

The health of returned migrants in Mexico

María Vignau Loría

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Nathalie Williams

Stewart Tolnay

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María Vignau Loria

University of Washington

Abstract

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María Vignau Loria

Chair of the Supervisory Committee:
Nathalie Williams
Department of Sociology

Scholars of immigrant health have studied the health of Mexican returned migrants as it relates to phenomena such as health acculturation or the Hispanic Health Paradox; however, there is a gap in our knowledge regarding how the post-return context and the process of reintegration impact health. Using data from the Mexican Migration Project, this study examines the health of returned migrants in Mexico with a cross-national perspective by looking at the relationship between their health trajectories during their time in the U.S. and their post-return health trajectories. I explore whether having had a negative, flat or positive change in health while being international migrants predicts differences in post-return health trajectories. My results suggest that those migrants whose health deteriorated while they were in the United States saw significant and substantial improvements once they were back in Mexico.

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DEDICATION

To my grandmothers, Tita and Abuela.

They were the most courageous women I have ever known, and they filled my life and my soul
with their wisdom, their fortitude and their infinite love.

They will forever be a source of inspiration.

1 INTRODUCTION

In the last months of 2015, in news headlines, conversations in academia, and debates in policy settings, the United States contemplated with surprise the unprecedented increase in the numbers of Mexican immigrants returning to their home country. On the Mexican side of the border these conversations started even earlier. The National Institute of Statistics, Geography and History reported that the net migration rate to the United States had been very close to zero in 2010 (INEGI 2012), the National Population Council estimated that the likelihood that male migrants would return to Mexico doubled between 2000 and 2010, and they likewise calculated that return migration from the U.S. –both voluntary and forced– increased by 229% in that same period (CONAPO 2015)¹. It should not be surprising then that early in 2015 the Mexican Congress discussed the potential social and economic repercussions of this unprecedented flow of returned migrants (García-Mora 2015).

Return migration has been a constant component of the Mexico-U.S. migration flow and, much as it is with emigration, its intensity, dynamics and socio-demographic composition are impacted by economic and political developments, as well as policy decisions, on both sides of the border. In the current context, studies that have looked at the causes of the sharp increase in return migration since 2005 have highlighted the roles of the economic recession, the tightening of immigration controls, the increasing levels of deportations and the rising anti-immigrant sentiment in the United States (Masferrer and Roberts 2012; CONAPO 2015). However, despite

¹ The ability to capture and measure return migration has been a challenge for the Mexican population institutes (INEGI, CONAPO). However, there are some useful numbers that can help us draw a good picture: the 2010 Census identified 985,383 migrants that had returned from the U.S. in the last five years (Mexicans that migrated between 2005 and 2010 and came back by 2010), which rose from the 300,000 that were identified in the 1995-2000 period (Giorguli et al. 2014). Additionally, 365,000 U.S.-born returned to Mexico in the 2005-2010 period, most of them children with Mexican parents. Finally, between 2009 and 2013, 2.7 million Mexicans were deported from the United States (CONAPO 2015), an unparalleled number by any standards.

its prolonged existence and the growing numbers of returnees, return migration has been a relatively understudied process –particularly when compared to emigration from Mexico to the U.S. and to immigrants’ processes of adaptation to American society. Additionally, most of the research on the subject has focused on the causes of return migration and, to a lesser extent, on the economic dimensions of returnees’ re-integration.

This study examines the health of returned migrants, a particularly understudied dimension of returnees’ characteristics. Most importantly, this work seeks to explore the relationship between migrants’ health during their migration experience in the U.S. and their health upon return to Mexico, thus considering and linking experiences at both destination and post-return contexts.

What research there is on Mexican returned migrants’ health has studied the topic under two broad perspectives. The first perspective questions whether immigrants’ health in the United States is a determinant of return migration (Arena et al. 2015; Riosmena et al. 2013; Turra and Elo 2008; Palloni and Arias 2004). The second perspective investigates the impact of some elements of the migration experience on the health of returned migrants (Ullman et al. 2011). The first set of studies, under the framework of the “Hispanic Health Paradox”, has given us valuable insights into the existence of a negative health selection for return migration, while the second set, under the framework of “health acculturation”, has furthered our understanding of how adaptation/assimilation to the host culture impacts migrants’ health. However, despite their thematic focus on returned migrants, the theoretical focus of these studies remains steadily on the country of destination, i.e., the United States. There remains a gap in our knowledge regarding the post-return context and its processes. How does re-integration to the country of origin and departure from the host society impact returnees’ health? What is the effect on well being of re-

adaptation to a once familiar environment and how does it relate to a previous experience of adaptation to an unfamiliar one? How do these processes differ for migrants that had negative impacts on their health during their migration experience versus those whose health remained the same or improved? These are the questions that motivate this work.

The goal of this research is to examine whether returnees' health improves or deteriorates once migrants go back home. It does so by examining post-return health trajectories and their relationship to changes in health during the migration experience.

The best-suited dataset to achieve this goal is the “Mexican Migration Project” (MMP), a bi-national research project from the Universities of Guadalajara and Princeton. The unique breadth and scope of the MMP presents several advantages. First, it allows me to work with a representative sample of returned migrants. Second, this data source contains individual and contextual level information for both destination and post-return origin contexts. Finally, the MMP collects retrospective information on self-rated health at different points in time, including specific questions on health prior and after U.S. migration. By building variables that reflect changes in self-rated health in both the U.S. context and the post-return Mexican context, I am able to observe changes in migrants' health during their migration experience in the United States and explore their relationship to changes in health once they have returned to Mexico.

The contributions of this study must be contextualized in an era in which we can only expect migration to increase and health to occupy a crucial place in policy agendas. On the one hand, it will give us a better understanding of the elements that affect the health of Mexican returned migrants –knowledge which, given the bi-national nature of this growing phenomenon, should guide bilateral policy efforts from both sides of the border. On the other hand, by examining post-return health and its links to health during migration, this research will shed new

light on the complex relationship between migration and health across time and contexts – informing a final and unobserved stage of the Hispanic Health Paradox– and will further problematize the health acculturation framework to include questions on re-adaptation and re-integration to the country of origin.

