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國際學碩士學位論文

**Labor Demand and Unauthorized Immigration:
The Case of the United States from 1980 to 2012**

노동수요와 불법이민:
1980-2012 미국의 사례연구

2014年 8月

서울大學校 國際大學院
國際學科 國際地域學專攻
徐允貞

Labor Demand and Unauthorized Immigration: The Case of the United States from 1980 to 2012

Thesis by

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Graduate Program in International Area Studies
For the degree of Masters of International Studies

August 2014

**The Graduate School of International Studies
Seoul National University
Seoul, Korea**

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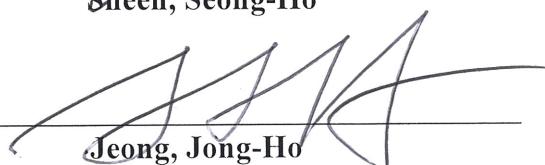
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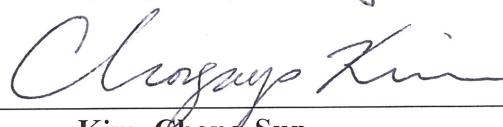
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Abstract

Labor Demand and Unauthorized Immigration: The Case of the United States from 1980 to 2012

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This paper attempts to verify the main drivers of unauthorized immigration from Mexico to the U.S. from 1980 to 2012 and draw policy implications for U.S. immigration reform. To this end, it starts by establishing a theoretical framework for analysis drawing on basic tenets of two theories of international migration—segmented labor market theory and neoclassical economic theory. It then engages in empirical analysis using annual data from 1980 to 2012 and determines factors with statistical significance. It employs data representing real wages in the two countries, immigration enforcement level in the U.S., and the demand for labor in the U.S. It also includes dummy variables signaling key developments in U.S. immigration policy during the research period. It then infers policy implications based on the empirical results and concludes by making remarks on the pending immigration reform.

This paper finds that the demand for labor in the U.S. is a strong magnet for unauthorized migration from Mexico. It concludes that a viable immigration policy must include a flexible admission system that responds to changing labor demands and a balanced enforcement system which regulates the border as well as the employers of unauthorized immigrants.

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Keywords: Mexico-U.S. unauthorized migration, push and pull factors, labor demand, U.S. immigration policy

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I. Introduction

Immigration reform is once again on the U.S. national agenda. During the first session of the ongoing 113th Congress, renewed bipartisan effort toward comprehensive immigration reform culminated in the passage of S.744 or the Border Security, Economic Opportunity, and Immigration Modernization Act in the Senate (Silverleib, 2013). Meanwhile, due to dissenting views on some of the contents of S.744 the House introduced its own series of bills dealing with relevant issues individually and to this moment the two houses have yet to reach a consensus. The Obama administration, the activists and various interest groups continue to express their support for immigration reform and pressure the House conservatives (Chisti and Hipsman, 2014).

Central to the debate on immigration reform is the question of how to deal with illegal immigration. This includes addressing the unauthorized population ¹ currently living in the U.S. and thwarting potential migrants from entering the country illegally. The latest and most comprehensive effort to address this question is the Immigration Reform and Control Act (IRCA) of 1986. IRCA granted legal status to more than 2 million unauthorized immigrants and provided for border security and employer sanctions as deterrents to future illegal entries. The

¹ The number of unauthorized alien residents in the U.S. was estimated to be 3.5 million in 1990. The number then mounted continuously reaching a record level of 12.2 million in 2007. As of 2012, the figure is estimate to be 11.7 million (Passel, Cohn, and Gonzalez-Barrera, 2013:6).

effectiveness of IRCA, however, has been questioned on many grounds.

Immigration reform also refers to restructuring legal immigration. The Immigration Act of 1990 (IMMACT 90), in effect since 1992, stipulates that 700,000 immigrant visas be granted each year. About two-thirds of the total is allotted to family-sponsored immigrants and 140,000 visas are allotted to employment-based immigrants. The remaining 55,000 “diversity visas” are distributed through a lottery to underrepresented countries (Weissbrodt and Danielson, 2011: 28-33).

The reform bills being discussed in Congress attempt to correct the failures of IRCA and the shortcomings of IMMACT 90. The Senate’s comprehensive reform bill provides for a gradual path for legal status and citizenship to unauthorized alien residents conditioned upon the implementation of border security measures. The bill also allots larger staff and budget for enforcing employer sanctions. As for legal immigration, it creates a notable number of work-based admissions targeted especially at STEM graduates from U.S. universities and immigrant entrepreneurs. Finally, S.744 establishes a point-system through which legal status is earned based on preferred characteristics and qualifications (MPI, 2013).

Rooted in the logic of immigration lawmaking is the fundamental question of what causes migration to the U.S. This paper attempts to examine this question with a focus on the impact of U.S. labor market conditions and immigration policy on Mexican unauthorized migration. For this purpose, I will first

provide a brief review of related literature and set the theoretical framework for analysis; I will then present selected data and explain their significance in the context of Mexico-U.S. illegal migration; I will then carry out empirical analyses and interpret the results; I will conclude by drawing implications for the pending immigration reform.

II. Literature Review and Theoretical Framework

International migration is a complex phenomenon arising from various factors at the individual, household, society, and global level. It may arise from international wage differentials, households' incentive to diversify risks, structural needs of advanced industrial societies, or capitalist penetration into global peripheries. International migration may also become a self-sustaining process through the resulting social and cultural products such as migrant networks and ethnic enclaves (Massey et al., 1993: 432-454; Castles, De Haas, and Miller, 2014: 25-54). Relevant to the purpose of this paper are the basic tenets of two theories – segmented labor market theory and neoclassical economic theory – which explain migration from the perspective of destination countries and potential migrants, respectively.

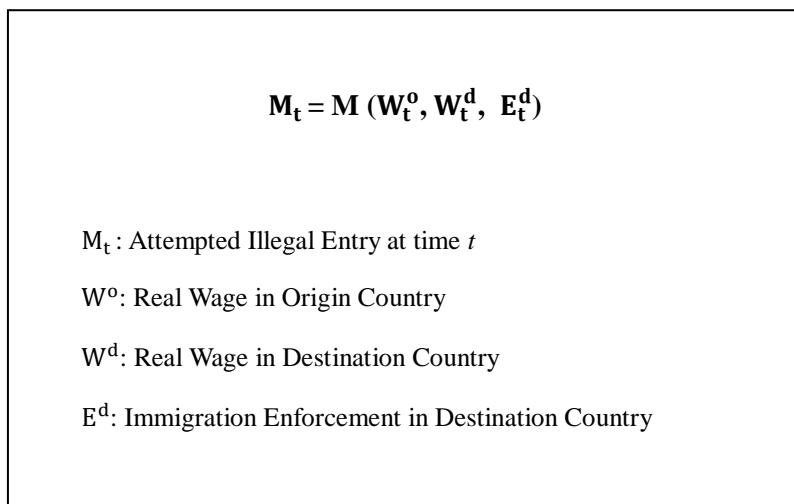
Segmented labor market theory attributes the cause of international migration to the structural needs of developed countries (Piore, 1979). According to the theory, modern industrial societies are characterized by a segmented labor market structure in which high-skilled, specialized labor occupies the capital-intensive sector and low-skilled, manual labor serves the labor-intensive sector. Due to demographic changes including increased female workforce participation and longer youth education and motivational problems arising from lack of social status and upward mobility for low wage jobs, developed countries have come to experience a shortage of low-skilled labor. As a result, employers in the labor-intensive sector

