# Immigrant Integration: From the Choice of Destination to Social Integration

Inauguraldissertation

zur

Erlangung des Doktorgrades

der

Wirtschafts- und Sozialwissenschaftlichen Fakultät

der

Universität zu Köln

2014

vorgelegt

von

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Tag der Promotion: 18.09.2014

# Danksagung

Schammelsdorf, den 01.07.2014                    Christoph Spörlein

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# Introduction

Now, more than ever, international migration represents a social phenomenon shaping the lives of a continuously growing number of individuals. For a myriad of reasons, individuals take it upon themselves to leave their country of origin in order to move to another country. Since the 1980's, the number of international migrants has almost steadily increased (Zlotnik 2005). In 2010, an estimated 214 million people worldwide, corresponding to about 3 percent of the world population, lived outside their country of birth (IOM 2010). This development is mirrored closely by scientific research interest further attesting to its social relevance. According to the citation indexing service "Web of Knowledge", publications in peer-review journals broadly dealing with the subject of "immigrants" have grown exponentially from the 1930's (114 publications) to the 2000's (24,609 publications). In the years from 2010 to 2012 alone, 13,492 articles have been published on the topic of immigrants.

Despite the ever-growing attention migration-related topics receive in the sociological literature, there remain numerous gaps deserving attention. Thus, the purpose of this dissertation study is to contribute to the literature in ways that

will further the endeavor of eventually closing these gaps. In order to provide new insights into the process of immigrant integration, this study investigates selected episodes that migrants experience during the processes of leaving their country of origin, of settling into their destination countries, and experiencing daily life in their destination country.[1] In short, the first article "*Destination Choices of recent Pan-American Migrants: Opportunities, Costs and Migrant Selectivity*" examines how characteristics of the country of origin and the country of destination shape migrants' destination choices (Chapter 2). The second article "*Ethnic Intermarriage in Longitudinal Perspective: Testing Structural and Cultural Explanations in the United States, 1880-2011*", co-authored by Elmar Schlüter and Frank van Tubergen, takes a closer look at one aspect of immigrants' social integration by investigating how structural and cultural conditions shape intimate relations with members of the mainstream population (Chapter 3). The third and final article "*Spatial Diffusion, Ethnic Replenishment and Marital Assimilation of Mexicans in the United States, 1980-2011*", co-authored by Ricardo Martinez-Schuldt and Ted Mouw expands on the second article by focusing on the martial behavior of one immigrant group which has recently experienced tremendous geographical desegregation (Chapter 4).

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[1]The specific contributions of co-authors are listed in the Appendix at the end of this chapter.

## 1.1 Research questions

First research question:

The first dissertation project examines destination choices of pan-American migrants. The majority of international migrants ($\sim$60 percent) choose a country of destination among the developed regions of the world; the remaining 40 percent have opted for less developed countries. The proportion of individuals migrating between less developed countries roughly corresponds to the proportion of individuals moving from less developed countries to developed countries ($\sim$34 percent). The remaining 26 percent migrate between developed countries (IOM 2010). Thus, there seems to be a mismatch in the literature on destination choices between the relative importance of receiving contexts and the attention the various contexts have received in terms of research carried out in these settings. Up until now, destination choice research is mainly focused on explaining the flow of migrants from less developed to developed regions (Karemera et al. 2000; Kim and Cohen 2010; Mayda 2010). There is very little knowledge as to whether the mechanisms driving migration from less developed to developed regions are also at play when investigating migration across less developed regions. These mechanisms predominantly relate to push-pull explanations of international migration as well as migration cost explanations (Lee 1966; Portes and Böröcz 1989; Jasso and Rosenzweig 1990; Zimmermann 1996). A primary motive for this project therefore rests on assessing whether preconceived explanations for the Western context can be generalized to the situation in other parts of the world. However, this project adds another twist to prior research in that it investigates individual choices rather then the flow of individuals between countries. It is further

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assumed that these destination choices are inextricably connected to migrants' country of origin. One major advantage of analyzing individual choices lies in the possibility of testing for variations in destination country attractiveness by individual characteristics such as human capital endowment. This is commonly referred to as migrant skill selectivity in the literature and has been shown to have important implications for the labor market incorporation of immigrants (Borjas 1989; Van Tubergen et al. 2004; Greenwood and McDowell 2011). Thus, to investigate explanations of destination choices among less developed nations and potential skill selection differentials associated with these choices, the following research question is formulated:

> *What are the determinants of migrants' destination choices in a non-Western context? Are there origin and destination country combinations that facilitate attracting high-skilled migrants?*

The second research question:

The second project investigates the marital behavior of immigrants in the United States covering a 130 year period. In the literature, the frequency of marriage between members of ethnic minorities and members of the majority population is seen as the litmus test of assimilation (Kalmijn 1998; Alba and Nee 2003; Waters and Jiménez 2005). Immigrant groups are said to be more assimilated, the higher the rate of intermarriage with the native-born population. Differences in the rates of intermarriage across national origin groups are commonly explained using structural and cultural explanations (Blau and Schwartz 1984; Kalmijn 1998). Accordingly, structural explanations refer to factors that shape mating

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opportunities on the local marriage market whereas cultural explanations relate to individuals' norms and preferences regarding intergroup contacts. While these explanations are routinely employed to explain differences across origin groups, very few studies use them to explain why some groups become more "open" over time while others do not (Qian and Lichter 2011). Studies that do investigate changes in patterns of intermarriage over time only do so descriptively (Fryer 2007; Fu and Heaton 2008; Gullickson 2006; Fu 2010). While documenting societal developments is an important aspect of sociology, we may gain a better understanding of these developments when we identify the underlying mechanisms that facilitate them. Using structural and cultural explanations to explain longitudinal developments also serves to shed some light into contradictory results in the literature. Among others, Hwang et al. (1997) present conflicting evidence regarding the influence of group diversity on origin group differences in intermarriage. This could be related to the fact that the authors derive hypotheses from theories that are longitudinal in nature (Blau and Schwartz 1984). In other words, theoretical mechanisms that rely heavily on longitudinal reasoning are applied to cross-sectional situations which may potentially lead to faulty or inadequate conclusions (Curran and Bauer 2011; Fairbrother and Martin 2013). By using a recent methodological innovation to disentangle longitudinal and cross-sectional mechanisms, this project aims to provide a more systematic test of the determinants of intermarriage. Hence, the following research questions are formulated:

*Are structural and cultural explanations able to explain developments of intermarriage behavior over time? To what extent can (longitudinal) theoretical arguments in the literature be generalized to inform*

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*hypotheses related to differences between origin groups?*

The third research question:

The third and final project takes a closer look at the questions raised in the second project by focusing attention on a single origin group, namely Mexicans. In a series of articles, Qian and Lichter demonstrated that national trends in intermarriage between Whites and Hispanics slowed down and in some instances even declined since the 1990s (Qian and Lichter 2007, 2011). The same authors also document an increase in marriages bridging generations suggesting a process of reconnection between Mexican immmigrants and $2^{nd+}$ generation Mexcians that could further accelerate the slowing down of assimilation trends (Lichter et al. 2011). The 1990s also saw an unprecendented diffusion of Mexicans across the United States (Durand et al. 2000; Lichter and Johnson 2009; Massey 2010). Regions with previously little migrant settlement experienced large percentage growth leading to the formation of new and re-emerging settlement areas outside of traditional gateway communities (Singer 2004). From an assimilation perspective, national trends of intermarriage and spatial diffusion seem irreconcilable since Mexicans experienced increases in spatial assimilation while simultaneously becoming less assimilated in terms of intermarriage. One possible explanation could be that the highly aggregate nature of previous research masks intergroup dynamics at smaller geographic units. In general terms, one would expect the structural meeting opportunties to vary substantially across settlement areas warranting a closer inspection of associated intermarriage differentials. One aim of this project is thus to reexamine and disaggregate intermarriage trends in order

to arrive at a more nuanced picture of Mexican assimilation pathways. Another important aspect of this puzzle refers to the constant replenishment of Mexican communities with new immigrants. Many authors have connected this aspect to recent increases in generational intermarriage (Jiménez 2008; Lichter et al. 2011). Accordingly, generational intermarriage could increase through shared experiences of nativism which might in effect strenghen intergroup boundaries. Alternatively, however, intragroup challenges of ethnic authenticity may deter cross-generational marriages at the same time(Jiménez 2008). Thus, the impact of increases in Mexican origin population on intermarriage may depend on local conditions. This project therefore aims to test these ideas quantitatively using methods that again disentangle cross-sectional from longitudinal effects. More specifically, the third projects deals with the following research questions:

> *Are there ethnic and generational intermarriage differences across traditional, re-emerging and new settlement areas? To what extent is the effect of immigrant community replenishment on intermarriage moderated by conditions of the local context?*

To summarize, this dissertation study aims (1) to move migration research *beyond the Western context* by analyzing destination choices in non-Western societies, (2) to move migration research *beyond mere descriptions* by analyzing longitudinal developments of intermarriage in the United States and (3) to move migration research *beyond established methodology* by applying choice models to international migration and by applying recent methodological innovations in multilevel models to the study of intermarriage patterns. For each chapter, Table 1.1 presents

a short overview over each research question, the associated theoretical ideas, the data sources and methods used to test hypotheses.

## 1.2 Multilevel concepts: research designs and methods

Although the dissertation projects tackle three very different aspects of immigrant integration, the theoretical and empirical investigations are based on one common underlying conceptual approach, namely multilevel modeling. The central tenet of multilevel modeling conceptualizes individual behavioral outcomes to also be shaped by factors located on hierarchically higher societal levels in addition to individual characteristics (Blalock 1984; DiPrete and Forristal 1994; Goldthorpe 1997; Raudenbush and Byrk 2002. The "frog pond effect" represents one classic sociological example to illustrate a situation where behavioral outcomes are shaped by the context. Accordingly, educational researchers frequently document that students from competitive academic environments are less likely to select high-performance career fields leading the author of one of the classic studies to remark that "it is better to be a big frog in a small pond than a small frog in a big pond" (Davis 1966, p. 31). Figure 1.1 shows a visual representation of general conceptual multilevel models. Considering the "frog pond effect" again, there is no doubt that individual characteristics such as scholastic aptitude affect the selection of career fields (arrow A). However, over and on top of individual level differences, the academic environment exerts influence on career field choices in that a higher degree of competitiveness may reduce the likelihood of opting for

**Table 1.1:** Overview of research questions, theoretical ideas, data sources and methods

| Chapter | Research Questions | Theory | Data | Methods |
|---|---|---|---|---|
| 2. Destination Choices of Recent Pan-American Migrants: Opportunities, Costs and Migrant Selectivity | What are the determinants of migrants' destination choices in a non-Western context? Are there origin and destination country combinations that facilitate attracting high-skilled migrants? | Synthesized ideas from random utility theory, push-pull and migration cost explanations, human capital theory and skill selection arguments | IPUMS-I census data from ten North and South American destination and 23 origin countries | Conditional Logit Models |
| 3. Ethnic Intermarriage in Longitudinal Perspective: Testing Structural and Cultural Explanations in the United States, 1880-2011 | Are structural and cultural explanations able to explain developments of intermarriage behavior over time? To what extent can longitudinal theoretical arguments in the literature be generalized to inform hypotheses related to differences between groups? | Structural and cultural explanations | Decennial Census and Current Population Survey data | Multilevel models for repeated cross-sectional data |
| 4. Spatial Diffusion, Ethnic Replenishment and Marital Assimilation of Mexicans in the United States, 1980-2011 | Are there ethnic and generational intermarriage differences across traditional, re-emerging and new settlement ares? To what extent is the replenishment of immigrant communities moderated by conditions of the local context? | Structural explanations, synthesized ideas from the ethnic replenishment literature | Decennial Census and American Community Survey data | Multilevel models for repeated cross-sectional data |
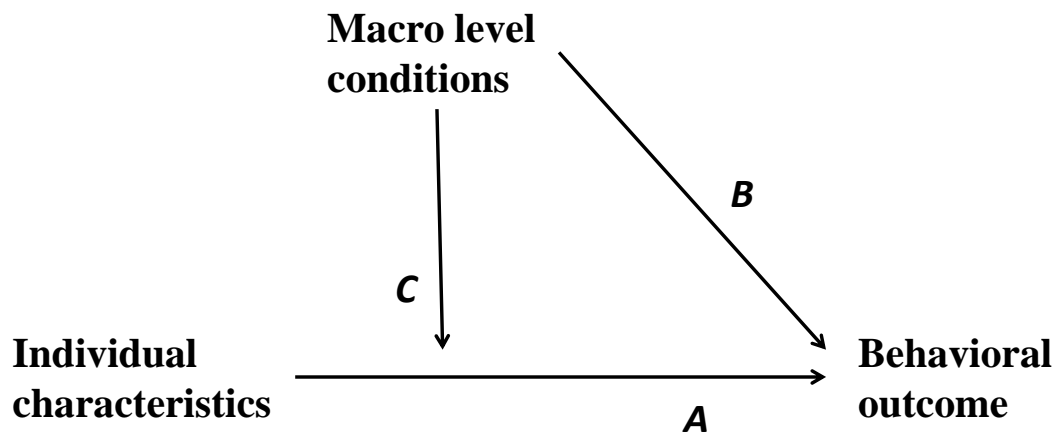
**Figure 1.1:** Conceptual multilevel model

high-performance fields (arrow B). For completeness sake, arrow C denotes situations in which the influence of individual characteristics on behavioral outcomes is moderated by the context. In the context of the "frog pond" example, this could refer to the observation that the impact of scholastic aptitude on career field choice is stronger in more competitive environments.

Although educational research constitutes the classic field of applying multilevel theories and methodology due to ubiquitous hierarchical clustering of students in classes and schools, approaching research questions with multilevel concepts has penetrated virtually all fields of sociology during the last 20 to 30 years including, of course, migration research. Examples range from research on labor market integration (Van Tubergen et al. 2004; Fleischmann and Dronkers 2010; Koopmans 2010; Levanon 2011; Phythian et al. 2011; Pichler 2011) intergroup relations (Lievens 1998; Kalmijn and van Tubergen 2010; Kalmijn 2012; Schlüter 2012), language acquisition (Van Tubergen and Kalmijn 2005; Hwang and Xi 2008; Braun 2010; Van der Silk 2010), anti-immigrant sentiment (Pichler 2010;

Strabac 2011; Schlüter et al. 2013), health and life satisfaction (Safi 2010; Hank 2011; Huijts and Kraaykamp 2012; Lee and Ono 2012) to educational outcomes (Levels et al. 2008; Van de Werfhorst and Mijs 2010; Teltemann and Windzio 2011; Verwiebe and Riederer 2013).

Although applications are very diverse, they all share the underlying conceptual idea that some sort of context exerts influence on individual behavior in addition to individual characteristics. This could be as "simple" as a two-level conceptual model where some behavioral outcome of immigrants is thought to be shaped by conditions they for instance experienced in their origin country. A great majority of all studies in the field of migration research adopting a multilevel framework assume that where people come from is an important explanation of behavioral differences. And indeed, these "origin effects" are found to be of substantive impact on a host of outcomes. For example, the political stability of migrant's country of origin is positively related to their labor market integration as well as their children's performance in school (Van Tubergen et al. 2004; Levels et al. 2008). Moreover, economic and social integration is lower for migrants coming from non-Christian origin countries in predominantly Christian destination countries (Van Tubergen et al. 2004; Kalmijn and van Tubergen 2010. Similarly, higher linguistic distance towards English deters language acquisition in the United States (Hwang and Xi 2008). These findings all underline one basic idea: people grow up and are shaped in a cultural, economic or political environment that to some extent travels with them when they migrate to another country and subsequently affects their success regarding destination country integration. "Origin effects" are an integral part of one dissertation project (see Table 1.2). For example, the results in Chapter 3 "Ethnic Intermarriage in Lon-

gitudinal Perspective" suggest that immigrants from non-Christian origin groups are less likely to marry outside their own ethnic group.

In a similar vein, the country migrants choose to move to has important ramifications for integration. Destination countries differ for instance in terms of immigration policies, labor market conditions or political orientation, all of which have been shown to play a role in some part of immigrants' day to day lives. For example, living in a country of destination with a left-wing government in place can have both positive and detrimental effects on immigrant integration. The presence of left-wing governments has been shown to promote employment of immigrants on the one hand, while on the other hand immigrants are less proficient in the destination country language (Van Tubergen et al. 2004; Van Tubergen and Kalmijn 2005). Moreover, it has been shown that more permissive immigrant integration policies are associated with lower levels of anti-immigrant sentiment (Schlüter et al. 2013). Again, these findings regarding "destination effects" stress the idea that immigrant integration can play out very differently depending on the context individuals migrate into. The concept of "destination effects" is found throughout this dissertation study. For example, the results presented in Chapter 4 "Spatial Diffusion, Ethnic Replenishment and Marital Assimilation of Mexicans in the United States, 1980-2011" indicate that increases in the Mexican population reduce intermarriage more strongly in contexts where feelings towards Hispanics are more negative.

A third and final important concept in multilevel research are "community effects". The reasoning underlying community effects pertains to the idea that origin and destination effects are not orthogonal but rather interact under certain circumstances. Consider again the finding in the literature that non-Christian

immigrants are doing less well in the labor markets of predominantly Christian destination countries. If we were to expand the study population to non-Christian destination countries, "non-Christian origin" would cease to be a pure origin effect since it is not being "non-Christian" *per se* that deters labor market integration but rather that immigrants do not share the same religion as the majority. In other words, the underlying mechanism for this labor market penalty is cultural distance instead of being "non-Christian". Relative group size constitutes another prominent example of community effects in the literature. Accordingly, immigrant groups that constitute a larger share of a destination country's total population are on average healthier, show higher math achievement in school but are less proficient in the destination country language (Van Tubergen and Kalmijn 2005; Levels et al. 2008; Huijts and Kraaykamp 2012). As with "destination effects", "community effects" constitute an important conceptual idea in all projects of this dissertation study. For example, the findings reported in Chapter 2 "Destination Choices of Recent Pan-American Migrants" show that migrants are more likely to move to destination countries that are geographically and culturally close to the country of origin.

Please note that origin, destination, and community effects are merely conceptual ideas that help researchers understand and categorize the myriad ways in which behavioral outcomes can be affected by sources other than individual differences. Depending on the research design, these sources are subject to adaptations. A cross-national study is very likely to make use of a double comparative research design with an origin/destination/community conceptualization since immigrants are by design clustered in origin groups and destination countries. Comparative research relating to a number of origin groups within one destination country (or

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**Table 1.2:** Overview of conceptual and empirical multilevel models

| Chapter | Conceptual levels of analysis | Empirical level of analysis | Examples |
|---|---|---|---|
| 2. Destination Choices of Recent Pan-American Migrants: Opportunities, Costs and Migrant Selectivity | Destination effects Community effects | Destination country Destination/origin combination | Destination country immigration policies Geographic and cultural distance |
| 3. Ethnic Intermarriage in Longitudinal Perspective: Testing Structural and Cultural Explanations in the United States, 1880-2011 | Destination effects Origin effects Community effects | U.S. state Origin country U.S. state/origin combination | Anti-miscegenation laws English origin group Relative group size |
| 4. Spatial Diffusion, Ethnic Replenishment and Martial Assimilation of Mexicans in the United States, 1980-2011 | Destination effects | U.S. Consistent Public Use Microdata Areas | Spanish language retention |

more rarely considering one origin in multiple destination countries) are more prone to use a single comparative design. However, it is still possible to adhere to a double comparative design by replacing destination effects with lower level "state effects" or "region effects". This exemplifies the attraction and flexibility of this research design. Table 1.2 presents an overview of the conceptual and empirical multilevel models used in this study. Since the dissertation projects presented in the following chapters deal with varied and distinct aspects of immigrant integration that require the application of theories with explanatory power regarding one aspect but not another, the double comparative research design provides the unifying conceptual foundation.

# 1.3 Appendix: Contributions of co-authors

Chapter 3 "Ethnic Intermarriage in Longitudinal Perspective: Testing Structural and Cultural Explanations in the United States, 1880-2011" has been co-authored by Prof. Dr. Elmar Schlüter, Universität Gießen, and Prof. Dr. Frank van Tubergen, Universiteit Utrecht. I am the first author and this chapter has been published under the same title in *Social Science Research 43, 1-15*.

Christoph Spörlein

- Conceptualization

- Development of theoretical framework

- Compilation of the research literature

- Data collection

- Data preparation

- Empirical analysis

- Discussion of the results

Elmar Schlüter

- Discussion regarding the analytical and empirical interrelations

- Discussion regarding the methodological approach

- Review and discussion of the results

- Support in revisions during the submission process

- General suggestions for improvement

Frank van Tubergen

- Support in developing the theoretical framework

- Support in revisions during the submission process

- General suggestions for improvement

Chapter 4 "Spatial Diffusion, Ethnic Replenishment and Marital Assimilation of Mexicans in the United States, 1980-2011" has been co-authored by Ricardo Martinez-Schuldt and Prof. Dr. Ted Mouw, both University of North Carolina at Chapel Hill. I am the first author.

Christoph Spörlein

- Conceptualization

- Development of theoretical framework

- Compilation of the research literature

- Data collection

- Data preparation

- Empirical analysis

- Discussion of the results

Ricardo Martinez-Schuldt

- Review and discussion of the results

- General suggestions for improvement

Ted Mouw

- Discussion regarding the analytical and empirical interrelations

- Discussion regarding the methodological approach

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- Review and discussion of the results

- General suggestions for improvement

# References

Alba, R. and Nee, V. (2003). *Remaking the American Mainstream: Assimilation and Contemporary Immigration.* Harvard University Press, Cambridge. 4

Blalock, H. M. (1984). Context-effects models: Theoretical and methodological issues. *Annual Review of Sociology*, 10:353–372. 8

Blau, P. M. and Schwartz, J. (1984). *Crosscutting Social Circles: Testing a Macrostructural Theory of Intergroup Relations.* Academic Press, New York. 4, 5

Borjas, G. J. (1989). Economic theory and international migration. *International Migration Review*, 23:457–485. 4

Braun, M. (2010). Foreign language proficiency of intra-european migrants: A multilevel analysis. *European Sociological Review*, 26:603–617. 10

Curran, P. J. and Bauer, D. J. (2011). The disaggregation of within-person and between-person effects in longitudinal models of change. *Annual Review of Psychology*, 62:583–619. 5

Davis, J. A. (1966). The campus as a frog pond: An application of the theory of relative deprivation to career decisions of college men. *American Journal of Sociology*, 72:17–31. 8

DiPrete, T. A. and Forristal, J. D. (1994). Multilevel models: Methods and substance. *Annual Review of Sociology*, 20:331–357. 8

Durand, J., Massey, D. S., and Charvet, F. (2000). The changing geography of mexican immigration to the united states: 1910-1996. *Social Science Quarterly*, 81:5–15. 6

Fairbrother, M. and Martin, I. W. (2013). Does inequality erode social trust? Results from multilevel models of U.S. states and counties. *Social Science Research*, 42:347–360. 5

## REFERENCES

Fleischmann, F. and Dronkers, J. (2010). Unemployment among immigrants in European labour markets: An analysis of origin and destination effects. *Work and Employment*, 24:337–354. 10

Fryer, R. G. (2007). Guess who's been coming to dinner? Trends in interracial marriage over the 20th century. *Journal of Economic Perspectives*, 21:71–90. 5

Fu, V. K. (2010). Remarriage, delayed marriage, and black/white intermarriage, 1968-1995. *Population Research and Policy Review*, 29:687–713. 5

Fu, X. and Heaton, T. B. (2008). Racial and educational homogamy: 1980 to 2000. *Sociological Perspectives*, 51:735–758. 5

Goldthorpe, J. H. (1997). The integration of sociological research and theory: Grounds for optimism at the end of the twentieth century. *Rationality and Society*, 9:405–426. 8

Greenwood, M. J. and McDowell, J. M. (2011). USA immigration policy, source-country social programs, and the skill composition of legal USA immigration. *Journal of Population Economics*, 24:521–539. 4

Gullickson, A. (2006). Black/white interracial marriage trends, 1850-2000. *Journal of Family History*, 31:289–312. 5

Hank, K. (2011). Societal determinants of productive aging: A multilevel analysis across 11 european countries. *European Sociological Review*, 27:526–541. 11

Huijts, T. and Kraaykamp, G. (2012). Immigrants health in europe: A cross-classified multilevel approach to examine origin country, destination country, and community effects. *International Migration Review*, 46:101–137. 11, 13

Hwang, S.-S., Saenz, R., and Aguirre, B. E. (1997). Structural and assimilationist explanations of Asian American intermarriage. *Journal of Marriage and Family*, 59:758–772. 5

Hwang, S.-S. and Xi, J. (2008). Structural and individual covariates of English language proficiency. *Social Forces*, 86:1079–1104. 10, 11

IOM (2010). *World Migration Report 2010. The Future of Migration: Building Capacities for Change.* International Organization for Migration. 1, 3

Jasso, G. and Rosenzweig, M. R. (1990). *The New Chosen People: Immigrants in the United States.* Russell Sage Foundation, New York. 3

Jiménez, T. R. (2008). Mexican immigrant replenishment and the continuing significance of ethnicity and race. *American Journal of Sociology*, 113:1527–1567. 7

Kalmijn, M. (1998). Intermarriage and homogamy: Causes, patterns, trends. *Annual Review of Sociology*, 24:395–421. 4

Kalmijn, M. (2012). The educational gradient in intermarriage: A comparative analysis of immigrant groups in the United States. *Social Forces*, 91:453–476. 10

Kalmijn, M. and van Tubergen, F. (2010). A comparative perspective on intermarriage: Explaining differences among national-origin groups in the United States. *Demography*, 47:459–479. 10, 11

Karemera, D., Iwuagwu, V., and Davis, B. (2000). A gravity model analysis of international migration to North America. *Applied Economics*, 32:1745–1755. 3

Kim, K. and Cohen, J. E. (2010). Determinants of international migration flows to and from industrialized countries: A panel data approach beyond gravity. *International Migration Review*, 44:899–932. 3

Koopmans, R. (2010). Trade-offs between equality and difference: Immigrant integration, multiculturalism and the welfare state in cross-national perspective. *Journal of Ethnic and Migration Studies*, 36:1–26. 10

Lee, E. S. (1966). A theory of migration. *Demography*, 1:47–57. 3

Lee, K. S. and Ono, H. (2012). Marriage, cohabitation, and happiness: A cross-national analysis of 27 countries. *Journal of Marriage and Family*, 74:953–972. 11

# REFERENCES

Levanon, A. (2011). Ethnic social capital: Individual and group level sources and their economic consequences. *Social Science Research*, 40:77–86. 10

Levels, M., Dronkers, J., and Kraaykamp, G. (2008). Immigrant childrens educational achievement in Western countries: Origin, destination, and community effects on mathematical performance. *American Sociological Review*, 73:835–853. 11, 13

Lichter, D. T., Carmalt, J. H., and Qian, Z. (2011). Immigration and intermarriage among Hispanics: Crossing racial and generational boundaries. *Sociological Forum*, 26:241–264. 6, 7

Lichter, D. T. and Johnson, K. M. (2009). Immigrant gateways and hispanic migration to new destinations. *International Migration Review*, 43:496–518. 6

Lievens, J. (1998). Interethnic marriage: Bringing in the context through multilevel modelling. *European Journal of Population*, 14:117–155. 10

Massey, D. S., editor (2010). *New Faces in New Places. The Changing Geography of American Immigration.* Russell Sage Foundation, New York. 6

Mayda, A. M. (2010). International migration: A panel data analysis of the determinants of bilateral flows. *Journal of Population Economics*, 23:1249–1274. 3

Phythian, K., Walters, D., and Anisef, P. (2011). Predicting earnings among immigrants to Canada: The role of source country. *International Migration*, 49:129–154. 10

Pichler, F. (2010). Foundations of anti-immigrant sentiment: The variable nature of perceived group threat across changing European societies, 2002-2006. *International Journal of Comparative Sociology*, 51:445–469. 10

Pichler, F. (2011). Success on European labor markets: A cross-national comparison of attainment between immigrant and majority populations. *International Migration Review*, 45:983–978. 10

Portes, A. and Böröcz, J. (1989). Contemporary immigration: Theoretical perspectives on its determinants and modes of incorporation. *International Migration Review*, 23:606–630. 3

Qian, Z. and Lichter, D. T. (2007). Social boundaries and marital assimilation: Interpreting trends in racial and ethnic intermarriage. *American Sociological Review*, 72:68–94. 6

Qian, Z. and Lichter, D. T. (2011). Changing patterns of interracial marriage in a multiracial society. *Journal of Marriage and Family*, 74:1065–1084. 5, 6

Raudenbush, S. W. and Byrk, A. S. (2002). *Hierarchical Linear Models: Application and Data Analysis Methods*. Russell Sage Foundation. 8

Safi, M. (2010). Immigrants life satisfaction in Europe: Between assimilation and discrimination. *European Sociological Review*, 26:159–176. 11

Schlüter, E. (2012). The inter-ethnic friendships of immigrants with host-society members: Revisiting the role of ethnic residential segregation. *Journal of Ethnic and Migration Studies*, 38:77–91. 10

Schlüter, E., Meulemann, B., and Davidov, E. (2013). Immigrant integration policies and perceived group threat: A multilevel study of 27 Western and Eastern European countries. *Social Science Research*, 42:670–682. 11, 12

Singer, A. (2004). *The Rise of New Immigrant Gateways*. Center on Urban and Metropolitan Policy. 6

Strabac, Z. (2011). It is the eyes and not the size that matter: The real and perceived size of immigrant populations and anti-immigrant prejudice in Western Europe. *European Societies*, 13:559–582. 11

Teltemann, J. and Windzio, M. (2011). The cognitive exclusion of young immigrants in comparative perspective: The role of institutions and social structure. *Berliner Journal für Soziologie*, 21:335–361. 11

# REFERENCES

Van de Werfhorst, H. G. and Mijs, J. J. B. (2010). Achievement inequality and the institutional structure of educational systems: A comparative perspective. *Annual Review of Sociology*, 36:407–428. 11

Van der Silk, F. W. P. (2010). Acquisition of Dutch as a second language: The explanative power of cognate and genetic linguistic distance measures for 11 West European first languages. *Studies in Second Language Acquisition*, 32:401–432. 10

Van Tubergen, F. and Kalmijn, M. (2005). Destination-language proficiency in cross-national perspective: A study of immigrant groups in nine Western countries. *American Journal of Sociology*, 110:1412–1457. 10, 12, 13

Van Tubergen, F., Maas, I., and Flap, H. (2004). The economic incorporation of immigrants in 18 Western societies: Origin, destination, and community effects. *American Sociological Review*, 69:701–724. 4, 10, 11, 12

Verwiebe, R. and Riederer, B. (2013). The reading literacy of immigrant youth in Western societies: A multilevel analysis based on pisa 2000 to 2009. *Zeitschrift für Soziologie*, 42:201–221. 11

Waters, M. C. and Jiménez, T. R. (2005). Assessing immigrant assimilation: New empirical and theoretical challenges. *Annual Review of Sociology*, 31:105–125. 4

Zimmermann, K. F. (1996). European migration: Push and pull. *International Regional Science Review*, 19:95–128. 3

Zlotnik, H. (2005). International migration trends since 1980. In *International Migration and the Millenium Development Goals: Selected Papers of the UNFPA Experts Meeting*, pages 13–25. United Nations Population Fund, New York. 1

# Destination Choices of Recent Pan-American Migrants: Opportunities, Costs and Migrant Selectivity

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# Abstract

This study examines the destination choices of pan-American migrants using census data for migrants from 23 Latin-American and Caribbean origin groups opting for one of ten North and South American destination countries. Descriptive findings suggests that Caribbean and Central American migrants overwhelmingly migrate to the United States, while South Americans show more diverse choice patterns. Using discrete choice models, the multivariate analysis shows that migrants are more likely to choose a country of destination which portrays a higher relative expected wage ratio, a lower relative income inequality, a smaller geographic as well as cultural distance, a larger co-ethnic community and policy conditions that are more favorable towards immigrants. The results also indicate that some of these characteristics lead to skill selection differentials. Accordingly, destinations are more likely to attract highly educated migrants if the co-ethnic community is small and relative political freedom, geographic distance and cultural distance are above average.