2 THEORY AND BACKGROUND

2.1 RETURN MIGRATION AND THE HISPANIC HEALTH PARADOX

Socioeconomic stratification, measured by differences in income, education and occupational status, has been posited as the main explanation for health inequalities (Buttenheim et al. 2010; Goldman 2001) –including disparities that follow ethnoracial lines (Elo 2009). Health thus seems to follow a social gradient where “the higher the social position, the better the health” (Marmot and Wilkinson 2006). Furthermore, this association has been identified “across time, place, gender and age” (Goldman 2001: 118). However, it has been consistently documented that Hispanics in the U.S. have a mortality advantage over non-Hispanic whites despite their lower levels of socioeconomic status, educational attainment and worse access to health care (Turra and Elo 2008; Palloni and Arias 2004). This phenomenon is known as the Hispanic Health Paradox (HHP). Scholars have identified four noncompeting explanations for this puzzling immigrant advantage (Riosmena et al. 2013): data problems that artificially bias immigrant health measures (such as incongruent reports of race/ethnicity or underreporting health problems), sociocultural protection (both at origin and destination) and two types of migration selection, the healthy migrant effect and the “salmon bias” hypothesis of return migration. The first type of selection refers to positive health selection for emigration, which

posits that Hispanics in the U.S. are healthier than non-Hispanic whites partly because “migrants are healthier than the average person in both the country of origin and the country of destination” (Turra and Elo 2008:516). The second source of possible selection hypothesizes the existence of negative health selection for return migration. In other words, migrants that are unhealthy return to their country of origin and thus their mortality, or disadvantaged health, experience is omitted from data for the Hispanic population that lives in the U.S. Consequently, under the salmon bias framework of migration selection, returnee’s health and its comparison with migrants that stay has become a relevant matter of consideration by those who have tried to understand the epidemiological paradox.

Most studies that have tested the salmon bias hypothesis have indeed found evidence of negative health selection for returning immigrants (Arenas et al. 2015; Riosmena et al. 2013; Turra and Elo 2008). According to Palloni and Arias (2004), this situation might be even more pronounced in the case of Mexican immigrants because their country of origin is easily reachable, which would imply that migrants that are in poor health and in vulnerable situations can return to Mexico with relative ease. Despite these findings, most of the research also agrees that biases related to return migration attrition might account for some, but not all, of the Hispanic Health Paradox (Riosmena et al. 2013; Turra and Elo 2008; Hummer et al. 2007)².

Given my research question, I am less interested in matters of health selection for migration and more concerned with how these studies’ findings regarding the health of returnees relate to my question of post-return health. Prior research gives us an insight into the health-related outcomes that are prevalent in the negative health selection for return: hypertension,

² For instance, Hummer et al. (2007) find a significant mortality advantage for newborn infants born to Mexican immigrant women compared to those born to non-Hispanic white American women. This advantage –about 10% lower mortality for children of Mexican immigrant women– is unlikely to be due to the return migration of infants who are less than one hour, one day or one week old.

smoking, obesity and self-rated health (Riosmena et al. 2013) and change in health since emigrating from Mexico (Arenas et al. 2015). Self-reported health is the outcome that I will examine in this study. Furthermore, the findings of these studies suggest that returned migrants go back to their country of origin because of health concerns that developed during their stay in the U.S. If negative selection is operating, as Palloni and Arias (2004) argue for the case of Mexican migrants, how does it position the returned migrants for changes in health once they are back in Mexico? Specifically, does their recent experience of deteriorating health status while in the U.S. make them more likely than other returned migrants to enjoy health improvements? Or does it make them more vulnerable to further declines in health?

Scholars interested in the Hispanic Health Paradox might in turn learn from research that explores what happens after migrants return home. Significant improvements in health once Mexican migrants return might suggest that they indeed go back because they are unhealthy and they have access to better socioeconomic, social/affective, cultural and structural resources back in Mexico. From another perspective, knowing whether the health of those migrants continues to decline or improves might speak to the HHP debate on the importance of migration selection vs. sociocultural protection (particularly the Mexico-based protection).

2.2 HEALTH ACCULTURATION AND THE STUDY OF IMMIGRANTS' HEALTH

Research on the health of immigrant populations is often done under the “health acculturation” framework. This theoretical perspective allows scholars to capture how different elements of the migration experience and contact with the host country’s sociocultural norms and institutions affect immigrants’ health.

Franz Boas first formulated the notion of acculturation in 1888 as a “group-level phenomenon involving cultural change and adaptation” (Lopez-Class et al. 2011). Later on, as Milton Gordon worked on questions about immigrants’ integration to a host society, he re-conceptualized the more anthropological notion of acculturation adopted by the Chicago School (mostly through the work of Robert Park) as the “change of cultural patterns to those of the host society” (Gordon 1964:71). Acculturation was thus understood as the behavioral and cultural stage of a larger process of structural assimilation to a new society. The definition adopted by Gordon and other assimilation scholars at the time spoke of a linear, unidimensional, inevitable and irreversible process in which immigrants lose their original culture while adopting a new one (Alba and Nee 2003). Assimilation and acculturation scholars later recognized the multidimensional, non-linear and reciprocal nature of both phenomena (Lara et al. 2005; Allen et al. 2014; Lopez-Class et al. 2011), allowing for a better understanding of the complex relationship between the original and new culture and the changes that such contact brings about –thus including phenomena such as biculturalism, cultural awareness, or ethnic loyalty (Abraído-Lanza et al. 2006).

Despite the contemporary acknowledgment of acculturation as a multidimensional and dynamic phenomenon, ambiguity still persists regarding the operationalization, measurement, and application of the concept. There are several critiques of the disproportionate use of language as a unidimensional measure of acculturation, and so researchers have striven to develop multidimensional scales that incorporate different proxy measures. In their review of the operationalization of acculturation, Lara et al. (2005:372) classify the different scales by the subconstructs they intend to measure: (a) engagement in culturally specific behaviors (such as dietary habits), (b) language use, proficiency and preference, (c) knowledge of culture-specific

history and events, (d) sense of cultural identity and (e) adoption of culture specific beliefs and values. Additionally, recent studies have called for the recognition of the role of context in the process of acculturation, such as place of residence, length of exposure to the host culture and social networks, as well as societal structures, policies and other ecological conditions such as the presence of ethnic enclaves and other neighborhood characteristics (Lopez-Class et al. 2011).

As mentioned before, the notion of acculturation has been widely adopted by health scholars as a framework for understanding how and why immigrants' contact with a different culture –whether they are marginalized, separated, integrated or assimilated– has direct and indirect impacts on their health. Researchers have theorized that the mechanisms that underlie this complex relationship work mostly through changes in attitudes, behaviors, beliefs, and values (Lopez-Class et al. 2011; Lara et al 2005; Reichman 2006). However, the causes by which these changes occur remain very much unexplained; in other words, despite strong empirical evidence of associations between acculturation and health, there is an absence of an equally strong theoretical understanding regarding the mechanisms for the acquisition and/or loss of health related values, belief systems or practices (Abraído-Lanza et al. 2006).

