essays that contribute to a better understanding of recent migration flows of Mexicans inside Mexico as well as within the United States. In the first essay (“Self-Selection of Internal Migrants in Mexico”), I perform a standard test of the self-selection hypothesis by assessing the locational choices of working-age male Mexicans with different skill levels who, between 2005 and 2010, moved from one Mexican region or state to another. The dissertation then turns to examining Mexican migration into the United States in essays 2 and 3 where Mexican migration to the United States, then the largest sustained contemporary international immigration anywhere (Massey 1999), experienced a dispersion from traditional settlement places in the United States to many non-traditional sites. According to Light (2006) this dispersion was of huge demographic, social, economic, and political importance, and the deflection process itself required much more research.

In essays 2 and 3, I also test the self-selection hypothesis in a less explicit but nevertheless straight-forward manner for Mexican international migrants, but I only test this hypothesis explicitly for Mexican internal migrants in essay 1.

For Mexican migrants who settled in the U.S. between 1980 and 2000, essay 2 explicitly tests the network-saturation theory. For Mexican migrants who settled in the U.S. during the 1990s, the empirical analysis in essay 3 tests the validity of one main component of deflection theory by assessing whether the state-wide implementation of above-federal state minimum wages, influenced their migration decisions.

The second essay (“Mexican Migration Networks in the United States, 1980 – 2000”) explicitly assesses whether, as expected by the network-saturation theory and contrary to what would be expected following the standard network migration theory, the dispersion between 1980 and 2000 of newly-arrived Mexican migrants to 47 new settlement states of the United States and away from California, Texas, and Illinois (the 3 traditional settlement states), was due to the fact that, over time, the protracted high-volume influx of Mexican migrants finally saturated the housing and job opportunities of Mexicans in traditional states. High rents and low wages then encouraged Mexican immigrants to select new states for settlement. Moreover, since one of the main underlying assumptions of this second essay is that within the U.S. labor market these recently arrived Mexican migrants mostly obtain low-skilled jobs, the prediction of the self-selection hypothesis for this second essay would likewise be that, over time, the protracted, high-volume, network-driven Mexican influx in prime locations led to an over-supply of similar and low-wage labor in those prime locations. Oversupply in turn drove down their earnings and their returns to skill. Therefore, following the self-selection hypothesis, the expectation is that, despite the attractiveness of those prime locations due to the large presence of friends and family or co-ethnics, Mexican immigrants nevertheless chose to locate in non-prime destinations where they could obtain higher wages and thereby higher returns to skill.

The third essay (“Minimum Wage and Mexican and Central American Influx”) assesses whether, as expected by the deflection theory, the increased minimum wage implemented by 13 American states in the 1990s reduced employment among recently

arrived Mexican and Central American immigrants (expected to be among the lowest-paid workers), and therefore reduced their influx relative to immigrants who settled in one of the 35 states that retained the federal minimum wage during that time. That is, this third essay tests whether through their political decision to implement an above-federal minimum wage, states *deflected* recently arrived Mexican and Central American immigrants away from them, thereby re-directing them towards the states that did retain the lower federal minimum wage.

In all 3 essays I used Census information to assess the migration behavior of Mexican migrants during a 5 year period and in each case I performed an individual-level, econometric human-capital analysis, when taking into account and controlling for migrant networks.

These 3 essays also have in common that the theories they test, rather than representing competing hypotheses actually share many common assumptions. Both, the network-saturation and the deflection theories are in fact conceptual extensions of the human-capital migration theory (along with the network theory). As such, they predict the behavior, over time, of protracted, high-volume, network- driven migration flows in response to changing economic and political circumstances. Although these 3 theories all use the more neoclassical framework, this approach is consistent with many of the other important theories of migration, since, as does the neoclassical framework, this analysis assumes that the larger macro-economic and macro-social structures are exogenous to the analysis. I, thus, do not dispute the importance of other theories of migration, but, (even

when I briefly discuss some of them) they are beyond the scope of this analysis. This is my core scenario.

This whole thesis is in five parts. This introduction explores the literature about relevant migration theories. The three empirical essays that follow examine the behavior of internal and international Mexican migrants. A short conclusion ties together the themes of the dissertation and suggests extensions of this research.

1.1 Theoretical Models about why Internal and/or International Migration Begins

1.1.1 Neo-classical Economic Theories- Human Capital and Regional Sorting

While migrants clearly move for a number of reasons, the expectation that migrants mostly move in order to obtain higher incomes is ancient history in economic and migration studies (Lucas 1997).

When seen at the macro-level, and following Ravenstein's laws of migration (1885, 1889), standard neo-classical migration theory explains the migration process in terms of geographical differences in the supply and demand for labor so that differentials in wages (plus the expected probability of employment at the destination) cause workers to move from low-wage, labor-surplus regions to high-wage, labor-scarce regions (Lewis 1954; Ranis and Fei 1961; Harris and Todaro 1970; Todaro 1976).

Because, neo-classical theory (probably the oldest and best-known theory of migration) was actually developed to explain labor migration in the context of economic development, it further expects that as a result of migration labor will become less scarce at

the destination areas and scarcer at the sending ones while capital is expected to move in the opposite direction, leading to a “factor price equalization” and thus to a convergence between wages at the sending and receiving end (Lewis 1954; Ranis and Fei 1961; Harris and Todaro 1970; Todaro 1976).

At the micro-level, neo-classical migration theory developed a model of individual choice, which views migrants as rational actors, who, having full access to information, make income-maximization calculations on the results of which they decide whether to move or not (Massey et al. 1994; de Haas 2010).

In a further extension of this migration model, and starting with Sjaastad (1962), a well- developed literature has merged neo-classical migration theory and Becker’s (1975) human- capital theory into a human-capital theory of migration. This human-capital theory of migration addresses the question of selectivity in migration. It postulates that individuals differ in personal skills, knowledge, physical abilities, age, sex, etc., and, thus, have different human-capital assets. The expectation of the human-capital migration theory is that people with different sets of skills will differ in their expected productivity and, hence, in their wages or technically the returns to their human-capital (Borjas et al. 1990). Consequently this theory also predicts that people with different skill levels will likewise differ regarding the extent to which they are expected to gain or risk from migrating (Lucas 1997; Taylor and Martin 2001).

Treating migration as a human-capital investment, the human-capital theory further expects potential migrants to estimate the costs and benefits of moving to alternative international locations and migrate to wherever the expected, discounted net-returns are

greatest over some period of time (Borjas 1990). Net-returns in a future period are calculated as the expected wages that a migrant can earn in an alternative location over time, minus the earnings the migrant expected to be able to earn in his or her community of origin over time, minus the estimated costs of migration (Massey et al. 1994).

This human-capital theory, therefore, expects that the likelihood of migration is highest for individuals for whom over time the discounted income (or expected-income) differential between migration and non-migration is greatest and/or migration costs are lowest (Lucas 1997; Taylor and Martin 2001).

In terms of migrants' locational choices, the self-selection hypothesis of the human-capital theory of migration predicts that, given their skill level, individuals will decide where to live by comparing their utility in their current location to their expected utility in all other possible locations, and will then choose the location with the highest utility (Mincer 1974; Becker 1975; Borjas et al. 1992; Rosenzweig 2007; Clark et al. 2007; Belot and Hatton 2008; Brücker and Defoort 2009; Ortega and Peri 2009; Grogger and Hanson 2010; and Mayda 2010). Thus, according to this hypothesis, a migrant is expected to settle in a receiving area that has a specific type of labor-demand that matches his or her specific skills and educational background in order to obtain the highest wages, and to maximize his or her returns to skill (Taylor and Martin 2001).

1.1.2 New Economics of Migration

The *New Economics of Migration* views working-class migration as part of family and community survival strategies that respond to long-term considerations of economic security as well as to remittances and local investment opportunities (Stark et al. 1991; Taylor 1999). Thus, the *New Economics of Migration* views migration as a decision of the entire household (not just the migrant) to minimize risks to family survival by diversification. That is, the migrant's family has an earner abroad even if the local economy tanks and vice versa (Stark and Levhari 1982; Stark 1984; Katz and Stark 1986; Lauby and Stark 1988; Taylor 1986; Stark et al. 1991). Extreme risk aversion is imputed to migration decision makers because their families have highly precarious livelihoods. This theoretical framework, moreover, expects that the family's feelings of relative deprivation may be an even more important driver of migration than actual wage differentials (Taylor et al. 1999). Thus, a sending region's income distribution, (as well as the family's point in it) may be a crucial factor to take into account when trying to predict the decision to emigrate.

For these reasons, the *New Economics of Migration* expects that governments can influence emigration rates through policies that shape: labor markets (i.e. through the implementation of minimum wage policies), insurance and capital-markets, and unemployment insurance; as well as policies that reduce income inequalities (Taylor 1986; Massey et al. 1994). In a nutshell, income security and income equality reduce emigration.

1.1.3 Dual Labor Market Theory

Dual labor market theory argues that international migration (particularly from the South to the North) is caused by a permanent demand for immigrant labor that is inherent in the economic structure of advanced market societies and, thus, by pull factors in developed receiving countries. According to Piore (1979), a prominent spokesman, developed countries have a built-in demand for immigrant labor because they have difficulty finding native born workers who are willing to take low-paying jobs at the bottom of the occupational hierarchy. These jobs do not confer prestige, - and people not only work to receive an income, but also in order to obtain and maintain prestige and a social status, so motivational problems arise when it comes to these bottom-level jobs in the secondary sector. The native workers view these rock-bottom jobs as below their dignity. Native workers want to work in the primary, capital-intensive sector, where wages are higher, jobs are more secure, and there is a possibility of occupational improvement.

Dual Labor Market Theory argues that employers need workers who view low-level jobs simply as a means to the end of earning money. Immigrants satisfy this need, at least at the beginning of their migratory careers (i.e. most migrants begin as target earners, low wages in a developed country are nevertheless much higher than those they would earn in their home community; and migrants mostly see themselves as members of their home community).

Thus, according to *Dual Labor Market Theory*, the reception country's demand for immigrant workers grows out of the structural needs of the society and is generally initiated by recruitment on the part of employers in developed societies (Massey et al. 1994).

1.1.4 World Systems Theory

World Systems Theory argues that ever since the advent of capitalism in the 16th century, and in an attempt to obtain higher profits and greater wealth, the owners and managers of capitalist firms have entered poor countries, searching for land, raw materials, labor, and new consumer markets. This theory further argues that the capitalist penetration everywhere has uprooted the world's subsistence economies, thus creating a mobile population that must move wherever they can earn wages (Portes and Walton 1981; Massey 1989; Massey et al. 1994, Ong et al. 1994).

World Systems Theory further argues that now, as in the past, many of the people from developing countries in the South who have been displaced by this process of market penetration move to cities within their own countries. However, developing countries are unable to provide enough jobs for their uprooted population and many of the displaced people are drawn to emigrate to developed countries, where they can earn higher wages (Massey 1989).

The proponents of this theory also expect that people from developing countries, also tend to be attracted to developed countries (and particularly to their past colonial powers) due to the diffusion of cultural and ideological values and modern consumption patterns, which, (in addition to potential higher wages), also contributes to increase the wish of displaced people to want to move there (Portes and Walton 1981).

According to *World Systems Theory*, when seen from the other side, what also drives the immigration of people from developing countries to developed ones, (of course) is that these rich countries and particularly Global Cities within industrial societies, have now, and had in the past, a high demand for immigrants from these countries. Global Cities are urban centers from which globalization is mostly managed, since the main banking, finance, administration, professional services, and high-tech production firms tend to concentrate there (Castells 1989; Sassen 1991)). Castells (1989) and Sassen (1991), for example, explain that the reasons that industrial societies and particularly Global Cities need immigrant labor is because poorly educated natives resist taking low-paying jobs at the bottom of the occupational hierarchy, - while, the concentration of wealth in these countries and particularly in these global cities spurs the demand for low-paying-service jobs at the bottom of the occupational hierarchy- and which immigrants are most willing to take.

And, yet *World Systems Theory* expects that these migratory pressures do not directly lead to massive migration flows since it is mostly state action (or inaction) with

respect to border control which ends up determining whether international migration will take place.

The proponents of *World Systems Theory*, thus, believe that it is the same capitalist economic processes that at the same time creates migrants in developing countries (in the South), while it also attracts them to developed countries at the core of globalization (in the North), so that the initiation of international migration flows are a consequence of the structure of the world market (Portes and Walton 1981; Castells 1989; Sassen 1988; Sassen 1991; Ong et al. 1994).

World Systems does not simply view migration flows as products of push and pull factors in sending and receiving countries (or wealthier and poorer regions within a country), but rather stresses the importance of placing international migration flows in the context of the restructuring of global capitalism (Ong et al. 1994). Some world regions need labor; others need to release it.

And while most authors who have followed the *World Systems* approach have focused mostly on the movement of low-skilled labor immigrating to developed countries (i.e. see Portes and Bach 1985; Sassen 1988), others like Ong, Bonacich and Cheng (1994) have likewise followed this theoretical framework when studying the new professional managerial immigration from Asia. These authors examined the movement from Asia to the West Coast of the U.S., in terms of the re-structuring processes that were going on in Asia (i.e. producing more highly trained individuals than they can absorb), - but also in

terms of the many roles that Asian immigrants have played in the restructuring process of the U.S. (i.e. helping supply skills and entrepreneurial energy, given that the U.S. has been preparing fewer highly trained individuals than they need).

1.2 Theoretical Models that explain why Migration Streams are Sustained over Time, and Dispersed (Deflected) away from their Prime Settlement Destinations

Immigration flows begin due to a variety of reasons, such as: a.) the desire to maximize income and thus returns to skill, b.) an attempt to diversify risks to household income; c.) a recruitment program of employers; d.) a displacement of individuals in developing countries due to the penetration of market forces; e.) or due to some combination thereof (Massey et al. 1994). But, once initiated, why does it continue?

Massey et al. (1994) argue that the circumstances and factors that lead to the initiation of international migration flows may be different from the main factors that induce their continuation. While wage differences, risk-minimizing efforts, recruitment strategies, and the penetration of market forces may continue to induce people to migrate, new factors that arise in the course of migration also start having strong causal effects, since according to Massey et al. (1994 p. 448) “migrant networks spread, institutions supporting transnational movement develop, and the social meaning of work changes in receiving societies” and the general consequence of these transformations is, “to make additional movement more likely”.

1.2.1 *Network Migration Theory*

While social networks had long been known to influence migration (Fairchild 1930), the research of Massey (1990, 1999) and his colleagues on cumulative causation strengthened interest in network migration and formalized the theory. Massey's network theory explains why migrants from one migrant-sending place are very likely to go to the same destinations decade after decade (Portes and Rumbaut 1996; Zavodny 1999; Alba and Nee 2003).

So, while acknowledging that the initiation of large migration flows has mostly been triggered by economic factors (in migrants' search to maximize their income), according to network theory, sustaining these migration flows has generally been caused by migration networks that connect immigrants who are already at a certain destination point with their friends, neighbors, and relatives who are still back at home. In this way, the information about this destination reaches the home community and causes many non-migrants, who are still at home, to want to migrate themselves when they learn about the advantages that the earlier migrants obtained in the destination (Massey et al. 1994; Light 2006).

However, social networks not only sustain the migration, by influencing new people to migrate, but they also impact their settlement choices in the receiving regions, since migrants usually go where others whom they know have already settled. The capacity of networks to reproduce immigrant populations in specific destinations, therefore, results in the formation of settlement nodes that are linked to specific points within their countries of origin (Massey et al. 1994; Light 2006).

The migration network literature has also demonstrated the power of networks to strongly influence immigrants' settlement choices by clearly reducing the emotional, and social as well as the financial costs of migration. The emotional cost of migration is decreased because migrants generally live and travel with their friends, family, and co-ethnics. The social cost of migration is decreased because migrants are able to keep their social ties with their home community (Massey et al. 1994; Light 2006).

Research findings have, thus, shown that once the number of migrants reaches a critical threshold, the expansion of networks decreases the costs and risks of migration, thereby increasing the likelihood of migration, which, in turn, expands the networks, and so on (Hugo 1981; Taylor 1986; Massey and García-España 1987; Massey 1990a; Massey 1990b; Gurak and Caces 1992; Massey et al. 1994).

1.2.2 Network Saturation Theory

The literature on immigrant incomes reports that sustained high-volume immigration lowers the wages of earlier co-ethnic immigrants even though it has little effect on the wages of native workers (Hagan 1998; Borjas 1999; Camarota 2003; Bump, Lowell, and Pettersen 2005; Lalonde and Topel 1991; Bean and Stevens 2001; Fix and Passel 1994).

The housing literature declares that sustained high-volume immigrant influx drives up rents in immigrant neighbourhoods of reception cities (Saiz 2003; Williamson 1990; Lipman 2003; White 2003; Keil 1998; O'Hara 2002) without affecting the rents of non-immigrants (Greulich, Quigley, and Raphael 2004).

Compatible with these findings, and in an effort to analyse the dispersion of Mexicans throughout the United States, Light (2006) theorized that, by encouraging new migrants to settle in the metropolitan regions and states where their friends, neighbors, and family had settled before, the self-propagation of migration networks (such as the Mexican immigrant network) can lead to a very high concentration of immigrants in their prime settlement choices, thereby tending to drive down immigrants' wages and to drive up their rents in co-ethnic neighborhoods of prime network destinations.

Light's network saturation theory, therefore, expects that the maturation of large migration networks ends up saturating the housing and job opportunities of immigrants at their prime destinations. Immigrants' housing costs rise, and their wages decline. Then the ensuing welfare deterioration encourages the dispersion or deflection of newly-arrived immigrants from prime destinations to initially lesser-ranked destinations in unsaturated cities and states.

1.2.3 Deflection Theory

When analysing the dispersion of Mexicans throughout the United States, different studies have tried to explain this demographic movement by addressing many causes including saturation and deflection (Light 2006; Light and von

Scheven 2008; Light and Johnston 2009), enhanced enforcement of labor laws (Light 2006), federal policy shocks (Massey, Durand, and Malone 2002; Odem and Lacy 2009), the Mexicans' quest for improved quality of life (Fennelly 2008; Suro and Singer 2002); labor recruitment in Mexico (Krissman 2000; Donato and Bankston 2008); and employment growth in non-traditional settlement states (Parrado and Kandel 2008).

Light (2006) then additionally hypothesized that this dispersion of Mexicans throughout the U.S. might also be partially related to the state-wide implementation of above-federal minimum wage laws. These laws might have contributed to inducing the deflection of Mexican immigrants towards states that retained the lower federal minimum wage; and in general, he hypothesized, that a number of political decisions may influence a deflection of a large mature immigrant network.

Thus, in an effort to try to identify all possible reasons that could induce a mature migration network (such as the Mexican) to be dispersed or deflected, Light expanded his network saturation theory, formulating the deflection theory according to which economic saturation may explain immigrant deflection in a large mature immigrant network. Additionally, Light also expects that exogenous political decisions, particularly at the state or local levels, can likewise trigger the deflection of such a mature and voluminous network.

Light (2014) defined the deflection of immigrants as a process that pushes an existing high volume immigration flow abruptly away from its prime destinations without, however, reducing the aggregate influx of immigrants. According to Light's definition,

deflection does not reduce the volume of immigration, but only redirects the existing influx from prime destinations (such as countries, regions, states, or cities) to non-prime destinations. As a result, prime destinations receive a decreased share of total immigration (Light 2014).

Thus, analogously to the network saturation theory, the deflection theory expects that economic/demographic deflection will occur when, as a result of a heavy influx of immigrants from a large mature network, immigrants saturate their housing and labor markets in impacted destinations, causing rents to rise and earnings to drop.

However, as said before, deflection theory also expects that political causes may induce immigrants to abandon established destinations in favor of new ones, and can thus deflect immigration without economic saturation.

Deflection theory further expects that the deflection of immigrants from a large mature network can be triggered by direct political interventions that seek to reduce immigrant influx such as, for example, an enhanced border-enforcement. However, deflection theory also expects that deflection may be triggered by indirect political causes that do not target immigrants per se. These may be universalistic laws that in principle apply to everyone but which affect immigrants more than anyone else. An example might be state-level implementation of above- federal minimum wages, which reduce employment among the lowest-paid workers and thereby triggers a deflection process for a migration flow comprised of low wage workers.

Moreover, deflection theory expects that indirect political deflection and economic/demographic deflection may appear in tandem since the deterioration of labor and housing conditions among immigrants may trigger responsive legislation that intends to battle these circumstances (Light 2014).

2. SELF-SELECTION OF INTERNAL MIGRANTS IN MEXICO

2.1 *Abstract*

Little is known about the match between the characteristics of Mexican internal migrants and the characteristics of the places in which they are more likely to settle, and no one has assessed whether Mexican internal migrants are choosing to settle in locations that allow them to maximize their (money) return to skill as would be expected by the self-selection hypothesis of the human-capital migration theory. Hence, to ascertain whether Mexican internal migrants are sorting or self-selecting themselves by schooling level and moving to regions with the highest demand (and highest pay) for their own type or level of skill or schooling, in this study, and using a locational choice model that follows a mixed-model conditional logit convention, I analyze micro-data from the 2010 Mexican Census of Population of all Mexican male working-age individuals who, between 2005 and 2010, moved from one Mexican region or state to another. The results consistently show that, as hypothesized, Mexicans did self-select in a way that allowed them to maximize their returns to skill. Net of all control variables, I find that, among Mexican inter-regional and inter-state migrants, those who had higher levels of education, and who, in 2005 resided in regions or states that had relatively high average-income and low income-inequality, the likelihood was much higher that they would move to regions that had lower average-incomes and higher income-inequality (and thus high returns to high-skills), rather than to regions with high average-incomes and lower income-inequality (and vice versa).

In sum, lower income regions in Mexico exported a large number of low-skilled workers and imported high-skilled workers between 2005 and 2010 whereas high-income regions attracted mainly low skilled workers and exported many high skilled workers.

2.2 Introduction

Internal migration within Mexico is somewhat larger in volume than the international migration from Mexico to the United States (see National Research Council (2003¹), and yet, although the international migration of Mexicans has been widely studied, internal migration within Mexico has received much less attention.²

During the first half of the twentieth century the largest migration streams in Mexico were composed of persons who originated in rural areas and moved to Mexico's 3 largest cities (Oliveira and Roberts 1989; Greenwood et al. 1981; Partida Bush 1993). Ever since, Mexico's economic liberalization in the 1980s, a larger proportion of migrants, however, have come from urban areas, and both, rural- and urban-origin migrants have mainly settled in middle-sized cities close to the U.S. border (Roberts 1989; Escobar and Laptapi 1998). This is a sharp discrepancy between the early and late twentieth century. However, during both halves of the last century, Mexico's largest internal migration flows have always been attracted to the states which, at the time, offered the country's highest average income levels (Chávez 1999; Garza 2003; CONAPO 1999; Partida-Bush and Martinez- Herrera 2006; Portes and Roberts 2005). Econometric analyses assessing the regional determinants that influence the internal migration within Mexico, have mostly

found that Mexicans are driven by similar regional determinants as migrants elsewhere and, therefore, respond in the expected way to regional wage differentials (see Aroca and Maloney 2005; Peeters 2008; Soloaga and Lara 2006), distance and network effects (Peeters 2008; Villarreal and Hamilton 2012; Aroca and Maloney 2005; Soloaga and Lara 2006; Curran and Rivero-Fuentes 2003).

We, likewise, know that, as one observes elsewhere in the world, within Mexico individuals who are younger, better educated, less risk-averse than average and who have better –than-average personal contacts in destination areas are more likely to become either internal or international migrants, when compared to all other individuals (Taylor 1986; Massey et al. 1987; Massey and Garcia España 1987; Stark et al. 1991; Massey and Espinosa 1997; Orrenius and Zavodny 2003). Many studies about the international migration of Mexicans have assessed which personal characteristics increase an individual's likelihood to emigrate to the United States rather than to stay in Mexico.³

However, very little is known about the match between the characteristics of Mexican internal migrants and the characteristics of the places in which they are more likely to settle, that is, their self-selection patterns regarding their settlement choices. Therefore, we do not know much about who in Mexico is going where and why.

All we know about migratory self-selection in Mexico is what Villarreal and Hamilton (2012) reported in their individual-level study. They found that younger and better educated Mexican internal migrants are more likely to settle in cities in the country's Northern border, as well as in cities that have high levels of foreign direct investment, than

are Mexican internal migrants who settle in relatively large cities located in other parts of Mexico.⁴

Neither, Villarreal and Hamilton (2012), nor anyone else, however, has addressed whether Mexican internal migrants are choosing to settle in locations that allow them to maximize their (money) return to skill. Hence, we do not know if Mexican internal migrants are sorting or self-selecting themselves by schooling level and moving to the regions with the highest demand (and highest pay) for their own type or level of skill or schooling.⁵

And yet, in other parts of the world, an extensive literature has concentrated on precisely this point, mostly finding that (net of other factors) migrants have a high likelihood to settle in the places that provide them with the highest return to their own skill level (see Borjas, 1987; Borjas et al. 1992; Rosenzweig 2007; Clark et al. 2007; Belot and Hatton 2008; Brücker and Defoort 2009; Ortega and Peri 2009; Mayda 2010 and Grogger and Hanson 2011). Given a vast empirical validation in other countries, this exact proposition forms the basis of the self-selection model of the human capital migration theory (see Borjas 1987; Borjas et al. 1992; Taylor and Martin 2001).

If Mexican internal migrants behave according to the prediction of the self-selection model and consequently exhibit self-selection choices similar to migrants elsewhere, one would expect that Mexican internal migrants who have low levels of schooling and particularly those who originate in regions that have an over-abundance of low-skilled individuals, should (rather than settling in other locations) be more likely to settle in those regions where they can obtain the highest earnings because such regions have a high

demand (and short supply) of low-skilled workers. Conversely, one would expect to find that Mexican internal migrants who have higher levels of schooling and particularly those who originate in regions with many skilled individuals should (compared to moving elsewhere) be more likely to move to places where they can obtain higher earnings because such places have a high demand for more highly skilled workers.

Expecting that a region's returns to skill are, net of other factors, proportional to the region's income inequality (Borjas et al. 1992; Rosenzweig 2007; Clark et al. 2007; Belot and Hatton 2008; Brücker and Defoort 2009; Ortega and Peri 2009; Grogger and Hanson 2011; and Mayda 2010), most self-selection studies proxy a region's returns to skill with the region's income inequality levels. As is also common particularly in other developing countries, across the different Mexican regions income-inequality and average-income levels are inversely proportional to each other, such that regions with high income inequality tend to be poorer and regions with low income inequality tend to be richer (Chiquiar 2003). Because this is the case, the self-selection model would further predict that, trying to maximize their returns to skill, the more highly skilled Mexican internal migrants should, net of other factors, have high odds of settling in regions that have low-average-income level (and high income inequality); while the less skilled Mexican internal migrants should have high odds of settling in regions with relatively high-average-income levels (and low income inequality).

Knowing whether in Mexico, as elsewhere in the world, internal migrants move to the regions that provide the highest returns to their skills is important because such a regional re-sorting of demand and supply for skills, can improve the economic wellbeing of

each individual migrant, and it might also enhance the efficiency of Mexico's economy as a whole (Borjas et al. 1992; Taylor and Martin 2001; Lucas 1997). For this reason, I believe that not knowing whether Mexican internal migrants self-select in a way that responds to regional differences in returns to skills represents an empirical and theoretical gap in the Mexican migration literature.

This paper seeks to fill this gap by testing whether and to what extent Mexican internal migrants' locational choices are also driven by the different levels of skill-related-income that are known to exist and be paid across Mexican regions and states (see Chiquiar 2003). Accordingly, and following the self-selection model, I hypothesize that, net of other factors, Mexican internal migrants choose to locate in regions that provide the highest returns to their skills, and thus that high skilled workers tend to go to poorer regions while low-skilled workers tend to go to richer regions.

The paper is organized as follows. The theoretical model, the study design and the statistical method (model description) are presented in Sections 2.3 through 2.5. The data and variables as well as the summary data are discussed in Sections 2.6 and 2.7. Estimation results and sensitivity analyses are presented in Sections 2.8 and 2.9. Conclusions follow.

2.3 Theoretical Model

Ever since Sjaastad (1962), locational choice models have been based on the expectation that, across space, there are regional differences in welfare, and that these differences often drive people to relocate in search of economic advantage. Locational choice models, further, posit that individuals decide where to live by comparing their utility

in their current location to their expected utility in all other possible locations, and then choose the location with the highest utility. ⁶

Moreover, because it is known that each individual has his or her own utility, a well-developed literature that has merged standard migration theory and human capital theory into a human capital view of migration has, thus, focused on elements of selectivity in migration (Mincer 1974; Becker 1975; Taylor and Martin 2001).

Among the main testable hypotheses of the human capital migration theory is the question of whether there is a self-selection of migrants who, given their skill level, migrate to the places where they can maximize their returns to skill (Taylor and Martin, 2001).

Many studies of internal and international locational choice have therefore assessed the sorting of migrants by schooling levels across destinations, mostly finding that migrants do self-select in a way that allows them to obtain the highest return to their skill level, thus, providing support for the hypothesis of the self-selection model (Borjas et al. 1992; Rosenzweig 2007; Clark et al. 2007; Belot and Hatton 2008; Brücker and Defoort 2009; Ortega and Peri 2009; Grogger and Hanson 2011; and Mayda 2010).

In order to test the hypothesis of the self-selection model on the settlement choices of Mexican internal migrants, I will analyze micro-data from the 2010 Mexican Census of Population, using a locational choice model that follows a mixed-model conditional logit convention, as well as the exact study design choices and the statistical method that I describe below.

2.4 Study Design

When employing micro-data to assess the determinants of internal or international migrant's settlement choices, most studies use either the multinomial logit, the conditional logit, or the mixed-conditional logit modeling conventions all of which utilize an individual maximization frameworks and random utility models (see Bartel 1989; Dunlevy 1991; Jaeger 2000; Kanaroglou and Ferguson 1998; Kritz and Nogle 1994; Davies, Greenwood and Li 2001; Greenwood 1997; Newbold 1999; Scott, Coomes, and Izyumov 2005; Villarreal and Hamilton 2012; Fafchamps and Shilpi 2008).