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# Destination Choices of recent Pan-American Migrants: Opportunities, Costs and Migrant Selectivity

## 2.1   Introduction

International migration represents a global phenomenon with an ever-growing number of states joining the ranks of sending and/or receiving nations (Castles and Miller 2009; UN 2009; Cohen 2010). Western societies continue to be attractive destinations as is apparent in their high and increasing net immigration rates. As more former third-world countries like some nations in Latin-America have successfully completed the transition to emerging markets, so too has their attractiveness as viable migration destinations risen. Although 17 of the 28 countries with the highest share of migrants are non-Western, little research has been done so far investigating the destination choices of migrants to non-Western (e.g., Latin-American) destinations (Zlotnik 2005).

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From a theoretical perspective, two approaches to the cross-national study of immigrants' choice of destination can generally be distinguished: some authors investigate the stock or flow of migrants using a comparatively large number of origin groups and destination countries (i.e., flow models) while others rely on modeling individual level choices in order to determine why destination countries differ in their attractiveness to different origin groups (e.g., Funkhouser and Ramos 1993; Karemera et al. 2000; Funkhouser 2009; Kim and Cohen 2010; Mayda 2010). Both approaches reach similar conclusions attesting to the importance of geographic distance between origin and destination, the size of the co-ethnic community in the destination country and economic as well as cultural factors in determining the attractiveness of destination countries. However, in flow models it is (implicitly) assumed that effects of macro characteristics such as the destinations' ethnic composition are the same across different demographic groups (e.g. educational groups). Research using choice models suggests that this is not necessarily the case showing that for instance the importance of sizable co-ethnic communities diminishes with immigrants' educational attainment (Funkhouser and Ramos 1993; Liaw 2007). Hence, it is largely low educated migrants that choose destinations where many members of the same origin group live. However these cross-national choice studies comprise only a comparatively small number of origin groups and destination countries.

This papers aims to contribute to cross-national research on migrants' choice of destination countries by synthesizing several ideas from the literature and testing them in a new context: *First*, flow and choice approaches to the study of migrants destination choices are combined by studying a larger number of origin groups and destinations while simultaneously retaining the possibility that macro

characteristics affect these choices differently for different demographic groups. The choice models used in this study move beyond pure flow (or gravity) models by allowing researchers to directly model the underlying choice bevahior that ultimately manifests itself in the flows of people between countries. More importantly, these choice models simultaneously model micro and macro level forces while ow models exclusively deal with questions revolving around macro processes shaping the ow of people. Doing so enables researchers to move the focus back on individuals who are faced with difcult choices and to recognize the variation across choices *within* origin groups. Consequently, a number of hypotheses elucidating on differences in the hypothesized effects of macro characteristics for certain demographic groups are derived. These moderating relationships are argued to extend and add to skill selection arguments advanced by the human capital literature. Migrants' destination choices are modeled using individual level census data on 23 origin groups and 10 North and South American destination countries. Hypotheses are tested using discrete choice modeling. *Second*, theoretical arguments are phrased in relative terms. Within a random utility maximization framework, it is argued that migrants choose the destination with the highest utility relative to their origin country. By doing so, it is recognized that the decision for a specific destination may be inextricably connected with the situation in immigrants' country of origin. It thus accounts for the presence of origin and destination effects in migration research (cf. Van Tubergen et al. 2004). This relative model formulation readily allows incorporating push-pull arguments into a random utility theory framework. *Third*, a broader set of explanatory factors is investigated. Apart from established explanations including economic conditions, size of the co-ethnic community and geographical distance, hypotheses on the role

of immigration policies, political conditions, social welfare/income inequality and cultural distance are formulated. Furthermore, a number of hypotheses elucidating on differences in the hypothesized effects for certain demographic groups are derived. These moderating relationships are argued to extend and add to skill selection arguments advanced by the human capital literature. And *fourth* since discrete choice models assume that all relevant alternatives are included, this study focuses on the destination choices of Latin-American and Caribbean origin groups. Latin-American and Caribbean origin groups are an exceptional test case as more than 80 percent of their migrants move to destinations within the Americas (Migration DRC 2007). In light of the model assumptions, this context thus provides an appropriate testing ground for the theoretical model.

## 2.2    Theoretical perspective

In the literature on migratory patterns, individuals are assumed to undertake migratory behavior to improve upon some part of their living conditions (Massey et al. 1998). Potential migrants face a set of feasible alternatives (i.e. destination countries) and choose the destination country which provides (1) the best opportunities under consideration of the (2) associated costs of migrating to each specific destination (Borjas 1989; Karemera et al. 2000). In order to explain migrants' destination choices, an integrative model is formulated drawing on ideas derived from random utility theory, push-pull explanations and theories of migrant selectivity.

This article follows an approach that is adopted from a concept known as "reference dependent decision making" in a random utility framework (e.g. Camerer 1995; Sugden 2003; Köszegi and Rabin 2006; Masatlioglu and Ok 2006). In this approach, individuals' choices are made under consideration of the status quo: "the status quo position of a decision maker affects the behavior of the agent even if the agent chooses to move away from her status quo" (Masatlioglu and Ok 2006, p. 2). This implies that potential migrants take their pre-migration situation into account when choosing a viable country of destination. For instance, individuals from high-income origin countries will perceive the income level in a potential destination differently than individuals from low-income countries (Davies et al. 2001). Hence, the underlying mechanism guiding migrants' choice of destination suggests that an alternative becomes attractive when it leads to an improvement over living conditions experienced in the status quo, i.e. the country of origin conditions.

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In practice, this approach allows for the incorporation of push-pull explanations (Lee 1966; Portes and Böröcz 1989; Zimmermann 1996). On the one hand, push factors induce migratory behavior due to unfavorable conditions in the country of origin. On the other hand, pull factors are related to characteristics of the country of destination that attract potential migrants. Therefore, push factors lower the utility associated with living in the country of origin, whereas pull factors increase the country of destination utility. For example, if restrictions in political freedom represent a condition pushing some individuals to leave their home country, less limitations of political freedom in a different country then form a pull factor. Thus, what constitutes a pull factor depends on the presence of push factors and vice versa. This notion follows from the decision rule elaborated on above. Accordingly, a country of destination is more likely to be chosen if its characteristics are able to alleviate the push conditions in the country of origin.

Up to this point, it has been assumed that the influence of origin and destination characteristics on the decisions of migrants is the same for all members of an origin group. This is arguably a strong assumption. In order to relax this assumption, hypotheses are formulated dealing with variations in the push/pull forces of certain macro characteristics for demographic groups which can be interpreted from a "migrant skill selectivity" perspective (Borjas 1989; Greenwood and McDowell 2011). Borjas (1989) formally derived country of origin and destination relations that may lead to migrant skill selectivity differentials. Accordingly, specific combinations of origin and destination characteristics are more likely to attract migrants with high human capital endowment (i.e., positive selection) while other combinations predominantly selected low-skilled migrants (i.e. negative selection).

## 2.2.1 Opportunity structure in origin and destination countries

The utility evaluation of either a country of destination or a country of origin may depend on a multitude of factors such as economic opportunities or political stability. In line with the theoretical model discussed above, all hypotheses are phrased in relative terms, that is, relative to the corresponding characteristics of the country of origin (i.e. the status quo). Where applicable, hypotheses about differential attractiveness of certain conditions for demographic subgroups are formulated (i.e., skill selectivity).

*Economic opportunities*

First, labor market conditions represent an important push-pull factor (Liaw and Frey 1998; Massey et al. 1998; Davies et al. 2001; Clark et al. 2007; Liaw and Ishikawa 2008). Economic considerations are one of the most frequently voiced migration motives (Portes and Rumbaut 2001; Rumbaut and Portes 2001). The current labor market conditions and future economic prospects offered by the country of origin might provide little short- or long-term opportunities for the achievement of economic goals. Migrants are thus pushed towards countries where they expect to realize higher potential economic gains than in the country of origin. Earlier research shows that differentials in economic conditions consistently affect a destination countries' attractiveness: individuals from poor origin countries are more prone to emigrate while, in absolute terms, richer destinations countries attract more migrants (Karemera et al. 2000; Clark et al. 2007; Pedersen et al. 2008). This leads to the hypothesis that *the higher the relative economic gains, the more likely a country of destination is to be chosen by migrants.*

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Second, the unequal distribution of wealth arguably affects individuals' migration decisions. In general terms, high levels of income inequality in the country of origin potentially push individuals to migrate to more egalitarian societies. Income inequality is argued to be lower in countries that protect workers against poor labor market outcomes by means of providing social welfare (Borjas 1987). It is expected that living conditions are evaluated higher in destination countries where the state provides more protection against low wages or unemployment. Thus, it is anticipated that *the higher the relative income inequality, the less likely a country of destination is to be chosen by migrants.* However, the provision of social welfare should be an attractive destination characteristic predominantly for low-ability workers since this group is at higher risk of experiencing spells of unemployment where social welfare is needed (Becker 1964). Moreover, larger income inequality might even increase the attractiveness of destinations for highly educated members of an origin group. Egalitarian societies are usually characterized by higher tax burdens for high-ability workers in order to secure redistribution goals. In these countries, high-ability workers face lower returns on skills as compared to countries that focus less on redistribution (Borjas 1987). Hence, high-ability workers might expect returns on skills to be higher in destination countries with lower tax burden, i.e. in countries with larger income inequality. Accordingly, it is expected that *the negative effect of relative income inequality will be stronger for less educated migrants* and *the effect of relative income inequality will be positive for high-educated members of a migrant group.*

*Political opportunities*

Third, political factors may affect an individual's migratory behavior. A politically more oppressive climate in the country of origin and the associated re-

strictions in individual freedom might lower living conditions and hence induce individuals to migrate. Likewise, more democratic conditions offering civil liberties might pull individuals towards these destination countries (Borjas 1989). Prior findings supporting this line of reasoning suggesting that migrants are more likely to opt for free societies (Karemera et al. 2000; Pedersen et al. 2008; Hatton and Williamson 2010). Hatton and Williamson (2010) show that political transitions and decreasing civil liberties spur on emigration in Latin-American and Caribbean origin countries. This leads us to hypothesize that *the higher the relative degree of political freedom, the more likely a country of destination is to be chosen by migrants.* Borjas (1989) argued that members of former elites (i.e. highly educated individuals) are more likely to be pushed to emigrate by politically suppressive conditions. Individuals who were successful prior to regime changes are presumably among the first to experience the new regime's oppressiveness and are hence more prone to be pushed to leaving the country and seek less suppressive living conditions. It is thus expected that *the positive effect of political freedom will be stronger for more educated members of an origin group.*

## 2.2.2 Incorporating the cost of migration

When deciding between alternative destinations, individuals also have to consider the costs associated with each alternative. Migrating imposes both direct and indirect costs (Borjas 1989; Jasso and Rosenzweig 1990). Direct costs are for example related to traveling from the country of origin to the destination of choice. Indirect costs refer to imperfect transferability of human capital across borders and cultural contexts as well as the psychological cost of integrating into

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a foreign environment (Friedberg 2000; Massey 2010). Integrating costs into the destination decisions of potential migrants serves an essential purpose: considering only push-pull explanations would not account for individual differences in migration patterns (Portes and Böröcz 1989). Costs arguments explain why only a small fraction of the sending population migrates and why not all individuals choose the country of destination that objectively yields the highest utility.

First, the geographic distance between origin and destination has been found to influence the destination choices of migrants (Karemera et al. 2000; Davies et al. 2001; Kim and Cohen 2010). Geographic distance is associated with direct as well as indirect costs. Traveling to destination countries further away is associated with higher travel costs. Larger geographic distance also increases the anticipated costs of return migration in case of absent success in the country of destination. Hence, *the bigger the geographic distance between origin and destination, the less likely a country of destination is to be chosen by migrants.* Yet, some members of a migrant group may have the financial means to travel longer distances. It is therefore expected that *the negative effect of geographic distance is less strong for origin group members with greater resources.*

Second, the size of the co-ethnic community is an important component of immigrant integration. Co-ethnic communities may reduce the costs of integrating into a new society since they are characterized by similarities to the migrants' home culture and language and the easy availability of co-ethnic social capital (Portes and Rumbaut 1996; Portes 1998; Light and Gold 2000; Scott et al. 2005). Moreover, a larger co-ethnic presence in a destination increases the likelihood that information about that destination is channeled back to respondents both

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directly or indirectly via friends or family (Greenwood 1969).[1] Hence, it is expected that *the larger the relative size of an immigrant group in a destination, the more likely that destination is to be chosen by migrants from that group.* There are two arguments why the size of the co-ethnic community may not reduce the costs of migration to the same degree for all members of an origin group. Some migrants are more resourceful than others which render the need for a safe haven less relevant. In addition, ethnic enclaves or communities are mostly characterized by flat occupational profiles thus offering job opportunities predominantly for low skilled migrants (Funkhouser and Ramos 1993; Massey et al. 1998). Both arguments lead to the hypothesis that *the positive effect of an immigrant community's size is less strong for more resourceful members of that origin group.*

Third, the psychological cost of integration into the host society may also be reduced in case a country of destination is culturally similar to the country of origin (Funkhouser and Ramos 1993; Karemera et al. 2000; Liaw 2007). Individuals have to invest fewer resources when trying to integrate into the host society if origin and destination are similar in cultural terms. In addition, skill demands of the labor market are bound to be similar to those in the country of origin if the two cultures are rather close. Hence, cultural proximity may reduce imperfect skill transferability across country and cultural borders. For instance, Funkhouser and Ramos (1993) found that cultural proximity explained why some Cuban and Dominican migrants favor Puerto Rico over the United States, as Puerto Rico's cultural proximity allowed individuals to reap higher la-

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[1]Greenwood (1969) also showed that failing to account for the size of the co-ethnic population leads to upwardly biased effects of other determinants of migrants' destination choices. This is the case because these other determinants affected the choice behavior of those migrants that now constitute the pool of co-ethnics in the various destination countries.

bor market outcomes. Thus, it is expected that *the smaller the cultural distance between a migrant groups' country of origin and a destination, the more likely that destination is to be chosen by members of that migrant group.* However, better educated individuals have arguably more cultural resources at their disposal which reduces the psychological cost of integration compared to lower educated individuals. Since institutions of higher education transmit more universalistic views of life, highly educated individuals tend to be more open and know more about other cultures. Hence, *the negative effect of cultural distance between origin and destination is less strong for more educated members of an origin group.*

Fourth, migration policies of the country of destination may play a role in cost calculations of potential migrants (Karemera et al. 2000; Clark et al. 2007; Ruhs 2011; Greenwood and McDowell 2011). Destination countries may differ with respect to the restrictions and regulations placed on employers in hiring immigrants. In countries where policies make it difficult for employers to give work to immigrants, migrant workers are more likely to face periods of unemployment. Likewise, some countries require migrants to be licensed in order to be eligible to work legally. Consequently, the more pronounced protectionist attitudes are, the harder it will be for migrants to acquire the necessary licensing. These periods of legal as well as economic insecurity are likely to increase psychological costs and/or drain financial resources. By contrast, other destination countries may have implemented specific policies to actively help and encourage migrants to integrate into the new host society. Taken together, differences in migration policies across destination countries are likely to influence in cost calculations of potential migrants. Hence, *migrants are more likely to choose destination countries with more favorable immigrant policies.*

## 2.3   The Latin-American Context

Latin-America and Caribbean immigration contexts are particularly interesting for study since migration from the countries was and is overwhelmingly intraregional (Cohen 2010). Of the estimated 36 million migrants at the beginning of the twenty-first century, more than 80 percent stayed within the Americas. The remaining 20 percent mainly consisted of migrants opting for European destinations and Brazilians of Japanese descent migrating to Japan (Migration DRC 2007; Castles and Miller 2009). Only few countries within the Americas (the U.S. and Canada) can be classified as primarily receiving nations. Other popular destination countries like Argentina, Brazil, Chile or Venezuela receive a substantial number of intraregional immigrants while simultaneously constituting a major source of emigration. For example, over 65 percent of Argentina's foreign-born population originated from other South American countries while Argentinians are among the largest origin groups in neighboring countries such as Brazil or Chile (Migration Policy Institute 2011; World Bank 2011a). Latin-American countries have historically relied on different origin countries as source for seasonal workers: Colombians in Venezuela, Mexicans in the U.S. or Paraguayans and Bolivians in Argentina (Castles and Miller 2009).

Over the last thirty years, changes in economic as well as political conditions have led to shifts in migration flows. The economic recovery of some countries following the Latin-American debt crisis spurred on in-migration to these countries. More recent episodes of economic downturn however were followed by decreases in in-migration and surges in return migration from these destinations. In addition, political turmoil in some, mostly Central American countries generated refugee

streams towards politically more stable countries.

## 2.4   Data and Methods

To test the hypotheses, this study uses data from the Integrated Public Use Microdata Series International (IPUMS-I) which consists of harmonized national censuses that are disseminated freely (Minnesota Population Center 2010). Data were available for ten American destination countries (Argentina, Bolivia, Brazil, Chile Colombia, Costa Rica, Mexico, Peru, the United States and Venezuela) and for 23 Latin-American and Caribbean migrant groups originating from the following countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Uruguay and Venezuela. Since most censuses were administered around 2000, the sample that was closest to the year 2000 was used in case multiple censuses per destination country were available. For example, censuses from 2000 and 2005 are available for the U.S. and Mexico but only data from the 2000 censuses are incorporated in the analysis. In addition, it is unclear to what extent illegal migrants are included in the data.

The analysis was restricted to recent migrants, i.e. individuals who entered the country of destination no longer than five years before each census. Since hardly any of the censuses contained information on the precise year of immigration, this restriction was necessary in order to identify the time period in which characteristics of origin and destination most likely affected destination choices. Moreover, the sample is restricted to respondents aged 25 to 54 to avoid the influence of between-country differences in schooling and retirement (i.e. only working-aged respondents are included). Ultimately, the sample consists of 78,832 migrants

from 23 origin countries who opted for one of the ten destination countries under study.

## 2.4.1 Method

Conditional logit models are used to analyze the migrants' destination choices. The probability of a given destination country to be chosen can be expressed as:

$$
P(m_{ij} = 1) = \frac{e^{\beta x_{ij}}}{\sum\limits_{j=1}^{J} e^{\beta x_{ij}}},
$$

(2.1)

where j refers to the destination countries, $x_{ij}$ contains a set of choice-varying attributes and $\beta$ represents the coefficient vector which is constant across choices (see McFadden 1975; Long 1997; Davies et al. 2001; Train 2009). The conditional logit model estimates the effect of choice-specific variables on the probability of choosing a particular alternative (i.e. a country of destination). Hence, for each respondent it models the variation across alternatives rather than modeling the variation across respondents. As was argued in the theory section, the effects of choice-specific characteristics are expected to vary across individuals. Since individual attributes (e.g., education) do not vary across alternatives, they drop out of the probability function. It is however possible to include them by means of formulating interaction terms. Please note that data for alternative-specific characteristics were collected for both destination and origin countries in order

to be able to formulate opportunity characteristics in relative terms (destination/origin) and cost factors in dyadic terms (e.g., the distance between origin and destination).

## 2.4.2 Explanatory variables

Since only a five-year window is known in which individuals migrated, time-varying characteristics have been averaged over this period. Moreover, as some time is passing between making decisions about migration destinations and actually emigrating, time-varying variables are measured with a one year lag. For example, for an origin group in a census from 2000, the variable GDP measures the average GDP in the destination relative to the GDP in the origin for the period of 1994 to 1999. This procedure is applied for all time-varying characteristics (see Appendix Table 2.6).

The explanatory variables included in the analysis cover a number of push and pull factors such as relative expected wage rate, where expected wage rates are the product of destinations' employment rates and GDP per capita, relative GDP growth, relative population density and relative income inequality which is measured by the GINI coefficient. Moreover, relative political suppression is measured using information from the Polity IV project Marshall and Jaggers 2009). The costs of alternative destinations are covered by a measure of geographic distance, the size of the co-ethnic communities and cultural distance which is measured as the absolute difference of origin and destination sums of Hofstede's three dimensions of national cultures (i.e., (power distance, individualism and masculinity). As an additional cost indicator, a composite index containing information on

destinations' accessibility for migrants is included Economist Intelligence Unit 2008). A more detailed description of the data definitions and sources used are presented in Appendix Table 2.6.

With respect to individual characteristics, education serves as a proxy variable indicating respondents' resourcefulness and was measured as a categorical variable: less than primary completed, primary completed, secondary completed and university completed.[2] Preliminary gender-specific analyses reveal a close correspondence of the choice patterns.[3] Hence, the analyses are conducted on a pooled sample.

Table 2.1 provides an overview over descriptive statistics of the independent variables. Multiple imputation techniques are employed to deal with missing information for the origin and destination characteristics[4] Rubin 1996; Schafer and Graham 2002; Enders 2010). 20 imputed datasets were generated using predictive mean matching implemented in the mice-package for R van Buuren and Groothuis-Oudshoorn 2011). Standard errors have been corrected for multi-way clustering according to migrants' origin country, destination of choice and immigrant community (i.e., the specific origin and destination combinations) to account for non-independence of observations Cameron et al. 2006; Peterson 2009;

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[2]Note that the differences in the effects are most pronounced between individuals with less than primary education and university educated respondents (see Table 3). The difference between respondents on the lower educational ranks is often not statistically significantly different. For illustrative purposes however, I decided to refrain from relying on an education dummy (i.e., high vs. low education).

[3]One noteworthy finding suggests highly educated male migrants are more likely to choose destinations with higher levels of relative income inequality. This result is in line with the discussion of relative income inequality in the theory section but apparently only significantly affects male decisions.

[4]The variable measuring respondents' education also contains missing values. Since this was the case for less than one percent of the respondents, cases with missing values have been list-wise deleted.

Thompson 2009). Measures of multicollinearity do not give rise to concern: Variance Inflation Factors are below 2, Tolerance levels never fall below 0.6 and Condition Numbers never exceeds 10.

**Table 2.1:** Descriptive statistics for independent variables (N=78,832)

|  | Range | Mean | SD | % imputed |
|---|---|---|---|---|
| **Opportunity structure (destination/origin)** |  |  |  |  |
| Expected wage rate[a] | 0.02-147.55 | 3.94 | 8.10 | 0.57 |
| GINI | 0.71-1.40 | 1.00 | 0.14 |  |
| Political freedom | 1.00-2.00 | 1.15 | 0.15 |  |
| **Costs** |  |  |  |  |
| Geographical distance (in 1,000 km) | 0.21-8.48 | 3.98 | 1.97 |  |
| Group size (in %) | 0.00-99.57 | 10.78 | 28.33 |  |
| Cultural distance | 1.00-120.00 | 38.33 | 26.93 | 20.86 |
| Policy index | 0.60-0.73 | 0.66 | 0.05 | 8.57 |
| **Individual attributes** |  |  |  |  |
| Educational attainment[b] |  |  |  |  |
| Less than primary completed | 0/1 | 0.13 |  |  |
| Primary completed | 0/1 | 0.38 |  |  |
| Secondary completed | 0/1 | 0.37 |  |  |
| University completed | 0/1 | 0.12 |  |  |
| **Control (destination/origin)** |  |  |  |  |
| Population density | 0.02-21.87 | 0.70 | 0.88 |  |
| GDP growth | -6.92-5.37 | -1.02 | 2.03 |  |

[a] GDPpc*employment rate

[b] variable contained less than one percent missing values. Observations have been list-wise deleted.

## 2.5 Results

### 2.5.1 Descriptive results

Before turning to the multivariate analysis, descriptive figures are presented in Table 2.2 depicting the percentage of members from an origin group choosing one of the ten destination countries. Moreover, the last column reports the total number of migrants in order to give an impression about the sizes of the various origin groups whereas the last row reports corresponding figures for the destination countries. The dominant role of the United States in this migratory system is immediately apparent when investigating Table 2.2. Overall, roughly 86 percent of all migrants chose the United States as their country of destination. From ten of the 23 origin groups more than 90 percent of their members recently settled in the United States. These figures are especially high for migrants from Caribbean and Central American origin countries who rarely choose a Latin-American destination country. One notable exception are migrants from Nicaragua who tend to move predominantly to Costa Rica. On the other extreme, the Mexican origin group makes up half of the sample and an overwhelming majority of its members (99 percent) migrated north to the United States. Compared to Caribbean migrants, the United States are somewhat less attractive to migrants from South American origin countries. For instance, "only" one in four Bolivians or 50 percent of Argentinians moved to the U.S.

Overall, the destination choices of South American migrants also appear to be more diverse than those of Caribbean and Central American migrants. While still one third of Peruvian migrants moved to the U.S., 32 percent migrated to Argentina, 23 percent to Chile and 6 percent to Venezuela. Similarly although

with a more pronounced tendency to choose neighboring destination countries, 50 percent of Bolivians recently settled in Argentina, 8 percent in Brazil and Chile and a little less than 25 percent in the United States. Uruguayan migrants show an even stronger preference for neighboring countries with around 80 percent moving to Argentina (45 percent) and Brazil (34 percent).

