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Education Premiums and Skilled Migration in Mexico: Lessons for an Educational Policy

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Abstract: This paper examines the relationship between skills prices (wage premiums) and inequality in migrant sending countries (mainly from Latin America) and explores the implications for education policies. Most of the evidence is based on the case of Mexico, a Latin American country that is also an Organisation for Economic Co-operation and Development (OECD) member. Despite the belief that Latin American countries tend to pay less for their skilled workers than developed countries, they invest a considerable amount of their Gross Domestic Product (GDP) in education and sometimes in scholarships abroad. Therefore, our main question is: Are skill prices really so proportionately low in Latin America? Likewise, what are the impacts of skills prices on

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migration in Latin America, and Mexico in particular? And, what is the importance of “brain drain” in terms of the relationship between migration and education? We find that despite the enormous inequality in the region, skills prices are not low. Furthermore, high expenditures on education combined with low skills prices do not necessarily result in brain drain. Other factors, such as perceptions of insecurity and corruption, have a stronger effect on the migration of Mexican professionals. Likewise, although high skills prices may lead to economic development, they may also increase social inequality, leading to greater brain drain. Therefore, the expansion of higher education is recommendable even if it reduces salaries and wage premiums in the short term.

Key words: brain drain, educational planning, Mexicans, policy analysis, skilled workers.

Primas salariales por educación y migración calificada en México: Lecciones para una política educativa

Resumen: Este artículo analiza la relación entre precios de las habilidades (primas salariales) y desigualdad en países expulsores de migrantes (particularmente de América Latina) y explora las implicaciones para las políticas educativas. La mayoría de la evidencia proviene de México, un país latinoamericano que es también miembro de la Organización para la Cooperación y el Desarrollo Económicos (OCDE). Pese a la creencia de que los países latinoamericanos tienden a pagar menos que los países desarrollados por sus trabajadores calificados, aquellos invierten una cantidad considerable de su Producto Interno Bruto (PIB) en educación y, a veces, en becas en el extranjero. Por lo tanto, nuestra principal pregunta es: ¿Los precios de las habilidades son realmente tan bajos proporcionalmente en América Latina? Asimismo ¿Cuáles son los impactos de los precios de las habilidades en la migración en América Latina y en México en particular? ¿Cuál es la importancia de la “fuga de cerebros” en términos de la relación entre migración y educación? Encontramos que, a pesar de la enorme desigualdad en la región, los precios de las habilidades no son bajos. Más aún, el alto gasto en la educación, combinado con bajos precios de las habilidades, no necesariamente produce fuga de cerebros. Otros factores, como la percepción de inseguridad y la corrupción, tienen un efecto mayor en la migración de profesionistas mexicanos. De ese modo, aunque los altos precios de las habilidades pueden contribuir al desarrollo económico, también pueden afectar la equidad social, produciendo mayor fuga de cerebros. Por lo tanto, la expansión de la educación superior es recomendable, incluso si reduce salarios y primas salariales en el corto plazo.

Palabras-clave: Fuga de cerebros; planeación educativa; mexicanos; análisis de políticas públicas; trabajadores calificados.

Incentivos econômicos para a educação e migração qualificada no México: lições para uma política educativa

Resumo: Este artigo analisa a relação entre incentivos econômicos e desigualdades nos países que expulsam migrantes (particularmente de América Latina) e, explora estas implicações nas políticas educativas. As evidências consideram, sobretudo, o México, um país latino-americano que também é membro de Organização Europeia para a Cooperação Económica (OECD). Apesar da crença de que os países latino-americanos tendem a pagar menos que os países desenvolvidos aos seus trabalhadores qualificados, aqueles invertem uma quantidade considerável do seu Produto Interno Bruto (PIB) em educação e em bolsas aos estudantes para outros países. Portanto, nossa principal pergunta é: Os preços

das qualificações são realmente tão baixos, proporcionalmente, na América Latina? ainda: Quais são os impactos do preço da qualificação na migração na América Latina, particularmente, no México? E além disso, qual é a importância da "fuga de cérebros" nos em termos da relação migração e educação? Neste sentido, identificamos que apesar da enorme desigualdade na região os preços das qualificações não são baixos. Além do mais, o alto custo da educação, combinado com baixos preços das qualificações não promove necessariamente a "fuga de cérebros". Outros fatores como a percepção da insegurança e da corrupção, tem um efeito maior na migração de profissionais mexicanos. Nesse sentido, ainda que os altos preços das qualificações possam contribuir para o desenvolvimento econômico, também podem afetar a equidade social ao produzir maior fuga de cérebros. Assim, a expansão da educação superior é recomendável ainda que, em curto prazo os salários e incentivos econômicos sejam reduzidos.

Palavras-chaves: Fuga de cérebros; planejamento; planificação educativa; mexicanos; análise de políticas públicas; trabalhadores qualificados.

Introduction

Major source countries of out-migration in Latin America and in the world in general tend to have low levels of economic development, poor educational results, and quite often, high levels of insecurity and violence. In contrast, major migration destinations such as the United States (U.S.) and most of the Organization for Economic Co-operation and Development (OECD) countries register high educational results and attract an important number of migrants, mainly educated ones (Tannock, 2011).

High attractiveness of developed countries can be interpreted as a truism. Note, however, that many developed countries such as France and the United Kingdom are also leading sending countries. This article does not take for granted that economic development is a homogeneous feature. Rather than emphasizing the dichotomy between developed and underdeveloped countries, we start by contrasting the skilled migration dynamics of sending countries and recipient ones. Theories of skilled migration will help us to propose some lessons for higher education policy in Mexico and other middle-income countries.

Based on interviews with migrants, we demonstrate multiple causal loops among various factors such as educational expenditures, education premiums, educational levels, demographics,¹ economic development, and brain drain, as previously noted by De Haas (2010). In other words, examining source countries of out-migration is a good way to study the relation between development and education. In particular, this article discusses criteria for education policies (access versus quality) in migrant sending countries. We also investigate the relation between skills prices (wage premiums) and inequality.

It is believed that Latin American countries tend to pay less for their skilled workers than developed countries (Borjas, 1991). However, the former do invest a considerable amount of their Gross Domestic Product (GDP) in education and sometimes in scholarships abroad. Therefore, the main questions this study seeks to answer are: Are skill prices really so proportionately low in Latin America? Is substantial investment in education followed by lower wage premiums? This article also addresses an old question: Does greater education stimulate migration? We provide recent data to sustain the idea that the two do have a significant direct relationship. However, our

¹ Aging countries (those with smaller population cohorts of school-aged people) may have an advantage, according to Aedo and Walker (2012).

working hypothesis is that brain drain in Latin America is not mainly due to low skill prices, but to other factors of out-migration, such as, for instance, social violence, political turmoil and poor living conditions. This is true even when educational spending has increased, as the Mexican case shows. Our objective is to contribute updated information on the relationships among education, skills prices, and migration. The study builds upon previous research by Portes & Hoffman (2003), Aedo & Walker (2012), Zoido (2008), and Beine, Docquier, & Rapoport (2010).

This article is structured in three main parts: a) a theoretical framework on education and migration; b) methods c) a comparative exercise on development and migration; d) a case study on skilled migration and wage premiums in Mexico.

Theoretical Framework

Migration influences the way a country makes use of its human capital. While Beine, Docquier, and Rapoport (2008) use the concepts of brain gain vs. brain drain, Docquier and Marfouk (2006) talk about beneficial vs. detrimental brain drain. Despite conceptual differences, both approaches explain the losses and gains of skilled migration based on economic evidence. Beine, Docquier, and Rapoport (2008) find that most countries combining low levels of human capital and low migration rates of skilled workers end up with a positive net effect. In contrast, flows of skilled workers abroad appear to have negative effects in countries where the migration rate of the highly educated is above 20% and/or the proportion of people with higher education is above 5%.

