

Immigration Reforms, Marriage and Legal Permanent Residence Status

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Changes in immigration laws can have a substantial impact on marriage rates and the stock of undocumented immigrants residing in the U.S. This study examines the marriage propensity of residents in different sizes of immigrant-population counties before, during and after immigration law changes in 1994 and 1996. Our results reveal that the immigration law changes altered both marital decisions and the stock of undocumented immigrants.

“Immigration lawyers predicted that most illegal immigrants who would have been eligible for residency under 245(i) would go ‘under-ground’.” New York Times, January 15, 1998. “Immigrants Pack Agency, Trying to Beat A Deadline” by Randal Archibold.

INTRODUCTION

Beginning with Becker (1973, 1974), a large theoretical literature hypothesizes that individuals respond to economic incentives when considering marital decisions (Alm, et.al., 1999; Brien, et.al., 2004). Despite the extent of theoretical literature on the subject, most of the empirical research has focused its attention on the marriage incentives implicit in government programs ranging from the income tax and Social Security systems to welfare programs, in particular Aid to Families with Dependent Children (Alm and Whittington, 1995; Dickert-Conlin and Houser, 2002; Sjoquist and Walker, 1995). However, the empirical findings of this literature are mixed. A reason often cited in defense of the inconclusive results is that the magnitude of the economic incentives inherent in the government programs considered is too small to have an effect on marital decisions.

One government program that has received relatively little attention is the U.S. immigration law. With the exception of Jasso and Rosenzweig (1990) and Smith Kelly (forthcoming), there appears to be no research that investigates the effect of changes in U.S. immigration policies on marriage behavior. While Jasso and Rosenzweig (1990) examine the role of U.S. immigration law in determining the number of foreign-born individuals who enter the U.S. via marriage, the characteristics of the country they originate from and the gender of such immigrants, Smith Kelly (forthcoming) considers how a change in a specific immigration law (Legal Immigration and Family Equity Act of 2000) impacts marriage behavior.

Given that marriage in recent years has become a principal means of immigration to the U.S. (Jasso and Rosenzweig, 1990), a detailed investigation of the economic incentives it provides warrants attention. Lending further support to the need for such an investigation are two observations (i) U.S. immigration

policy unlike other policies like the income tax and Social Security system and welfare programs renders huge economic incentives in the form of legal residence status and U.S. citizenship and (ii) unlike other means of immigration (for instance, via employment) the marriage route to immigration is not constrained by any visa quota system and/or restrictions.

Therefore, in this paper we examine the impact of changes in two immigration laws on the marriage behavior of undocumented immigrants residing in the U.S. Besides analyzing how the number of marriages respond to changes in immigration laws we consider two related questions: is the punishment for unlawful presence in the U.S. effective and does the visa processing location for undocumented immigrants matter? The results from these analyses are useful as they provide important guidance for immigration law makers as the debate on immigration reform continues.

On October 1, 1994, the Legal Immigration and Family Equity Act 245(i), henceforth referred to as Section 245(i), was put into effect. It provided a window of opportunity, from October 1, 1994 to January 14, 1998, for eligible undocumented immigrants to complete the process of becoming legal immigrants without having to leave the U.S. However, before and after this law change, undocumented immigrants who were ineligible for completing the process of becoming legal residents in the U.S. had to go to an American consulate in their home countries to complete the same process. Returning to the home country can be undoubtedly costly for an immigrant. Not only does an undocumented immigrant have to incur the cost of a trip, s/he also has to bear the costs associated with being away from family, friends and employment within the U.S. until the visa is processed. As a result for many eligible undocumented immigrants Section 245(i) had a cost saving impact on obtaining legal status.

During the time period when Section 245(i) was in effect, Congress passed the Illegal Immigration and Reform and Immigrant Responsibility Act (IIRIRA). Enacted in September 1996, IIRIRA required an immigrant with more than 180 days of unlawful presence in the U.S. after April 1, 1997 to be inadmissible into the country for 3 years if s/he subsequently left the U.S. The penalty on an immigrant with one year or more of accumulated unlawful presence was even more severe; a bar from entry into the U.S. for 10 years. Of course, the bar of entry is applicable only if the immigrant leaves the U.S. and tries to re-enter the country.

As a result when both Section 245(i) and IIRIRA were in effect, many eligible undocumented immigrants cost of obtaining legal status was reduced because they did not have to return to their home countries and encounter the bars of re-entry. However, after Section 245(i) expired (when IIRIRA alone was in effect) eligible undocumented immigrants with unlawful presence were required to not only return to their home countries, but also face the possibility of a bar from re-entry into the U.S. for three or ten years depending on the days of unlawful presence accumulated. The latter period of time when IIRIRA alone was in effect clearly provides us a window of opportunity to empirically examine the effectiveness of punishment for unlawful presence in the U.S. and evaluate its implication for the legal status of undocumented immigrants residing in the U.S. in the future.

Marriage to a U.S. citizen or a legal permanent resident is one way undocumented immigrants can qualify for the immigration benefit provided by Section 245(i). Hence based on Becker's (1973, 1974) economic theory of marriage Section 245(i) should create incentives for marriage and influence marital patterns particularly in large immigrant population counties. To examine the same, we use time-series variation and variations in the size of immigrant populations across counties to analyze the marriage propensity of residents in small and large immigrant population counties before, during and after the change in immigration law. We focus on data from three of the top six "immigrant-receiving" states. Specifically we use monthly county marriage data for New York, Florida and New Jersey from 1990 to 1999, and employ a difference-in-differences methodology.