This study follows a mixed model conditional logit convention because the conditional logit model is the best suited for analysis of the attributes of different locational choices, and its mixed model variation, moreover, allows one advantageously to include the analysis of interaction terms between migrant's individual level characteristics and the regional characteristics of migrant's different location alternatives (Hoffman and Duncan 1988; Liang and White, 1997; and Villarreal and Hamilton, 2012).⁷ So, while in the studies of migration behavior, both, the regional attributes of the different potential destinations and the individual characteristics of migrants should ideally be included in the model (Greenwood 1997), in the present analysis about the effect of returns to skill on migrant's locational choices, it is of particular relevance to be able to assess, as I do, whether the interaction between migrant's individual schooling levels and the regional characteristics of migrant's different locational alternatives (including their income-inequality levels), have an effect on where migrants choose to settle.

Thus, although prior migration self-selection studies have employed this exact variation of the logistic model to test the effect of returns to skills, I nevertheless find that the mixed conditional logistic model (with its ability to assess the effect of interaction terms between regional and personal characteristics), is the best suited framework to analyze whether the individual settlement choices, in this case of Mexican internal migrants, are also being driven by regional differences in returns to skill.⁸

Using information from the 10% sample of the 2010 Mexican Census of Population and following the inter-disciplinary literature on locational choice studies, my analysis also makes these design choices:

- (1) I use a cross-sectional approach to analyze migration over a five year interval as do most models of internal migration that are estimated with Census data (Greenwood 1997; Davies, Greenwood and Li 2001; Aroca and Maloney 2005; Peeters 2008; Villarreal and Hamilton 2012). For simplicity's sake, I limit my analysis to adult males who have migrated for work reasons, so I only select the Census information of male Mexican migrants aged 18 to 65 who in 2010 resided in a different location than they did in 2005.⁹

- (2) I use an empirical strategy that focuses on the choice of destination, conditional on the migration decision, thereby restricting the analysis to individuals who resided in a different location in 2005 than in 2010 (as do Fafchamps and Shilpi 2008; Villarreal and Hamilton 2012). Davies et al. (2001) included migrants and non-migrants in their analysis because they believe that the decision to move cannot

really be separated from the decision regarding destination. However, according to Gabriel and Schmitz (1995), Akee (2006), McKenzie and Rapaport (2007) and Fafchamps and Shilpi (2008), including non-migrants in the analysis can easily lead to over-estimating the gains from migration because the datasets generally employed do not provide enough information adequately to control for selection bias among migrants.¹⁰ Therefore, although, as a sensitivity check, I also run the analysis for migrants and non-migrants alike (where the decision to stay is one option along with the consideration of all potential alternative destinations), I nevertheless chose as my preferred empirical strategy the more conservative approach of not including in the analysis the decision to migrate itself, but rather to focus only on the locational choices of movers.

- (3) Calculating a ratio between the characteristics of migrants' sending and possible destination areas, as commonly is done (see Greenwood 1997; Davies et al. 2001; Orrenius and Zavodny 2003; Fafchamps and Shilpi 2008; Peeters 2012), I construct measures of the differentials between characteristics of locations that are believed to affect the choice of migration destination. I construct this measure because, when analyzing internal migration, the characteristics of a destination area will be viewed differently by individuals in different origins. Therefore, according to Greenwood (1997), studies of individual region-to-region migration choices should be based on the comparison of the attributes of possible destinations with those of an individual's current region of residence.

(4) In terms of the geographical level of analysis, I perform the study at, both the regional and the state levels.¹¹ For the regional-level analysis, I formed 7 regions, each of which comprises contiguous Mexican states that share a number of socioeconomic and cultural commonalties. The 7 Mexican regions I formed are the: *North West* (Baja California, Baja California Sur, Chihuahua, Durango, Sinaloa, Sonora); *North East* (Coahuila, Nuevo León, Tamaulipas); *North Central* (Aguascalientes, Guanajuato, Querétaro, San Luis Potosí, Zacatecas); *West* (Colima, Jalisco, Michoacán, Nayarit); *Central* (Distrito Federal, Hidalgo, México, Morelos, Puebla, Tlaxcala, Veracruz); *South* (Chiapas, Guerrero, Oaxaca, Tabasco) and *South East* (Campeche, Quintana Roo, Yucatán).

My preferred empirical strategy is at the regional level rather than the state level, because the results of a state-to-state analysis could be biased given that a large proportion of the inter-state movers may actually be inter-metropolitan movers who cross state borders. For example, according to CONAPO's (2014) descriptive study of Mexican migration, the intra-metropolitan mobility is actually so dynamic in the larger metropolitan areas, that it constitutes a type of migration of a larger magnitude than the migration that comes from outside its limits.

Moreover, different metropolitan areas in and near the Valle de México (Mexico City) actually cross the borders of several states in central Mexico. This overlap complicates control because, according to my calculation using the 2010 Mexican Census

of Population, 40% of all inter-state moves between 2005 and 2010 occurred within the contiguous central states of Mexico.¹²

Therefore, I decided to run the analysis first only for the inter-regional migrants (who between 2005 and 2010 moved from one Mexican region to another) and then, as a sensitivity check, to also run it for all inter-state migrants (who between 2005 and 2010 moved from one Mexican state to another). Results from using alternative ways to measure returns to skill, as well as other additional sensitivity analyses to check the robustness of my results, are reported as well.

Finally, since the independence of irrelevant alternatives (iia) is required for the conditional logit model, I conducted a test this independence, finding that the test cannot reject the validity of the iia property.¹³

2.5 Statistical Method

For simplicity's sake, I will only refer to the locational choices of inter-regional migrants (my preferred strategy), even when, as a sensitivity analysis, I also use the same statistical method to assess the determinants of the locational choices made by inter-state migrants.¹⁴

Thus, a statistical model is specified that explores the determinants of the locational choices made by Mexican inter-regional migrants who resided in one region in 2005 and in another in 2010.

I postulate a migrant who seeks to maximize personal utility through his choice of a Mexican region for settlement. I use a conditional logit framework to model a utility

maximizing inter-regional migrant in a discrete choice situation. The conditional logit and mixed conditional logit models have long been among the preferred frameworks for analyzing location choice, since they allow us to identify the social and economic regional characteristics that influence migrants to choose certain regions over others (Villarreal and Hamilton 2012; Fafchamps and Shilpi 2008; Davies, Greenwood and Li 2001).

This model assumes that an inter-regional migrant has a set of N possible location choices (6 regions, out of 7 Mexican regions) and that there is a level of utility, U_{ij} , for an individual inter-regional i at region j .¹⁵

Each inter-regional migrant implicitly compares the perceived utilities obtainable in each of the N regions in which he might settle, and selects the region that offers the largest perceived utility. Therefore, the probability that inter-regional migrant i , chooses to settle in region j is given by:

$$P_{ij} = P(U_{ij} = \text{MAX} [U_{i1}, U_{i2}, \dots, U_{iN}]). \quad (1)$$

To estimate equation (1), it is necessary to have information about the utility levels that are present in each of the N regions. Since it is impossible to observe utility levels, an alternative is to specify the variables that in each region presumably affect that utility level. Thus, in each region, an inter-regional migrant's utility level is a function of the region's characteristics, X_{ij} .

Then, if we assume a linear relationship, the equation results in:

$$U_{ij} = \beta X_{ij} + e_{ij}, \quad (2)$$

where β is the parameter that will be estimated and e_{ij} is the error term.

Using equation (2), I can write the probability of selecting region j as:

$$P_{ij} = P(X_{ij} + e_{ij} > X_{i1} + e_{i1}, X_{ij} + e_{ij} > X_{i2} + e_{i2}, \dots, X_{ij} + e_{ij} > X_{iN} + e_{iN}). \quad (3)$$

McFadden (1973) has shown that if the e 's are expected to be independently and identically distributed, then equation (3) can be rewritten as:

$$P_{ij} = \frac{e^{(X_{ij}\beta)}}{\sum_{n=1}^N e^{(X_{in}\beta)}} \quad (4)$$

Equation (4) is the conditional logit or likelihood function for any inter-regional migrant i who has chosen to settle in region j . That is, P_{ij} is the probability that individual i will choose to migrate to destination j among N alternative destinations.¹⁶

The conditional logit model in equation (4) assumes that X_{ij} and X_{in} are the characteristics of the j th and n th alternative destinations for individual i respectively, while, as said before β is a vector of the parameters to be estimated.

As also mentioned earlier, I use a conditional logit mixed model variation in which the interaction terms between individuals' characteristics and the regional characteristics of their alternative destination options are also used as predictors of their location choice.

2.6 Data and Variables

All the data employed, I downloaded from Mexico's official data source, namely the Instituto Nacional de Estadística, Geografía e Información (INEGI).¹⁷ INEGI's 10% Public Use Sample of the 2010 Mexican Census of Population generates migration flow information from a question that asks in what location (state and county) the interviewee resided 5 years ago.¹⁸

From the Public Use Sample of the 2010 Mexican Census of Population I selected information about male individuals between eighteen and sixty five years of age who resided in a different region (or state) in 2005 than they did in 2010, and whom I call inter-regional (or inter-state) migrants.¹⁹ For simplicity's sake (again in this case), I describe only how I built the dataset for individuals who moved across regions, and the regional-level variables that I created to analyze the settlement patterns of inter-regional migrants; but I followed the exact same logic to build the state-level dataset and state-level variables to analyze the settlement patterns of inter-state migrants.

The dependent variable is the probability P_{ij} that the inter-regional migrant i chose to settle in region j , with the probability assumed to be a function of the utilities associated with the six other regions in the choice set. Thus, the dependent variable that I call

Destination- Choice has a value of 1 for the region in which the inter-regional migrant respondent chose to settle; and it has a value of 0 for all 5 other regions.²⁰

I represent the utilities associated with the regions in the choice set through control variables that I selected based on previous studies as well as on theoretical grounds.

Different models are estimated for Mexican inter-regional migrants, with utilities represented by a series of observed explanatory variables which are expected to affect locational choice, and that account for the differentials between regions' socio-demographic and economic characteristics during the initial period of the analysis (2005), as well as their interactions with personal characteristics of migrants known to influence settlement choice (see Bartel 1989; Newbold 1999).²¹

INEGI only reports the socio-demographic and economic place-characteristics at the state (and county) levels so, for my regional-level analysis, I first had to calculate the weighted averages that correspond to the boundaries of the regions I formed.

The predictors of migrant destinations that I assess as regressors are the following:

a.) Main Independent (Hypothesis Related) Variable: Interaction Term between Migrant's Years of Schooling and the Regional Differential in Income Inequality:

According to the self-selection model, a region's returns to skill are, net of other factors, proportional to the region's income inequality (Borjas et al. 1992). Therefore, self-selection studies that assess the effects of returns to skill on the locational choices of migrants generally test whether the difference in the relative income inequality between

migrant's potential destination regions and their home or source region, drive a sorting of migrants by schooling levels across destinations that have different levels of income inequality (Borjas et al. 1992; Rosenzweig 2007; Clark et al. 2007; Belot and Hatton 2008; Brücker and Defoort 2009; Ortega and Peri 2009; Grogger and Hanson 2011; Mayda 2010).

Since self-selection studies commonly use the GINI coefficient as a proxy of income inequality, to form the main independent variable for my preferred model specification, I employ INEGI's published data of all Mexican states' GINI coefficient.²²

The main independent variable for my preferred model specification that I call *Q_Schl_X_R_Gini*, I obtained by first calculating the differentials (ratios) between the GINI coefficients of migrants' possible 2010-settlement regions and their 2005-region of residence (*R_Gini*), and by then multiplying *R_Gini* times each respondent's individual years of schooling measured in quintiles (*Q_Schl*).²³ According to the self-selection model, when proxying returns to skill with the interaction term *Q_Schl_X_R_Gini*, we should see a negative effect, since higher levels of *R_Gini* (which correspond to lower levels of income inequality) should attract migrants with lower levels of skill.

To check the robustness of my results I also use alternative returns to skill proxies that are employed by other self-selection studies. I run sensitivity analyses using i.) The interaction term between migrant's schooling level and the regional differential in the percent of the regional gross product owned by the richest 10% of the population in that region (*Q_Schl_x_%GDP_10pc_Richest*), a common way to measure income inequality (see McKenzie and Rapaport 2007), ii.) The average values of the regional differentials in education specific earnings (following Grogger and Hanson 2011); and iii.) The regional

differentials of the GINI coefficients (R_Gini) when running separate analyses for the groups of migrants with different schooling levels.²⁴

b.) Migrant Networks:

As a control for possible linkages between prospective out-migrants in each migrant's home region and family and friends already settled in each of the potential destinations, I include for each individual the logarithm of the total number of persons from his region (or state) of birth who in 2005 lived in each of the 6 regions (or 31 states)²⁵. This control is essential because prior studies have repeatedly found that this measure captures the all-important migrant network effect by proxying the social ties between communities of origin and communities of destination that have been formed by past migrations and that reduce the migration costs for later migrants (Massey 1990; Palloni et al. 2001; Davis et al. 2002; Peeters 2008; Villarreal and Hamilton 2012; Bartel 1989; Scott et al. 2005; Zelinsky and Lee 1998). Following the standard findings of the migration literature and also the findings of studies in Mexico of international and internal migration, I expect the presence and the size of these migrant networks to be a key and positive determinant of location choice among Mexican inter-regional (and inter-state) migrants (Massey and Espinosa 1997; Palloni et al. 2001; Davis et al. 2002; Peeters 2008; Villarreal and Hamilton 2012; Curran and Rivero-Fuentes 2003; Aroca and Maloney, 2005).

c.) Being a Return-Migrant (Binary Variable):

Because about 40% of migrants return to their region of birth, in some specifications I also complement the migrant network proxy with a binary variable that indicates whether the migrant is returning to his region (or state) of birth; alternatively, I sometimes restrict the analysis to non-return-migrants. Both variables are routine in studies that include cyclical migration, and much internal migration within Mexico is cyclical (Massey et al. 1987; Massey and Espinosa 1997). Following the literature, I expect this return migration dummy variable and the network proxy greatly to improve the odds of settlement choice.

d.) Regional Differential in Total Population:

A region's total population can also influence settlement choice because settlement choice correlates with job opportunities as well as with the scope and scale of local services (Davies, Greenwood and Li 2001). The control for a region's population also acts as a scaling factor that accounts and adjusts for the size of the different streams of migration into and out of regions of various population sizes (Peeters 2008). Thus, as commonly done in locational choice studies, I control for total population by constructing a population variable (Ln_Pop) as the ratio between the natural logarithm of the population size of each migrant's possible 2010-destination region and the natural logarithm of the population size of each migrant's region of 2005-residence (see Davies, Greenwood and Li 2001; Peeters 2012). The population size information that I use to build these ratios, I obtained from INEGI's main results of the 2005 Inter-Decennial Population Count, which coincides with

the beginning of the 5-year period under consideration (2005–2010).²⁶ Following Bartel (1989), Scott et al. (2005), Davies, Greenwood and Li (2001), Aroca and Maloney (2005) as well as Villarreal and Hamilton (2012), I expect the coefficient of *Ln_Pop* to exhibit a positive sign on the probability of settling in regions (or states).

e.) Differential of Job Growth between 2005 and 2010:

Similarly, as a conventional indicator of the vibrancy of each region's economy I include the region's (or state's) percentage job growth during the period of analysis (Newbold 1999; Scott et al. 2005). Using INEGI's employment information for 2005 and 2010, for each inter-regional migrant, I formed the ratio between the job growth experienced by each migrant's potential 2010-destination-region and his region of 2005-residence.²⁷ This regional differential in job growth I labeled *Job_Growth_0510*, and following the literature (i.e. Newbold 1999; Scott et al. 2005), I expect to exhibit a positive sign.

f.) Distance from Region (or State) of 2005-Residence to 2010-Destination

Alternatives:

As a proxy for transportation and lodging expenses, as well as for indirect psychological costs related to migration, the distance between origin and potential destination regions is generally also included in settlement choice studies (Bartel 1989; Newbold 1999; Peeters 2012; Davies et al. 2001). There are two common ways to include the distance variable. One way is to include in the model the log transformed distance

measures between regions (i.e. see Peeters 2012), and the other is to include in the model the direct measure of distance, along with its squared term (see Davies, Greenwood and Li 2001; Aroca and Maloney 2005). Although I tested the effect of distance using both common alternatives, I obtained the best fit statistics when I used the log-transformed measure of geographical proximity, that I call *Ln_Distance*. Thus, my distance measure was calculated by log transforming the data on highway distances in hundreds of kilometers between the capital city of each migrant's home state and each region's central part or each of the Mexican state capitals, that I obtained from the City Distance Tool (<http://www.geobytes.com/CityDistanceTool.htm?loadpage>). Because a century of migration studies has consistently found that a greater distance between origin and destination reduces the expected settlement probability of migrants, I expect *Ln_Distance* to exhibit a negative effect (Bartel 1989; Newbold 1999; Davies et al. 2001; Aroca and Maloney 2005).²⁸

g.) Regional Differential in Mean Earnings (Average Income):

As an indicator of regional differences in living standards I also include the ratio of the per capita income in 2005 of a migrant's possible 2010-destination regions and their region of 2005-residence (as do Peeters 2012; Greenwood 1997; Newbold 1999; Scott et al. 2005; Villarreal and Hamilton 2012). The regional differential in average income levels (*R_Ln_Earnings*), I calculated using regional weighted averages of state's GDPs that I obtained from the Municipal Indicators of Human Development in Mexico generated by the United Nations Program for Development of Mexico (PNUD-Mexico).²⁹ Following the

literature, I expect migrants to prefer destinations with higher relative income levels, since other studies have found that migrants are generally attracted to destinations with relatively higher per capita incomes (see Davies et al. 2001; Villarreal and Hamilton 2012; Peeters 2012).²⁹

h.) Regional Differential in Unemployment Rate:

As an indicator of labor-market conditions and particularly of the different job opportunities between destination and origin regions, locational choice studies often control for the effect of regional differentials in unemployment rates (Peeters 2008; Davies et al. 2001). Although, a principal reason for migration is the search for jobs, and standard economic theories of migration predict that a region's higher unemployment level should deter migration, empirical findings have been mixed (Davies et al. 2001; Lucas 1997; Aroca and Maloney 2005). Moreover, the effect that relatively high regional unemployment levels may have within developing countries is even less clear, since these countries often have large regional variations regarding their participation in the more formal sectors of the economy, the only sectors in which unemployment rates actually are recorded (Portes and Roberts 2005; Villarreal and Hamilton 2012). For example, in Mexico, high unemployment levels tend to be correlated with a higher share of the population working in the modern sectors of the economy whereas poorer regions (that generally have a high share of labor force in the primary sector and particularly in agriculture) have the lowest unemployment rates. So, even though I do not have a specific expectation about the effect of unemployment levels, I decided to include the regional differential in unemployment

levels in some specifications because this variable is an important measure for which controls are essential. These regional differentials of unemployment rates I built by calculating the ratio of unemployment rates between migrant's possible 2010-destination regions and each migrant's region of 2005-residence (*R_Unemployment*), when using information from INEGI.³⁰

i.) Urbanization Levels:

As a catch-all variable that controls for local cost of living, amenities, and formal and informal job opportunities, I proxy the degree of urbanization of a migrant's 2005 location (*Urb*). This I do because such important aspects of affordability, opportunities and amenities may vary more across locations of different sizes than across regions, and may, thus, affect settlement choices (Åslund 2005; Damm and Rosholm 2010; Aroca and Maloney 2005; Fafchamps and Shilpi 2008; Peeters 2012; Davies et al. 2001; Newbold 1999; Scott et al. 2005; Villarreal and Hamilton 2012). Because the 2010 Mexican Census information only provides information about the exact urbanization level of respondent's 2010- but not about their 2005-location, I am unable to use *Urb* directly as a control variable. Following Villarreal and Hamilton (2012), I instead run model specifications separately for inter-regional migrants whose 2005-county of residence I classified as being mostly rural or mostly urban, given the total population number of the county in which each migrant resided in 2005.³¹

j.) Regional Differential in Income Inequality:

Although, the interaction term *Schl_X_R_Gini* is my main independent variable, in some specifications I also include *R_Gini* as an additional control of income inequality, because its inclusion obtains a better model fit. I, however, test the effect the interaction term *Schl_X_R_Gini* with and without the inclusion of *R_Gini*, in order to assess whether the results are robust to its inclusion or exclusion. Following the self-selection hypothesis, I expect *R_Gini* to have a negative effect on settlement choice, since higher levels of income inequality are generally associated higher levels of poverty.

k.) Share of the Population working in the Primary Sector:

Also as an indicator of labor-market conditions and particularly of the different job opportunities between destination and origin regions, locational choice studies often control for the effect of regional differentials in the share of the population working in agriculture or in the primary sector (Peeters 2012; Stark et al. 1991). For a developing country, the expectation is that a region's high share of the population working in agriculture is correlated with lower levels of development (and higher poverty), and thus, that it would induce higher levels of out-migration (Todaro 1969; Stark et al. 1991). In some specifications I decided to include the regional differential in the share of the population working in the primary sector (and as an additional control also of the GNP of agriculture as a proportion of the total GNP in each region) because this variable may control for regional differences in development in a more direct way than other variables. These regional differentials of share of the population working in the primary sector in 2005 I

built by calculating the ratio of these shares between migrant's possible 2010-destination regions and each migrant's region of 2005-residence ($R_Rate_ \%Pop_Prim_Sec$), when using information from the Census (INEGI).³²

k.) Differential in Insecurity Levels:

During the period of analysis (2005-2010), insecurity levels were quite high in many parts of Mexico, mainly as a result of drug criminals. Therefore, as a proxy of insecurity levels, in some specifications that I run at the state-level, I also include the state differential in the number of homicides per 100,000 people between migrant's possible 2010-destination states and their 2005-state of residence, which I labeled R_Insec .³³ The reason I only control for R_Insec at the state level and not at the regional level is because regions are too large for this proxy to be meaningful. And, although I have not found studies that have assessed whether insecurity levels have influenced Mexicans' overall inter-state or inter-regional migration and settlement patterns, following studies performed in other countries (see Cebula 2005; Khoudour-Castéras 2007; Morrison and May 1994; Sandoval, Botón and Botero 2011) I expect higher insecurity levels to depress the odds of settlement choice.³³

l.) Regional Fixed Effects (Binary Variables):

The previously mentioned variables are all either regional differentials between migrant's potential destinations and regions of 2005-residence regarding certain socioeconomic or demographic characteristics expected to influence settlement choice, or

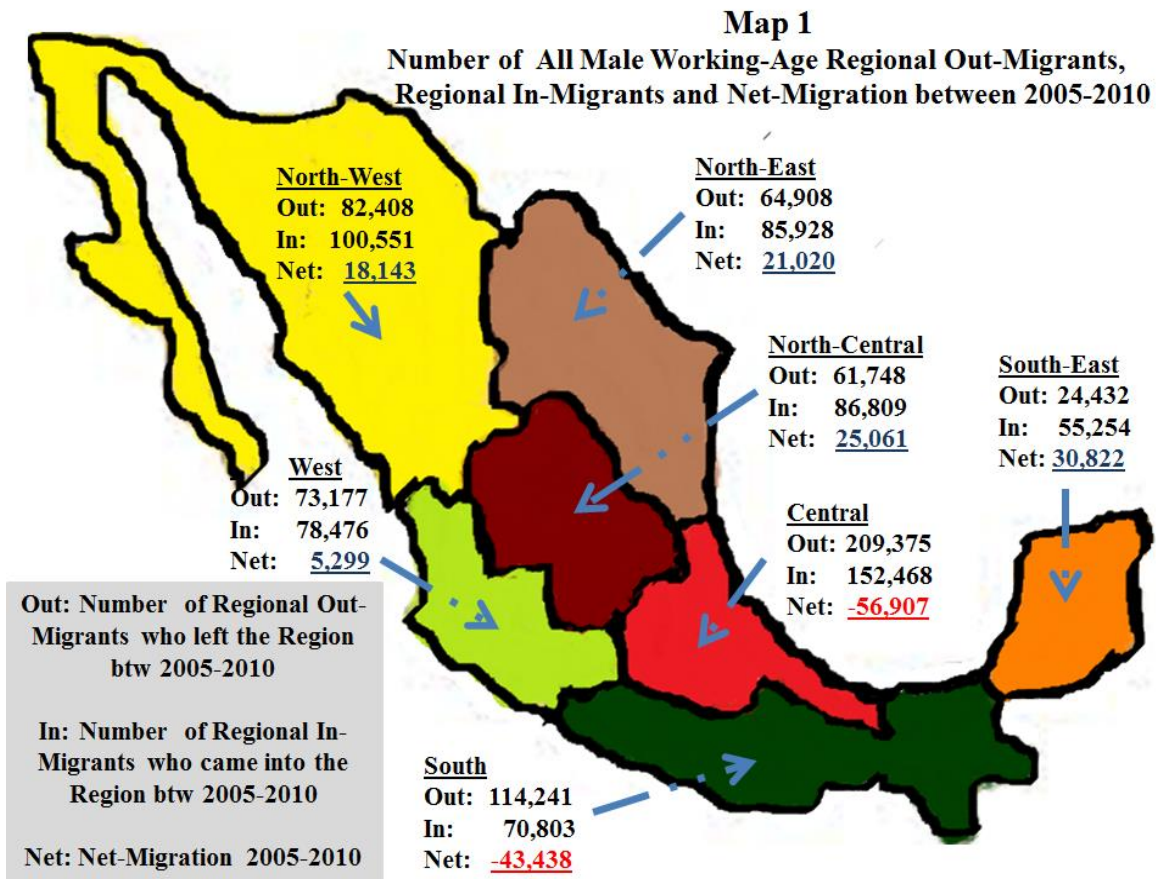
they are the interaction terms between these differentials and migrant's personal characteristics. However, it is possible that apart from these regional differentials and interaction terms, other observable and or unobservable 2005-source-region-specific characteristics might influence migrant's settlement patterns (Grogger and Hanson 2011; Davies, Greenwood and Li 2001; Peeters 2012). So, instead of controlling for an additional set of observable source-region characteristics directly, I also control for all observable and unobservable source-region (or source-state) characteristics by creating dummy variables for each region (or state). These variables control for source-region fixed effects (Grogger and Hanson 2011). For each region I, thus, created one dummy variable, resulting in 7 dummy variables, with the South Eastern region of Mexico, being the omitted variable.

Likewise, for the inter-state analysis, I created a dummy variable for each state resulting in 32 dummy variables, with Zacatecas being the omitted variable. I also present the results of the different analyses with and without regional fixed effects (including the fit statistics in each case), because, although Davies et al. (2001) includes regional fixed effects, Villarreal and Hamilton (2012) do not. Additionally in some specifications the inclusion of regional fixed effects improves the goodness of fit, whereas sometimes I obtain better fit statistics when they are excluded. Moreover, by controlling only for regional characteristics in terms of the regional differentials, their interaction terms with individual-level characteristics, and regional fixed effects, I guarantee that all variables are scaled to comparable size, as required for the conditional logit procedure.

2.7 Summary Data

This section presents each region's economic and migration flow statistics as well as information about the average schooling levels of the inter-regional migrants who left and entered each region between 2005 and 2010. Then, combining these data in a preliminary analysis, I address each region's descriptive information, inquiring whether migration flows conform to the self-selection hypothesis. I also inquire whether the size of each region's migration flows corresponds to what, during the last century, had been the typical pattern of Mexico's internal-migration, e.g. that the regions with relatively high average incomes attracted the most migrants.³⁴

Map 1 displays the number of individuals who resided in a given region i in 2005 (i.e. the South) but who had out-migrated, and, by 2010 resided in one of the other 6 regions. These persons I call regional out-migrants. Likewise, for each region, Map 1 shows the number of individuals who came into, and by 2010 resided in a given region j , while in 2005 they had resided in one of the other 6 regions (regional in-migrants).



Likewise, for each Mexican region, Table 2.1 displays the following statistics: a.) Total population in 2005 in millions, b.) Average income in 2005, c.) Location quotient of average income in 2005 (relative to the national average income that I normalized to 1), d.) Number of new jobs by million inhabitants between 2005 and 2010, e.) Location-quotient of number of new jobs by million inhabitants between 2005 and 2010, f.) Income-inequality, e.) Location quotient of income inequality.

Similarly, for each Mexican region, Table 2.2 displays the following regional and migration statistics: a.) Location quotient of average income in 2005, b.) Net migration flows (that is, the number of migrants who between 2005 and 2010 entered a region minus the number of migrants who left that region), c.) Net migration intensity (namely, each region's net migration between 2005 and 2010 divided by the total population of each region) , d.) Percent of non-return migrants among the region's total in-migration flow between 2005 and 2010, e.) Percent of non-return migrants among the region's total out-migration flow.

Table 2.3 presents the average years of schooling of regional out- and in-migrants. So that Mexico's high levels of regional cyclical migration do not blur our understanding of migrant's characteristics, I also show the average years of schooling of the non-return regional out- and in-migrants (that is, of all the inter-regional migrants who had not, by 2010, settle in their region of birth).³⁵

For simplicity's sake, Table 2.3 likewise shows the location quotient which indicates the percent by which the average years of schooling of the total streams of regional in- and out- migrants, and that of the non-return regional in-and out-migrants, lay above or below the average schooling level of all inter-regional migrants.

Table 2.1

Region's Total Population in 2005 in Millions, Average Income in 2005, Location Quotient of Average Income in 2005, Number of New Jobs per Million Inhabitants between 2005-2010, Location Quotient of Number of New Jobs by Million Inhabitants 2005-2010, GINI Coefficient in 2005 and Location Quotient of GINI Coefficient.