Docquier and Marfouk (2006) use descriptive statistics to show a clear decreasing emigration-rate/country-size ratio, with average emigration rates being about seven times higher for small countries (with populations lower than 2.5 million) than for large countries (with populations higher than 25 million). The highest emigration rates are observed in middle-income countries, where people have both the incentives and the means to emigrate. High-income countries (low incentives) and low-income countries (where liquidity constraints are likely to weigh more) exhibit the lowest rates. This is true for both total and skilled migration. Regarding the regional distribution of the brain drain, the most affected regions appear to be the Caribbean and the Pacific, consisting of relatively small islands; Sub-Saharan Africa; and Central America. From the perspective of sending countries, however, what matters is not the number of people who acquire education, but the number of educated people who remain in the country after they have received an education (Docquier & Marfouk, 2006, p. 643).

Docquier and Marfouk (2006) find that countries combining relatively low levels of human capital and low-skilled-emigration rates are more likely to experience a beneficial brain drain (net positive effect). On the contrary, those with relatively high levels of human capital and high-skilled-emigration rates experience detrimental brain drain. There appear to be slightly more losers than winners and, more importantly, the former tend to lose relatively more than what the latter gain. A third case is countries with low levels of skilled human capital and high levels of emigration. For instance, the situation of many small countries in Sub-Saharan Africa and Central America, in particular, is extremely worrisome. In contrast, almost all the main globalizers (China, India, and Brazil) seem to experience brain gain. Mexico is an interesting mixed case of a globalizer experiencing brain drain; that is why it was chosen as a representative case. Once translated into numbers, these gains outweigh the losses, resulting in an overall gain for developing countries as a whole.

Education Premiums

Education earnings premiums can be defined as the price that employers pay for workers with more education and skills (Aedo & Walker, 2012, Loc. 1237-8). Aedo and Walker analyze the increase in skills premiums during the 1990s as compared to a sharp decrease in the twenty-first century in Latin America. This is true for both secondary and university education and, they claim, it may be explained by the policy of reducing inequalities in the region and by the demand for university trained workers. In the 1990s, in some Latin American countries, the increase in the supply of skills was already running ahead of increases in demand, leading to falling education earnings premiums, as in the case of Brazil. However, in other countries, increases in the demand for more skilled workers won out over increases in supply, so educational earnings premiums continued to rise (for example, Chile and Costa Rica). But then, in the 2000s, the supply increases won out over demand increases in all countries, driving down the education earnings premium across the region. The patterns suggest that the turning point, where relative demand began to slow or fall in all countries, occurred around 2003 (Aedo & Walker, 2012, Loc. 466-70).

The tertiary education skill wage premiums widened in the 1990s for most countries in the region. This pattern was widespread across countries, noticeably in Argentina, Bolivia, Colombia, and Nicaragua, but not completely generalized (Brazil is an exception). In the 2000s, in contrast, the tertiary wage premium fell across all the 16 LAC economies (Aedo & Walker, 2012,, Loc. 1272-6).

The fall started in the late 1990s in some economies (such as Mexico) and around 2002 to 2003 in South American economies, in the aftermath of serious macroeconomic crises (for example, Brazil in 1998; Argentina, Paraguay, and Uruguay in 2001). The fall in the tertiary wage gap continued throughout the decade, unaffected by the recent economic crisis. In most countries, the fall was large enough to offset the 1990s increase, lowering the premium back to levels registered 20 years earlier. The rise in skill premiums and the supply of tertiary workers in the 1990s suggests a strong increase in the relative demand for skilled labor in the 1990s throughout Latin America and the Caribbean (LAC). In contrast, in the 2000s the balance changed. The increase in the relative supply of skilled workers cannot by itself explain the decline in skill premiums in the 2000s (Aedo & Walker, 2012, 1276-85).

Aedo and Walker find that all countries in the region upgraded the skills of their work force in the 1990s and 2000s, but only a small part of that process can be linked to shifts in the sectoral composition of production. The rise and fall in the relative demand for skilled labor in the 1990s and 2000s, respectively, stemmed from factors that were common to all sectors or industries (such as technological change or labor market regulations), and not from a shift in the structure of production (for example, toward more skill-intensive sectors or industries in the 1990s and less skill-intensive sectors or industries in the 2000s).

Declining education earnings premiums most likely reflect a slowing of the relative growth of demand for skills, and not a deteriorating quality of those skills. Another factor contributing to declining premiums is the role of minimum wages in many countries in compressing earnings distributions and reducing the earnings premiums for secondary education.

Although tertiary earnings premiums have recently started to decline, they remain high enough to stimulate continued growth in household demand for tertiary education. Because tertiary coverage in many Latin American countries remains well below the OECD mean, it will facilitate the possibility of a continued catch-up in the region's educational profile. Other regions (such as East Asia) have expanded their educational attainment even faster and are still reporting rising earnings

premiums, suggesting that their graduates might be more economically valuable than those of Latin America, according to Aedo and Walker (2012).

Education and Migration: the Causal Loop

Does higher educational spending translate into economic growth and social benefits? For instance, the U.S. economy is growing faster than Europe's after the 2008 financial crisis, which may be due to the investment of 3% of their GDP in their universities, as compared to 1 percent in Europe (Curs et al., 2011; Piketty, 2015). At least in some contexts, more education is linked to economic growth and increased productivity, as well as to benefits such as health and social cohesion (Al-Yousif, 2008; Zoido, 2008). This explains why many countries around the world are investing, on average, 4.9% of GDP - or 15.7% of their total public expenditures into education (Klein & Porta, 2011). Latin America is no exception (see Table 1), though some doubt exists about how to maximize future productivity and earnings from the region's accelerated investment in education (Aedo & Walker, 2012).

Table 1.

Public Education Expenditure as a % of GDP (2007-2010).

Region	Average percent %
East Asia and Pacific	4.7
Europe and Central Asia	5
Latin American and the Caribbean	4.9
Middle East and North Africa	4.5
South Asia	5
Sub-Saharan Africa	5
World (Global Aggregate)	4.9

Source: UNESCO Institute for Statistics in EdStats, July 2011.

Worldwide, around 17% of GDP per capita educational spending is directed toward primary students; 22% to secondary students, and 57.7% to tertiary students. On average, 90% of total public expenditures on pre-tertiary education are for recurring items such as salaries, teaching, and learning materials, plus supplies. However, more expenditure on education does not necessarily raise a country's level of development. Certain conditions must exist for education to broaden opportunities for the disadvantaged (as stipulated by Daude, 2011):

- Students should receive an education of similar quality, regardless of their socio-economic background; and

- Societies and labor markets should value talent and skills rather than social connections and family background.

If these conditions do not hold, returns on investment in education will be low for vulnerable members of society. These reduced payoffs for acquiring more schooling would therefore slow down social mobility across generations.

At the same time, education is related to changes in migration patterns and is sometimes a cause of migration. That is, migration and education are related by a causal loop. When trying to determine the effect of migration on education, one has to control for the reverse effect since, on average, the proportion of educated people to the total population is likely to affect the rate of skilled migration (Beine, Docquier, & Rapoport, 2008, p. 639). Migration prospects can raise the expected return to human capital and thus foster investment in education at home, or, in other words, induce a brain gain. In a study of 127 developing countries, Beine, Docquier, & Rapoport (2010) found that skilled migration had a positive effect on the prospects for human capital and for youth literacy. Authors such as Gandini and Lozano (2012) assert that a low number of migrants may be a sign of poor quality education in countries of origin.

By setting wage rates, regions may attract highly skilled individuals to settle in order to acquire high skills premiums (i.e., regions with relatively large wage differentials), whereas low-skilled individuals will be compelled to migrate to regions with relatively low skills premiums (i.e., regions with relatively small wage differentials) (Dostie & Lager, 2009).

Based on the OECD Latin American Economic Outlook 2009, Zoido (2008) shows that on average, Latin America still spends five times less per pupil than the OECD average. Part of the explanation lies in demographics, as the school-age population is much larger in Latin America than in OECD countries. But the gap *vis-à-vis* Latin America is striking even in relative terms: for example, Latin American spending per pupil on secondary education as a proportion of GDP per capita, at 13%, is only half that of the OECD, as Zoido demonstrates.

The proportion of the Latin American population over 15 years of age without any schooling has dropped to only 6%. While overall enrollment rates are increasing, significant gaps remain beyond primary education, especially for poorer households. In Nicaragua, for instance, over 70% of children from rich households attend secondary school, but fewer than 15% of poor children do.