**Table 2.2:** Percentage of Origin Group choosing Destination, weighted

| Origin | ARG | BOL | BRA | CHI | COL | CRI | MEX | PER | USA | VEN | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cuba | 1.05 | 0.27 | 0.58 | 1.86 | 0.31 | 2.13 | 2.22 | 0.32 | 90.63 | 0.63 | 66,621 |
| Dom. Rep. | 1.32 | 0.03 | | | | 0.44 | 0.46 | | 94.98 | 2.77 | 36,432 |
| Haiti | | | | | | 0.07 | | | 99.41 | 0.52 | 22,866 |
| Jamaica | | | | | | | | | 99.95 | 0.05 | 22,183 |
| Puerto Rico | | | | | 0.09 | 0.50 | | | 99.38 | 0.03 | 69,169 |
| Costa Rica | 0.68 | | 0.31 | 0.79 | 0.52 | | 1.71 | | 95.30 | 0.68 | 8,816 |
| El Salvador | | 0.09 | | | | 1.12 | 0.53 | | 98.11 | 0.15 | 40,222 |
| Guatemala | 0.12 | | 0.06 | | 0.15 | 0.56 | 3.58 | | 95.44 | 0.09 | 34,044 |
| Honduras | | | | | | 0.83 | 1.95 | | 97.19 | 0.03 | 30,008 |
| Mexico | 0.08 | 0.07 | 0.04 | 0.09 | 0.04 | 0.05 | | 0.05 | 99.57 | 0.02 | 746,001 |
| Nicaragua | | | | | | 80.35 | 0.20 | | 19.14 | 0.32 | 34,613 |
| Panama | | | | 1.60 | 1.34 | 11.66 | 2.00 | 0.15 | 82.52 | 0.73 | 6,859 |
| Argentina | | 6.41 | 9.73 | 18.54 | 1.33 | 0.61 | 3.11 | 3.41 | 55.01 | 1.86 | 26,382 |
| Bolivia | 51.10 | | 8.43 | 7.59 | 0.43 | | 0.87 | 3.77 | 24.30 | 0.52 | 19,373 |
| Brazil | 4.42 | 3.88 | | 2.00 | 0.11 | 0.15 | 0.38 | 1.64 | 86.94 | 0.48 | 53,613 |
| Chile | 23.38 | 3.11 | 5.38 | | 0.80 | | 4.22 | 5.47 | 51.21 | 6.42 | 14,798 |
| Colombia | 0.77 | 0.25 | 0.73 | 1.29 | | 1.28 | 1.04 | 1.20 | 57.94 | 35.51 | 116,065 |
| Ecuador | 1.05 | 0.5 | 0.71 | 12.25 | 1.25 | 0.31 | 0.16 | 1.83 | 75.49 | 6.45 | 32,256 |
| Guyana | | | 21.70 | | | | | | | 78.30 | 613 |
| Paraguay | 87.45 | 2.17 | 8.36 | 1.45 | | | 0.24 | 0.20 | | 0.13 | 15,174 |
| Peru | 31.66 | 2.76 | 1.69 | 23.22 | 0.29 | 0.43 | 0.68 | | 35.43 | 6.46 | 64,592 |
| Uruguay | 45.44 | | 33.95 | 8.34 | | | 2.69 | 3.13 | | | 4,798 |
| Venezuela | 1.16 | 0.62 | 1.97 | 1.52 | 6.90 | 0.62 | 2.61 | 0.94 | 83.66 | | 22,414 |
| Percentage | 3.73 | 0.51 | 0.76 | 2.08 | 0.23 | 2.27 | 0.58 | 0.42 | 86.01 | 3.40 | 1,488,022 |

## 2.5.2 Multivariate results

The results of the conditional logit models of migrants' choice of destination are presented in Table 2.3. To give the reader an idea about the relevance of the discussed effects, the "standardized change" is reported in parentheses representing the effect of a one-standard deviation increase in the independent variables on the odds of destination choice. Since the descriptive analysis suggests that results might be affected by the dominance of the United States in the American migratory systems, Table 2.3 also presents the findings when excluding the United

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States from the choice set. To examine whether the effects of independent variables vary across demographic groups, a series of models with interaction effects is estimated. The results are reported in Table 2.4. These analyses have also been carried out without the United States as a potential destination. However, there were only minor differences hence these analysis are not reported. These differences will be discussed in the text should the findings deviate strongly from those reported in Table 2.4.

**Table 2.3:** Conditional Logit Model of Migrants' Choice of Destination, weighted (N=78,832)

|  | Choice of Destination | | | | Expectation |
|---|---|---|---|---|---|
|  | All destinations | | Excluding the U.S. | | |
|  | coefficient | se | coefficient | se | |
| **Opportunities (relative)** | | | | | |
| Expected wage rate | 0.094 | 0.046* | 0.025 | 0.012 | + |
| GINI | -2.356 | 1.032* | -2.190 | 1.001* | − |
| Political freedom | 3.322 | 5.903 | 2.193 | 3.229 | + |
| **Costs** | | | | | |
| Geographic distance (in 1,000 km) | -0.424 | 0.041* | -0.285 | 0.154* | − |
| Geographic distance squared | 0.032 | 0.007* | 0.031 | 0.005* | − |
| Cultural distance | -0.031 | 0.006* | -.010 | 0.005* | − |
| Policy index | 1.629 | 0.699* | 0.603 | 1.223 | + |
| **Control** | | | | | |
| Population density | -.332 | 0.031* | -0.473 | 0.208* | |
| GDP growth (dest-or) | 0.280 | 0.274 | -0.550 | 0.346 | |
| | | | | | |
| loglikelihood | -595,109 | | 167,842 | | |
| $Pseudo - R^2$ | .791 | | .435 | | |
| Number of choices | 759,459 | | 167,842 | | |
| Weighted number of choices | 13,808,166 | | 1,734,883 | | |

* $p < .05$ (one-tailed), standard errors correct for clustering of migrants in origin countries, destination countries and migrant communities (origin*destination).

I begin by discussing the average population effects. The results presented in Table 2.3 provide evidence for the notion that economic differentials affect migrants' destination choices. Migrants are attracted by destination countries that offer higher relative expected wages (+77 percent) whereas destinations with

a higher relative income inequality reduce choice probabilities (−39 percent). This finding paints a picture of migrants favoring destinations that offer high returns on human capital while simultaneously offering comparatively more protection against poor labor market outcomes. These two economic characteristics are also well documented determinants of migration to Western destination countries (Karemera et al. 2000; Clark et al. 2007; Mayda 2010; Greenwood and McDowell 2011; Hatton and Williamson 2010). Excluding the U.S. from the set of possible alternatives substantially reduces the association of economic differentials and destination choices. Contrary to the theoretical expectation, the results do not indicate that higher levels of political freedom are generally associated with higher choice probabilities.[5] This is insofar surprising as research on migration patterns to Canada and the U.S. consistently identified political freedom as an important factor in migrants' decisions (Karemera et al. 2000; Hatton and Williamson 2010).

Overall, the results provide clear support for the theoretical expectations on how cost considerations affect destination choices suggesting that the average migrant is considerably cost-sensitive. Based on an assessment of the standardized change, a large presence of co-ethnics is highly important to destination choices (+108 percent), even more so when the U.S. are excluded from the data (+198 percent). This finding probably reflects that access to information about non-U.S. destination is less ubiquitous (i.e., via mass media sources), thus increases migrants' sensitivity to information flows via direct or indirect social contacts within these destinations (Greenwood 1969). In line with prior research, the average migrant is less likely to choose more distant destination countries (−54 percent) attesting to the importance of migration streams between neighboring

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[5]Using the Freedom House indicator closely reproduces this finding.

countries in the American migratory system (Karemera et al. 2000; Kim and Cohen 2010; Mayda 2010; Greenwood and McDowell 2011). Not only geographic but also cultural distance matters in the cost calculations of migrants. Accordingly, culturally more distant destinations are less likely to be chosen (−42 percent). Although relying on a less frequently used indicator of cultural distance, this result replicates earlier findings for Western destination countries (Kim and Cohen 2010; Mayda 2010; Greenwood and McDowell 2011). Overall, cost factors gain in importance when the U.S. are removed from migrants' choice sets suggesting an increased cost sensitivity of South American migrants. And lastly, migrants are attracted by destination countries with policies favoring immigration. It should be noted however that the effect is comparably small (+8 percent) and disappears when excluding the U.S. from the set of alternatives. [6] This finding probably relate to the comparatively large proportion of illegal border crossers made possible by large stretches of unguarded borders in the Americas (Cohen 2010).

Whereas the preceding discussion revolved around the average migrant, the focus of the following paragraphs rests on how origin and destination characteristics affect the skill composition of origin groups. These results will provide insights into which destinations are more likely to attract high-skilled as opposed to low-skilled migrants. According to the findings presented in Table 2.4, the strongest skill differential is generated by the size of the co-ethnic community. As expected, low-skilled migrants are much more likely to migrate to destinations with a comparatively large co-ethnic population (+190 percent). University educated migrants are far less responsive to the presence of co-ethnics (+15 percent).

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[6]Using years of residence required to be eligible for citizenship yields very similar results (b=.600 , p<.001)

**Table 2.4:** Variation of Destination Characteristics' Attractiveness for Educational Groups, weighted (N=78,832)

|  | Education | | | |
|---|---|---|---|---|
|  | < primary completed | Primary completed | Secondary completed | University completed |
|  | Main effect | Interaction term | Interaction term | Interaction term |
| **Opportunities** | | | | |
| GINI | -3.049* | -0.310 | -0.671 | 0.205 |
| Political freedom | -5.714 | 3.999 | 4.309 | 5.121* |
|  | | | | |
| **Costs** | | | | |
| Geographic distance | -1.471* | 0.588* | 1.014* | 1.599* |
| Group size | 0.038* | -0.009* | -0.025* | -0.033* |
| Cultural distance | -0.024* | 0.003 | 0.012 | 0.028* |

* $p < .05$ (one-tailed), standard errors correct for clustering of migrants in origin countries, destination countries and migrant communities (origin*destination).

This finding lends support for the idea that less resourceful migrants are attracted by supportive co-ethnic communities while high-skilled migrants are repelled by potentially flat occupational profiles in these communities. Geographic distance, as a more direct indicator of migration costs, was found to show the second highest skill differentials. While increasing geographic distance deters the flow of low-skilled migrants ($-94$ percent), high-skilled migrants are actually attracted by more distant destinations ($+16$ percent). This somewhat unexpected patterns persists when the U.S. are excluded from the set of possible choices suggesting that migration streams between neighboring countries are generally more likely to attract low-skilled migrants.

While relative political conditions played no role in accounting for destination choices of the average migrant, results presented in Table 2.4 indicate that high-skilled migrants are more likely to move to destinations with more favorable political conditions ($+50$ percent). However, political conditions do not significantly affect destination choices of migrants with less than primary education

and are only of moderate importance for migrants with primary education (+8 percent).

Similar to the findings for geographic distance, low-skilled migrants are less likely to move to destinations with higher cultural distance to their origin country. However, university educated migrants are even attracted by culturally more distant destinations, though the effect is comparatively small (+12 percent). This finding provides support for the idea that higher educated migrants have better resources at their disposal to cope with the psychological costs of integrating into a culturally distant society. Lastly, the results do not provide evidence that differences in relative income inequality are associated with skill selection differentials.

Overall, placing these findings into existing research on skill selectivity is hindered by the fact that prior research focuses on origin group differences or on selection differentials compared to the origin population (see for example Feliciano 2005). However, the skill differentials discussed above explicitly illuminate selectivity within origin groups rather than asking why origin group A is on average more educated than origin B.

## 2.6    Illustrating Results

In order to illustrate the findings outlined above, I focus on discerning which characteristics of origin and destination countries result in positive or negative selection of migrant groups. Ordering skill differentials according to their magnitude, the results indicate that destination countries are more likely to attract highly skilled migrants in case (1) relative political freedom is high, (2) the dis-

tance between origin and destination is large, (3) the co-ethnic community is small and (4) the degree of cultural distance is high. Conversely, low-skilled migrants are more sensitive to increasing migration costs. Destination countries are more likely attract low-skilled migrants if they already host a considerable share of co-ethnics, origin and destination share geographic as wells cultural proximity and relative political freedom is below average.

**Table 2.5:** Illustrative Selection Differentials

| Selection characteristic | Favorable | Unfavorable |
|---|---|---|
| Size co-ethnic community | small | large |
| Geographic distance | large | small |
| Relative political freedom | high | low |
| Cultural distance | high | low |
| | | |
| Mean % with university degree | 18% | 9% |
| | | |
| Examples (% with university degree vs. % with university degree in other destinations | Peruvians in Mexico (51% vs. 13%) | Mexicans in the U.S. (7% vs. 46%) |
| | Ecuadorians in Chile (41% vs. 19%) | Colombians in Venezuela (0% vs. 36%) |

Average scores used to distinguish between small/low (i.e., below average) and high/large (i.e. above average). Only origin-destination combinations with at least 400 respondents were considered.

To give concrete examples of these skill differentials, the percentages of respondents that hold university degrees and migrated to a country of destination that satisfied the four conditions outlined above are reported in Table 2.5. The first four rows again summarize characteristics that may lead to positive and negative selection while the remaining two rows detail corresponding origin groups and their choice of destination country. Accordingly, 18 percent of migrants with university degree have chosen destinations with characteristics that satisfy each of the four selection conditions. Conversely, combinations of origin and desti-

nation countries that one would expect to lead to negative selection attracted highly educated migrants less frequently (9 percent). The last row of Table 2.3 illustrates these skill differentials in more detail. While a little more than half of all Peruvians migrating to Mexico held university degrees, this was only the case for 11 percent in the other nine destination countries. Similarly though not as pronounced, Ecuadorians who opted for Chile were more likely to hold university degrees than their compatriots who migrated to other North or South American destination country.

The data also provide evidence for patterns of negative skill selection among Pan-American migrants. While only 7 percent of Mexicans in the U.S. are highly educated, this is the case for roughly 46 percent in other destination countries. Even more pronounced is the difference between Colombians in Venezuela compared to Colombians in other destination countries. Not even 1 percent of Colombians who recently migrated to Venezuela hold university degrees as opposed to 36 percent in other American destinations. However, note that a scenario where all four conditions are satisfied is a fairly restrictive one. Only two origin-destination combinations satisfy it regarding positive selection and four combinations concerning negative selection. As discussed above, the four conditions potentially affecting skill selection are not equally influential. The differences in odds for highly educated as compared to low educated migrants are almost negligible concerning cultural distance but are huge with respect to the size of the co-ethnic community. Hence, leaving out one or two of the less decisive conditions increase the number of origin-destination combinations where one would expect positive or negative selection to occur. Similar patterns of skill selection emerge when imposing less restrictive conditions.

# 2.7   Conclusion and Discussion

Much of the cross-national research on migrants' destination choices has focused on analyzing the flow of migrants with particular focus on migration from less developed to developed countries. Nonetheless, growing economic prosperity in former developing countries may lead to the emergence of viable alternative migration destinations outside the Western context. This paper focused on a different context and set out to analyze the destination choices of recent Pan-American migrants. To do so, it was hypothesized on a set of opportunity structure as well as cost characteristics that might lead migrants to perceive one destination country as more attractive than others. Using discrete choice methods and IPUMS-I census data, the choice situation of migrants from the 23 largest Latin-American and Caribbean origin groups was modeled. Three principle conclusions follow from this study.

First, results for the average Pan-American migrant are largely consistent with findings from earlier research in Western countries (e.g. Karemera et al. 2000; Clark et al. 2007; Liaw 2007; Pedersen et al. 2008; Kim and Cohen 2010; Mayda 2010; Greenwood and McDowell 2011). In line with prior research, migrants' considerations about opportunities and costs both matter in explaining their destination choices. Not surprisingly, migrants are more likely to choose destinations offering better the economic opportunities. On the cost side, the size of the co-ethnic community had the strongest effect. The larger the co-ethnic community in a destination, the more likely it is to be chosen by new migrants. It is not only the size and presence of members of the same origin group that matters but also the cultural and geographic distance between origin and destination. Destination

countries are more likely to be chosen, the larger the cultural proximity and the smaller the distance migrants had to travel to reach it are. Finally, the findings indicate that countries with more favorable policy conditions towards immigrants are more attractive to migrants, i.e. are more likely to be chosen. Presumably due to relatively small variation in this factor across the studied destination, the policy effect was comparably small and disappeared when the United States where excluded from the choice set. The close correspondence of findings for Western destination countries and the Americas suggest that established explanations can be generalized to the North and South American context. Notwithstanding, the results also point to some intriguing findings when the United States is excluded from the analysis. Most notably, the association between economic factors and a destination country's attractiveness diminishes whereas the effects of cost factors substantially increase in magnitude. This might point to differences in the migration motives for people moving to the United States and people moving to Latin-American countries. The former might be more strongly motivated by economic considerations and permanent settlement intentions while the stronger emphasis on costs by the latter might reflect the more temporary nature of the migration endeavor or the higher relevance of origin country ties.

Second, by hypothesizing about divergent effects of opportunity as well as costs conditions on the attractiveness of destination countries for demographic groups, insights into differential sorting of members of the same origin group across destination countries (i.e. from a destination countries' perspective about positive or negative selection of migrants) are generated. The findings suggest that the effects of political freedom, geographic distance, the size of the co-ethnic community and cultural distance vary with educational attainment. More specif-

ically, I find that more educated migrants are better able to bear migration costs as expressed by a positive association between geographic distance and cultural distance with the likelihood of choosing a destination. Moreover, the presumably safeguarding effect of a sizable co-ethnic community is considerably smaller for more educated members of an origin group. That is not to say that more educated migrants are not at all affected by cost considerations but they appear to have capabilities that allow for a certain tolerance of higher cost levels. In fact, as suggested by the positive effects of geographic and cultural distance, more educated migrants even seem to be attracted by more costly destination countries. On the contrary, less educated migrants appear to be highly cost-sensitive as indicated by the strong decline in the likelihood of choosing a destination when the three cost factors increases.

Third, identifying the patterns of migrant sorting discussed above has important societal and scientific implications. From a policy perspective, knowing which origin-destination combinations are likely to induce positive or negative selection facilitates constructing policy measures (a) to attract highly educated migrants which is a goal of for instance Colombia, Mexico and the United States (UN 2010) and (b) to develop programs aiding apparently negatively selected origin groups with (labor market) integration. From a scientific perspective, the findings are relevant for the (cross-national) study of immigrants' labor market integration and labor market outcomes. Selection characteristics are commonly put forward to explain differences in labor market integration across destinations and origin groups. However, while relative income inequality and geographic distance are widely recognized as affecting the selection of immigrants, the size of the co-ethnic community and cultural distance are usually not associated with

immigrant selectivity. Rather theories of discrimination are advanced to explain why large and/or culturally distant origin groups report lower labor market outcomes such as income or occupational standing (e.g. Van Tubergen et al. 2004). According to the findings on skill selection differentials there is an alternative explanation derived from human capital theory: destinations with a sizable share of migrants from one origin group and a considerable social distance between that origin group and the destination's native population are on average more likely to attract negatively selected migrants and these migrants are hence more likely to show low labor market outcomes.

To conclude, using discrete choice methods has the potential to generate important insights in migration behavior. These methods offer flexible modeling strategies that enable researchers to directly model migrants' choice behavior while yielding better estimates of the effects of destination characteristics due to the inclusion of alternatives' characteristics (Davies et al. 2001). Equally important, discrete choice methods also enable the explicit modeling of skill differentials within origin groups. And with the continued publication of data sources covering more and more non-Western societies, these model classes will eventually be able to answer similar research questions in migratory systems that are characterized by a smaller extent of within-system migration.

# 2.8 Appendix

**Table 2.6:** Variable definitions and sources

| Variable | Definition and sources | Time-varying |
|---|---|---|
| **Opportunities** | | |
| Expected wage rate | Expected wage rate is measured as the product of GDP per capita and employment rate (World Bank 2011b). GDP per capita is measured in U.S. dollars and ppp-adjusted with 2005 serving as the reference period. | Yes |
| Income inequality | Income inequality is measured by the GINI coefficient theoretically ranging from 0 to 1 with higher scores indicating higher income inequality (UNU WIDER 2008). | Yes |
| Political opportunities | Data from the Polity IV project are used to measure political opportunities (Marshall and Jaggers 2009). This measure ranges from $-10$ (full autocracies) to $+10$ (full democracies) and was designed for comparative research purposes. Origin and destination scores have been normalized to range from 1 to 2 in order to avoid nonsensical ratios with negative values. In sensitive analysis, indices from Freedom House were used which measure the degree of freedom in political rights and civil liberties (Freedom House 2013). These indices range from 1 (free) to 7 (unfree). Codings have been reversed prior to calculating relative scores in order to be in line with the theoretical expectations. | Yes |
| Population density | Population density measures the number of people per square kilometers of land area (World Bank 2011b). | Yes |
| GDP growth | Data for annual percentage growth rates of GDP are gathered from the World Bank (2011b). The differences between destination and origins are calculated since growth rates may be negative. A smaller difference hence represents more favorable economic conditions in the country of destination. | Yes |
| **Costs** | | |
| Geographic distance | The distance between two countries was calculated using the "great circle distance" method. Data on geographic coordinates was retrieved from Mayer and Zignago (2006). A quadratic term of geographic distance is added to account for non-linear effects. | No |

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| | | |
|---|---|---|
| Group size | Group size is measured as the percentage of migrants going to one destination relative to the total number of migrants from an origin group (Migration DRC 2007). | Yes |
| Cultural distance | Since there is little to no variation in frequently used measures of cultural such as religion or language in the context under study, data on Hofstede's dimensions of national cultures are used to measure cultural distance between origin and destination countries (Hofstede 2011). The sum of the three dimensions (i.e., power distance, individualism and masculinity) is calculated for each origin and destination country. Cultural distance then represents the absolute difference between origin and destination scores. | No |
| Policy index | Migration policies are measured using a composite index indicating a countries' accessibility for migrants (Economist Intelligence Unit 2008). This index represents the weighted sum of the following indicator scores: openness of host country culture, programmes of integrate migrants, government policy towards migration, ease of hiring foreign nationals, licensing requirements for migrants, ease of family reunification, de jure or de facto discrimination and the power of trade unions. It ranges from 0 to 1 with higher values indicating more favorable policy conditions for migrants. As alternative indicator, the years of residence required to be eligible for citizenship are used (US Office of Personnel Management 2001) | No |

# References

Becker, G. S. (1964). *Human Capital. A Theoretical and Empirical Analysis, with Special Reference to Education.* National Bureau of Economic Research, New York. 36

Borjas, G. J. (1987). Self-selection and the earnings of immigrants. *The American Economic Review*, 77:531–553. 36

Borjas, G. J. (1989). Economic theory and international migration. *International Migration Review*, 23:457–485. 33, 34, 37

Camerer, C. F. (1995). Individual decision making. In Kagel, J. H. and Roth, A. E., editors, *Handbook of Experimental Economics*, pages 501–585. Princeton University Press, Princeton. 33

Cameron, A. C., Gelbach, J. B., and Miller, D. L. (2006). Robust inference with multi-way clustering. Technical Working Paper Series 327, NBER. 46

Castles, S. and Miller, M. J. (2009). *The Age of Migration. Population Movements in the Modern World.* The Guilford Press, New York. 29, 41

Clark, X., Hatton, T. J., and Williamson, J. G. (2007). Explaining U.S. immigration, 1971-1998. *The Review of Economics and Statistics*, 89:259–273. 35, 40, 51, 57

Cohen, R. (2010). *The Cambridge Survey of World Migration.* Cambridge University Press, Cambridge. 29, 41, 52

Davies, P. S., Greenwood, M. J., and Li, H. (2001). A conditional logit approach to U.S. state-to-state migration. *Journal of Regional Science*, 41:337–360. 33, 35, 38, 44, 60

Economist Intelligence Unit (2008). *Global Migration Barometer: Methodology, Results and Findings.* Western Union. 46, 62

Enders, C. K. (2010). *Applied Missing Data Analysis.* The Guilford Press, New York. 46

# REFERENCES

Feliciano, C. (2005). Educational selectivity in U.S. immigration: How do immigrants compare to those left behind? *Demography*, 42:131–152. 54

Freedom House (2013). The americas. `www.freedomhouse.org`. 61

Friedberg, R. M. (2000). You can't take it with you? Immigrant assimilation and the portability of human capital. *Journal of Labor Economics*, 18:221–251. 38

Funkhouser, E. (2009). The choice of migration destination: A longitudinal approach using pre-migration outcomes. *Review of Development Economics*, 13:626–640. 30

Funkhouser, E. and Ramos, F. A. (1993). The choice of migration destination: Dominican and Cuban immigrants to the mainland United States and Puerto Rico. *International Migration Review*, 27:537–556. 30, 39

Greenwood, M. J. (1969). An analysis of the determinants of geographic labor mobility in the United States. *The Review of Economics and Statistics*, 51:189–194. 39, 51

Greenwood, M. J. and McDowell, J. M. (2011). USA immigration policy, source-country social programs, and the skill composition of legal USA immigration. *Journal of Population Economics*, 24:521–539. 34, 40, 51, 52, 57

Hatton, T. J. and Williamson, J. G. (2010). Are third world emigration forces abating? *World Development*, 39:20–32. 37, 51

Hofstede, G. (2011). Research and vsm. `www.geerthofstede.nl/`. 62

Jasso, G. and Rosenzweig, M. R. (1990). *The New Chosen People: Immigrants in the United States*. Russell Sage Foundation, New York. 37

Karemera, D., Iwuagwu, V., and Davis, B. (2000). A gravity model analysis of international migration to North America. *Applied Economics*, 32:1745–1755. 30, 33, 35, 37, 38, 39, 40, 51, 52, 57

Kim, K. and Cohen, J. E. (2010). Determinants of international migration flows to and from industrialized countries: A panel data approach beyond gravity. *International Migration Review*, 44:899–932. 30, 38, 52, 57

Köszegi, B. and Rabin, M. (2006). A model of reference-dependent preferences. *The Quarterly Journal of Economics*, 121:1133–1165. 33

Lee, E. S. (1966). A theory of migration. *Demography*, 1:47–57. 34

Liaw, K.-L. and Frey, W. H. (1998). Destination choices of the 1985-90 young adult immigrants to the United States: Importance of race, educational attainment, and labor market forces. *International Journal of Population Geography*, 4:49–61. 35

Liaw, K.-L. and Ishikawa, Y. (2008). Destination choice of the 1995-2000 immigrants to Japan: Salient features and multivariate explanation. *Environment and Planning A*, 40:806–830. 35

Liaw, Kao-Lee, W. H. F. (2007). Multivariate explanation of the 1985-90 and 1995-2000 destination choices of newly arrived immigrants in the United States: The beginning of a new trend? *Population, Space and Place*, 13:377–399. 30, 39, 57

Light, I. and Gold, S. J. (2000). *Ethnic Economies*. Academic Press, San Diego. 38

Long, S. J. (1997). *Regression Models for Categorical and Limited Dependent Variables*. Russell Sage Foundation, Thousand Oaks. 44

Marshall, M. G. and Jaggers, K. (2009). Polity IV project: Political regime characteristics and transitions, 1800-2009. *www.systemicpeace.org/polity*. 45, 61

Masatlioglu, Y. and Ok, E. A. (2006). Reference-dependent procedural decision making. *www-personal.umich.edu/~yusufcan/procedural.pdf*. 33

Massey, D. S., editor (2010). *New Faces in New Places. The Changing Geography of American Immigration*. Russell Sage Foundation, New York. 38

# REFERENCES

Massey, D. S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino, A., and Taylor, J. E. (1998). *Worlds in Motion: Understanding International Migration at the End of the Millennium*. Oxford University Press, Oxford. 33, 35, 39

Mayda, A. M. (2010). International migration: A panel data analysis of the determinants of bilateral flows. *Journal of Population Economics*, 23:1249–1274. 30, 51, 52, 57

Mayer, T. and Zignago, S. (2006). Notes on CEPII's distance measures. `www. cepii. fr/ anglaisgraph/ bdd/ distances. htm`. 61

McFadden, D. (1975). The revealed preferences of a government bureaucracy: Theory. *The Bell Journal of Economics*, 6:401–416. 44

Migration DRC (2007). Global migrant origin database. `www. migrationdrc. org/ research`. 32, 41, 62

Migration Policy Institute (2011). Migration information source. `www. migrationinformation. org/`. 41

Minnesota Population Center (2010). *Integrated Public Use Microdata Series, International (Version 6.0)*. University of Minnesota. 43

Pedersen, P. J., Pytlikova, M., and Smith, N. (2008). Selection or network effects? migration flows into 27 OECD countries, 1990-2000. *European Economic Review*, 52:1160–1186. 35, 37, 57

Peterson, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies*, 22:435–480. 46

Portes, A. (1998). Social capital: its origins and applications in modern sociology. *Annual Review of Sociology*, 24:1–24. 38

Portes, A. and Böröcz, J. (1989). Contemporary immigration: Theoretical perspectives on its determinants and modes of incorporation. *International Migration Review*, 23:606–630. 34, 38

Portes, A. and Rumbaut, R. G. (1996). *Immigrant America: A Portrait.* University of California Press, Berkeley. 38

Portes, A. and Rumbaut, R. G. (2001). *Legacies: The Story of the Immigrant Second Generation.* University of California Press. 35

Rubin, D. B. (1996). Multiple imputation after 18+ years. *Journal of the American Statistical Association*, 91:473–489. 46

Ruhs, M. (2011). Openness, skills and rights: An empirical analysis of labour immigration programmes in 46 high- and middle-income countries. Technical Report 88, Center on Migration, Policy and Society. 40

Rumbaut, R. G. and Portes, A. (2001). *Ethnicities: Children of Immigrants in America.* University of California Press, Berkeley. 35

Schafer, J. L. and Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, 7:147–177. 46

Scott, D. M., Coomes, P. A., and Izyumov, A. I. (2005). The location choice of employment-based immigrants among U.S. metro areas. *Journal of Regional Science*, 45:113–145. 38

Sugden, R. (2003). Reference-dependent subjective expected utility. *Journal of Economic Theory*, 111:172–191. 33

Thompson, S. B. (2009). Simple formulas for standard errors that cluster by both firm and time. *www.ssrn.com/abstract=914002*. 47

Train, K. E. (2009). *Discrete Choice Methods with Simulation.* Cambridge University Press, Cambridge. 44

UN (2009). *International Migration Report 2006: A Global Assessment.* United Nations, New York. 29

UN (2010). *World Population Policies 2009.* United Nations, New York. 59

UNU WIDER (2008). World inequality database, v. 2.0c. *www.wider.unu.edu/*. 61

## REFERENCES

US Office of Personnel Management (2001). Citizenship laws of the world. *www. multiplecitizenship. com*. 62

van Buuren, S. and Groothuis-Oudshoorn, K. (2011). MICE: Multivariate imputation by chained equations in R. *Journal of Statistical Software*, 45:1–67. 46

Van Tubergen, F., Maas, I., and Flap, H. (2004). The economic incorporation of immigrants in 18 Western societies: Origin, destination, and community effects. *American Sociological Review*, 69:701–724. 31, 60

World Bank (2011a). *Migration and Remittances Factbook 2011.* The World Bank, Washington, D.C. 41

World Bank (2011b). World development indicators. *http: // data. worldbank. org/*. 61

Zimmermann, K. F. (1996). European migration: Push and pull. *International Regional Science Review*, 19:95–128. 34

Zlotnik, H. (2005). International migration trends since 1980. In *International Migration and the Millenium Development Goals: Selected Papers of the UNFPA Experts Meeting*, pages 13–25. United Nations Population Fund, New York. 29

# Ethnic Intermarriage in Longitudinal Perspective: Testing Structural and Cultural Explanations in the United States, 1880-2011

Christoph Spörlein, Elmar Schlüter and Frank van Tubergen

# Abstract

Focusing on macro-level processes, this article combines Decennial Census and Current Population Survey data to simultaneously test longitudinal and cross-sectional effects on ethnic intermarriage using structural and cultural explanations. Covering a 130 year period, the results of our multilevel analysis for 140 national-origin groups indicate that structural characteristics explain why some origin groups become more open over time while others remain relatively closed. Ethnic intermarriage is more likely to increase over time when the relative size of an immigrant group decreases, sex ratios grow more imbalanced, the origin group grows more diverse, the size of the third generation increases and social structural consolidation decreases. Cultural explanations also play a role suggesting that an origin groups exogamous behavior in the past exerts long-term effects and exogamous practices increase over time when the prevalence of early marriage customs declines. For some of the discussed determinants of intermarriage, longitudinal and cross-sectional effects differ calling for a more careful theorizing and testing in terms of the level of analysis (e.g., longitudinal vs. cross-sectional).