Region	Total Population 2005 in Mill	Av. Income 2005	LQ Av. Income 2005	New Jobs Per Mill Inhab. 2005-2010	L.Q. New Jobs Per Mill Inhab. 2005-2010	GINI Coefficient 2005	LQ of GINI Coefficient 2005
South-East	4.10	5,727	0.91	52,254	23.36	0.48	1.05
North-Central	12.58	6,185	0.99	31,822	25.62	0.49	1.15
North-East	10.67	7,189	1.15	35,339	16.33	0.44	0.73
North-West	14.26	7,250	1.16	36,203	19.04	0.46	0.85
West	13.44	6,720	1.07	36,358	22.04	0.47	0.99
Central	43.06	6,340	1.02	33,963	21.15	0.48	0.95
South	14.23	3,900	0.62	26,627	30.71	0.53	1.38

Table 2.2

Region's Location Quotient of Average Income in 2005, Net Migration between 2005-2010, Number of Net Migrants 2005-2010 by Million Inhabitants, Percentage of Non-Return-Migrants among of Total In-Migration Flows between 2005-2010, Percentage of Non-Return-Migrants among Total Flow of Out-Migrants 2005-2010.

Region	L.Q. of Av. Income 2005	Net Migration 2005-2010	Net Migration per Mill. Inhab 2005-2010	% Non-Return-Migrants among Total In-Migrants 2005-2010	% Non-Return-Migrants among Total Out-Migrants 2005-2010
South-East	0.91	30,822	7,511	92%	41%
North-Central	0.99	25,061	1,993	75%	62%
North-East	1.15	21,020	1,970	84%	45%
North-West	1.16	18,143	1,272	84%	40%
West	1.07	5,299	394	71%	66%
Central	1.02	-56,907	-1,322	43%	82%
South	0.62	-43,438	-3,053	41%	82%

Table 2.3

Region's Location Quotient of Average Income in 2005, Average Years of Schooling of Non-Return Out-Migrants who left each Región after 2005, and Average Years of Schooling of Non-Return In-Migrants who came into each Region by 2010

Region	Location Quotient of Av. Income	Av. Years of Schooling of Non-Return Out-Migrants who left Region after 2005	Av. Years of Schooling of Non-Return Out-Migrants came into Region by 2010
South-East	0.93	11.75	10.93
North-Central	0.99	10.42	11.89
North-East	1.16	11.97	10.55
North-West	1.17	11.40	9.74
West	1.09	10.97	10.95
Central	1.02	11.20	10.90
South	0.63	9.53	11.57

As can be seen in Table 2.2, four regions experienced positive migration flows and, thus, a net gain of inter-regional migrants between 2005 and 2010. These were the South-East, North-Central, North-Eastern and North-Western regions.

South-East and North-Central

The South-Eastern and the North-Central regions attracted the most inter-regional migrants and also experienced the largest employment growth between 2005 and 2010. However, contrary to last century's typical Mexican internal migration patterns, the mean wage levels of these two main migrant attractor-regions were below, and consequently their income-inequality levels above the national means.³⁶ Table 2.3 shows as well that in 2010 the average years of schooling of both the total and non-return streams of in-and out-migrants who left and came into the South-East and North Central, were always above the inter-regional migrant's mean schooling level. Although the above average schooling level of those coming into the South-Eastern and North-Central regions conforms to the self-selection hypothesis (people with high schooling enter poorer regions), the above average schooling level of those leaving these regions, does not. The non-conformity of the average schooling levels of the out-migration flows from these two regions is probably due to the fact that these regions' large employment growth also created high demand for relatively low-skilled workers. It, therefore, seems likely that the low-skilled residents from these regions found relatively good-paying low-skill jobs close to their home, and therefore did not have search for jobs in other regions.

North-East and North-West

During this same period, and when compared to the South-East and North-Central, the North-Eastern and North-Western regions experienced a smaller but still important net gain of inter-regional migrants while having a close to average level of employment growth. Moreover, consistent with Mexico's typical internal migration pattern of last century, these two migrant-attracting regions had the country's highest average income and the lowest income inequality levels in 2005. In terms of the schooling levels, the total- and non-return flows of in- and of out-migrants conform to the self-selection hypothesis. We see this conformity because, particularly in the case of the non-return out-migrants who left these two high-income regions, their 2010-average years of schooling lay considerably above the inter-regional migrant's national mean; and, among the non-return in-migrants who entered these two regions, the average years of schooling lay considerably below this mean. The difference in schooling levels between the total stream and the non-return stream of out- and in-migrants from and to the North West is particularly extreme because during the North West's main agricultural season, many relatively low-skilled migrants (mainly from the Southern region) come to work there, and then return home. Hence, the percent of cyclical migration to the North-Western region is the highest of any region.

West

The Mexican West was the only region that, having a low net-inter-regional migration intensity basically exhibited an equilibrium between in- and out- migrants. Between 2005 and 2010, the West experienced close to average employment growth, and

the West's average income level lay above the national mean in 2005. Thus, the small size of the in-migration flows into this high income Western region is contrary to the last century's typical Mexican internal migration pattern. Similarly, the small size of out-migration from the West is atypical. This distortion may reflect the West's traditional high access to migratory networks in destinations within the United States. As a result of these important migrant networks in the U.S., the Mexican West may experience diminished internal migration. The average schooling levels of the West's out- and in-migration streams conforms to the self-selection hypothesis, e.g. the West is a high income region that exports more high skilled labor and imports more low skilled labor.

Two Mexican regions were net exporters of labor. The Central and the Southern regions exhibited a net loss of inter-regional migrants, but the Central and the Southern regions were quite different in respect to their economic characteristics.

Central

Between 2005 and 2010, Mexico's Central region experienced a considerable population loss due to migration. In absolute numbers, the Center lost more people to out-migration than any other region, and only the South had a higher proportion of population loss from migration. However, contrary to the last century's pattern, the Central region experienced this large exodus despite above-average income and employment growth, and below-average income-inequality. On the other hand, the average years of schooling of the Center's total- and non-return- streams of inter-regional out- and in-migrants conform to the predictions of the self-selection hypothesis. Mexico's Central region was, thus, a

relatively high income region that, between 2005 and 2010, attracted mainly low skilled workers, and exported a large number of more high skilled workers.

South

The poorest region of the country, the South had an average income 38% below, and an income inequality level 38% above the national means in 2005. The South also had Mexico's lowest employment growth between 2005 and 2010. Consistent with last century's typical Mexican internal migration pattern, this poor region also had (relative to its population size) the country's highest out-migration rate, experiencing a net loss of 3,053 inter-regional migrants per one million inhabitants between 2005 and 2010. Moreover, consistent with the self-selection hypothesis, particularly among the non-return migrants, the average years of schooling of the in-migrants was higher than the mean schooling level of all inter-regional migrants, while the average years of schooling of the out-migrants was considerably below that mean. The conformity with the self-selection theory is particularly visible among the South's non-return migrants because the South's migrants were frequently cyclical, since many worked in the North-West's agricultural industries, and then returned home. In sum, the South is a poor region that exported a large number of low-skilled workers and imported high-skilled workers between 2005 and 2010.

Examining the descriptive statistics of Mexico's different regions regarding their income- and income-inequality levels, together with the average schooling levels of all regional in- and out-migrants, and particularly with that of the non-return migrants, I find preponderant support for the self-selection hypothesis. Thus, the average years of schooling

of the out-migrants from the higher average income regions (e.g. the North-Western the North-Eastern, the Western, and the Central regions) were all above the inter-regional mean schooling level of all inter-regional migrants whereas the average years of schooling of the inter-regional in-migrants into these high income regions was in all cases below this mean. Conversely, the streams of inter-regional in-migrants who came into the three lower income regions (the South, South-East and North-Central), all had an average schooling level above the inter-regional-migrant's mean, whereas the schooling levels of the inter-regional out-migrants who left the South and the North-Central regions was below this national mean, but this was not the case for the out-migrants from the South-East.

Moreover, the fact that, unlike last century's typical migration pattern, some lower income regions were exerting the strongest migrant-attraction, while some higher income regions were losing the most population to migration, suggests that, following a trend that had already begun in the previous century, the proportion of migrants with relatively high schooling levels probably kept increasing (see Garza 2003).

In summary, just from examination of the descriptive statistics, it is apparent that the average years of schooling of Mexico's different streams of regional in-and out-migrants were nearly always consistent with the self-selection hypothesis. Also, more even proportions of lower- and higher-skilled migrants suggest that this predicted effect should be detectable with analytical statistics. Therefore, I now turn to detailed econometric analyses that permit control for all the explanatory variables known or expected to affect migrant's locational decisions.

2.8 Estimation Results

Using the mixed-model conditional logit convention described above, for all male Mexican individuals aged 18-65 who resided in a different region in 2005 than in 2010 (inter-regional migrants), I assess the effect of their individual returns to skill on their settlement choices.

As explained earlier, I proxy the returns to skill by the interaction between each inter-regional-migrant's schooling level (measured in quintiles, Q_Schl), and the regional differential in income inequality, when measured in 2 different ways, namely R_Gini (the regional differential of the GINI coefficient) and $R_GNP_10pc_Richest$ (the regional differential in terms of the percent of the gross regional product that is owned by the 10% richest part of the population). The main independent variables that I alternatively use are, thus, $Q_Sch_X_R_Gini$ (the interaction term between the migrant's schooling level and R_Gini) and $Q_Sch_X_R_GNP_10pc_Richest$ (the interaction term between the migrant's schooling level and $R_GNP_10pc_Richest$).

In Table 4 I present the results of migrants' settlement choices when proxying the returns to skill as $Q_Schl_X_R_GNP_10pc_Richest$. As can be seen in Table 2.4, the odds ratio of $Q_Sch_X_R_GNP_10pc_Richest$ is statistically significant and positive across all specifications, thus showing that, as predicted, Mexican inter-regional migrant's settlement choices are sensitive to regional variations in returns to skill.³⁷

Moreover, the results of all specifications (see Table 2.4 columns 1-7) further show that, as expected, inter-regional migrants are highly (and significantly) attracted to regions

where the inter-regional migrant was born, as well as to regions where each inter-regional migrant has a large social network of earlier migrants from the same region of birth.

Likewise, in Table 2.4 we see that across all specifications, and as predicted, there is a consistent positive effect of the interaction between return-migration and individual's schooling levels, which shows that inter-regional migrants with fewer years of schooling are significantly more likely to return to their regions of birth, than are those with more years of schooling.

Also as expected, inter-regional migrants are significantly more attracted to settle in regions that have a higher average income and which are experiencing higher employment growth than are their 2005 regions of residence.³⁸

Conversely, but also as predicted, in Table 2.4 we can see that a region's high level of income inequality (*R_GNP_10pc_Richest*), unemployment (*R_UnEmp*), share of migration to the U.S. (*R_US_Mig*), percent population who works in the primary sector (*R_Rate_of_%Pop_Primary_Sector*), all depress the migrant's likelihood of choosing it for settlement.³⁹

However, the ratio between total population of possible destination regions and the total population of the region of residence in 2005 do not have an entirely consistent effect across specifications, since in all the specifications that do not control for regional fixed effects, a region's relatively larger population has a slightly negative and significant effect, while for the 2 specifications that control for regional fixed effects, the effect is not significant.

Every specification that I present in Table 2.4 passes all my regression diagnostics tests (multicollinearity vif, specification test, mfx margins, percent correctly predicted, MCFadden's Rsq) and, while I also ran some other specifications in which I included all independent variables at once (i.e. the regional differentials of average income, employment growth, unemployment levels, percent primary sector participation, with and without regional fixed effects) I do not present them because they had multicollinearity problems and sometimes also did not pass other diagnostic tests, even when they all consistently showed the same basic results in terms of my main or hypothesis-linked variable.

In Table 2.5 I present the same analysis as in Table 4, but this time the main independent variable is the interaction term $Q_Schl_X_R_Gini$. Like the results of Table 4, the ones shown in Table 5 also support my hypothesis, since $Q_Schl_X_R_Gini$ also has a consistently positive and significant effect across all specifications. Moreover the effect of $Q_Schl_X_R_Gini$ (see Table 2.5) seems to be even stronger than that of $Q_Sch_X_R_GNP_10pc_Richest$. However the difference in terms of the strength of the effect between these two variables that I use to proxy returns to skill is mainly due to their measurement characteristics, given that $Q_Schl_X_R_Gini$ has a much narrower dispersion than does $Q_Sch_X_R_GNP_10pc_Richest$.

The results of Table 2.4 and Table 2.5 are also similar in terms of the effect of all other variables. In general, then we see consistent findings when using as main independent variable the interaction term between migrant's schooling levels and the regional differentials of either one of these two measures of income inequality.

However, in order to further test my results, I also ran a series of additional robustness checks that I present in the next section, and which I compare to the results presented in Tables 2.4 and 2.5, and that I call my preferred specifications.

Table 2. 4

Effects of Regional Differentials and Regional Characteristics on the Settlement Choice of Male Working-Age Mexican Inter-Regional Migrants who moved across Regions between 2005-2010

<i>Variables</i>	<i>Odds</i>		<i>Odds</i>		<i>Odds</i>		<i>Odds</i>		<i>Odds</i>	
	<i>Ratio</i>	<i>p</i>	<i>Ratio</i>	<i>p</i>	<i>Ratio</i>	<i>p</i>	<i>Ratio</i>	<i>p</i>	<i>Ratio</i>	<i>p</i>
R_Total_Population_Mill	0.93 <i>[0.010]</i>	**	0.95 <i>[0.01]</i>	**	0.9 <i>[0.012]</i>	**	0.9 <i>[0.012]</i>	**	1.02 <i>[0.021]</i>	1.02 <i>[0.021]</i>
Ln_Co_Regional	1.92 <i>[0.039]</i>	**	1.94 <i>[0.04]</i>	**	2.0 <i>[0.04]</i>	**	2.0 <i>[0.04]</i>	**	1.81 <i>[0.047]</i>	1.80 <i>[0.045]</i>
Ln_Distance	0.89 <i>[0.031]</i>	**	0.83 <i>[0.029]</i>	**	0.83 <i>[0.03]</i>	**	0.85 <i>[0.03]</i>	**	0.59 <i>[0.038]</i>	0.61 <i>[0.035]</i>
R_GNP_10pc_Richest	0.22 <i>[0.04]</i>	**	0.19 <i>[0.04]</i>	**	0.25 <i>[0.057]</i>	**	0.25 <i>[0.057]</i>	**	0.15 <i>[0.09]</i>	0.27 <i>[0.127]</i>
Q_Schl_X_R_GNP_10pc_Richest	1.44 <i>[0.071]</i>	**	1.48 <i>[0.076]</i>	**	1.48 <i>[0.073]</i>	**	1.48 <i>[0.073]</i>	**	1.47 <i>[0.074]</i>	1.47 <i>[0.074]</i>
R_Av_Income_All	1.25 <i>[0.20]</i>		1.85 <i>[0.29]</i>	**					2.86 <i>[2.47]</i>	
Being_a_Return_Migrant	3.81 <i>[0.48]</i>	**	3.85 <i>[0.49]</i>	**	3.59 <i>[0.46]</i>	**	3.62 <i>[0.46]</i>	**	5.14 <i>[0.75]</i>	5.24 <i>[0.76]</i>
Q_Schl_X_Being_a_Return_Mig	0.73 <i>[0.02]</i>	**	0.73 <i>[0.02]</i>	**	0.73 <i>[0.019]</i>	**	0.72 <i>[0.019]</i>	**	0.72 <i>[0.02]</i>	0.72 <i>[0.02]</i>
R_New_Empl_by_Mill			1.23 <i>[0.09]</i>	**						
R_Av_Unemployment			0.72 <i>[0.05]</i>	**	0.71 <i>[0.048]</i>	**	0.70 <i>[0.046]</i>	**		
R_Rate_of_US_Emigration					0.94 <i>[0.021]</i>	**				
R_Rate_of_%Pop_Primary_Sector					0.82 <i>[0.026]</i>	**	0.80 <i>[0.025]</i>	**		
S1									0.88 <i>[0.29]</i>	1.29 <i>[0.148]</i>
S2									0.57 <i>[0.22]</i>	0.91 <i>[0.126]</i>
S3									0.66 <i>[0.059]</i>	** 0.70 <i>[0.054]</i>
S4									0.54 <i>[0.11]</i>	** 0.68 <i>[0.037]</i>
S5									0.48 <i>[0.08]</i>	** 0.58 <i>[0.056]</i>
S6									0.93 <i>[0.38]</i>	0.58 <i>[0.095]</i>
% Correctly Predicted		79		78		78		80		76
_Hat		0		0		0		0		0
_HatSq		0.875		0.94		0.82		0.84		0.148
										0.631

Table 2. 5

Effects of Regional Differentials and Regional Characteristics on the Settlement Choice of Male Working-Age Mexican Inter-Regional Migrants who moved across Regions between 2005-2010

Variables	Odds		Odds		Odds		Odds		
	Ratio	p	Ratio	p	Ratio	p	Ratio	p	
R_Total_Population_Mill	0.93	**	0.93	**	0.94	**	0.96	**	1.02
	[0.012]		[0.012]		[0.01]		[0.012]		[0.021]
Ln_Co_Regionals	1.96	**	1.97	**	1.93	**	1.96	**	1.81
	[0.04]		[0.041]		[0.038]		[0.04]		[0.046]
Ln_Distance	0.83	**	0.86	**	0.88	**	0.83	**	0.59
	[0.035]		[0.031]		[0.031]		[0.029]		[0.037]
R_GINI_by_Region	0.001	**	0.001	**	0.001	**	0.001	**	
	[0.0006]		[0.0008]		[0.0005]		[0.0008]		
Q_schl_X_R_GINI	5.92	**	5.98	**	5.24	**	5.79	**	5.82
	[1.19]		[1.21]		[1.01]		[1.18]		[1.17]
R_Av_Income_All					1.01		1.79	**	1.31
					[0.21]		[0.41]		[0.81]
Being_a_Return_Migrant	4.00	**	3.98	**	4.10	**	4.06	**	5.60
	[0.51]		[0.51]		[0.52]		[0.52]		[0.82]
Q_Schl_X_Return_Migrant	0.71	**	0.71	**	0.72	**	0.71	**	0.70
	[0.019]		[0.02]		[0.019]		[0.02]		[0.02]
R_New_Empl_by_Mill							1.25	**	
							[0.11]		
R_Av_UnEmployment	0.67	**	0.68	**			0.74	**	
	[0.043]		[0.043]				[0.05]		
R_Rate_of_US_Emigration	0.94	**							
	[0.021]								
R_Rate_%Pop_Prim_Sector	0.85	**	0.83	**					
	[0.027]		[0.025]						
S1									1.61
									[0.31]
S2									1.28
									[0.24]
S3									0.55
									[0.051]
S4									0.71
									[0.09]
S5									0.55
									[0.06]
S6									0.32
									[0.06]
% Correctly predicted	80%		81%		80%		78%		76%
_Hat	0		0		0		0		0
_HatSq	0.84		0.86		0.97		0.96		0.71

2.9 Sensitivity Analyses

To further check the robustness of my results, I perform a number of sensitivity tests, inquiring whether the results that I have obtained in my preferred specifications still hold once I: a.) Run the analysis separately for each group of migrants with different levels of schooling, b.) Use an alternative empirical strategy that assesses the migration patterns of both, movers and non-movers, c.) Employ a different geographical scale (states instead of regions), d.) Test for the omission of some high-profile states, e.) Run the analysis separately for the migrants whose 2005-county of residence was predominantly rural or urban, f.) Perform a rare events regression following King and Zeng (2001), which corrects for biases that may occur in different types of logit and logistic regressions that predict rare outcomes (when the datasets have many more 0s than 1s).

a.) Assessing the Effect of the Regional Differential in Income Inequality across Groups of Migrants with different Levels of Schooling:

It is conceivable that in the previous analyses the interaction terms I used to proxy returns to skill show a significant and positive effect because one of the groups of migrants with a certain level of schooling (low or high) may be extremely sensitive to the regional differences in returns to skill, thus possibly overwhelming the analysis and masking the fact that migrants with different schooling levels may not behave in a way that is consistent with the self-selection hypothesis.

Therefore, (as shown in Table 2.6) to test whether all the groups of inter-regional migrants who fall into the different quintiles of schooling levels behave as expected by the self-selection model, for each of the 5 different quintiles of schooling, I run an analysis that is similar to my preferred specifications, except that, instead of assessing the effect of *Q_Schl_X_R_GDP_10pc_Richest* (as I do in Table 2.4), I leave this interaction term out, and focus on whether the effect of *R_GDP_10pc_Richest* (the regional differential of income inequality) varies across the groups of migrants with different schooling levels in a way that supports my previous findings, and thus, my hypothesis.⁴⁰

As can be seen in Table 2.6 columns 4-8 and confirming my earlier results, inter-regional migrants who have relatively lower levels of education and, hence, fall into the education categories Quintile-1, Quintile-2 and Quintile-3, a region's income inequality that is higher than that of their region of 2005-residence, significantly depresses the odds of settling there. We can, moreover, see that the odds of settling in a higher income-inequality region declined as a migrant's schooling levels declined. For the inter-regional migrants who fall into the category Quintile-4 (see Table 2.6, col. 8) the effect of *R_GDP_10pc_Richest* is not significant, while for those who fall into the category with the highest levels of schooling (Quintile-5, see Table 2.6, col. 9), an income inequality that is higher than that in the region of their 2005-residence, significantly enhances the likelihood of settling there.

For example, for the inter-regional migrants with the lowest level of schooling, who fall into the category Quintile-1 (see Table 2.6, col. 4), an additional unit in the regional income differential *R_GDP_10pc_Richest* between a possible destination region and the

region of 2005-residence, reduces the odds of settling in that region by 77% ($0.77 = 1 - 0.23$).⁴¹

Conversely, for an inter-regional migrant who has high levels of schooling and falls into the category Quintile-5 (see Table 2.6, col. 8), an additional unit in the regional income differential *R_GDP_10pc_Richest* between a possible destination region and his region of 2005-residence, actually increases the odds of settling there by 95% ($0.95 = 1 - 95 - 1$).

Table 2.6

Effects of Regional Differentials and Regional Characteristics on the Settlement Choice of Male Working-Age Mexican Inter-Regional Migrants who moved across Regions between 2005-2010, by Quintile of Schooling Level

Variables			<i>Q_SCHL</i>		<i>Q_SCHL</i>		<i>Q_SCHL</i>		<i>Q_SCHL</i>		<i>Q_SCHL</i>		
			<i>1</i>		<i>2</i>		<i>3</i>		<i>4</i>		<i>5</i>		
	<i>Odds Ratio</i>	<i>p</i>	<i>Odds Ratio</i>	<i>p</i>	<i>Odds Ratio</i>	<i>p</i>	<i>Odds Ratio</i>	<i>p</i>	<i>Odds Ratio</i>	<i>p</i>	<i>Odds Ratio</i>	<i>p</i>	
R_Total_Pop_in_Mill	0.93 [0.10]	**	0.90 [0.011]	**	0.8 [0.049]	**	0.9 [0.033]	**	0.8 [0.024]	**	0.9 [0.023]	**	1.0 [0.021]
Ln_Co_Regional	1.95 [0.04]	**	1.95 [0.04]	**	2.3 [0.17]	**	2.3 [0.14]	**	2.2 [0.09]	**	2.0 [0.08]	**	1.7 [0.064]
Ln_Distance	0.87 [0.31]	**	0.84 [0.035]	**	0.89 [0.105]		1.02 [0.086]		1.07 [0.107]		0.81 [0.063]	**	0.59 [0.039]
R_GNP_10pc_Richest	1.15 [0.17]		1.11 [0.17]		0.23 [0.149]	**	0.56 [0.232]	*	0.62 [0.17]	*	1.50 [0.528]		1.95 [0.529]
Being_a_Return_Migrant	1.10 [0.085]		1.10 [0.086]		1.08 [0.27]		1.31 [0.33]		1.00 [0.14]		1.04 [0.18]		1.13 [0.16]
R_Av_Income_All	1.58 [0.25]	**											
R_New_Empl_by_Mill	1.36 [0.087]	**	0.61 [0.061]	**	0.13 [0.05]	**	0.50 [0.142]	**	0.40 [0.06]	**	0.87 [0.201]		1.16 [0.21]
R_Av_UnEmployment			0.54 [0.048]	**	0.15 [0.041]	**	0.43 [0.101]	**	0.37 [0.058]	**	0.58 [0.11]	**	1.08 [0.201]
R_Rate_of_US_Emigration			0.88 [0.023]	**	0.81 [0.081]	**	0.86 [0.057]	**	0.86 [0.04]	**	0.88 [0.054]	**	0.92 [0.04]
R_Rate_%Pop_Prim_Sector			0.74 [0.028]	**	0.68 [0.12]	**	0.79 [0.08]	**	0.70 [0.048]	**	0.68 [0.059]	**	0.84 [0.056]
	618,593		618,593		47,318		86,037		156,099		134,863		194,276
_Hat	0		0		0		0		0		0		0
_HatSq	0.85		0.71		0.53		0.39		0.49		0.60		0.32
Correctly Perdicted %	80		75		85		83		79		72		72

b.) *Using an Alternative Empirical Strategy that includes Movers and Non-Movers:*

Possibly I might obtain different results if I follow the preferred empirical strategy of studies like Davies, Greenwood and Li (2001) which assess the determinants of settlement choices for both, movers and non-movers alike, - instead of restricting the

analysis to just movers, as I did before, and, as for example, prefer to do Fafchamps and Shilpi (2008), Villarreal and Hamilton (2012), Taylor et al. (1999) and Orrenius and Zavodny (2003).

Following an analysis similar to that of my preferred specifications I, therefore, also assess the effect of regional differences regarding Mexicans' returns to skill for all male Mexicans aged 18-65 (both, inter-regional movers and all non-movers), when including a dummy variable (*Stayed_in_2005_Region*) that indicates if the individual stayed in his region of 2005-residence (coded 1), or by 2010 had moved to another region (coded 0).

As can be seen in Table 2.7, the results support my previous results and show that the interaction term *Q_Schl_X_R_GDP_10pc_Richest* in the specification presented in column 2, as well the interaction term *Q_Schl_X_R_Gini* in the specifications shown in columns 1, 3, 4 and 5 are all positive and highly significant.

Thus, while the results of analyzing the migration patterns of all movers and non-movers, do confirm my hypothesis, the effect of *Q_Schl_X_R_Gini* and *Q_Schl_X_GDP10pc_Richest* are, nevertheless, not as strong as when I restrict the analysis to just movers. I believe the reason that the effect is less strong when analyzing both, movers and non-movers is, at least, in part, due to the fact that this empirical strategy can reflect the different levels of mobility that exist in the different regions, which is not possible when I restrict the analysis to movers.⁴²

Table 2.7
Effects of Regional Differentials and Regional Characteristics on the Settlement Choice of
All Male Working-Age Mexicans (Movers and Non-Movers) between 2005-2010

<i>Variables</i>	<i>Odds</i>		<i>Odds</i>		<i>Odds</i>	
	<i>Ratio</i>	<i>p</i>	<i>Ratio</i>	<i>p</i>	<i>Ratio</i>	<i>p</i>
Stayed_in_2005_Region	463 <i>[72]</i>	**	679 <i>[107]</i>	**	519 <i>[82]</i>	**
R_Total_Population_in_Mill	0.92 <i>[0.025]</i>	**	0.96 <i>[0.027]</i>	*	0.93 <i>[0.024]</i>	**
Ln_Co_Regionals	1.32 <i>[0.023]</i>	**	1.32 <i>[0.023]</i>	**	1.32 <i>[0.023]</i>	**
Q_Schl_X_R_Gini			6.26 <i>[2.11]</i>	**	7.48 <i>[2.52]</i>	**
Q_Schl_X_R_GDP_10pc_Richest	1.51 <i>[0.117]</i>	**				
R_Av_Income_All	0.05 <i>[0.042]</i>	**	0.26 <i>[0.141]</i>	**	0.01 <i>[0.007]</i>	**
Return_Migrant	25.92 <i>[6.32]</i>	**	29.59 <i>[7.25]</i>	**	31.00 <i>[7.43]</i>	**
R_%US_Emigration	0.38 <i>[0.059]</i>	**			0.39 <i>[0.061]</i>	**
R_%Pop_Primary_Sector	1.08 <i>[0.131]</i>				1.41 <i>[0.116]</i>	**
Q_Schl_X_Stayed_in_Region	0.86 <i>[0.031]</i>	**	0.83 <i>[0.032]</i>	**	0.83 <i>[0.031]</i>	**
Correctly Perdicted %	98%		98%		98%	
_Hat	0		0		0	
_HatSq	0.08		0.21		0.67	

Note: McFadden's Rsq was 94% for all specifications, and all specifications control for Regional Fixed Effects

c.) Using a Different Geographical Scale- States instead of Regions:

Likewise, it is possible that while inter-regional migrants' settlement choices are responsive to regional differences in returns to skill, those of inter-state migrants are not; alternatively, if they are responsive to these regional variations, some phenomenon (like i.e. the large number of inter-state movers who are inter-metropolitan movers) may mask the effect.

Therefore, I perform a similar test to my preferred specifications, but this time at the state level rather than the regional level and analyze the determinants of settlement choice first, for all working-age male inter-state migrants and then only for the non-return ones (having a 31 option alternative for each inter-state mover).

And yet, the results show that whether I run the analysis using *Q_Schl_X_R_Gini* or *Q_Schl_X_R_GDP_Richest* for all inter-state migrants or only for non-return-inter-state migrants, in all cases, there is a positive, significant and strong effect of my return to skill proxies.

