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Determinants of Naturalization: The Role of Dual Citizenship Laws

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Abstract

Dual citizenship is now tolerated under U.S. law and practice. As the granting of dual nationality by sending countries has spread, however, the relationship between dual citizenship and immigrant integration has emerged as an issue of debate. This paper explores whether or not recognition of dual nationality by sending countries positively affects the U.S. naturalization rate of immigrants from those countries. The empirical analysis draws on data from the 1990 and 2000 U.S. Censuses and examines immigrants from the countries of Colombia, the Dominican Republic, Ecuador, Costa Rica and Mexico, all of which changed their laws to permit dual citizenship in the 1990s. A utility maximizing framework predicts that, everything else being equal, immigrants coming from a country that has recently allowed dual citizenship should be more likely to naturalize because of the decrease in a major cost of naturalization, specifically the need to forfeit rights in the country of origin. The analysis shows that older cohorts of immigrants from five of the six Latin American countries that have changed the law averaged higher naturalization rates in 2000 compared to other countries. Evidence for more recent immigrants is mixed and appears to be related to the rate of illegal immigration by the origin country.

1 Introduction

Dual citizenship occurs when a person holds citizenship in more than one country. There are no statistical surveys of the number of dual nationals¹ in the world or in specific countries,² but dual nationality is for sure a growing phenomenon, because of high levels of international migration and because in recent years several countries have amended their nationality laws to allow individuals to retain their citizenship even when they naturalize in another country. Dual nationality is a complex phenomenon, reflecting different, sometimes competing, interests of receiving states, sending states and immigrants. Not only that, but each of these sets of actors may diverge on their interpretation of their own group interests (Jones-Correa (2001)). From the point of view of receiving states, for example, there has been a long-standing disagreement on the *pros* and *cons* of dual nationality. Dual nationality has been traditionally criticized as an intolerable sort of political polygamy, a way of devaluing the meaning of citizenship and a source of conflict of laws. On the other hand, proponents of its recognition have argued that it should be not only tolerated (as it happens more frequently, such as in the U.S. case), but actively embraced because it recognizes realities of transnational allegiances and it can be a means for immigrants to reconcile memberships in both their countries of residence and of origin.

This paper addresses one specific question of the debate on dual nationality from the point of view of receiving countries: does dual nationality increase naturalization? In particular, does recognition of dual nationality by sending countries positively affect the U.S. naturalization rate among immigrants from those countries? This question can be framed in a utility maximizing setting, in which immigrants who fulfill the requirements to naturalize decide to apply for naturalization if the benefits exceed the costs. There could be both mechanical and psychological costs arising from denying dual nationality. Citizens can be hesitant to give up the instrumental benefits of a second passport: the right to work in another country, pension and inheritance rights, the ability to pass the nationality and its advantages on to their children, and so forth. Psychologically, they may wish to continue to identify themselves as citizens of their country of birth. If denying dual nationality has a disincentive effect on naturalization, changes in dual citizenship laws in some sending countries should lead to increased

¹Following Hansen and Weil (2002), in this paper I adopt the legal definition of "dual nationality" and "dual citizenship", which treats them as synonymous.

²A notable exception to the general lack of data on multiple nationality is the Canadian Census of Population (Bloemraad (2004)).

naturalization among immigrants coming from these countries.