Still, there are a few studies that might give us some insights into the mechanisms of these acculturative changes. For instance, in her qualitative study of female Mexican immigrants in Santa Fe, New Mexico, Reichman (2006) revealed that the process of acculturative change in health-related cognitions, beliefs and behaviors –such as cognitive models of health and sickness, beliefs about diet and exercise and attitudes towards traditional medicine– differed for women that strongly identified with their culture of origin and those who did not; the latter group adopted new health-related cognitions and beliefs much faster than the former. Additionally, she revealed that these changes are much faster than what has been previously thought.

2.3 EMPIRICAL FINDINGS: HEALTH ACCULTURATION OF MEXICAN IMMIGRANTS

When it comes to research on Mexican immigrants in the United States, most studies have found negative associations between various health outcomes and measures of acculturation and exposure to American society (Viruell-Fuentes 2007; Riosmena 2013; Lara et al. 2005). In other words, despite differences in measurement and operationalization, there is strong evidence from various studies that acculturation has a negative effect on the physical and mental health of immigrants, particularly on outcomes such as substance abuse (e.g., drugs, smoking, and alcohol), nutrition and dietary patterns, and low birth weight and prematurity (Lara et al. 2005; Abraído-Lanza et al. 2006).

The explanation for these empirical findings, in other words the mechanisms that underlie this negative association, is that acculturated immigrants lose health-protecting factors related to culture-driven health behaviors and social networks while, at the same time, adopting unhealthy lifestyles that are more pervasive in the United States (Ullman et al. 2011). For instance, Neuhouser et al. (2004) found that dietary habits changed as Mexicans acculturated to the United States, eating less fruits and vegetables and increasing their fat intake. Similarly, Gordon-Larsen et al. (2003) found that acculturation had a strong effect on Hispanic immigrants' overweight-related behaviors such as diet and inactivity. Both Scribner (1996) and Abraído-Lanza et al. (2005) found that acculturation is associated with changes in risky health behaviors such as increased consumption of tobacco and alcohol. Research has also found evidence of relationships between chronic disease and both duration in the United States (Cho et al. 2004) and acculturation (Gorman et al. 2010).

It must also be acknowledged that some studies have found positive and/or mixed effects of acculturation on certain health outcomes and behaviors (such as health care use or greater exercise and leisure-time physical activity), suggesting that the overall effect of acculturation to mainstream U.S. culture on behavior and health outcomes is complex and not perfectly established (Lara et al. 2005; Abraído-Lanza et al., 2005).

All of these studies do a good job of exploring the effect of acculturation on the health outcomes of Mexican immigrants. However, all of them have been conducted on immigrants, or their children, who remain in the United States, with the explicit intention of addressing the health consequences of different modes of adaptation/integration and experience *while in the host society*. Additionally, by failing to consider return migration and thus, return attrition, these works might portray a biased calculation of the negative impact of acculturation on health³ (Riosmena et al. 2013).

2.4 MEXICAN IMMIGRANTS IN THE UNITED STATES: ECONOMIC AND SOCIAL OPPRESSION

It would be somewhat misleading to only attribute changes in migrants' health to cultural differences –and resulting alterations– in health-related cognitions, behaviors and attitudes. There are many health-threatening vulnerabilities that result from the migration experience alone, such as separation from one's familiar social environment, disruptions to social ties, segregation, lack of material resources and experiences of exploitation, oppression and discrimination (Allen et al. 2014; Holmes 2013). As Abraído-Lanza et al. (2006:1344) aptly warn us, the simplification of culture into acculturation scores might cloud our understanding of

³ As Riosmena et al. (2013:1040) argue, when scholars test for immigrants' negative acculturation in health while “ignoring return migrants from the calculations of the effects of variables such as duration of stay and acculturation scales”, the resulting estimates could be (upwardly) biased.

the way in which other structural constraints and social forces that condition the experience of immigration –from access to resources or health care to racism or exploitation– affect the health of migrants.

Studies have amply documented that Mexican immigrants have “particularly high levels of employed poverty”, as well as higher exposure to occupational risks and job hazards such as “higher levels of physical strain, exposure to heights, and repetitive motions” (Hall and Greenman, 2014: 406-408; Holmes 2013). Immigrants’ experiences of racism, discrimination and, in the case of undocumented immigrants, fear of deportation, also have detrimental effects on their health (Hacker 2011; Cavazos-Regh et al. 2007).

Consequently, post-return health trajectories are also shaped by the fact that many migrants suffer from poverty, marginalization and exploitation while they are in the United States and, as Holmes’ (2013) ethnography of indigenous Mexican migrants reveals, they “voluntarily” return home sick, injured and broken down in order to leave these situations behind and seek refuge in their communities.

3 HYPOTHESES

As I have claimed, scholars have approached the question of Mexican returned migrants’ health only peripherally either by focusing on migrants’ experience in the host country (health acculturation at destination) or by framing it as a migration selection mechanism that might help to partially explain an epidemiological phenomenon (Hispanic Health Paradox). The study conducted by Ullman et al. (2011) does explore the health of returned migrants in Mexico, but it retains a firm focus on what happens in the country of destination. The authors’ finding that returned migrants have worse health outcomes than non-migrants is explained both by negative

selection for return (i.e. migrants return because they are unhealthy) and the negative impact of acculturation to American society.

There is still a need to problematize what happens to Mexican migrants that, after being exposed to the constraints of migration and going through processes of health acculturation, go back to their country of origin. Naturally, there are many elements of the American and Mexican contexts and experiences that can positively and/or negatively impact post-return health; from socioeconomic well being to social and affective ties, from policy proceedings on either side of the border to cultural changes and re-adjustments in beliefs and behaviors. The goal of my research is to study migrants' health trajectories upon return and how they are related to health trajectories during migration. Specifically, I will explore whether having had a negative, positive or flat health trajectory during their migration experience in the U.S. predicts differences in post-return health trajectories.

There are nine possible combinations of health trajectories at destination and upon return – migrants' health could have improved, declined or remained stable while they were in the U.S. and it could have similarly declined, improved or remained stable after they return to Mexico. These analytical and empirical possibilities are illustrated in **Figure 1**. Out of all these outcomes, I will develop and test three hypotheses based on the theoretical and empirical arguments of the health acculturation framework and the findings of studies that have examined processes of re-entry and re-integration in other parts of the world. Additionally, in order to perform tests for statistical differences between groups, these hypotheses will be built with the migrants whose health did not change during their migration experience in the U.S. as the reference group.

		Health Trajectory While in the United States		
		Declined	Remained Stable	Improved
Health Trajectory After Return to Mexico	Declines	a.	b.	c. Hypothesis 2
	Remains Stable	d. Hypothesis 3	e.	f. Hypothesis 3
	Improves	g. Hypothesis 1	h.	i.

Figure 1. Health trajectories at destination and upon return

Hypothesis 1. Compared with migrants whose health remained stable during their migration experience, migrants whose health deteriorated while they were in the U.S will have a positive post-return health trajectory [cell g of Figure 1]⁴.