The results at the state level, therefore, support my previous findings and hypothesis, even though the effect of *Q_Schl_X_R_Gini* or and *Q_Schl_X_R_GDP_Richest* are not as strong at the state level as they are at the regional level. I believe that the reason that we see a weaker effect of these return to skill proxies at the state level, probably has to do with the fact that at the state-level their effect is diluted by the presence of a large proportion of the inter-state migrants who are actually just inter-metropolitan movers, and for whom this returns to skill logic does not really apply.

d.) Leaving Out Key States:

Possibly, a few very highly populated states, where the probability is very high that inter-state migrants are actually only inter-metropolitan movers, overwhelmed the results at the state-level. To test that issue, I estimated the same state-level specification, while excluding of the analysis all inter-regional migrants whose 2005-residence or 2010-settlement choice lay within the contiguous central region of Mexico (Distrito Federal, Estado de México, Morelos, Hidalgo, Querétaro and Puebla). After omitting all migrants coming from or going to the central states, I also repeated the analysis again when only leaving out the inter-state migrants who either in 2005 resided in, or in 2010 settled in the Federal District and Estado de México. The results I obtained are, however, similar to those when including all states, so I conclude that these central states did not overly influence the results.⁴³

e.) Running a Separate Analysis for migrants whose 2005-county-of-Residence was predominantly Rural or Urban:

Unfortunately it is not possible to directly include and, thus, control for the differential in terms of the metropolitan category between each migrant's 2005-region of residence and possible region of 2010-residence because metropolitan category information is not available for migrant's exact 2005-place of residence (we only know their state- and their county- of 2005-residence, but not the metropolitan category of their exact place-or location of 2005-residence).

Since it, however, is possible that migrants coming from rural areas may respond to regional differences in returns to skill, while those originating in urban areas may not (or vice-versa), following Villarreal and Hamilton (2012), I proxy the metropolitan category or urbanization level of their 2005-place of residence, by classifying their county of 2005-county of residence as being predominantly rural or urban, given the total population number of the county in which each migrant resided in 2005. Then, also following Villarreal and Hamilton (2012) I run the analysis separately for migrants whose 2005-county of residence I classified as being predominantly rural or urban.

Because the results for these analyses, show that the groups of migrants whose county of 2005-residence was predominantly rural, and for those whose county of 2005-residence was predominantly urban, are both sensitive to regional changes in returns to skill, I conclude that inability to directly control for metropolitan category does not challenge the validity of my previous results.

e.) Rare Events Regression

Finally, as a last robustness check, I also ran a rare-events regression (King and Zeng 2001), which corrects for biases that may occur in different types of logit and logistic regressions that predict rare outcomes where the datasets have many more 0s than 1s. According to King and Zeng (2001), multinomial logit, logistic and conditional logistic regressions that have a binary outcome may underestimate the probability of rare events. This contingency might affect my analysis because, in the regional-level dataset, only 16% of the outcomes at the regional level, and only 3% of the outcomes at the state-level are 1s

rather than 0s (since every inter-regional migrant has a choice of settling in one of seven region, and each of the inter-state migrants has a choice of settling in one of thirty-one states). However, running the rare-events regression with my preferred specification, I obtained basically the same results as with the regular conditional logit regression, suggesting that my previous results do not underestimate the probability of rare events.

In all these robustness checks, Mexican inter-regional and inter-state migrants (regardless of their schooling level or the metropolitan category of their settlement choice) invariably displayed a high likelihood of choosing regions or states that allowed them to maximize their returns to skill, given their own skill-level. As predicted, Mexicans of all schooling levels respond to regional differences in returns to skills.

2.10 Conclusions

I ran a number of different specifications and robustness checks where, despite some differences in the magnitude of the effect, I consistently find a positive, strong, and significant effect of the different proxies that I use to measure returns to skill. Therefore, all these analyses show that, as hypothesized, Mexicans self-select in a way that allows them to maximize their expected earnings, given their skill level and, thus, that their settlement choices do respond to regional differences in returns to skills (and income-inequality).

Net of all control variables I find that, among Mexican inter-regional and inter-state migrants, those who had higher levels of education, and who, in 2005 resided in regions or states that had relatively high average-income and low income-inequality, the likelihood

was much higher that they would move to regions that had lower average-incomes and higher income-inequality (and thus high returns to high-skills), rather than to regions with high average-incomes and lower income-inequality.

Conversely, but also as hypothesized, I find that, inter-regional or inter-state migrants with lower levels of education and who, in 2005, resided in regions or states with a low average- income and high income-inequality, had a much higher likelihood of settling in regions or states that, when compared to their 2005-residence, had higher levels of income and lower income-inequality (and lower returns to high-skill), rather than of settling in regions with a similar or a higher level of income-inequality.

In sum, lower income regions exported a large number of low-skilled workers and imported high-skilled workers between 2005 and 2010 whereas high income regions attracted mainly low skilled workers, and exported a large number of more high skilled workers.

Also, the analyses that I performed for all male working-age Mexicans (both movers and non-movers), also confirmed my previous results and likewise showed that Mexicans are responsive to regional differences in returns to skill.

Since, the hypothesis of the self-selection model is largely based on the expectation that regional disparities in the supply and demand of individuals with different skill levels drive the spatial difference in returns to skills, - these results, therefore also suggest that the Mexican regions with lower income-inequality (and which have above average-income levels) have a relatively high supply of individuals with higher levels of education and a relatively low supply of individuals with lower levels of education (and thus a high demand

of lower-skilled labor), - while the opposite is true for regions with high income inequality (and below average-income levels).

In terms of regional development, the relevance of the confirmation of this self-selection hypothesis is that its expected accompanying skill sorting mechanism can contribute to a beneficial spatial re-sorting of demand and supply of individuals with different skill-levels and skill-sets, since it can improve the economic wellbeing of each individual migrant, enhance the efficiency of the country's economy as a whole, as well as potentially contribute also to a regional convergence in terms of average income levels (Stark et al. 1991; Lucas 1997).

Of course, the possible impact that this regional re-sorting of skills can have in terms of a regional convergence of the income level, and an enhanced economic performance of the country, also largely depends on the magnitude of the more permanent or cyclical inter-regional and inter-state migration flows.

So, while this study confirms that Mexican internal migrants are clearly behaving in a way consistent with the Borjas' self-selection hypothesis, and, that as elsewhere in the world, Mexican internal migrants mostly move to the regions that provide the highest returns to their skills, this study does not analyze or quantify the impact that this phenomenon could be having on regional convergence in terms of per capita income, or on any other economic development effect.

More future studies about the patterns of the considerably large internal and international migration flows of Mexicans, as well as of the economic and development

consequences of these migration flows, will surely and hopefully be treated in follow up studies that will help us gain better knowledge about these important phenomena.

3. MEXICAN MIGRATION NETWORKS IN THE UNITED STATES, 1980 - 2000

3.1 *Abstract*

Between 1980 and 2000, about 1.2 million Mexican immigrants settled in 47 new settlement states. In the past, these immigrants would have settled in California, Texas, or Illinois, the three traditional states for Mexican settlement. Explaining this dispersion, the network saturation theory claims that high-volume migration of Mexicans finally saturated the housing and job opportunities of Mexicans in traditional states and especially in Los Angeles. High rents and low wages then encouraged Mexican immigrants to select new states for settlement. This article subjects the network saturation theory to a rigorous reanalysis using new evidence. The empirical results tend to confirm the network saturation theory.

3.2 *Mexican Migration Networks in the United States*

We are witnessing a migratory dispersion of huge demographic importance in the United States. This is the dispersion of Mexican immigration from traditional settlement states and cities to non-traditional (Johnson, Johnson-Webb, and Farrell 1999; Hernández-León and Zúñiga, 2002; Suro 2002; Frey 2003; Grieco 2003; Schachter 2003; Bump, Lowell, and Pettersen 2005; Durand, Massey, and Capoferro, 2005; Light, 2006; Borjas and Katz, 2005, Table 1; Crowley, Lichter, and Qian, 2006). Three big states, California, Texas, and Illinois had long housed 83 percent of the immigrant Mexican population that arrived in or before 1980, but in 2000, these three states housed only 70 percent. Because of this

population shift, approximately 1.2 million foreign-born Mexicans resided in 47 non-traditional states in 2000 who would otherwise have resided in the big three. Growth of Mexican population in the 47 non-traditional states, and most particularly in the eight new settlement states of Massachusetts, Virginia, North Carolina, Georgia, Arizona, Nevada, Oregon and Washington, reduced the immigrant population of the three traditional states below what it would have been without dispersion. This dispersion was partially a product of relocation of already settled immigrants, who moved from traditional to new settlement destinations, yet it also reflected shifting settlement choices among Mexicans still outside the United States. News media have documented the shock and political intolerance that have often greeted the dispersed Mexican immigrants in second settlement destinations.

Quite apart from its political and societal importance, which is huge, the dispersion of the Mexican immigrant population poses a theoretical puzzle for the dominant network theory of migration. As Borjas and Katz (2005: 7-8) acknowledge, “this remarkable and sudden shifting of Mexican immigrants . . . has received little systematic analysis and the reasons leading to the dramatic geographic redistribution are still not well understood.” Two decades ago, in their path-breaking research, Massey, Alarcon, Durand and Gonzalez (1987) tracked Mexican migration to the United States, establishing the tendency of Mexican immigrants to follow migration networks. Although social networks had long been understood to influence migration (Fairchild, 1930: Chapter 8), the research of Massey (1990, 1999) and his colleagues on cumulative causation strengthened interest in network migration and formalized the theory. Network theory became the cornerstone of migration studies as a result, a status it still enjoys (Zavodny, 1999; Waldinger, 1999; Gold,

2005). Massey's network theory explains why people originating from one migrant-sending place so reliably go to the same destinations decade after decade (Portes and Rumbaut, 1996: 32; Zavodny, 1999; Alba and Nee, 2003: 248). Additionally, Massey's network theory explains why migrations sometimes continue after their initiating cause has ended (Light, 2006: 54-56). The initial cause exhausted, what Massey (1990) called "cumulative causation" propels the migration. Cumulative causation means that the migration networks have themselves begun to drive the migration independent of originating push and pull. Because of cumulative causation, migration becomes self-generating. These ideas informed network research for two decades during which, as Portes and Rumbaut (1996: 32) put it, most scholars agreed that network-driven migration might "continue indefinitely."

However, since Mexican immigrants have begun to settle in non-traditional destinations, like Georgia, Massachusetts, and New York City, network theory confronts an anomaly (Smith, 2006). After all, network theory explains why immigrants went from sending regions of Mexico to traditional reception cities and states in the United States, implicitly explaining why they *did not go* elsewhere as they are now doing. Two solutions to this puzzle have appeared. Massey, Durand, and Malone (2002: Chapter 6) and Durand, Massey, and Capoferro (2005: 11-13) simply abandon network theory. Instead, they focus on the Immigration Reform and Control Act of 1986 (IRCA), an exogenous political intrusion. Massey, Durand, and Malone (2002: Chapter 6) contend that federal efforts to restrict and manage the border *diverted* Mexican immigration from traditional destinations because "a perverse consequence" of IRCA was "to lower the wages and undermine the

working conditions” of Mexican immigrants.⁴⁴ Their principal proof is the shift of illegal immigrants’ entry points eastward after 1993, and the approximate coincidence in time of federal remedies and the regional dispersion of Mexican immigrants.⁴⁵ The coincidence implies that legal change *caused* the regional dispersion of Mexicans. If true, this explanation salvages Massey’s network theory of migration but only by introducing an exogenous variable, law change, into the explanation. That introduction weakens the centrality that network theory had in Mexican migration studies and, indeed, in the entire migration literature because it acknowledges that political intrusions can derail the networks from their wonted destinations.

A different approach explains the dispersion of Mexican immigration by reference to the saturation of employment and housing in the traditional reception states and cities. This approach we call the network saturation theory. The literature on immigrant incomes reports that sustained immigration *lowers the wages* of earlier coethnic immigrants even though it has little effect on the wages of native workers (Hagan 1998: 61; Borjas 1999:201; 2003: 36; Camarota 2003: 7; Bump, Lowell, and Pettersen 2005; Lalonde and Topel 1991: 177, 180, 190; Bean and Stevens 2001: 130; Fix and Passel 1994: 50). The housing literature declares that sustained immigrant influx drives up rents in immigrant neighbourhoods of reception cities (Saiz, 2003; Williamson 1990: 237; Lipman 2001: 36; Lipman 2003: 8; White 2003; Keil 1998; O’Hara 2002) without affecting the rents of non-immigrants (Greulich, Quigley, and Raphael, 2004). Compatible with these, Heer (2002) pointed out that, when migrations mature, network-driven migrant groups exhaust or deplete the local resources that earlier supported them in prime destinations. At that point,

the local influx has to end or identify new destinations. Heer's results suggest that migration networks cannot *continue indefinitely* after all. Similarly, Light (2006: chapter 6) showed that cumulative causation expands migrants' economic opportunities in first-settlement destinations *but only up to a limit*.⁴⁶ As that limit is reached, saturation intensifies, and migrants disperse to unsaturated cities and states they previously avoided. Focussing on the Mexican dispersion between 1980 and 2000, Light showed that the ratio of average rents to average wages among Mexicans deteriorated in the 1980s in the high volume reception centers. The immigrants' rents rose and their wages declined because the protracted immigrant influx saturated labor and housing markets in which Mexican immigrants participated. This saturation then propelled a redirection of Mexican immigrants from traditional to non-traditional cities in the 1990s. Basing their case on economic saturation, neither Heer nor Light invoked exogenous political intrusion to explain the migratory dispersion of Mexicans from traditional to non-traditional destinations. In their view, Mexican wages declined because of saturation, not because of IRCA. Light added that Mexicans' rents also rose because of saturation.

The IRCA explanation and the saturation explanation of Mexican dispersion are not incompatible in logic. It is logically possible that both saturation and IRCA tended independently to disperse the Mexican immigrants. However, that said, the existence of competing theories calls for efforts to examine each one's validity. According to Occam's razor, a venerable principle of scientific inquiry, explanations should not multiply causes unnecessarily, and the simplest explanation should be preferred. Just on this formal basis the network saturation theory would be preferable to the IRCA explanation, which

introduces an exogenous variable (IRCA) in order to explain what saturation explains *without* any exogenous variable. The saturation argument explains dispersion without introducing any exogenous variables. Moreover, there remains the awkward possibility that, apart from logical compatibility, one explanation is empirically true and the other false, or that one is empirically truer than the other. This possibility is testable. From a policy point of view, it would also be highly desirable to learn whether an immigration amnesty's unanticipated consequence was the dispersion of Mexican immigration into new regions of the United States in which case another amnesty could expand the dispersion again. Conversely, if saturation causes the dispersion, different policy measures would be required to regulate it. Finally, the underlying theoretical issue is of general importance in migration studies. After all, if valid for Mexicans in the United States, the network saturation explanation would probably fit other cases of low-wage, high-volume, network-driven migrations as well. That is not true of the IRCA hypothesis, which features an *exogenous* law change. The IRCA explanation cannot be generalized to other countries' migration experience.

3.3 Methods and Discussion

For all these reasons, follow-on research should be undertaken to probe the empirical support for these two alternative explanations of Mexican dispersion. One way to undertake this research is separately to examine more rigorously the empirical support that either explanation can provide. If, upon closer examination, the empirical support is sustained, then the explanation has found additional confirmation. In this project, we

introduce and undertake to analyze new empirical evidence that bears upon the network saturation explanation of Mexican dispersion. Light's evidence (2006: chapter 2) had two limitations that we transcend in this paper. First, Light hypothesized that long-term Mexican influx drove down average co-ethnic wages and drove up average co-ethnic rents in traditional states and cities. However, using the ratio of average rents to average wages as his measure, Light only showed that immigrant influx in the 1980s was associated with a deterioration of the Mexican immigrants' rent to wage ratio in the 1990s. The ratio measure did not prove that Mexicans' wages dropped *and* that their rents also rose. Possibly only the rents rose or only the wages dropped. In either case, the ratio of rents to wages would have deteriorated all right, but the saturation hypothesis would be only partially confirmed. In this project, we examine rents and wages separately. If the saturation hypothesis is right, rents should rise and wages drop as influx continues. Second, Light did not demonstrate that the relationship between Mexican influx and rent to wage ratio held net of demographic control variables. This oversight opens the possibility of spurious confirmation. Possibly, Mexicans who selected new settlement destinations were better educated than those who selected traditional destinations. In that case, their human capital superiority would explain why the Mexican immigrants in new settlement cities earned higher wages on average than did Mexicans in traditional states and cities. In this project, we examine saturation effects net of demographic and economic control variables.

Following Light (2006), we hypothesize that protracted, high-volume, network-driven Mexican influx tended to saturate rental and housing markets in traditional states and cities, thus driving up the average rents that Mexicans paid, and driving down the

average wages Mexicans received. Testing our hypothesis, we separately examine differences in the income received and the rents paid by recently arrived Mexican migrants who lived in regions that varied from highest to lowest in respect to their share of Mexican migrants in the national population. We used individual and household level data from the Census 2000, 1990 and 1980 Public Use Microdata Samples (PUMS) 5 percent version. This Census survey contains individual-level information about yearly income, year of arrival in the United States, age, sex, marital status, education level and income, as well as the monthly rent paid by each household, the number of persons residing in each household, the number of related children in each household, as well as household type and tenure status.

We restricted this analysis to Mexican immigrants over 18 years of age who had been living in the United States for five years or less. That is, for 1980 we selected Mexican immigrants who had arrived between 1975 and 1980; for 1990 those who had arrived between 1985 and 1990; and for 2000 Mexicans who had arrived between 1995 and 2000. We refer hereafter to these immigrants as recent Mexican immigrants (RMIs). Focusing upon RMIs, we enhance the inter-decennial comparability of the data. This method enhances our ability to compare the economic circumstances of migrants who had made different settlement choices just prior to the census without contamination of our results by earlier Mexican migrants also residing in their region.

We formed five regional groups based on each region's settlement density of Mexican migrants. The regional group with the longest history of Mexican settlement and

largest share of the nation’s Mexican migrants we call the three traditional settlement states, which are California, Texas, and Illinois. We call these traditional settlement states because Mexican immigrants have historically preferred them. Seventy percent of the 9,180,186 foreign-born Mexicans in the United States still resided in these three states in 2000. However, of foreign-born Mexicans who had arrived in the United States before 1980, fully 83 percent resided in those three traditional states (Table 3.1). The difference between 83 percent and 70 percent amounted to 1.2 million immigrants. Focusing now on recent Mexican immigrants (RMIs) rather than all Mexican immigrants as did Table 3.1, Table 3.2 shows that 89 percent of RMIs resided in the three traditional settlement states (CA TX IL) in 1980, but that by 2000 only 57 percent of RMIs still did. Decline of Mexican immigrant population was more extreme among RMIs than among all Mexican immigrants. Here is additional evidence that traditional settlement states had lost some attractive power in the preceding 20 years for people still residing in Mexico.

TABLE 3.1
Foreign Born Mexicans by State and Year of Entry

States	Total	Entered 1990 – 2000	Entered 1980 - 1989	Entered Before 1980
CA, TX, IL	6,425,898	2,714,727	1,934,108	1,777,063
(percentage)	70%	61%	75%	83%
Other 47 States	2,754,288	1,730,338	655,321	368,629
(percentage)	30%	39%	25%	17%
Total, USA	9,180,186	4,445,065	2,589,429	2,145,692

Source: Census 2000, Summary File 3, Table PCT20

Our second and third regional groupings are California and Los Angeles. In 1980, the density of RMIs in California was twice the average density of RMIs in Texas and Illinois, the other two traditional settlement states. The share of RMIs in Los Angeles was twice that of California. With only one quarter of California's total population residing in Los Angeles County, Los Angeles County had nearly 60 percent of California's Mexican immigrants in 1980. In the same year, fully 35 percent of all RMIs in the United States resided in Los Angeles County alone, and another 25 percent of RMIs resided elsewhere in California (Table 3.2). Since California and Los Angeles have always had the highest concentration of Mexican immigrants, these two still represented the core settlement destinations of RMIs between 1980 and 2000.

The fourth regional group that we created we call the eight new settlement states. These states exhibited a rapid increase in Mexican immigrant population between 1980 and 2000. These eight new settlement states are Massachusetts, Virginia, North Carolina, Georgia, Arizona, Nevada, Oregon and Washington. In 2000, these eight states contained 16 percent of RMIs, the same share as the remaining 39 other American states. The share of the eight new settlement states had also increased four-fold in the previous 20 years.

The fifth regional group that we created consists of the other 39 states. Recent Mexican immigrants were least numerous in these 39 states in 2000 and in 1980. In 2000, the average state in this large group housed only 0.4 percent of RMIs whereas the average new settlement state housed 2 percent of RMIs, the average traditional settlement state housed 19 percent of RMIs, and California housed 31 percent of RMIs.⁴⁷ On a population-adjusted basis, the density of RMIs in Los Angeles County was approximately twice

California's in 2000, making Los Angeles the most traditional of the traditional settlement destinations for Mexican immigrants.

Table 3.2 shows how the proportions of recent Mexican immigrants changed from one decade to the next in the five groups. From 1975-1980, 89 percent of the recent Mexican immigrants (RMIs) settled in the three traditional states; 83 percent of RMIs still did so between 1985 and 1990, but only 57 percent of RMIs who had arrived in the United States between 1995 and 2000 settled in one of the three traditional states. If this proportional decline had not occurred, the three traditional states would have attracted 1,564,531 RMIs in the period 1995 to 2000 instead of the 995,860 who actually settled there. During the entire 20-year period, an impressive proportion of all RMIs always chose Los Angeles for settlement, but the proportion selecting Los Angeles consistently declined. Los Angeles attracted 35 percent of RMIs in 1980, 28 percent in 1990 but only 18 percent in 2000. Had this decline not occurred, Los Angeles would have attracted 615,265 RMIs in 2000 instead of the 312,000 who actually settled there. That hypothetical increase of 303,265 Mexican immigrants would have increased the total population of Los Angeles County by approximately one tenth. As the proportion of RMIs continuously decreased in the three traditional states, California, and Los Angeles, it steadily increased elsewhere in the United States, but particularly in the eight new settlement states where 4 percent of RMIs settled between 1975 and 1980, 9 percent between 1985 and 1990 and 20 percent between 1995 and 2000.

TABLE 3.2
Recent Mexican Immigrants by Settlement, 1980, 1990, and 2000

	Los Angeles County	California	3 Traditional States	8 New Settlement States	39 Other States	All States
1980						
Number	311,940	524,200	785,240	37,120	55,460	877,820
Percentage	35	60	89	4	6	100
1990						
Number	244,000	547,460	723,980	76,560	81,860	882,400
Percentage	28	62	82	9	9	100
2000						
Number	312,000	553,700	995,860	364,020	398,020	1,757,900
Percentage	18	31	57	20	23	100
Change, 1980-2000						
Number	60	29,500	210,620	326,900	342,560	880,080
Percentage	-17	-29	-32	16	17	100

Source: own calculations from 5 percent Public-Use Micro Samples, 1980, 1990, 2000

Table 3.2's results replicate the shifting trend of Mexican immigrant settlement within the United States that demographers have already documented (Johnson, Johnson-Webb, and Farrell, 1999; Bump, Lowell and Pettersen, 2005; Borjas and Katz, 2005; Frey, 2003; Grieco, 2003; Schachter, 2003; Suro, 2002). This trend is reshaping the regional demography of the United States, bringing immigrant Mexicans into cities and regions in which they never previously resided. Table 3.2 does not *explain* the trends it documents.

Our first analysis examines the patterning of regional variation in Mexican immigrants' rents and wages in the United States. We ask whether this patterning corresponds to what the saturation hypothesis predicts in terms of direction, timing, and locality. Were RMIs earning higher wages and paying lower rents in new settlement states

in 2000? If so, the spatial patterning is compatible with the network saturation hypothesis. Our principle dependent variables are yearly income received by recently arrived Mexican migrants and the yearly rent paid by households in which one or more of the householders had migrated from Mexico within the last 5 years. We compare rents and wages of RMIs in the traditional states with those in the new settlement states. We however also look at other (individual and household) characteristics in order to assess the extent to which the Mexican migrants who selected the non-traditional regions might differ in ways that influenced their wages or their rent bill.

Comparing the five regions, Table 3.3 displays their averages for yearly income, monthly rent, yearly rent, percentage male, percent ever married, age, number of own children, number of persons in households, and years of education of RMIs in 2000. Recent Mexican immigrants in all five settlement regions were similar in terms of their age, their educational level, and their marital status. They, however, differed somewhat in respect to the proportion of males who chose to reside in each settlement region. Fifty-six percent of recent Mexican immigrants were male in the 3 traditional states, 63 percent in the 8 new settlement states and 65 percent in the other 39 states. The regions also differed to some extent in terms of the number of persons who lived in each recent immigrant household. Traditional settlement states had 7.5 percent more people in each immigrant household than did the new settlement states. The traditional settlement states also contained 44 percent more children per immigrant household than did the 8 new settlement states or the 39 other states. These results suggest that RMIs in traditional states were more frequently female and more frequently parents than RMIs in the non-traditional states.

We examined average annual incomes of RMIs in the five regions, expecting that incomes would be lowest where RMI density was highest. In terms of their yearly income, Table 3.3 also shows that in 2000 recent Mexican immigrants who resided in Los Angeles earned lower average annual incomes than RMIs who resided in California. RMIs in California earned lower annual incomes than RMIs who resided in the three traditional settlement states, who earned lower average incomes than those who resided in the eight new settlement states. Recent migrants in the 39 other states earned the highest incomes of all. In 2000, recent immigrants in Los Angeles earned a mean yearly income of \$8,469; those in California earned \$8,898; those in traditional settlement states, \$9,337; those in new settlement states, \$10,090; in and those in the 39 other states, \$10,919 (Table 3.3). Evidently, recent Mexican immigrants had a financial incentive to prefer the eight new settlement states or the 39 other states to any traditional region, including especially Los Angeles. This alignment is in perfect conformity with the hypothesis that heavy influx drove down RMI's wages in traditional settlement regions.

We separately examined mean rents in 2000 of RMIs in the five regions, anticipating that they would be highest where RMI density was highest. About three quarters of RMIs were renters in every region.⁴⁸ For RMIs who resided in the three traditional states, California, or Los Angeles, annual gross rents imposed an additional standard of living disadvantage when compared to RMIs residing elsewhere in the United States. The average gross rents paid by households that contained recent Mexican immigrants were \$8,326 in Los Angeles, \$8,586 in California, \$7,748 in the 3 traditional states, \$7,189 in the new settlement states, and \$7,617 in the 39 other states. In fact, rents of

RMI's in Los Angeles, epicenter of high immigrant density, were 16 percent higher than those in the new settlement states and RMI's incomes were 19 percent lower (Table 3.3). Adding these two percentages we discover an economic disadvantage of nearly one-third for RMI's who lived in Los Angeles compared to RMI's who resided in new settlement states. These results are in close approximation to our prediction.

TABLE 3.3
Demographic and Economic Characteristics of Recently Arrived Mexicans by Settlement Category, 2000

	Los Angeles CMSA	California	3 Traditional States (CA TX IL)	8 New Settlement States	39 Other States
<i>Personal Characteristics</i>					
Percent Male	55	55	56	63	65
Percent Single	45	44	41	43	44
Percent Ever Married	55	56	59	57	56
Years of Age	29.6	29.5	29.7	28.5	28.5
Years of Education	8.2	8.2	8.3	8.5	8.6
Number of own children	1.4	1.4	1.3	1.0	0.9
Persons in household	6.2	6.1	5.7	5.3	5.3
<i>Rent and Income</i>					
Annual Personal Income	\$8,469	\$8,898	\$9,337	\$10,090	\$10,919
Annual Household					
Gross Rent*	\$8,326	\$8,586	\$7,748	\$7,189	\$7,617

Source: own calculations from 5 percent Public-Use Micro Samples, 2000

* Rent paid by households where one or more of the residents is a recent Mexican immigrant.

Then, in order to ascertain whether these inter-regional differences are statistically significant net of control variables, we performed a series of regression analyses using yearly personal income as the dependent variable and regional settlement choice as the independent variable. Treating settlement choice as a dummy variable, we ran three models in which we compared residing in a new settlement state (coded =0) with residing in Los Angeles (model 1), with California (model 2) or with the three traditional states (model 3) (all coded as 1). These results appear in Table 3.4. In part a.) of all three models, regressing settlement choice on personal yearly income, we predicted a statistically significant higher individual income for RMIs who resided in a new settlement state when compared to RMIs who resided in Los Angeles, California, or one of the three traditional settlement states. When we compared average incomes in the eight new settlement states with average incomes in traditional states, we found that RMIs' average incomes were \$984 higher in new settlement states than in the three traditional settlement states in 2000. When compared to average annual incomes of RMIs living in California, RMIs residing in a new settlement state earned \$1,493 more per year in 2000. In that same year, RMIs in new settlement states earned \$1,984 more per year than RMIs who resided in Los Angeles. Technical details are in the endnote.⁴⁹

In part b) of Table 3.4, we return to the same basic regression, but introduce five personal characteristics as controls. The purpose of the controls was to rule out the possibility that inter-regional differences in average incomes resulted from divergent demographic characteristics of the resident RMI populations rather than from actual inter-regional differences in prevailing wages. Introducing these five personal characteristics

(gender, age, marital status, education and year of arrival) as control variables into these same regressions did not change the basic results although they reduced the inter-regional discrepancy in average incomes by about one-third. Net of the controls, residing in a new settlement state in 2000 significantly *increased* the RMIs' predicted annual income by \$662 dollars when compared to their earnings in a traditional state; by \$1,017 when compared to California; and by \$1,489 when compared to Los Angeles. Net of five controls, RMIs' incomes in the year 2000 were approximately 20 percent higher in the eight new settlement states than they were in Los Angeles. Additional technical details are in the endnote.⁵⁰

Demographic controls had their own, independent effects on average earnings of RMIs. These are in reassuring conformity with expectation. Each additional year of age increased a recent Mexican immigrant's predicted income by \$82 in the traditional states, by \$73 in California and by \$64 in Los Angeles. Each additional year in the United States increased RMIs predicted yearly income by \$1,090 in the traditional states, by \$1,088 in California, and by \$1,125 in Los Angeles. Also, each additional year of education increased RMIs predicted yearly income by \$385 in the three traditional states, by \$337 in California, and by \$282 in Los Angeles. As usual, gender had the largest impact on earnings. Being female decreased predicted yearly income of RMIs by \$8,279 in the traditional states, by \$7,887 in California and \$7,844 in Los Angeles (Table 3.4). However, these regressions do not control for the number of hours worked and include recent Mexican migrants who did not have any income, which probably explains the huge income disadvantage of women in these regressions.