The empirical analysis in this paper draws on individual-level data from the 1990 and 2000 U.S. censuses and examines immigrants from the countries of Colombia, the Dominican Republic, Ecuador, Costa Rica, Brazil and Mexico, all of which changed their laws to permit dual citizenship in the 1990s. My main research strategy to identify the effects of the recognition of dual citizenship on the propensity to naturalize is to compare the change over time in naturalization rates of immigrants coming from countries that newly allowed dual citizenship to the change over time in naturalization rates of immigrants from countries that did not change the law. A strength of this approach, commonly known as difference-in-differences analysis, relative to cross-sectional (Yang (1994)) and before-after (Jones-Correa (2001)) analyses is that it controls, in a parsimonious way, for differences in the propensity to naturalize across country of origin that are constant over time, as well as due to time-varying factors having a similar impact on the naturalization decision among immigrants coming from different countries. The critical assumption of this strategy is that in the 1990s changes in dual citizenship policies are the only source of systematic differences in the incentive to naturalize by origin country. The advantage of using individual-level data such as those drawn from census is that I can specify and estimate a model for the probability of naturalization status in which this assumption is likely to hold. First, the inclusion of individual socio-demographic characteristics and length of residence in the United States controls for changes in immigrant composition by source countries that can be a source of variation in time of the fraction of the population being naturalized. Second, once I allow the effects of these variables to differ over time, I reduce the likelihood that other factors affecting the incentive to naturalize in the 1990s are systematically related to country of origin. A drawback of using data drawn from census is that they include undocumented immigrants, who are never eligible to naturalize. Changes in the share of immigrants that are illegal by source country are controlled for by restrictions on length of residence in the U.S. and, alternatively, by re-weighting the sample to account for varying size of illegal populations.

The estimates from my main specifications suggest that recognition of dual nationality by Colombia, the Dominican Republic, Ecuador, Costa Rica and Brazil positively affects the U.S. naturalization rate of immigrants from those countries. Results are mixed for the case of Mexico. The analysis shows that older cohorts of immigrants from Mexico, among whom the presence of illegal immigrants should be less of a concern, averaged higher naturalization rates in 2000 compared to other countries not changing dual

citizenship laws. The presence of unauthorized immigrants is an obvious concern in interpreting results for more recent immigrants. When re-weighting the sample to account for the fraction of illegal immigrants, I find the puzzling result that the naturalization rate among Mexican-born individuals has actually decreased between 1990 and 2000 relative to the change in the naturalization rate among immigrants from countries not changing their laws. This evidence is hard to explain as a result of granting dual nationality rights, which would predict the opposite effect, but it is likely to be sensitive to the estimates of the illegal population used to re-weight the sample.³ In general, the case of Mexico is actually the least appropriate to draw conclusions on the effects of dual citizenship on naturalization. First, dual nationality in Mexico was approved only in March 1998, so that 2000 is probably too early to assess the possible impact of the law on the decision to naturalize. Second, Mexican law only approved a temporary and incomplete right of dual nationality. The provision took effect in March 1998 and allowed Mexicans who had become citizens of another country to apply for dual citizenship until March 20, 2003. Only in 2003, the Parliament extended dual citizenship rights further in time, but Mexicans in the U.S. cannot yet vote in Mexican elections unless they physically return to their places of origin.

Evidence of a positive relationship between dual citizenship and naturalization, as the one arising from my estimates for immigrants from Colombia, the Dominican Republic, Ecuador, Costa Rica and Brazil, is important for several reasons. First, changes in dual citizenship policies in sending countries provide a plausible source of exogenous variation with which to identify the effects of naturalization on many outcomes of interest. Does naturalization leads to a more rapid assimilation, in terms, for example, of faster wage growth or more educational attainment? Does naturalization leads to higher political engagement? These and other consequences of naturalization are crucial issues of research which are hard to be estimated because of the potential endogeneity of the acquisition of citizenship. A change in the law allowing for dual nationality increases the likelihood of naturalizing by reducing a cost not related to the immigrant's unobserved characteristics. So, changes in dual citizenship laws determine a source of variation in naturalization that can be used as an instrument in the estimation of the consequences of naturalization. The estimation results in this paper provide

³Estimates of the unauthorized immigrants in the United States at a point in time vary depending on the source and, even for the same source, estimates at a point in time are periodically revised.

strong support that changes in dual citizenship laws also satisfy the second of the two criteria for a valid instrument, namely that the instrument be correlated with naturalization as well as not correlated with unobserved characteristics.