Considering the theoretical arguments of the literature reviewed so far and the findings of previous research, I would argue that the negative impact of acculturation on immigrant health works mostly through three mechanisms: (a) the loss of health-protecting culture-driven health behaviors (e.g. healthier dietary habits) (b) the adoption of unhealthy American lifestyles (e.g. taking up smoking or drinking alcohol); and (c) the loss of health-enhancing influences provided

⁴ The arguments brought forth to support this hypothesis also support the notion of excluding the possibility of cell a of Figure 1.

by the availability of supportive social networks and social ties (e.g., social support for coping with stress).

Thus, by leaving the host society and going back to their families, friends and communities, these migrants would potentially (a) recover some salubrious health-behaviors in the context of their traditional cultural values, (b) lose some of the host country's unhealthy lifestyles by being removed from that context, and (c) recover the health-enhancing elements of their social networks.

Furthermore, as mentioned above, there are many elements of the migration experience that, although not directly related to acculturation, can have a further negative impact on immigrants' health while in the U.S, particularly for undocumented migrants. Again, by leaving the United States, the effects of these additional stressors would be gone or, at least, significantly reduced upon their return to Mexico. For instance, Arenas et al. (2015) argue that Mexican migrants with poor health find stronger family support, lower cost of living and more-accessible health care in their original communities.

I must reintroduce one additional and fundamental consideration regarding the findings of the HHP: if there is negative health selection for return to Mexico (salmon bias), returned migrants that start out with worse health trajectories will have greater potential for improvement upon return than those whose health didn't change or improved.

Hypothesis 2. Compared with migrants whose health remained stable during their migration experience, migrants whose health improved while they were in the U.S will have a negative post-return health trajectory [cell c of Figure 1]⁵.

⁵ The arguments brought forth to support this hypothesis also support the notion of excluding the possibility of cell i of Figure 1.

There are important theoretical arguments and empirical findings that speak to a different health trajectory, that is, that migrants' health will decline once they go back to their country of origin.

Gullahorn and Gullahorn (1963) first drew attention to the hardships that international migrants face when returning to their home countries in their W-curve theory –also known as reverse culture shock model–, which posits that returnees face an adjustment process of “reacculturation” with challenges and difficulties similar to those of the initial migration to the host country. The W-curve theory has been questioned and criticized since its formulation (Kunuroglu 2016); nevertheless, returned migrants' processes of reintegration and reacculturation to their home countries have been problematized in research since then.

Some scholars argue that “acculturation and integration upon return is qualitatively different and more difficult than the initial stage of adjustment during migration, mainly due to high expectations that reimmigrants often have of their home and the transformations that many immigrants undergo while abroad” (Leavey and Eliacin 2013:206). Research has amply documented the psychological distress that follows processes of reentry given these changes in the place of origin and in migrants themselves (Szkudlarek 2010). For instance, returned migrants have been found to experience isolation, marginalization and “othering” upon return (Cox 2004; Potter 2005), as well as losses of status, familiarity and sense of identity (Tannenbaum 2007). Additionally, studies have found that returnees' often face worse economic conditions and prospects at home, as well as a sense of relative deprivation, which also leads to dissatisfaction and frustration (Boccagni 2011, Gmelch 1980).

I would further argue that these arguments have the insight of considering returned migrants as migrants anew, that is, individuals that face new challenges of economic integration and “affective, cognitive and social cultural adjustment” (Leavey and Eliacin 2013). However, this time they must integrate and adjust to the societies of their home countries, with higher expectations of their own processes of adaptation and often-idealized notions of the once-familiar people and places they will encounter when they return.

Based upon these claims, it is plausible to argue that returned migrants’ health would decline once they are back in Mexico. Would the challenges of readjustment to home vary according to migrants’ health trajectories during U.S. migration experience? Following previous arguments, the group of migrants whose health improved while in the U.S. might be comprised of those that (a) did not acculturate as much as other groups and, accordingly, have little to gain from leaving the influence of unhealthy American lifestyles and going back to healthier Mexican ones and/or (b) experienced less hardship related to the immigration process that negatively impacted their health while they were in the U.S. (i.e. discrimination, exploitation or material hardship). Finally, healthier migrants (those whose health improved while in the U.S.) would not have as much potential for improvement upon return as the previous group.

Thus, this group would be more likely to be impacted by the negative effects of return described here, which would support the hypothesis that they will have a negative post-return health trajectory.

Hypothesis 3. There will not be a statistically significant difference in the post-return health trajectories of migrants whose health remained stable during their migration experience and

migrants whose health changed (either improved or declined) while they were in the U.S [cells d and f in Figure 1].

There is a third possibility: migrants who had health improvements or declines during their migration experience might not look statistically different from migrants whose health did not change while they were in the U.S. This hypothesis is based on two arguments. First, returned migrants' post-return health trajectories are probably impacted by a combination and interaction of negative and positive elements from the two previous hypotheses, that is, by both the difficulties of re-integration and re-adjustment to Mexico and the loss of negative acculturative elements and constraints suffered during their time in the U.S.

Second, we must consider the “persistence of the migration effect”, that is, despite moving back to the country of origin, many migrants retain values, ideas and attitudes that result from their migration experience, from gender expectations to political ideologies, from religious practices to economic ethos. Much as it is with the adoption of new behaviors and beliefs through migrant networks and returned migrants in a transnational context (Levitt 1998; Gmelch 1980), health cognitions, attitudes and practices might also be “imported” from the United States and disseminated in Mexico through returnees (Ullman et al. 2011). Evidence of that is Creighton et al.'s study (2011), which finds that children and adolescents that are part of migrant networks are at greater risk of becoming overweight or obese compared to children with no ties to the U.S. These arguments would suggest that migrants might not go back entirely to all the health-protecting behaviors and attitudes that they had before migration and, similarly, they might not leave all the unhealthy new habits behind.

4 DATA

4.1 SAMPLE

Scholars have claimed that the scarcity of return migration research is mostly due to the lack of reliable quantitative data (Cassarino 2004, Constant and Massey 2002). Fortunately, the long temporal range that characterizes the Mexico-U.S. migration flow, coupled with the high intensity of its volume, has allowed for the design of data sources which potentially allow us to study the complexities of the phenomenon of return.

One such data source is the “Mexican Migration Project” (MMP), a collaborative research project based at Princeton University and the University of Guadalajara, “that enables researchers to track patterns and processes of contemporary Mexican immigration to the United States” (Mexican Migration Project 2016). Every year, four to seven communities across Mexico are randomly selected and, by using Ethnosurveys⁶, this project collects information on household characteristics, demographic information on each of its members, labor histories for household head and spouse and, more importantly, detailed information on migratory experience for household heads and other family members.