# 3

# Ethnic Intermarriage in Longitudinal Perspective: Testing Structural and Cultural Explanations in the United States, 1880-2011

## 3.1 Introduction

Intermarriage has frequently been used to analyze the extent to which social or cultural barriers exist between different groups within a society (Kalmijn 1998; Alba and Nee 2003; Waters and Jiménez 2005; Lichter et al. 2011). When members of one group frequently marry members of other groups, this group is said to be "open". Earlier research indicates that these intergroup relations are subject to changes over time (Qian and Lichter 2007; Gullickson 2006; Fu 2010). For instance, European origin groups have been found to be well integrated into today's United States' mainstream society with around 50 to 80 percent of first and sec-

ond generation members marrying a spouse from the third generation and higher U.S.-born population (Kalmijn and van Tubergen 2010). At the turn of the nineteenth century however, intermarriage rates of European origin groups with the U.S.-born population have been comparatively low. For example, only around 10 to 15 percent of German immigrants married into the native-born stock while similar figures today indicate that nearly 4 out of 5 Germans marry a native-born spouse. Migrants from other regions of the world generally show lower rates of intermarriage and have been much more likely to marry within their own group (Hwang et al. 1997; Bean and Stevens 2003; Gullickson 2006; Rosenfeld 2008).

When investigating temporal changes in ethnic intermarriage, prior research focused on describing trends or on quantifying changes in the association of race or ethnicity with the propensity to marry within or outside one's own group (Fryer 2007; Qian and Lichter 2007; Fu and Heaton 2008; Gullickson 2006; Fu 2010). Race has been the central category in this field of research (Waters and Jiménez 2005). Many studies are devoted to Black/White intermarriage (Kalmijn 1993; Fu 2007) or patterns of interracial marriage of Asian (Hwang et al. 1997; Okamoto 2007; Chen and Takeuchi 2011) and Latino origin groups (Furtado and Theodoropoulos 2011; Lichter et al. 2011). While these studies certainly have their own merits they tell us little about what brings these changes in patterns of intermarriage about. And although structural and cultural explanations are frequently used to explain differences in intermarriage across immigrant groups (Kalmijn 1998), very few studies employ them to investigate their explanatory potential with respect to changes over time (e.g., Qian and Lichter 2011). In the following, cultural explanations relate to individuals' norms and preferences regarding intergroup contacts whereas structural explanations refer to factors

that shape mating opportunities on local marriage markets (Blau and Schwartz 1984; Kalmijn 1998).

With this study, we aim to test structural and cultural explanations with respect to longitudinal developments in ethnic intermarriage among immigrants and their children. We contribute to the literature on intermarriage in three ways: first, we use cultural and structural explanations not only to explain origin group differences in ethnic intermarriage (i.e. cross-sectional differences) but also to explain changes in these differences over time (i.e. longitudinal differences). Clearly separating these two sources of origin group differences serves an important purpose because cross-sectional and longitudinal effects commonly differ from each other (Snijders and Bosker 2011). In the literature, however, theoretical arguments are often not differentiated with longitudinal mechanisms and arguments used to derive cross-sectional hypotheses and vice versa (e.g., Blau and Schwartz 1984). The approach pursued in this article allows us to disentangle longitudinal from cross-sectional theoretical mechanisms and to assess the various pathways in which structural and cultural conditions could affect immigrant intermarriage (Fairbrother and Martin 2013).

Second, we improve upon earlier studies by using data that covers a longer time span and more groups. The dataset comprising of Decennial Censuses and Current Population Survey samples is particularly rich in both the number and breadth of origin groups it includes as well as in the time frame it covers. Using both census and survey data on immigrants in the United States, an extensive 130 year period from 1880 to 2011 is analyzed. The data include more than 140 national origin groups, some of which rank among the oldest origin groups with substantial ancestral representation among the U.S. population (British or

## 3. ETHNIC INTERMARRIAGE

Germans) while others began to be sizable ethnic categories only recently (some Asian origin groups). This dataset is especially useful in testing cultural and structural explanations, as it not only includes huge differences in the structural conditions such as the sizes of an immigrant groups as well as their demographic diversity, it also covers the development of these structural conditions and in its wake their potential effects on meeting and mating opportunities for the various immigrant groups. Moreover, the origin groups analyzed in this article exhibit a broad spectrum of cultural background properties such as religion, language, race and cultural practices. However the aim of this paper is not to give idiosyncratic accounts of the situations of the various origin groups in the United States, but rather provide insights into more general patterns underlying intergroup relations. When investigating the marriage choices of immigrants and their children, we will focus on simultaneously explaining why they marry outside as opposed to inside their own origin group and which determinants are associated with longitudinal changes in intergroup relations.

Third, we draw on recent developments in multilevel methods for repeated cross-sectional data in order to disentangle cross-sectional and longitudinal effects methodologically. From an analytical point of view, characteristics of the origin group such as linguistic or cultural distance may explain differences across groups and time. Likewise, characteristics of the context, that is, properties of the state of residence such as its composition in terms of origin groups, may account for group and temporal changes. Lastly, the combination of origin group and state of residence properties (i.e., the immigrant community) such as the state-specific availability of co-ethnics or the respective gender composition may account for group differences and temporal patterns. Hence, our empirical part

utilizes a multilevel research design that enables us to simultaneously account for the nesting of immigrants in origin groups, U.S.-states and time, and to clearly separate the influence of cross-sectional and longitudinal components of structural and cultural determinants of intermarriage.

## 3.2   Theory

A number of explanations have been proposed as to why members of one immigrant group more often marry a co-ethnic partner than members of other immigrant groups. Kalmijn (1998) systematically categorized these explanations into three notions related to individual preferences as well as the role of third-parties and structural meeting opportunities. First, cultural explanations emphasize the preference of people to marry someone who is culturally similar in terms of religion, ethnicity or education (McPherson et al. 2001). In addition, third-parties like the family, religious institutions or the state may encourage and discourage exogamy (i.e., marrying someone from another group). These third parties may interfere in marital decisions and potentially override individual preferences. Second, structural explanations aim to explain differences in the propensity to marry exogamously by considering the structure of local marriage markets, and the resulting opportunities and restrictions they place on individuals' preferences. When individuals meet and interact with members of other groups in various settings on a daily basis, they have higher chances to form intimate relationships with them and thus are more likely to marry exogamously. Conversely, if eligible partners on the local marriage market are largely from the own group, endogamy (i.e., marrying someone from the own group) seems more likely. Throughout this article, exogamy will refer to unions between immigrants (both first and second generation) and members of the U.S.-born population (i.e., third generation and higher).

However, cultural and structural conditions are far from stable. Cultural transformations like the progression of secularization for instance change and

constrain the degree to which religious institutions may interfere in marital decisions. Likewise, continuous immigration and attempts by the state to regulate it potentially change the composition and structure of local marriage markets by altering the relative size distributions of the various origin groups. These changes in cultural and structural conditions over time are likely to bear influence on intergroup relations and are therefore important to recognize. Although we will analyze each cultural and structural determinant regarding its contribution to explain differences between groups and changes over time, this article's main focus is to explain changes in intermarriage over time. In the following, longitudinal effects refer to how changes in one determinant over time are expected to affect intermarriage while cross-sectional effects deal with explaining differences between groups. More specifically, the former tries to answer why, for example, Germans nowadays marry exogamously more frequently than they did in the past while the latter is concerned with the question why Germans in general marry exogamously more frequently than for instance Mexican or Vietnamese immigrants (Kalmijn and van Tubergen 2010).

In their seminal work, Blau and Schwartz (1984) gave a comprehensive theoretical account on how structural conditions may shape intergroup relations. However, the theoretical arguments they use to derive hypotheses of how these structural conditions help explain differences across groups are mostly longitudinal in nature. For instance their first theorem posits, "as group size increases, the probable rate of outgroup relations decreases" (Blau and Schwartz 1984, p. 31). Thus, they explicitly refer to a longitudinal process which is subsequently tested cross-sectionally. Evaluating longitudinal processes with cross-sectional data may however lead to inadequate or faulty conclusions (Curran and Bauer 2011; Fair-

brother and Martin 2013). With a research design that allows us to disentangle cross-sectional from longitudinal effects for a large number of origin groups, we hope to provide a more systematic test of the determinants of intermarriage.

## 3.2.1 Structural Explanations

In the following, we will discuss five structural characteristics: the size of an immigrant group, its gender distribution, the demographic heterogeneity of an immigrant group, the size of the third generation and the consolidation of social structural positions.

One of the most prominent structural factors in studies of intermarriage is the size of an immigrant group (Lieberson and Waters 1988; Hwang et al. 1997; Lievens 1998; Okamoto 2007; Furtado and Theodoropoulos 2011). According to Blau and Schwartz (1984), meeting members of one's own group and meeting members of other groups depends on the relative sizes of these groups. Individuals in large immigrant communities simply have more opportunities to meet members of the same origin country than individuals in small immigrant communities. Hence, albeit possibly strong preferences for endogamy, members of small immigrant group tend to be more likely to resort to marrying exogamously because the structural conditions inhibit meeting members of one's own group and ultimately forming intimate relations with them. As the size of an immigrant community increases, more structural meeting opportunities for endogamy are created and members of that community will consequently be less likely to marry exogamously.

Another structural factor related to intermarriage is the gender distribution

within an immigrant community (Hwang et al. 1997; Angrist 2002; Okamoto 2007; Kalmijn and van Tubergen 2010). A shortage of group members of the opposite sex can lead individuals to search for marriageable partners outside the ethnic community. Skewed sex ratios in an immigrant community can therefore promote exogamy. At early stages of a group's immigration history sex ratios are usually highly skewed, indicating that initially either more men or women enter a country of destination (Castles and Miller 2009). Historically, this has been the case for a number of European origin groups in the United States. At the beginning of the twentieth century for example, there were more than twice as many Italian first generation males than females, thus creating little structural opportunities to marry endogamously (Angrist 2002). Thirty years later, by the 1940s, the Italian sex ratio was almost balanced. We therefore expect that as an immigrant communities' sex ratio grows more balanced, its members will be more likely to marry endogamously.

The heterogeneity of an immigrant group is another integral part of Blau's structural perspective (Blau and Schwartz 1984; Hwang et al. 1997; Lievens 1998) where heterogeneity is defined as the probability that any two persons belong to different social structural groups. Although sharing a common country of origin, members of an immigrant group may be quite heterogeneous along other social structural categories. Since people tend to have a preference for interactions with similar others (McPherson et al. 2001), diverse immigrant groups offer individuals with less opportunities to meet potential partners similar to themselves than would be the case in homogeneous groups (Hwang et al. 1997; Lievens 1998; Okamoto 2007). We therefore expect that as groups become more heterogeneous over time, structural opportunities to meet similar others will decline. This de-

cline in structural meeting opportunities will induce individuals of that origin group to search for a suitable spouse outside the pool of co-ethnics. Consequently, increases in in-group heterogeneity over time will increase the likelihood of immigrants marrying exogamously.

The stock of third-generation members of an origin group may also shape the structural opportunities that immigrants encounter in the United States (Kalmijn and van Tubergen 2010). Due to differences in migration histories, some origin groups will have a higher stock of third-generation members than other groups. This is likely to increase the opportunities to meet someone with similar ancestry for members of origin groups with a larger third-generation stock. For example, British immigrants at the end of the 19th century were encountering a large stock of third generation (or higher) co-ethnics facilitating intermarriage whereas the generational composition of the Italian origin group tended towards first generation immigrants. Presently, members from fairly recent immigrant groups such as the Chinese and the Vietnamese face similar structural opportunities than the Italians a century earlier (Bean and Stevens 2003). Thus for these groups, structural opportunities for marrying into the native-born stock by means of marrying someone with shared ancestry are less favorable. We therefore expect that increases in the size of the third generation over time will increase the likelihood of exogamy.

We also investigate a rarely studied aspect of Blau and Schwartz's (1984) structural theory: the consolidation of social structural positions. Blau and Schwartz (1984) posit that societies are delineated by many lines of social structural differentiation (e.g., ethnic, religious and political affiliation, social class). Social structural positions are said to be consolidated in case the affiliation with

one group largely determines the position in other social structural groups. Group boundaries are thus reinforced because in-group members in one dimension are most likely also in-group members in other dimensions. Hence, contacts bridging group boundaries are less frequent compared to groups with a low degree of consolidation. In societies that are highly segmented according to religion or ideology (e.g., "pillarized" societies like the Netherlands or Ireland), each segment usually has its own social institutions like political parties, schools or sports clubs. For individuals in these societies, being member of one segment often determines which parties they vote for, or which schools they or their children attend and thus create little structural opportunities to meet members of other segments. With respect to intermarriage, this line of reasoning implies that when social structural consolidation increases, opportunities to meet out-group members decline and consequently exogamy is less likely (Hwang et al. 1997; Lievens 1998; Okamoto 2007).

### 3.2.2 Cultural Explanations

Next, we will discuss a number of cultural explanations, namely early marriage customs, state regulations banning intermarriage and an origin group's propensity to marry exogamously at earlier periods.

One aspect in which third party influence materializes is seen in early marriage customs. It is generally assumed that parents prefer their children to marry endogamously for reasons of group identification and to maintain social boundaries (Alba and Nee 2003). Exogamy would include interaction and possibly identification with members of the out-group and thus threaten a group's internal cohesion

and homogeneity (Huijnk and Liefbroer 2012). Parents therefore had a strong incentive to interfere in spousal selection by arranging marriages when their children are still young. Compared to Western societies, the age at first marriage is traditionally very low in numerous countries such as India, Bangladesh or Sudan where early marriage customs are widespread (Singh and Samara 1996). It was therefore argued that early marriage customs in the country of origin are indicative of the traditional practice of parental interference in marital decisions (Kalmijn and van Tubergen 2010). That is not to say that these parents will arrange marriages for their children in the United States but they will probably tend to interfere more in spousal selection than parents from other countries of origin where parental interference may be less prevalent. Hence, as parental interference weakens over time, immigrants will be more likely to marry exogamously.

Another third party that may influence individuals' tendency to marry across group boundaries is the state. States have a variety of policy instruments at their disposal that may regulate intergroup relations. After slavery was abolished, many states in the United States implemented laws that prohibited interracial marriage as a way of re-institutionalizing Black/White distinctions (Gullickson 2006; Fryer 2007; Sohoni 2007). Since anti-miscegenation laws both reflect and produce social ideas about interracial relations, their implementation should give us a good representation of the normative climate towards intergroup marriage in general (Middleton 1976; Pascoe 1996). Only few states like Hawaii, New Jersey or Wisconsin never had such laws, while the last states (e.g., Florida, Kentucky, Texas) repealed anti-miscegenation laws by the end of the 1960s (Fryer 2007). Thus, marrying across racial boundaries after the 1960s was at least legally unsanctioned. We therefore expect that immigrants will be more likely to marry

exogamously after a state has abolished these laws.

Researchers frequently refer to the consequences of intermarriage when justifying the study of this kind of marital behavior. Kalmijn (1998) identified two key consequences of intermarriage for spousal selection of later generations. First, children of exogamous parents are less likely to identify themselves with a single group (Xie and Goyette 1997; Kalmijn 2010). Consequently, the salience of cultural distinctions gradually loses significance and cultural barriers between groups become more permeable over time. Second, intermarriage may also reduce prejudice and negative stereotypes towards other groups as it gives people the opportunity to realize the individuality of members of the other group (Brown 2010). Moreover, the alterations of out-group perceptions invoked through intermarriage potentially affect a wide range of individuals. Exogamy entails blending of ethnically dissimilar networks, thus often not only connecting two individuals but also their extended kin group and social networks. Later generations of origin groups living in an environment where the cultural distinctions and barriers between groups are low as expressed by frequent intermarriage are themselves probably more inclined to marry exogamously than members from comparatively "closed" group. Following this line of reasoning, we expect that as the frequency of intermarriage of an immigrant group has increased over time in the past, so too are its current members more likely to marry exogamously.

## 3.3 Data and Methods

In order to investigate the hypotheses we draw on two micro data sources, namely Decennial Census data and pooled data from the March edition of the Current Population Survey (CPS). The period from 1880 to 1970 is covered by decennial census data (King et al. 2010).[1] Micro data for the period from 1994 to 2011 is taken from the Current Population Survey (King et al. 2010; Ruggles et al. 2010). The CPS is an annual representative survey of the total U.S. population.[2] The sample was restricted to married members of the first and second generation. In the case of first generation immigrants, respondents' country of origin was measured using data on country of birth. To identify the second generation, we relied on information on mothers' country of birth and only if this was not available, data on fathers' country of birth was used instead. We also included migrants with one native-born and one foreign-born parent (the so-called 2.5 generation). Overall, the dataset tracks the marital behavior of 140 national-origin groups over 11 time-points covering the period of 1880 to 2011.

Although the data are rich in the scope of origin groups and time it covers, there are two drawbacks: (1) information on date of marriage and date of immigration was not available for all time-points and (2) information on respondent's educational attainment was not recorded for data before 1940. While the first issue is likely to overestimate the degree of endogamy since it includes first generation immigrants married abroad (Hwang and Seanz 1990), the second issue ignores an important determinant of exogamy on the individual level (Qian et al.

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[1] No data was available for the 1890's and the 1980's.

[2] In order to have a sufficient number of respondents per origin group, state and immigrant community, we decided to pool the data. Data from 1994 to 2000 is pooled to represent the 1990s while remaining surveys (2001-2011) represent the 2000s.

2001; Fu and Heaton 2008; Rosenfeld 2008). More educated people tend to be more likely to intermarry, hence differences between origin groups may partly be explained by compositional differences in terms of education. Although earlier research suggests that the composition of origin groups and communities in terms of individual-level characteristics is only of minor importance (Kalmijn and van Tubergen 2010), we try to assess the impact of these problems by conducting sensitivity analyses.[3] The results of these analyses indicate that both issues bear little influence on the estimated effects of macro characteristics (see Appendix Table 3.4: Models 3 and 4).

### 3.3.1 Methods

We rely on multilevel logistic regression models to analyze immigrants' marital behavior. Within each time-point, immigrants are nested in a cross-classification of origin country and state. This implies a non-hierarchical nesting structure where origin groups are potentially present in multiple states. In addition, respondents are nested in immigrant communities, that is, the specific combinations of origin and state. Examples of immigrant communities would be Mexicans in California, Mexicans in New York but also Italians in New York. In Figure 1 for instance, each state panel contains three immigrant communities while the whole figure depicts three origin groups and two states.

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[3]Regarding the issue of couples married abroad, we estimated all models excluding these years for which we do not have information on respondent's date of marriage and year of immigration. We compare the results of these models with models that only include respondents that immigrated before the age of 16. In addition, models were estimated which only used members of the second generation. With respect to the issue of not controlling for respondents education, we follow a similar approach by estimating models excluding data before the year 1940 and then adding education to these models. In all three cases, the results for the macro characteristics are mostly stable (see Appendix Table 3.4: Models 3 and 4).

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In order to disentangle cross-sectional and longitudinal effects, we draw on multilevel modeling strategies for repeated cross-sectional data (Fairbrother 2014). Accordingly, for each of the two theoretically relevant levels an additional time level is introduced.[4] Hence, to integrate the development of community level predictors over time, we specify a community-time level which is analytically located between the individual and the community level. Community level predictors are subsequently group-mean centered (i.e., centering within clusters) with the group-mean serving as cross-sectional component while the de-meaned values represent the longitudinal component. On the higher community level therefore only cross-sectional effects are situated while the community-time level accommodates only longitudinal effects. Most importantly, the resulting cross-sectional and longitudinal components are uncorrelated, thus allowing us to estimate their effects separately in one combined model.

This approach of introducing a corresponding time level and subsequently group-mean centering predictors on this level is used for all macro levels. Ultimately, doing so yields a regression model in which individuals are nested within four levels, namely two cross-sectional levels (origin and community) whose characteristics aim to explain differences between its units, and two longitudinal levels (origin-year and community-year) whose characteristics aim to explain differences within its units. In total, there are 2,559,592 immigrants nested in 140 origin groups, 4,790 communities (i.e, origin X state), 619 origin-years and 19,448 community-years (origin X state X year). The models are fitted using maximum

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[4]Conceptually, immigrants are also nested in states. However, preliminary analysis shows that only a small fraction of the variation in the dependent variable is attributable to the state level (~1.4 percent) and the state-year level (~1 percent). Hence, we decided to leave these two levels unmodeled (see Appendix Table 3.4: Models 5 and 6).

likelihood estimation available in the lme4 package for R (Bates et al. 2012).

### 3.3.2 Measures

In the following, the term immigrant encompasses members of both the first and second generation of an origin group, whereas "native-born" refers to individuals who are third generation or higher. The dependent variable measures whether immigrants married a spouse from the own origin group (0) as opposed to having married a spouse either from the native-born population or from another immigrant group (1). This endogamy versus exogamy dichotomy is used to reduce the number of dependent variables in the analysis. Earlier research often differentiated those who marry a native-born spouse or a partner from another origin group versus endogamy. However, in preliminary analysis we found little difference in the effects and thus decided to combine the two forms of exogamy (see Appendix Table 3.4: Model 1 and 2). One could still criticize that racial homogamy is likely to affect the results with our definition of the dependent variable. This touches upon the issue that immigrants who marry exogamously might actually be marrying a native-born third or higher generation spouse from the same origin group or the spouse is in fact from another origin group but of the same racial descent (e.g., a Korean immigrant marrying a native-born spouse of Japanese descent). To investigate whether the issue of nonwhites marrying with other nonwhite minorities rather than whites bears influence on our results, we conducted additional analysis where the dependent variable is reformulated. Accordingly, exogamy for nonwhites is redefined as marrying a native-born white spouse or a different origin spouse with different racial descent. The results presented in Table 2 are con-

sistent with the findings for our endogamy versus exogamy definition based on national-origin groups, thus indicating that this issue probably has little impact on the results presented in the main part of this article.

In the following, we will discuss each of the contextual measures in turn. Note that some of the origin group measures are only used to explain cross-sectional differences because they are constant over time (i.e., migrating from an English-speaking and/or predominantly non-Christian origin country).

Structural determinants:

*Relative group size* is measured as the percentage of a state's first and second generation population aged 16 years and older from one origin group.

*Sex ratio* is the percentage of a state's male population aged 16 years and older from one origin group. Since an origin group's percentage of males has different implications for male and female respondents, we added an interaction effect with gender.

*Origin group heterogeneity* was measured using the index of diversity by Lieberson (1969) which is based on a group's composition regarding sex, number of children (no children, one to three children, more than three children), age (0-20,21-35,36-55,>55), marital status (married, divorced, widowed, single), industry (agriculture, mining, construction, manufacturing, transportation, wholesale and retail, finance, services, public administration), race (White, Black, Asian, other) and occupational status[5] (unskilled, low-skilled, medium-skilled, high-skilled). This

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[5]Whenever there is reference to respondent's occupational status we used occupational titles based on the 1950 Census Bureau occupational classification system which were provided to enhance comparability between the Decennial Census data and the CPS data (King et al. 2010; Ruggles et al. 2010). These titles are subsequently transferred to International Socio-Economic Index of Occupational Status (ISEI) scores to arrive at a commonly used measure for occupational status (Ganzeboom et al. 1992)

index denotes the probability of obtaining unlike characteristics when two individuals are randomly paired. Hence, the higher an origin group scores on this index, the more heterogeneous it is.

*The size of the third generation* is approximated with data on the fraction of second generation respondents thirty years before each time-point.[6] The fraction of second generation respondents is subsequently weighted for the number of children present in the household who will presumably form the third generation that respondents encounter on the marriage market in later years (Kalmijn and van Tubergen 2010).

*Consolidation* is defined as the degree to which membership in one social structural category determines membership in other social structural categories. We estimated state-year regressions of occupational status on origin country, religion, race, age and sex and used the explained variance as proxy variable for consolidation. Higher values of explained variance indicate that ascribed characteristics largely determine occupational attainment and social structural consolidation can be interpreted as being higher.

Cultural Determinants:

*Early marriage customs* are measured as the fraction of an origin group's female respondents who married between the ages of 10 and 14 (Kalmijn and van Tubergen 2010). To calculate this, we pooled data from time points that contained information on respondents' age of first marriage[7] and constructed ten birth cohorts for each origin group. The resulting aggregate data was then used for the origin group cohorts and the respective time-points (e.g., the 1862-1871 cohort is

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[6]We would like to thank Mathijs Kalmijn for providing us with the data.
[7]This information was available in censuses from 1930 to 1980.

used for the census from 1900 while the 1942-1951 cohort represents the 1990s). Data on *anti-miscegenation laws* was gathered from Fryer (2007). States scored 1 in case states had implemented these laws and 0 as soon as they were abolished. *The rate of exogamy at* $t_{i-1}$ measures the fraction of an origin group's exogamous marriages from the total number of marriages. This variable is measured with a ten year lag.

Controls: We include two controls at the origin level, namely whether the origin group is from an *English-speaking origin country* and whether it is from a *non-Christian origin country*. Data on an origin countries official language was obtained from Mayer and Zignago (2006). English-speaking origin is supposed to capture that interaction between individuals is facilitated by a common mother tongue presumably resulting in higher intermarriage between those groups and the U.S. majority population. Data on origin countries' dominant religions was gathered from Brierley (1997) with origin groups scoring 1 if the majority of the origin population adheres to a non-Christian religion. Theoretically, these two controls also represent cultural determinants. However, we decided to denote them as controls since the predominant language and religion of the origin of countries are time-invariant characteristics and thus only explain differences between groups, whereas the main focus of this article is placed on explaining longitudinal differences.

To control for the possibility that differences in the marital behavior across origin groups, communities and time are due to compositional differences of these units, we include a number of individual level control variables: age (in years), a dummy variable to indicate whether the respondent is nonwhite (versus white), generational status (with first generation as reference category) and gender. Note

**Table 3.1:** Descriptive Statistics for Dependent and Independent Variables (N=2,559,595)

|  | Range | Mean | SD | % imputed | Level |
|---|---|---|---|---|---|
| **Dependent variable** |  |  |  |  |  |
| Exogamy vs. endogamy | 0/1 | 0.56 |  |  | Individual |
| **Structural variables** |  |  |  |  |  |
| Relative group size | 0.00-0.47 | 0.08 | 0.08 |  | Community |
| Sex ratio | 0.44-1.00 | 0.51 | 0.03 |  | Community |
| Group heterogeneity | 0.00-0.60 | 0.51 | 0.03 |  | Origin group |
| Consolidation | 0.02-0.35 | 0.07 | 0.04 |  | State |
| **Cultural variables** |  |  |  |  |  |
| Early marriage customs | 0.00-0.50 | 0.02 | 0.03 | 6.44 | Origin group |
| Anti-miscegenation laws | 0/1 | 0.19 |  |  | State |
| Exogamy rate at $t_{i-1}$ | 0.00-1.00 | 0.42 | 0.22 | 17.33 | Origin group |
| **Controls** |  |  |  |  |  |
| Size of third generation | 0.00-1.00 | 0.39 | 0.22 | 12.87 | Origin group |
| English origin group | 0/1 | 0.34 |  |  | Origin group |
| Non-Christian origin group | 0/1 | 0.03 |  |  | Origin group |
| Nonwhite | 0/1 | 0.11 |  |  | Individual |
| Age | 15-110 | 43.98 | 14.07 |  | Individual |
| Female | 0/1 | 0.49 |  |  | Individual |
| Generational status |  |  |  |  |  |
| First generation | 0/1 | 0.56 |  |  | Individual |
| Second generation | 0/1 | 0.29 |  |  | Individual |
| 2.5 generation | 0/1 | 0.15 |  |  | Individual |

that estimating separate models for males and females shows only minor differences in the effects, hence justifying the decision to pool males and females. Moreover, a linear time effect is added with respondents in the 1880s scoring 0 and respondents in the 2000s scoring 12.[8]

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[8]Propensity of exogamy increasing at a linear rate may arguably be a strong assumption. However, adding time dummies shows an almost linear increase. Moreover, likelihood ratio tests indicate that using the dummy specification over the linear one does not provide a significant fit improvement ($\chi^2(9)$=.01, p=.99). Hence, we use the more parsimonious linear time effect specification.