Second, understanding the effects of dual citizenship laws passed during the 1990s has taken on more importance due to fact that in recent years many more countries have amended their nationality laws to allow individuals to retain their citizenship even when they naturalize in another country. Sweden did so in 2001, Australia and Pakistan in 2002, the Philippines and India in 2003.

Third, the findings of this paper can shed some light on the debate on the impact of dual citizenship on immigrants' integration. This is an open and growing debate, but it continues to be supported by ideological speculations because empirical evidence on this issue is fragmented. On one hand, dual citizenship is being criticized to impede integration, because it encourages an attachment to a foreign language, culture and politics. This thesis turns on a zero-sum assumption, which is that retaining ties with one's home country can only happen at the expense of deepening new ties to the country in which one currently resides. On the other hand, advocates of dual citizenship argue that its full recognition would encourage further naturalization, and acquisition of citizenship is desirable because, as a pre-requisite for political involvement, it facilitates cultural and political incorporation (Spiro (1998a)). The findings in this paper support the existence of a positive link between dual citizenship and naturalization. A similar positive correlation between dual citizenship claims and naturalization levels has been shown to exist in the case of Canada (Bloemraad (2004)). Both findings on Latin-American immigrants (Guarnizo, Portes, and Haller (2003)) and on Chinese Americans (Lien (2005)) show that transnational activities and homeland political concern are not at odds with assimilation measures and high levels of activism in U.S. politics. All together, these findings can be interpreted as corroborating evidence that dual citizenship might be a means for countries to promote immigrants' political and legal attachment, and that political incorporation in one national context does not happen at the expense of, but it actually fosters fuller engagement in another.

The remainder of the paper is organized as follow. Section 2 provides details on the practice of dual nationality in the United States and briefly describes recognition of dual nationality by the six countries which are the focus of the paper. Section 3 explains the theoretical framework of the analysis of the effects of changes in dual citizenship laws on naturalization, and it also reviews other factors that could explain naturalization trends in

the United States in the 1990s. Section 4 presents the empirical strategy to identify the effects of dual citizenship and the data, while section 5 presents the results. I then offer conclusions in section 6.

2 Institutional background

2.1 Naturalization and dual citizenship in the U.S.

Under U.S. immigration law, all aliens who enter legally as permanent residents have the potential to be citizens. To naturalize, aliens must be at least 18 years old⁴ and have continuously resided in the United States for 5 years (3 years in the case of spouses of U.S. citizens), show that they have "good moral character", demonstrate the ability to read, write, speak, and understand English, and pass an examination on U.S. government and history. Applicants pay a fee⁵ when they file their petitions and have the option of taking a standardized civics test or of having the INS examiner test them on civics as part of their interview.⁶

Based on the U.S. Department of State regulation on dual citizenship, the Supreme Court of the United States has stated that dual citizenship is a "status long recognized in the law" and that "a person may have and exercise rights of nationality in two countries and be subject to the responsibilities of both. The mere fact he asserts the rights of one citizenship does not without more mean that he renounces the other," (*Kawakita v. United States*, 343 U.S. 717, 1952). The Immigration and Nationality Act (INA) does not define dual citizenship or take a position for it or against it. There has been no prohibition against dual citizenship, but some provisions of the INA and earlier U.S. nationality laws were designed to reduce situations in which dual citizenship exists (U.S. Office of Personnel Management, 2001).

While recognizing the existence of dual citizenship and permitting Americans to have other citizenships, the U.S. Government does not endorse dual

⁴Children less than 21 years old residing in the U.S. can naturalize with their parents.

⁵The current fee for processing a naturalization application (Form N-400) is \$260. There is also an additional fee of \$50 for fingerprinting.