Skills Structure in Latin America vs. Major Receiving Countries

The advanced economies display an increasing demand for cognitive skills, as well as high-level analytical and interpersonal skills. Countries with a labor force able to perform the new-economy skills have engaged faster with new technologies, allowing their citizens to access better jobs. In contrast, Latin American countries are expanding less into these areas and face more problems in recruiting the skilled labor they need.

Aedo and Walker (2012) show important differences in the skill content of work across countries in Latin America and show that a large gap remains compared with the skills structure of the United States. The authors separate LAC into two groups: Brazil, Costa Rica, and Mexico have a larger content of analytical, interpersonal, and routine cognitive skills, whereas El Salvador and Nicaragua have a larger content of routine manual and non-routine manual physical skills (Loc. 2155-8).

Latin American countries have a generally low component of new-economy skills in the work force, but important differences exist within the region, in terms of both stocks and dynamics. Vacancies in both skilled and unskilled work take longer to fill in LAC than anywhere else in the world. On average, employers in Latin America take almost four weeks to fill a job vacancy with external candidates. This figure compares with less than three weeks for Africa and South Asia. These cross-regional differences are likely to be related not only to the composition of firms in the country and their demand for skills, but also to the composition of skills in the population as well as

the stringency and enforcement of hiring and other labor regulations.

Portes and Hoffman (2003, pp. 43 – 45) show that Latin America is different from the economically developed societies in that a significant proportion of the population is not incorporated into fully commodified, legally regulated working relations, but survives at their margin in a wide variety of subsistence and semi-clandestine economic activities. They also show that professionals represent a minority in all LA countries. The countries with more professionals are Colombia (7.7%), Chile (6.9%) and Panama (5.2%), compared to 2.8% in the case of Mexico (see Figure 1).

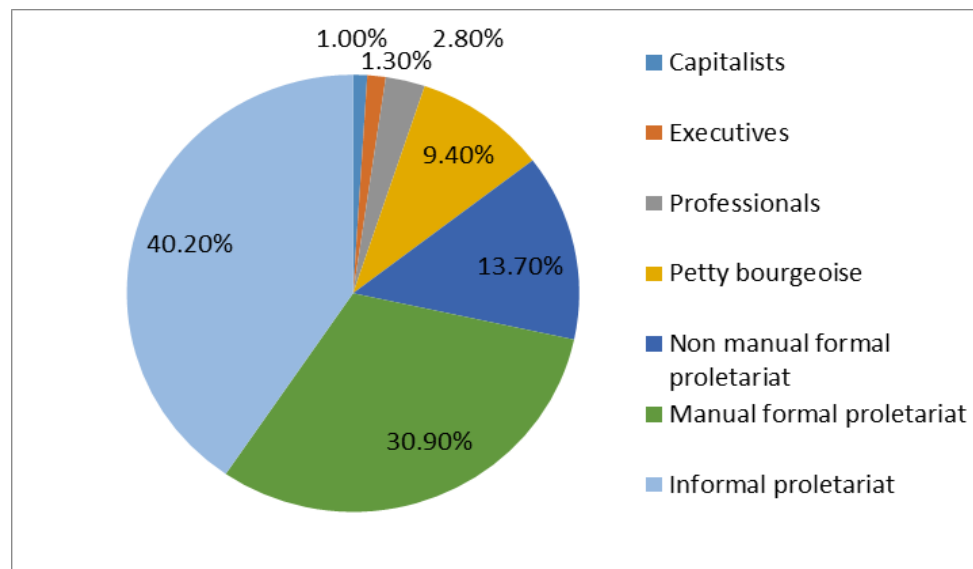


Figure 1. Class structure in Mexico, 2000.

Source: Portes and Hoffman (2003, pp. 43 – 45)

Method

This article is based on a comparative exercise between sending and receiving countries, considering key indicators such as gross domestic product (GDP), gross domestic expenditure on research and development (GERD), and net migration rate (difference between in-migration and out-migration). This overview provides the analytical context for a more qualitative case study on Mexican skilled migration.

We follow the tradition of the Mexican Migration Project, which has used a mix of large longitudinal studies and qualitative fieldwork. Some of our figures are based on institutional surveys from the OECD (2013), the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2011), and the National Association of Universities and Higher Education Institutions in Mexico (Hernández, Solís & Stefanovich, 2012). Our case study is based on a survey with 154 Mexican skilled migrants administered in July – December 2010 and 66 in-depth interviews, conducted between 2009 and 2012. The skills of professionals, sometimes understood as “talent,” may be measured in terms of educational grades or as the innate capacity of individuals to produce ideas and objects, some of which have an economic value (Solimano 2008). We have studied individuals with a bachelor’s (BA) degree or degree of three types: 1) directly productive talent, such as entrepreneurs, engineers and other technical talent, technology innovators and business creators;

2) academic talent, such as scientists, scholars, and international students and 3) talent in the social and cultural sector.

In comparison to previous research in Mexico that limited its focus to academic talent, we wanted to cover all the above-mentioned three types of talent proposed by Solimano. Due to the lack of a complete database of Mexican migrants abroad, we used the snowball method (Schutt, 2008) as well as invitations to answer the survey through the webpage of the Institute of Mexicans Abroad. The sample tries to reflect the complexity of the object of research and it was studied through qualitative questions, rather than quantitative ones.

Even though this study does not draw on a random sample of the 1,357,000 Mexicans abroad, we tried to improve its reliability, representativity, and margin of error by taking into account quantifiable aspects such as age and years in the country of destination. A total of 154 individuals responded to the survey (53 women and 101 men). Participants' age ranged between 24 and 80 years, but 47% of the subjects surveyed were between 30 and 39 years old at the time of the research (see figure 2). Almost half (47%) of the subjects surveyed were recent migrants, with fewer than 5 years in their current country of residence. More than half (67%) were married or living with long-term partners, which may translate into migration strategies that are linked to families and children, as the qualitative analysis indicates.

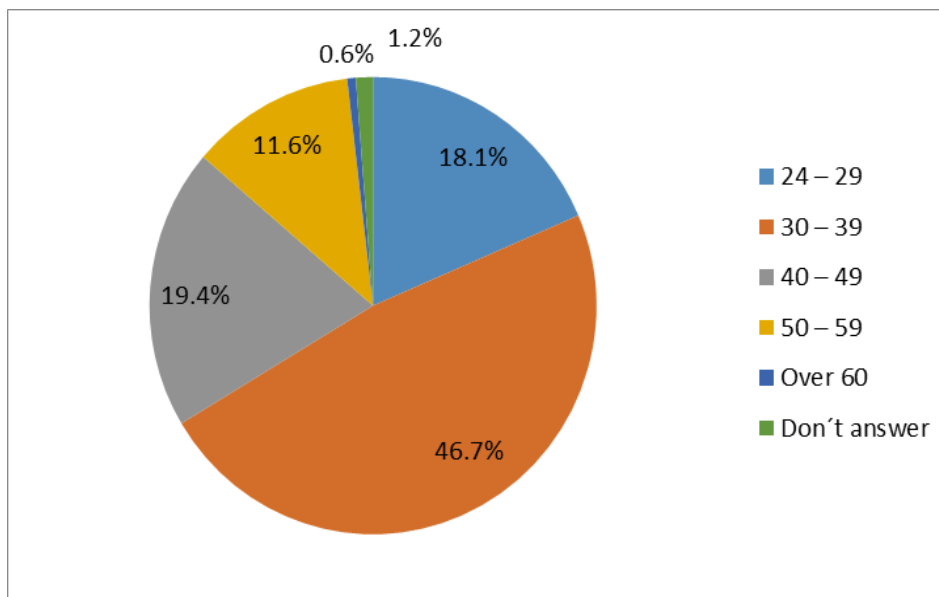


Figure 2.