seek foreign labor to satiate their unmet demand by either outsourcing to developing countries or hiring immigrants. Labor market segmentation theory thus implies that international migration is largely a demand-driven process (Castles, De Haas, and Miller, 2014: 35-36; Massey et al., 1993: 440-444; Piore, 1980: 312-314). Neoclassical economic theory, meanwhile, perceives migration as an individual choice (Sjaastad, 1962). According to the theory, the individual decides to migrate if the net gains from migrating are expected to be positive. The most important factor affecting this decision is the international wage differentials. The theory posits that the volume of international migration is directly related to the size of international wage gaps and that migration should cease in the absence of these gaps (Massey et al., 1993: 433-436, 454-457). The two theories are complementary in that they explain international migration from the perspective of destination countries and potential migrants, respectively.

The relative influence of conditions in sending and receiving countries on the volume of international migration can be determined by identifying factors with strong explanatory power (Massey et al 1993: 454-459). Hanson and Spilimbergo (1999) adapted this method to analyze determinants of illegal migration by modeling attempted illegal entry as a function of market conditions in origin and destination countries, probability of being detained, information for predicting aforementioned variables, and individual differences in the costs of migration (1338-1339). This paper employs a simplified version of Hanson and Spilembergo's model as conceptualized in Figure 1. In this model, attempted illegal entry from

Mexico to the U.S. at time t , M_t , is estimated as a function of real wage in Mexico, W^{mx} , real wage in the U.S., W^{us} , and immigration enforcement in the U.S., E^{us} .

Figure 1. Theoretical Framework for Estimating Illegal Migration



Source: Author's conceptualization based on Hanson and Spilimbergo (1999: 1338-1339)

Empirical research on illegal migration from Mexico to the U.S. has generally concluded that the push factors have stronger explanatory power than the pull factors (Frisbie, 1975; Jenkins, 1977; Blejer, Johnson, and Prozecanski, 1978; Bean et al., 1990; Massey et al., 1994: 706-707, 721; Hanson and Spilimbergo, 1999). Jenkins (1977), for example, compares conditions in the two countries' agriculture sector and finds that productivity and capital investment in Mexico prevail in explanatory power. Hanson and Spilimbergo (1999) test the influence of U.S. and Mexican real wages, U.S. immigration enforcement activities, and changes in U.S. immigration policy and identify a statistically significant negative correlation

between Mexican real wages and the volume of unauthorized migration from Mexico to the U.S. Indicators of U.S. labor market conditions – e.g. unemployment rate – were found to be insignificant in both studies.

This paper reexamines the impact of the demand side of labor on unauthorized immigration from Mexico to the U.S. It contributes to existing literature by employing updated data on unauthorized immigration and including recent developments in U.S. immigration policy in the empirical analysis. It also utilizes newly released data series by the U.S. Bureau of Labor Statistics (BLS) to support the empirical results. It ultimately contributes to the discourse on immigration reform by confirming that the U.S. immigration system does not fully acknowledge the magnetism of labor demand in driving unauthorized immigration from Mexico.

III. Empirical Analysis

1. Data

For the regression analyses, I will employ annual data from 1980 to 2012 representing the volume and potential drivers of illegal migration from Mexico to the U.S. I will also include variables that signal noteworthy developments in U.S. immigration policy to determine their effects on unauthorized immigration. Basic information on the selected variables is shown in Table 1.

According to the model in Figure 1, attempted illegal entry from Mexico to the U.S. at time t is expressed as $M_t = M(W_t^{mx}, W_t^{us}, E_t^{us})$. The dependent variable selected as a proxy for M^t is “Mexicans apprehended.” “Aliens apprehended” or “deportable aliens located” refer to the number of border apprehensions made by the Customs and Border Protection (CBP) Office of Border Patrol (OBP) and administrative arrests made by the Immigration and Customs Enforcement (ICE) Homeland Security Investigations (HSI). Since 2008, it also includes administrative arrests made by ICE Office of Enforcement and Removal Operations (ERO) (DHS, 2013: 91). Aliens become “deportable” primarily by entering the country illegally or violating the terms of visa (INS, 1982: 139). Mexicans apprehended refers to the number of persons apprehended in a given fiscal year whose country of birth is Mexico. From 1980 to 2012, Mexicans accounted for the majority of aliens apprehended (see Appendix 1).

Table 1. Selected Variables

Variable	Definition and Source	Representation
Mexicans Apprehended	Total number of border apprehensions and administrative arrests of persons whose country of birth is Mexico Source: U.S. Department of Homeland Security	M_t
Mex.GDP per Person Employed	Gross Domestic Product (GDP) converted to 1990 constant international dollars using Purchasing Power Parity (PPP) rates divided by total employment	W_t^{mx}
U.S. GDP per Person Employed	Source: The World Bank Databank	
U.S. DHS Outlays	Amount of U.S. national budget spent by Department of Homeland Security (DHS) Source: U.S. Office of Management and Budget	E_t^{us}
U.S. Unemployment Rate (%)	= (Number of unemployed/Labor force) x 100 Source: U.S. Bureau of Labor Statistics	Labor Demand in the U.S.
Mexicans Obtaining LPR Status	Number of “green cards” issued to persons whose country of birth is Mexico Source: U.S. Department of Homeland Security	Key Developments in U.S. Immigration Policy
Immigration Reform and Control Act (1986)	=1 if fiscal year is 1987 or later, when IRCA was implemented	
1st National Border Control Strategy (1994-2003)	=1 if fiscal year is from 1994 to 2003 inclusive, when the 1 st National Border Control Strategy was implemented	
Homeland Security Act (2002)	=1 if fiscal year is 2003 or later, when the Department of Homeland Security was established	

Note: Mexicans Apprehended, U.S. DHS Outlays, and Mexicans Obtaining LPR Status are based on the U.S. government fiscal year; GDP per Person Employed of the two countries and U.S. Unemployment Rate are based on the calendar year. The fiscal year in the U.S. begins in October 1st of the previous year and ends in September 30th of the designated year. For example, fiscal year 2012 begins in October 1, 2011 and ends in September 30, 2012 (U.S. Office of Management and Budget, 2013: 3).

The independent variables used in the regression analyses are Mexican GDP per person employed, U.S. GDP per person employed, U.S. DHS outlays, U.S. unemployment rate, Mexicans obtaining Legal Permanent Resident (LPR) status, and three dummy variables highlighting notable developments in U.S. immigration policy.

Mexico and U.S. GDP per person employed signify W^{mx} and W^{us} or real wage levels in the two countries. It is calculated as gross domestic product divided by the total number of persons employed. In this case, GDP has been converted from the local currency into constant 1990 PPP dollars – dollars based on purchasing power parity exchange rates that reflect a country's price level and that of the U.S. in 1990 (The World Bank Databank, accessed 1 May, 2014).