TABLE 3.4
OLS Regression Results for Yearly Income in 2000 among Recently Arrived Mexican Immigrants

Dependent Variable: Yearly Income in 2000						
	Los Angeles CMSA		California		Traditional States (CA, TX, IL)	
	a	b	a	b	a	b
Residing in one of 8 New Settlement States	\$1,984 <i>[0.000]</i>	\$1,489 <i>[0.000]</i>	\$1,493 <i>[0.000]</i>	\$1,017 <i>[0.000]</i>	\$984 <i>[0.000]</i>	\$662 <i>[0.000]</i>
Per Year of Age		\$64 <i>[0.000]</i>		\$73 <i>[0.000]</i>		\$82 <i>[0.000]</i>
Female		-\$7,844 <i>[0.000]</i>		-\$7,887 <i>[0.000]</i>		-\$8,279 <i>[0.000]</i>
Ever been Married		\$559 <i>[0.000]</i>		\$697 <i>[0.003]</i>		\$812 <i>[0.000]</i>
Per Year of Education		\$282 <i>[0.000]</i>		\$337 <i>[0.000]</i>		\$385 <i>[0.000]</i>
Per Year in U.S.		\$1,125 <i>[0.000]</i>		\$1,088 <i>[0.000]</i>		\$1,090 <i>[0.000]</i>
Constant	\$8,327 <i>[0.000]</i>	\$3,154 <i>[0.000]</i>	\$8,817 <i>[0.000]</i>	\$2,972 <i>[0.000]</i>	\$9,326 <i>[0.000]</i>	\$2,718 <i>[0.000]</i>
Adjusted R-squared	0.3	6.9	0.2	6.8	0.1	7.6
Sample Size	\$684,780	\$684,780	\$926,380	\$926,380	\$1,368,380	\$1,368,380

Source: own calculations from 5 percent Public-Use Micro Samples, 2000

p values in brackets and italics

In Table 3.5 we return to the same basic statistical model but this time in order to explain average rents of RMIs in the four regions. Table 3.5 presents a series of regression analyses that use yearly household gross rent as the dependent variable and regional settlement choice as the independent variable. In this case, using settlement choice as a dummy variable, we again offer three models in which, among recent Mexican migrants who paid rent (as opposed to the household paying a mortgage) we compared residing in a "new settlement state" (coded = 0) with residing in Los Angeles (model 1), residing in California (model 2) or residing in any of the three "traditional states" (model 3) (all coded as 1).

Part a.) of Table 3.5 shows that when we regressed settlement choice on yearly gross rent in 2000, the model predicted a statistically significant *decrease* in the rents paid by the recent Mexican migrants who resided in a new settlement state when compared to RMIs who resided in any of the traditional settlement areas. The average annual rents of RMIs in the eight new settlement states were \$387 less than those of RMIs who lived in any of the three traditional states; they were \$1,291 less than those of RMIs who resided in California; and they were \$926 less than those of RMIs who lived in Los Angeles. Next we introduced two control variables into the equation in order to minimize the likelihood of attributing to inter-regional differences in average rents what were really only inter-regional differences in the household composition of RMIs. Introducing the number of persons in the household and the number of related children in the household as control variables, we find again that, net of both household characteristics, residing in a new settlement state significantly *decreased* recent Mexican migrants' predicted yearly gross rents by \$357

dollars when compared to rents paid by RMIs in the three traditional states; by \$1,064 when compared to RMIs residing in California, and by \$749 when compared to RMIs residing in Los Angeles.

The results also show that each additional person in the household increased the household's yearly gross rent by \$507 in the three traditional states, by \$486 in California and by \$432 in Los Angeles. The presence of each additional related child in a household *decreased* the household's rent by \$235 dollars in the traditional states, by \$234 in California, and by \$201 in Los Angeles. This seemingly surprising result was, however, obtained because the other independent variable "persons" already accounted for all individuals residing in the household, *including all children*. This result therefore shows that the presence of each additional child increased the predicted cost of gross rent by less than half the amount of the increase in rent caused by the presence of an additional adult in the household. The inclusion of this term (additional children) in the regression equation guarantees that number of children in households is also accounted for in the regional comparison, thus strengthening the inference that inter-regional differences in rents are not a spurious product of inter-regional differences in household size.

TABLE 3.5
OLS Regression Results for Annual Gross Rent in 2000 among Households of Recent Mexican Immigrants*

Dependent Variable: Annual Gross Rent in 2000	Los Angeles CMSA		California		Traditional States (CA, TX, IL)	
	a	b	a	b	a	b
Residing in one of 8 New Settlement States	-\$926 <i>[0.000]</i>	-\$749 <i>[0.000]</i>	-\$1,291 <i>[0.000]</i>	-\$1,064 <i>[0.000]</i>	-\$387 <i>[0.000]</i>	-\$357 <i>[0.000]</i>
Number of Persons in Household		\$432 <i>[0.000]</i>		\$486 <i>[0.000]</i>		\$507 <i>[0.000]</i>
Number of Related Children in Household		-\$201 <i>[0.000]</i>		-\$234 <i>[0.000]</i>		-\$235 <i>[0.000]</i>
Constant	\$8,316 <i>[0.000]</i>	\$6,096 <i>[0.000]</i>	\$8,681 <i>[0.000]</i>	\$6,165 <i>[0.000]</i>	\$7,777 <i>[0.000]</i>	\$5,351 <i>[0.000]</i>
Adjusted R-squared	2.6	13.5	3.6	14.0	0.3	12.0
Sample Size	511,220	511,220	686,880	686,880	983,620	983,620

Source: own calculations from 5 percent Public-Use Micro Samples, 2000

p values in brackets and italics

* one or more of the residents in the household is recent Mexican immigrant

Table 3.6 takes another approach to assessing inter-regional income differences for recent Mexican immigrants. It uses a standard human capital model (Mincer, 1974; McCall, 2001; Borjas and Katz, 2005) to calculate the extent to which recent Mexican immigrant men, as a group, received the same return on their human capital as did the rest of each region's male working population. This human capital model compares groups with respect to their money returns on their formal education and working experience, the components of human capital (Becker, 1993: ch. 2). Comparing RMIs in each region with all others in

the same region, this approach does not compare the wages and rents of recent Mexican immigrants *across the regions*. It compares the human-capital adjusted earnings of RMI men in each region with the human capital-adjusted earnings of all other men in that region. The human capital approach has a compensatory advantage in this context. It automatically incorporates possible living cost differentials between and among regions that the previous analyses might have overlooked. These differentials would work to the additional disadvantage of Los Angeles and California whose cost of living was higher than in any of the other regions.

The results of the human capital analysis appear in Table 3.6 where the dependent variable is the natural logarithm of yearly income for the year 2000 of all males between 18 and 65 years of age who had an income in each of the regional groups. The main independent variable is being a recent Mexican immigrant. This status is expressed as a dummy variable where the rest of the male working population is coded as 0 and being a recent Mexican male migrant is coded as 1. The independent control variables are years of education, years of experience (years of age - years of education) and the square value of years of experience, which is the standard human capital model. Technical details are in the endnote.⁵¹

Results in Table 3.6 confirm the previous findings. They show that, net of years of education and years of working experience (the human capital characteristics), being a recently arrived Mexican immigrant had distinctly different income consequences across the regional groups. When compared to the rest of the regional population, male RMIs were paid better in the new settlement states than in any traditional settlement region. The

coefficients in Table 3.6 show that, in the new settlement states, male RMIs *might* have earned 1.2 percent less than the income expected from their human capital. However, that coefficient is not statistically significant. All the other regional coefficients are statistically significant and much larger. Mexican men invariably earned better returns on their human capital outside of the traditional settlement regions. In all the regions of traditional settlement, recent Mexican male immigrants earned considerably less than other men in the same region and with the same human capital. In the three traditional settlement states, they earned 10.4 percent less than others with their human capital; in California, they earned 15 percent less; and in Los Angeles they earned 21 percent less. This result is inversely proportional to the density of Mexican immigrants in the regional populations. The four regions did not differ much in the returns they accorded the education and work experience of Mexican men. Education and work experience always increased Mexican men's incomes by approximately the same dollar amount everywhere.⁵² These human capital results are in line with our previous findings but they also confirm that living cost differentials across regions did not explain away apparent inter-regional earnings disparities of the Mexican immigrants.

TABLE 3.6
OLS Regression for Natural Logarithm of Yearly Income in 2000 Male
Adults using Human Capital Model*

Dependent Variable: Natural Logarithm of Yearly Income in 2000				
	Los Angeles	California	Traditional States	8 New Settlement
	CMSA		(CA, TX, IL)	States
Being	-0.21	-0.15	-0.104	-0.012
a Recently	<i>[0.000]</i>	<i>[0.000]</i>	<i>[0.000]</i>	<i>[0.236]</i>
Arrived				
Mexican				
Immigrant				
Per Year of	0.1	0.11	0.12	0.12
Education	<i>[0.000]</i>	<i>[0.000]</i>	<i>[0.000]</i>	<i>[0.000]</i>
Work	0.1	0.09	0.1	0.09
Experience	<i>[0.000]</i>	<i>[0.000]</i>	<i>[0.000]</i>	<i>[0.000]</i>
Experience	-0.001	-0.001	-0.002	-0.001
Squared	<i>[0.000]</i>	<i>[0.000]</i>	<i>[0.000]</i>	<i>[0.000]</i>
Constant	7.7	7.6	7.5	7.4
	<i>[0.000]</i>	<i>[0.000]</i>	<i>[0.000]</i>	<i>[0.000]</i>
Adjusted				
R-square	25	26	27	27
Sample Size	4,408,200	9,498,520	18,767,560	13,288,020

Source: own calculations from 5 percent Public-Use Micro Samples, 2000.

p values in brackets and italics

* Coefficients predict the percentage income disadvantage of adult, male, RMIs when compared to non-REMI adult male population in each region of the model

All the previous results show that in the year 2000, recently arrived Mexican immigrants were economically advantaged if they resided in the 39 other states or in the 8 new settlement states compared to the traditional ones. By implication, these results, however, also suggest that the network effect (wanting to settle close to family and friends)

was still very strong in 2000. After all, 70 percent of Mexican immigrants resided in the three traditional states in 2000 (Table 3.1). In that year, the advantages provided by network density still induced 57 percent of all recent Mexican immigrants to settle in the traditional states *despite* their high rents and low wages. Economic disadvantage reduced but did not eliminate the RMIs' tendency to over select traditional settlement regions in 2000. Hence, in the majority of cases, even in 2000, after two decades of dispersion, continuity with the past was more important to most RMIs than was maximizing their economic welfare. Yet, the continuing importance of the network effect by no means signifies that migrants were indifferent to deteriorating wages and rising rents.

Although the pattern of rents and wages in the five regions in 2000 closely approximates our hypothesis, the data thus far presented do not rule out the possibility that these inter-regional rent and wage contrasts were *already present* in 1980. If so, immigrant influx did not cause the inter-regional economic differences so apparent in 2000. To rule out this possibility, we therefore present for 1980 and 1990 the regional comparison of annual gross rent and individual incomes of recently arrived Mexican immigrants in unadjusted dollars and in constant 2000 dollars (Table 3.7). From Table 3.2 and Table 3.7 we learn that even though an additional 785,240 Mexican migrants had arrived in the traditional states between 1975 and 1980, the average yearly income of recent Mexican immigrants in 1980 was slightly *higher* in Los Angeles and in all the states of traditional settlement than it was in the new settlement states. Average yearly incomes of RMIs in 1980 were \$5,234 in Los Angeles, \$5,241 in California, and \$5,269 in the three traditional states compared to only \$5,100 in what later became the eight new settlement states, and

\$5,681 in the 39 other states. In 1980, RMIs *earned more* in Los Angeles and the traditional states than in the new settlement states. By 1990, that alignment had changed, and average RMI incomes in Los Angeles and all of the states of traditional settlement were *slightly lower* than those in the eight new settlement states and in the 39 other states. Average yearly incomes of RMIs in the 39 other states were \$7,107 in 1990 and \$6,171 in the eight new settlement states; but they were only \$5,805 in Los Angeles, \$5,998 in California, and \$5,893 in the three traditional states. Average incomes of RMIs in constant dollars dipped everywhere in the United States between 1980 and 1990, then partially recovered between 1990 and 2000. Comparing changes in average earnings of RMIs in constant 2000 dollars, Table 3.7 shows that between 1980 and 2000, RMI incomes declined *most* in all the traditional settlement states and in Los Angeles, and *least* in the non-traditional states. By 2000, RMIs' real wages had declined in comparison to 1980 by 23 percent in Los Angeles, 19 percent in California, 15 percent in the three traditional states, but only by 5 percent in new settlement states and 8 percent in the other 39 states.

Shifts in rental costs behaved somewhat differently than shifts in incomes. Table 3.7 shows that in 1980 average gross rents of RMIs were already higher in Los Angeles and all the states of traditional settlement than they were in the eight new settlement states. In 1980, the average gross rent (in 2000 dollars) of RMIs was \$6,115 in Los Angeles, \$6,251 in California, \$5,975 in the three traditional states, but only \$5,392 in the eight new settlement states and \$5,597 in the other 39 states. Rents in the new settlement states were 90 percent of their level in the three traditional states in 1980. Big changes in the inter-regional profile of rents occurred in the 1980s. By 1990, RMI's rents had increased 64

percent in Los Angeles, 59 percent in California, 52 percent in traditional states, but only 15 percent in the eight new settlement states. As a result, 1990 rents in the new settlement states were much cheaper relative to Los Angeles and all the traditional states than they had been in 1980, a result that replicates what Light (2006: 145-148) also reported. Rents in the eight new settlement states were only 68 percent of rents in the three traditional states in 1990. Soaring rents in the new settlement states tended to equalize inter-regional rents in the 1990s. By 2000, rents in Los Angeles and all the traditional states were higher than those in the new settlement states, but differences were less extreme than they had been in 1990. Average rents paid by RMIs in the eight new settlement states had returned to 93 percent of rents in the three traditional states by 2000.

TABLE 3.7
Mean Yearly Income and Gross Yearly Rents of Recent Mexican Immigrants
by Settlement Category for 1980, 1990, and 2000

	Los Angeles	California	3 Traditional States	8 New Settlement States	39 Other States
Yearly Personal					
Income 1980					
In 2000 dollars	\$10,939	\$10,953	\$11,012	\$10,659	\$11,873
In 1980 dollars	\$5,234	\$5,241	\$5,269	\$5,100	\$5,681
Yearly Personal					
Income 1990					
In 2000 dollars	\$7,662	\$7,917	\$7,778	\$8,146	\$9,381
In 1990 dollars	\$5,805	\$5,998	\$5,893	\$6,171	\$7,107
Yearly Personal	\$8,469	\$8,898	\$9,337	\$10,090	\$10,919
Income 2000					
Change in Income					
1980-2000	-23%	-19%	-15%	-5%	-8%
Yearly Household Gross					
Rent 1980					
In 2000 dollars	\$6,115	\$6,251	\$5,975	\$5,392	\$5,597
In 1980 dollars	\$2,926	\$2,991	\$2,859	\$2,580	\$2,678
Yearly Household Gross					
Rent 1990					
In 2000 dollars	\$10,021	\$9,954	\$9,068	\$6,189	\$8,251
In 1990 dollars	\$7,592	\$7,545	\$6,870	\$4,689	\$6,251
Yearly Household Gross	\$8,326	\$8,586	\$7,748	\$7,189	\$7,617
Rent 2000					
Change in Cost of Rent					
1980-1990	64%	59%	52%	15%	47%
Change in Cost of Rent					
1980-2000	36%	37%	30%	33%	36%

Source: own calculations from 5 percent Public-Use Micro Samples, 1980, 1990, 2000

Table 3.8 runs regression equations that test the statistical significance of the descriptive income differentials among regions that Table 3.7 displayed. As before, residing in a new settlement state is treated as a binary variable (1-Yes, 0-No). Results show that in 1980, net of the four demographic control variables (age, gender, marital status, years of education) residing in a new settlement state *lowered* average RMI incomes by \$466 when compared to RMIs in any of the three traditional states and by \$508 when compared to RMIs in Los Angeles. In 1980, RMIs were still earning more in the traditional settlement regions! This regional alignment changed in the 1980s. By 1990, residing in a new settlement state *increased* average RMI incomes by \$52 relative to RMIs who resided in any of the three traditional states, and by \$135 relative to RMIs who resided in Los Angeles. Thereafter, as Table 3.4 showed, inter-regional discrepancies further increased in favor of the eight new settlement states. In sum, at the beginning of the transition, RMI incomes were lower in the new settlement states than in Los Angeles or any traditional state, but by 2000, after 20 years of influx, RMIs' incomes were considerably *higher* in the new settlement states. These results are in conformity with our hypothesis.

Table 3.9 applies the same regression model to gross rents that Table 3.8 applied to annual incomes. Residing in a new settlement state is again a binary variable. Table 3.9 shows that in 1980, net of number of persons in their household, RMIs in new settlement states already paid \$209 *less* in gross rent than RMIs paid in the three traditional states, and \$270 less than RMIs paid in Los Angeles.⁵³ The discrepancy widened in the 1980s. By 1990, RMIs in the eight new settlement states paid \$1,580 *less* than RMIs in the three traditional states and \$2,267 less than RMIs in Los Angeles. From Table 3.5 above, we

have already learned that in 2000, net of controls for household size, RMIs in the eight traditional states paid \$357 less than RMIs in the three traditional states and \$749 less than RMIs in Los Angeles. Hence, the regression results confirm what the descriptive statistics in Table 3.7 already suggested. The rents in Los Angeles and the traditional states were already slightly higher in 1980 than rents in the eight traditional states, but by 1990, the discrepancy had hugely increased, only to decline somewhat by 2000. Light (2006: 145) supposes that the reduction of rents in Los Angeles and in the traditional states during the 1990s was a product of the deflection of immigrants from the regions in the 1980s, which tended to bring the national housing costs into equilibrium. That said, the regression results show that the rental disadvantage of Los Angeles and the traditional states peaked in 1990, then declined in 2000. However, the rental disadvantage in 2000 was still appreciably higher than it had been in 1980. Hence, these data are compatible with the hypothesis that high rents in saturated markets promoted the deflection of Mexican immigration from traditional states and from Los Angeles to the eight new settlement states in the period 1980 to 2000.

TABLE 3.8
OLS Regression Results for Yearly Income among Recent
Mexican Immigrants, 1980 and 1990*

Dependent Variable: Yearly Income in 2000				
	Los Angeles	Traditional States	Los Angeles	Traditional States
	PMSA	(CA, TX, IL)	PMSA	(CA, TX, IL)
	1980	1980	1990	1990
Residing in one of 8 New Settlement States	-508 <i>[0.000]</i>	-466 <i>[0.000]</i>	\$135 <i>[0.315]</i>	\$52 <i>[0.676]</i>
Per Year of Age	\$36 <i>[0.000]</i>	\$37 <i>[0.000]</i>	\$51 <i>[0.000]</i>	\$51 <i>[0.000]</i>
Female	-\$4,613 <i>[0.000]</i>	-\$4,941 <i>[0.000]</i>	-\$4,854 <i>[0.000]</i>	-\$5,236 <i>[0.000]</i>
Ever Married	\$1,220 <i>[0.003]</i>	\$1,359 <i>[0.000]</i>	\$516 <i>[0.000]</i>	\$559 <i>[0.000]</i>
Per Year of Education	\$124 <i>[0.000]</i>	\$385 <i>[0.000]</i>	\$189 <i>[0.000]</i>	\$212 <i>[0.000]</i>
Constant	\$5,631 <i>[0.000]</i>	\$5,402 <i>[0.000]</i>	\$4,869 <i>[0.000]</i>	\$4,915 <i>[0.000]</i>
Adjusted R-square	18	19	11	12
Sample Size	349,060	822,360	320,180	798,420

Source: own calculations from 5 percent Public-Use Micro Samples, 1980 and 1990

* Coefficients predict Yearly Personal Income in Dollars. Models compare Residence in 3 Traditional States, and Los Angeles Primary Metropolitan Area with residing in 8 New Settlement States

TABLE 3.9
OLS Regression Results for Yearly Gross Rent of Households
of Recent Mexican Immigrants, 1980 and 1990*

Dependent Variables: Yearly Household Gross Rent in 1980 and 1990				
	Los Angeles	Traditional States	Los Angeles	Traditional States
	PMSA	(CA, TX, IL)	PMSA	(CA, TX, IL)
	1980	1980	1990	1990
Residing in one of 8 New Settlement States	-\$270 <i>[0.000]</i>	-\$209 <i>[0.000]</i>	-\$2,267 <i>[0.000]</i>	-\$1,580 <i>[0.000]</i>
Number of Persons in Household	\$123 <i>[0.000]</i>	\$116 <i>[0.000]</i>	\$459 <i>[0.000]</i>	\$592 <i>[0.000]</i>
Number of Related Children in Household			-\$212 <i>[0.000]</i>	-\$374 <i>[0.000]</i>
Constant	\$2,334 <i>[0.000]</i>	\$2,304 <i>[0.000]</i>	\$5,057 <i>[0.000]</i>	\$3,938 <i>[0.000]</i>
Adjusted R-square	8	6	31	23
Sample Size	265,140	579,940	257,380	614,640

Source: own calculations from 5 percent Public-Use Micro Samples 1980, 1990

* Coefficients predict Yearly Personal Income in Dollars. Models compare RMIs in Los Angeles and 3 Traditional States with RMIs in 8 New Settlement States

Table 3.10 applies the standard human capital model to the earnings of RMIs in 1980 and 1990. This model compares the return on their human capital that male RMIs received compared to the return of the rest of the male population in each region. A negative sign indicates that RMIs received lower returns than all other men in their region. In 1980, RMIs earned a 13 percent *lower* return on their human capital than other men in both the three traditional states and in the 47 other states. By 1990, the returns of RMIs

had declined everywhere, but had declined somewhat more in the three traditional states than in the other 47 states. However, as Table 3.6 shows, the incomes of RMIs were 10.4 percent lower than those of all workers in the three traditional states in 2000, but only 1.2 percent lower in the eight new settlement states. These results indicate that inter-regional differences in return on human capital did not exist in 1980, but gradually increased thereafter, until by 2000 RMIs in the three traditional states earned only 80 percent of the return on their human capital that was earned by RMIs in the new settlement states. In short, the RMIs return on their human capital increased in the new settlement states relative to the three traditional states between 1980 and 2000.

TABLE 3.10

OLS Regression Results for Natural Logarithm of Yearly Personal Income among Mexican Male Adults using Standard Human Capital Model, 1980 and 1990*

Dependent Variable: Natural Logarithm of Yearly Personal Income in 1980 and 1990				
	Traditional States (CA, TX, IL) 1980	New Settlement States 1980	Traditional States (CA, TX, IL) 1990	8 New Settlement States 1990
Being a Recent Mexican Immigrant				
	-0.13 <i>[0.000]</i>	-0.13 <i>[0.000]</i>	-0.23 <i>[0.000]</i>	-0.2 <i>[0.000]</i>
Per Year of Education	0.07 <i>[0.000]</i>	0.07 <i>[0.000]</i>	0.12 <i>[0.000]</i>	0.12 <i>[0.000]</i>
Work Experience	0.07 <i>[0.000]</i>	0.06 <i>[0.000]</i>	0.07 <i>[0.000]</i>	0.07 <i>[0.000]</i>
Experience Squared	-0.0001 <i>[0.000]</i>	-0.0001 <i>[0.000]</i>	-0.001 <i>[0.000]</i>	-0.001 <i>[0.000]</i>
Constant	7.53 <i>[0.000]</i>	7.42 <i>[0.000]</i>	7.34 <i>[0.000]</i>	7.25 <i>[0.000]</i>
Adjusted R-square	17	17	27	27
Sample Size	16,984,360	60,061,980	20,539,060	67,147,160

Source: own calculations from 5 percent Public-Use Micro Samples, 1980, 1990

p values in brackets and italics

* Coefficients predict the income disadvantage of adult male RMIs when compared to adult, male, non-RMIs in each region.

** Age – years of education

3.4 Discussion

We subjected the network saturation hypothesis to new empirical tests using new data. First, using Census data, we compared the demographic characteristics of RMIs in traditional and new settlement regions. They differed little, but new settlement regions tended to attract more single men without children than did traditional settlement regions. Unlike Light, who used the ratio of rents to wages, which conflated the two sources of variation, we examined rents and wages separately. We also added demographic and economic controls, which Light (2006) did not undertake. The inter-regional patterning of recent Mexican immigrants' wages in 2000 conformed very closely to our hypothesis. RMI's wages were lowest where RMIs were most densely settled. Rents were also lower in the new settlement areas than in any of the traditional settlement areas in 2000. Control variables slightly reduced the inter-regional contrasts, which were in close conformity to prediction.

We considered the possibility that the five regions had already differed in respect to rents and wages in 1980 and neither rents nor wages thereafter deteriorated more in the traditional settlement regions than in the new settlement region. If true, that result would imply that immigrant influx in the 1980s and 1990s did not cause the inter-regional economic contrasts that we found in 2000. To rule out this possibility, we undertook separate regression analysis of RMI rents and wages for 1980 and 1990 too. These results showed that RMI wages in the traditional settlement regions had been *higher* in 1980 than in the eight new settlement states. Thereafter, the inter-regional balance reversed, and by 2000, RMI wages were appreciably lower in the three traditional settlement states than in

the 47 other states. This reversal is exactly in conformity with prediction. The rental analysis yielded a slightly different result. Rents were already slightly higher in traditional settlement areas in 1980 than they were in the new settlement region. However, by 1990, this pattern was much accentuated. Rents were much higher in the traditional regions in 1990 than they had been in 1980, but rents were only slightly higher in new settlement region in 1990 compared to 1980. 1990's peak inter-regional contrast in rents receded somewhat during the rest of the decade. Nonetheless, RMIs' rents were still much higher in the traditional states and in Los Angeles in 2000 than they were in the eight new settlement states. These results are in conformity with our hypothesis.

We undertook a standard human capital analysis of inter-regional differences in RMI wages. This analysis controlled for regional differences in cost of living. It strongly confirmed that RMIs earned higher returns on their human capital in the eight new settlement states than they did in any of the traditional regions. Moreover, inter-regional disparities increased between 1980 and 2000 in the predicted direction. New settlement states paid RMIs' human capital a higher proportion of the non-immigrants' return on human capital than did the traditional states.

3.5 Conclusion

The dispersion of Mexican immigrants to new settlement states is a massive demographic fact in need of explanation. Two alternatives have thus far appeared in the literature. On the one hand, Massey and his coworkers claim that unexpected and unwanted features of IRCA caused the dispersion; on the other, Heer (2002) and Light

(2006) claim that the Mexican dispersion arose because cumulative causation saturated housing and labor markets in Los Angeles and the traditional settlement states. We adopted Light's hypothesis of influx, saturation, and dispersion, but introduced additional and more rigorous statistical tests than Light (2006) had undertaken. We examined rents and wages separately rather than as a ratio; we introduced statistical controls, we explored regional returns on human capital, and we compared five regional groups in three decennial years. Our results tend to confirm the conclusions Light (2006) reached. In fact, the supporting evidence is very strong. When we compared the five regions, both rents and wages changed in the predicted direction in the predicted locations at the predicted times. This could hardly have occurred by chance. Key results persisted strongly when statistical controls were introduced. The human capital models confirmed our wages models, enabling us also to rule out the possibility that cost-of-living differentials explained the inter-regional economic differences among the RMIs.

Tending to confirm is not the same as confirmation. Additional tests should be made. For example, if the saturation hypothesis be correct, one would expect that inter-regional differences would have somewhat declined between 1990 and 2000 precisely because the dispersion of Mexican immigrants from the traditional states in the 1980s improved conditions in them, while the convergence of Mexican immigrants in the new settlement states deteriorated living conditions for them. Nonetheless, it is only fair to acknowledge that the hypothesis of influx, saturation, dispersion handily survived this array of serious empirical challenges.

While strengthening the empirical plausibility of the saturation hypothesis, our results are neutral with respect to the IRCA hypothesis in all respects but one. One noteworthy feature of this analysis is the confirmatory results we obtained from our analysis of inter-regional differences in the rents RMIs paid in 1980, 1990, and 2000. Although the saturation hypothesis and the IRCA hypothesis both predicted wage declines for RMIs, only the saturation hypothesis also predicted rent increases for them. In fact, there is nothing in the IRCA hypothesis that can explain why RMI rents increased more in Los Angeles and the traditional states than in the new settlement states. IRCA may have affected RMIs' wages, but it did not affect their rents. The unique ability of the saturation hypothesis to predict and explain rent increases among RMIs gives it an empirical advantage over the IRCA hypothesis.

Confirming the saturation hypothesis expands and extends existing network theory. Unexpanded network theory cannot explain why migrants would ever favor new destinations over those on the migratory mainstream. However, if we conclude that protracted, high-volume, network-driven migration drove down migrants' wages in Los Angeles and in traditional states while driving up their rents, as the saturation hypothesis proclaims, then we can not only explain the dispersion of Mexicans around the United States, we can probably predict and explain the dispersion of all the other protracted, high-volume, network-driven migrations anywhere in the world. For this reason, confirmation of the network saturation hypothesis would considerably enrich the theory of migration networks.

Comparing the 39 other states with the eight new settlement states, we often found only slight differences between them in respect to economic conditions but large differences with respect to their ability to attract RMIs. By implication, RMIs went to the eight new settlement states because emergent network connections pulled them there, not just because of the push of deteriorated economic conditions in the traditional states. This possibility raises the prospect of an organized internal pull that attracted RMIs as well as a push of deteriorating conditions that discouraged them. Exploring those differences would make an interesting follow-on project.