The MMP has collected data yearly since 1987 and so far has gathered information on 154 communities, 25,658 households and 162,293 persons. Regarding return migration, the MMP contains information on 8,252 household heads with migration experience to the United States. Unfortunately, the MMP has collected health information for the head of household and spouse only since 2007, which leaves me with 1,537 migrants, 176 of whom are still in the United States and 1,361 that have returned to Mexico. I must clarify here that, following the

⁶ According to the Mexican Migration Project, their Ethnosurvey approach “combines the techniques of ethnographic fieldwork and representative survey sampling to gather qualitative as well as quantitative data.” (MMP 2016).

practice I have observed in the literature, I will consider a returned migrant any person that is in Mexico at the time of the survey and has reported at least one “migration experience” to the United States⁷. Thus, I have information for returned migrants that were interviewed between the years of 2007 and 2015, whose migration experience can either date to many years before the interview or be fairly recent.

It is well known that, for the last 10 to 15 years, the number of Mexican women that migrate to the U.S. has grown consistently; for the 2009-2014 period women comprised one fourth of Mexican international migrants (CONAPO 2015b). Nevertheless, my sample is still predominately male (95%), so I will limit my analysis to them. That leaves me with 1,301 male returned migrants. However, 88 of them had missing information for one or more of the health variables and 12 had missing values for some of the independent variables; these respondents were excluded from the models, leaving a final analytic sample of 1,201 returned migrants.

4.2 VARIABLES

4.2.1 *Changes in self-rated health*

In order to investigate the relationship between health during migration and post-return migration health, I measure both (1) change in self-rated health before and after migration to the United States and (2) change in self-rated health in the time between return to Mexico and the survey interview.

These two variables were constructed using three self-rated health variables available in the MMP: quality of health prior to U.S. migration, quality of health after U.S. migration –these

⁷ To avoid capturing migrants that were on visiting trips, I looked at migrants’ reports on whether they were “currently on their last migration trip” (MMP 2016). All migrants in my final sample reported that they were *not* currently on their last migration trip.

data are defined for the last U.S. trip (Ortmeyer and Quinn 2015) –, and current quality of health. These variables are measured on an ordinal scale ranging from 1 to 4: poor, fair (“regular”)⁸, good and excellent.

The dependent variable, change in self-rated health since return, is defined as current self-rated health minus self-rated health after most recent migration. Similarly, the independent variable of primary interest, change in self-rated health during migration, is defined as self-rated health after most recent migration minus self-rated health before most recent migration (**Figure 2**). These measures have values from -3 to +3, where negative numbers mean worse health (a negative change), a value of zero means no change in health, and a positive number means better health (a positive change).

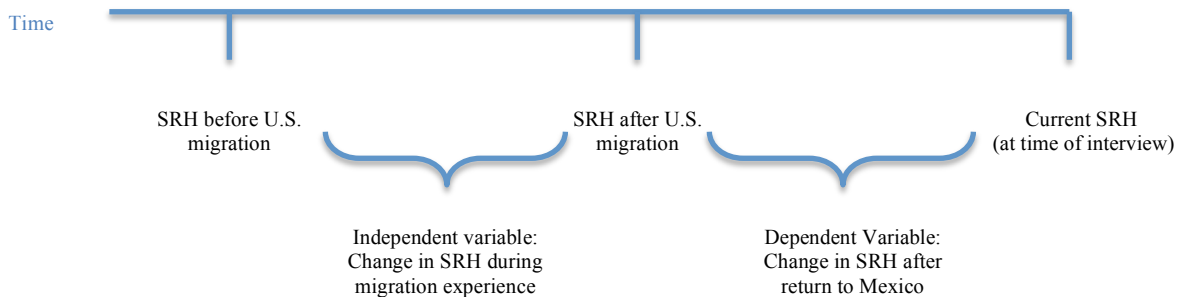


Figure 2. Change in Self-Rated Health during migration experience and after return to Mexico

In the analysis, “no change in health” (0) is the reference category for change in SRH during migration experience. Since there are very few cases where migrants had improvements in health while they were in the U.S., I condense all positive categories (+1, +2, +3) into one single “better” category, which reflects all migrants whose health improved during their migration experience.

⁸ Health scholars have argued that the Spanish word “regular” has a negative connotation. Thus, the best English translation of the word is “fair” (Ullman et al. 2011).

4.2.2 *Mexico post-return characteristics*

I include several variables that reflect individual, household and community characteristics of migrants' lives once they are back in Mexico. First of all, it is important to control for how long migrants have been back in Mexico, so I include a variable for "time back since last migration" (years), which was constructed with the data on date of last migration, duration of last migration and survey year. This variable was tested in preliminary analysis as a linear, quadratic or logged term. In the final models it was categorized to reflect periods of time since return: less than 5 years, 5 to 10 years, 10 to 20 years and more than 20 years.

Research on population health has amply documented the relationship between SES/life chances and health outcomes; "lower socioeconomic status is associated with worse health and higher mortality rates at virtually every point along the life course" (Luftey and Freese 2005). Consequently, I include two variables that reflect SES; first, an individual variable of occupation in Mexico at the time of survey (unemployed as reference, agriculture, unskilled, semi-skilled and skilled) and a household level measure of "assets", which was constructed based on the ownership of ten different assets (stove, refrigerator, washing machine, sewing machine, radio, television, telephone, internet, computer and cellphone) following Ullman et al.'s (2011) example. Additionally, to control for early life SES, I include respondents' years of schooling.

Social isolation and lack of social support have also been found to affect health outcomes (Luftey and Freese 2005). I thus include marital status (married as reference, never married and divorced/separated/widowed) and a dummy variable for whether there are any sons or daughters in the household (1= sons or daughters present).

There are studies that suggest that the experience of return differs for migrants that go back "voluntarily" vs. those that are forced to return (Mestries 2013). Consequently, I include a

binary variable for whether the migrant was deported on his last migration trip to the U.S. (1=deported).

Finally, to control for community characteristics I include whether they are of urban or rural status. Additionally, I include a state-level variable that reflects both geographical and migration criteria in its regional categorization (CONAPO 2010): Traditional (Jalisco, Michoacán, San Luis Potosí, Guanajuato and Zacatecas), Center (Morelos, Puebla and Querétaro) and South/South East (Yucatán, Veracruz and Tabasco).

4.2.3 *Additional controls*

Age is included in the models as a linear variable, although it was tested as a quadratic term in preliminary analysis to test for non-linearities. Finally, I include a control for early life health operationalized as self-rated health at age 14 (poor/fair, good, excellent).