U.S. DHS outlays represent the level of investment in immigration enforcement in the U.S. (E^{us}). It refers to the amount of U.S. fiscal budget spent by the Department of Homeland Security (DHS), the government body in charge of immigration admission and control. Data prior to FY 2003 refer to outlays of the Immigration and Naturalization Service (INS), predecessor of the DHS.

The U.S. unemployment rate represents the demand for labor in the U.S. It is calculated as the percentage of unemployed in the labor force and is published by the U.S. Bureau of Labor Statistics (BLS) in the Current Population Survey (CPS) on a monthly basis. The data used in the regression analyses is the annual average of unadjusted monthly unemployment rate. A direct indicator of a country's labor market conditions, U.S. unemployment rate thus represents labor demand in the U.S.

The number of Mexicans obtaining Legal Permanent Resident (LPR) status reflects the level of legal immigrant admission channels. The U.S. immigration system which is basically a quota system has undergone changes over the past decades regarding the volume and criteria for LPR admissions. The key developments in contemporary U.S. immigration law are shown in Table 2.

The Immigration and Nationality Act (INA) of 1952 which constitutes the basis of the current immigration system allotted a total of 150,000 visas to the Eastern Hemisphere and selected immigrants based on national origin quotas. The Western Hemisphere was not subject to quotas. The amendment to INA in 1965 abolished national origin quotas and set respective quotas of 120,000 and 170,000 on the Western and Eastern Hemisphere. On the Eastern Hemisphere, it also set per-country limits of 20,000 and a seven-tier preference system favoring family members of U.S. citizens and high-skilled workers. The amendment in 1978 abolished the hemispheric distinction and set a global total of 290,000. All countries were subject to a 20,000 country cap and the seven-tier preference system. The Immigration Act of 1990 (IMMACT 90), in effect since 1992, stipulates that 700,000 immigrant visas be granted each year. About two-thirds of the total is allotted to “family-sponsored” immigrants and 140,000 visas are allotted to employment-based immigrants. Within the employment-based category, visas are delivered according to a five-tier preference system. The remaining 55,000 “diversity visas” are distributed to underrepresented countries through a lottery (Weissbrodt and Danielson, 2011: 15-39).

Table 2. Key Developments in Contemporary U.S. Immigration Law

Year	Legislation	Description		
		Western Hemisphere	Eastern Hemisphere	Other
1952	Immigration and Nationality Act (INA)	- Non quota	- Total: 150,000	- Basis of contemporary immigration law - National origins quota based on 1920 census
1965	Amendment to INA	- Total: 120,000 - No country limits - No preferences	- Total: 170,000 - Per country limit: 20,000 - Seven preference system	- Preference system: (1) Unmarried children of U.S. citizens (2) Spouses and unmarried children of permanent resident aliens (3) Immigrants of “exceptional ability” and those in “the professions” (4) Other relatives of citizens (5) Other relatives of permanent resident aliens (6) Needed workers (7) Refugees
1976	Amendment to INA	- Total: 120,000 - Per country limit: 20,000 - Seven preference system		- Spouses of U.S. citizens exempt from quotas and preferences
1978	Amendment to INA	- Total: 290,000 - Per country limit: 20,000 - Seven preference system		
1990	Immigration Act (IMMACT 90)	- Total: 700,000 - Family-sponsored: 465,000 (Immediate relatives – i.e. spouses, minor children, and parents of U.S. citizens – deducted from family-sponsored total) - Employment-based: 140,000 - “Diversity visas”: 55,000		- In effect since 1992 - Employment-based visas: (1) 28.6% or 40,000 to “priority workers” i.e. Noted professors, researchers, multinational executives, etc (2) 28.6% or 40,000 to professionals with advanced degrees or persons with exceptional ability in science, the arts, or business (3) 28.6% or 40,000 to skilled workers or professionals with baccalaureate degrees, as well as other unskilled workers (number of unskilled workers limited to 10,000 per year) (4) 10,000 visas for “special immigrants” (5) 10,000 visas for investors

Source: Author's tabulation based on Weissbrodt and Danielson (2011:15-39)

The 1986 Immigration Reform and Control Act (IRCA), the latest and most comprehensive legislation dealing with unauthorized immigration, demonstrates the effects of a temporary increase in legal channels for unauthorized immigrants. IRCA offered a pathway to legal status to those who had (1) resided in the U.S. since January 1, 1982 or (2) sixty-days' work experience in agriculture between May 1985 and May 1986 (Cooper and O'Neil, 2005: 3-4). From 1989 to 2009, IRCA legalized more than 2.7 million unauthorized immigrants, the majority of unauthorized population then in the U.S. of which more than 2 million were Mexicans (Kerwin, 2010: 2, 12-13) (see Table 3).

Table 3. Persons Adjusting to LPR Status through IRCA, 1989-2009

General legalization	1,596,912
Special Agricultural Worker (SAW) program	1,093,065
Late Amnesty Applicants	14,907
Total	2,704,884

Source: Kerwin, (2010: 2, 12-13)

IRCA also provided for border enforcement and employer sanctions. However, investment in border enforcement didn't begin in earnest until 1994 (Meissner et al., 2013: 24) and the employer sanctions clause was loosely defined, arbitrarily enforced, and lacked resources such as personnel and instruments for verifying workers' legal status (Calavita, 1994: 55-82; Cooper and O'Neil, 2005: 3). Thus, the 1986 IRCA dummy variable neglects the effects of the enforcement clause and rather reflects those of the temporary increase in legal channels for unauthorized immigrants.

The 1st National Border Control Strategy refers to the series of executive border enforcement programs targeted at controlling the Mexico-U.S. border from 1994 to 2003. Implemented in four phases, the government invested heavily in fencing and surveillance equipment at entry points including Juarez-El Paso; Tijuana-San Ysidro; the Rio Grande valley; and the Nogales corridor. The strategy was updated in 2004 in the wake of administrative and ideological changes prompted by 9/11 (Meissner et al., 2013:23-24).

Finally, the 2002 Homeland Security Act dummy variable is used to determine the effects of administrative and ideological changes in post-9/11 immigration enforcement². In November 2002, Congress passed the Homeland Security Act which created a new Cabinet agency called the Department of Homeland Security (DHS). The act dissolved the Immigration and Naturalization Service (INS) under the Department of Justice and transferred its main functions to three new agencies within the DHS: Citizenship and Immigration Services (USCIS); Immigration and Customs Enforcement (ICE); and Customs and Border Protection (CBP). USCIS assumed the administrative role and ICE and CBP took over the enforcement duties in the interior and at the border, respectively. In the wake of the 9/11 terrorist attacks, the loopholes in the immigration system were perceived as a critical threat to U.S. national security. In response, a series of legislations were passed to

² Post-9/11 immigration enforcement includes “(1) border enforcement; (2) visa controls and travel screening; (3) information and interoperability of data systems; (4) workplace enforcement; (4) the intersection of the criminal justice system and immigration enforcement; and (5) detention and removal of non-citizens” (Meissner et al., 2013:7-8).

reinforce the tracking of non-citizens entering the country and screening of suspected individuals (Mittelstadt et al., 2011). At the same time, the U.S. border with Mexico was increasingly viewed as a source of security threat. According to Rudolph (2007), 9/11 fundamentally changed the concept of homeland security by attesting that a threat could arise from non-state entities if not individuals. The concept of “security” and “policing” thus became highly intertwined and “lawbreaking” began to have resonance in the national security discourse. As a result, enforcement at the southern border which had long been the locus of unauthorized migration was strengthened considerably (28-29). Enforcement was also emphasized in the interior through executive programs such as “Secure Communities” which allowed local and federal law enforcement organs to share data on undocumented criminals and coordinate their apprehension (CFR, 2013). The legitimacy and effectiveness of these policies in deterring illegal immigration are still open to debate (Ackleson, 2005; Cornelius, 2005; Cornelius and Lewis, 2007; Tirman, 2006).