4. MINIMUM WAGE AND MEXICAN AND CENTRAL AMERICAN INFLUX

4.1 *Abstract*

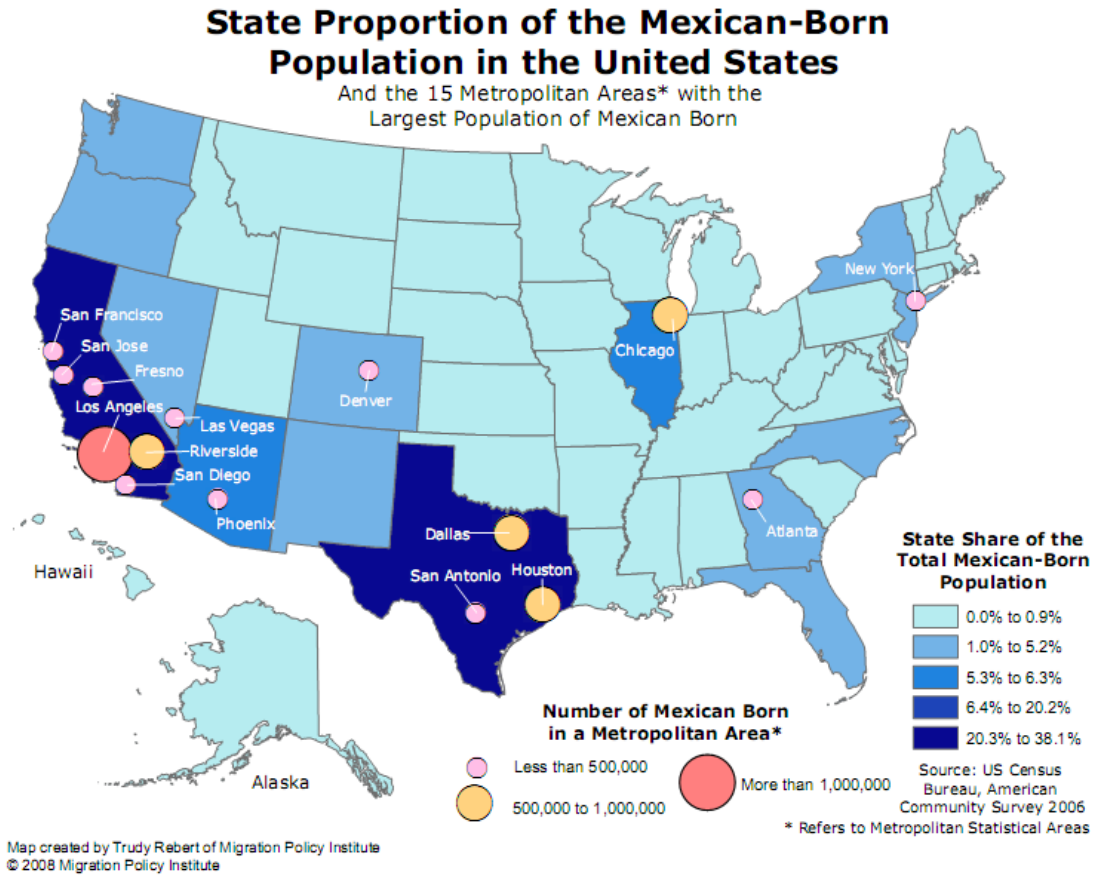
In the 1990s, 13 American states raised their minimum wage above the federal level while the other 35 contiguous states retained the lower federal standard. An increased minimum wage should reduce employment among the lowest-paid workers, and therefore reduce their influx. Using individual-level data from the 5% Public Use Sample of the 2000 U.S. Census of Population, this research examines the effects of 48 contiguous U.S. states' minimum wage policies on the settlement choices of recently arrived Mexican and Central American immigrants. As predicted, we found that these Mexican and Central American immigrants were less likely to settle in states that implemented above-federal minimum wages during the 1990s as opposed to settling in states that retained the federal-level minimum wage during that decade. Conversely, states' minimum wage policies had no effect upon the influx of recent immigrants from other countries. These results suggest that states can influence the influx of low-wage immigrants by adjusting their minimum wage.

4.2 *Introduction*

In the 1990s, demographers began to report a surprising finding. After seven decades of resolutely populating just three states (California, Texas, Illinois), and almost ignoring the 47 other states, Mexican immigrants had begun to settle outside their

traditional core states (Hernández-Léon and Zúniga 2002, 2005; Lowell, and Pettersen 2005; Frey 2003; Light and von Scheven, 2008; Schachter 2003; Bean, et al, 2007; Passel and Cohn, 2009). As late as 1980, California, Texas, and Illinois had contained 83 percent of all immigrant Mexicans in the United States. By the year 2000, however, the three traditional states contained only 70 percent of all foreign-born Mexicans, and by 2009 only 63 percent. As the percentage share of these three states declined after 1980, the total number of Mexican immigrants in the United States continually increased, reaching 11,711,103 in 2009. As a result of these twin changes, the increase in Mexican numbers and the decreasing share of the top three states, approximately 4.3 million Mexicans resided outside the top three reception states in 2009, and 7.3 million within them. Of the 4.3 million foreign – born Mexicans residing in states of non-traditional settlement in 2009, approximately 53 percent may be attributed to deflection from the top three states, and 47 percent to increased influx since 1980 (Light, 2006).⁵⁴ Figure 4.1 displays the location of Mexican immigrants among the 48 contiguous states in 2008.

Figure 4.1



Source: Jeanne Batalova, “Mexican Immigration in the United States.” Originally published in the Migration Information Source (www.migrationinformation.org) a project of the Washington DC-based Migration Policy Institute, an independent, non-partisan, nonprofit think tank dedicated to the study of movement of peoples worldwide. Reprinted by permission.

4.3 Explaining Mexican Dispersion

Efforts to explain the dispersion of Mexicans throughout the United States have addressed many causes including saturation and deflection from their traditional settlement states (Light, 2006, Light and von Scheven, 2008; Light and Johnston, 2009), enhanced enforcement of labor laws (Light, 2006), federal policy shocks (Massey, Durand, and Malone, 2002; Odem and Lacy, 2009: xvi), the Mexicans' quest for improved quality of life (Fennelly 2008; Suro and Singer, 2002); labor recruitment in Mexico (Krissman, 2000; Donato and Bankston, 2008); and employment growth in non-traditional settlement states (Parrado and Kandel, 2008). Of course, these explanations are not mutually exclusive, and the problem now arises of examining and integrating them.

To this end, this paper critically examines the claim that growth of the low-wage job supply in non-traditional settlement states attracted Mexican labor to those states (Kritz and Gurak, 2011: 541). This proposition has so many endorsers (Hirschman and Massey, 2008: 10; 4; Parrado and Kandel, 2008: 119; Leach and Bean, 2008: 55; Portes, 2009: 4 ; Odem and Lacy, 2009: xiv; Rosenbaum and Brick, 2011: 2) that it represents the single strongest point of agreement among researchers. We agree with the claim that low-wage job growth in non-traditional states attracted Mexican and Central American immigrants to them. Our reservation concerns additional, unexamined, and ignored sources of this job growth.

As matters stand, the presumption exists that the new low-wage jobs in meat packing, manufacturing, construction, domestic service, and retail distribution were the simple, unadorned consequence of the operation of the market economy in which employers relentlessly seek to lower labor costs. Granting that this economic context

existed, we ask an additional question that others have not yet raised: to what extent did the attractive pull of new jobs reflect simple market readjustments, or low-wage political regimes dependent on state labor laws, or some combination of the two? That is, it is possible that market-derived cost pressures drove the low-wage jobs mainly to states whose laxer labor codes tolerated low-wage firms. Indeed, that conclusion seems most likely as the lowest-wage jobs are legal in states that tolerate them, and illegal elsewhere.⁵⁵ Therefore, we propose that many low-wage jobs that attracted Mexican and also Central American immigrants to non-traditional settlement states owed their existence to more poverty-tolerant political regimes in those non-traditional states as well as to global cost pressures; and that the jobs' attractive capability was simultaneously economic and political, not just economic. This is the basis for our hypothesis. The null hypothesis posits that the relatively high growth of low-wage jobs in non-traditional settlement states was independent of states' labor regimes, and, thus, that state's minimum wage policies had no effect on the settlement choices of recently-arrived Mexican and Central American (MEXCA) immigrants.

4.4 Specifying our Hypothesis

Federal law establishes a minimum wage, which is periodically increased, and the federal law requires all states to mandate at least this level of wages; but federal law permits states to set a minimum wage higher than the federal. As a result, American states can vary greatly in the minimum wage they require employers to pay. Employers of low-wage labor lawfully reduce their wages bill when they operate in a federal-level minimum

wage state rather than one that imposes a higher-than-federal minimum wage. Of the 48 contiguous states that we analyzed, 13 implemented higher than federal minimum wages for at least 1 year during the 1990s, while the rest (35) never implemented above-federal minimum wages during the decade (Table 4.1). We propose that growth and retention of low-wage employment was more extensive in states that retained the lower, federal minimum wage rather than in states that required a higher-than-federal minimum wage; thus, we hypothesize that MEXCA immigrants who arrived between 1995 and 1999 were more likely to settle in states that never implemented above-federal minimum wages (MWs) during the 1990s as opposed to states that did implement above-federal MWs for at least 1 year during that decade.

Already available evidence seconds the plausibility of this hypothesis. First, our hypothesis is compatible with and even implied by the very research evidence that expounds and supports the jobs growth explanation of Mexican dispersion. All agree that Mexican immigrants worked overwhelmingly in low-wage jobs located in the South and Mountain regions (Luthra and Waldinger, 2010; Drever, 2009). Additionally, Parrado and Kandel (2008) acknowledge that low wages dropped even lower after Mexicans arrived to undertake the work the native born had rejected. Of eleven non-traditional Mexican settlement states (Arizona, Arkansas, Colorado, Georgia, Iowa, Kansas, Louisiana, Nevada, Utah, Tennessee) in which Donato (et al., 2008: 78) reported strong growth of Mexican immigration, seven maintained a low, federal minimum wage during the 1990s (Table 1). In 2008, 3.6 percent of hourly workers in these ten states earned the state's legal

minimum wage compared to 3.0 percent in the United States and one percent in California, the lowest of 50 states (U.S. Bureau of Labor Statistics, 2009: Table 3).

Some literature also affords direct support for our hypothesis. Light (2006) attributed the deflection of Mexican immigrants from California in the 1990s as much to the enhanced enforcement of the labor code as to economic saturation. California still has the highest standard of labor law enforcement of any American state (Bernhardt, et al., 2007: 24). If California reduced the supply of low-wage jobs by strictly enforcing the labor code, the exact converse would be the ability of states with low and laxly enforced labor standards to attract low-wage immigrant labor. Moreover, Light (2006: 103) noted that California's minimum wage law was 12 percent higher than the federal minimum wage in 2000, and inferred the possibility that California's high state minimum wage had reduced the growth of low-wage jobs in California relative to states that retained the lower federal minimum wage. If a high minimum wage restricts the growth of low-wage employment, then a low minimum wage should enhance that growth.

New evidence shows that labor standards in the states to which Mexican immigrants gravitated are extremely low, and in the specific case of the meat and poultry processing plants of Arkansas, Nebraska, and North Carolina, the standards are so low and law enforcement so lax that Human Rights Watch declared these states in violation of "international human rights" (Compa, 2004: 2; Striffler, 2009). Mohl (2009: 60) regrets the "distressingly low wages and dangerous working conditions" in the meat processing industry. Stuesse (2009: 95-96; also Bacon, 2012) denounces "unjust labor practices" in the poultry industry.

Because more than half of the Mexican workers were undocumented, the Supreme Court's 2002 decision in *Hoffman Plastics Compounds vs. NLRB* virtually stripped Mexican immigrants of the right to unionize. Employers took advantage of this situation to introduce harsher labor discipline.⁵⁶ So serious, systemic, and protracted were these infractions of labor law that the Consul General of Mexico intervened on behalf of Mexican workers in Georgia, compelling the U.S. Department of Labor to acknowledge its obligation “. . . to promote [Mexican] workers' rights in protecting their wages, particularly with regards to reducing violations of the minimum wage, overtime, record keeping, child labor, safe housing, and transportation provisions of the laws and regulations administered and enforced by WHD”⁵⁷

Weak labor standards appear to attract low-wage jobs just as strong labor standards repel them. Weak and strong labor standards are opposite ends of the same variable. Kerwin and McCabe (2011: 23) find that lax or unenforced labor standards drive “unauthorized and other low-wage immigrants” to states that tolerate those conditions. Additionally, they find “strong evidence” that low-wage immigrants cluster “in certain industries and firms” that routinely violate labor standards. Notorious among such industries are the slaughterhouses, canneries, domestic service, home health care, petroleum and gas refineries that gave employment to many immigrant Mexicans and Central Americans.

Only one prior study has specifically addressed the possibility that states' minimum wage policies encouraged the dispersion of low-skilled immigrants around the United States. Studying teenagers and native-born minorities, Orrenius and Zavodny (2008)

unexpectedly discovered an inverse relationship between increases in a state's real minimum wage and subsequent reductions in that fraction of a state's population comprised of low-skilled, adult immigrants (2008: 567). When the real minimum wage rose, the proportion of low-skilled adult immigrants in the state labor force declined. This result implied emigration of the less-skilled adults following increases in state minimum wages. Orrenius and Zavodny (2008) also observed that "migration-induced changes" in population composition might explain why higher minimum wages in states boosted average wages among low-skilled immigrants without creating adverse employment or hours effects on natives. However, these authors did not examine actual migratory behavior, specific nationalities, or social network effects.

4.5 Theoretical Agenda

Minimum wage levels only affect the employability of the lowest-paid employees. Mexican and Central American workers were the lowest paid employees in U.S. labor markets, so changes in minimum wage levels should have affected Mexicans and Central Americans more than other workers. On average, Mexican immigrants earn less than other immigrants, who themselves earn less than native-born workers (Rosenbaum and Brick, 2011: 21; Pew Hispanic Center, 2009, Table 1). Whatever their national origin, recent immigrants earn less than co-ethnic immigrants who have been longer in the United States (Light and Johnston, 2009: Table 1). Indeed, recent immigrants in general occupied a lower occupational status even than all Mexican immigrants, two-thirds of whom are not recent immigrants (Card, 2001: p. 34; Pew Hispanic Center, 2009, Table 1). Similarly, among

Mexican and Central American immigrants, the most recently-arrived earn less than compatriots who have been in the United States longer (Myers, 2007: 119). Although the educational levels of the settled and the recently-arrived are comparable, recent Mexican immigrants earned less than compatriots who arrived earlier (Bean and Stevens, 2003: Table 6.5). Compared to longer resident compatriots, recently-arrived Mexican immigrants lack seniority on their jobs, cultural familiarity with American society, and English language proficiency. These problems should, on average, render recently-arrived Mexican and Central American immigrants more vulnerable to diminished employment chances in the aftermath of increases in a state's minimum wage than any other ethno-racial category. Therefore, recent Mexican and Central American (MEXCA) immigrants should be even more responsive to state minimum wage laws than recent immigrants from other countries (non-MEXCA immigrants).

4.6 The Minimum Wage as a Variable

The minimum wage is an attractive variable because its level is easily and unambiguously ascertained in every state and in every year. Additionally, states with a high minimum wage tend to have stronger labor standards (safety, health, child labor, etc.) than states with lower minimum wages because state minimum wage laws tend to mirror states' "political leanings" (Ford, Minor, and Owens, 2012). Of 22 states that had enacted anti-union "right to work" laws in 2008, 17 also displayed a higher than average proportion of hourly workers who earned at or below the federal minimum wage in that year.

Eisenach (et al., 2010) introduced a measure of state regulatory environment based on 34

characteristics of each state's labor law and employment policies. The authors called their measure the Employment Regulation Index (ERI). These 34 characteristics they grouped into six categories. A state's minimum wage was one of these 34 categories; a state's labor law enforcement climate was another. Eisenach scored the 50 states high, medium, and low in respect to regulatory interventions in labor and employment. When the states' ERI scores are compared with their minimum wage policies, the states with the lowest minimum wage levels scored an average of 1.7 in ERI; those that implemented medium levels of minimum wages scored a mean of 2.1 on ERI; and those with the highest minimum wages scored a mean of 2.7 on ERI. In sum, a higher minimum wage was associated with a generally higher level of state regulation of labor and employment relations.

Thus, a state's minimum wage tends to proxy a realm of labor law and law enforcement larger than itself. In effect, the minimum wage provides a Gestalt image of the labor environment in any state. We consider this fuzzy image an advantage at this stage. That is, as a variable, a state's minimum wage contains tacit information about a state's labor code and labor code enforcement such that a high minimum wage generally implies a higher standard of labor law and labor law enforcement. Our real interest is to identify states with lax and strong labor standards and regulation of labor relations. To identify these regimes one might ideally utilize measures of state minimum wage levels as well as the strength or laxity of a state's labor code and labor code enforcement, but the two latter are difficult to model because the information is difficult to assemble.

The cyclical character of state minimum wage policies requires discussion. When the federal minimum wage has not been raised for many years, many states will have raised their minimum wage above the federal level. At that point, many states will have a minimum wage above the federal level; few will retain the federal level. When at last Congress raises the federal minimum wage, then few states will be above the federal minimum wage level. The prevalence of an above-federal minimum wage among the states also depends on the stage of the cycle in which the results are tallied.

Because the federal minimum wage did not increase between 1981 and 1990, many state legislatures began to raise their state's minimum wages above the federal level in the 1990s (Neumark and Wascher, 2006: 2-3). This wave of increases created an opportunity in which to examine the effects of state's minimum wage policies on a very large migratory influx of MEXCA immigrants during the decade. We have taken advantage of this propitious decade to evaluate the immigration effects of the state's minimum wages on MEXCA influx. Table 4.1 lists states that had a federal-level minimum wage vs. an above-federal minimum wage for at least 1 year during the 1990s (U.S. Department of Labor, Wages and Hours Division, 2011). Also shown in Table 4.1 is the percentage share of MEXCA and Non-MEXCA immigrants who settled in each of the 48 contiguous U.S. states between 1995 and 1999. We excluded from the analysis Alaska and Hawaii because non-contiguous with the other 48 states.

4.7 Theory and Hypothesis

We theorize that when states raised their minimum wage above the federal level in the 1990s, the growth of low-wage employment slowed or was even negative in those states relative to states that retained the federal minimum wage. Conversely, the growth of low-wage jobs accelerated in states that retained the federal minimum wage. Some low-wage jobs relocated to states that retained the lower federal minimum wage; more broadly, the growth of low-wage employment expanded faster in states that retained a federal minimum wage. The geographical realignment of low-wage jobs following increases in some state's minimum wages, we believe, created an immigration pull that attracted Mexican and Central American immigrants to states that retained the federal-level minimum wage. We, furthermore, theorize that, as an overall result, influx of recent Mexican and Central American immigrants slowed to states with above-federal minimum wages, and some already-resident recent immigrants moved from those states to states with the lower federal minimum wage.

Our hypothesis is more modest than our theory. We hypothesize only that U. S. states that implemented higher-than-federal minimum wages for at least 1 year between 1990 and 1999 reduced the influx of recently-arrived Mexicans and Central Americans relative to their influx into other states; and we also hypothesize, that no such reduction of influx occurred among other immigrants who arrived at the same time. This formulation compares recently-arrived Mexicans and Central Americans with other recent immigrants rather than with the native born. However, for the record, we would also suppose that if recently-arrived MEXCA immigrants were compared with native workers, the results

would be similar. If supported by evidence, our hypothesis suggests that by retaining the low, federal minimum wage, some states created a more favorable environment for the growth of the low-wage jobs that subsequently attracted Mexican and Central American immigrants. However, we track immigrants, not the jobs that presumably attracted them. A study of jobs would make a logical follow-up to this study of migrating people. Our effort here is only to ascertain whether, net of controls, states' implementation of low federal-level MWs during the 1990s attracted more recently-arrived Mexican and Central American immigrants to those low-MW-states than were attracted to the states that implemented higher-than-federal MWs during that decade; as well as whether MEXCAs were more attracted to federal MW states than were non-MEXCAs.

Table 4.1
State's Minimum Wages during the 1990s (MW_90s*), and 2000 Geographic Distribution of Male MEXCA and Non-MEXCA
Immigrants Aged 18-65 who Arrived Between 1995 and 1999**

STATE	MW_90s	MEXCA % Share	Non-MEXCA % Share	STATE	MW_90s	MEXCA % Share	Non-MEXCA % Share
Alabama	0	0.55	0.41	Nebraska	0	0.48	0.31
Arizona	0	4.30	1.21	Nevada	0	1.69	0.62
Arkansas	0	0.54	0.19	New Hampshire	1	0.03	0.24
California	1	26.13	17.55	New Jersey	1	2.24	6.31
Colorado	0	2.75	1.12	New Mexico	0	0.55	0.23
Connecticut	1	0.56	1.64	New York	0	3.90	15.57
Delaware	1	0.16	0.21	North Carolina	0	4.91	1.67
Florida	0	4.55	10.93	North Dakota	0	0.01	0.07
Georgia	0	4.86	2.50	Ohio	0	0.45	1.94
Idaho	0	0.30	0.15	Oklahoma	0	0.92	0.52
Illinois	0	5.91	4.85	Oregon	1	1.57	0.83
Indiana	0	1.32	0.96	Pennsylvania	0	0.55	2.47
Iowa	1	0.40	0.56	Rhode Island	1	0.19	0.32
Kansas	0	0.89	0.52	South Carolina	0	0.99	0.51
Kentucky	0	0.48	0.53	South Dakota	0	0.01	0.10
Louisiana	0	0.20	0.45	Tennessee	0	1.15	0.78
Maine	1	0.01	0.12	Texas	0	17.14	5.32
Maryland	0	0.96	2.32	Utah	0	0.99	0.50
Massachusetts	1	0.58	4.05	Vermont	1	0.01	0.10
Michigan	0	1.10	2.76	Virginia	0	1.75	2.66
Minnesota	1	0.76	1.34	Washington	1	1.55	2.51
Mississippi	0	0.22	0.16	West Virginia	0	0.02	0.13
Missouri	0	0.40	0.96	Wisconsin	0	0.92	0.73
Montana	0	0.004	0.07	Wyoming	0	0.03	0.03
Total						100	100

*Note: MW_90s is a dummy variable whose value is 0 when a state did never during the 1990s implement above-federal minimum wages and whose value is 1 when a state did implement above-federal minimum wages for at least 1 year during the 1990s. Source in text.

**Note: The total number of adult male MEXCA immigrants who settled in all of the U.S. between 1995 and 1999 is 1,220,198 while the total number of adult male Non-MEXCA immigrants is 1,574,452. The percentage of MEXCA and Non_MEXCA immigrants who settled in each state are own calculations using PUMS files of the 2000 U.S. Census.

4.8 Study Design

Studies that have focused on new immigrants generally have relied either on Immigration and Naturalization Service data (INS) or on decennial census data. The INS datasets contain individual information on each foreigner legally admitted for permanent residence. Census data contain more attributes and have the advantage that they include illegal immigrants, who are about half of Mexican and Central American recently-arrived immigrants, but they become available in full only once every ten years (Newbold, 1999). We opted to utilize data from the 5% percent Public Use Sample (PUMS) of the 2000 U.S. Census of Population rather than the INS data because we wish to analyze the settlement choices of the illegal as well as the legal migrants; indeed, given that we focus on the most vulnerable immigrants, illegal immigrants are those we most want to study.

Within the voluminous, and inter-disciplinary location-choice literature, most studies use a multinomial logit model to assess the determinants of settlement choice for international immigrants or for internal migrants (Bartel, 1989; Dunlevy, 1991; Kritz and Nogle, 1994; Newbold, 1996, 1999; Kanaroglou and Ferguson, 1998; Jaeger, 2000; Scott, Coomes, and Izyumov, 2005). We follow this multinomial logit modeling convention. For immigrants who were either already living in the United States and re-locating or who were accepted for arrival, or who had just crossed the border illegally, location choice inside the United States is normally modeled as a joint function of the immigrants' personal characteristics, the characteristics of places in the United States, and an interaction of personal and place characteristics (Greenwood, 1985; Scott, Coomes and Izyumov, 2005; Bloomquist, Berger and Hoehn, 1988). The locational choice literature thus quantifies the

importance of personal characteristics, state characteristics, and person/region interactions in immigrants' locational choices (Bartel, 1989; Dunlevy, 1991; Kritz and Nogle, 1994; Newbold, 1996, 1999; Kanaroglou and Ferguson, 1998; Jaeger, 2000; Scott, Coomes and Izyumov, 2005; Davies, Greenwood and Li, 2001). These studies all confirm a high sensitivity of immigrants' location choices to prior co-ethnic concentrations and to economic opportunities. In terms of the geographical level of analysis, most existing studies of the location choices of immigrants have been done at the state level (Buckley, 1996; Zavodny, 1999; Dodson, 2001); while only a few studies have selected the metropolitan level (see Scott, Coomes and Izyumov, 2005; Light and Johnston, 2009).

Our study made these design choices: (1) We analyze Census data at the state-level because: a) many recently-arrived immigrants work in agriculture, which is located outside metropolitan areas; b) minimum wage policies are implemented at the state-level, not the metropolitan level; c) overburdening our model with too many settlement choice options would cloud our results.

(2) As is commonly done in similar studies, we include interaction terms between the schooling level of each immigrant and every regional characteristic. However, we do not include female gender as a control variable because, like comparable studies, we only selected and analyzed the settlement choices of male immigrants aged 18-65 (cf. Bartel, 1989; Scott; Coomes, and Izyumov, 2005; Peña, 2009).

(3) We use a cross-sectional approach, selecting only recently arrived immigrants.

Therefore, using information from the 5% Public Use Sample of the 2000 U.S. Census of

Population, we only select male immigrants aged 18 to 65 who arrived between 1995 and 1999. This procedure guarantees that we are studying the effect of the migration determinants that were present at that time the migrants arrived.

(4) We run the analysis separately for the two immigrant groups under comparison, recently-arrived Mexicans and Central Americans (MEXCAs) and recently-arrived immigrants from all other countries (Non-MEXCAs). We compare male, working-age MEXCAs to male, working-age Non-MEXCAs because all recently-arrived immigrants make their location settlement choices under the exact same state's social and economic conditions; and yet, as a group, recently-arrived MEXCAs earned less than recently-arrived Non-MEXCAs (Rosenblum, et al., 2012: Table 4). We predict a difference in responsiveness to state minimum wages between these two groups precisely because of the MEXCAs' lower mean wages.

4.9 Statistical Method

A statistical model is specified that explores the determinants of the locational choices made by immigrants who arrived between 1995 and 1999. We postulate a recently-arrived immigrant, characterized by certain personal traits, who seeks to maximize utility through his choice of an American state for settlement. We use a multinomial logit framework to model a utility maximizing recently-arrived immigrant in a discrete choice situation. The multinomial logit model has long been the preferred framework for analyzing location choice (Bartel, 1989; Dunlevy, 1991; Kritz and Nogle, 1994; Newbold, 1996, 1999; Kanaroglou and Ferguson, 1998; Jaeger, 2000; Scott, Coomes and Izyumov, 2005).

Following most closely Bartel (1989), our model assumes that a recently arrived immigrant has a set of N possible location choices (48 contiguous U.S. states) and that there is a level of utility, U_{ij} , for an individual recently-arrived immigrant i at state j . Each recently-arrived immigrant implicitly compares the perceived utilities obtainable in each of the N states in which he might settle; and he will select the state that offers the largest perceived utility. Therefore, the probability that a recently arrived immigrant i chooses to settle in state j is given by

$$P_{ij} = P(U_{ij} = \text{MAX}[U_{i1}, U_{i2}, \dots, U_{iN}]). \quad (1)$$

To estimate equation (1), it is necessary to have information about the utility levels that are present in each of the N states. Since it is impossible to observe utility levels, an alternative is to specify the variables that in each state presumably affect that utility level. Thus, in each state, a recently-arrived immigrant's utility level is a function of the state characteristics, L_{ij} , as well as certain personal attributes, X_{ij} . Then, if we assume a linear relationship, the equation results in

$$U_{ij} = \alpha L_{ij} + \beta X_{ij} + e_{ij} \quad (2)$$

where α and β are the parameters that will be estimated, and e_{ij} is the error term. To simplify, we rewrite equation (2) as

$$U_{ij} = \gamma Z_{ij} + e_{ij} \quad (3)$$

Where

$$Y = [\alpha, \beta].$$

Using equation (3), we can write the probability of selecting state j as

$$P_{ij} = P(Z_{ij} + e_{ij} > Z_{i1} + e_{i1}, Z_{ij} + e_{ij} > Z_{i2} + e_{i2}, \dots, Z_{ij} + e_{ij} > Z_{iN} + e_{iN}). \quad (4)$$

McFadden (1973) has shown that if the e 's are expected to be independently and identically distributed, then equation (4) can be rewritten as

$$P_{ij} = \exp(Z_{ij} \gamma) / \sum_{n=1}^N \exp(Z_{in} \gamma). \quad (5)$$

Equation (5) is the familiar multinomial logit model (or likelihood function) for any recently-arrived immigrant i who has chosen to settle in state j . When the log of this likelihood function is summed across all recently-arrived immigrants and maximized relative to the γ 's, the estimates of γ show information on the effect of the vector of Z variables in a certain state on the utility level that the recently-arrived immigrant associates with that particular state. If a variable in Z_{ij} increases utility, it will have a positive effect on the probability that a certain state is chosen over all the alternative states.

4.10 Data and Variables

We use data from the 5% Public Use Sample of the 2000 U.S. Census of Population, selecting only foreign-born male immigrants between 18 and 65 years of age who arrived between 1995 and 1999. The dependent variable is the probability P_{ij} that the recently-arrived immigrant i choose to settle in state j , which probability is assumed to be a function of the utilities associated with the 48 states in the choice set. Thus, the dependent variable that we call *Destination-Choice* has a value of 1 for the state in which the recently arrived immigrant respondent chose to settle; and it has a value of 0 for all 47 other states. We represent the utilities associated with the states in the choice set through control variables that we selected based on previous studies as well as on theoretical grounds. Separate but identical models are estimated for recently-arrived MEXCA and Non-MEXCA immigrants, with utilities represented by the following observed explanatory variables that control for the socio-demographic and economic state-level characteristics of each of the 48 contiguous U.S. states between 1995 and 2000 as well as their interactions with the personal characteristics of the recently-arrived immigrants that are known to influence the settlement choices of immigrants (cf. Bartel, 1989; Newbold, 1999).⁵⁸

Minimum Wage

We include 1 binary (dummy) variable that measures the state's minimum wages implemented between 1990 and 1999. Minimum wage is the main independent variable whose effects we examine. This binary minimum wage variable, which we labeled *High_St_MWs_1990s*, identifies whether or not the state in question implemented an

above-federal minimum wage for at least 1 year during the 1990s (which we coded=1); or whether the state never implemented an above federal minimum wage during that decade (which we coded =0). Our source was the U.S. Department of Labor, Wage and Hour Division (2011).