5 METHODS

I estimate ordinary least squares (OLS) regressions predicting post-return change in health (a continuous outcome that goes from -3 to 3). The first model includes only my main independent variable, change in self-rated health during migration, with “same health” as reference. The second model adds the controls for age and early-life health, as well as time since return to Mexico. A third model adds individual characteristics such as marital status, years of education, occupation, and assets. Finally, a fourth model includes the household and community characteristics in Mexico described above, as well as a dummy variable for whether the respondent was deported on his last U.S. trip.

6 RESULTS

6.1 DESCRIPTIVE ANALYSIS

Descriptive statistics of the self-rated health measures as well as selected demographic variables and characteristics of migrants' experiences upon return to Mexico are presented in **Table 1**. Regarding my main variables of interest, the change in self-rated health from before migration to after migration shows that 13.44% of migrants perceived a negative impact on their health during their time in the United States (0.8% with (-3); 3% with (-2); 9.74% with (-1)) and only 0.91% considered their health changed for the better. The change in self-rated health from the time migrants returned to Mexico to the day they were interviewed shows that 26.64% saw declines in health, 66.11% had the same health status and 7.25% had better health. These initial descriptive results show declines in health both during the migration experience and after returning to Mexico; however, at this stage of the analysis there are no controls for age or time since return.

The mean age of the population is 49 years and almost 96% of them are married or in a union. The mean for years of schooling is 6.65, which is equivalent to primary education in Mexico. As for self-rated health, only 3% of the respondents rated their early life health as poor or fair. Similarly, most reported health before migration to the U.S. as good or excellent (74.6% and 22.4% respectively); that changed with reports of health upon returning to Mexico, with 70% rating their health as good and 18% as excellent. Finally, close to 30% of the migrants rate their current self-rated health as poor or fair, 57% rate it as good and 13% as excellent.

Regarding characteristics of migrants' experiences upon returning to Mexico, the mean time that returnees have been back in Mexico is 15.28 years and 13.24% of them were deported

from the United States in their last migration trip. About one quarter of the returned migrants in the sample (24.23%) reside in urban areas. Half of the returned migrants in the sample live in traditional migration states (Jalisco, Michoacán, San Luis Potosí, Guanajuato and Zacatecas), 39% of them live in the central region (Morelos, Puebla and Querétaro) and 10.49% in the South/South East region (Yucatán, Veracruz and Tabasco). Regarding current occupation, 10% of returnees are unemployed, 36% work in agriculture, 10% unskilled jobs, another 10% in semi-skilled jobs and 34% in skilled ones. Most of the households (86%) had either a son or daughter present. Finally, the mean score for the “household assets score” described before was 6.44.

Table 1. Descriptive statistic of demographic and health characteristics (N= 1,201)

	Full sample % or Mean	Standard deviation
Health before going to the U.S.		
Poor	0.25	
Fair	2.66	
Good	74.60	
Excellent	22.48	
Health upon returning to Mexico		
Poor	3.00	
Fair	9.16	
Good	70.19	
Excellent	17.65	
Current health		
Poor	5.00	
Fair	25.15	
Good	57.20	
Excellent	12.66	
Change in SRH during migration to the U.S.		
Much-much worse (-3)	0.8	
Much worse (-2)	3.00	
Worse (-1)	9.74	
Same (0)	85.60	
Better (+1, +2, +3)	0.91	
Change in SRH upon return to Mexico and time of survey		
-3	0.33	
-2	5.66	
-1	20.65	
0	66.11	
+1	6.66	
+2	0.42	
+3	0.17	
Age	49.23	14.66
Marital status		
Married/Union	95.84	
Never married	0.58	
Divorced/separated/widowed	3.58	
Years of education	6.64	3.84
Self-rated health status		
Health at age 14		
Poor/Fair	3.00	
Good	48.46	
Excellent	48.54	
Time back since last migration (years)	15.28	13.35
Deported from the U.S. on last trip	13.24	
Region in Mexico		
Traditional	50.29	
Center	39.22	
South/South-East	10.49	
Urban	24.23	
Occupation in Mexico		
Unemployed	9.91	
Agriculture	35.97	
Unskilled	10.07	
Semi-skilled	9.66	
Skilled	34.39	
Assets (max. 10)	6.44	1.86
Household with sons/daughters present	86.18	

6.2 MULTIVARIATE ANALYSIS: CHANGE IN SELF-RATED HEALTH UPON RETURNING TO MEXICO

Results of the analysis of change in self-rated health in the time between return to Mexico and the survey interview are presented in **Table 2**. Model 1 explores the relationship between my main variables of interest; change in self-rated health during migration and change in self-rated health post migration. Results show that migrants that had the worst decline in health during their time in the U.S. (-3) see significant and very substantial improvements in their health once they are back in Mexico compared with those whose health did not change while they were in the U.S.; they gain 1.66 points in the 7-point ordinal scale that measures post-return change in health. In other words, migrants that went from having excellent health before migration to poor health after migration (1-4= -3) recuperate more than half the “health points” that they lost during their time in the U.S. Migrants whose health got much worse (-2) and worse (-1) while they were in the U.S. also saw significant improvements in their health once they were back (0.75 and 0.45 points in the scale that measures post-return change respectively). In contrast, those whose health got better during their international migration experience are not significantly different from those whose health stayed the same while they were in the U.S. These results support two of the hypotheses presented earlier. First, returned migrants that had negative health trajectories while they were in the U.S. have positive post-return health trajectories. As stated earlier, these are presumably the migrants that were negatively impacted by health acculturation and/or the migration experience. They are also the ones that were negatively selected for return and thus had greater room for improvement once they were back in Mexico. On the other hand, those returned migrants that had positive health trajectories while they were in the U.S. are not statistically different from those whose health stayed the same; these are the migrants that have

less to gain/more to lose from leaving the U.S. in terms of health (since they were positively impacted during their time as international migrants) and, for that same reason, would be more likely to be impacted by the challenges and “shock” of reintegration and readjustment described above. At the same time, unlike the “sick” group, these migrants have less room for improvement.

Model 2 adds controls for age and early life health, as well as the categorical variable that measures how long migrants have been back in Mexico (less than 5 years, 5 to 10 years, 10 to 20 years, more than 20 years)⁹. The addition of these controls did not alter the main relationship of interest; we still see that those migrants whose health got worse during their time in the U.S. have positive post-return health trajectories compared with those whose health didn’t change. As expected, age has a significant negative impact on change in self-rated health. Compared with migrants that have been in Mexico less than 5 years, those that have been back for more than 20 years have worse outcomes in post-return change in self-rated health¹⁰. This result might speak to the changes in the Mexican healthcare system and its policies in the last ten and twenty years. In 1997, a reform in the healthcare system integrated some of its elements with “Progresá”, the main social policy at the time. More importantly, in 2004-2005, the Mexican government created a universal health insurance program, “Seguro Popular”, whose coverage has increased yearly since its creation, reaching 53 million in 2012 (CONEVAL 2014). Controls for early life health do not reach statistical significance, but they suggest that those who had better health at age 14 have better outcomes in post-migration health trajectory.