2. Expected Results

The expected regression analysis results for dependent variable Mexicans apprehended and the supporting rationale for the expected correlations are as follows:

Table 4. Expected Regression Analysis Results for Mexicans Apprehended, 1980-2012

Independent Variable	Representation	Expected Correlation	Rationale
Mex.GDP per Person Employed	Mexican real wage	-	Push factor
U.S. GDP per Person Employed	U.S. real wage	+	Pull factor
U.S. Unemployment Rate (%)	U.S. demand for labor	-	Pull Factor
Mexicans Obtaining LPR Status	Level of legal immigrant admission channels	-	Mitigating factor
Immigration Reform and Control Act (1986)	Temporary increase in legal channels for unauthorized immigrants	-	Mitigating Factor
1 st National Border Control Strategy (1994)	Series of border enforcement programs from 1994 to 2003	+	Enforcement in the short-run
Homeland Security Act (2002)	Post-9/11 administrative and ideological changes in immigration enforcement	-	Enforcement in the long-run (Deterrent)
U.S. DHS Outlays	U.S. investment in immigration enforcement	-	Enforcement in general

First of all, it is expected that Mexican GDP per person employed is negatively correlated to Mexicans apprehended in that Mexican real wage acts as a push factor driving outmigration. Reversely, U.S. GDP per person employed is expected to be positively correlated to Mexicans apprehended with higher real wage levels in the U.S. attracting more unauthorized immigrants.

Secondly, U.S. unemployment rate should be negatively correlated to Mexicans apprehended. As previously explained, segmented labor market theory attributes the cause of international migration to the structural needs – i.e. shortage of low-skilled labor – in developed countries (Piore, 1979). Thus, the demand for labor in the U.S. is expected to be a significant factor inviting unauthorized migration from Mexico.

Thirdly, Mexicans obtaining LPR status and the 1986 Immigration Reform and Control Act are expected to be negatively correlated to Mexicans apprehended. The common rationale is that greater number of legal entry channels should reduce the number of persons attempting illegal entry. The effects of Mexicans obtaining LPR status may be limited, however, in that yearly variations in the number of immigrant visas admitted to Mexicans from 1980 to 2012 through the traditional visa categories – family-sponsored and employment-based – are minimal (see Appendix 5). Meanwhile, IRCA's legalization provision significantly increased the level of legal channels for unauthorized alien residents through the late 1980s and early 2000s. Thus, IRCA is expected to be a strong mitigating factor of unauthorized immigration in the U.S.

Finally, the variables regarding immigration enforcement are expected to show different effects depending on the period of implementation. The governing principle of the 1st National Border Control Strategy initiated in 1994 was

“deterrence through prevention” (Meissner et al., 2013: 9). It invested heavily in immigration enforcement, especially in border enforcement equipment and technology – i.e. fencing, vigilance technology, increased staffing, etc. The anticipated results of the strategy were (1) in the short-run, border apprehensions would mount due to enhanced technology and increased resources; and (2) in the long-run, border apprehensions would fall with the equipment acting as a deterrent to illegal border-crossings. Thus, the 1st National Border Control Strategy and the 2002 Homeland Security Act should respectively show a positive and negative correlation with the number of Mexicans apprehended. In addition, U.S. DHS outlays is expected to be negatively correlated to the number of Mexicans apprehended. Given that the budget is invested in an effective manner, it is reasonable to expect that more investment in immigration enforcement leads to reduced levels of unauthorized immigration. If the premise proves to be wrong, then the effect of the variable may be limited.

3. Empirical Results

The regression analysis results for LN Mexicans apprehended from 1980 to 2012 are shown in Table 5. It can be observed that the variables identified as statistically significant are LN Mexican GDP per person employed, U.S. unemployment rate and IRCA of 1986.

Table 5. Regression Analysis Results for LN Mexicans Apprehended, 1980-2012

	Reg. 1	Reg. 2	Reg. 3	Reg. 4	Reg. 5	Reg. 6
LN Mex. GDP per Person Employed	-1.6854 (-2.056) **	-0.7971 (-1.107)	-1.1794 (-1.579)	-2.9268 (-3.074) ***	-2.8765 (-3.082) ***	-2.7974 (-2.971) ***
LN U.S. GDP per Person Employed	1.3723 (1.174)	0.0833 (0.081)	0.3353 (0.329)	1.3571 (1.352)	0.5619 (0.499)	0.4711 (0.415)
LN U.S. DHS Outlays	-0.3430 (-1.563)	-0.1641 (-0.872)	-0.1775 (-0.964)	-0.1609 (-0.962)	-0.0230 (-0.122)	0.1034 (0.434)
U.S. Unemployment Rate		-0.1012 (-3.756) ***	-0.1051 (-3.974) ***	-0.1197 (-4.860) ***	-0.1055 (-4.050) ***	-0.1055 (-4.033) ***
LN Mexicans Obtaining LPR Status			-0.1034 (-1.527)	-0.0247 (-0.361)	0.0106 (0.148)	-0.0007 (-0.01)
1986 IRCA				-0.5695 (-2.612) ***	-0.5957 (-2.779) ***	-0.6086 (-2.820) ***
1st National Border Control Strategy (1994-2003)					0.1482 (1.448)	0.0875 (0.707)
2002 Homeland Security Act						-0.2286 (-0.882)
No. of Observations	33	33	33	33	33	33
R-squared	0.3763	0.5853	0.6182	0.6976	0.7210	0.7297

Note: **/***/*** = statistically significant at 10%, 5%, 1% levels, respectively (two tailed)