Age groups of the surveyed Mexican population

Almost all questions were open-ended and included an optional response, due to the vulnerability of some individuals in the sample. Many did not want to give their personal contact data due to safety reasons or because they owed money from their scholarships abroad from the National Science Council in Mexico. Therefore we offered the possibility of anonymous answers, if the individuals preferred. The objective of the survey was to determine the characteristics of the Mexican professionals abroad, so we divided it in six parts: 1) personal data; 2) reasons to emigrate; 3) current problems in Mexico; 4) integration to the country of destination; 5) networking with Mexico and 6) final comments (open-ended question).

The online survey was available for six months and we suspended the research at number 154, when the answers about the reasons for migrating were repeating, i.e., we reached data-saturation (O'Reilly & Parker, 2012). Based on abductive inference (Kapitan, 1997), we discovered some working hypotheses to be further substantiated by statistical research.

The second stage of the research consisted of in-depth interviews with Mexican migrants in the U.S., Canada, Europe, and Japan, further synthesized by qualitative data analysis with Hyper Research. We considered individuals from various Mexican states and mostly residing in important metropolises of North America (New York, Los Angeles, Toronto, and Montreal) and Europe (Paris, Madrid, London, Amsterdam, and Copenhagen).

The interviews focused on key problems revealed by the survey, such as violence and insecurity in Mexico as main causes for emigration, to complement previously researched economic reasons. Aside from personal information questions, most of the questionnaire was open-ended even though we provided topics to guide the discussion. All the interview subjects were kept anonymous, as was their preference.

Comparative Exercise: Development and Migration

Higher development in receiving countries attracts immigration and is sustained by professional talent, endogenous and from abroad. That is, countries with higher GDP per capita attract more international migrants (Figure 3). Furthermore, net migration seems to be connected to the amount that countries invest in research and development as a percentage of GDP, although other factors may matter, such as the politics of migration. For instance, until 2011, Spain was an important international migration receiving country, along with Canada and Australia, while Latin American countries such as Mexico and El Salvador had lower net migration rates and GERD spending.

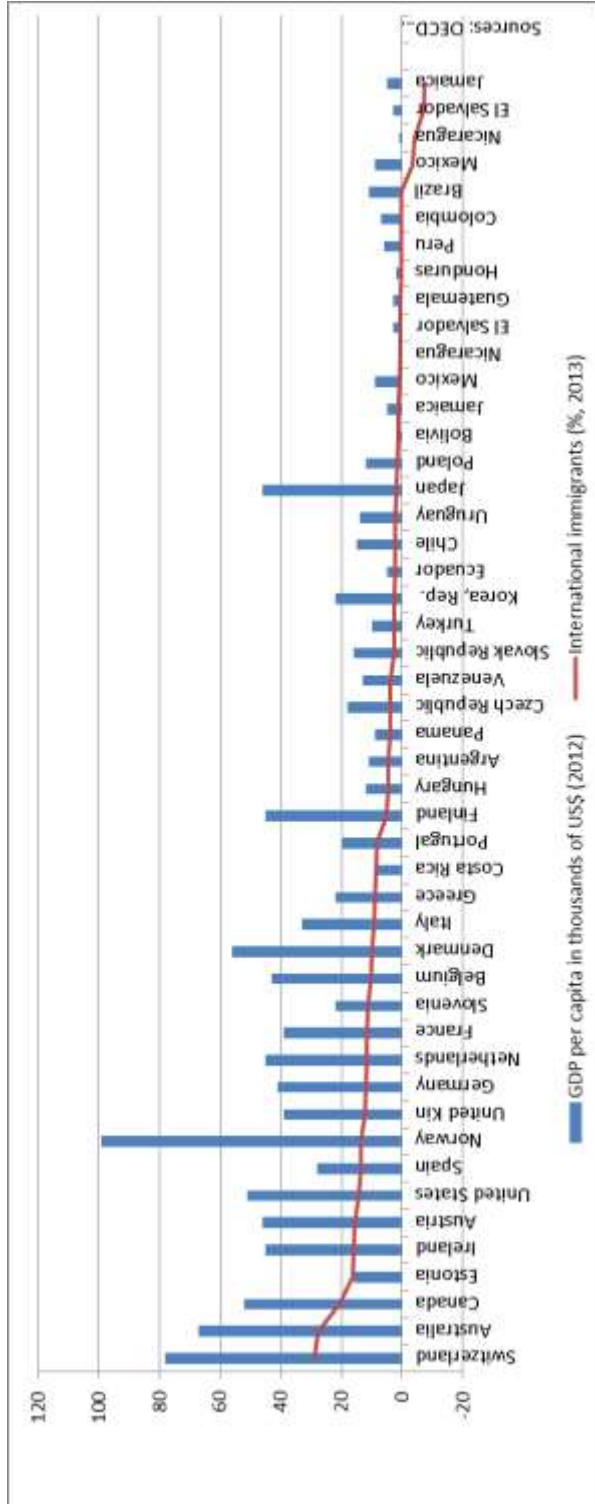


Figure 3. Direct Relations between GDP per capita and Immigrants as % of Population. Sources For GDP per capita: <http://databank.worldbank.org/data/views/reports/tableview.aspx>. For international migrants as a % of total population: <http://esa.un.org/unmigration/documents/WallChart2013.pdf>.

The lowest GERD as a percentage of GDP among the selected sending countries is registered in Latin America: Jamaica, Paraguay, Nicaragua, Guatemala, and Honduras. Once again, the differences between high and low GDP countries are significant: we see that Israel spends 110 times more than Honduras on R&D. This low investment, of course, has high social costs, but it is also a consequence of social needs. Among the middle-income countries in Latin America, Mexico has the lowest net migration rate (see Table 2). Out-migration in this case is not driven solely by a higher quality of life and GDP spending, but is also affected by attraction policies from main destination countries in Europe (Spain, Ireland, and Norway), North America (Canada), and Oceania (Australia).

Table 2.

Net Migration Rates in Some Latin American Middle-Income Countries (2010-2015)

Country	Migrants per 1,000 Inhabitants
Venezuela	0.3
Chile	0.3
Brazil	-0.2
Colombia	-0.5
Mexico	-2.3

Source: IOM (2014)

The top receiving countries in the world, in absolute terms, are the United States, Spain, and the United Kingdom (OECD, 2011). However, it is important to remember that these trends can be reversible. Just as Spain ceased to be an importer of skilled labor in 2011 due to a deep financial crisis, other countries with low net migration rates may leave this category. From a structural point of view, Mexico and Peru could very well change their situation. The countries with the most immigrants tend to be cosmopolitan regions with a tradition of migration, such as Luxembourg (43.3), Switzerland (28.9), Australia (27.7), Israel (26.5), and New Zealand (25.1). In contrast, poor countries in Latin America receive low numbers of migrants. However, the countries with lowest percentage of migrants in Latin America in 2013 were not only the poorest. Alongside poorer countries such as Cuba and Honduras, more developed countries such as Brazil, Colombia, and Peru also showed a small number of international migrants as a percentage of the country's total population. Therefore, we can identify interesting differences and similarities between some large countries in Latin America. Mexico and Peru have the lowest net migration rates. Chile, Argentina, and Venezuela still stand out in terms of international population exchanges, while Mexico is an intermediate case.

Case Study: Skilled Migration and Wage Premiums in Mexico

Mexico is the third largest labor provider in the world, after China and India (Delgado-Wise & Márquez Covarrubias, 2007). While the latter two have developed policies for diaspora networking and innovation mechanisms based on their citizens abroad, Mexico is still at the level of design and incipient implementation of this kind of policy (Tigau, 2013).

When it comes to educational attainment of Mexicans in the United States, we must distinguish between various groups living in the U.S. (those who have moved as adults, those who have a working visa, undocumented individuals, etc.). 39.2% of Mexico-born population in the United States have less than a 9th grade education (Brown & Patten, 2012). Even worse, among unauthorized immigrants ages 25-64, 47% have not completed high school (Passel & D'Vera Cohn, 2009). These figures mask the large number of highly skilled migrants that Mexico exports to the United States. In 2010, 1,014,651 individuals born in Mexico but residing in the U.S. had university degrees; of these, 152,851 had completed graduate studies (Tuirán & Ávila, 2013). When compared to immigrant groups from poorer countries living in the U.S., the Mexican contingent has the lowest average schooling levels (Delgado-Wise & Márquez Covarrubias, 2007, p. 667; Kandel, 2011, p. 19). However, they are improving at a faster rate than any other group. In 2000, 7.4% of Mexican-born youths aged 18 to 24 were enrolled in college; that is, in ten years the number of Mexican college students increased by 48%. Between 2000 and 2011, no other minority doubled their numbers in universities (Motel & Patten, 2013) (See Figure 4). True, this figure must be interpreted with care, because the kind of higher education that Mexicans access, on average, is shorter and not prestigious. Thus, while Mexicans are systematically described as a radical case of educational failure, they are not failing in terms of their starting point, and can even be considered a case of educational progress. Their success is even generating distrust and xenophobic attitudes from U.S. citizens with higher cultural capital, which explains the enactment of laws that prevent unauthorized migrants from receiving financial support to access the best public universities.