Our results indicate that when both Section 245(i) and IIRIRA were in effect the number of marriages increased approximately by 25 percent. Given that marriage patterns differed significantly from the normal rates when the two laws were in effect, we further investigated the importance of visa processing location by comparing marriages within a time period when undocumented immigrants had to return to their home countries to a time period when they were allowed to remain in the U.S. to process visas that grant them legal residence status. In other words, we compare marriages before and during periods when

both Section 245(i) and IIRIRA were in effect. Keeping in mind that during the two periods we consider above there were no bars of re-entry into the U.S., it is not surprising that we find that undocumented immigrants were indifferent between returning to their home countries and remaining in the U.S. to process their visas.

To examine if IIRIRA was effective in punishing unlawful presence of immigrants in the U.S., we compare marriages in the time period when undocumented immigrants had to return to their home countries to process their visas and simultaneously encounter bars of re-entry to the U.S. (when IIRIRA alone was in effect) to a time period when they had to return to their home countries without encountering bars of re-entry. Our results indicate a decline of approximately 30 percent in marriages when IIRIRA alone was in effect.

It is possible that the increased cost associated with obtaining legal residence status when IIRIRA alone was in effect either induced undocumented immigrants to change their marital decisions or forced them to remain undocumented. Since immediately following Section 245(i) undocumented immigrants had to not only return to their home countries but also encounter bars of re-entry, many undocumented immigrants may have moved forward their wedding dates to coincide with the period when both Section 245(i) and IIRIRA were in effect. Those who were unable to alter their wedding plans were left with one of two choices: return to the home country or accept the risk of remaining in the U.S. illegally rather than being separated from family, friends and employment for the years imposed by the re-entry bars in place. Clearly then, a preference for the latter would suggest the effectiveness of IIRIRA in reducing the probability of obtaining legal status via marriage among immigrants who entered the U.S. without inspection creating a “permanent stock of undocumented immigrants”.

Hence, this paper makes an important contribution to the current debate on immigration reform by informing policy-makers of the immediate effects of their immigration policies. The results indicate that when both Section 245(i) and IIRIRA were in effect, they had the ability to increase the number of documented immigrants.¹ As a result with IIRIRA currently in effect, to address the current stock of undocumented immigrants, policy makers should consider a change in law similar to Section 245(i) if the objective of immigration reform is to grant existing undocumented immigrants legal permanent residence. Since we also find that when IIRIRA alone was in effect it had a negative impact on marriage counts our results suggest that IIRIRA without Section 245(i) has the ability to dissuade current undocumented immigrants from becoming legal permanent residents via the marriage route. The implication is clear: policy reforms addressing potential undocumented immigrants should focus on measures to prevent immigrants from entering the U.S. without inspection, since once in the country the probability of becoming legal is small and of remaining undocumented is large. This translates into an improved border security system.

The rest of the paper is structured as follows. Section 2 describes the institutional details about immigration laws under consideration and the implicit incentives for marriage. Section 3 discusses our data, describes the empirical procedure employed and presents the results. Section 4 concludes the paper and offers suggestions for policy makers working on immigration reform.

INSTITUTIONAL DETAILS

Undocumented Immigrants and Marriage

Undocumented immigrants also referred to as unauthorized or illegal immigrants are foreign citizens illegally residing in the U.S. According to the U.S. Department of Homeland Security, the size of total unauthorized immigrant population residing in the U.S. increased from 3.5 million in January 1990 to about 7.0 million in January 2000 (Warren, 2003). Included in the unauthorized immigrants are those who entered without inspection (EWI) and those who entered after inspection but violated the terms of a temporary admission without having gained either permanent resident status or temporary protection from removal (status violators or overstayers). An example of a EWI is an individual who has snuck across the U.S. border. An example of a status violator is an individual who was legally admitted on a valid visa but has continued to stay in the country after expiration of the visa. In 1996, approximately 41 percent of the

undocumented population was overstayers and 59 percent were EWIs (U.S. Department of Homeland Security, 1996). The ratio of undocumented immigrants changed in 2000. The new estimates show that in 2000, 33 percent of the undocumented population were overstayers and 67 percent were EWIs (Warren, 2003).

The U.S. legal immigration system admits lawful permanent residents under three categories: immigration through family admissions, immigration through skilled admissions, and immigration through refugee and humanitarian admissions. Family-based admissions include spouses, children (regardless of age or marital status), parents and siblings of U.S. citizens, and spouses and minor children of lawful permanent residents.² Under the family-based category priority is given to spouses and the number of such admissions is not constrained by the visa quota system. The principle routes to legal residence status for undocumented immigrants are through marriage and employment; with marriage being the easier and more common route particularly among the less skilled undocumented immigrants. Hence, in this paper we focus on the route to immigration via marriage.

Marrying a U.S. citizen or legal permanent resident qualifies an individual for legal residence status in the U.S. Undocumented immigrants wishing to become lawful permanent residents via such marriages typically follow one of two paths depending on the nature of their entry into the U.S. and the type of visa violations incurred by them. For EWIs who are spouses of U.S. citizens or permanent residents, the process of obtaining legal residence status almost always involves a trip to the home country. For overstayers who are spouses of U.S. citizens or permanent residents, the process of obtaining legal residence status normally does not involve a trip to the home country. The process of changing residence status to lawful permanent residence without leaving the U.S. is referred to as adjustment of status.