⁹ Tests for multicollinearity were performed for all predictor variables; the largest VIF was 2.72 for age (as expected, it is moderately correlated with time back since return).

¹⁰ Different functional forms of the variable for “time since return” were included in preliminary analysis: as linear, quadratic and logged terms. The main relationship of interest did not change in its coefficient or significance. I decided to keep the variable in its categorical form to parse out the negative effect that was present in its other forms, revealing that it is only significant for migrants that have been back more than 20 years. Age was also tested in linear and quadratic form. However, its quadratic form did not reach statistical significance, so I only included the linear term in the final models.

Model 3 adds additional characteristics of returnees' lives in Mexico. Unsurprisingly, results suggest that higher SES is associated with positive changes in health; those returned migrants that have semi-skilled and skilled jobs have significantly better outcomes than those who are unemployed. Returned migrants in unskilled and agriculture jobs almost reach significant positive differences in change in post-return health compared with unemployed returnees. A higher score of household assets is also significantly associated with positive changes in health. These results follow the “social gradient in health” and “fundamental cause” theory, where a better socioeconomic position is associated with better health. Controls for years of education and marital status do not reach statistical significance¹¹.

Model 4 adds variables that reflect household and community characteristics upon return. Even when all key demographic, individual, household and community level controls are considered, the relationship between change in health during migration and change in post-return health does not substantially change. Geographical regions in Mexico, the presence of sons and daughters in the household and urban/rural dwelling fail to reach statistical significance. Finally, having been deported from the United States does not seem to be related to changes in post-migration health.

Additional sensitivity tests included running the analysis with partial samples. A supplementary analysis that excluded migrants that had been back in Mexico for more than 20 years (n=373) yielded substantively similar results. The only notable difference was that none of the categories for time back since return were statistically significant in the relationship with post-return health trajectories. The relationship between the categories for change in health

¹¹ Sensitivity tests for education were performed; I included the variable in “educational groups” form (no schooling as reference, some primary, primary, some secondary/secondary, high school and above). There were no differences in my main relationship of interest, and differences between educational categories failed to reach statistical significance.

during migration experience and post-return health trajectory did not change –if anything, the coefficients were very slightly smaller– nor did some of the significant associations of other variables such as age and indicators of SES. A second supplementary analysis excluded migrants that were 70 years old and older (n=139). Again, the results from that analysis did not differ substantially from those reported in Table 2 –the coefficients for the categories of change in health during migration were actually slightly larger.

Table 2. Coefficients from OLS regressions of change in self-rated health after return to Mexico (p-values in parenthesis)

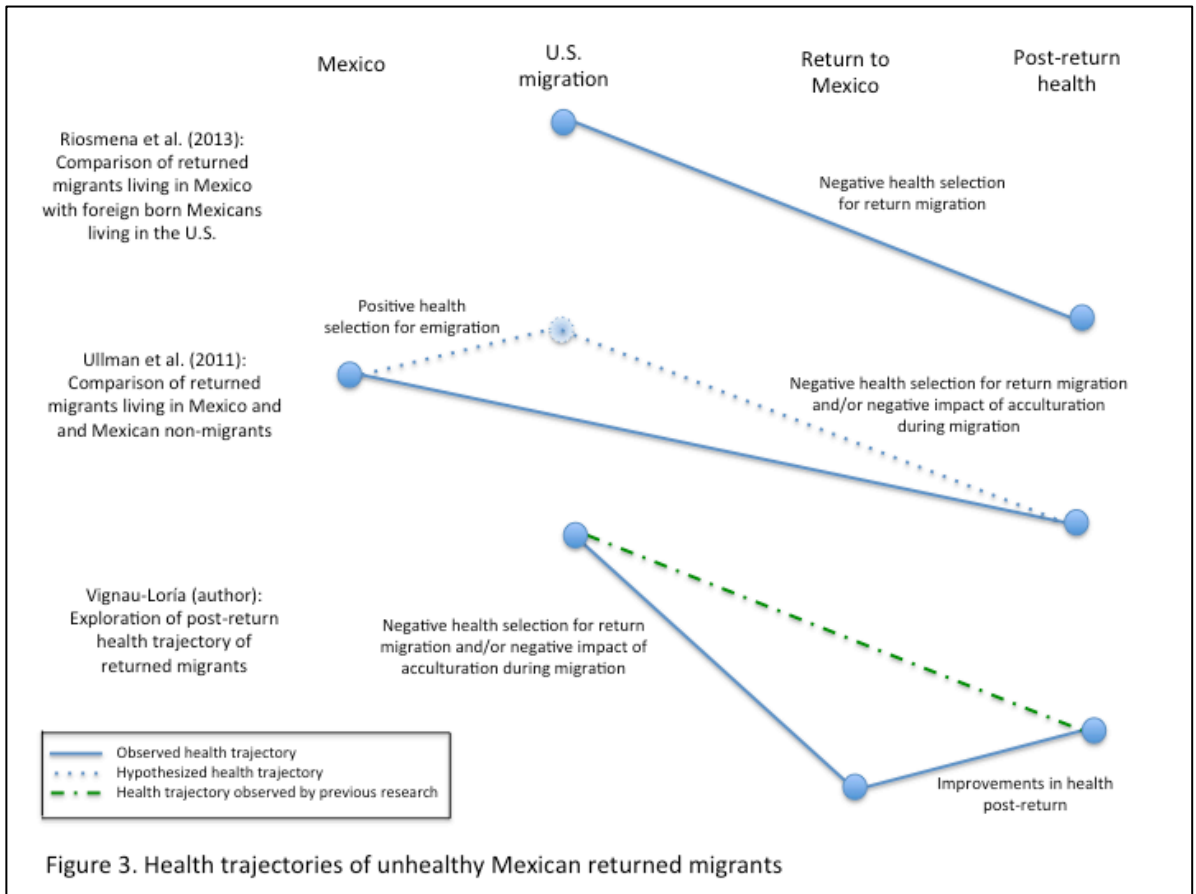
	Model 1	Model 2	Model 3	Model 4
Change in SRH during migration				
Reference: Did not change				
Much-much worse (-3)	1.662*** (0.00)	1.818*** (0.00)	1.843*** (0.00)	1.854*** (0.00)
Much worse (-2)	0.745*** (0.00)	0.781*** (0.00)	0.796*** (0.00)	0.795*** (0.00)
Worse (-1)	0.448*** (0.00)	0.448*** (0.00)	0.446*** (0.00)	0.449*** (0.00)
Better	0.056 (0.78)	-0.006 (0.97)	-0.002 (0.99)	-0.002 (0.99)
Time back. Reference: Less than 5 years				
5 to 10 years		-0.008 (0.88)	-0.024 (0.66)	-0.022 (0.68)
10 to 20 years		-0.018 (0.74)	-0.051 (0.35)	-0.054 (0.32)
More than 20 years		-0.169** (0.00)	-0.202*** (0.00)	-0.209*** (0.00)
Age				
		-0.014*** (0.00)	-0.012*** (0.00)	-0.012*** (0.00)
SRH at 14. Reference: poor/fair				
Good		0.174 (0.11)	0.163 (0.13)	0.174 (0.11)
Excellent		0.107 (0.32)	0.087 (0.42)	0.088 (0.42)
Marital status. Reference: Married				
Never married			-0.145 (0.54)	-0.215 (0.38)
Divorced/Sep/Widowed			-0.012 (0.90)	-0.012 (0.90)
Years of education				
			0.003 (0.61)	0.004 (0.49)
Occupation in Mexico				
Reference: unemployed				
Agriculture			0.131 † (0.06)	0.134 † (0.06)
Unskilled			0.165 † (0.06)	0.167 † (0.06)
Semi-skilled			0.243** (0.01)	0.243** (0.01)
Skilled			0.145* (0.05)	0.154* (0.04)
Household assets				
			0.025* (0.01)	0.025* (0.02)
Deported (1=yes)				
				0.060 (0.28)
Presence of sons or daughters				
				-0.038 (0.53)
Migration region in Mexico				
Reference: Traditional Center				
South-South East				-0.022 (0.59)
Urban				-0.095 (0.15)
Constant	-0.329*** (0.00)	0.261* (0.08)	-0.123 (0.49)	-0.066 (0.73)
R-squared	0.102	0.232	0.243	0.246
BIC	2479.6	2333.3	2373.6	2404.2