⁶The language requirement is waived for those who are at least 50 years old and have lived in the United States at least 20 years or who are at least 55 years old and have lived in the United States at least 15 years. For these individuals, the civics test is given in their native language. Special consideration on the civics requirement is given to aliens who are over 65 years and have lived in the United States for at least 20 years. Both the language and civics requirements are waived for those who are unable to comply due to physical or developmental disabilities or mental impairment. Certain requirements are waived for those who served in the U.S. military.

citizenship as a matter of policy because of the problems that it may cause in case of conflicts over tax, inheritance, marriage and military service between the law in the U.S. and in other countries. People who go through U.S. naturalization are still required to state under oath that they are renouncing their old citizenship,⁷ but there are no further steps to enforce this declaration. The U.S. does not require official notification that naturalized U.S. citizens have formally renounced their nationality of origin and it does not inform states of origin about the naturalizations in the U.S. It is virtually impossible for a naturalized citizen to lose American citizenship by exerting her rights as a citizen of her origin country or of a third country. For example, U.S. naturalized citizens cannot be revoked citizenship for voting in foreign elections (*Afroyim v. Rusk*, 387 U.S. 253, 1967) or for moving abroad following naturalization (*Schneider v. Rusk*, 377 U.S. 163, 1964).⁸

2.2 Dual citizenship in the world

Dual citizenship occurs when a person holds citizenship in more than one country at the same time. There are three significant sources of people who hold dual nationality: the interplay of different birthright nationality laws (*jus soli* and *jus sanguinis*), the marriage of persons with different nationalities and naturalization in another country. The proliferation of dual nationality arises from high levels of immigration to certain countries and, in general, from the fact that more and more people at all level of the economic and social ladder now live, for a time at least, outside their countries of origin. This fact inevitably increases the incidence of all the three sources of dual nationality mentioned above. At the same time, dual nationality arising from naturalization is also magnified by changes in the laws. A growing number of countries explicitly declare that citizens who naturalize in another country do not lose their former citizenship. Canada made this change in 1977, Portugal in 1981, El Salvador in 1983, Trinidad and Tobago in 1988, Colombia in 1991, Italy in 1992, Hungary in 1993, the Dominican Republic in 1994, Costa Rica and Ecuador in 1995, Brazil in 1996, Mexico in 1996-1998, Sweden in 2001, Australia and Pakistan in 2002, the Philippines in 2003. Many other countries are currently considering new

⁷The oath of allegiance taken by all who become U.S. citizens begins: "I hereby declare, on oath, that I absolutely and entirely renounce and abjure all allegiance and fidelity to any foreign prince, potentate, state, or sovereignty of whom or which I have heretofore been a subject or citizen....".

⁸Both provisions are further mentioned in the 1978 Citizenship Law Amendments (Pub.L. 95-432).

legislation as well, such as Finland. In 2003 India passed a bill to grant dual citizenship to people of Indian origin living in some countries in the world.⁹ Also South Korea has expressed support for it. The only opposite case of which I am aware of is the Czech Republic, where dual citizenship is forbidden since 1993.

In this paper I focus on the six countries in Latin America that granted dual nationality in the 1990s, and I investigate if this change in the law explains some of the rise in the naturalization rate of immigrants from these countries between 1990 and 2000. As documented in Jones-Correa (2001), there is a difference among these countries in terms of the process of recognition of dual nationality. Colombia, Ecuador and the Dominican Republic allowed it as a response to pressures from their overseas compatriots ("bottom-up" process), while Brazil and Costa Rica followed "top-down" policy decision-making paths. The Mexican case does not fit in any of the two groups, being driven by the growing presence and economic potential of Mexican immigrants in the United States, but also by Mexican party politics.

2.2.1 Bottom-up processes: the case of Colombia, Ecuador and Dominican Republic

Colombian organizations in New York began lobbying in Colombia for dual nationality in 1987 and presented a petition in favor of dual citizenship to affect the process of constitutional reform which was underway in Colombia since 1988. The amended constitution was approved in July 4, 1991, including provisions that allowed Colombians overseas to become citizens in another country without losing their rights as Colombians, to elect a senator to represent them from abroad and to vote directly in Colombia's presidential election.