Section 245(i) and IIRIRA

As mentioned earlier, Section 245(i) was enacted on October 1, 1994 and expired on January 14, 1998. While in effect, it allowed many qualified undocumented immigrants who were otherwise ineligible to apply for adjustment of status, to complete the process of becoming legal without having to leave the U.S. In doing so, it provided an important benefit for eligible undocumented immigrants because before Section 245(i) was enacted and after its expiration, undocumented immigrants who were ineligible for completing the process of becoming legal in the U.S. had to return to their home countries to complete the process. Section 245(i) also led to huge cost saving benefits for undocumented immigrants as neither did they have to incur the cost of a trip to the home country nor the costs associated with being away from family, friends and employment in the U.S. until the time their visas were processed.

In order to be eligible for Section 245(i), an undocumented immigrant had to prove that s/he was either a spouse or relative of a U.S. citizen/legal resident or an employee sponsored by his/her employer within the time window provided by the law and was in the U.S. on the date of enactment. Moreover to take advantage of the law, eligible undocumented immigrants had to have their visa petitions or labor certifications submitted to the office of Immigration and Naturalization Service (INS) or the Department of Labor before January 14, 1998. Furthermore, undocumented immigrants along with the application fees were required to pay a penalty fee in order to process their applications in the U.S.

Section 245(i) had two primary objectives: to encourage immigrant family reunification and to reduce the workload at U.S. consulates. From 1990 to 1999, apart from Section 245(i) seven immigration reforms were introduced (Ortega and Peri, 2008).³ During this time period only Section 245(i) required an undocumented immigrant to prove that s/he was a spouse or relative of a U.S. citizen/legal resident.

The U.S. immigration law punishes immigrants for unlawful presence in the U.S. IIRIRA, enacted in September 1996, required that an immigrant with more than 180 days of unlawful presence in the U.S. after April 1, 1997 be inadmissible for three years while an immigrant with an accumulated one year or more of unlawful presence remain inadmissible for ten years. The bar of entry is applied only if the immigrant leaves the U.S. and tries to re-enter. Therefore, after the deadline of Section 245(i) undocumented immigrants with unlawful presence were not only required to return to their home countries, but also face a bar from re-entry into the U.S. for at least three years or a maximum of ten years if they left.

Figure 1 displays the immigration laws on a time line. It shows that from April 1, 1997 to January 14, 1998 both Section 245(i) and IIRIRA were in effect. Although IIRIRA was enacted in September, 1996 discussions on the reform were public and covered widely by various media outlets prior to the date of enactment. It is, therefore, not unreasonable to expect that many undocumented immigrants were aware of IIRIRA for an extended period of time. As a result, we assume in our analysis that from October 1, 1994 to January 14, 1998 undocumented immigrants were responding to both Section 245(i) and IIRIRA.

Incentives for Marriage

For many qualified undocumented immigrants, Section 245(i) reduced the cost of obtaining legal status. As marriage with a U.S. citizen or a legal permanent resident is one way an undocumented immigrant can qualify for the immigration and cost reducing benefits, we expect Section 245(i) to influence the U.S. marriage rates positively. In other words, if the utility of undocumented immigrants associated with being married is expected to exceed the utility when single (because of the reduced cost of obtaining legal status), then Section 245(i) should create incentives for undocumented immigrants to marry during this period. Moreover, we expect undocumented immigrants with planned or tentative wedding dates outside the immigration window of opportunity to shift their plans to within the window. We also expect undocumented immigrants without marriage plans to have a higher propensity of getting married within the same window.

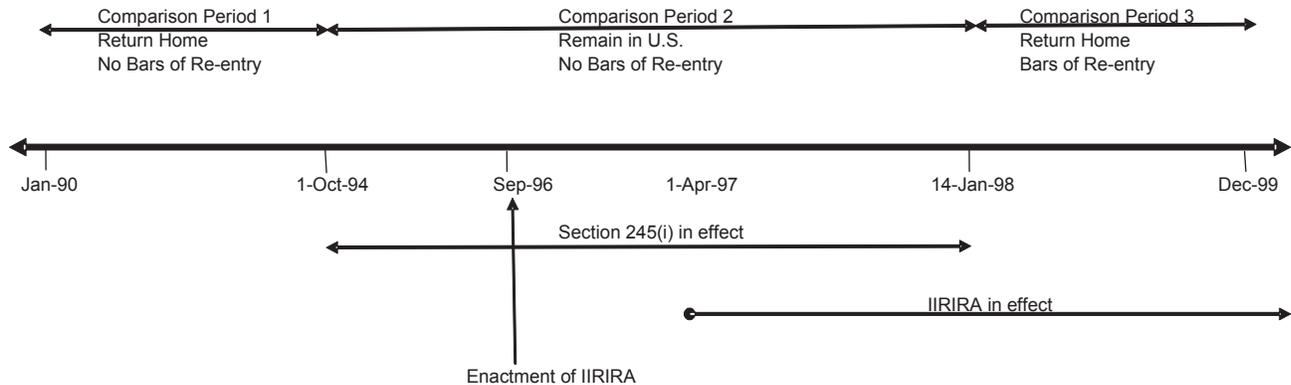
However, if no utility gains are expected from marriage during the window of opportunity created by Section 245(i), marriage rates should remain unaffected. Unlike Section 245(i), IIRIRA increased the cost of obtaining legal permanent status by requiring the undocumented immigrant to return to the home country and by raising bars of re-entry. As a result, IIRIRA is more likely to reduce utility gains associated with marriage among undocumented immigrants. If the hypothesized effect of IIRIRA on marriage rates is correct, we expect marriages to decline during its enactment.