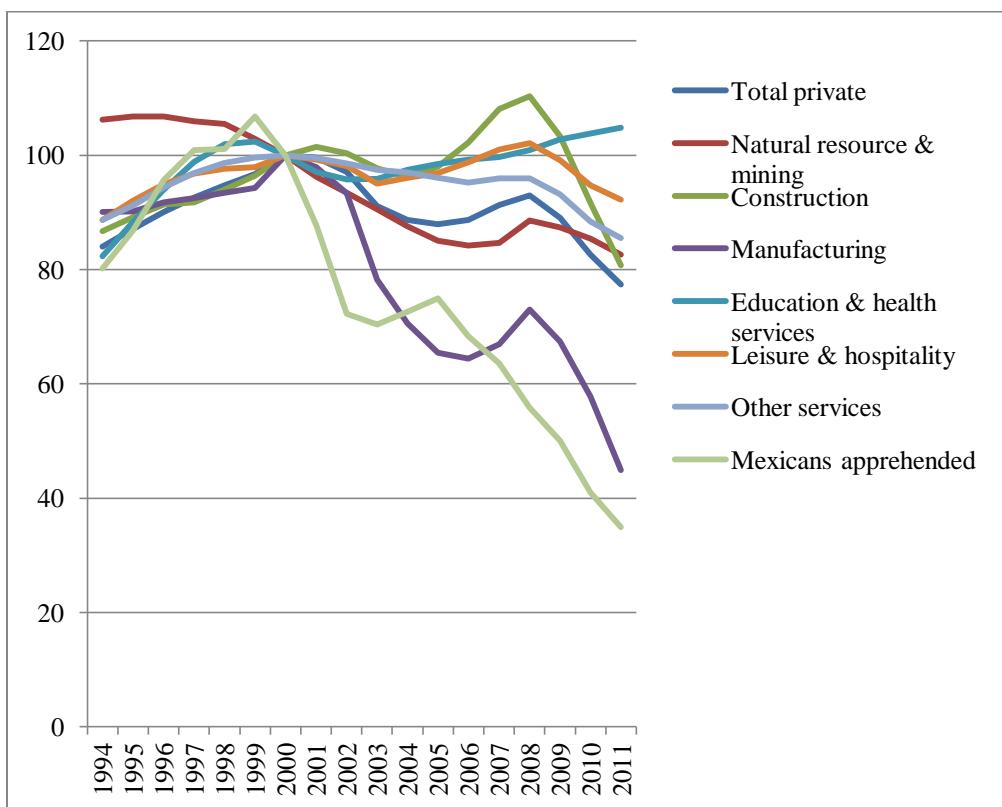
LN Mexican GDP per person is statistically significant at 1% level in regressions 4, 5, and 6 and at 5% level in regression 1, with an elasticity ranging from -1.6854 to -2.9268. Though it lacks statistical significance in regressions 2 and 3, Mexican GDP per person employed demonstrates a negative sign in all regressions. Thus, Mexican real wage is partly confirmed as a push factor driving unauthorized migration to the U.S. On the other hand, LN U.S. GDP per person employed fails to present statistical significance in all regressions. As a result, real wage in Mexico demonstrates stronger explanatory power than that in the U.S. which reaffirms findings from preceding literature (Frisbie, 1975; Jenkins, 1977; Blejer, Johnson, and Prozecanski, 1978; Bean et al., 1990; Massey et al., 1994: 706-707, 721; Hanson and Spilimbergo, 1999).

U.S. unemployment rate is negatively correlated and statistically significant at 1% level in all regressions involved with a coefficient ranging from -0.1012 to -0.1197. The demand for labor in the U.S. is thus fully confirmed as a pull factor driving illegal migration from Mexico. A closer look into the trends of the U.S. labor market supports this finding. Figure 2 uses Business Employment Dynamics (BED)³ data to illustrate the net change in jobs in the U.S. total private sector and six subsector industries classified by the North American Industry Classification System (NAICS). Based on reports submitted by approximately 7 million business

³ BED complements the Current Population Survey (CPS) which focuses on the flow of workers by focusing on the “business side” of the labor market (BLS, 2008: 6).

establishments, “Gross Jobs Gains” illustrates the total number of jobs gained at expanding and opening establishments in a given quarter. It is thus a good indicator of the demand for labor in each sector and industry. In Figure 2, it can be observed that the level of Mexicans entering the U.S. illegally is closely related to the fluctuations in labor demand in industries requiring low-skilled, manual labor such as construction and manufacturing.

**Figure 2. Gross Job Gains in the U.S. and Mexicans Apprehended, 1993-2012
(in thousands)**



Source: U.S. Bureau of Labor Statistics (Accessed May 19, 2014)

Note: In order to mitigate yearly fluctuations and capture the overall trend, levels have been converted to three-year moving average (base year: 2000).

LN Mexicans obtaining LPR status shows a negative sign in regressions 3, 4, and 6 and a positive sign in 5, and lacks statistical significance in all cases. Meanwhile, the 1986 IRCA is negatively correlated and statistically significant at 1% level in all regressions involved with a coefficient ranging from -2.612 to -2.820. Hence, the temporary increase in legal channels for unauthorized alien residents in the U.S. is fully confirmed as a mitigating factor of unauthorized immigration during the period of implementation.

The 1st National Border Control Strategy dummy variable shows a positive sign in all regressions involved as hypothesized but lacks statistical significance in all cases. Likewise, the Homeland Security Act dummy variable which shows a negative sign in regression 6 fails to demonstrate statistical significance. U.S. DHS outlays show a negative sign in regressions 1 to 5 and a positive sign in 6 and lacks statistical significance in all cases. All in all, investment in immigration enforcement in general and systematic border enforcement during the 90s and post-9/11 are revealed to be weak deterrents to unauthorized immigration from Mexico.

Thus far it has been verified that Mexican real wage is a fair push factor and U.S. labor demand is a strong pull factor driving unauthorized immigration from Mexico. In addition, the IRCA legalization is a strong mitigating factor of unauthorized immigration. A snapshot of the empirical findings is shown in Table 6.

Table 6. Confirmation of Factors Affecting Mexico-U.S. Unauthorized Immigration, 1980-2012

Factors	Effects
Mexican real wage	Partly confirmed as push factor
U.S. real wage	Null
U.S. demand for labor	Fully confirmed as pull factor
Level of legal immigrant admission channels	Null
Temporary increase in legal channels for unauthorized alien residents	Fully confirmed as mitigating factor
Series of border enforcement programs (1994-2003)	Null
Post-9/11 administrative and ideological changes in immigration enforcement	Null
U.S. investment in immigration enforcement	Null

V. Policy Implications

The empirical findings imply a clear message for immigration reform: the demand side of labor needs to be addressed in order to reduce and deter unauthorized immigration. Regarding the two major pillars of immigration policy – the legal immigrant admission system and the illegal immigration control system – the policy implications are as follows: (1) first of all, the legal admission system should be designed to satiate the U.S. demand for unskilled labor; and (2) secondly, the immigration control system should be applied not only at the border but also to the employers of unauthorized immigrants.

1. Legal Admission

The first and foremost step to establishing a viable immigration system is to establish a flexible legal admission system responsive to periodic changes in the U.S. labor market. Under the 1990 Immigration Act, the level and composition of LPR admissions have largely been fixed (see Figure 3). With a total of approximately 700,000 immigrant visas issued each year, around two-thirds are allotted to immediate families and relatives of U.S. citizens and permanent residents and less than a quarter to those with a job in the U.S. In addition, the number of employment-based visas admitted to low-skilled workers has been minimal despite changing levels of labor demand in occupations avoided or abandoned by native

workers (see Figure 4). Under the five-tier preference system, “unskilled workers” are placed within the third preference group. Within this group to which 40,000 or 28.6% of employment-based visas are given, those reserved for unskilled workers are limited to 10,000 per year. Cornelius (2005) explains that “much of the illegality in low-skilled employment today is manufactured illegality: a direct function of unrealistically low quotas for low-skilled foreign workers.” He argues that considering the insatiable demand for low-skilled workers in the US economy a realistic approach to reducing unauthorized immigrants is to increase the number of visas issued to low-skilled immigrant workers (789-790). Such increase is in immediate need especially when it is projected that the number of jobs in the low-skilled service and construction industry is expected to grow during the decade of 2012 to 2022 (BLS, 2013). In this regard, Marshall (2009) suggests the creation of a professional research organ dedicated to estimating the shortage of labor and advising the DHS on practical employment-based admission levels (22-28). All in all, the U.S. immigration system has failed to respond to changes in the labor market and provide legal means of satiating labor shortages; thus, reserving sufficient legal channels to facilitate the entry of needed labor in the U.S. is one of the most important measures that need to be included in the pending immigration reform.