Number of Immigrants' Co-nationals

For each recently-arrived immigrant, as a control for the co-national network, we include the number of foreign-born persons of the same nationality living in each state in 1990. This control is essential since prior studies have repeatedly found that this measure captures the all-important network effect (Bartel, Zelinsky, and Lee, 1998; Scott, Coomes and Izyumov, 2005; Peña, 2009). According to the literature, co-national networks should be a key determinant of location choice, ahead of minimum wage levels, and should have a positive value. We calculated this co-national-network proxy, labeled *Ln_CoNationals*, as the natural logarithm of the number of immigrants from each nationality who resided in each state in 1990 (using the 5% Public Use Sample of the 1990 U.S. Census of Population).

We also attempted to include in our model specification each state's total number of foreigners (*Ln_Foreigners*), another common control variable. Nevertheless, we decided not to include *Ln_Foreigners* in our model specification because it did not contribute substantially to the model goodness of- fit, and it created multi-collinearity problems; but, including *Ln_Foreigners* did not significantly change the effect of the minimum wage variable or the other variables.

Total Population

Studies have found that a state's total population influences settlement choice because total population is correlated with job opportunities as well as with the scope and scale of local services. We obtained a measure of state's total population from the 2000 U.S. Census. This measure we log transformed, and named *Ln_Pop*. Following Bartel (1989), Newbold (1999), and Scott, Coomes, and Izyumov (2005), we expect the coefficient of *Ln_Pop* to exhibit a positive sign.

Job Growth

Similarly, as a conventional indicator of the vibrancy of each state economy (Newbold, 1999; Scott, Coomes and Izyumov, 2005), we include the state's percentage job growth between 1995 and 1999, and we expect this variable to have a positive sign. This variable was labeled *Job_Growth_9599*.⁵⁹

Distance from Country of Origin

Greater distance from his country of origin to each of the different U.S. states reduces the expected settlement probability of immigrants. This distance has, moreover, been found particularly relevant for recently-arrived immigrants (Bartel, 1989; Newbold, 1999). Since MEXCA and Non-MEXCA immigrants enter the United States from different directions, a statistical control for this difference may be essential. Following the convention, we calculated this measure of geographical proximity, called *Ln_Distance*, by

log transforming the data on air distances in miles between the capital city of each migrant's homeland and each of the U.S. state capitals.⁶⁰

State's Mean Earnings Per Job

To represent general economic opportunities, we include each state's average annual earnings per job between 1995 and 1999 (Scott, Coomes and Izyumov, 2005; Newbold, 1999). We used earnings per job information from the U.S. Bureau of Economic Analysis (2002) historical data set that we log transformed, calling it *Ln_St_Earnings*. When mean earnings or mean wages and unemployment have been studied in previous research, it has been reported that their signs can often not be predicted. According to the migration literature, state unemployment and mean earnings (or mean wages) might not have consistent effects on location choice because they are known to often persist in equilibrium (Bartel, 1989).

Unemployment Rate

To represent economic opportunity in the 48 states, we used the average unemployment rate in each state between 1995 and 1999.⁶¹ We labeled this rate *Unemp_9599*.

Job Growth in Agriculture and Construction

It is also conventional to measure job growth within sectors of the economy that are most likely to attract the immigrants one studies (cf. Scott, Coomes, and Izyumov, 2005;

Peña, 2009). Mexican and Central Americans often find work in construction and agriculture. The model we run for recently-arrived MEXCA immigrants, therefore, controls for each state's percent job growth in agriculture and construction between 1995 and 1999.⁶² We dubbed the variables *Agri_Growth_9599* and *Construc_Growth_9599*. These variables measure growth in the low-wage jobs that are of particular importance to MEXCAs; but of lesser importance to Non-MEXCAs. We do not include the job growth of the agricultural and construction sectors in the model for Non-MEXCA immigrants because the results are similar when included, but we obtain better fit-statistics when excluded.

Mean Housing Cost

Proxying housing affordability in each state, known to affect settlement choices, we also include in our model specification the mean house values for each state between 1995 and 1999 (cf. Aslund, 2005; Damm and Roshold, 2010). In our model specifications we use a measure of housing costs, which we obtained from the Census of Housing of the U.S. Census Bureau, and that we log transformed, calling it *Ln_St_Housing*.⁶³ The sign of *Ln_St_Housing* can often not be predicted, since it is also likely to persist in equilibrium.

Bush's Presidential Vote, 2000

The minimum wage is politically controversial; Republican states are much less likely to introduce an above-federal MW than are Democratic states. As a timely measure of state's Republican or Democratic voting tendencies, we use the percent vote for President Bush in the 2000 Presidential election. This information we obtained from the

Public Disclosure Division from the Federal Elections Commission.⁶⁴ We labeled it *Like_Bush*. We used this voting measure because it tends to be correlated with various regional differences in anti-immigrant attitudes, pro-business attitudes, and sometimes also with regional differences in welfare benefits (Fougere and Serandon, 1997; Damm and Roshold, 2010).

To control for pro/anti-business attitudes, as a robustness check we also replaced the variable *Like_Bush* with the states' unionization rate in 2000.⁶⁵ However, we decided to use *Like_Bush* because we obtained similar results with either variable, but had better model-fit statistics from *Like_Bush*.

Education

Finally, we created an interaction term between a respondent's years of schooling (*Schl*) and each of the state-level variables. Previous studies have shown that personal attributes and particularly the immigrant's schooling levels influence settlement choice. Although we tested all the interaction terms between immigrant's schooling level and all the state-level variables, our tables only present the only interaction term that was statistically significant, namely an immigrant's years of schooling times the natural logarithm of the immigrant's number of co-nationals in each state, that we call *Schl_X_CoNationals*. We expect *Schl_X_CoNationals* to have a negative sign, because previous studies have found that the presence of co-nationals is more important for people in the lower education categories, and that people with higher education are more geographically dispersed (Bartel, 1989; Camarota and McArdle, 2003).

Scaling

All variables are scaled to comparable size, as required for the multinomial logit procedure. This is why many of the continuous regional variables were log-transformed, that is, the natural logarithm of their value is used. Table 4.2 presents the mean values and the linearized standard error of each variable.

Table 4.2
State Variables, Means, and Linearized Standard Errors*

Variables	Mean	Linearized Std. Err.
High_St_MWs_1990s	0.27	0.00004
Ln_CoNationals	8.79	0.005
Ln_Pop	15.1	0.00035
Unemp_9599	4.77	0.00001
Ln_Distance	7.39	7.00E-06
Ln_St_Earnings	10.04	8.00E-06
Job_Growth_9599	2.21	0.00002
Agri_Growth_9599	-0.64	0.00002
Construc_Growth_9599	3.80	0.00001
Ln_St_Housing	11.57	9.00E-06
Like_Bush	50.2	0.002

Note: *We present survey estimation results so the mean values are weighted; the variables are described in the text.

4.11 Estimation Results

Using the multinomial logit model described above, we assess the effect that high and low state minimum wages had on the settlement choices of MEXCA and Non-MEXCA male immigrants aged 18-65 who arrived between 1995-1999. In column 1 of Table 4.3 we present the results of a model specification with all state-level control variables for MEXCA immigrants, who arrived between 1995 and 1999; column 2 introduces, also for MEXCAs, our extended model specification. In this model, in addition to all regional variables, we include the only interaction term between personal and regional characteristics that had a significant effect on immigrant's settlement choice. This interaction was each immigrant's schooling level times the natural logarithm of the number of co-nationals that the immigrant had in each state. For non-MEXCAs, in column 3 of Table 4.3 (identical to column 1 for MEXCAs) we present a model specification with all regional variables, and in column 4 (identical to column 2 for MEXCAs) we present the results of our extended model with all regional variables and the interaction term between immigrant's schooling level and the number of co-nationals. The estimation results are reported in Table 4.3.

Table 4.3
Effects of U.S. State Characteristics on the Settlement Choice of MEXCA and Non-MEXCA Immigrants who arrived
between 1995-1999

<i>Variables</i>	MEXCAs						NON-MEXCAs					
	<i>Odds Ratio</i>	<i>t-test</i>	<i>p</i>	<i>Odds Ratio</i>	<i>t-test</i>	<i>p</i>	<i>Odds Ratio</i>	<i>t-test</i>	<i>p</i>	<i>Odds Ratio</i>	<i>t-test</i>	<i>p</i>
High_St_MW _s _1990s	0.77	-9.87	**	0.77	-9.79	**	0.97	-1.71		0.97	-1.66	
Ln_Conationals	1.15	38.72	**	1.16	54.01	**	1.38	88.7	**	1.45	121.04	**
Ln_Pop	3.07	79.01	**	3.07	81.4	**	2.55	94.7	**	2.55	98.23	**
Unemp_9599	0.82	-17.53	**	0.82	-17.37	**	0.94	-7.6	**	0.94	-7.52	**
Ln_Distance	0.40	-18.34	**	0.40	-18.35	**	0.91	-16.87	**	0.93	-23.61	**
Ln_St_Earnings	0.08	-21.16	**	0.08	-20.7	**	2.87	11.63	**	2.86	11.3	**
Job_Growth_9599	1.59	41.6	**	1.59	41.25	**	1.36	41.85	**	1.35	41.45	**
Agri_Growth_9599	1.16	33.54	**	1.16	33.11	**						
Construc_Growth_9599	0.83	-21.75	**	0.83	-21.53	**						
Ln_St_Housing	4.78	28.22	**	4.78	28.32	**	0.70	-8.4	**	0.72	-8.03	**
Like_Bush	1.01	12.19	**	1.01	12.11	**	0.96	-35.12	**	0.96	-34.55	**
Schl_X_CoNationals				0.996	-20.68	*				0.99	-35.56	**
Number of Observations	2,612,081			2,612,081			3,116,082			3,116,082		
Rho squared:	0.214			0.214			0.194			0.194		

Note: Statistically significant at: the * p=0.05 level; ** p=0.01 level.

When we compare column 1 and column 2 (Table 4.3) and when we compare column 3 and column 4, we find that the effects of all state characteristics are in both cases very similar. Hence, although the interaction term (*Schl_X_CoNationals*) is significant and negative for both immigrant groups, including this interaction term or omitting it, hardly changes the results of the other migration determinants. Except for the effect of *Schl_X_CoNationals* among MEXCA immigrants (significant at the 5% level), all other

control variables in each of the 4 columns of Table 4.3 are significant at the 1% level, and, when predictable at all, most have the expected sign.

Our results show that MEXCA and non-MEXCA immigrants were attracted to states with large populations, to states where the immigrant has a large number of co-nationals, as well as to states that are experiencing a relatively large employment growth. MEXCA immigrants were more attracted to states that experienced a relatively large employment growth of their agricultural sector, but they were not more attracted to states whose construction sector experienced high employment growth. Conversely, a state's higher unemployment rate, and a larger distance between an immigrant's homeland and a U.S. state, depressed the immigrant's likelihood of choosing a state for settlement, thereby decreasing the odds that immigrants of both groups would settle there. Moreover, non-MEXCAs were attracted to states with lower housing costs and with higher mean earnings per job, whereas the opposite was true of MEXCAs. However, as we mentioned before, we cannot really interpret these different effects of state's mean earnings and housing costs for both immigrant groups.

With *Like_Bush*, whose higher value reflects a more Republican environment, we anticipated a positive effect on the settlement choice of MEXCAs, and results confirmed our expectation; since in the 1990s, MEXCA immigrants tended to locate in non-traditional, Republican-leaning states. As a robustness exercise we also ran again our extended model specification (columns 2 and 4 of Table 4.3 for MEXCAs and for Non-MEXCAs, respectively) except that we excluded *Like_Bush*. Exclusion did not appreciably change the results.

In terms of, our main independent variable, each state's minimum wage policies during the 1990s, results support our hypothesis. For MEXCAs who arrived between 1995-1999, our results show that being a state that implemented higher-than-federal MWs during the 1990s decreased the odds that MEXCAs would settle there as opposed to settling in states that retained the low, federal-level MW throughout the decade. Thus, high MW states partially deflected MEXCA immigrants to low MW states. Conversely for Non-MEXCAs, and also as hypothesized, being a high-minimum-wage-state during the 1990s did not affect the odds that a Non-MEXCA immigrant would settle there. Therefore, in our extended model, net of all controls, states that implemented above-federal MWs for at least 1 year during the 1990s lowered the likelihood that recently-arrived MEXCAs would choose to settle there by 23 percent as opposed to states that retained the lower, federal MW for the entire decade. We read the odds ratio of 0.77 as a probability of -23% (1-0.77). In contrast, as column 4 of Table 4.3 shows, net of all control variables, being a high minimum wage state during the 1990s had no effect on the Non-MEXCAs' likelihood of choosing that state as opposed to choosing a low-MW state.⁶⁶ The key point is that high state MWs deflected MEXCA immigrants whereas they did not deflect Non-MEXCA immigrants.

4.12 Sensitivity Analysis

To check the robustness of our results, we performed several sensitivity tests, inquiring whether changes in the definition and/or time period of our main independent

variable or omission from the analysis of a few high - profile states might importantly affect our results.

Possibly, a few traditional settlement states, which had a much higher likelihood of being chosen by MEXCAs, overwhelmed our results. To test that issue, we estimated our original extended model (column 2 and 4 of Table 4.3) while excluding the choice of settling in the big-three traditional settlement states (California, Texas, Illinois) that Mexican immigrants continue to over-select. After omitting these three states, we obtained basically the same results as those of our original extended model specification; so we conclude that these three states did not overly influence our results.

Likewise, it is conceivable that a decade's lag is too long, and that, testing the effect of the states' MWs during a shorter time frame might obtain different effects on the settlement choice of immigrants. Therefore, we tested two alternative specifications that measure the effects on settlement of shorter time lags. We examined whether the states that implemented an above-federal minimum wage between 1992 and 1999, and between 1993 and 1999 showed any differences from those that implemented it during the entire decade of the 1990s. Running these alternative specifications (with the minimum wage variables measuring their state-wide implementation during the periods 1992-1999 and for 1993-1999) we obtained results that are quite similar to the ones we presented in Table 3. We conclude that the definition of our main independent variable does not represent a problem in terms of the length or lag-period of the minimum wage variable.

We used a dummy variable for our key independent variable, state's minimum wage policy. Possibly we would obtain different results had we used instead a continuous variable that reflects for how many years an above-federal minimum wage was implemented during the 1990s as well as by how much it was above the federal level. To evaluate that possibility, we estimated an alternative model specification identical to our original except that it assesses the effect of the different levels of minimum wages that were implemented by states during the 1990s on the settlement choice of both groups of immigrants. We found a reduced but, as expected, still negative and statistically significant effect of these different dollar levels of federal MWs of the 1990s on the MEXCA immigrant's settlement choices between 1995 and 1999. Results are not significant for Non-MEXCAs. These results mean that it was more important if states implemented above-federal minimum wages at all rather than by how much they did so. There could be many reasons for this result, which would merit further study, but are beyond the scope of our current analysis.

Moreover, some immigrants who arrived during the 5 year period (1995-1999) might have resettled from one state to another during the 5 year period. Undetected movements might influence the results of our original extended model specification. To test the robustness of those results we ran a variation on our original model specification, running the same analysis for just the MEXCA and Non-MEXCA immigrants who arrived during each one of those years (1995, 1996, 1997, 1998, 1999). Our results closely resemble those of our original, extended specification (Table 4.3). It does not appear that relocation of immigrants from one state to another distorted our original results.

Finally, as a last robustness check, we also ran a rare-events regression (King, Gary, and Zeng, 2001), that corrects for biases that may occur in different types of logit and logistic regressions that predict rare outcomes, where the datasets have many more zeros than ones. According to King, Gary, and Zeng, (2001), multinomial logit and logistic regressions that have a binary outcome may underestimate the probability of rare events. This contingency might affect our analysis because, in our dataset, only 2 percent of the outcomes are 1s rather 0s (since every immigrant has a choice of settling in 1 of 48 states). However, running the rare-events regression with our original extended model specification, we obtained basically the same results as with the regular multinomial logit regression, suggesting that our results do not underestimate the probability of rare events.

In all these robustness checks, MEXCA immigrants invariably displayed a higher likelihood to choose states with low rather than high MWs; Non-MEXCA immigrants showed no comparable tendency or slightly preferred high MW states. As predicted, high MWs deflected MEXCAs, but not Non-MEXCAs.⁶⁷

4.13 Discussion

States that implemented higher-than-federal MWs for at least one year during the 1990s reduced the likelihood that MEXCA immigrants would select them for settlement between 1995 and 1999, rather than states that only implemented the lower, federal-level MWs during that decade. The states' implementation of above-federal minimum wages during the 1990s did not affect non-MEXCAs' settlement choices during that same time

period. These results we obtained net of standard control variables. Several robustness tests did not dislodge our basic results. These results are consistent with our hypothesis.

4.14 Conclusion

The question we address is not whether growth of low-wage jobs in non-traditional states pulled MEXCAs toward those states, but how it did so. We agree that low-wage jobs attracted MEXCA immigrants, but we propose that political influences at the state level also influenced the production and retention of low-wage jobs. We hypothesized and found that, net of controls, MEXCA immigrants who arrived between 1995 and 1999 over-selected for settlement states that implemented lower MWs during the 1990s, rather than states that implemented above-federal MWs. This hypothesis reflected our theory according to which low-wage job growth and job retention should have proceeded most abundantly in states that only implemented the federal MW. A federal MW directly represents the ability lawfully to offer lower wages than would be legal in higher-than-federal MW states. But the state MWs also proxy a wider range of employment and labor law issues that additional research should address. However, at this stage, federal MW policies may signal that these states were more likely to tolerate low-wage labor and inferior working conditions than were high-MW states, and that this political choice had economic consequences. To say that an economy is embedded in a society is to acknowledge that, in a federal political system, a state's political choices will influence the kinds of industries and hence the kinds of immigrant labor it attracts. Markets will select such places, but cannot by themselves create them.

5. GENERAL CONCLUSIONS

My dissertation consists of 3 individual essays: (1) “Self-Selection of Internal Migrants in Mexico,” (2) “Mexican Migration Networks in the United States, 1980 – 2000;” (3) “Minimum Wage and Mexican and Central American Influx.” All 3 essays provide empirical evidence in conformity with the related migration theories that I tested. These were: the self-selection hypothesis of the human capital model (tested in all 3 essays but more explicitly in essay 1); the network theory (in all 3 essays, as a control variable); the network saturation theory (essay 2) and the deflection theory (essay 3).

Although each essay contains a separate analysis of the migration behavior of Mexicans at different times and in different places, and each mainly focuses on testing a different migration theory, these 3 essays nevertheless, share a number of commonalities. In all 3 essays, I used Census information to assess the migration behavior of Mexican migrants during a 5 year period and in each case I performed an individual-level, econometric human-capital analysis, also taking into account and controlling for migrant networks.

Additionally, while these 3 essays assess the migration behavior of internal Mexican migrants at different times (between 2005 and 2010 for Mexican internal migrants in essay 1, and between 1980 and 2000 for Mexican Immigrants to the U.S. in essays 2 and 3), in all three essays I analyze the migration behavior of Mexicans at a time when a big shift in the long-established pattern has started to re-directing large portions of the existing migration flows from their long established prime destinations (or traditional settlement regions) to non-prime destinations.

More importantly, however, these 3 essays also have in common that the theories they test, rather than representing competing hypotheses, share many core assumptions. Both, the network-saturation and the deflection theories are actually conceptual extensions of the human-capital migration theory (along with the network theory). As such, they predict the behavior, over time, of protracted (long-term), high-volume, network- driven (P-HV-ND) migration flows in response to changing economic and political circumstances.

Besides these theories whose hypotheses I test in the 3 essays, there certainly are other important theories that also try to explain and account for the main factors that lead to the initiation of migration flows. Most notable are the *New Economics of Migration*-, the *Dual Labor Market*- and the *World Systems Theories* (for which I provided a brief summary in the introduction).

However, I solely focused upon and performed an empirical analysis of the *Human Capital Neoclassical Model of Migration*, the *Network*, the *Network-Saturation* and the *Deflection Theories* because these theories are based on assumptions that are more readily testable in terms of how individuals will behave once the regional differentials regarding the supply and demand of skills, jobs, average-income, and migration networks are present, and assume that the larger macro-economic and macro-social structures are exogenous to the analysis.

Meanwhile, particularly the *Dual Labor Market*- and the *World Systems Theories* mainly focus on the larger structural reasons that explain how these differentials came to be, but they do not provide competing hypotheses regarding how they expect migrants to behave once those differentials have been produced. Therefore, there is no incompatibility

between these theories, because they address different stages of the total migration process. I, thus, do not dispute the importance of other theories of migration, but they are beyond the scope of this analysis.

The 3 papers are, hence, based on common core assumptions, both, at the micro-level, in terms of the expected individual behavior of migrants, as well as at the macro-level, particularly in terms of the expected behavior of P-HV-ND migration flows over time.

More concretely, the main shared *micro-level* core assumption is that, while migrants clearly move for many reasons, in most cases migrants move in order to obtain higher incomes. Thus at the *micro-level*, and following the self-selection hypothesis of the human-capital theory of migration, the core micro-level assumption of the 3 essays is that, given their skill level, individuals will decide where to live by comparing their utility in their current location to their expected utility in all other possible locations, and will then choose the location with the highest utility. In other words, at the micro-level the main assumption is that a migrant will settle in a receiving area that has a specific type of labor-demand that matches his or her specific skills and educational background in order to obtain the highest wages, and to maximize his or her returns to skill (Taylor and Martin 2001).

At the *macro-level*, the shared core assumptions of all 3 essays (about large migration flows) are the following:

a.) As expected by standard macro-level neo-classical theory (and also following neo-classical micro-level expectations about individual behavior), the migration process is induced by geographical differences in the supply and demand for individuals who possess certain sets or levels of skills that in turn cause spatial variations or differentials in earnings for a given type of skill. Thus, the expectation is that, in an attempt to obtain higher earnings (given their skill levels), some individuals move from regions with a surplus of their kind or level of skill and go to regions that have a high demand for those skills, thereby bringing about larger *migration flows* that go from high surplus to high demand regions (Lewis 1954; Ranis and Fei 1961; Harris and Todaro 1970; Todaro 1976).

b.) While the initiation of *large migration flows* has mostly been triggered by economic factors, and the economic gain of moving needs to be present for the flow to continue-, sustaining these migration flows has, however, generally been caused by *migration networks* that connect immigrants who are already at a certain destination point with their friends, neighbors, and relatives who are still back at home. The amazing capacity of networks to reproduce immigrant populations in specific destinations (where they can, on the one hand, obtain higher earnings and, on the other hand, settle where their friends and relatives have settled before), can then lead to the formation of sometimes very large settlement nodes (or traditional prime locations), that are linked to specific points within their countries of origin (Massey et al. 1994; Light 2006). Therefore, because, individuals who come from a sending region where many others have previously migrated have a much higher

likelihood of migrating themselves, and also of settling where others they know have settled before (via a cumulative causation cycle under somewhat stable political and economic circumstances), this can then lead to the formation of a P-HV-ND migration flow that very specifically goes from certain sending to certain destination regions. Conversely, this strong tendency of migration flows to concentrate in prime locations (traditional settlement places), however, also means that non-prime locations, where immigrants or internal migrants could have earned just as much, have a much lower likelihood of being selected.

c.) The circumstances that lead to the formation of a P-HV-ND migration flow (that mainly concentrates in prime traditional settlement places, such as California, Chicago and Illinois in the case of Mexican immigrants) can, however, change and cause the *dispersion* away from these traditional settlement places and towards formerly non-prime ones. As explained by the deflection theory, the new circumstances that then lead to this *dispersion* or deflection of a P-HV-ND migration flow to new, formerly non-prime, settlement areas, can be due to the presence of new external political or economic circumstances, that are exogenous and thus un-related to the migration flow itself (such as the presence of new local laws, the enhanced enforcement of existing laws, the economic downturn of traditional settlement regions, employment growth in non-traditional settlement regions).

However, as expected by the network-saturation and the deflection theory, such a *dispersion* can also come about due to the direct effects of a P-HV-ND migration flow itself, given its high influx of migrants that often possess a similar set or level of skills. For this reason, both the network-saturation- as well as the deflection- theory expect that economic/demographic deflection will occur when, as a result of a heavy influx of migrants from a P-HV-ND migration flow, internal migrants or immigrants (with a similar set of skills) saturate their housing and labor markets in impacted destinations, causing rents to rise and earnings to drop. The prediction of these theories is then, that in a quest for improved quality of life, the migrants or immigrants from such a P-HV-ND migration flow will then disperse to formerly non-prime destinations.

In terms of the economic and demographic changes that can be induced by a P-HV-ND migration, neo-classical theory also expects that, labor will ultimately become less scarce at the destination areas and scarcer at the sending ones. Such a regional re-sorting of demand and supply of skills can then lead either to the dispersion of migrants away from traditional settlement areas and toward new ones, in case the prime settlement destination regions stop having a high demand for the type of *labor* they had been attracting or importing, while at the same time the sending regions keep having a surplus of the type of *labor they had been exporting*. However, if at the same time, both, the prime and non-prime settlement receiving regions terminate demand for the type of labor they had a shortage of, while at the same time the sending regions cease to have an over-supply or surplus of the type of

labor they had been exporting, then, of course, we will see the end of that P-HV-ND migration flow.

So while each essay mainly concentrates on testing a particular set of the core assumptions as phrased in a particular migration theory- and none of these essays is able to directly test all these migration theories and core assumptions-, the 3 essays, however, also speculate a little about what their own empirical findings may mean in the context of these more general core assumptions about the migration process.

In the next section I present the more concrete results and main findings of each of the three essays, and I also briefly discuss what the results may suggest in terms of these micro- and macro-level core assumptions.

Essay 1

In the first essay (“Self-Selection of Internal Migrants in Mexico”) I performed a standard test of the self-selection hypothesis, by assessing the locational choices of working-age male Mexicans with different skill levels who, between 2005 and 2010, moved from one Mexican region or state to another. As expected by this self-selection hypothesis, and my micro-level core assumption that migrants tend to move to the regions that provide the highest returns to their skills, among Mexican inter-regional and inter-state migrants, those who had higher levels of education, and who in 2005

resided in regions or states that had relatively high average-income and low income-inequality, (also net of all control variables) the likelihood was much higher that they would move to regions that had lower average-incomes and higher income-inequality (and thus high returns to high-skills), rather than to regions with high average-incomes and lower income-inequality; and vice versa for inter-regional or inter-state migrants with below average schooling levels. *(Moreover, as expected by the network theory the micro-level findings also indicate that these inter-regional migrants were highly attracted to regions where each inter-regional migrant has a large social network of earlier migrants from the same region of birth).*

And also consistent with the micro-level results, those at the macro-level likewise showed that lower-income regions exported a large number of lower-skilled workers and imported higher-skilled workers between 2005 and 2010 (accounting for nearly one half of all inter-regional migrants),- while high income regions attracted mainly lower-skilled workers, and exported more highly skilled workers, (accounting for nearly the other half of all inter-regional migrants).

These macro-level findings follow the prediction of neo-classical theory, which expects that regional disparities in the supply and demand of individuals with different skill levels largely drive the differentials in skill-specific earnings and, thus, the different migration flows. However, these macro-level findings, and particularly the fact that these 2 main flows of inter-regional Mexican migration between 2005 and 2010 were actually of such even proportions, nevertheless shows a new pattern that diverges from last century's typical pattern of Mexican internal migration.

In last century's typical pattern of Mexico's internal migration, the largest flows of both lower and higher skilled migrants had been attracted to regions with above-average income levels. Actually during the first half of the last century, the by far largest migration stream was mainly comprised of persons with low average schooling levels who originated in rural areas and moved to Mexico's 3 largest cities (Oliveira and Roberts 1989; Partida-Bush 1993). Then, ever since Mexico's economic liberalization in the 1980s (while most migrants still originated in rural areas) a larger proportion of migrants, have been persons with higher levels of schooling coming from urban areas; and both, rural- and urban-origin migrants mainly settled in middle-sized cities close to the U.S. border (Roberts 1989, Escobar and Latapí 1998).

Hence, the large flow of individuals with lower schooling levels who between 2005 and 2010 went from poorer to richer Mexican regions, does follow the previous or traditional pattern of Mexican internal migration, while the large flow of the higher skilled inter-regional migrants who originated in above-average income regions, however does not!

The growth of this flow of higher skilled migrants is consistent with a trend that had already begun in the previous century, when the proportion of migrants with relatively high schooling levels kept increasing (Garza 2003). And yet when it comes to speculating about the possible reasons for the large increase in size and the re-direction toward formerly non-prime destinations of this flow of more highly skilled migrants who originated in above-average-income regions, it seems likely that this growth and dispersal was mainly caused

by the much larger availability of schooling opportunities that existed in Mexico. This availability in turn led to an important increase in the supply of young persons with higher levels of schooling. In the above-average-income regions, the higher supply of young person with relatively high levels of schooling, thus, appears to have started to saturate their job opportunities there.

The growth and dispersion of this flow of more highly skilled migrants from above-average income regions, moreover, suggests that the growth in these richer regions of the supply of people with higher schooling levels was faster than the creation of jobs (thereby lowering their average earnings). Conversely, we know that 2 below-average-income regions that attracted the most inter-regional migrants during this period (the South-East and the North-Central) also experienced the largest employment growth between 2005 and 2010. This result suggests that some below-average-income regions created a many higher-skilled jobs, so that having a high demand for individuals with those skills, they offered higher earnings.