DATA

To examine the influence of Section 245(i) and IIRIRA on marriage behavior, preference for visa processing location (U.S. Vs. home countries) and influence of the law changes on the stock of undocumented immigrants, we exploit the high concentration of immigrants in certain states and counties of U.S. To coincide with the changes in the two immigration laws being considered we use data provided by the States' Department of Health for the time period 1990 to 1999.⁴ While most states started compiling county monthly marriage data in 1990, New York began doing so in 1991. Since our intention is to isolate the impact of immigration policy on marriage rates, the unit of observation is county monthly marriages.

The decennial census reports, per county, the percentage of persons who are foreign born for the year 1990.⁵ Calculated at one point in time, this data does not provide information on the undocumented foreign born. According to Fix et al. (1994), however, states with the highest proportion of immigrants also have the highest proportion of undocumented immigrants. Hence, we use per county percentage of foreign born for the year 1990 as a proxy for per county percentage of undocumented foreign born for the same year. Using this proxy, we classify counties as either small or large immigrant population counties. Small immigrant population counties are counties with less than or equal to five percent population that is foreign born while large immigrant population counties have greater than or equal to 15 percent population that is foreign born. To test the robustness of our results we experimented with three cut-offs for small and large immigrant population counties; all produced similar results.⁶ The identification in our empirical work comes from comparing marriage patterns in small and large immigrant population counties before, during and after the immigration law changes. The comparison periods are illustrated on the time line in Figure 1.

FIGURE 1
TIME LINE OF THE TWO IMMIGRATION LAWS AND COMPARISON PERIODS



Comparison period 1 (January 1990 to September 1994) corresponds to the period before any changes in immigration laws occurred. During this period undocumented immigrants who were ineligible for completing the process of becoming legal in the U.S. had to return to their home countries to complete the process and did not face any bars of re-entry into the U.S. In comparison period 2 (October 1994 to January 1998) both Section 245(i) and IIRIRA were in effect. During this period Section 245(i) allowed undocumented immigrants who were ineligible for completing the process of becoming legal residents in the U.S. to do so while remaining in the country. As a result bars of re-entry were of no consequence during this period.

Finally, comparison period 3 (February 1998 to December 1999) corresponds to the time when only IIRIRA was in effect. During this period, undocumented immigrants who were ineligible for completing the process of becoming legal residents in the U.S. had to not only go to an American consulate in their home countries to complete the process but also had to incur a bar of entry into the U.S. for three or ten years. Clearly, if the U.S. immigration policy creates incentives for marriage, we should see more marriages in comparison period 2, when both Section 245(i) and IIRIRA were in effect, than in comparison periods 1 and 3. Moreover, given the bars of re-entry, marriage rates in comparison period 1 should be higher than in comparison period 3.

Although, undocumented and documented immigrants are spreading over many regions in the U.S. the principal states they reside in are California, Texas, New York, Florida, New Jersey and Illinois (Fix, et.al., 1994). Out of the six “immigrant receiving” states we focus our attention on New York, Florida and New Jersey, primarily for their large immigrant population and availability of the required data. California could not be included because the key variable of interest, county monthly marriages, was not compiled for all counties of the state. Texas was excluded because the data was available on monthly marriage applications in each county instead of actual county monthly marriages. Finally, Illinois was excluded from the sample as it had no large immigrant population counties thus making it difficult to compare marriage counts across small and large immigrant population counties in the state.

We combine the small and large immigrant population counties from New York, Florida and New Jersey. This produces a sample size of 12,004 observations. The foreign born population in the counties range from 0.6 to 45.1 percent. Of the 12,004 observations, 1,380 observations are large immigrant population counties, accounting for approximately 12 percent of the sample and 10,624 observations are

small immigrant population counties, accounting for approximately 88 percent of the sample. This data set is referred to as the pooled data set.

Summary statistics for the pooled data, small and large immigrant population counties are presented in columns 1 through 3 of Table 1 respectively. The mean marriage counts in large immigrant population counties are approximately 10 to 16 times the marriage counts in small immigrant population counties. Silver (1965) found a direct relationship between marriage rates and the business cycle; hence the monthly unemployment rate is included in the model to control for business cycles. While the average monthly unemployment rate for the pooled data (6.481) is similar to that of the small immigrant population counties (6.345), the average monthly unemployment rate for the large immigrant population counties (7.527) is greater than the rate for the small immigrant population counties (6.345). Looking at marriage counts Table 1 reveals that the mean of county monthly marriages for the large immigrant population counties is larger in comparison period 2 (when both Section 245(i) and IIRIRA were in effect) than in comparison periods 1 and 3 (the period before and after both Section 245(i) and IIRIRA were in effect). Also, the mean of county monthly marriages for the large immigrant population counties is larger in comparison period 1 (the period before both Section 245(i) and IIRIRA were in effect) than comparison period 3 (the period when only IIRIRA was in effect).

These mean marriage patterns provide preliminary evidence for the effectiveness of Section 245(i) and IIRIRA in influencing marriage counts in large and not small immigrant population counties. This difference is expected since large immigrant population counties are more likely to have a larger number of undocumented immigrants seeking legal residence status than small immigrant population counties. Other possible reasons such as differences in economic opportunities and social lifestyles could also contribute to the different marriage patterns observed for residents of large immigrant population counties versus small immigrant population counties.