**Figure 3. Persons Obtaining LPR Status by Major Class of Admission,
1994-2011**

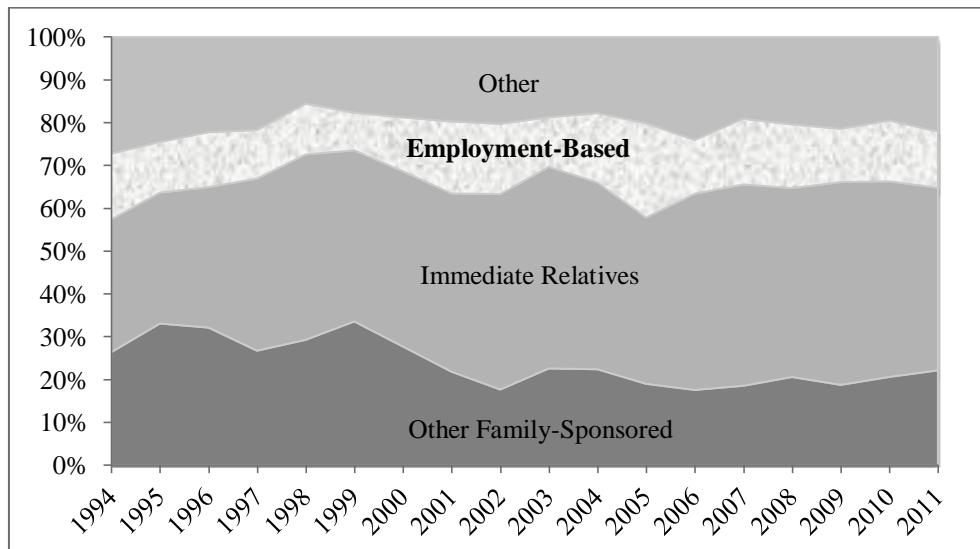
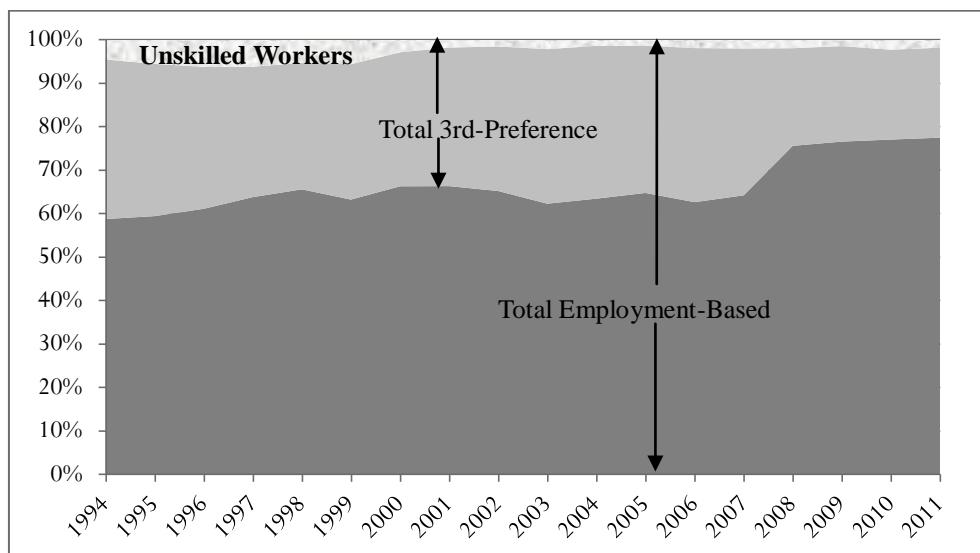


Figure 4. Employment-Based Admissions, 1994-2011



Source: U.S. Department of Justice (Various years); U.S. Department of Homeland Security (Various years).

A question may then arise: can the increase in temporary worker visas also mitigate illegal immigration? The answer is mixed. Statistics show that the majority of persons obtaining legal permanent status are "adjustments" from temporary status rather than "new arrivals" (see Table 7). Reasons may include better prospects for employment and stability in life. In fact, legal permanent status is more desirable for both migrant and receiving society in that it enables upward mobility and better social integration (Cornelius, 2005: 788; Zolberg, 2006: 372). Thus, while increased temporary worker admissions may mitigate illegal immigration in the short-run, it may lead to a rise in visa-overstays if there isn't a corresponding increase in the number of employment-based LPRs in the long run.

Table 7. Adjustments from Temporary to LPR Status (%), 2004-12

Year	Total LPRs	Total Employment-based	Total Third-preference
2004	61	83	77
2005	66	89	85
2006	65	76	67
2007	59	82	74
2008	58	91	80
2009	59	90	83
2010	54	92	87
2011	55	89	80
2012	53	88	80

Source: U.S. Department of Justice (Various years); U.S. Department of Homeland Security (Various years).

2. Enforcement

Regulating the demand side of labor is another crucial element for controlling illegal immigration. Though the 1986 IRCA provided for employer sanctions, it served more as a political compromise than a practical enforcement clause (Fix, 1991: 322-23). Similar to the 1885 Anti-Alien Contract Labor Law, IRCA was a “symbolic measure … meant to appease workers but not to interfere with the labor supply” (Calavita, 1994: 77). Thus, it was loosely defined and randomly enforced with authorities turning a blind eye to the hiring of unauthorized workers. In specific, the act only penalized those who “knowingly” hired illegal aliens. This lenient definition generated an industry of contractors and false documentation, both of which provided immunity to employers from hiring unauthorized foreign workers. Moreover, the act fostered an environment for discrimination at the work place against employees that *seemed* to be unauthorized immigrants (Chisti and Kamasaki, 2014: 4; Zolberg, 2006: 374). All in all, the employer sanctions measure favored the employer and undermined the status of immigrant – legal and illegal – employees.

In the 2000s, the U.S. government strived to strengthen workplace enforcement by disseminating the use of E-verify⁴, an electronic verification system of worker’s

⁴ The 1996 Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) established the Basic Pilot program, which asked employers to check the work eligibility of employees on-line by entering personal information (i.e. social security number, alien registration number, etc). Social Security Administration (SSA) then checked against its database and notified the employer. The program was renamed after its trial period.

status based on the social security number. Though the system has its shortcomings – e.g. the inability to verify the use of *stolen* social security numbers – efforts to mandate the use of E-verify has shown some positive results. For example, the 2007 Legal Arizona Worker Act (LAWA) which obligated the use of E-verify on all employers in the state of Arizona and imposed heavy penalties on those who violated the act brought about a 17 percent decrease in the state's Hispanic population, including large numbers of unauthorized immigrants, in 2008 and 2009 (Bohn, Lofstrom, and Raphael, 2011). Today, less than 10% of total U.S. firms and establishments are registered to E-Verify and nineteen states require the use of E-Verify to varying degrees. Thus, there is still much room left for the reinforcement of employer sanctions.