† p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

7 DISCUSSION AND CONCLUSION

The aim of this study was to examine the health of Mexican migrants upon their return from the United States by looking at the relationship between their health trajectories during their time in America and their post-return health trajectories. I explored whether having had a negative, flat or positive change in health while being international migrants would predict differences in post-return changes in health. My results suggest that there is a relationship between both health trajectories for one group of returnees; those who considered that their health deteriorated while they were in the United States perceived that it improved once they were back in Mexico. This relationship did not change even when including time since return and some potential individual, household and community level confounders such as age, economic situation, presence of family or geographic region in Mexico.

The interpretation of these findings can inform different frameworks that are concerned with immigrant health. Let us start with the Hispanic Health Paradox, specifically, the questions that pertain to negative selection for return migration (the salmon bias). Most studies that compare the health of migrants that stay in the U.S. and those that return to Mexico have found evidence of negative selection for return –although, as Arenas et al. (2015:1866) prudently warn us, we can't know “the extent to which migrants in poor health return to Mexico because of their health situation”. Those returned migrants in my sample whose health declined while they were in the United States are ostensibly those that previous research has identified as negatively selected for return. However, I found evidence that their health actually improved once they were in Mexico, which suggests that the magnitude of the difference in health between migrants that stay and migrants that go back is actually bigger than what has been considered by previous research (**Figure 3**).



This study also has implications for the health acculturation framework. Questions still remain on the relationship between acculturation to the host society and returnees' adjustment to home. In the field of social psychology, some research has found positive associations between returnees' initial adjustment to the host culture and their reintegration experience (Cui and Awa 1992), but the majority of research has actually found that "those who adapted more successfully in the host country will experience a more distressing process upon return" (Tannenbaum 2007:151, Sussman 2000). My study does not directly measure migrants' acculturation, but if we draw from the research that does so, we can presume that some of the declines in health that

some migrants experienced in the U.S. were due to health acculturation¹². Although this assumption should not be taken lightly, the evidence of improvements in health for the group whose health declined during migration suggests that migrants that were more acculturated were the ones that “re-accultured” best. Additionally, less acculturated migrants don’t have much room to re-adapt to Mexican health behaviors and attitudes –since they did not change them too much in the first place–, and therefore have less to gain in terms of post-return health trajectories.

What policy implications can be drawn from this study’s conclusion that migrants’ health trajectories during their time in the United States impacts their health trajectories once they are back in Mexico? On the one hand, the U.S. must take responsibility for displacing the health costs of the reproduction of their labor markets –particularly agriculture– to immigrants’ original communities and their families. On the other, Mexican policy makers must address returnees’ reintegration seriously and create better conditions for their return, going beyond mere indicators of employability and paying attention to the elements that most benefit or hinder their well-being. Additionally though, researchers and policy makers in both Mexico and the United States must recognize that migrants’ health is impacted by their intertwined experiences on both sides of the border; they should strive to build bridges –and bring down walls– to develop bi-national policies that safeguard the well-being of a group of people that make important economic and social contributions in the two countries while being neglected by both policies and agendas.

¹² In the initial stages of the study, I performed an analysis of change in self-rated health *during migration* in the U.S. with the same sample of returned migrants from the MMP. I used several acculturation measures as independent variables such as duration of migration, destination in the U.S., English use and relationships with latinos and anglos. Results were consistent with research on this topic; exposure to U.S. society (time in the U.S.) and two additional measures of acculturation (being in a New Destination vs. a Traditional Port, relationships with latinos) suggested that more acculturated migrants had worse health trajectories while they were in the United States than those who were less acculturated. Supplementary analyses also included all of these measures while exploring my key relationship; in other words, I explored the relationship between health trajectory in the U.S. and post-return health trajectory *while controlling for acculturation*. The relationship was robust to the inclusion of these controls, that is, it did not change substantially –the coefficients for the -2 and -1 groups were actually slightly larger.

This study is not without limitations. First, two of the variables I used to measure health at different points in time are retrospective questions, and so they are susceptible to recall bias; it is impossible for me to know about how these biases change with place of residence or duration of stay in the United States, the conditions of return or other individual and contextual characteristics. Another limitation is that I rely on self-reported measures of health, which are subjected to additional biases. However, they have been found to be “moderately good predictors of mortality” (Palloni and Arias 2004:408).

Despite these limitations, this work shows that the health trajectories of migrants are shaped by the relationship between their experiences at places of destination and return. As such, it highlights the need to further problematize the reintegration of returned migrants, inviting scholars to think of them as migrants anew, who face new processes and challenges of adjustment and adaptation. The theory and design that guide this study are not culturally or contextually specific; future research should explore the health trajectories of returned migrants in other places of the world so that we can better understand the complex linkages between health and the different stages of migration, and thus guide the creation of policies and programs that can protect and support a particularly vulnerable –and growing– population.

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