Therefore, to isolate the effect of the immigration law changes on marriage counts in small and large immigrant population counties and to test the statistical significance of the difference in marriage deviations we employ a difference-in-differences methodology. We compare the change in marriage counts in large immigrant population counties to the change in marriage counts in small immigrant population counties over time. This approach allows us to isolate the effect of immigration policy on marriage counts by eliminating the effect of other factors similar to small and large immigrant population counties. Implicit in this analysis is the assumption that in the absence of any changes in the immigration laws no significant differences exist in the relative patterns of marriage counts.

Ideally for the purposes of our paper we would like to use a data set that distinguishes clearly between individuals that are legal residents and those that are undocumented immigrants. Unfortunately, such a data set is not available. As a result we use the size of immigrant populations in counties (small and large) as control and treatment groups in the difference-in-differences framework. While the size of the immigrant population in counties does not indicate whether or not the immigrants are legal or undocumented and how many are undocumented, it works as a good proxy. Small immigrant population counties have fewer immigrants and are more likely to have fewer undocumented immigrants. Likewise, large immigrant population counties have a large number of immigrants and are more likely to have a large number of undocumented immigrants. Therefore, small and large immigrant population counties are good proxies for the legal and undocumented populations respectively.

Since immigration law changes only apply to undocumented immigrants, we assume that the majority of the immigrants who responded to the immigration law changes were undocumented and more likely to reside in large immigrant population counties. On the same lines, we expect little or no response from small immigration population counties because very few immigrants reside in them. It is reasonable to assume that the immigrants who responded to the immigration law change were undocumented because the remaining population comprising of legal residents and immigrants with unexpired visas were ineligible for the immigration benefit provided by the laws.⁷

TABLE 1
SUMMARY STATISTICS: MEANS AND STANDARD DEVIATIONS (IN PARENTHESES)

Variables	Column 1	Column 2	Column 3
	Pooled Data	Pooled Data – Large Immigrant Counties	Pooled Data – Small Immigrant Counties
Monthly Marriage Counts			
January	109.913 (278.680)	644.748 (569.466)	40.336 (61.712)
February	140.034 (336.701)	774.035 (688.918)	57.650 (88.458)
March	151.795 (394.062)	885.904 (827.843)	56.510 (89.812)
April	155.058 (333.305)	837.287 (609.800)	66.507 (96.422)
May	192.482 (372.484)	967.330 (645.028)	91.681 (121.379)
June	208.543 (393.505)	1024.113 (681.262)	102.565 (131.770)
July	189.634 (357.143)	912.487 (636.750)	95.810 (123.239)
August	208.873 (399.173)	1022.948 (706.811)	103.209 (135.640)
September	196.942 (384.085)	1003.548 (663.073)	92.129 (119.901)
October	191.200 (373.269)	977.565 (637.964)	89.017 (118.624)
November	150.618 (330.772)	830.774 (608.264)	62.336 (89.734)
December	153.276 (357.739)	847.000 (714.474)	63.233 (90.547)
Monthly Unemployment Rates	6.481 (2.536)	7.527 (2.203)	6.345 (2.545)
Marriage Counts During Comparison Period 1	170.702 (342.116)	864.837 (606.219)	79.878 (114.168)
Marriage Counts During Comparison Period 2	180.272 (409.761)	1000.502 (788.202)	74.322 (106.486)
Marriage Counts During Comparison Period 3	154.060 (312.277)	774.605 (578.846)	73.990 (104.323)
N	12,004	1,380	10,624

METHODOLOGY AND RESULTS

To empirically examine the effect of Section 245(i) and IIRIRA on marriage behavior in small and large immigrant population counties we compare marriages in comparison period 2 to marriages in comparison periods 1 and 3. The source of variation in marriage counts follows from the differences in

cost of obtaining legal status, which changed when the immigration laws were put into effect. Hence we employ the following specification:⁸

$$(1) \quad \ln(MAR_{ct}) = \beta_1 \ln(UNEMP_{ct}) + t_c + \beta_2(LARGE_c) + \beta_3(COMPERIOD2_t) \\ + \beta_4(LARGE * COMPERIOD2_{ct}) + \phi_c + \gamma_t + \varepsilon_{ct},$$

where c indexes counties and t indexes time. The dependent variable, $\ln(MAR_{ct})$, is a stock variable and represents the log of monthly marriage counts per county of the states considered. The variable $\ln(UNEMP_{ct})$ is the natural log of county monthly unemployment rate, t_c represents monthly county-specific time trends, ϕ_c is a full set of county fixed effects and γ_t is a full set of month fixed effects. $LARGE_c$ is a dummy variable that takes the value one if the counties are large immigrant population counties and 0 otherwise, $COMPERIOD2_t$ is a dummy variable that takes the value one when both Section 245(i) and IIRIRA were in effect, $LARGE * COMPERIOD2_{ct}$ is a dummy variable that takes on the value one for large immigrant population counties when both Section 245(i) and IIRIRA were in effect and ε_{ct} is a disturbance term.

The functional form is log-linear; as a result the regression coefficient representing the impact of the immigration law changes can be interpreted as a percentage change. The ideal dependent variable is the county monthly marriage rate per 1,000 population. However, the county monthly marriage rate is not available to the best of our knowledge. One way to overcome this data limitation is to include county monthly population or state monthly population as an independent variable. Once again, neither of these variables is available to the best of our knowledge. Therefore to underscore this data limitation we include monthly county-specific time trends and county fixed effects. While the monthly county-specific time trends will allow us to capture the change in counties' monthly marriage counts over time, the county fixed effects will control for any fixed county-specific omitted variables correlated with marriage behavior.