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Table 3.1 presents the descriptive statistics for all dependent and independent variables.[9]

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[9]We used multiple imputation techniques to deal with missing information for three variables on the origin level (Enders 2010). 20 imputed datasets were generated using multilevel imputation (van Buuren and Groothuis-Oudshoorn 2011).

## 3.4 Results

### 3.4.1 Descriptive results

Some descriptive findings are presented in Figure 3.1, however the reader should keep in mind that the degree of endogamy is likely to be overstated due to the data limitations discussed in the data section. Therefore, the main goal of Figure 3.1 is to further illustrate the analytical approach. The figure plots curves, smoothed by loess regressions, portraying the proportion of endogamous marriages for three selected origin groups. We focused on German, Italian and Mexican immigrants since they represent origin groups with a sizable number of respondents over most of the 120 year time frame. Moreover, the figure also shows endogamy rates for two U.S. states as well as the overall situation in the United States in the bottom panel. From an analytical perspective, Figure 3.1 provides insights into three macro sources of variation in immigrants' propensity to marry endogamously: origin group differences, immigrant community differences and states differences.

The bottom panel of Figure 3.1 puts the focus on origin group differences and their development over time. Accordingly, at the end of the nineteenth century all three origin groups were fairly closed, with roughly 80 percent marrying endogamously. Over time, German endogamy rates steadily declined, with not even ten percent marrying endogamously 120 years later. This pattern is mirrored by the situation of Italians, albeit with the decline in endogamy starting roughly 40 to 50 years later. Endogamy patterns of Mexican immigrants are in stark contrast to those of the two preceding European origin groups. Over the whole study period Mexican endogamy rates remain on a fairly stable level with a slightly u-shaped trend showing a low of approximately 70 percent marrying a

Mexican spouse in the 1940s.

Studying the two top panels provides insights into community differences and their development over time. Communities are the specific combinations (e.g., Mexicans in New York) between an origin group (Mexicans) and a state of residence (New York). Each panel contains three immigrant communities such as New York's Mexican, Italian and German communities portrayed in the uppermost panel. Community differences are visible when we compare, for instance, the Mexican community in California with the Italian community in New York. While the former shows an increase of endogamy by roughly 15 percentage points from 1880 to 2000, endogamy rates of Italians in New York indicate a steady decline by more than 70 percentage points after 1910. Thus, as opposed to the increased prevalence of intergroup relations in New York's Italian community, the Mexican community in California became more closed over time.

Lastly, differences in endogamy rates might be present between U.S. states. To investigate this idea, we would have to compare the state-specific endogamy rates (not depicted in Figure 3.1). Doing so shows only minor differences. The two states show a slight u-shaped trend with around 60 to 70 percent of immigrants marrying endogamously in 1880 which is reduced to between 40 and 50 percent in 2000. Preliminary analyses investigating the partition of variance of the dependent variable with respect to the different sources of variation (i.e., origin group, community and state) also support this observation with only little variation between states (see footnote 4).

Table 3.2 presents additional descriptive figures showing the five groups with the highest and lowest rate of endogamy for 1900 and 2000 data. Two findings are striking in this table. Accordingly, certain origin groups portray little change over
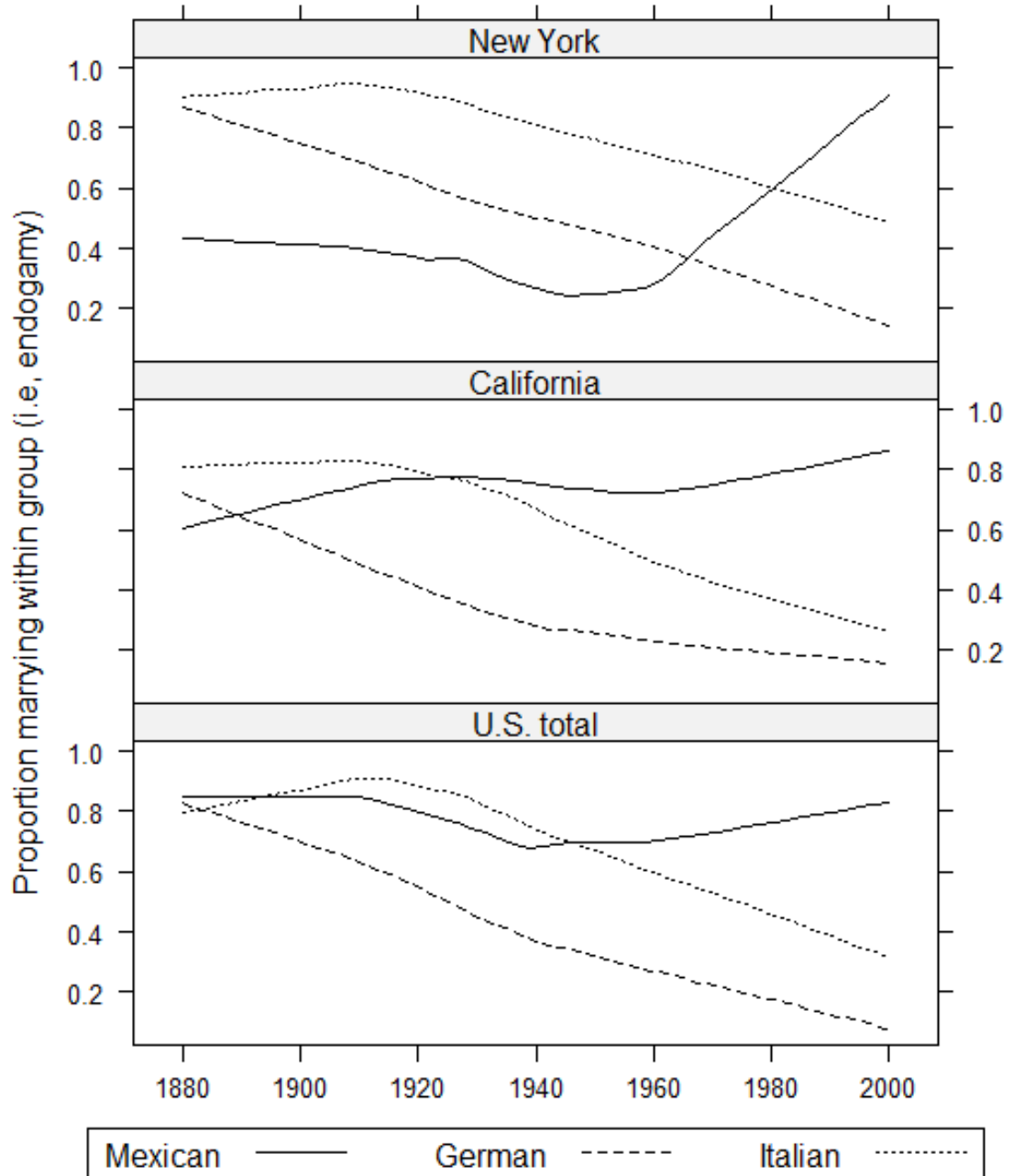
**Figure 3.1:** Variation in endogamy rates across origin groups, states and communities (1880-2011), weighted and smoothed.

# 3. ETHNIC INTERMARRIAGE

**Table 3.2:** Top5 Origin Groups with the Highest and Lowest Endogamy Rate (weighted)

| Year | High Levels of Endogamy | | Low Levels of Endogamy | |
|------|------------------------|----------------|------------------------|----------------|
| | Origin country | Endogamy rate | Origin country | Endogamy rate |
| | Poland | 0.87 | France | 0.17 |
| | Russia | 0.82 | Switzerland | 0.22 |
| 1900 | Italy | 0.80 | UK | 0.27 |
| | Mexico | 0.79 | Canada | 0.38 |
| | Finland | 0.76 | Denmark | 0.42 |
| | Pakistan | 0.67 | Sweden | 0.03 |
| | Mexico | 0.64 | France | 0.04 |
| 2000 | Laos | 0.63 | Switzerland | 0.05 |
| | India | 0.63 | UK | 0.6 |
| | Vietnam | 0.58 | Germany | 0.06 |

Note: Only origin groups with more than 2,000 (weighted) members considered. In order to reduce the extent to which endogamy may be overestimated due to including couples married abroad, the calculations exclude first generation immigrants that entered the U.S. after the age of 16. Since no data was available on years since immigration for the 1880 census, we used data for the 1900 census instead.

time with respect to the ranking. In both 1900 and 2000, Mexicans rank among the most closed groups, whereas immigrants from France and the UK are among the groups with the lowest endogamy rates. However, the level of group closure required to rank among the lowest or highest groups has changed substantially over time. Groups with two in five members married endogamously in 1900 (i.e, migrants from Canada or Denmark) still ranked among the most open groups, while 100 years later not even ten percent could marry endogamously for a group to rank among the five lowest levels of endogamy. This trend is also mirrored by the high-endogamy groups, however, the trend towards less group closure was substantially less pronounced.

Which characteristics of immigrant's origin (e.g., early marriage customs), community (e.g., relative group size) or state of residence (e.g., anti-miscegenation legislation) can explain the patterns identified in the descriptive analysis is the

subject of the subsequent sections.

## 3.4.2 Variance partition

The results of the null model presented in the first column of Table 3.3 provide insights into the relative partition of the variance in intermarriage. We calculated the intraclass correlation based on the variance components of the null model. Note that the variance component of the individual level is fixed to $\pi^2/3$ in logistic multilevel regression models (Snijders and Bosker 2011). Overall, the bulk of variation (roughly 54 percent) is attributable to interpersonal differences. Most of the variation on the macro levels, around 17 percent, is attributable solely to differences between origin groups $(1.035/[\pi^2/3 + 1.035 + .806 + .633 + .294])$. Considering Figure 3.1 as a whole, this supports the observations already made in the descriptive analysis: the differences between Germans, Italians and Mexicans are more marked than the differences across immigrant communities (roughly 10 percent of the total variance) or the differences between the development of single communities over time (around 5 percent of the total variation). An additional 13 percent of the total variation is solely attributable to how the development of endogamy patterns differs within origin groups. This is signified for instance by the divergent pattern of Italian and Mexican immigrants in the bottom panel of Figure 3.1. In summary, the differences in immigrants' propensity to marry outside their own group vary more strongly by where people come from (origin group differences) than by where they come from and what they experience locally (community differences). This finding seems reasonable also from an analytical perspective as part of the variation between communities is already absorbed by

the variation between origin groups. Remember that immigrant communities are effectively a cross-classification of origin group and state of residence.

### 3.4.3 Multivariate results

The results of the full logistic multilevel model used to investigate longitudinal and cross-sectional effects are presented in Table 3.3. Continuous macro-level variables have been standardized after group-mean centering in order to facilitate comparison of the effects' magnitudes and to provide readers with an indication of their relevance. Note that the focus of this article is on the longitudinal components; cross-sectional components are solely reported for completeness.

We start by discussing the results for the structural determinants. The relative size of an immigrant community has a comparatively substantial effect with respect to longitudinal differences. The results suggest that as the size of an immigrant community increases by one standard deviation, the odds of marrying exogamously decrease by 24 percent ($e^{-.273} - 1$ [Wooldridge 2008]). Thus, our findings provide clear evidence that living in co-ethnic communities that increase in size hinder interethnic marriages over time.

Our results provide further support for the structural explanations when we consider an immigrant communities' gender composition. Growing imbalance of a community's gender composition leads to an increase in the odds of exogamy by 14 percent over time for males. The corresponding figure for females points to an increase by 29 percent. These findings provide support for the idea that a shortage of marriageable partners is likely to induce individuals to search outside their community for suitable partners. We further anticipated that as an origin

**Table 3.3:** Multilevel Logistic Regression of Immigrants' Marital Choices in the United States, 1880-2011.

| | Married exogamously vs. married endogamously |
| | Null model | s.e. | Full model | s.e. | Alternative definition of exogamy | s.e. |
|---|---|---|---|---|---|---|
| Constant | -0.635** | 0.161 | -0.720** | 0.081 | -0.594** | 0.154 |
| **Structural explanations** | | | | | | |
| Relative group size (cross-sect.) | | | -0.565** | 0.031 | -0.608** | 0.048 |
| Relative group size (longit.) | | | -0.242** | 0.014 | -0.241** | 0.023 |
| Sex ratio (cross-sect.) | | | 0.175** | 0.004 | 0.057** | 0.004 |
| Sex ratio (longit.) | | | 0.134** | 0.003 | 0.080** | 0.004 |
| Sex ratio (cross-sect.)Xgender | | | -0.343** | 0.008 | -0.128** | 0.006 |
| Sex ratio (longit.)Xgender | | | -0.219 | 0.006 | -0.106** | 0.007 |
| Group heterogeneity (cross-sect.) | | | 0.013 | 0.027 | 0.032 | 0.031 |
| Group heterogeneity (longit.) | | | 0.179** | 0.018 | 0.163** | 0.025 |
| Consolidation (cross-sect.) | | | 0.029 | 0.023 | 0.022 | 0.018 |
| Consolidation (longit.) | | | -0.018** | 0.007 | -0.092** | 0.011 |
| Size of third gen. (cross-sect.) | | | 0.120** | 0.023 | 0.366** | 0.045 |
| Size of third gen. (longit.) | | | 0.121** | 0.026 | 0.068* | 0.037 |
| **Cultural explanations** | | | | | | |
| Early marriage customs (cross-sect.) | | | -0.015 | 0.024 | -0.011 | 0.040 |
| Early marriage customs (longit.) | | | -0.072** | 0.011 | -0.123** | 0.040 |
| Anti-miscegenation laws (cross-sect.) | | | -0.027** | 0.010 | -0.029 | 0.015 |
| Anti-miscegenation laws (longit.) | | | -0.005 | 0.008 | -0.010 | 0.012 |
| Exogamy rate at $t_{i-1}$ (cross-sect.) | | | 0.479** | 0.030 | 0.232** | 0.058 |
| Exogamy rate at $t_{i-1}$ (longit.) | | | 0.242** | 0.020 | 0.195** | 0.028 |
| **Micro-level controls** | | | | | | |
| Time | 0.117** | 0.012 | 0.073** | 0.009 | 0.154** | 0.011 |
| Nonwhite | | | -0.157** | 0.016 | | |
| Age | | | -0.020** | 0.001 | -0.107** | 0.001 |
| Female | | | -0.259** | 0.004 | -0.025** | 0.009 |
| Second generation | | | 1.325** | 0.004 | 0.786** | 0.012 |
| 2.5 generation | | | 2.135** | 0.005 | 1.127** | 0.013 |
| **Macro-level controls** | | | | | | |
| English-speaking origin (cross-sect.) | | | 0.412** | 0.165 | 0.451** | 0.176 |
| Non-Christian origin (cross-sect.) | | | -0.370** | 0.081 | -0.501** | 0.164 |
| **Variance components** | | | | | | |
| Origin | 1.035 | | 0.509 | | 0.428 | |
| Origin-Time | 0.806 | | 0.308 | | 0.275 | |
| Community | 0.633 | | 0.231 | | 0.296 | |
| Community-Time | 0.294 | | 0.186 | | 0.309 | |
| **Deviance** | 2,867,848 | | 2,557,409 | | 417,288 | |

*$p < .05$, ** $p < .01$ (two-sided); Note: due to low variance, state levels not estimated. Continuous variables are standardized. Observations: 2,559,592 immigrants, 140 orgin groups, 4,790 communities, 619 origin-years and 19,448 community-years.

groups grows more heterogeneous, immigrants would be more likely to marry exogamously since structural opportunities to meet similar others are smaller. The findings in Table 3.3 support this idea. We find that increasing the heterogeneity of an origin group by one standard deviation leads to a 20 percent increase of the odds of exogamy for members of that origin group. The results regarding group

heterogeneity are robust to changes in its operationalization. Using alternative measures of group heterogeneity such as the coefficient of variation (longitudinal component: b=.152, s.e.=.041, $p < .001$, cross-sectional component: b=-.057, s.e.=.058, p=.329) or the degree of an origin group's occupational diversity (long. comp.: b=.119, s.e.=.029, $p < .001$, cross-sec. comp.: b=-.054, s.e.=.087, p=.534) likewise suggest that group heterogeneity matters in explaining longitudinal differences but not cross-sectional differences. The findings further indicate that increases in the size of the third generation promote exogamy. An increase in the size of the third generation by one standard deviation over time increases the odds of exogamy by 13 percent. This measure also serves to reduce the bias in overestimating the degree of exogamy by trying to account for the availability of co-ethnics in the third generation.

Finally, we explored the idea whether the consolidation of social structural positions creates structural conditions that inhibit intergroup relations. Our findings indicate that when socioeconomic positions become more tightly connected to where people come from, which language they speak and to which religion they adhere to, the less likely they are to marry a spouse from either the native-born population or from another origin group. Note however, that this effect is comparably small with one standard deviation increase resulting only in a two percent decline in the odds of marrying exogamously. Alternative measures of this concept[10] provide us with a similar picture: it is the *changes* in the degree

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[10]We used bivariate correlations (i.e., Cramr's V) of occupational status with origin, race or religion which were also used by Blau and Schwartz (1984). None of these different ways of approximating the concept of consolidation led to fundamental changes in the results. The standardized coefficients of the longitudinal components range from -.644 for the correlation of occupational status and respondent's race to -.988 for the corresponding correlation with immigrants' religious denomination. The coefficient for the correlation of occupational status and respondent's country of origin does not reach statistical significance. The same holds true

to which a group's social structural positions are consolidated that matter with respect to immigrants' propensity to intermarry.

Compared to structural determinants, cultural explanations are also important, albeit to a lesser degree. When investigating how changes in the strictness of early marriage customs exercised by one group affect the odds of marrying exogamously for that group's members, we see our expectations confirmed. A one-standard-deviation increase in the percentage of an origin group that married between the ages of 10 to 14 (as a proxy for early marriage customs) leads to a decrease on the odds of marrying exogamously by seven percent. Hence, increases in third party (i.e., parental) influence over time, the less likely people are to marry across group boundaries. Next, we turn to the influence of the state as a third party on immigrants' marital decisions. Our results do not indicate that instances of exogamy decrease significantly when anti-miscegenation laws are implemented. The coefficient of the longitudinal component of the presence/absence of legislation prohibiting interracial relations does not reach statistical significance. Finally, our results provide insights into the question whether exogamous marriages in the past exert long-term influence on later marital decisions. With respect to the longitudinal component, we find our expectations confirmed. As instances of exogamy increase longitudinally within an immigrant group, so too does the likelihood of marrying exogamously. A one standard deviation increase in the rate of exogamy at $t_{i-1}$ leads to a comparatively substantial increase of the odds of marrying outside one's own group by 27 percent.

Although only of secondary interest to this article, results for the cross-sectional effects are overall in line with prior research (Hwang et al. 1997; Lievens

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for all cross-sectional components.

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1998; Okamoto 2007; Kalmijn and van Tubergen 2010). On the structural side, the findings indicate that members of larger immigrant groups and groups with more balanced sex ratios are less likely to marry exogamously. Additionally, exogamy is found to be more prevalent in origin groups with a larger third generation stock. Also in line with earlier research, members of more diverse groups are not more likely to marry exogamously (Hwang et al. 1997; Lievens 1998; Okamoto 2007). Results for the two macro control variables provide cross-sectional evidence for cultural explanations. In accordance, the odds of immigrants marrying exogamously are substantially reduced in case they migrated from non-English speaking and non-Christian origin countries.

Judging from the standardized coefficients, the findings indicate that neither structural nor cultural explanations are superior in explaining longitudinal differences. In total, there are also differences in the extent to which the statistical model can explain longitudinal and cross-sectional in intermarriage.[11] Regarding cross-sectional differences, around 59 percent of the variance between origin groups and 68 percent of the variance between immigrant communities are explained. Likewise, 63 percent of the variance in longitudinal origin-group differences and 47 percent of longitudinal community differences are explained suggesting that we are somewhat less successful in explaining temporal patterns.

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[11]In order to calculate $R^2$'s in logistic multilevel models, we followed the approach discussed by Hox (2010, pp.125-139). Accordingly, the proportion of explained variance is defined as the variance of the linear predictor divided by the sum of the lowest level residual variance, the higher level intercept variances and the variance of the linear predictor. However, since the lowest level variance is always fixed, rescaling of higher level variance components takes place when individual level variables are added. Hence, in order to compute the explained variance for separate levels, variances on higher levels need to be rescaled. In the model discussed in this article, the scale reduction factor was .916. The variance components of the origin level in the final model for instance are then rescaled by the squared scale correction factor in order to compute the $R^2$ on this level: $(1.035 - (.916 * .916 * .509))/1.035 = .587$

In order to give these figures some perspective, the reader should keep in mind that the majority of the macro level variation was associated with origin group differences and their development ($\sim$30 percent) with only around 20 percent of the total variation being on the community and community-time level. Moreover, we were not able to include education as an important individual level determinant of intermarriage in the analysis. Compositional effects are therefore most likely underestimated and the extent of explained variance on higher levels might consequently be overstated.

### 3.4.4 Illustrating the multivariate findings

We started investigating temporal patterns of intermarriage by presenting descriptive figures for three origin groups. The results of the multivariate models now provide us with insights into the potentially underlying mechanisms that may have brought the different origin group trajectories about. Consequently, the increase of endogamy for the Mexican community in California is likely to be a result of the increase in relative size of the Mexican population (from 2 to 22 percent), the slight reduction of sex ratio imbalance (from 1.04 to 1) and the increased consolidation of social structural positions (from .071 to .193). At the same time however, changes in the diversity of the Mexican origin group should have promoted intermarriage (from .421 to .522) but the aforementioned determinants appear to outweigh this effect (which seems reasonable given the relative magnitude of the other effects). Our model is however less suitable in explaining the strong increase of endogamy of the Mexican community in New York. The structural determinants developed similarly in New York albeit not to such a

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strong degree that it could account for the observed pattern. There seem to be residual processes at work that are not well covered by the multivariate model.

While the structural conditions Mexican immigrants faced developed in such a way that it created opportunities to marry endogamously, most of the influential macro characteristics shaping the marital behavior of German and Italian immigrants changed towards condition that promote exogamy. Most notably, the size of Germany and Italian communities declined sharply over the study period coupled with a significant increase in group diversity.

## 3.5    Conclusion

This study has investigated the explanatory potential of structural and cultural determinants with respect to long-term patterns of immigrant intermarriage as one form of intergroup relations. To do so, we analyzed a large-scale dataset comprised of Decennial Census data and pooled Current Population Surveys which enabled us to conduct a comparative analysis of 140 origin groups over the period from 1880 to 2011. For the first time, the multilevel analysis presented in this article showed that structural and cultural factors matter in explaining the longitudinal development of intermarriage exhibited by immigrant groups.

The results presented in this article provide clear evidence to support the propositions of structural explanations in a longitudinal perspective. According to our findings, an immigrant group becomes more open over time when its relative size decreases as well as when socioeconomic achievement tends to become less dependent on group-based attributes such as its racial and religious composition (i.e., social structural consolidation decreases over time). Moreover, instances of exogamy become more frequent over time as the immigrant group grows more heterogeneous, the size of the third generation co-ethnic stock increases and when the group's gender composition becomes increasingly imbalanced. Albeit putting the focus on differing aspects, these results confirm the general idea that as structurally generated opportunities for endogamy decline over time, intimate intergroup relations are promoted. Cultural explanations also matter when trying to explain trends in immigrant intermarriage. Our findings indicate that as the prevalence of early marriage customs decreases over time, immigrants tend to become more likely to marry exogamously. Likewise, increases in the exogamous

marital behavior of an origin group in early periods exert long-term effects by also increasing the likelihood of exogamous marriage for "present" origin group members. However, our results do not support the idea that as soon as the state retracts from sanctioning intermarriage, instances of exogamy will increase. The underlying argument referred to the presence of anti-miscegenation laws as being generally indicative of the normative climate towards intermarriage. It might be a strong assumption that changes in legislation are immediately mirrored by changes in endogamy norms. However, our findings suggest that those immigrants that settled in states where interracial marriages were legally prohibited were found to be less open than comparable groups living in states without these laws. It might however be possible that this effect is overstated. In case people's preference for intermarriage is denied in a state with anti-miscegenation laws, they may simply move to a state without legal sanctions. Almost half of the U.S. states had already repealed their respective laws by 1900 (Fryer 2007). Patterns of selective out-migration could increase the contrast between states with and states without anti-miscegenation laws where individuals with strong exogamous preferences would tend to be overrepresented in the latter states.

In total, our findings suggest that some of the longitudinal and cross-sectional effects differ. On the one hand, cross-sectional effects were found to show a stronger association with intermarriage than the corresponding longitudinal effects. On the other hand, many of the determinants under investigation mattered only in one of the two analytical perspectives. This appears to be especially the case for determinants that have received less attention in the literature as opposed to the effects of relative group size and a group's sex ratio which are standard factors in studies using structural reasoning. Hence, researchers need to pay special

attention to which level of analysis the underlying theory makes reference. For instance, while the theoretical mechanism for the effect of group heterogeneity relies heavily on cross-sectional arguments, the empirical findings presented in this article point to a purely longitudinal effect. To put this finding in context, earlier (cross-sectional) research found either no effect of group diversity on intermarriage or even a negative effect (Hwang et al. 1997; Lievens 1998; Okamoto 2007). In general, theoretical models are often not detailed enough or concerned with empirical situations where cross-sectional and longitudinal effects are, in the extreme, directly opposed. Investigating longitudinal and cross-sectional differences simultaneously can therefore help to identify theoretical weaknesses and set the stage for more careful theorizing.

The analysis conducted in this article also has some shortcomings. We were not able to consistently identify cohabiting couples in both the Decennial Census data and the CPS data. We encountered similar problems with respect to the issue of couples married before migrating and missing information on education, but we were able to investigate their effect on the results, and found them to have only a minor impact. With respect to excluding cohabiting couples, we can only speculate how this might have influenced the results. Cohabitation was still rather uncommon in the 1960s and 1970s and increased rapidly with more than half of the marriages formed between 1990 and 1994 being preceded by cohabitation (Kennedy and Bumpass 2008). Qian and Lichter (2007) argued that cohabitation may reflect and reinforce social distance between groups. It may reflect social distance in the sense that cohabitation may be a sign of the relationship being too stigmatized or viewed too unfavorably to enter the stage of marriage, and it may reinforce social distance in the sense that cohabitation

is oftentimes short-lived and unstable. Based on these ideas, one would expect that the openness of some origin groups may be underestimated. Only if all groups had comparable rates of cohabitation and a comparable fraction of these couples eventually made the transition to marriage would we be able to ignore this issue. However, cohabitation as well as transition differentials by origin groups seem more reasonable (e.g., Osborne et al. 2007). Another limitation of this study relates to the possibility that migrants facing structural constraints towards satisfying endogamous preferences might well be looking for a suitable mate outside their community (e.g., in another state or in their country of origin). Census data is usually not detailed enough to allow for an in-depth investigation of this limitations,[12] though we believe that this is an interesting route for future research since origin group differences are bound to materialize in these situations.

Lastly, the focus of this study has been on how changes in the structural or cultural characteristics affect immigrant's host country integration in terms of intermarriage. One topic that remains to be addressed by future research is the question whether the effects of structural or cultural characteristics themselves change over time. The process of modernization and the associated innovations in transportation and communication may have reduced the relevance of traditional meeting places such as the workplace, neighborhood, church or social networks (e.g., Rosenfeld and Thomas 2012). To some extent, this development also frees individuals from intervention of third parties. It is therefore reasonable to expect that the process of modernization has reduced the degree to which the struc-

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[12]We tried to assess this issue by estimating models with random slopes for the structural characteristics with the assumption that for origin groups with strong endogamous preferences and the means to satisfy them, the effects of structural determinants should be weaker than for other groups. The results do show variation in the slopes, albeit not to an extent that the coefficients change signs.

ture of spatially defined marriage markets shape people's meeting and mating opportunities and to which third parties interfere in spousal selection.