Another implication for reforming the enforcement system is that activities at the border can only be effective as a complement to measures that deal directly with the drivers of unauthorized migration. Thus, border enforcement alone cannot serve as an effective deterrent; it must be accompanied by commensurate regulation vis-à-vis the employers. According to Cornelius (2005, 777-785), the emphasis on border control from 1994 onwards proved ineffective in curtailing illegal entries from Mexico because it lacked commensurate regulation toward employers, the real magnet of unauthorized immigration. Moreover, skewed investment in border enforcement reduced the level of return migration to Mexico thereby resulting in a significant increase in unauthorized resident population in the U.S. (Passel, Cohn, and Gonzalez-Barrera, 2013: 6). Thus, investment in border enforcement must be

accompanied by systematic and stringent employer sanctions in order to genuinely serve as a deterrent to illegal immigration.

It is crucial that any attempt to modify the current U.S. immigration system include a flexible immigrant admission system responsive to periodic changes in the labor market and a balanced immigration enforcement system. The following excerpt provides a snapshot of the policy implications discussed so far: “Our nudge-nudge, wink-wink immigration system – unrealistic laws, all but ignored on the ground – must be replaced by a law enforcement regime that works: more honest quotas, enforced to the letter, including in the workplace. (...) *Workers need a legal way to enter the country. Businesses need a legitimate way to get workers* (emphasis added), plus a reliable verification system to tell them which workers are legal and which aren’t. And once these things are in place, there will be no excuse for breaking the rules.” (Jacoby, 2006)

VI. Conclusion

The reform bills being discussed in Congress attempt to correct the failures and shortcomings of previous immigration acts. The latest advance in immigration reform was the passage of the Border Security, Economic Opportunity, and Immigration Modernization Act (S.744) in the Senate in June 2013. The bill was introduced by a bipartisan group of eight senators in March 2013 and backed by important interest groups including the AFL-CIO and the U.S. Chamber of Commerce (The Economist, 2013). The bill provides for the legalization of unauthorized residents conditioned upon the implementation of advanced border security measures – the so-called “border security trigger”; the mandatory use of Electronic Employment Verification System (EEVS); larger resources for enforcing employer sanctions; and a significant increase in the number of employment-based visas. Viewed from the demand side of labor, the increase in work-based visas and strengthening of internal enforcement are noteworthy. S.744 adds visas for high-skilled and specialized workers and lifts numerical limits for some of the high-skilled categories. This enlargement is specifically designed to address the serious shortage of workers in STEM fields and the recent stagnating rate of immigrant entrepreneurship in the U.S. (U.S. Chamber of Commerce, 2013; Wadhwa, Saxenian, and Siciliano, 2012). Meanwhile, the bill takes a relatively humble step towards unskilled workers. It lifts the 10,000 numerical cap on “unskilled workers” placed within the third-preference category, but keeps the cap on the category itself in which 40% of employment-based admissions must be shared among “skilled

workers, professionals and other (unskilled) workers” (MPI 2013, 12-13). The employment-based immigration system proposed by S.744 is thus not fit for facilitating the legal entry and stay of needed low-skilled workers, which may also limit the functions of both external and internal enforcement. All in all, S.744 isn’t the ideal reform bill to fix the impractical immigration system. Nevertheless, at the current state of affairs small progress is better than no progress.

Immigration reform has been at an impasse since the passage of S. 744 in the Senate in June 2013. One of the main reasons is the dissent over the legalization of unauthorized alien residents. Sometimes referred to as *amnesty*, legalization is perhaps the most politically sensitive component of the bill in that it is directly linked to the component of the future electorate. Being a complex issue with various interests in stake, immigration reform has failed several times during the 90s and 2000s. However, as articulated by Adelson, Buffet and Gates (2014: 1-3), “You don’t have agree on everything in order to cooperate on matters about which you are reasonably close to agreement. It’s time that this brand of thinking finds its way to Washington.”

House action is essential for realizing the long-awaited and desperately-needed immigration reform in the U.S. Any attempt to debilitate the progress made so far may result in another failure to repair the malfunctioning system. Before the problem of unauthorized immigration becomes unmanageable, it is imperative that Congress push for the enactment of a reform bill that recognizes the key drivers of unauthorized immigration, particularly the strong magnetism of the U.S. labor market.

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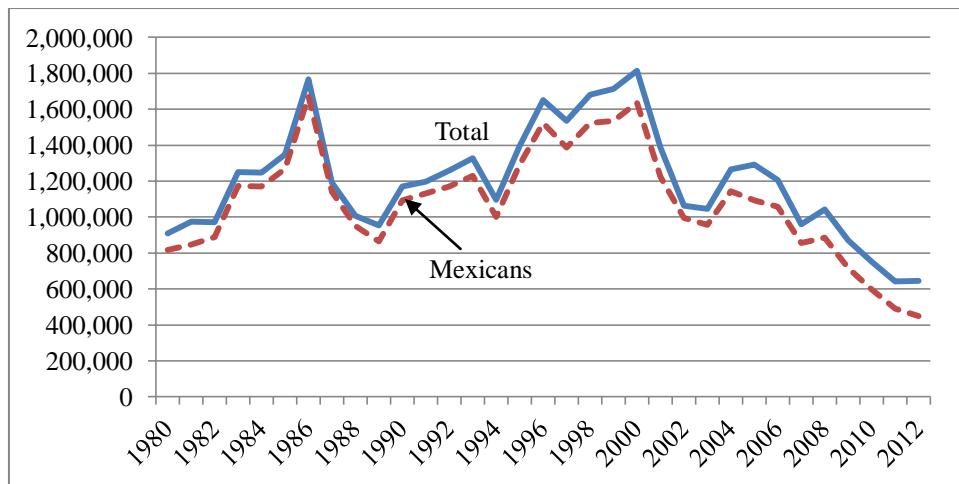
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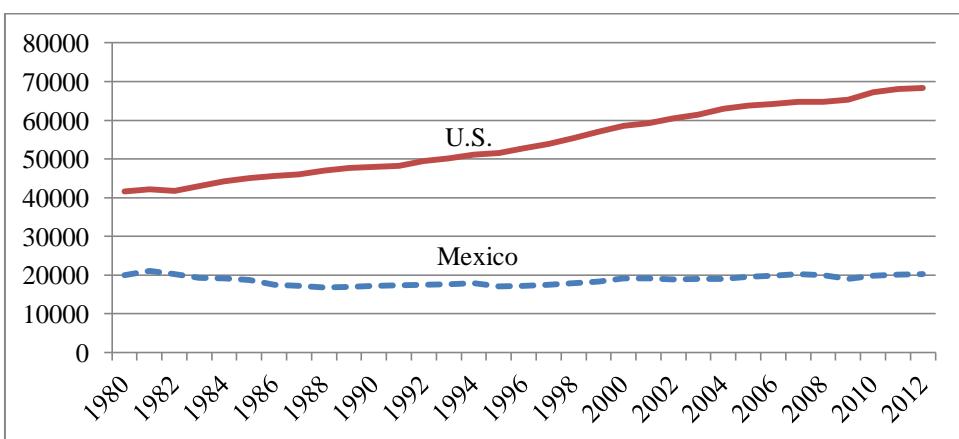
Appendix