The county-specific time trends and county fixed effects will also capture changes in the counties' population. Many immigrants come to the U.S. to work in the summer months and return to their countries in the winter months. Because information about immigration reform was public knowledge, it is possible that relative to previous years immigrants did not return to their home countries in the winter months.

The omitted group is the small immigrant population counties and the parameter of interest is β_4 .⁹ Table 2 presents the estimated coefficients for selected variables specified in equation (1) and the relative percent increase in marriage counts. The coefficient of interest β_4 is 0.220 and is significantly different from zero at the five percent level. The significant positive coefficient implies that residents in large immigrant population counties married differentially more than residents in small immigrant population counties when both Section 245(i) and IIRIRA were in effect (comparison period 2). In percentage terms, the total number of marriages in large immigrant population counties was approximately 25 percent higher than the total number of marriages in small immigrant population counties.

Assuming all undocumented immigrants rushed to the altar, the estimated 25 percent relative increase in marriages represents all undocumented immigrants in the large immigrant population counties examined. In our sample, the yearly average number of marriages in large immigrant population counties from 1990 to 1999, excluding 1995 to 1997 when Section 245(i) and IIRIRA were both in effect, is approximately 107,636. A 25 percent increase translates into an additional 80,727 marriages when Section 245(i) and IIRIRA were both in effect. A natural question—and one with a range of implications in a nation increasingly concerned with immigration reform—is whether this response in marital rates reasonable?

TABLE 2
DIFFERENCE-IN-DIFFERENCES PARAMETER ESTIMATES, ROBUST STANDARD
ERRORS ARE IN PARENTHESES AND MARGINAL
EFFECTS IN PERCENT ARE IN BRACKETS+

Dependent Variable is the log of marriage counts

Independent Variables

LARGE _c	3.630* (0.170)
COMPERIOD2 _t	-0.021* (0.007)
LARGE*COMPERIOD2 _{ct} (β_4)	0.220* (0.021) {24.608%}
Log of Monthly Unemployment Rate (lnUNEMP _t)	-0.530* (0.067)
February	0.327* (0.014)
March	0.275* (0.016)
April	0.434* (0.023)
May	0.757* (0.036)
June	0.900* (0.038)
July	0.821* (0.045)
August	0.849* (0.051)
September	0.750* (0.048)
October	0.685* (0.046)
November	0.359* (0.027)
December	0.411* (0.016)
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N	12,004
R-squared	0.949

+ Percentage Change = 100*[exp(estimated coefficient)-1].

* Statistically significant at the 5 percent level.

** Statistically significant at the 10 percent level.

In 2000, there were 1,690,000 undocumented immigrants residing in New York, New Jersey and Florida (Hoefer, et.al., 2008). Data from the 2000 Census indicate that approximately 78, 72 and 59 percent of the foreign born reside in the large immigrant population counties of New York, New Jersey

and Florida respectively. We use the average percent of foreign born population in these counties (70 percent) to obtain the size of undocumented population residing in them. Of the 1,690,000 undocumented immigrants in the selected states 1,183,000 undocumented immigrants reside in large immigrant population counties.

To obtain the undocumented adult population in 2000 for the large immigrant population counties we use the January 2007 estimate of the percent of undocumented immigrants under 18 years of age.¹⁰ In 2007, 14 percent of the undocumented population was under 18 years of age, thus, the estimated adult population in 2000 for the large immigrant population counties was 1,017,380. According to the Current Population Survey, approximately 60 percent of persons age 18 and older were married in 2000 in the U.S. Assuming that the same fraction of the adult undocumented immigrants was married as their similarly aged legal cohort, the unmarried population of undocumented immigrants in the large immigrant population counties would approximate 406,952. To obtain the estimated increase of 80,727 marriages, around 20 percent of the unmarried undocumented immigrants in large immigrant population counties would have had to get married when the Section 245(i) and IIRIRA was in effect.

If we assume that only EWIs responded to the immigration law change, then a similar calculation indicates that approximately 30 percent of the unmarried EWIs in large immigrant population counties would have had to get married when Section 245(i) and IIRIRA was in effect. This percent was computed using the estimate that 67 percent of undocumented immigrants residing in the U.S. in January 2000 were EWIs. Therefore, the estimated effect of 25 percent although large, is plausible. A large estimated effect is also reasonable if the majority of the undocumented immigrants that rushed to the altar were already courting or living with U.S. citizens or legal immigrants, some of whom had children.

Next, to examine the preference for visa processing locations and the impact of punishment for unlawful presence in the U.S. on marriage behavior we modify equation (1) as follows

$$(2) \quad \ln(MAR_{ct}) = \beta_1 \ln(UNEMP_{ct}) + t_c + \beta_2(LARGE_c) \\ + \beta_3(COMPERIOD2_t) + \beta_4(LARGE * COMPERIOD2_{ct}) \\ + \beta_5(COMPERIOD3_t) + \beta_6(LARGE * COMPERIOD3_{ct}) \\ + \phi_c + \gamma_t + \varepsilon_{ct}$$

where $COMPERIOD3_t$ is a dummy variable included to represent comparison period 3 and takes the value one when IIRIRA alone was in effect. $LARGE * COMPERIOD3_{ct}$ is a dummy variable that equals one for large immigrant population counties when IIRIRA alone was in effect. Since the omitted comparison period is comparison period 1, the coefficient on the variable $LARGE * COMPERIOD2_t$ (β_4) predicts the preference for visa processing locations. Recall in comparison period 1 undocumented immigrants who were ineligible for completing the process of becoming legal in the U.S. had to return to their home countries to complete the process while in comparison period 2 they had the choice of remaining in the U.S. The results presented in Table 3 reveal that the coefficient on $LARGE * COMPERIOD2_t$ is statistically insignificant from zero suggesting that undocumented immigrants are indifferent between returning to their home countries and remaining in the U.S. for the processing of visas that grant them legal residence in the U.S.