# 3.6 Appendix

**Table 3.4:** Robustness checks, additional specifications.

| | 1 Married native-born stock partner vs. endogamy | | 2 Married other origin partner vs. endogamy | | 3 Married exogamously vs. endogamy (controlling for education) | |
|---|---|---|---|---|---|---|
| | Coef. | s.e. | Coef. | s.e. | Coef. | s.e. |
| Constant | -1.635** | 0.099 | -1.306** | 0.096 | -0.164 | 0.151 |
| **Structural explanations** | | | | | | |
| Relative group size (cross-sect.) | -0.535** | 0.031 | -0.591** | 0.037 | -0.813** | 0.054 |
| Relative group size (longit.) | -0.273** | 0.015 | -0.153** | 0.013 | -0.392** | 0.037 |
| Sex ratio (cross-sect.) | 0.195** | 0.005 | 0.191** | 0.006 | 0.165** | 0.006 |
| Sex ratio (longit.) | 0.159** | 0.004 | 0.148** | 0.004 | 0.131** | 0.006 |
| Sex ratio (cross-sect.)Xgender | -0.399** | 0.010 | -0.322** | 0.010 | -0.373** | 0.010 |
| Sex ratio (longit.)Xgender | -0.248** | 0.007 | -0.218** | 0.007 | -0.280** | 0.010 |
| Group heterogeneity (cross-sect.) | 0.025 | 0.049 | 0.034 | 0.027 | 0.031 | 0.029 |
| Group heterogeneity (longit.) | 0.307** | 0.022 | 0.075** | 0.018 | 0.086** | 0.037 |
| Consolidation (cross-sect.) | 0.025 | 0.049 | 0.034 | 0.027 | 0.031 | 0.029 |
| Consolidation (longit.) | -0.040** | 0.008 | -0.032** | 0.007 | -0.024** | 0.010 |
| Size of third gen. (cross-sect.) | 0.179** | 0.028 | 0.093** | 0.028 | 0.189** | 0.026 |
| Size of third gen. (longit.) | 0.068* | 0.036 | 0.325** | 0.026 | 0.042 | 0.029 |
| **Cultural explanations** | | | | | | |
| Early marriage customs (cross-sect.) | -0.092 | 0.069 | -0.043 | 0.036 | -0.019 | 0.024 |
| Early marriage customs (longit.) | -0.078** | 0.015 | -0.056** | 0.012 | -0.061** | 0.016 |
| Anti-miscegenation laws (cross-sect.) | -0.122** | 0.010 | -0.092** | 0.012 | -0.019 | 0.009 |
| Anti-miscegenation laws (longit.) | -0.038 | 0.070 | -0.013 | 0.007 | -0.007 | 0.011 |
| Exogamy rate at $t_{i-1}$ (cross-sect.) | 0.386** | 0.037 | 0.571** | 0.037 | 0.385** | 0.034 |
| Exogamy rate at $t_{i-1}$ (longit.) | 0.347** | 0.024 | 0.160** | 0.020 | 0.166** | 0.026 |
| **Micro-level controls** | | | | | | |
| Time | 0.117** | 0.010 | 0.038** | 0.008 | -0.045** | 0.014 |
| Nonwhite | -0.417** | 0.020 | -0.329** | 0.022 | 0.529** | 0.019 |
| Age | -0.025** | 0.001 | -0.016** | 0.001 | -0.024** | 0.001 |
| Female | -0.383** | 0.004 | -0.106** | 0.004 | -0.260** | 0.006 |
| Second generation | 1.648** | 0.005 | 0.974** | 0.005 | 1.457** | 0.006 |
| 2.5 generation | 2.604** | 0.006 | 1.423** | 0.007 | 2.043** | 0.008 |
| Education | | | | | 0.096** | 0.001 |
| **Macro-level controls** | | | | | | |
| English-speaking origin (cross-sect.) | 0.253** | 0.113 | 0.346** | 0.111 | 0.239** | 0.103 |
| Non-Christian origin (cross-sect.) | -0.492** | 0.102 | -.294** | 0.100 | -0.580** | 0.093 |
| **Variance components** | | | | | | |
| Origin | 137 | | 137 | | 132 | |
| Origin-Time | 610 | | 610 | | 391 | |
| Community | 4505 | | 4134 | | 4712 | |
| Community-Time | 18155 | | 15994 | | 13521 | |
| State | | | | | | |
| State-Time | | | | | | |
| Individuals | 2129612 | | 1868869 | | 1066665 | |
| **Deviance** | 1,742,045 | | 1,623885 | | 1,043,194 | |

*$p < .05$, ** $p < .01$ (two-sided); Continuous variables standardized. The model including education excludes data for 1880-1940 due to missing information. The total variance in Model 5 is 5.902 with the state-level variance component estimated at .088 and the state-year level variance at .058.

| | 4 Married exogamously vs. endogamy (immigrants arrived before the age of 16+second generation) | | 5 Married exogamously vs. endogamy (state-level modeled) | | 6 Married exogamously vs. endogamy (state-level modeled) | |
|---|---|---|---|---|---|---|
| | Coef. | s.e. | Coef. | s.e. | Coef. | s.e. |
| Constant | -0.010 | 0.077 | -0.596** | 0.155 | -0.652 | 0.082 |
| **Structural explanations** | | | | | | |
| Relative group size (cross-sect.) | -0.591** | 0.030 | | | -0.566** | 0.031 |
| Relative group size (longit.) | -0.175** | 0.012 | | | -0.230** | 0.014 |
| Sex ratio (cross-sect.) | 0.224** | 0.010 | | | 0.179** | 0.003 |
| Sex ratio (longit.) | 0.144** | 0.007 | | | 0.151** | 0.003 |
| Sex ratio (cross-sect.)Xgender | -0.367** | 0.016 | | | -0.335** | 0.008 |
| Sex ratio (longit.)Xgender | -0.194** | 0.010 | | | -0.222** | 0.007 |
| Group heterogeneity (cross-sect.) | 0.015 | 0.018 | | | 0.005 | 0.026 |
| Group heterogeneity (longit.) | 0.304** | 0.022 | | | 0.195** | 0.019 |
| Consolidation (cross-sect.) | 0.019 | 0.012 | | | 0.024 | 0.024 |
| Consolidation (longit.) | -0.021** | 0.008 | | | -0.023** | 0.007 |
| Size of third gen. (cross-sect.) | 0.101** | 0.021 | | | 0.144** | 0.024 |
| Size of third gen. (longit.) | 0.059 | 0.029 | | | 0.162 | 0.025 |
| **Cultural explanations** | | | | | | |
| Early marriage customs (cross-sect.) | -0.043 | 0.029 | | | -0.028 | 0.023 |
| Early marriage customs (longit.) | -0.026** | 0.014 | | | -0.066** | 0.011 |
| Anti-miscegenation laws (cross-sect.) | -0.032** | 0.012 | | | -0.033 | 0.012 |
| Anti-miscegenation laws (longit.) | -0.014 | 0.009 | | | -0.006 | 0.010 |
| Exogamy rate at $t_{i-1}$ (cross-sect.) | 0.539** | 0.028 | | | 0.437** | 0.028 |
| Exogamy rate at $t_{i-1}$ (longit.) | 0.324** | 0.024 | | | 0.227** | 0.019 |
| **Micro-level controls** | | | | | | |
| Time | 0.108** | 0.009 | 0.125** | 0.012 | 0.089** | 0.009 |
| Nonwhite | 0.096** | 0.024 | | | -0.156** | 0.017 |
| Age | -0.016** | 0.001 | | | -0.020** | 0.001 |
| Female | -0.269** | 0.005 | | | -0.257** | 0.004 |
| Second generation | 0.641** | 0.007 | | | 1.320** | 0.004 |
| 2.5 generation | 1.492** | 0.008 | | | 2.135** | 0.004 |
| Education | | | | | | |
| **Macro-level controls** | | | | | | |
| English-speaking origin (cross-sect.) | 0.113 | 0.082 | | | 0.420** | 0.174 |
| Non-Christian origin (cross-sect.) | -0.718** | 0.077 | | | -0.393** | 0.090 |
| **Variance components** | | | | | | |
| Origin | 134 | | 140 | | 140 | |
| Origin-Time | 594 | | 619 | | 619 | |
| Community | 3707 | | 4790 | | 4790 | |
| Community-Time | 15506 | | 19446 | | 19446 | |
| State | | | 51 | | 51 | |
| State-Time | | | 549 | | 549 | |
| Individuals | 1313532 | | 2559592 | | 2559592 | |
| **Deviance** | 1,370,293 | | 2,867,086 | | 2,556,892 | |

# References

Alba, R. and Nee, V. (2003). *Remaking the American Mainstream: Assimilation and Contemporary Immigration.* Harvard University Press, Cambridge. 73, 83

Angrist, J. (2002). How do sex ratios affect marriage and labor markets? Evidence from America's second generation. *Quarterly Journal of Economics*, 107:997–1038. 81

Bates, D., Maechler, M., and Bolker, B. (2012). Lme4: Linear mixed-effects models using s4 classes. R package version 0.999999-0. `CRAN. R-project. org/package= lme4`. 89

Bean, F. D. and Stevens, G. (2003). *America's Newcomers and the Dynamics of Diversity.* Russell Sage Foundation, New York. 74, 82

Blau, P. M. and Schwartz, J. (1984). *Crosscutting Social Circles: Testing a Macrostructural Theory of Intergroup Relations.* Academic Press, New York. 75, 79, 80, 81, 82, 102

Brierley, P. (1997). *World Churches Handbook.* BPC Wheaton, Exeter. 92

Brown, R. (2010). *Prejudice: It's Social Psychology.* Wiley-Blackwell, Chichester. 85

Castles, S. and Miller, M. J. (2009). *The Age of Migration. Population Movements in the Modern World.* The Guilford Press, New York. 81

Chen, J. and Takeuchi, D. T. (2011). Intermarriage, ethnic identity, and perceived social standing among Asian women in the United States. *Journal of Marriage and Family*, 73:876–888. 74

Curran, P. J. and Bauer, D. J. (2011). The disaggregation of within-person and between-person effects in longitudinal models of change. *Annual Review of Psychology*, 62:583–619. 79

Enders, C. K. (2010). *Applied Missing Data Analysis.* The Guilford Press, New York. 94

Fairbrother, M. (2014). Two multilevel modeling techniques for analyzing longitudinal survey datasets. *Political Science Research and Methods*, 24:1–22. 88

Fairbrother, M. and Martin, I. W. (2013). Does inequality erode social trust? Results from multilevel models of U.S. states and counties. *Social Science Research*, 42:347–360. 75, 79

Fryer, R. G. (2007). Guess who's been coming to dinner? Trends in interracial marriage over the 20th century. *Journal of Economic Perspectives*, 21:71–90. 74, 84, 92, 108

Fu, V. K. (2007). How many melting pots? intermarriage, pan ethnicity, and the black/non-black divide in the United States. *Journal of Comparative Family Studies*, 38:215–237. 74

Fu, V. K. (2010). Remarriage, delayed marriage, and black/white intermarriage, 1968-1995. *Population Research and Policy Review*, 29:687–713. 73, 74

Fu, X. and Heaton, T. B. (2008). Racial and educational homogamy: 1980 to 2000. *Sociological Perspectives*, 51:735–758. 74, 87

Furtado, D. and Theodoropoulos, N. (2011). Interethnic marriage: A choice between ethnic and educational similarities. *Journal of Population Economics*, 24:1257–1279. 74, 80

Ganzeboom, H. B. G., Graaf, P. M. D., and Treiman., D. J. (1992). A standard international socio-economic index of occupational status. *Social Science Research*, 21:1–56. 90

Gullickson, A. (2006). Black/white interracial marriage trends, 1850-2000. *Journal of Family History*, 31:289–312. 73, 74, 84

Hox, J. J. (2010). *Multilevel Analysis: Techniques and Applications*. Routledge, New York. 104

## REFERENCES

Huijnk, W. and Liefbroer, A. C. (2012). Family influences on intermarriage attitudes: A sibling analysis in the netherlands. *Journal of Marriage and Family*, 74:70–85. 84

Hwang, S.-S., Saenz, R., and Aguirre, B. E. (1997). Structural and assimilationist explanations of Asian American intermarriage. *Journal of Marriage and Family*, 59:758–772. 74, 80, 81, 83, 103, 104, 109

Hwang, S.-S. and Seanz, R. (1990). The problem posed by immigrants married abroad on intermarriage research: The case of Asian Americans. *International Migration Review*, 24:563–576. 86

Kalmijn, M. (1993). Trends in black/white intermarriage. *Social Forces*, 72:119–146. 74

Kalmijn, M. (1998). Intermarriage and homogamy: Causes, patterns, trends. *Annual Review of Sociology*, 24:395–421. 73, 74, 75, 78, 85

Kalmijn, M. (2010). Consequences of racial intermarriage for children's social integration. *Sociological Perspectives*, 53:271–286. 85

Kalmijn, M. and van Tubergen, F. (2010). A comparative perspective on intermarriage: Explaining differences among national-origin groups in the United States. *Demography*, 47:459–479. 74, 79, 81, 82, 84, 87, 91, 104

Kennedy, S. and Bumpass, L. (2008). Cohabitation and children's living arrangements: New estimates from the United States. *Demographic Research*, 19:1663–1692. 109

King, M., Ruggles, S., Alexander, J. T., Flood, S., Genadek, K., Schroeder, M. B., Trampe, B., and Vick, R. (2010). *Integrated Public Use Microdata Series, Current Population Survey: Version 3.0. [Machine-readable database]*. University of Minnesota, Minneapolis. 86, 90

Lichter, D. T., Carmalt, J. H., and Qian, Z. (2011). Immigration and intermarriage among Hispanics: Crossing racial and generational boundaries. *Sociological Forum*, 26:241–264. 73, 74

Lieberson, S. (1969). Measuring population diversity. *American Sociological Review*, 34:850–862. 90

Lieberson, S. and Waters, M. C. (1988). *From Many Strands: Ethnic and Racial Groups in Contemporary America*. Russell Sage Foundation, New York. 80

Lievens, J. (1998). Interethnic marriage: Bringing in the context through multi-level modelling. *European Journal of Population*, 14:117–155. 80, 81, 83, 103, 104, 109

Mayer, T. and Zignago, S. (2006). Notes on CEPII's distance measures. `www. cepii. fr/ anglaisgraph/ bdd/ distances. htm`. 92

McPherson, M., Smith-Lovin, L., and Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27:415–444. 78, 81

Middleton, R. (1976). Regional differences in prejudice. *American Sociological Review*, 41:94–117. 84

Okamoto, D. G. (2007). Marrying out: A boundary approach to understanding the marital integration of Asian Americans. *Social Science Research*, 36:1391–1414. 74, 80, 81, 83, 104, 109

Osborne, C., Manning, W. D., and Smock, P. J. (2007). Married and cohabiting parents' relationship stability: A focus on race and ethnicity. *Journal of Marriage and Family*, 69:1245–1366. 110

Pascoe, P. (1996). Miscegenation law, court cases, and ideologies of "race" in twentieth century America. *The Journal of American History*, 83:44–69. 84

Qian, Z., Blair, S. L., and Ruf, S. D. (2001). Asian American interracial and interethnic marriages: Differences by education and nativity. *International Migration Review*, 35:557–586. 86

Qian, Z. and Lichter, D. T. (2007). Social boundaries and marital assimilation: Interpreting trends in racial and ethnic intermarriage. *American Sociological Review*, 72:68–94. 73, 74, 109

# REFERENCES

Qian, Z. and Lichter, D. T. (2011). Changing patterns of interracial marriage in a multiracial society. *Journal of Marriage and Family*, 74:1065–1084. 74

Rosenfeld, M. J. (2008). Racial, educational and religious endogamy in the United States: A comparative historical perspective. *Social Forces*, 87:1–31. 74, 87

Rosenfeld, M. J. and Thomas, J. R. (2012). Searching for a mate: The rise of the internet as a social intermediary. *American Sociological Review*, 77:523–547. 110

Ruggles, S., Alexander, J. T., Genadek, K., Goeken, R., Schroeder, M. B., and Sobek, M. (2010). *Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database]*. University of Minnesota, Minneapolis. 86, 90

Singh, S. and Samara, R. (1996). Early marriage among women in developing countries. *International Family Planning Perspectives*, 22:148–157. 84

Snijders, T. A. B. and Bosker, R. (2011). *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling*. Russell Sage Foundation, Thousand Oaks. 75, 99

Sohoni, D. (2007). Unsuitable suitors: Anti-miscegenation laws, naturalization laws, and the construction of Asian identities. *Law and Society Review*, 41:587–618. 84

van Buuren, S. and Groothuis-Oudshoorn, K. (2011). MICE: Multivariate imputation by chained equations in R. *Journal of Statistical Software*, 45:1–67. 94

Waters, M. C. and Jiménez, T. R. (2005). Assessing immigrant assimilation: New empirical and theoretical challenges. *Annual Review of Sociology*, 31:105–125. 73, 74

Wooldridge, J. M. (2008). *Introductory Econometrics: A Modern Approach*. South-Western Cengage Learning, Mason. 100

Xie, Y. and Goyette, K. (1997). The racial identification of biracial children with one Asian parent: Evidence from the 1990 census. *Social Forces*, 76:547–570. 85

# Spatial Diffusion, Ethnic Replenishment and Mexican Intermarriage in the United States, 1980-2011

Christoph Spörlein, Ricardo Martinez-Schuldt and Ted Mouw

# Abstract

Combining Decennial Census (1980-2000) and American Community Survey (2008-2011) data, this article documents Mexican generational and ethnic intermarriage patterns across 543 Consistent Public Use Microdata Areas and evaluates the impact of changes in structural conditions on changes in marital behavior. Descriptive findings point to a generational differentiation with $2^{nd+}$ generation Mexicans firmly on the path towards marital assimilation while $1^{st}$ generation intermarriage rates declined. Moreover, we find strong variation in intermarriage across settlement areas with intermarriage rates generally being higher in new settlement areas. Multivariate analyses suggest that increases in the availability of co-ethnics and Spanish language retention over time deter intermarriage in traditional settlement areas. In re-emerging destination only increases in cultural retention seemed to matter. Finally, we test two competing hypotheses posited by the immigrant replenishment literature. Our results indicate that the impact of immigrant replenishment is moderate by cultural retention and by the degree of negative feelings towards Hispanics experienced in the local context.

# 4

# Spatial Diffusion, Ethnic Replenishment and Marital Assimilation of Mexicans in the United States, 1980-2011

## 4.1 Introduction

Intermarriage is a central indicator of the extent to which social boundaries exist and persist between different groups (Hwang et al. 1997; Kalmijn 1998; Bean and Stevens 2003; Alba and Nee 2003; Rosenfeld 2008; Lichter et al. 2011). According to assimilation theory, there is a higher likelihood that groups will accept each other as social equals when intimate relations cross racial or ethnic boundaries, become more frequent and are sustained (Qian and Lichter 2007). Over the past 40 years there was substantial increase in racial intermarriage potentially indicating a gradual erosion of racial boundaries (Gullickson 2006; Fryer 2007; Qian and Lichter 2011). However, these trends in intermarriage vary widely across racial and ethnic groups. While rates of Black/White intermarriage steadily increased,

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albeit at low levels, recent research demonstrates that national trends in intermarriage between Whites and Mexicans slowed down, and in some instances have declined, since the 1990s (Qian and Lichter 2007).

Concurrent to the period of slowing marital assimilation, the United States experienced an unprecedented diffusion of Mexicans across the country (Durand et al. 2000; Singer 2004; Iceland and Nelson 2008; Massey 2010; Mouw and Sharma 2009). Urban and rural areas alike have seen substantial increases in Mexican populations leading to the formation of new Mexican communities outside the traditional settlement areas of the Borderlands and the Great Lakes Region (Singer 2004; Donato et al. 2007; Leach and Bean 2008; Riosmena and Massey 2012; Barcus and Simmons 2013). Moreover, researchers documented the re-emergence of settlement areas that received a comparatively small number of Mexicans during the Undocumented Era (1965-1985) relative to earlier periods (Riosmena and Massey 2012).

From a theoretical perspective, these national trends in intermarriage and spatial diffusion seem irreconcilable: Mexicans experienced increases in spatial assimilation while simultaneously becoming less assimilated in terms of intermarriage. This is surprising given that the spatial diffusion of Mexicans should create structural opportunities that facilitate intermarriage due to the more limited availability of co-ethnics as compared to the situation in traditional settlement areas. One solution to this puzzle could be that prior research presented highly aggregate trend analysis potentially masking the intergroup dynamics in smaller geographic units. Little is known about the differences in intermarriage patterns across different settlement areas. It could well be the case that Mexicans are still following a path of marital assimilation outside traditional settlement areas.

In addition, several studies documented an increase in marital unions crossing generational boundaries (Qian and Lichter 2011; Lichter et al. 2011). To our knowledge, there has been no attempt to explain this new tendency of Mexicans to reconnect to their origin culture in connection with spatial diffusion. The immigrant replenishment literature may shed light on settlement area differences in ethnic and generational intermarriage (Jiménez 2008). It is possible that shared experiences of nativism could strengthen intergroup boundaries and thus reduce intermarriage tendencies and increase the likelihood of generational intermarriage. Conversely, generational intermarriage could decrease if $2^{nd+}$ generation Mexicans increasingly face challenges to their ethnic authenticity. Differences in the structural conditions across settlement areas could favor one scenario over the other.

The aim of this article is therefore threefold: first, we reexamine and disaggregate the trends in Mexican/White and generational intermarriage while considering of the process of spatial diffusion. We use micro-level data from the 1980-2000 Decennial Censuses and the 2008-2011 American Community Surveys (ACS) to examine trends in intermarriage across 543 Consistent Public Use Microdata Areas (c-PUMAs). Second, we aim to assess whether the slowing down of marital assimilation represents a uniform process across the United States or whether Mexicans continue to assimilate in certain parts of the U.S. This will allow us to present a more nuanced picture of Mexican assimilation trends. Third, we seek to explain these potentially divergent patterns of ethnic and generational intermarriage across PUMAs and time by using multilevel modeling with longitudinal data on the PUMA level. This approach will enable us to test arguments advanced by the immigrant replenishment literature quantitatively, which, to our

knowledge, has not been attempted before.

## 4.2 Literature Review

### 4.2.1 The Spatial Diffusion of Mexicans across the United States

In the 1990s, industrial restructuring and deteriorating living conditions in traditional settlement areas ushered in a period of massive spatial diffusion of Mexicans across the United States (Waters and Jiménez 2005; Zúñiga and Hernández-León 2005; Massey 2010; Riosmena and Massey 2012). Before 1990, Mexicans overwhelmingly settled in a few traditional gateway states (Massey and Capoferro 2008; Lichter and Johnson 2009). The following period of spatial diffusion saw the establishment of Mexican communities in areas with previously very few Mexican immigrants including many rural areas (Kandel and John 2004; Singer 2004; Donato et al. 2007; Leach and Bean 2008). In some counties population redistribution fueled population growth or offset population decline (Donato et al. 2007). The U.S. Midwest and South census regions with previously little migrant settlement, experienced large percentage growth, in extreme cases such as Georgia, Nevada or North Carolina amounting up to 600 percent (Singer 2004). Figure 4.1 presents a graphical depiction of the spatial diffusion of Mexicans across the United States. The 1980s panel shows the strong concentration of Mexicans in states close to the border. The situation is drastically different in 2010 documenting the North- and Eastward expansion of Mexican settlement and the substantial increase of Mexican population share in the traditional settlement areas.

Following Riosmena and Massey's (2012) adaption of Singer's (2004) classification of settlement areas, we differentiate between traditional, re-emerging

1980        2010
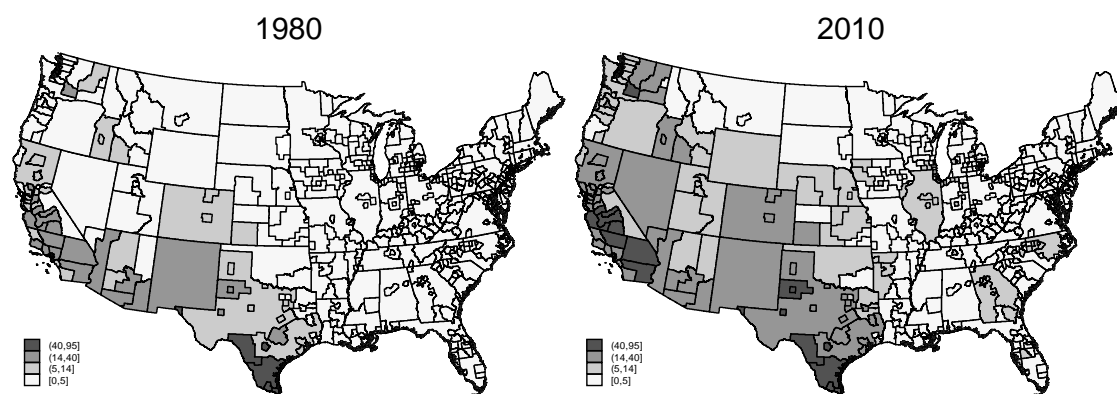
**Figure 4.1:** The percentage share of Mexican couples across c-PUMAs

and new settlement destinations. Accordingly, traditional settlement areas are composed of states that are historically characterized by the largest inflows of migrants.[1] By 1990, the overwhelming majority of Mexicans lived in these traditional settlement areas (Lichter and Johnson 2009). Re-emerging destination constitute states that received comparatively large numbers of Mexicans prior to the Undocumented Era (1965-1985), followed by an up-surge during the 1990's. Re-emerging destinations are located in the Northwest and Great Plains regions of the United States.[2] The remaining states are classified as new destinations in which Mexicans constituted, up until recently, only small fraction of the local ethnic composition. New destinations are composed of states in the South, South- and North-East.[3]

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[1]i.e., Arizona, California, Illinois, Indiana, New Mexico, Michigan, Ohio, Texas and Wisconsin

[2]i.e., Colorado, Idaho, Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, Nevada, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington and Wyoming

[3]i.e., Alabama, Arkansas, Connecticut, Delaware, Washington D.C., Florida, Georgia, Kentucky, Louisiana, Maine, Massachusetts, Mississippi, New Hampshire, New Jersey, New York,

While traditional settlement areas remain attractive to more recent Mexican migrants, they also constitute a major sending source for the spatial diffusion across the country. According to Lichter and Johnson (2009), nearly one-half of the settlement outside traditional areas was driven by internal, mostly foreign-born migrants suggesting a process of initial settlement and subsequent geographic dispersal. Using a unique dataset with information on place of origin in Mexico and place of destination in the United States, Riosmena and Massey (2012) corroborate this finding while also noting the emergence of new selectivity patterns in terms of destination settlement. Whereas the settlement of $1^{st}$ generation Mexicans in traditional and re-emerging areas implies strong network effects with immigrants predominantly moving from traditional origin regions along the border and from West-Central Mexico, the connection between origin and destination is far less network-driven in new destination areas. In addition, migrants opting for settlement in new destinations are more likely to be undocumented and seem to be coming largely from non-traditional or rural sending communities in Mexico. Overall, these findings point to important compositional differences in terms of origin selectivity across the traditional, re-emerging and new settlement areas.

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North Carolina, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia and West Virginia

## 4.2.2    Trends in Mexican/White Intermarriage

Research on Hispanic[4] intermarriage in the last four decades documents important trend variations. In general, Hispanics portray the highest intermarriage rates of all ethnic minorities in the United States, followed by Asians and Blacks (Qian and Lichter 2007). Until the 1990s, intermarriage was on an upward trend for all racial groups. One of the few studies with an explicit focus on marital assimilation of Mexicans reports a decline of endogamy (within-group marriages, i.e., Mexican-Mexican unions) between 1970 and 1990 suggesting progressive assimilation and leading the author to "consider whether Mexican Americans are becoming White" (Rosenfeld 2002, p. 160). More recent studies paint a less optimistic picture of the subsequent decades reporting "unprecedented declines" in Hispanic/White intermarriage during the 1990s (Qian and Lichter 2007). Accordingly, Hispanic intermarriage rates declined from 27 to 20 percent. This decline was largely driven by the marriage patterns of foreign-born Hispanics. The intermarriage rates of $2^{nd+}$ generation Hispanics still increased over the same study period pointing to sustained but somewhat slower assimilation trends (Qian and Lichter 2007). This pattern of $1^{st}$ generation decline and $2nd+$ generation increase in intermarriage appears to persist during the 2000s, however the overall intermarriage rates increased between 2000 and 2008 implying that the $2^{nd+}$ increases in intermarriage outweighed the $1^{st}$ generation decline (Qian and Lichter 2011).

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[4]The vast majority of studies describing and analyzing intermarriage trends focus on broad racial and ethnic categories where Mexicans are subsumed under the panethnic label "Hispanic" despite studies noting important variations in intermarriage across ethnic groups within panethnic categories (Okamoto 2007; Qian et al. 2012). Hence, although people of Mexican descent account for more than 60 percent within the Hispanic group, this literature review can only be indicative of broad trends in Mexican/White intermarriage due to the literature's strong focus on the marital behavior across panethnic groups.

Patterns of intermarriage, whether across groups (Kalmijn 1998; Gullickson 2006; Okamoto 2007; Fu 2010; Furtado and Theodoropoulos 2011), across geographic units (Hwang et al. 1997; Lichter et al. 2011) or both simultaneously (Lievens 1998; Kalmijn and van Tubergen 2010; Spörlein et al. 2014) are commonly explained through structural arguments (Blau 1977; Blau and Schwartz 1984).[5] According to structural theories, intermarriage differences across groups (or geographical units) are driven by the structure of the local marriage market resulting in differential opportunities to meet suitable partners. Meeting and interacting with members of the majority population on a daily basis increases the chances of forming intimate relationships. Research has consistently shown that structural determinants such as the availability of co-ethnics, the marriage market sex ratios or occupational and residential segregation shape intermarriage rates (Blau and Schwartz 1984; Hwang et al. 1997; Okamoto 2007; Spörlein et al. 2014).