Therefore, it seems likely that the saturation of more highly skilled jobs in above-average income regions was primarily due to an endogenous reason, e.g. the proportion of young people who had obtained higher schooling levels was much higher than it used to be in the past (it is a well-known fact that the average schooling levels have risen considerably in Mexico). However, it also seems likely that the past migration flows of more highly skilled inter-regional migrants who originated in above-average-income regions and settled in other above-average-income regions, must have also contributed.

Actually, the mechanism and circumstances that one can suspect lead to the dispersion of this migration flow (of more highly skilled migrants who come from above-average income regions), - in many ways resembles those predicted by that of the network saturation and the deflection theory, and yet, this flow of highly skilled migrants from richer regions settling in formerly non-prime regions can, however, not be considered a P-HV-ND migration network, given its smaller size and newness.

Essay 2

For recently arrived Mexican immigrants who settled in the U.S. between 1980 and 2000, Essay-2, (“Mexican Migration Networks in the United States, 1980 – 2000”) tested the network-saturation theory by assessing whether the dispersion of Mexican immigrants away from their traditional settlement states (CA, TX and IL) and toward new settlement states, was caused by the long-term, high-volume migration of Mexicans which then finally saturated their housing and job opportunities in the traditional settlement states.

To assess at the macro-level the degree of the dispersion or deflection of this protracted (long-term)-high-volume, network-driven (P-HV-ND) migration flow, we first calculated how the proportion of the recently arrived Mexican immigrants (RMIs) who chose to settle in one of the 3 traditional states, changed over time, - finding that between 1975-1980, 89 percent of RMIs settled in the three traditional states; 83 percent of RMIs still did so between 1985 and 1990, but only 57 percent of RMIs who had

arrived in the United States between 1995 and 2000 settled in one of the three traditional states. Conversely, the proportion of RMIs continuously increased elsewhere in the United States, but particularly in the eight new settlement states where 4 percent of RMIs settled between 1975 and 1980, 9 percent between 1985 and 1990 and 20 percent between 1995 and 2000.

In order to assess the reasons that led to the dispersion of RMIs away from the traditional settlement states and towards new settlement states, we first analyzed the inter-regional patterning of recent Mexican immigrants' wages in 2000. The results of this wage analysis showed that, net of years of education and years of working experience male RMIs were paid better in the new settlement states than in any traditional settlement region. Then in order to further test if these inter-regional differences in RMIs wages could have been induced by the prolonged influx of Mexican immigrants, we also tested how this inter-regional patterning of RMI's wages changed over time,- finding that RMI wages in the traditional settlement regions had been *higher* in 1980 than in the eight new settlement states, but that thereafter, the inter-regional balance reversed, and by 2000, RMI wages were appreciably lower in the three traditional settlement states than in the 47 other U.S. states.

As a sensitivity analysis, to make sure that the previous results were not biased by regional differences in cost of living, we likewise assessed whether the return on their skills, or human capital, that RMIs received in each region when compared to that received by the rest of each region's male working population, also differed across regions in a similar fashion to RMI's wages. And, confirming our previous findings, the results of this

return-to skill analysis also showed that RMIs earned higher returns on their human capital in the eight new settlement states than they did in any of the traditional regions. Moreover, when assessing the changes over time of RMIs returns to skill, we likewise found that inter-regional disparities increased between 1980 and 2000 so that new settlement states paid RMIs' human capital a higher proportion of the non-immigrants' return on human capital than did the traditional states.

In sum, our findings conformed to the expectation of the network saturation hypothesis, namely that the wages and the human capital return of RMIs would be lowest (and rents would be highest) where Mexican immigrants were most densely settled. The results of this essay, therefore, also showed that, as expected by the network-saturation and deflection theories, the dispersion between 1980 and 2000 of RMIs to new settlement states and away from prime settlement states, was mostly due to the fact that, over time, the effect of the P-HV-ND flow of Mexican migrants to prime locations, led to an over-supply of similar labor in those prime locations, which, then, in turn caused the deterioration of RMIs return to skills, wages and rents there. After saturation of both the housing and job opportunities of Mexicans in traditional states, these deteriorated economic conditions encouraged Mexican immigrants to select new states for settlement where they could obtain higher wages and higher returns to skill.

And finally, when assessing whether RMI's settlement choices between 1980 and 2000 also followed the expectations of the self-selection hypothesis, we similarly found that consistent with the prediction of this hypothesis, the direction of the dispersion or

deflection of RMIs reflects that RMIs were increasingly drawn towards places where they could obtain a higher returns to their skills.

The fact that RMI's settlement choices have also been influenced by their economic incentives to go where they could obtain higher returns to their skill,- does, however, not mean that social networks no longer influenced RMI's settlement choices. The network-pull toward traditional states was still very high between 1995 and 2000, sine a full 57% of all RMIs who came to the U.S. between 1995 and 2000 still settled in one of the 3 traditional settlement states *despite* the lower mean wages that they could obtain there. (The strong pull effect of migration networks is also visible in the fact that RMIs were more drawn to settle in one of those 8 new settlement states, rather than in one of the other 39 U.S. states).

So while, as expected by the self-selection hypothesis, and despite the network-attractiveness of those prime locations, when compared to the previous settlement patterns, a much larger proportion of Mexican immigrants nevertheless chose to locate in non-prime destinations, which, were the places where during that period these RMIs could obtain higher wages and thereby higher returns to skill.

Essay 3

The third essay ("Minimum Wage and Mexican and Central American Influx") assesses whether, as expected by the *deflection theory*, the increased minimum

wage implemented by 13 American states in the 1990s reduced employment among recently arrived Mexican and Central American (MEXCA) immigrants, and therefore contributed to re-directing their influx to one of the 35 states that retained the federal minimum wage during that time.

The *deflection theory* expects that, when a state implements above-federal minimum wages, the increase will slow the growth and retention of local low-wage employment. As a result, some low-wage jobs will then be re-located from states that raised the minimum wage to states that retained the lower federal minimum wage.

And given that recently arrived MEXCA immigrants are known to be among the lowest paid employees in U.S. labor markets, and have the weakest local roots, the expectation of essay 3 is also that changes in minimum wage levels should have affected their employability and thus their settlement choices.

Moreover, the reason that this study is also part of an effort to explain the dispersion of Mexicans away from the 3 traditional settlement states (California, Texas and Illinois) and increasingly toward all other 47 states (and particularly to the 8 new settlement states, namely Massachusetts, Virginia, North Carolina, Georgia, Arizona, Nevada, Oregon and Washington),- is due to the fact that most of these 8 new settlement states did not implement higher than federal minimum wages during the 1990s, while i.e. the main traditional settlement state (California), did. Thus, following the deflection theory, the prediction was that state's decisions (particularly that of the new settlement states) not to

implement above-federal minimum wages, could have contributed to the growth of the low-wage job supply there, thereby contributing to the dispersion of this P-HV-ND migration flow towards those states.

To test this proposition we analyzed individual-level data from the 5% Public Use Sample of the 2000 U.S. Census of Population, and using a multinomial logit model, we assessed the effect that high and low state minimum wages had on the settlement choices of MEXCA and Non-MEXCA male immigrants aged 18-65 who arrived between 1995-1999.

And, as predicted, we found that (net of all control variables including migration networks) these recently arrived MEXCA immigrants were less likely to settle in states that implemented above-federal minimum wages during the 1990s as opposed to settling in states that retained the federal-level minimum wage during that decade. Conversely, states' minimum wage policies had no effect upon the influx of recent immigrants from other countries. *(And the findings of this essay also showed that, as expected by the network-theory, newly arrived MEXCA immigrants were attracted to states where the immigrant has a large number of co-nationals).*

These results suggest that the dispersion between 1980 and 2000 of recently arrived Mexican immigrants was influenced by the implementation of state-wide minimum wage policies in non-prime settlement states, presumably via their effect on the increased production and retention of low-wage jobs (and their consequent higher attraction power for recently arrived MEXCA immigrants).⁶⁸

And finally, when assessing whether the settlement choices of recently arrived MEXCA immigrants between 1980-2000 also followed the expectations of the *self-selection hypothesis*, we similarly found that, consistent with the prediction of this hypothesis, the direction of the dispersion or deflection of newly arrived Mexican immigrants reflects that these immigrants were increasingly drawn towards formerly non-prime settlement places, that did not implement higher than federal minimum wages- and where (among other advantages) they could, more easily, find jobs, and thus obtain higher returns to their skills.

Following the *self-selection hypothesis*, our results, therefore, similarly suggest that despite the attractiveness of those prime locations due to the large presence of friends and family or co-ethnics, a considerable proportion of Mexican immigrants chose to locate in non-prime destinations that did not implement above-federal minimum wages, and where (among other advantages) these immigrants had higher odds of finding employment, thereby maximizing their returns to skills.

In sum, when seen overall, these 3 essays provide empirical evidence that supports the migration theories that they tested, and they also, (hopefully) contribute to a better understanding about the migration flows of Mexicans, both inside of Mexico, as well as within the United States at each essay's period of analysis.

6. ENDNOTES

1. Since, according to the National Research Council, 2003, there are approximately 500,000 internal migrations per year in Mexico and 400,000 annual emigrations from Mexico to the U.S.
2. See Massey et al. 1994; Massey and Espinosa 1997; Loaeza-Tovar et al. 1998; McKenzie and Rapoport 2010; Hanson and McIntosh 2010; Winters et al. 2001; Hernández-Laos 2000; Taylor et al. 1999.
3. The studies that have assessed the self-selection patterns of Mexico-U.S. migration find that Mexican immigrants to the United States are either negatively selected in terms of education, since they are on average less skilled than non-migrants (Ibarraran and Lubotsky 2010; McKenzie and Rapoport 2010; Massey 1987); or that they are neither positively nor negatively selected (Orrenius 2003; Chiquiar, Grogger and Hanson 2005). For example, according to Orrenius, 2003, “the least-skilled individuals do not migrate because they do not have enough savings to pay the up-front cost of migration. The most-skilled individuals do not migrate because the return to skill is higher in Mexico than in the United States.” These studies of the self-selection of Mexican international migration do not assess and can certainly not tell us whether the more highly educated Mexicans who do not migrate to the U.S. are likely to move to other Mexican regions that provide higher returns to their skills;

or whether they just have a high tendency to stay in their home region. The results of these studies, however, do provide evidence that Mexicans are sensitive to returns to skill when it comes to deciding whether to migrate to the United States.

4. Using individual level data from Mexico's 2000 Census, Villarreal and Hamilton (2012) likewise found that the migrants who come from more rural areas are more likely to settle in cities that have relatively high foreign direct investment and in areas that are close to the U.S. border, than are migrants who come from more urban areas.

5. Skill levels are generally proxied by individual's years of schooling.

6. Of course there are constraints of information so migrants are expected to make such a rational choice based on the information they can obtain (Orrenius 2003; Taylor 1999).

7. The conditional logit framework treats individuals' choice primarily as a function of the characteristics of the various alternatives available to them, as opposed to more commonly used multinomial logit models in which individuals' choice is treated as a function of the characteristics of the individuals themselves (Hoffman and Duncan, 1988; Liang and White, 1997; White and Liang, 1998; Villarreal and Hamilton, 2012).

8. While the self-selection studies that assess the effect of returns to skill have mostly used aggregate data (see Borjas et al. 1992; Grogger and Hanson 2011), and other self-selection

studies have used a number of different logistic models (Orrenius 2003; Taylor 1999), none of the ones I have found have directly employed the mixed conditional logit model in order to analyze whether regional differences in returns to skill influence migration choices.

9. For the same reasons, a number of other studies also limit the analysis to male working-age-migrants (i.e. Fafchamps and Shilpi 2008).

10. And such studies cannot really account for the utility of staying at home (for non-migrants who, for example, own land or have a relative whose care they need to assure).

11. The reason that like many studies of locational choice (i.e. see Buckley, 1996; Dodson, 2001; Zavodny, 1999) I perform this analysis at the regional and state level but not at the metropolitan-level is because I do not want to exclude rural or semi-rural, and semi-urban areas from the destination alternatives (as did Villarreal and Hamilton, 2012), but I also do not want to overburden the model with too many settlement choice options, which would occur if I performed the analysis at the county-level.

12. Distrito Federal, Estado de México, Morelos, Hidalgo, Querétaro and Puebla, and for instance the Distrito Federal-state has the largest negative migration flow, and Estado de Mexico has the largest positive migration flow of the whole country.

13. This test I performed following Davies, Greenwood and Li (2001).

14. I also use the same statistical method to analyze both movers and non-movers, except that, instead of selecting just movers, I include all working-age males in the dataset that I employ to perform this additional sensitivity check (and I then add a dummy variable that indicates whether the individual chose to stay or leave his 2005 region of residence).

15. Since the 7th region corresponds to the region where the individual resided in 2005, it is not included as an option in my preferred model and, for each individual this 7th region is actually dropped from the dataset. In my preferred model, by construction, each individual in the sample is a migrant, and each migrant only migrates to a single location.

16. When the log of this likelihood function is summed across all inter-regional migrants and maximized relative to the β 's, the estimates of β show information on the effect of the vector of X variables in a certain region on the utility level that the inter-regional migrant associates with that particular region. If a variable in X_{ij} increases utility, it will have a positive effect on the probability that a certain region is chosen over all the alternative regions.

17. Actually, I first formed an individual-level dataset using micro-data from the sample of the Mexican Census of Population that is carried out and provided by INEGI. I then merged the individual-level dataset with an aggregate level dataset that I built using aggregate level information that I likewise downloaded from INEGI's website, and which I

employ to account for the socio-demographic and economic characteristics of the different locations.

18. The exact source of INEGI's 10% Public Use Sample of the 2010 Census of Population is: INEGI. Censo de Población y Vivienda 2010. Microdatos de la Muestra del Censo de Población y Vivienda 2010. Retrieved from:

<http://www.inegi.org.mx/est/contenidos/proyectos/accesomicrodatos/cpv2010/default.aspx>

19. There are 630,289 male Mexicans aged 18 to 65 who resided in a different region in 2005 than they did in 2010 (inter-regional migrants).

20. In the case of the inter-state migration analysis, *Destination-Choice* has a value of 1 for the chosen state and a value of 0 for the other 30 settlement option states where the inter-state migrant did not settle; while, as explained earlier, settling in the same state where the individual resided in 2005 is not an option, given that I am first only assessing the settlement patterns of migrants, conditional on moving.

21. All the aggregate-level information that I used to build these observed explanatory variables I obtained from INEGI's website, using the base year of 2005, except for the variable employment growth that I include in some specifications to account for the job growth between 2005 and 2010, the period of analysis.

22. The GINI coefficient is a concentration measure of the income: it takes values between zero and one. When the value approaches one, this indicates that there is a larger concentration of income, whereas, when the value of the GINI coefficient approaches zero, the concentration of the income is less. INEGI's information about the GINI coefficient I obtained from the following source: INEGI. Módulo de Condiciones Socioeconómicas de la Encuesta Nacional de Ingresos y Gastos de los Hogares (Encuesta Nacional de Ingresos y Gastos de los Hogares, ENIGH). Años correspondientes. Tabulados Básicos. Ingreso Corriente de los Hogares por Entidad Federativa Hogares y su Ingreso Corriente Trimestral por Deciles De Hogares y su Coeficiente de GINI. Retrieved from:

<http://www.inegi.org.mx/Sistemas/temasV2/contenido/sociedad/epobla40.asp?s=est&c=26623>

Acutlly, rather than calculating the regional income inequality myself with wage data, as does Borjas et al. (1992), or calculating my own GINI coefficients using information about non-durable consumption and income (McKenzie and Rapaport 2010), I use INEGI's published data of the GINI coefficient because I think that these data are accurate enough for this study.

23. The information about each respondent's years of schooling I obtained from INEGI's 10% Public Use Sample of the 2010 Mexican Census of Population.

24. Another reason I employ $Q_Schl_x_ \%GDP_10pc_Richest$ is because in some specifications I obtain better fit statistics than when I use $Q_Schl_X_R_Gini$. And the

regional differential in the percent of the gross product owned by the richest 10% of the population, I built based on the information about the percent of the state gross product owned by the richest 10% of the population in a region, which I obtained from the following source: INEGI. Módulo de Condiciones Socioeconómicas de la Encuesta Nacional de Ingresos y Gastos de los Hogares (Encuesta Nacional de Ingresos y Gastos de los Hogares, ENIGH). Años correspondientes. Tabulados Básicos. Ingreso Corriente de los Hogares por Entidad Federativa Hogares y su Ingreso Corriente Trimestral por Deciles de Hogares y su Coeficiente de GINI. Retrieved from:

<http://www.inegi.org.mx/Sistemas/temasV2/contenido/sociedad/epobla40.asp?s=est&c=26623>

25. As commonly done, I log transform the measure of migrant networks (see Peeters 2012) because its distribution exhibits strong positive skewness, while the distribution of the log-transformed migration flow is quite close to normal.

And, the information about the total number of persons from each respondent's region (or state) of birth who in 2005 lived in each of the 6 regions (or 31 states), I obtained from INEGI's 10% Public Use Sample of the 2010 Mexican Census of Population.

26. INEGI's main results of the 2005 Inter-Decennial Population Count I obtained from the following source: INEGI. Censo de Población y Vivienda 2005. Sistema de Integración Territorial, ITER, Principales Resultados por Localidad. Población Total. Retrieved from: http://operativos.inegi.org.mx/sistemas/iter/entidad_indicador.aspx?ev=5

27. Source: INEGI. México en Cifras. Indicadores principales del Banco de Información INEGI. Estadísticas de Empleo y relaciones laborales. Porcentaje de población total ocupada en el sector primario Población económicamente activa. Ocupada (Número de personas). Años Correspondientes. Retrieved from:

<http://www3.inegi.org.mx/sistemas/mexicocifras/>

28. In the assessment of the determinants of inter-state migration, I, however, had multicollinearity problems when including the distance variable in addition to the state fixed effects. Therefore, I added a contiguity dummy (see 29. PNUD. Oficina Nacional de Desarrollo Humano. Programa de las Naciones Unidas para el Desarrollo de México (PNUD-México). Indicadores municipales de desarrollo humano en México. Ingreso Promedio per cápita anual ajustado en pesos. Retrieved from:

<http://www.undp.org.mx/desarrollohumano/disco/index.html> through INEGI's link.

e Peeters 2012), coded 1 when two states share a common border, and coded 0 when they do not.

29. PNUD. Oficina Nacional de Desarrollo Humano. Programa de las Naciones Unidas para el Desarrollo de México (PNUD-México). Indicadores municipales de desarrollo humano en México. Ingreso Promedio per cápita anual ajustado en pesos. Retrieved from:

<http://www.undp.org.mx/desarrollohumano/disco/index.html> through INEGI's link.

30. INEGI's 2005-unemployment information I obtained from the following exact source: INEGI. Encuesta Nacional de Empleo 2005. Desocupación, Ocupación, empleo y remuneraciones > Tasas de ocupación, desocupación y subocupación (resultados mensuales de la ENOE) > Tasa de desocupación por entidad federativa como promedio móvil de tres con extremo superior.

31. I classified each county as mostly rural or mostly urban based on each county's total population that I obtained from the following source: INEGI. Censo de Población y Vivienda 2005. Sistema de Integración Territorial, ITER, Principales Resultados por Localidad. Población Total. Retrieved from:

http://operativos.inegi.org.mx/sistemas/iter/entidad_indicador.aspx?ev=5

32. The information about the share of the Mexican population that worked in the primary sector in 2005 I obtained from: INEGI. México en Cifras. Indicadores principales del Banco de Información INEGI. Estadísticas de Empleo y relaciones laborales. Porcentaje de población total ocupada en el sector primario Población económicamente activa. Ocupada (Número de personas). Años Correspondientes. Retrieved from:

<http://www3.inegi.org.mx/sistemas/mexicocifras/>.

Also, instead of using $R_Rate_ \%Pop_Prim_Sec$, as a sensitivity check, I also ran the regression using the regional differential in the percent of GNP that corresponds to Agricultural activities, which I obtained from the following source: Source: INEGI. Sistema de Cuentas Nacionales de México. Cuentas nacionales > Producto interno bruto

por entidad federativa > Por sectores de actividad económica > A precios corrientes > Participación porcentual de los estados en las actividades económicas > 11 Agricultura, ganadería, aprovechamiento forestal, pesca y caza. Available at:

<http://www.inegi.org.mx/sistemas/bie/>.

I do not show these results because they are similar to those I obtained using

R_Rate_%Pop_Prim_Sec.

33. Source: INEGI. Estadísticas de Mortalidad. Consulta de: Defunciones por homicidio Por: Año de registro Según: Entidad Federativa y Municipio de Ocurrencia.

Available at:

http://www.inegi.org.mx/lib/olap/consulta/general_ver4/MDXQueryDatos.asp?proy=mort_dh.

34. These historical findings about last century's typical pattern of internal migration show that the largest flows were mainly comprised of low-skilled migrants who were coming from rural- and thus low-wage areas and settled in urban higher-wage areas (Garza 2003; Soloaga and Lara 2006). These findings are, moreover, consistent with what has been found to be the case in other countries during their developing phase, as well as with the prediction of Todaro's (1969) income-differential model, and neoclassical theories.

35. As mentioned earlier, the non-return migrants represent 60% of all inter-regional migrants, but the proportion of return and non-return migrants varies greatly across regions (Massey, Alarcón, Durand and González 1987).

36. In 2005 the wages in the South-East were 9% below the national mean, and those in the North-Central region were 1% below this mean. Conversely, in 2005, the income inequality levels of the South-East and the North-Central regions were 5% and 15% above the national mean, respectively.

37. That is, regardless of the control variables I use in the different specifications, the odds ratio of *Q_Sch_X_R_GNP_10pc_Richest* is always larger than 1 since it varies between 1.44 and 1.48. These results mean that the migrants who have higher skill levels are more likely to settle in regions that have high income inequality. All specifications pass all my regression diagnostic tests.

38. This effect is statistically significant in all specifications except in the one where I control for regional fixed effects.

39. Thus, the results of *R_UnEmp* show that, as expected, migrants do not tend to migrate from a region with low unemployment to a region with higher unemployment.

40. When I run the analysis without regional fixed effects, I obtain the same results in terms of the hypothesis, but the different specifications do not pass the regression diagnostic tests; all the specifications in Table 6 pass the regression diagnostics.

41. As would be the case of a migrant whose 2005-region-of-residence was the North-East and by 2010 had moved to the South.

42. Yet further studies are needed in order to really elucidate this.

43. For reasons of space I do, however, not show the results.

44. Additionally, they argue that federal legislation changed the character of Mexican immigration, tending to replace sojourners with settlers. Again, in their view, the federal legislation made the situation worse because, left to themselves, many Mexicans would finally have repatriated who, thanks to federal intervention, have decided instead to settle permanently in the United States: See: Massey, Durand, and Malone, 2002: 126.

45. “All of these changes occurred precisely at a point in time when vast numbers of former undocumented migrants had acquired new geographic mobility thanks to the IRCA-authorized legalization.” Durand, Massey, and Capoferro, 2005, p. 12.

46. Light, Bhachu, and Karageorgis, 1993; Light, 2006; Chapter 3.

47. Based on calculations from Table 3.2.

48. The proportion of RMI households that pay rents is very similar in all the regional groups (75 percent in Los Angeles; 74 percent in California; 71 percent in the traditional states; 76 percent in the new settlement states; and 76 percent in the other states). Between 24-29 percent of the households in which RMIs resided in 2000 were owned by homeowners, who paid mortgages instead of rents.

49. i.) Comparison of residing in one of 8 new settlement states with residing in one of 3 traditional states.

Equation for predicted income: $y(\text{income}) = \$ 9,326 + \$ 984$ (if residing in new settlement state)

The F-test is significant with 1 to 1,368,378 degrees of freedom.

ii.) Comparison of residing in one of 8 new settlement states with residing in California.

Equation for predicted income: $y(\text{income}) = \$ 8,817 + \$ 1,493$ (if residing in new settlement state)

The F-test is significant with 1 to 926,378 degrees of freedom.

iii.) Comparison of residing in one of 8 new settlement states with residing in Los Angeles:

Equation for predicted income: $y(\text{income}) = \$ 8,327 + \$ 1,984$ (if residing in new settlement state) The F-test is significant with 1 to 684,778 degrees of freedom.

50. i.) Comparison of residing in one of 8 new settlement states with residing in California. Equation for predicted income: $y(\text{income}) = \$ 2,972 + \$ 1,017 (\text{if residing in new settlement state}) + \$73 (\text{for each year of age}) - \$7,887 (\text{if female}) + \$697 (\text{if married}) + \$337 (\text{for each year of education}) + 1,088 (\text{for each year in the US})$. The F-test is significant with 1 to 926,378 degrees of freedom.

51. i.) Comparison of non-RMI adult male income with adult male RMI income in Los Angeles: Equation for predicted natural logarithm of income: $y(\ln_income) = \$ 7.7 - 21 \text{ percent} (\text{if being a recently arrived Mexican immigrant}) + 10 \text{ percent} (\text{for each year of education}) + 10 \text{ percent} (\text{for each year of working experience}) + 0.1 \text{ percent} (\text{for each unit of experience squared})$. The F-test is significant with 1 to 4,408,198 degrees of freedom.

52. The results in Table 6 also show that each additional year of education increased men's predicted income by 12 percent in the new settlement states, by 12 percent in the traditional states, by 11 percent in California and by 10 percent in Los Angeles. Each additional year of working experience generally increased working men's income by 9 percent in new settlement states, by 10 percent in the traditional states, by 9 percent in California and by 10 percent in Los Angeles.

53. The variable "related children in the household" did not exist in the 1980 Census.

54. The three traditional states for Mexican settlement contained 83 percent of the total foreign-born Mexican population in 1980, but only 63 percent in 2009. Deflection means the redirection of immigrant population from traditional to new localities in response to changing incentives, such as saturation, and state labor policies, and despite the conservative influence of migration networks. Deflection is measured by the reduction in the states' retained share of a sending country's total immigration over time. The deflection of Mexicans is thus obtained by multiplying the total population of foreign-born Mexicans in the United States by .83 and then by .63. The difference between these two is the number of foreign-born Mexicans deflected from the three traditional states between 1980 and 2009.

55. True, informal economies exist in every state. In informal economies, firms flout labor laws. Nonetheless, if law has any effect upon the location of low-wage work, that effect should, nevertheless, be statistically visible.

56. In 2002, the U.S. Supreme Court in a 5-4 decision (*Hoffmann Plastics Compounds vs. NLRB*) stripped undocumented workers of the right to unionize. Subsequently, employers have sought to expand *Hoffman*, threatening workers with dismissal "if they complain about minimum wage violations" (Compa. 2004: 119).

57. "Arrangement Establishing an Understanding Between the U.S. Department of Labor's Wage and Hour Division, Southeast Regional Office, and the Consulate General of

Mexico.” Dated April 14, 2011. Available April 24, 2012:

www.dol.gov/sec/newsletter2011/20110414.htm#english

58. Following the multinomial logit approach, we expanded each dataset longitudinally so that, for each respondent, instead of just one line with information, we create one line for each of the 48 contiguous U.S. states. We, then, merged the longitudinally expanded dataset with a dataset containing aggregate, state-level information about each of the 48 contiguous U.S. states. Thus, each of the 48 lines prepared for any respondent is accompanied by the complete aggregate information that corresponds to each state. This structure permits a comparison of respondents’ settlement choices that takes into account aggregate state information.

59. Source: U.S. Department of Commerce, Bureau of Economic Analysis, Table SA25N

“Total full-time and part-time Employment by NAICS industry 1/ Total Employment.”

<http://www.bea.gov/iTable/iTable.cfm?ReqID=70&step=1> Total full-time and part-time employment

60. Source: The City Distance Tool, available:

<http://www.geobytes.com/CityDistanceTool.htm?loadpage>

61. Source: U.S. Bureau of Labor Statistics, Local Area Unemployment Statistics, where the “Over-the-Year Change in Unemployment Rates for States” are presented for the

civilian non-institutional population 16 years of age and over. Available:

<http://www.bls.gov/lau/lastch00.htm>

62. Source: U.S. Department of Commerce, Bureau of Economic Analysis. Table SA25N

“Total full-time and part-time employment by NAICS industry 1/ Private employment:

Construction (percent change from preceding period) State or DC.” And “Total full-time

and part-time employment by NAICS industry 1/ Private employment: Agriculture (percent

change from preceding period) State or DC” Last updated: March 28, 2012. Available:

<http://www.bea.gov/iTable/iTable.cfm?ReqID=70&step=1>

63. Source: U.S. Census Bureau, Census of Housing, Available:

<http://www.census.gov/hhes/www/census/historic/values.html>.

64. Source: U.S. State Elections Offices, Public Disclosure Division from the Federal

Election Commission, “2000 Official Presidential Election Results” Available:

<http://www.fec.gov/pubrec/2000presgeresults.htm>

65. Source: U. S. Department of Commerce, Bureau of Labor Statistics, “Union Affiliation of Employed Wage and Salary Workers by State,” Table 5. Available,

<http://www.bls.gov/news.release/pdf/union2.pdf>

66. According to McFadden (1974) and Newbold (1996, 1999), a rho-squared of around 0.2 generally indicates a good model fit.

67. Tables with the results of our robustness checks are available upon request.

68. It is true that informal economies exist in every state. In informal economies, firms flout labor laws. However, a state's minimum wage tends to proxy a realm of labor law and law enforcement larger than itself. In effect, the minimum wage provides a proxy of the labor environment in any state. We consider this fuzzy image an advantage at this stage. That is, as a variable, a state's minimum wage contains tacit information about a state's labor code and labor code enforcement such that a high minimum wage generally implies a higher standard of labor law and labor law enforcement. Our real interest is to identify states with lax and strong labor standards and regulation of labor relations. To identify these regimes one might ideally utilize measures of state minimum wage levels as well as the strength or laxity of a state's labor code and labor code enforcement, but the two latter are difficult to model because the information is difficult to assemble.

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