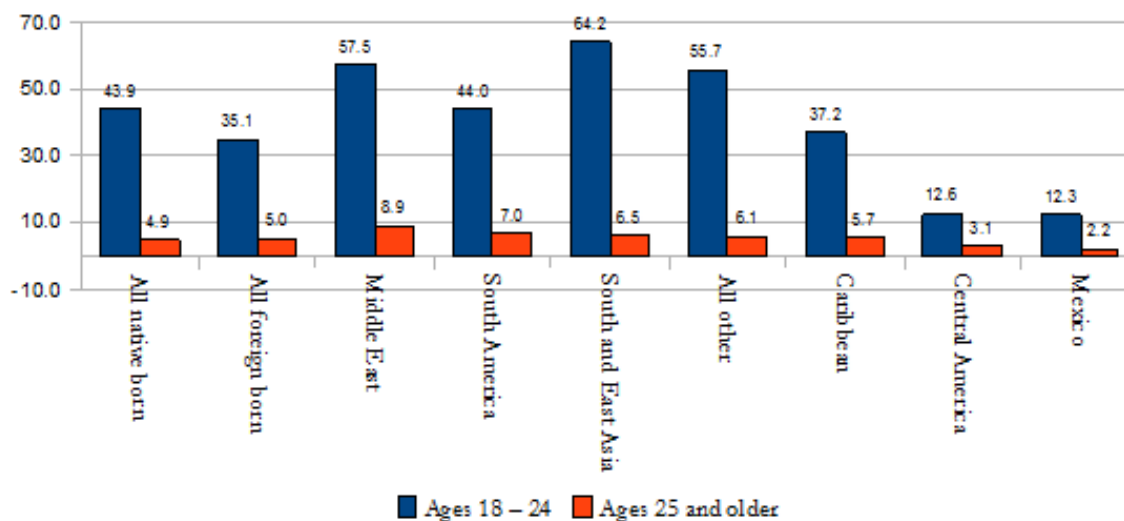


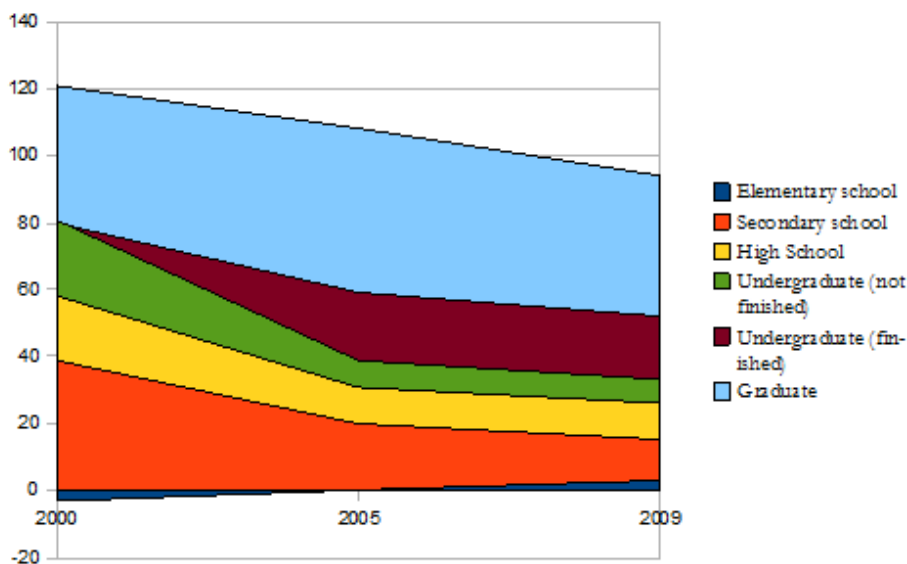
Figure 4. U.S. College Foreign Student Enrolment (2010). Source: data from the Pew Hispanic Center analysis of the 2000 Census (5% IPUMS) and the 2010 American Community Survey (1% IPUMS).

Skilled Migration to the United States and Skill Prices in Mexico

McKenzie and Rapoport (2010, p. 820) find that in communities with small migration networks, there is slightly positive, neutral, or intermediate educational self-selection of migrants. This is consistent with the high cost of migration being the determining factor of who migrates from

these communities. By contrast, in communities with strong networks where migration costs are lower, they find negative self-selection, consistent with lower returns on schooling in the U.S. than in Mexico. Consequently, it is very important to analyze whether the reduction of migration from Mexico to the U.S. since 2005 (and the corresponding reduction of migration networks) will have a positive impact on the social investment in education in Mexico.

Chiquiar and Hanson (2005) believe that migration rates of educated people are increasing and that educated people tend to migrate more. To the contrary, Ibarra and Lubotsky (2007) find negative selection, with migrants tending to be less educated than non-migrants. Orrenius and Zavodny (2005) find intermediate selection rates, with migrants more likely to be in the middle of skills distribution than at the low or high end, compared to non-migrants. In contrast, Caponi (2011) finds a U-shaped relationship, with the most and least educated tending to migrate more than those with a mid-level education (McKenzie & Rapoport 2010, p. 811). In any case, Mexico has a very low net migration rate, but it benefits considerably from remittances, which is not always the case in other countries with low migration rates. It is an intermediate case in terms of international population exchanges.



School level	2000	2005	2009
Elementary school	-0.0380	-0.0065	0.0378
Secondary school	0.3982	0.2067	0.1529
High School	0.5827	0.3126	0.2632
Undergraduate (not finished)	0.8179	0.3934	0.3309
Undergraduate (finished)	0.8046	0.5988	0.5267
Graduate	1.214	1.0893	0.9403

Figure 5. Wage Premiums of Mexican Workers (2000, 2005 and 2009) by Educational Level
Source: Hernández, Solís & Stefanovich (2012).

In the current labor market, the wage premium for workers with a higher educational degree is close to 60% with respect to those workers with no schooling. This wage premium for a bachelor's degree is about 18% compared to workers who have only a high school diploma (see Figure 5). Those with graduate degrees receive a wage premium of over 100% with respect to those workers with no schooling, once differences stemming from other socio-demographic characteristics of individuals are standardized. These data show that, on average, attending university seven years in Mexico is more profitable than directly entering the labour market after graduating from high school. Skills premiums for graduate degrees are 55% compared to undergraduate degrees (Hernández et al., 2013, p. 294).

However, the growth in the number of graduates of higher education between 2000 and 2009 in Mexico was accompanied by a small drop in the relative value of these workers. The actual monthly income of the population with graduate degrees fell 2.6% in the first decade of the twenty-first century, from US\$1,584 to US\$1,144. The population that finished an undergraduate degree and entered the labor market between 2000 and 2009 earned 2.3% less, dropping from US\$838.5 to US\$682. By contrast, uneducated workers increased their average income by 2%, from US\$164 to US\$197. Those who have only primary school improved their wages by 0.5%, rising from US\$261 to US\$272 (Hernández et al., 2013, p. 277-294).²

High unemployment among highly skilled Mexican workers is also an important indicator of the Mexican labor market. Approximately one-third of Mexican PhDs hold jobs commensurate with their educational level in Mexico; another third are underemployed; and the remainder work in the U.S.