Appendix 1. Aliens Apprehended, 1980-2012



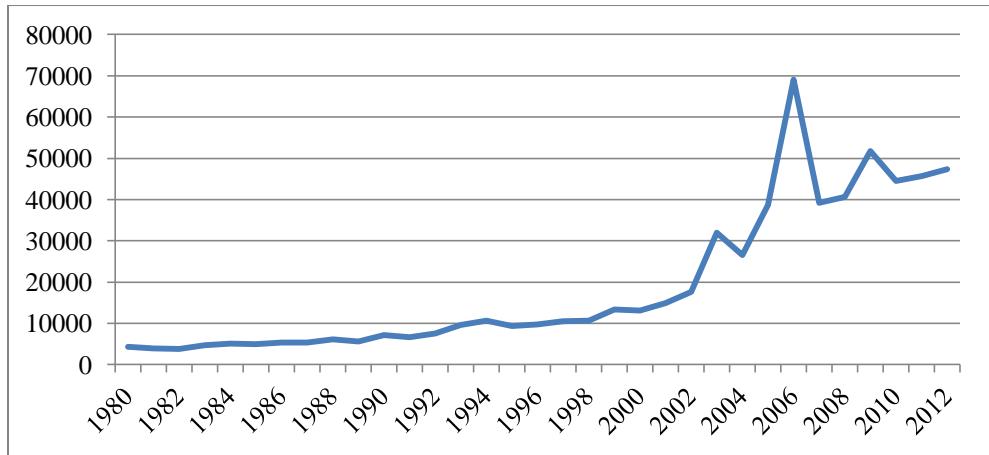
Source: U.S. Department of Justice (Various years); U.S. Department of Homeland Security (Various years).

Appendix 2. GDP per Person Employed (constant 1990 PPP \$), 1980-2012



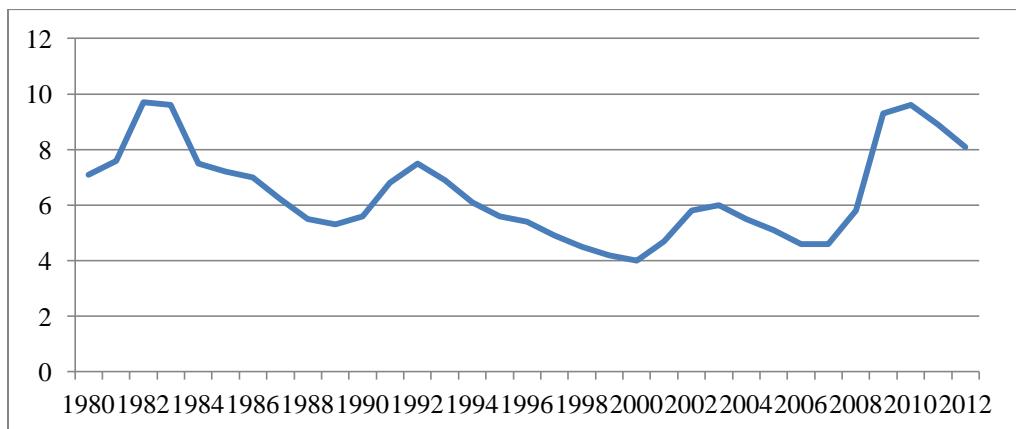
Source: The World Bank Databank (Accessed May 1, 2014)

Appendix 3. U.S. Department of Homeland Security Outlays (in millions of dollars), 1980-2012



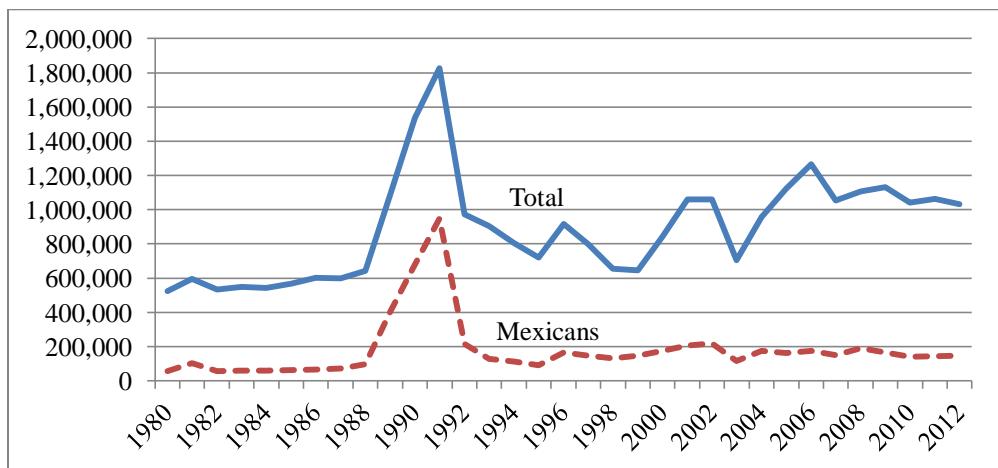
Source: U.S. Office of Management and Budget (2013)

Appendix 4. U.S. Unemployment Rate (annual average %)



Source: U.S. Bureau of Labor Statistics (Accessed May 19, 2014)

Appendix 5. Persons Obtaining LPR Status, 1980-2012



Source: U.S. Department of Justice (Various years); U.S. Department of Homeland Security (Various years).

국문초록

본 연구의 목적은 1980 년에서 2012 년 사이에 이루어진 멕시코에서 미국으로의 불법이주의 주 요인을 밝히고 미국의 이민정책 개혁에 대한 함의를 도출하는 데에 있다.

이를 위해 본 연구는 두 개의 국제이주이론, 즉, 분리노동시장이론 및 신고전경제이론을 토대로 분석적 틀을 설정한다. 이어서 1980 년에서 2012 년 사이의 연간 데이터를 이용하여 실증분석을 한다. 분석에는 실질임금, 노동수요, 이민정책집행 등을 나타내는 독립변수와 미국의 주요 이민정책변화를 나타내는 더미변수를 사용한다. 분석결과를 토대로 미국의 이민정책개혁에 대한 시사점을 제시하고 최근까지의 정책진행상황을 점검해보며 결론을 내린다.

본 연구결과는 미국 내 노동수요가 멕시코 발 불법이민의 주 요인임을 입증한다. 그러므로 불법이민을 최소화하고 국익을 증대하는 이민정책을 확립하기 위해서는 노동수요를 반영한 충분한 합법적 이민 경로와 국경강화 및 고용주제재가 조화를 이루는 이민집행 시스템이 필수적임을 시사한다.

주요어: 멕시코-미국 불법이주, 추진 및 유인요인, 노동수요, 미국이민정책

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