To examine the impact of IIRIRA on punishing unlawful presence in the U.S. we compare marriages in comparison periods 1 and 3. During both these periods undocumented immigrants were required to return to their home countries to process their visas, however, unlike in comparison period 1, in comparison period 3 undocumented immigrants had to encounter bars of re-entry. The coefficient on the interaction term $LARGE * COMPERIOD3_t$ (β_6) measures this relative comparison and is negative and statistically significant indicating that marriages declined by approximately 30 percent when IIRIRA was in effect (comparison period 3) compared to the period when neither Section 245(i) nor IIRIRA was in effect (comparison period 1).

TABLE 3
DIFFERENCE-IN-DIFFERENCES PARAMETER ESTIMATES
(Robust Standard Errors are in Parentheses and Marginal Effects in Percent are in Brackets +)

Dependent Variable is the log of marriage counts

Independent Variables

LARGE _c	1.750* (0.339)
COMPERIOD2 _t	-0.134* (0.020)
COMPERIOD3 _t	-0.203* (0.032)
LARGE*COMPERIOD2 _{ct} (β_4)	0.029 (0.031) {2.942%}
LARGE*COMPERIOD3 _{ct} (β_6)	-0.356* (0.070) {-29.953%}
Log of Monthly Unemployment Rate (lnUNEMP _t)	-0.590* (0.071)
February	0.334* (0.014)
March	0.277* (0.016)
April	0.428* (0.023)
May	0.746* (0.037)
June	0.887* (0.038)
July	0.806* (0.046)
August	0.827* (0.051)
September	0.726* (0.048)
October	0.672* (0.046)
November	0.347* (0.027)
December	0.398* (0.017)
<hr/>	
N	12,004
R-squared	0.950

+ Percentage Change = 100*[exp(estimated coefficient)-1].

* Statistically significant at the 5 percent level; ** Statistically significant at the 10 percent level.

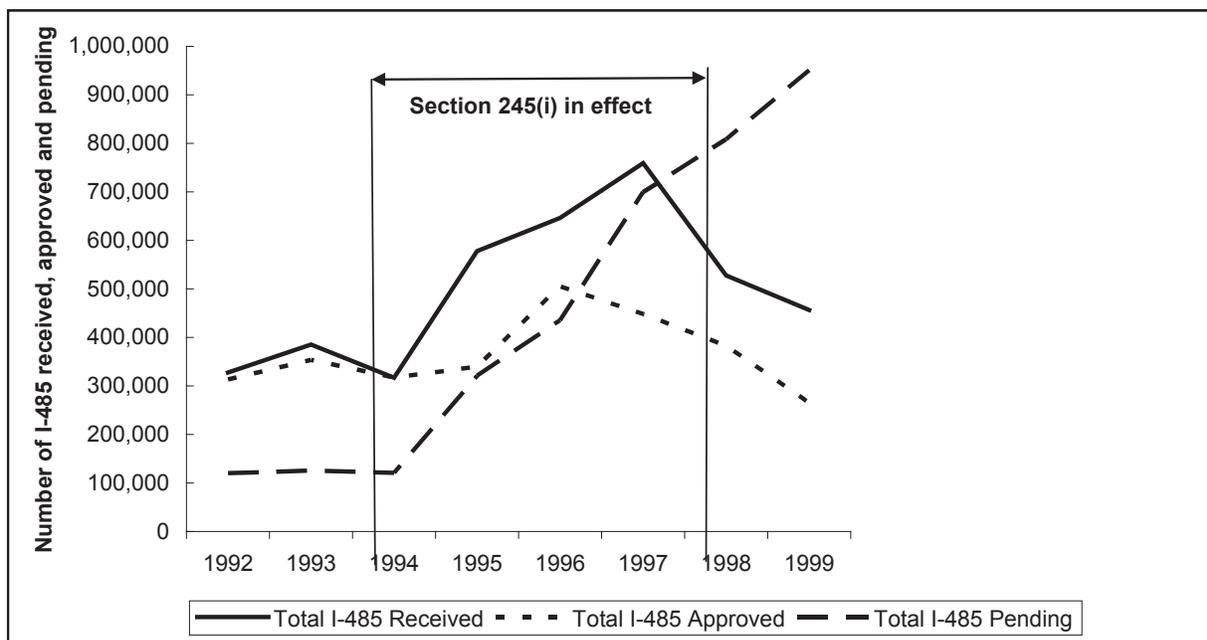
One possible explanation for this result is that the re-entry bars, imposed by IIRIRA, dissuaded most undocumented immigrants with unlawful presence from acquiring legal status. For, it is quite likely that the undocumented immigrants were prompted by the benefit of staying with family, friends and employment over the risk of remaining in the U.S. illegally. Clearly for many undocumented immigrants IIRIRA increased the cost of obtaining legal status by requiring them to return to their home countries to later encounter entry restrictions; thereby making marriage a less attractive proposition for undocumented immigrants who decide to remain in the U.S. illegally. Another plausible explanation for the decrease in marriage rates when IIRIRA alone was in effect is that some undocumented immigrants moved their wedding dates up to coincide with the period when both Section 245(i) and IIRIRA were in effect.