The Gini coefficient is a synthetic statistical index applied to measure the degree of inequality in a particular area. It has recently been criticized for mixing very different elements, such as inequality with respect to labor and capital (Piketty, 2014, p. 243). However, this article will not distinguish among the multiple dimensions of inequality in Mexican society. For our purposes, it suffices to recall that Mexico is unanimously considered a country of strong inequalities (Cortés & De Oliveira, 2010). In 2010, Mexico had a Gini index of 42.2 (where 0 implies perfect equality and 100 represent perfect inequality). Many countries with the same or a lower degree of development register much better results. That same year, for instance, Romania had a Gini index of 24.2 and India, 33.9.³ So, Mexican society still has very unequal income distribution, in line with other LAC. But given the fact that both the Gini coefficient and skills prices decreased over the last decade, this may be reconsidered as a positive sign. During this decade, the number of people with higher education increased from 7.3 to 10.4 million, growing 4% annually on average.

Results of the qualitative research

Most of the surveyed population lives in the U.S., but we also managed to get answers from a variety of countries in Europe, Asia, Africa, and Oceania (Figure 6). This gives us richer understanding of the diversity of living and working conditions into which skilled migrants integrate. While a large sample of professions were represented in this survey, more than half of the surveyed were working in engineering, business and finance (Figure 7).

² We use an exchange rate of 12 pesos per US dollar.

³ <http://data.worldbank.org/indicator/SI.POV.GINI> <http://www.tradingeconomics.com/mexico/gini-index-wb-data.html>.

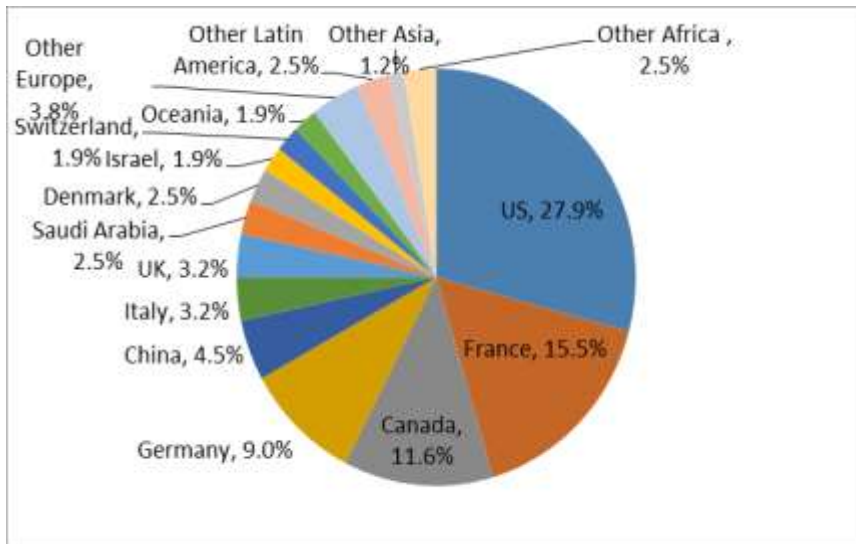


Figure 6. Countries of destination of the Mexican skilled surveyed population

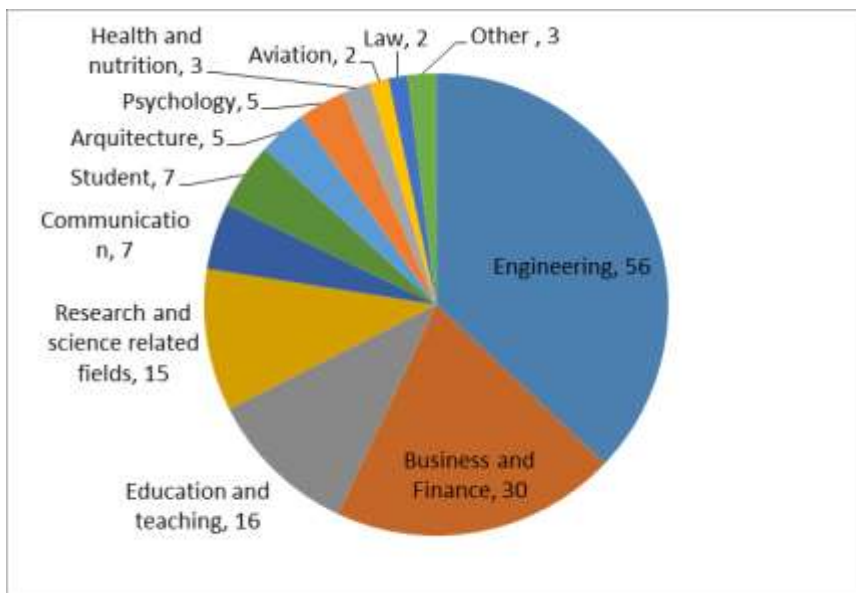


Figure 7. Main occupations of the surveyed population

Reasons for emigration

In order to analyze the reasons for emigration, we divided our sample into the following categories: 1) labor migration (36%) - migrants who move abroad to secure a job offer; 2) life style migration (29%), that is, migrants who chose the receiving location because they liked it and afterwards looked for an occupation; 3) international students (19%), those migrants who have studied abroad and/or sought a scholarship to support their studies abroad; 4) migration for family reunion (10%). Only one interview subject volunteered that they entered the U.S. as an undocumented migrant, due to poor economic conditions in Mexico.

Regarding satisfaction with their occupation, 82% of the subjects declared themselves to be highly satisfied with their work. Eighty-six percent of participants felt they were very well or well-paid abroad, while 14% find that they are underpaid. Regarding the fulfillment of professional objectives, 32% think they have fulfilled their professional objectives and only 5% disagree. More than half of them (56%) said they always have new professional objectives. Only one subject indicated that s/he had no professional objectives whatsoever, despite being employed as a university professor.

When asked about current life conditions, 89% responded that they live well abroad. That is, they have a general state of wealth that includes a well-paid stable job abroad, a home of their own or enough money to rent one, free time to spare with their families, and above all, a safe social environment where they did not experience fear for their life or the lives of their family members. Comparatively, their primary complaints regarding their living conditions include: being far from their family; too much work; underpayment; unstable places to work; not having a house of their own or having too small a house; not having a job that corresponds with the area of their studies; lack of domestic help; insufficient networking with Mexico. One of the respondents said: "I miss my family and friends in Mexico, but I want a better future for my sons so I sacrifice, as insecurity in Mexico is horrible nowadays. I don't want that for them." (Woman, age 32, working in Business and Finance related fields, 6 years in France).

As a matter of fact, according to the surveyed population, the main problems in Mexico were due to insecurity, violence and the drug wars (76%, see figure 8). 57% of the respondents identify economic problems, in general, as a priority. Accordingly, they criticized poverty (15%), unemployment (8%) and inequality (6%). Only 2% of the interviewed complained about low wages (3 individuals of 154 surveyed).