The recent changes in settlement patterns certainly affected the structural conditions Mexicans experience when looking for a suitable mate on the local marriage markets. On the most basic level, Mexicans in traditional settlement areas encounter an abundant pool of co-ethnics within an established ethnic infrastructure. On the contrary, and despite the dramatic population growth in new destinations, Mexicans rarely account for more than 10 percent of the local population making it somewhat harder to satisfy endogamous preferences com-

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[5]The literature often incorporates cultural explanations in order to understand changes in intermarriage patterns (Kalmijn 1998). Since the focus of this article is on only one ethnic group (Mexicans) in a context with relatively small geographic variation regarding culture (compared to a cross-national research setting), the application of cultural explanations is not central in this research setting and thus not further discussed (see Kalmijn (1998) for a summary of the central mechanisms).

pared to the setting in traditional destinations. Due to the interrupted history of Mexican immigration, the situation is again different in re-emerging destinations where $1^{st}$ generation immigrants encounter an established Mexican community characterized by a generational composition that is highly skewed towards higher generation Mexicans (Jiménez 2008; Riosmena and Massey 2012). Based on an evaluation of the structural conditions that Mexicans most likely experience in the three types of settlement areas, we expect intermarriage rates are highest in new destinations, followed by re-emerging and finally traditional destinations.

Naturally, the enormous influx of Mexican immigrants during the two decades has been a central topic for intermarriage scholars raising question about the future of Mexican assimilation. Two lines of reasoning guide the discussion on the impact of immigrant replenishment on intermarriage (Jiménez 2008; Lichter et al. 2011). On the one hand, origin culture replenishment may sharpen the boundaries between minority and majority populations. Experiences of nativism in everyday encounters, either direct or indirect, may reinforce Mexican ethnic identity as deviant, ultimately increasing the social distance between Mexicans and members of the mainstream population. In the long run, this may strain the formation of intimate relations with native-born whites, effectively slowing down marital assimilation as unions between $1^{st}$ and higher generation Mexicans become more frequent. On the other hand, $3^{rd}$ and higher generation Hispanics may be faced with expectations for or criticisms of ethnic authenticity by recent immigrants (e.g., regarding Spanish language proficiency), which could create intra-group boundaries. Thus, the formation of intra-group boundaries has the potential to deter the formation of cross-generational unions (Jiménez 2008).

Results regarding the generational reconnection due to immigrant replenish-

ment are mixed. The increase in unions between $1^{st}$ and higher generation Hispanics is either comparatively small (from 253 to 277 intraracial marriages per 1,000 Hispanic marriages during the 1990s), restricted to female $2^{nd}$ generation Hispanics or insignificant in multivariate analysis (Lichter et al. 2011; Qian and Lichter 2011). However, using Hispanic marriage data on metropolitan areas, Lichter et al. (2011) show that the decline in Hispanic intermarriage rates is largely due to the replenishment of the co-ethnic pool over and in conjunction with increases in residential segregation and socio-economic inequality. These mixed findings could be a result of the geographically aggregate nature of the aforementioned studies masking the effect of both mechanisms of ethnic replenishment working simultaneously. Put differently, the impact of structural conditions on intermarriage could be moderated by the specific local Mexican immigration history. For instance, the relative recentness and volume of Mexican settlement in new destinations could arouse strong nativist sentiment among the local majority population making experiences of nativism more widespread. Thus, we expect nativist sentiment to foster shared ethnic identity more strongly in new destinations than in traditional or re-emerging destinations. In contrast, claims of "losing touch with the origin culture" may be voiced more frequently in re-emerging and traditional destinations due to the comparatively large and established population of $2^{nd+}$ generation Mexicans.

## 4.3   Data and Methods

### 4.3.1   Data

Our analyses are based on the 1980, 1990 and 2000 Decennial Censuses as well as pooled data from the 2008 to 2012 American Community Surveys (Ruggles et al. 2010). Geographic information is based on 543 "consistent Public Use Microdata Areas" (c-PUMA). C-PUMAs represent the most detailed geographic areas without boundary changes over time. The sample is limited to $1^{st}$ and $2^{nd+}$ generation Mexicans aged 20 to 30 years. This comparatively narrow age range is necessary to measure current rates and define local marriage market characteristics as adequately as possible. Due to homophily with respect to age it is unlikely that potential partners ten or more years older than the respondent should be counted among the pool of potential mates. Their inclusion when defining macro level characteristics potentially misrepresents marriage market conditions. Moreover, we exclude Mexicans who immigrated after the age of 17 in order to reduce the inflation of endogamy rates introduced by immigrants married abroad (Hwang and Seanz 1990). These restrictions leave us with 42,442 $1^{st}$ generation and 133,775 $2^{nd+}$ generation Mexicans living in one of the 543 c-PUMAs across the United States.

### 4.3.2   Methods

In order to analyze Mexican marital behavior over time and place, we rely on multilevel logistic regression models for repeated cross-sectional data (Fairbrother 2014). Applying this method entails introducing an additional time level compris-

ing of a cross-classification of time and c-PUMA resulting in a three level model with a "c-PUMA-time" level situated between the c-PUMA and the individual level. Macro level predictors are group-mean centered (i.e., within-c-PUMA centering) with the group-mean serving as cross-sectional component and de-meaned values serving as longitudinal components. Equation 4.1 depicts our model formally where i denotes individuals, t time-points and j c-PUMAs:

$$Y_{itj} = \beta_0 + \beta_1 x_{itj} + \beta_2 x_{tjM} + \beta_3 \overline{x}_j + \beta_4 time_{tj} + u_j + u_{tj} + e_{itj}$$

$$(4.1)$$

$\overline{x}_j$ represent the means of c-PUMA characteristics aiming to capture cross-sectional differences while $x_{tjM}$ represents the corresponding de-meaned c-PUMA characteristics. For example, $\overline{x}_j$ measures the average Mexican population size for each c-PUMA over the 30 years while $x_{tjM}$ effectively represents a time-series of the development of the Mexican population within each c-PUMA. $u_j$, $u_{tj}$ and $e_{itj}$ denote the random effects related to c-PUMAs, c-PUMA-time and individuals respectively. In general terms, cross-sectional components aim to explain differences across c-PUMAs while longitudinal components deal with the development of intermarriage within c-PUMAs. The resulting components are uncorrelated allowing an estimation of their coefficients separately in one combined model. This procedure is applied to all macro level predictors yielding a regression model in which Mexicans are nested in 2,073 c-PUMA-time units and 543 c-PUMAs. Models are estimated using maximum likelihood estimation implemented in the lme4

package for R (Bates et al. 2012).

### 4.3.3  Measures

Two types of intermarriage will be analyzed in this article. The first and main dependent variable measures whether Mexicans married a White spouse (i.e., exogamy) or a Mexican spouse (i.e, endogamy). Analyses using this routinely employed measure of racial intermarriage focus on assessing the impact of ethnic replenishment across traditional, re-emerging and new settlement areas. Additional analyses exclude intragenerational marriages from the endogamy part of the first measure thus relying on a racial exogamy vs. generational exogamy dichotomy. This dependent variable is used only in analyses that investigate the determinants of cross-generational marriages which are considered an indicator for Mexicans reconnecting with their origin culture (Lichter et al. 2011).

In the following, we will discuss each of the contextual measures in turn. Note that all marriage market measures computed from census and ACS data (i.e., occupational segregation, sex ratio, % speaking Spanish at home and relative group size) are based on respondents age 20 to 30. By doing so, we aim to include only the most relevant marriage market population under the assumption of homophily with respect to age (McPherson et al. 2001).

Independent variables:

*% of PUMA living in metro area* is measured using data on whether respondents lived in a metropolitan area. This variable aims to control differences between urban and rural PUMAs expecting co-ethnic meeting opportunities and thus endogamy to be higher in urban settings.

*Occupational segregation between Mexicans and Whites* is measured using the index of dissimilarity D (Duncan and Duncan 1955). D is calculated using 1-digit ISCO categories and records the percentage of Mexicans that would have to change occupational categories to achieve an even distribution with Whites. Higher occupational segregation corresponds to more limited meeting opportunities between Mexicans and Whites hence we expected this variable to have a negative effect on intermarriage.

*Sex ratio* represents the proportion of male Mexicans to female Mexicans. Values above 1 indicate a higher supply of male Mexicans suggesting structural conditions in favor of (male) exogamy. Since this measure has different implications for male and female Mexicans, we add an interaction term with gender.

In order to measure origin culture retention among the $2^{nd+}$ generation Mexicans, we record the *% speaking Spanish at home.* The underlying reasoning being that the fewer $2^{nd+}$ generation Mexicans speak Spanish, the more likely claims of "losing touch" with the origin culture are voiced by $1^{st}$ generation members.

Differences in the extent to which Mexicans might encounter nativism are measured using *White's negative feelings towards Hispanics.* Data for this measure was gathered from the American National Election Study (American National Election Studies (ANES) 2010). We took the five-year average in White's scores on the feeling thermometer prior to each time point. Higher scores on the thermometer indicate "warmer" feelings towards Hispanics. We therefore reversed the scores on this indicator to better correspond to our hypotheses. Note that due to data availability issues, this measure was only available for states. Thus, c-PUMAs within a state have the same score.

*Relative group size* represents a central indicator for the potential availability of

co-ethnic spouses. This variable records the percentage of a c-PUMAs population that is Mexican.

**Table 4.1:** Descriptive statistics of independent variables (N=175,660)

|  | Range | Mean | SD |
|---|---|---|---|
| **Macro level variables** | | | |
| % of c-PUMA living in metro area | 0.00-100.00 | 39.87 | 44.91 |
| Occupational segregation | 0.04-0.95 | 0.35 | 0.15 |
| Sex ratio | 0.14-16.00 | 1.50 | 1.05 |
| % speaking Spanish at home | 0.00-100.00 | 40.52 | 25.60 |
| White's negative feeling towards Hispanics | -20.00- -.89.00 | -59.19 | 7.61 |
| Relative group size (in %) | 0.01-34.01 | 1.80 | 3.65 |
| | | | |
| **Micro level variables** | | | |
| Female | 0/1 | 0.56 | |
| Age | 20-30 | 25.90 | 2.93 |
| Years of education | 0-17 | 11.80 | 2.55 |
| Speaks English | 0/1 | 0.91 | |

We also include a number of individual level control variables to account for (1) essential micro level predictors of marital behavior and for (2) compositional differences across c-PUMAs: age (measured in years), a gender dummy (with males as the reference category), years of education and a dummy variable indicating respondent's ability to speak English (1="speaks only English" to "speaks English well", 0="'does not speak English" and "speaks English but not well"). Moreover, a linear time term is added with respondents in the 1980s scoring 0 and respondents in the 2010s scoring 3.

Descriptive statistics for the independent variables are presented in Table 4.1.

## 4.4 Results

### 4.4.1 Descriptive results

Before delving into answering our research questions related to divergent inter-marriage rates, whether ethnic or generational, we will first present some descriptive findings to provide an initial basis for the discussion of multivariate findings. Table 4.2 present overall intermarriage rates and disaggregated by generational status. The overall ethnic intermarriage rates conform to the picture painted in the literature: increase in Mexican/White intermarriage until the 1990s, subsequent decline to pre-1990 levels in the 2000s and finally an increase in intermarriage to 41 percent in the 2010s. Thus, the overall ethnic intermarriage rates do not show a clear trend pattern but rather a pattern of ups and downs remaining on fairly stable levels. If we disaggregate the overall rate by generational status, we see a clear trend of generational divergence appearing: the ethnic intermarriage rates of $1^{st}$ generation Mexicans decline from 13 percent in the 1980s to 9 percent in the 2010s, whereas the corresponding rates for $2^{nd+}$ generation Mexicans show a strong increase of 13 percentage points from 40 percent in the 1980s to 53 percent in the 2010s. According to these findings, $2^{nd+}$ generation Mexicans are firmly on the path towards marital assimilation with the U.S. White population.

Table 4.2 also provides insights into generational intermarriage. It shows an increase of generational intermarriage by roughly 5 percentage points to 28 percent over the 30 year period. Again, disaggregating by generational status reveals interesting patterns. Generational intermarriage seems to be the norm among Mexican immigrants with more than two-thirds crossing generational boundaries.

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**Table 4.2:** Mexican ethnic and generational intermarriage over time

| Intermarriage rate | 1980 | 1990 | 2000 | 2010 |
|---|---|---|---|---|
| **Ethnic** | | | | |
| Overall | 0.38 | 0.43 | 0.38 | 0.41 |
| $1^{st}$ generation | 0.13 | 0.13 | 0.08 | 0.09 |
| $2^{nd+}$ generation | 0.40 | 0.48 | 0.51 | 0.53 |
| | | | | |
| Generational | | | | |
| Overall | 0.22 | 0.22 | 0.27 | 0.28 |
| $1^{st}$ generation | 0.72 | 0.66 | 0.68 | 0.70 |
| $2^{nd+}$ generation | 0.18 | 0.17 | 0.21 | 0.21 |

The 1990s did indeed usher in a period of increasing frequency of intergenerational unions but the 2010 rate certainly has not reached 1980 levels again. It thus appears that generational intermarriage is not a new phenomenon but has been declining and is not recovering. Opposed to the u-shaped trend pattern for $1^{st}$ generation Mexicans, $2^{nd+}$ generation Mexican intergenerational marriage is on an upward trend with a modest 3-percentage point increase to 21 percent in the 2010s.

Figure 4.2 further disaggregates these trends by settlement area. Irrespective of settlement area, the trend patterns presented here seem to agree with the overall conclusions drawn from the first half of Table 4.1. We do however see important variations in the trend level across settlement areas. Ethnic intermarriage rates dropped markedly outside traditional destinations for Mexican immigrants. In the 1980s, around 60 percent of $1^{st}$ generation Mexicans intermarried in new destinations which dropped to a little more than 15 percent in the 2010s. The situations seems similar albeit less drastic in re-emerging settlement areas. However, the reader should also keep in mind that relatively few and a probably very select group of Mexican immigrants lived outside traditional destinations in the 1980s. After 2000, intermarriage rates stabilize, the relative size
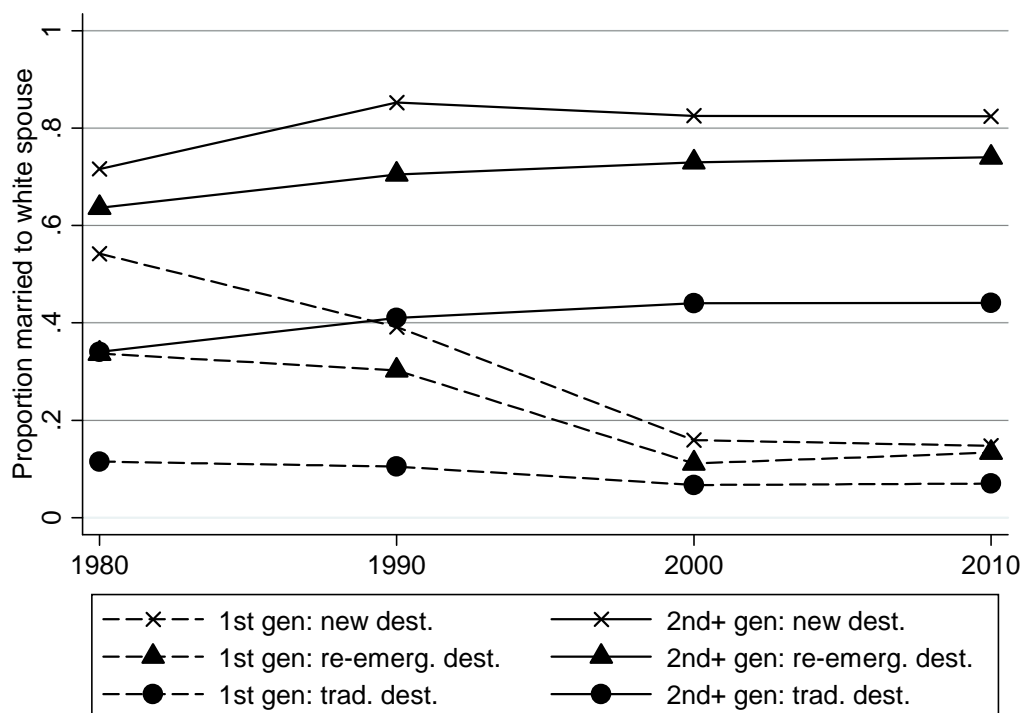
**Figure 4.2:** Mexican/White intermarriage rates across time, generational status and settlement area

distributions of the populations in the three settlement areas however prevents this from showing up in the general trend presented in Table 4.2. The majority of Mexican immigrants still do live in traditional settlement areas and according to Figure 4.2, there is very little trend variation across the 30 year study period with intermarriage remaining fairly stable at around 10 percent.

The trend patterns of $2^{nd+}$ generation Mexicans are remarkably similar across the three types of settlement areas, the levels are however not. As expected, intermarriage is least common but still comparatively high in traditional settlement areas with around 40 percent marrying a White spouse. Also in line with our expectations, intermarriage is most frequent in new destinations, followed by re-emerging destinations. Relative to traditional settlement areas, the inter-
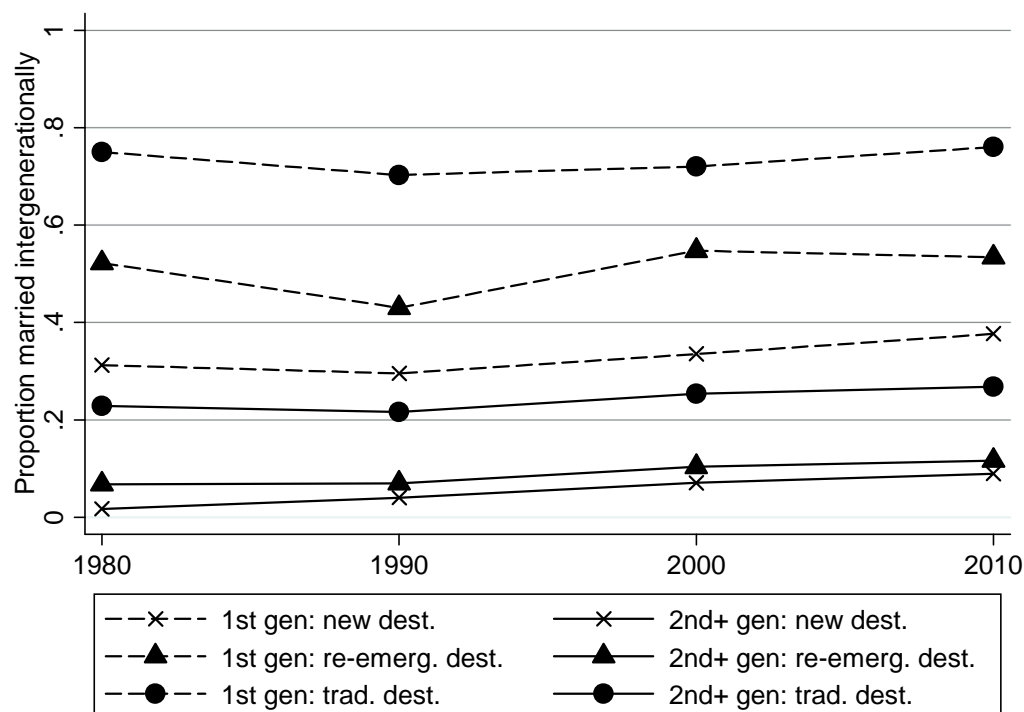
**Figure 4.3:** Mexican intergenerational marriage rates across time, generational status and settlement areas

marriage rate is an astonishing 40 percentage points higher in new destinations. Surprisingly, the intermarriage rates in new destinations are on a moderate downward trend since the 1990s while corresponding rates in traditional destinations remained fairly stable.

Finally, we turn to Figure 4.3 which presents the trends in intergenerational marriage across settlement areas and generational status. Overall trends in intergenerational marriage are less pronounced than they are for interethnic marriage. For both $1^{st}$ and $2^{nd+}$ generation Mexicans, the difference over the 30 year study period is small. The 1990s did usher in a period of moderate decline but by 2010 rates of intergenerational marriage are back at (or marginally exceed) 1980s levels. Only for $2^{nd+}$ generation Mexicans do we see a small but fairly continuous

increase in intergenerational marriages however only in the range of a few percentage points. In total, Figure 4.3 suggests a reverse ordering of settlement areas compared to Figure 4.2: here, it is traditional settlement areas that show the highest levels of intermarriage regardless of generational status. Intergenerational marriages are however much less frequent in new settlement areas.

We will now turn to the multivariate findings in order to gain a better understanding of the interconnectedness of spatial diffusion and ethnic as well as generational intermarriage.

## 4.4.2 Variance partition

Table 4.3 presents the results from our empty models. These models provide insights into the relative importance of the local marriage market (i.e., the c-PUMA) with respect to ethnic and generational intermarriage. Not surprisingly, across all settlement contexts and dependent variables, most of the variation in intermarriage is associated with individual differences ranging from 79 percent regarding $1^{st}$ generation generational intermarriage in re-emerging destinations $[(\pi^2/3/(\pi^2/3 + .836 + .035)]$ to 61 percent regarding $2^{nd+}$ generation ethnic intermarriage in traditional destinations $[(\pi^2/3/(\pi^2/3 + 2.056 + .035)]$. For a similar comparison, between 20 to 36 percent of the variation is attributable to differences across c-PUMAS. An additional 2 to 5 percent of the variation relates to differences in the development of intermarriage within c-PUMAs (i.e, var[c-PUMA-time]). Comparing the two panels of Table 4.3, intermarriage rates seem to vary more across c-PUMAs for $2^{nd+}$ generation Mexican than for $1^{st}$ generation Mexicans suggesting a more uniform pattern for the latter.

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**Table 4.3:** Variance components and random time slope

| | Married exogamously vs. married endogamously | | | | | |
| | 1$^{st}$ generation | | | 2$^{nd+}$ generation | | |
| | **Traditional** | **Re-emerging** | **New** | **Traditional** | **Re-emerging** | **New** |
|---|---|---|---|---|---|---|
| var(c-PUMA) | 1.143 | 1.238 | 0.900 | 2.050 | 0.933 | 1.136 |
| var(c-PUMA-time) | 0.035 | 0.288 | 0.021 | 0.035 | 0.059 | 0.388 |
| coef time | -0.358 | -0.555 | -0.815 | 0.105 | 0.021 | 0.105 |
| sd(time) | 0.187 | 0.155 | 0.077 | 0.241 | 0.173 | 0.266 |

| | Married intergenerationally vs. married exagamously | | | | | |
| | 1$^{st}$ generation | | | 2$^{nd+}$ generation | | |
| | **Traditional** | **Re-emerging** | **New** | **Traditional** | **Re-emerging** | **New** |
|---|---|---|---|---|---|---|
| var(c-PUMA) | 1.314 | 0.836 | 0.864 | 2.155 | 1.319 | 0.870 |
| var(c-PUMA-time) | 0.036 | 0.035 | 0.001 | 0.075 | 0.076 | 0.120 |
| coef time | 0.261 | 0.238 | 0.388 | 0.356 | 0.495 | 0.606 |
| sd(time) | 0.219 | 0.100 | 0.122 | 0.192 | 0.170 | 0.001 |

Note: individual level variance component fixed to $\pi^2/3$ in logistic multilevel models

When investigating the average pattern over time, Table 4.3 reinforces the impression of divergent interethnic marriage trends gained by studying the descriptive findings above. While the time coefficient is negative across settlement areas for the 1$^{st}$ generation, it is positive for 2$^{nd+}$ generation Mexicans. Another important insight generated by Table 4.3 relates to the variation of the average time trend as signified by its random slope. While the effect of time is uniformly negative for 1$^{st}$ generation Mexicans, even taking into account the slope variation, we see that across all settlement contexts, the confidence interval for the time coefficient ranges from positive to negative for 2$^{nd+}$ generation Mexicans. For instance, the confidence interval for the time coefficient of 2$^{nd+}$ generation Mexicans in new settlement areas is comparatively wide ($.105 \pm 1.96 * .266 = [-.416; .626]$). This

finding indicates that there is no uniform intermarriage trend across c-PUMAs with $2^{nd+}$ generation Mexicans becoming more assimilated in some while becoming less assimilated in others. In other words, disaggregating intermarriage beyond the state level is essential in providing a representative picture of the state of Mexican assimilation patterns.

The situation is somewhat less subject to variation in the case of intergenerational marriages with a positive time coefficient across generations and contexts. Moreover, the slope variation is comparatively narrow and in no case are there changes in the direction of the association. Hence, irrespective of generational status or settlement area, intergenerational marriages become increasingly frequent.

### 4.4.3  Multivariate results

The results for the full logistic multilevel models investigating interethnic marriages are presented in Table 4.4 for Mexican immigrants and in Table 4.5 for $2^{nd+}$ generation Mexicans. Note that in all models presented, macro level variables have been standardized to facilitate interpretation and provide some indication of their relevance. In general, the longitudinal components relate to development of intermarriage *within* c-PUMAs whereas the cross-sectional components relate to differences in intermarriage *across* c-PUMAs. Since the aim of this article is to account for the development of intermarriage over time, we will focus the discussion on the longitudinal components of our models.

**Table 4.4:** Multilevel logistic regression $1^{st}$ generation Mexican ethnic marital behavior across settlement areas, 1980-2012.

| | Married exogamously vs. married endogamously | | | | | |
| | Traditional | | Re-emerging | | New | |
| | coef | s.e. | ceof | s.e. | coef | s.e. |
|---|---|---|---|---|---|---|
| Constant | -1.547 | 0.109** | -0.287 | 0.229 | 0.679 | 0.259** |
| % of c-PUMA living in metro area | -0.108 | 0.075 | -0.516 | 0.198** | -0.100 | 0.165 |
| Occ. segregation (cross-sect.) | -0.227 | 0.058** | -0.259 | 0.076** | -0.194 | 0.077** |
| Occ. segregation (longit.) | -0.092 | 0.028** | -0.083 | 0.069 | 0.067 | 0.079 |
| Sex ratio (cross-sect.) | 0.128 | 0.046** | 0.104 | 0.063 | 0.279 | 0.075** |
| Sex ratio (longit.) | 0.010 | 0.033 | -0.090 | 0.083 | 0.100 | 0.071 |
| Sex ratio (cross-sect.)Xgender | -0.146 | 0.050** | -0.209 | 0.109* | -0.356 | 0.121** |
| Sex ratio (longit.)Xgender | -0.035 | 0.047 | 0.199 | 0.134 | -0.150 | 0.137 |
| % speaking Spanish at home (cross-sect.) | -0.190 | 0.078** | -0.154 | 0.093 | -0.416 | 0.093** |
| % speaking Spanish at home (longit.) | -0.080 | 0.030** | 0.047 | 0.062 | -0.040 | 0.070 |
| White's neg. feelings twd Hisp. (cross-sect.) | -0.066 | 0.047 | 0.060 | 0.060 | -0.080 | 0.058 |
| White's neg. feelings twd Hisp. (longit.) | 0.013 | 0.036 | -0.224 | 0.075** | -0.086 | 0.075 |
| Relative group size (cross-sect.) | -0.497 | 0.088** | -0.344 | 0.096** | -0.136 | 0.097 |
| Relative group size (longit.) | -0.081 | 0.034** | -0.164 | 0.081** | -0.163 | 0.076** |
| **Micro-level controls** | | | | | | |
| Female | -0.048 | 0.047 | -0.437 | 0.106** | -0.336 | 0.112** |
| Age | 0.030 | 0.008** | 0.034 | 0.018 | 0.047 | 0.019** |
| Years of education | 0.266 | 0.011** | 0.238 | 0.025** | 0.203 | 0.024** |
| Speaks English | 1.769 | 0.115** | 1.911 | 0.239** | 2.077 | 0.208** |
| Time | -0.365 | 0.041** | -0.242 | 0.094** | -0.567 | 0.096** |
| **Variance components** | | | | | | |
| c-PUMA | 0.140 | | 0.002 | | 0.001 | |
| c-PUMA-Time | 0.004 | | 0.049 | | 0.038 | |
| sd(Time) | 0.001 | | 0.071 | | 0.001 | |
| **Observations** | | | | | | |
| c-PUMA | 169 | | 101 | | 237 | |
| c-PUMA-Time | 562 | | 329 | | 641 | |
| Individuals | 80,789 | | 8,546 | | 6,990 | |

*$p < .05$, ** $p < .01$ (two-sided); Note: Macro level variables standardized, micro level variables grand-mean centered

### 4.4.3.1 Interethnic marriage

Focusing on Mexican immigrants, the results presented in Table 4.4 suggest that across all types of settlement area, increases in the availability of co-ethnics over time deters interethnic marriages. The odds of marrying a White spouse decrease between 8 percent ($e^{-.081} - 1$) in traditional destinations up to 15 percent ($e^{-.163} - 1$) in re-emerging destinations. Hence, increases in coethnic group size over time have a relatively smaller impact on intergroup marriages in a context where it is already easy to satisfy preferences of endogamy (i.e., traditional set-

tlement areas where Mexicans constitute a substantial fraction of the local population). Other indicators of the structural conditions Mexicans experience when searching for suitable mates in the local marriage markets seem to only matter in traditional settlement areas. Our results indicate that as occupational segregation between Mexicans and Whites and the percentage of Mexicans speaking Spanish at home increases over time, the odds of marrying exogamously decrease by 9 and 7 percent respectively. We will encounter this pattern of changes in structural conditions shaping intermarriage only in the structurally established traditional settlement areas across virtually all models. This is intriguing insofar as there are far less differences in the cross-sectional components across settlement areas. For instance, irrespective of settlement area, Mexican immigrants living in c-PUMAs with higher levels of occupational segregation are less likely to marry across ethnic or racial boundaries. Apparently, *changes* in the structural conditions hinge upon a certain rigidity of the structural conditions to translate into changes of marital behavior since the main difference between traditional and non-traditional destinations is the comparatively long history of immigration and the firm establishment of ethnic infrastructure in the former context.