Finally, in all specifications of the empirical model the coefficients on monthly unemployment rate and dummy variables representing months have the expected signs and are statistically significant at the 5 percent level.

CONCLUSION AND POLICY IMPLICATIONS

Employing a difference-in-differences methodology, this paper analyzes the impact of changes in two immigration laws on the marriage propensity of residents in small and large immigrant population counties. The results indicate that during the period when both Section 245(i) and IIRIRA were in effect marriage counts increased in large immigrant population counties relative to small immigrant population counties. Data from the U.S. Department of Homeland Security shown in Figure 2 reveals that the total number of applications received for fiscal years 1995, 1996 and 1997 (when both Section 245(i) and IIRIRA were in effect) for obtaining legal status from within the U.S. (I-485) were approximately 95 percent higher than the total received for fiscal years 1992, 1993 and 1994 (before both Section 245(i) and IIRIRA were in effect).¹¹ These numbers clearly suggest that Section 245(i) had the ability to increase the number of documented immigrants and may be a policy worth considering given the current debates on the large and rapidly growing number of undocumented immigrants residing in the U.S. In addition to the

FIGURE 2
ADJUSTMENT OF STATUS APPLICATIONS (I-485) RECEIVED, APPROVED, AND PENDING, FISCAL YEARS: 1992 - 1999



large response rate, Section 245(i) generated a substantial amount of revenue. The INS received \$147.5 million in 1996 and expected to receive \$214.5 million in 1997 (Archibold, 1998).

Our analyses also indicate that marriages in large immigrant population counties decreased relative to marriages in small immigrant population counties when IIRIRA alone was in effect (comparison period 3). This result implies that IIRIRA influenced marriages plans by either moving them forward to coincide with the time period when both Section 245(i) and IIRIRA were in effect or postponing them altogether as IIRIRA made obtaining legal residence in the U.S. more costly. IIRIRA affects mainly EWIs who accounted for 67 percent of undocumented population in 2000 (Warren, 2003). The decrease in marriage rates, thus, suggests that IIRIRA had the ability to decrease the amount of EWIs obtaining legal permanent residence status because of increased costs. Therefore, any effective immigration reform should address ways to drastically reduce the future EWIs population (immigrants who enter the U.S. without inspection). Once an immigrant enters the U.S. without inspection it becomes very costly for that immigrant to obtain legal permanent residence as a result he or she is more likely to remain undocumented. To foster the interdependence of immigrants' labor supply and U.S. economic opportunities an effective work-visa program is eminent. Any form of work-visa program would fall under the visa quota system. With limits on work visas, immigrants will continue to try and enter the U.S. illegally, hence the ultimate need for an improved border security system.

In summary, since IIRIRA is presently in effect, to address the current stock of undocumented immigrants, policy makers debating immigration reform should consider a policy similar to Section 245(i) if the objective of immigration reform is to grant existing undocumented immigrants legal permanent residence. There is clear evidence that when both Section 245(i) and IIRIRA were in effect the number of documented immigrants increased. Of course, the main disadvantage of such a policy is that it might induce fraudulent marriages. Marriage fraud poses a significant threat to the integrity of the immigration system, as it is the easiest and most frequently used means of obtaining permanent resident status. However, without Section 245(i), IIRIRA has the ability to dissuade current undocumented immigrants from becoming legal permanent residents. Therefore, policy reforms addressing potential undocumented immigrants should focus on measures to prevent immigrants from entering the U.S. without inspection. This translates into an improved border security system.

NOTES

1. Data from the U.S. Department of Homeland Security reveal that the number of applications for obtaining legal status from within the US (I-485) received was approximately 95 percent higher when Section 245(i) was in effect compared to a similar time period prior to Section 245(i).
2. Skilled-based admissions apply to highly-skilled foreign born individuals, particularly professionals with advanced and baccalaureate degrees, entrepreneurs, multinational executives and managers, individuals with extraordinary ability, and ministers and religious workers. Refugee and humanitarian admissions include individuals classified as refugees and asylees based on human rights and humanitarian considerations.
3. In 2008, Ortega and Peri created an "Immigration Reform Appendix" which is available at http://www.econ.ucdavis.edu/faculty/gperi/Papers/immigration_reform_appendix.pdf
4. An immigration law change called the Legal Immigration Family Equity Act of 2000 went into effect on December 21, 2000.
5. Census 1990 Summary File 3 (SF 3).
6. Results available upon request from the authors.
7. Legal residents include citizens and legal permanent residents.
8. Panel unit root tests were conducted for all continuous variables and the null hypotheses were rejected.
9. The estimated difference-in-differences regression corrects for serial correlation by clustering on counties [Bertrand et al. 2004].

10. The 2007 estimate of the percent of undocumented immigrants who were under 18 years was the earliest I could find and was documented in Hoefler et al. [2008]. This percent is for the entire undocumented immigrant population.

11. The U.S. Department of Homeland Security received a total of 1,030,567 adjustment of status applications for the fiscal year 1995, 1996 and 1997. In the fiscal years prior (1992, 1993 and 1994) they received 1,983,804 applications.

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