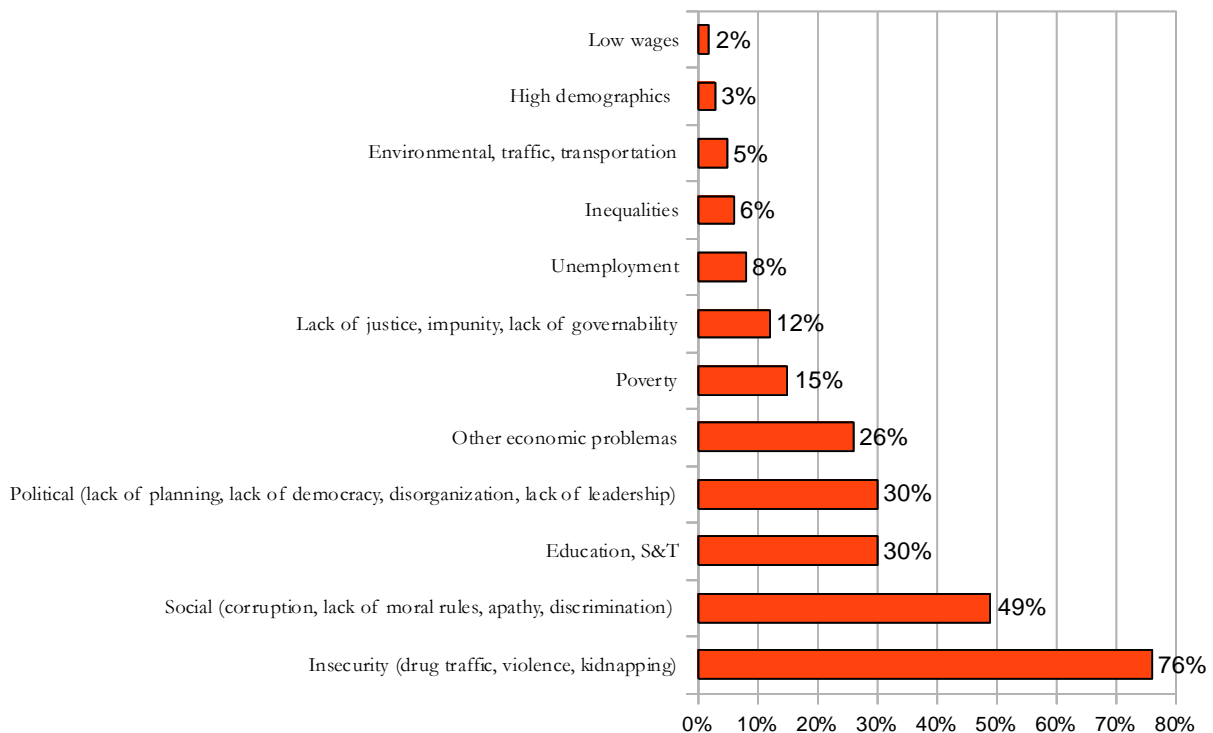


Figure 8
Main problems in Mexico according to the surveyed population

Two of the main findings of this survey were the fact that respondents did not perceive wage premiums in Mexico as low, and the importance they gave to violence as a main problem for Mexico and as a cause for their emigration. In order to focus on this problem in greater detail, we carried out a second level of research, in-depth interviews.

Causal loops for high skilled migration

The interviews show that high skilled migration is motivated by various interrelated problems such as: 1) insecurity, 2) wage differentials, 3) inequalities, 4) education, 5) quality of life and 6) corruption. A basic diagram will show how these problems seem to be interrelated in the worldview of the migrants, demonstrating the existence of multiple causal loops among the six basic indicators we have identified. The following is a description of these relations based on the migrants' testimonies.

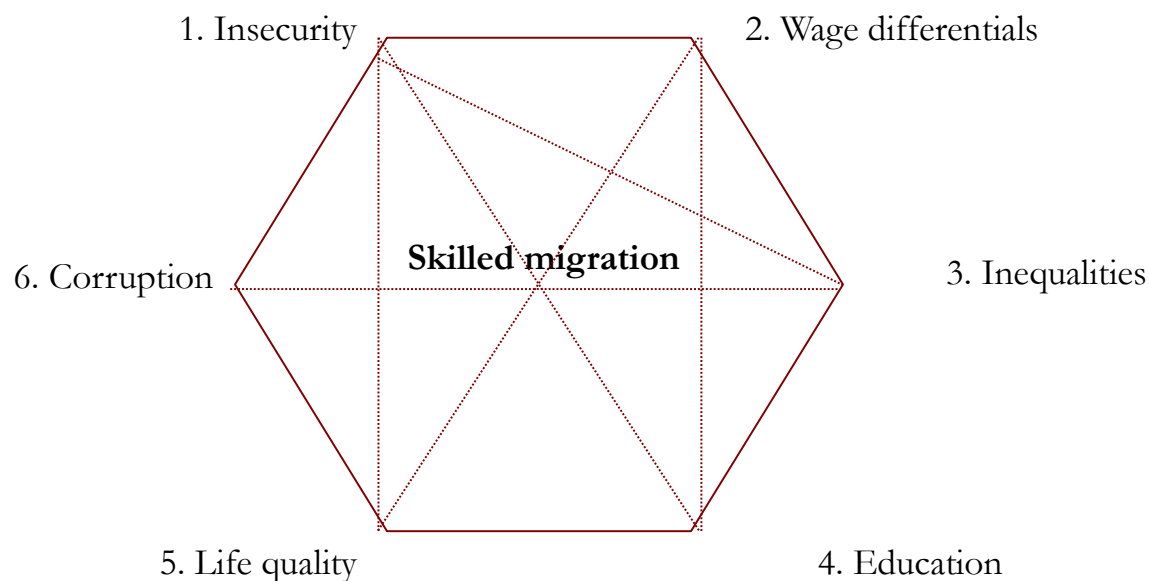


Figure 9.

Relations among various expulsion factors for skilled migration in Mexico

Insecurity, wage differentials and inequalities

According to Maslow (1987), personal safety is the second level of needs after the physiological ones, and these needs respond to a deficit in basic requirements for psychological equilibrium. Our survey showed that insecurity is the main factor of expulsion for skilled migration. Insecurity does not refer only to real situations of violence, but also to a state of fear of violence that provokes a crisis of insecurity as perceived by many interviewed migrants. Many of the individuals who participated in our research explain insecurity based on the wage differentials and poverty in the home country. That is, they do not perceive themselves as earning low wages; on the contrary they think they are well paid as compared to a significant part of the Mexican population that earns very

little money. This part of the population is therefore forced to participate in corruption and delinquency in order to make a living. Testimonies are as follows:

There is no wage law in Mexico, or the existing one is a joke. (...) There is a lot of corruption because policemen earn little. It is horrible. I think that a policeman should earn at least 15 dollars per hour. But in Mexico a policeman must earn something like 3 thousand pesos per month (100 dollars approx. at the time of the interview). We have policemen that live in the same neighborhood as the thieves and that is terrible if we want to improve security. (Economist, Toronto, age 30, 8 years in Canada)

A few years ago, drug dealers used to fight among themselves. At present, they affect the civilian population. There has been an increase in kidnappings and extortions of the middle class. This worries me a lot because I know that if I go back and get a good job, instead of feeling safer, I'll be a point of attraction for being kidnapped or robbed. (PhD student, Pittsburgh, age 30, 4 years in the US)

If it were not for the violence in Mexico and if I had a good job offer, I would consider returning to Mexico. (Photographer, New York, age 32, 6 years in the US)

I think Mexico has improved a lot economically since I left in the mid-1990s. But based on my work, I realized that one of the effects of the North American Free Trade Agreement is that it benefitted the middle class a lot. Its well-being has gone up, but we still have a big disparity between the rich and the poor. (Lawyer, New York, age 40, 18 years in the US)

Wage differentials between the countries of origin and destination do not seem to be an important concern of Mexican elites abroad. Many skilled migrants think that Mexico has a strong economy, and they even note economic progress since they have left the country. However, inequalities and differential access to economic and educational opportunities create the paradox that the middle and upper classes fear disclosing what they earn because they may be subject to more kidnappings and robbery. This dynamic can be interpreted as a process of social revenge for problems that the government itself cannot solve.

I see lot of economic improvement in Mexico. There is a lot of capital investment and a good infrastructure. But I also think about what Mexico can do so that more people may get on this 'wagon of wealth'. (...) Still, the main problem nowadays is insecurity. The country is experiencing an amazing paranoia. Mexican society is becoming worn out by violence. (Businessperson, Texas, age 55, 26 years in the US)

Insecurity and quality of life

Insecurity is the most urgent factor for expulsion in migration terms and it strongly affects the life conditions and life style of the people. In our case, brain drain may indeed be considered as a cause for the insufficient and deteriorating life conditions of the middle class in Mexico, especially if we compare personal safety and tranquility abroad as opposed to a situation of continuous fear in the home country. In this way, brain drain is a cause and an effect of deteriorating conditions for the middle class.