The results for $2^{nd+}$ generation Mexicans largely correspond to the patterns found for $1^{st}$ generation Mexicans. Changes in relative group size over time significantly decrease the odds of exogamous marriages, albeit the association is less strong than for Mexican immigrants ranging from 8 to 22 percent. One important difference between $1^{st}$ generation Mexicans and later generations lies in the resemblance of results across settlement areas. While results are distinctive in terms traditional vs. non-traditional settlement areas for Mexican immigrants, the differences are more pronounced between new settlement areas and the other

**Table 4.5:** Multilevel logistic regression of $2^{nd+}$ generation Mexican ethnic marital behavior across settlement areas, 1980-2012.

| | Married exogamously vs. married endogamously | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | Traditional | | Re-emerging | | New | |
| | coef | s.e. | ceof | s.e. | coef | s.e. |
| Constant | -0.192 | 0.067** | 1.310 | 0.116** | 1.438 | 0.145** |
| % of c-PUMA living in metro area | -0.158 | 0.039** | -0.153 | 0.110 | -0.244 | 0.103** |
| Occ. segregation (cross-sect.) | -0.044 | 0.035 | 0.036 | 0.058 | -0.047 | 0.048 |
| Occ. segregation (longit.) | -0.007 | 0.012 | 0.058 | 0.031 | 0.015 | 0.041 |
| Sex ratio (cross-sect.) | 0.077 | 0.023** | 0.019 | 0.049 | 0.006 | 0.048 |
| Sex ratio (longit.) | 0.019 | 0.013 | 0.089 | 0.038** | 0.059 | 0.047 |
| Sex ratio (cross-sect.)Xgender | -0.039 | 0.016** | 0.022 | 0.043 | 0.056 | 0.054 |
| Sex ratio (longit.)Xgender | 0.011 | 0.016 | 0.014 | 0.046 | 0.067 | 0.057 |
| % speaking Spanish at home (cross-sect.) | -0.427 | 0.045** | -0.325 | 0.078** | -0.236 | 0.066** |
| % speaking Spanish at home (longit.) | -0.217 | 0.016** | -0.193 | 0.028** | -0.069 | 0.037 |
| White's neg. feelings twd Hisp. (cross-sect.) | -0.089 | 0.028** | -0.036 | 0.052 | -0.020 | 0.043 |
| White's neg. feelings twd Hisp. (longit.) | -0.012 | 0.014 | -0.017 | 0.036 | -0.109 | 0.046** |
| Relative group size (cross-sect.) | -0.595 | 0.057** | -0.395 | 0.083** | -0.307 | 0.064** |
| Relative group size (longit.) | -0.085 | 0.016** | -0.211 | 0.062** | -0.247 | 0.068** |
| **Interactions** | | | | | | |
| Relative group size (longit.)X % speaking Spanish at home (cross-sect.) | 0.033 | 0.016** | 0.080 | 0.028** | 0.046 | 0.048 |
| Relative group size (longit.)X White's feel. twd Hispanics (cross-sect.) | -0.055 | 0.018** | 0.046 | 0.025 | 0.105 | 0.053 |
| **Micro-level controls** | | | | | | |
| Female | -0.023 | 0.015 | -0.069 | 0.037 | 0.081 | 0.053 |
| Age | -0.016 | 0.003** | 0.002 | 0.006 | 0.037 | 0.009** |
| Years of education | 0.280 | 0.004** | 0.320 | 0.011** | 0.336 | 0.014** |
| Speaks English | 1.057 | 0.064** | 1.427 | 0.153** | 1.292 | 0.156** |
| Time | -0.170 | 0.024** | -0.127 | 0.043** | 0.037 | 0.059 |
| **Variance components** | | | | | | |
| c-PUMA | 0.214 | | 0.275 | | 0.890 | |
| c-PUMA-Time | 0.012 | | 0.035 | | 0.223 | |
| sd(Time) | 0.105 | | 0.084 | | 0.371 | |
| **Observations** | | | | | | |
| c-PUMA | 177 | | 102 | | 261 | |
| c-PUMA-Time | 703 | | 406 | | 1,032 | |
| Individuals | 280,073 | | 44,291 | | 30,374 | |

$*p < .05$, $** p < .01$ (two-sided); Note: Macro level variables standardized, micro level variables grand-mean centered

two types for $2^{nd+}$ generation Mexicans. While again only changes in the relative size of the Mexican population mattered in new destinations, increases in origin culture retention in terms of speaking Spanish at home significantly reduced the odds of marrying a White spouse in traditional as well as re-emerging destinations. These differences across generational status and settlement areas are reasonable as the common feature explaining this difference is settlement history. $2^{nd+}$ generation Mexicans have a longer history of settling in traditional and, more

crucially, in re-emerging destinations than $1^{st}$ generation Mexicans for whom re-emerging destinations opened up only fairly recently. In other words, both $1^{st}$ and $2^{nd+}$ generation share the "newness" in new destinations. This appears not to be the case in re-emerging and, to a lesser degree, traditional destinations.

### 4.4.3.2 Intergenerational marriage

We now turn to the findings regarding intergenerational marriages among Mexicans presented in Table 4.6. Since the decision to marry across generations is, from an assimilatory perspective, more revealing for $2^{nd+}$ generation Mexicans, we present results for the $1^{st}$ generation only in Appendix Table 4.7.

While changes in size distribution was a central explanatory factor in the development of interethnic marriage trends, origin culture retention plays that part with respect to intergenerational marriages. Increases in the percentage of Mexicans speaking Spanish at home over time lead to increases in the odds of intergenerational marriage irrespective of settlement area. There are however differences in the strength of the association ranging from a 15 percent increase in re-emerging settlement areas to a 41 percent increase in new settlement areas. In addition, our results indicate that increases in occupational segregation over time promote intergenerational marriages in traditional destinations. However, the association is far less pronounced with an increase in occupational segregation over time resulting in an increase in the odds of intergenerational marriage by 7 percent. This points to crucial differences in the determinants of intergenerational and interethnic marriages. While changes in the structural conditions, that is, the opportunities to meet co-ethnics, are a strong predictor of changes in interethnic marriage trends, they play only a minor role in accounting for trend changes in

**Table 4.6:** Multilevel logistic regression of $2^{nd+}$ generation Mexican intergenerational marital behavior across settlement areas, 1980-2012

| | Married intergenerationally vs. married exogamously | | | | | |
| | Traditional | | Re-emerging | | New | |
| | coef | s.e. | ceof | s.e. | coef | s.e. |
|---|---|---|---|---|---|---|
| Constant | -2.161 | 0.087** | -3.482 | 0.147** | -4.250 | 0.200** |
| % of c-PUMA living in metro area | 0.166 | 0.044** | 0.331 | 0.128** | 0.223 | 0.131* |
| Occ. segregation (cross-sect.) | 0.225 | 0.042** | 0.176 | 0.054** | 0.218 | 0.058** |
| Occ. segregation (longit.) | 0.063 | 0.015** | 0.032 | 0.041 | -0.016 | 0.059 |
| Sex ratio (cross-sect.) | -0.196 | 0.037** | 0.068 | 0.065 | -0.086 | 0.089 |
| Sex ratio (longit.) | -0.012 | 0.026 | -0.052 | 0.062 | -0.025 | 0.089 |
| Sex ratio (cross-sect.)Xgender | 0.175 | 0.027** | -0.134 | 0.070* | 0.024 | 0.105 |
| Sex ratio (longit.)Xgender | 0.003 | 0.028 | 0.003 | 0.075 | -0.051 | 0.108 |
| % speaking Spanish at home (cross-sect.) | 0.394 | 0.054** | 0.308 | 0.070** | 0.591 | 0.067** |
| % speaking Spanish at home (longit.) | 0.272 | 0.019** | 0.144 | 0.037** | 0.342 | 0.052** |
| White's neg. feelings twd Hisp. (cross-sect.) | -0.143 | 0.034** | -0.082 | 0.045** | -0.078 | 0.051 |
| White's neg. feelings twd Hisp. (longit.) | -0.005 | 0.019 | -0.011 | 0.045 | -0.007 | 0.057 |
| Relative group size (cross-sect.) | 0.496 | 0.063** | 0.286 | 0.066** | 0.167 | 0.066** |
| Relative group size (longit.) | 0.032 | 0.021 | 0.192 | 0.080** | 0.015 | 0.082 |
| **Micro-level controls** | | | | | | |
| Female | 0.446 | 0.023** | 0.634 | 0.064** | 0.301 | 0.091** |
| Age | -0.033 | 0.004** | -0.030 | 0.010** | -0.055 | 0.015** |
| Years of education | -0.344 | 0.006** | -0.382 | 0.017** | -0.376 | 0.021** |
| Speaks English | -1.553 | 0.075** | -1.881 | 0.196** | -1.651 | 0.203** |
| Time | 0.521 | 0.028** | 0.427 | 0.055** | 0.590 | 0.069** |
| **Variance components** | | | | | | |
| c-PUMA | 0.352 | | 0.110 | | 0.001 | |
| c-PUMA-Time | 0.006 | | 0.004 | | 0.008 | |
| sd(Time) | 0.114 | | 0.063 | | 0.032 | |
| **Observations** | | | | | | |
| c-PUMA | 177 | | 102 | | 261 | |
| c-PUMA-Time | 702 | | 406 | | 1,019 | |
| Individuals | 151,411 | | 34,581 | | 26,207 | |

*$p < .05$, ** $p < .01$ (two-sided); Note: Macro level variables standardized, micro level variables grand-mean centered

intergenerational marriages. In the latter case it is largely the cultural distance between generations that promotes marriage crossing the generational rather than ethnic boundaries. In other words, whether there is opportunity to meet or not is not necessarily of the essence. What is more important in the case of intergenerational marriages is having a common cultural foundation.

### 4.4.3.3 Ethnic replenishment

Finally, we turn to the results regarding the impact of ethnic replenishment on intermarriage. The literature posits that the effect of ethnic replenishment is

moderated by the local context: experiences of nativism foster in-group marriage while challenges of "true" ethnicity deter in-group marriage. In order to test these two competing hypotheses we formulated interaction effects with the longitudinal component of relative group size (i.e., the changes in group size) and the cross-sectional components of White's feeling towards Hispanics and the percentage of $2^{nd+}$ generation Mexicans speaking Spanish at home. Again, since the relationship between ethnic replenishment and intermarriage is more telling for $2^{nd+}$ generation Mexicans from an assimilationist perspective, we do not present results for the $1^{st}$ generation.

Turning to the results presented in Table 4.5, we see that both mechanisms seem to be working in traditional settlement areas. First, the effect of increases in relative group size over time on ethnic intermarriage is stronger in c-PUMAs where White's feelings towards Hispanics are more negative. This finding lends support for the idea that (potential) experiences of nativism sharpen intergroup boundaries and ultimately reduce the likelihood of forming intimate relation that cross these boundaries. Second, the effect of increases in relative group size over time on intermarriage is stronger in c-PUMAs where a lower percentage of $2^{nd+}$ generation Mexicans speak Spanish at home. The reasoning underlying this finding relates to the possibility that higher generation Mexicans are more likely to experiences challenges of "true" ethnicity by Mexican immigrants if they do not retain (linguistic) ties to their origin culture. The implications are that these challenges foster the formation of intragroup ties increasing the likelihood of marital unions with out-group members. Furthermore, our results show that only the latter mechanism seems to be at work in re-emerging settlement areas. Given the hiatus in immigrant influx during the Undocumented Era and the resulting

generational composition that leans heavily towards $3^{rd+}$ generation Mexicans, this finding was to be expected. Because origin language proficiency strongly decline across generations, the structural conditions regarding generational composition in re-emerging settlement areas are more likely to generate situations where native-born Mexicans are faced with ethnic challenges as origin language retention strongly declines across generations (Portes and Rumbaut 2001). Surprisingly, we do not find evidence that the impact of ethnic replenishment is moderated in new destinations.

# 4.5 Conclusion and discussion

Researchers have extensively documented both the geographic dispersion of Mexicans across the United States in the last 20 years and the incorporation of Mexicans into the "American mainstream" via marital assimilation (Alba and Nee 2003). However, researchers in both areas of study have provided contradictory evidence that might not be expected by modern assimilation theorists. Mexicans have undergone rapid spatial assimilation while rates of marital assimilation have declined. In order to reconcile these findings, we reexamine and disaggregate the trends in Mexican/White and generational intermarriage while considering the process of spatial diffusion. Overall, this paper reveals a series of important findings.

First, our analysis provides a more developed picture of Mexican marriage assimilation in a national context of spatial diffusion (Rosenfeld 2002; Qian and Lichter 2007, 2011). The overall ethnic intermarriage rates of pooled $1^{st}$ and $2^{nd+}$ generation Mexicans have not followed a uniform trend across destination types over the last 30 years. Rather, a pattern of ups and downs is evident. When we disaggregate by generational status an alternative trend is apparent. Mexican immigrant's ethnic intermarriage rates have declined slightly from 1980 to 2010 and $2^{nd+}$ generation Mexican ethnic intermarriage rates have increased more substantially in the same time frame. Thus, the slowing down of marital assimilation does not represent a uniform process for Mexicans across the United States, especially when immigrant generation is taken into consideration. When we further examine patterns across destination type greater variation is apparent. For $1^{st}$ generation Mexicans outside of traditional destinations, intermarriage

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rates decreased from 1980 to 1990 but increased between 1990 and 2010. For $2^{nd+}$ generation Mexicans, trends across destination type do not vary much from the national time trend. In line with our expectations, absolute ethnic intermarriage rates for $2^{nd+}$ generation Mexicans vary such that intermarriage is much more frequent in new destinations compared to re-emerging or traditional destinations. Overall, these findings allow us to conclude that $2^{nd+}$ generation Mexicans are firmly on the path towards marital assimilation with the U.S. White population, regardless of destination type.

Second, multivariate analysis also offers important findings related to both generational and ethnic intermarriage. Changes in structural conditions help predict changes in interethnic marriage trends but play only a minor role in accounting for trend changes in intergenerational marriages. In general for $1^{st}$ and $2^{nd+}$ generation Mexicans, an increase in the availability of coethnics over times deters interethnic marriage in favor of endogamy. However, these effects vary by destination types such that marriage rates in traditional areas, with a substantial pre-existing coethnic community, are less impacted by an increase in coethnics over time. Furthermore, other structural conditions only appear to matter in the traditional context. It appears that cultural foundations and retention, such as continuation of Spanish language use, are more important for explaining intergenerational marriage rates (and endogamy). These findings are consistent across destination types, and are stronger in new and re-emerging destinations.

These findings highlight the important differences in Mexican immigration history across these destinations. But they may also provide us with a foundation to speculate about the impact of ethnic replenishment in the future (Jiménez

2008). Though we find strong support for structural claims, changes in structural conditions appear to have a diminishing effect on endogamy in the future in traditional destination states. Much of this has to do with the long-standing history of Mexican immigration to traditional states and the large pre-existing marriage pool. For new and traditional destinations structural conditions combined with language retention and/or nativist resentment will result in increased intra-ethnic and intra-generational marriage, respectively. However, this is largely limited to distinguishing between $1^{st}$ and $2^{nd+}$ generation Mexicans. We are less certain of how structural conditions affect marriage patterns across generational status. It is possible that the effects of increasing marriage pools diminish both as coethnic community sizes increase and over generation.

Finally, we provide a quantitative test of the hypotheses posited by the immigrant replenishment literature (Jiménez 2008). Limiting our analysis to $2^{nd+}$ generation Mexicans, we find support for the idea that the effects of ethnic replenishment on interethnic marriage are moderated by experiences of nativism and intergenerational challenges to "true" ethnic identity in the local context. Both mechanisms appear to be functioning in the traditional destinations such that ethnic replenishment's effect on intermarriage is stronger in local contexts where feelings toward Hispanics are more negative and where fewer $2^{nd+}$ generation Mexicans speak Spanish at home. Interestingly, we only find a significant interaction between replenishment and % speaking Spanish at home in re-emerging destinations and no support of the local context hypothesis in new destinations.

Consistent with ethnic replenishment claims, nativist sentiment impacts immigrants' ability to assimilate, at least on the marriage dimension. Thus, assimilation is not solely a function of immigrant effort to make life style changes;

rather, barriers exist to assimilation and are related to the context of reception and the opportunities immigrants are given to assimilate (Portes and Rumbaut 1996). Ironically, negative sentiment towards immigrants, likely related to perceived individual's fear of economic competition, perceived failure of immigrants to speak English, or fear that Mexican immigration threatens to divide American culture Huntington 2004), may only stand to increase the effects of ethnic replenishment on endogamy.

Our analysis is not without limitations. We cannot distinguish at a higher level than $2^{nd}$ generation. This is important given the volume of research that suggests third and higher generation Mexicans are at risk for stagnation or decline on other assimilation measures (Rumbaut 2005; Telles and Ortiz 2009). Furthermore, this current research is only considered with one of the many dimensions of assimilation (Gordon 1964). Future researchers should consider quantitative tests how and if immigrant replenishment affects complementary structural and cultural measures including spatial mobility, friendship formation, or native language retention/abandonment. Alternatively, future scholars may apply similar methods used in this paper to examine assimilation measures for other immigrant groups or consider comparative research across multiple immigrant groups. Overall, future researchers should consider similar methodological choices outlined in this paper when conducting research on intermarriage. That is, our analysis disaggregates generational status and local context through the use of Riosmena and Massey's (2012) adaptation of Singer's (2004) destination types. These choices may provide future researchers more nuanced pictures of assimilation measures when considering intergenerational mobility of Mexicans or other immigrant groups. Disaggregating intermarriage beyond the state level is criti-

cal for providing a representative picture of immigrant assimilation patterns over time. Disaggregating and conducting similar analyzes at lower levels may also prove necessary to further our understanding of the relationship between immigrant replenishment, spatial diffusion and marital assimilation.

# 4.6 Appendix

**Table 4.7:** Multilevel logistic regression of $1^{st}$ generation Mexican intergenerational marital behavior across settlement areas, 1980-2012

| | Married intergenerationally vs. married exogamously | | | | | |
| | Traditional | | Re-emerging | | New | |
| | coef | s.e. | ceof | s.e. | coef | s.e. |
|---|---|---|---|---|---|---|
| Constant | 0.563 | 0.117** | -0.559 | 0.276** | -1.943 | 0.352** |
| % of c-PUMA living in metro area | 0.234 | 0.084** | 0.451 | 0.236* | -0.123 | 0.236 |
| Occ. segregation (cross-sect.) | 0.042 | 0.053 | 0.063 | 0.090 | -0.107 | 0.106 |
| Occ. segregation (longit.) | 0.028 | 0.032 | -0.148 | 0.087 | -0.182 | 0.114 |
| Sex ratio (cross-sect.) | -0.147 | 0.053** | -0.090 | 0.083 | -0.242 | 0.110** |
| Sex ratio (longit.) | -0.016 | 0.040 | 0.055 | 0.104 | -0.103 | 0.100 |
| Sex ratio (cross-sect.)Xgender | 0.072 | 0.060 | 0.175 | 0.146 | 0.230 | 0.179 |
| Sex ratio (longit.)Xgender | -0.024 | 0.057 | -0.090 | 0.172 | 0.032 | 0.202 |
| % speaking Spanish at home (cross-sect.) | 0.297 | 0.071** | 0.310 | 0.109** | 0.513 | 0.121** |
| % speaking Spanish at home (longit.) | 0.211 | 0.035** | 0.019 | 0.077 | 0.045 | 0.100 |
| White's neg. feelings twd Hisp. (cross-sect.) | -0.047 | 0.043 | -0.049 | 0.073 | -0.170 | 0.085* |
| White's neg. feelings twd Hisp. (longit.) | -0.010 | 0.042 | -0.103 | 0.089 | -0.019 | 0.102 |
| Relative group size (cross-sect.) | 0.475 | 0.078** | 0.287 | 0.110** | 0.157 | 0.124 |
| Relative group size (longit.) | 0.004 | 0.041 | 0.323 | 0.168** | 0.017 | 0.146 |
| **Micro-level controls** | | | | | | |
| Female | -0.342 | 0.053** | -0.075 | 0.133 | -0.070 | 0.161 |
| Age | -0.037 | 0.009** | -0.058 | 0.022** | -0.073 | 0.025** |
| Years of education | -0.161 | 0.012** | -0.132 | 0.027** | -0.081 | 0.031** |
| Speaks English | -0.809 | 0.123** | -1.153 | 0.268** | -1.112 | 0.268** |
| Time | 0.335 | 0.048** | 0.061 | 0.113 | 0.414 | 0.127** |
| **Variance components** | | | | | | |
| c-PUMA | 0.083 | | 0.001 | | 0.001 | |
| c-PUMA-Time | 0.010 | | 0.001 | | 0.001 | |
| sd(Time) | 0.001 | | 0.084 | | 0.001 | |
| **Observations** | | | | | | |
| c-PUMA | 164 | | 100 | | 221 | |
| c-PUMA-Time | 527 | | 307 | | 528 | |
| Individuals | 23,841 | | 2,651 | | 1,924 | |

*$p < .05$, ** $p < .01$ (two-sided); Note: Macro level variables standardized, micro level variables grand-mean centered

# References

Alba, R. and Nee, V. (2003). *Remaking the American Mainstream: Assimilation and Contemporary Immigration.* Harvard University Press, Cambridge. 125, 155

American National Election Studies (ANES) (2010). *Time Series Cumulative Data File.* Stanford University and University of Michigan. 139

Barcus, H. R. and Simmons, L. (2013). Ethnic restructuring in rural america: Migration and the changing faces of rural communities in the great plains. *The Professional Geographer*, 65:130–152. 126

Bates, D., Maechler, M., and Bolker, B. (2012). Lme4: Linear mixed-effects models using s4 classes. R package version 0.999999-0. `CRAN. R-project. org/ package= lme4 `. 138

Bean, F. D. and Stevens, G. (2003). *America's Newcomers and the Dynamics of Diversity.* Russell Sage Foundation, New York. 125

Blau, P. M. (1977). *Inequality and Heterogeneity. A Primitive Theory of Social Structure.* Macmillan, New York. 133

Blau, P. M. and Schwartz, J. (1984). *Crosscutting Social Circles: Testing a Macrostructural Theory of Intergroup Relations.* Academic Press, New York. 133

Donato, K. M., II, C. M. T., Nucci, A., and Kawano, Y. (2007). Recent immigrant settlement in the nonmetropolitan united states: Evidence from internal census data. *Rural Sociology*, 72:537–559. 126, 129

Duncan, O. D. and Duncan, B. (1955). A methodological analysis of segregation indexes. *American Sociological Review*, 20:210–217. 139

Durand, J., Massey, D. S., and Charvet, F. (2000). The changing geography of mexican immigration to the united states: 1910-1996. *Social Science Quarterly*, 81:5–15. 126

## REFERENCES

Fairbrother, M. (2014). Two multilevel modeling techniques for analyzing longitudinal survey datasets. *Political Science Research and Methods*, 24:1–22. 136

Fryer, R. G. (2007). Guess who's been coming to dinner? Trends in interracial marriage over the 20th century. *Journal of Economic Perspectives*, 21:71–90. 125

Fu, V. K. (2010). Remarriage, delayed marriage, and black/white intermarriage, 1968-1995. *Population Research and Policy Review*, 29:687–713. 133

Furtado, D. and Theodoropoulos, N. (2011). Interethnic marriage: A choice between ethnic and educational similarities. *Journal of Population Economics*, 24:1257–1279. 133

Gordon, M. M. (1964). *Assimilation in American Life: The Role of Race, Religion, and National Origin.* Oxford University Press, Oxford. 158

Gullickson, A. (2006). Black/white interracial marriage trends, 1850-2000. *Journal of Family History*, 31:289–312. 125, 133

Huntington, S. P. (2004). *Who are We? The Challenges to America's National Identity.* Simon & Schuster, New York. 158

Hwang, S.-S., Saenz, R., and Aguirre, B. E. (1997). Structural and assimilationist explanations of Asian American intermarriage. *Journal of Marriage and Family*, 59:758–772. 125, 133

Hwang, S.-S. and Seanz, R. (1990). The problem posed by immigrants married abroad on intermarriage research: The case of Asian Americans. *International Migration Review*, 24:563–576. 136

Iceland, J. and Nelson, K. A. (2008). Hispanic segregation in metropolitan america: Exploring the multiple forms of spatial assimilation. *American Journal of Sociology*, 73:741–765. 126

Jiménez, T. R. (2008). Mexican immigrant replenishment and the continuing significance of ethnicity and race. *American Journal of Sociology*, 113:1527–1567. 127, 134, 156, 157

Kalmijn, M. (1998). Intermarriage and homogamy: Causes, patterns, trends. *Annual Review of Sociology*, 24:395–421. 125, 133

Kalmijn, M. and van Tubergen, F. (2010). A comparative perspective on intermarriage: Explaining differences among national-origin groups in the United States. *Demography*, 47:459–479. 133

Kandel, W. and John, C. (2004). *New Patterns of Hispanic Settlement in Rural America. Rural Development Research Report 99*. United States Department of Agriculture, Washington, D.C. 129

Leach, M. A. and Bean, F. D. (2008). The structure and dynamics of mexican migration to new destinations in the united states. In Massey, D. S., editor, *New Faces in New Places: The Changing Geography of American Immigration*, pages 51–74. Russell Sage, New York. 126, 129

Lichter, D. T., Carmalt, J. H., and Qian, Z. (2011). Immigration and intermarriage among Hispanics: Crossing racial and generational boundaries. *Sociological Forum*, 26:241–264. 125, 127, 133, 134, 135, 138

Lichter, D. T. and Johnson, K. M. (2009). Immigrant gateways and hispanic migration to new destinations. *International Migration Review*, 43:496–518. 129, 130, 131

Lievens, J. (1998). Interethnic marriage: Bringing in the context through multilevel modelling. *European Journal of Population*, 14:117–155. 133

Massey, D. S., editor (2010). *New Faces in New Places. The Changing Geography of American Immigration*. Russell Sage Foundation, New York. 126, 129

Massey, D. S. and Capoferro, C. (2008). The geographic diversification of american immigration. In Massey, D. S., editor, *New Faces in New Places: The Changing Geography of American Immigration*, pages 25–50. Russell Sage, New York. 129

# REFERENCES

McPherson, M., Smith-Lovin, L., and Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27:415–444. 138

Mouw, T. and Sharma, A. (2009). Migration and the diffusion of latinos in the united states, 1980-2007. *Working Paper*. 126

Okamoto, D. G. (2007). Marrying out: A boundary approach to understanding the marital integration of Asian Americans. *Social Science Research*, 36:1391–1414. 132, 133

Portes, A. and Rumbaut, R. G. (1996). *Immigrant America: A Portrait*. University of California Press, Berkeley. 158

Portes, A. and Rumbaut, R. G. (2001). *Legacies: The Story of the Immigrant Second Generation*. University of California Press. 154

Qian, Z., Glick, J. E., and Batson, C. D. (2012). Crossing boundaries: Nativity, ethnicity, and mate selection. *Demography*, 49:651–675. 132

Qian, Z. and Lichter, D. T. (2007). Social boundaries and marital assimilation: Interpreting trends in racial and ethnic intermarriage. *American Sociological Review*, 72:68–94. 125, 126, 132, 155

Qian, Z. and Lichter, D. T. (2011). Changing patterns of interracial marriage in a multiracial society. *Journal of Marriage and Family*, 74:1065–1084. 125, 127, 132, 135, 155

Riosmena, F. and Massey, D. S. (2012). Pathways to el norte: Origins, destinations, and characteristics of mexican migrants in the united states. *International Migration Review*, 46:3–36. 126, 129, 131, 134

Rosenfeld, M. J. (2002). Measures of assimilation in the marriage market: Mexican americans 1970-1990. *Journal of Marriage and Family*, 64:152–162. 132, 155

Rosenfeld, M. J. (2008). Racial, educational and religious endogamy in the United States: A comparative historical perspective. *Social Forces*, 87:1–31. 125

Ruggles, S., Alexander, J. T., Genadek, K., Goeken, R., Schroeder, M. B., and Sobek, M. (2010). *Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database].* University of Minnesota, Minneapolis. 136

Rumbaut, R. G. (2005). Sites of belonging: Acculturation, discrimination, and ethnic identity among children of immigrants. In Weiner, T. S., editor, *Discovering Successful Pathways in Children's Development: Mixed Methods in the Study of Childhood and Family Life.* University of Chicago Press, Chicago. 158

Singer, A. (2004). *The Rise of New Immigrant Gateways.* Center on Urban and Metropolitan Policy. 126, 129

Spörlein, C., Schlüter, E., and van Tubergen, F. (2014). Ethnic intermarriage in longitudinal perspective: Testing structural and cultural explanations in the united states, 1880-2011. *Social Science Research*, 43:1–15. 133

Telles, E. E. and Ortiz, V. (2009). *Generations of Exclusion. Mexican Americans, Assimilation and Race.* Russell Sage, New York. 158

Waters, M. C. and Jiménez, T. R. (2005). Assessing immigrant assimilation: New empirical and theoretical challenges. *Annual Review of Sociology*, 31:105–125. 129

Zúniga, V. and Hernández-León, R., editors (2005). *New Destinations: Mexican Immigration in the United States.* Russell Sage, New York. 129

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