I used to talk to my parents about Mexico and how bad the situation was because of the violence. If I'm not mistaken, the violence started under the government of

Zedillo. I told myself, I don't want this for my kids, so I'll leave someday. So we left because of the violence and problems in Mexico City, such as traffic and pollution. I had my eyes burning all the time, traffic was tough day and night, so I got fed up. Still, the main cause was violence. Thank God, nothing happened to me personally, but well, my sister was assaulted with an automatic weapon in a store. On the contrary, I see a certain economic improvement. I may be naive, because I have been living abroad for 13 years now, but I think the economy is better now. There are no monetary devaluations any more, as there used to be 6 years ago. (IT engineer, Toronto, age 39, 13 years in Canada)

We used to live on the outskirts of Mexico City and then moved closer to downtown. I used to have a very good job in Mexico, I cannot complain, we had enough money for food, nice clothes, to have fun, but we wanted a bit more. We wanted safety. Neither my wife nor I were directly assaulted, but every day we used to hear stories of family or friends who were assaulted or even killed. We didn't like this as a way of living, so we decided to look for a different place to live. (IT engineer, Quebec, age 33, 3 years in Canada)

Insecurity is the main reason that motivates us all to emigrate. Besides that, the working hours. I used to work from 8 o'clock in the morning to 9 or even 10 o'clock at night. That is not sufficient quality of life, especially when you have kids. I wanted something different for them and for my family. (Accountant, Quebec, age 42, 5 years in Canada)

Inequalities and quality of life

The relationship between inequalities and quality of life in Mexico underlines the differences between those who have access to economic and cultural capital and those who don't, and it therefore helps explain the social discomfort that those major differences may generate. However, inequality may be an extra advantage for the middle and in our case, skilled class, as it brings with it cheaper access to domestic help and certain social privileges. Our interviewees describe a society split in two, where there is luxury at one end of the scale and misery at the other. While this black and white picture of poverty and wealth may represent an oversimplification, it does however help us understand the mentality of migrants and their desire to look for more balanced "Northern" societies.

It is very sad to look at Mexico from abroad. I see people who could move forward but they don't do it. It is a country that can't get organized. People think that the government will solve everything, this is the culture. There are good politicians, but corruption and bad attitudes eventually corrode them. There is an iron triangle among society, government and private industry. We should analyze who has been affected by the Mexican economy, because the country has 40 million poor people. Nevertheless when I go to Mexico, I see that everybody has a cell phone, everybody wears nice clothes and they spend money on parties that not even Toronto has. A lot of people have two cars, because one of them is not allowed to run one day of the week. When we speak of the Mexican economy, we have to define it. "I do not earn enough for an Audi, for a BMW, or really, I do not have food to eat." These are very different things. Rich people will still be rich and the middle classes will still maintain

the Mexican economy. If people forgot about status and kept working, things would improve.

In Mexico, nothing is safe. Even leaving aside violence, which is a major issue, I can't be sure from one week to the next that I will still have a job. I can't be certain that when I return home from work everything will be ok, that nobody has robbed me while I was out. It is a country that lives in a continuous state of insecurity in all aspects of life, not only physical, but also labor security, health security. (IT engineer, Toronto, age 47, 9 years in Canada)

What I like here is that everybody has a decent quality of life. You are not gonna starve, you are not gonna be rich, not gonna live with luxuries, but you can live decently. In Mexico, an executive of a company may earn a thousand times more than a low skilled worker at the bottom. When you find a good job as a professional in Mexico, you can live in excellent conditions. In my field, finance, workers in transnational companies get similar wages no matter in which country they work. (Economist, Toronto, age 30, 8 years in Canada)

Inequalities and education

The correlation between inequalities and education remind us of the classical capital theory of Bourdieu (1986): economic capital may be a condition to acquire cultural capital and have access to education. In this way, poor people in Mexico cannot afford tuition for private schools and in some cases, they cannot even properly take advantage of the public ones, as children have to work in order to provide for the family. Poverty becomes an emergency and inequality creates social problems such as those described below:

More and more people are studying at the university each year. Therefore wages don't improve because of the high demographics. In Mexico, if you are born in a poor family, it is very difficult to climb the social ladder, because you are immersed in a certain culture and deficient educational system that prevent you from progressing. (Economist, Toronto, age 30, 8 years in Canada)

Even though the news on the drug war is quite worrying, more and more companies are opening. There is a lot economic activity, but the problem is that development doesn't permeate all social levels. Access to education is a problem. Selection doesn't depend on who needs it or on their mental abilities, but on the capacity of the person to pay for tuition. This is terrible. (IT engineer, Seattle, age 29, 5 years in the US)

Inequalities, wage differentials and corruption

We found a very strong opinion tendency in Mexican skilled migrants, who generally complain about corruption as a problem they could not deal with and they are not willing to fight with any further in their home country. They explain it based on inequalities and wage differentials, but also on historical cultural patterns and social apathy. That is, migrants appreciate that Mexicans themselves have become accustomed to getting involved in corrupt social relations and that affects not only the way politics is done, but also the informal economy and the people's expectations concerning their country's institutions.

If you go to the market in Mexico, they sell pirated DVDs. Everybody knows they are there, but nobody does anything about it because they know they can bribe the policemen. In Mexico if you have money, you can buy anything. This is because of

the insufficient education of the people and because of the corruption. Many people can't meet their basic needs with what they get for their work, so if they can get some extra money they accept even corrupt tasks. This is turning into a big problem. (Economist, Toronto, age 30, 8 years in Canada)

Discussion

The hypothesis that more education may stimulate “brain drain” if not complemented by policies favoring more education premiums and higher skill prices may be valid. The fact that the growth of educational enrollment and the increase of skills prices are contradictory goals problematizes existing public policies. However, during the first decade of the twenty-first century, Mexico experienced a decrease in both skills prices and emigration to the U.S.

The availability of more skilled personnel tends to reduce skills prices, as the Mexican case confirms (both in the 1990s due to the expansion of secondary education and in the twenty-first century, associated with a small increase in tertiary education enrollment): the greater the supply of human resources, the lower the price of their services.

In terms of the relationship between migration and education, real brain drain may be defined as emigration of potentially well-paid skilled personnel. Skill prices are indeed crucial for economic development, as emigration may be caused by investing in education without raising education premiums. In order to create rapid economic growth in a middle-income country as Mexico, educational investment should be directed primarily toward improving the quality and relevance of education (bottom-up brain gain). It is also important to attract international migrants to improve the quality of research and education (top-down brain gain). However, this study also points to the importance of expanding higher education, based on recent evolution of skills prices and social inequality in Mexico.

The potential reduction of skills prices associated with higher education expansion is not an absolute negative consequence. If the main goal is to reduce inequalities, high education spending focused on enrollment is recommended. Latin America is the most unequal region in the world, both by income and by non-income based measures (Lopez & Perry, 2008), and education policies can help ameliorate that problem.

Social inequalities contribute to the spread of corruption and hiring based on personal relations rather than on merit. People in need, facing lack of opportunities and exploitation, may foment violence against a more prosperous middle class. Earning more in a developing country produces the paradox of more fear, being a point of attraction for delinquents who would try to rob, extort, or kidnap professionals (among other elites).

Our sample indicated that low wages are indeed a motivator for overseas migration of professionals. However, this is less important as motivation to leave the country than insecurity. In other words, both previously published statistical results and our own empirical research show that few Mexican professionals migrate due to low income level alone. They migrate abroad because they perceive insecurity as afflicting the country, as well as widespread poverty, corruption and poor quality of education. Since all these variables are strongly linked to inequality, implementing policy measures to reduce it would help to solve the problems that motivate highly educated professionals to leave Mexico.

Crime rates and inequality are positively correlated. Inequality, in particular, has a strong impact on violent crime (murder, rape, robbery and assault) (Bolaños, 2013; Kelly, 2000). Even if property crimes (burglary, larceny, and theft) may be better related to poverty, inequality is an

important cause of high crime rates in general (Fajnzylber et al. 2001). This leads us to conclude this article with an education policy proposal. Tackling inequality in Mexico is a way to contribute to the welfare not only of the poor but also of the middle class that suffers from insecurity and deplores poverty.

While it is true that the expansion of higher education reduces wage prices, in Mexico this reduction does not seem critical. On the contrary, upward social mobility of those entering higher education is indeed significant. Attending high school, and/or earning an undergraduate or postgraduate education deeply improves, on average, the lives of people in Mexico. In addition to higher material well-being, it reduces inequality. In turn, this should lower social violence and extreme poverty. In sum, improving the social fabric through expanding and improving the quality of higher education would reduce negative brain drain, and thereby contribute to economic growth.

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