Ecuadorian immigrant lobbying for dual citizenship began as far back as 1967, but was sporadic in time and left indifferent the Ecuadorian government even in case of the submission of formal proposals of dual nationality, as in 1979 and 1983. Only since 1990, with concomitant proposals being discussed in Colombia, the request started to be taken more seriously and was finally approved in May 1995.

The debate over dual nationality for Dominicans abroad also accelerated

⁹The Citizenship (Amendment) Bill, approved on December 2003, allows dual citizenship in 16 countries (the United States, the United Kingdom, Canada, Ireland, Italy, the Netherlands, Finland, Australia, New Zealand, France, Greece, Cyprus, Portugal, Switzerland, Israel and Sweden).

after 1990, even if the matter had been debated for at least 10 years. The promise of dual nationality was formalized by a statement of the President in 1992, but legislation was passed only in 1994.

2.2.2 Top-down policies: the case of Brazil and Costa Rica

Dual citizenship was allowed in Brazil and Costa Rica with little concerted pressure from the immigrant community abroad. In Brazil, dual citizenship was one of the four changes approved in a largely ineffectual process of constitutional reform in 1996. Costa Rica passed its dual nationality amendment in 1995 in response to disappointment among the Costa Rican public that the first Costa Rican astronaut was going into space as an American citizen, not as a Costa Rican.

2.2.3 The case of Mexico

In 1996 the then-ruling *Partido Revolucionario Institucional* (PRI) agreed in principle to a series of political reforms, among which dual nationality, as a result of pressures on the part of the opposition parties. In December 1996 the Mexican Congress approved a constitutional amendment that allowed Mexicans abroad to retain a non-voting Mexican cultural "nationality" while taking foreign citizenship, as well as exemption from certain restrictions to property rights. The provision took effect in March 1998 and allowed Mexicans who had become citizens of another country to apply for dual citizenship until March 20, 2003. In 2003, the Parliament extended dual citizenship rights further in time. A permanent right to dual citizenship, and in particular the recognition and implementation of voting rights, are still under debate.

The case of Mexico is analyzed in this paper because of the interest in understanding patterns in naturalization among the biggest population of immigrants in the United States. On the other hand, Mexico is the least appropriate case to draw conclusions on the effects of dual citizenship on naturalization among the ones considered in this paper. First, dual nationality in Mexico was approved very late in the 1990s, so that 2000 is probably too early to assess the possible impact of the law on the decision to naturalize. Second, Mexico only approved a temporary and incomplete status of dual nationality. The provision took effect in March 1998 and allowed Mexicans who had become citizens of another country to apply for dual citizenship until March 20, 2003. It was not sure what would have happened after that. Only in 2003, the Parliament extended dual citizenship

rights further in time, but Mexicans in the U.S. cannot yet vote in Mexican elections unless they physically return to their places of origin. Only about 67,000 Mexican nationals applied to their government for dual nationality during the initial, five-year application period, out of more than 9 million Mexican-born persons living in the U.S. in 2000. The small number of applicants may reflect a lack of information or of interest in temporary and incomplete dual-nationality rights.

3 Explaining Immigrant Naturalization

3.1 Theoretical framework

In the utility maximizing framework, immigrants who fulfill the requirements to naturalize decide to apply for citizenship if the benefits exceed the costs. Citizenship grants immigrants certain political and social rights to which permanent residents are not entitled. One of the most important privileges of citizenship is the ability to vote, and therefore to influence political decisions and outcomes. There are notably other benefits accompanying U.S. citizenship that are likely to provide incentive for immigrants to pursue naturalization. For foreign-born people keeping contact and relations with the home country, citizenship makes it easier to sponsor relatives.¹⁰ Citizenship also provides greater employment opportunities.¹¹ Furthermore, the importance of citizenship has risen since the mid-1990s, when welfare and illegal immigration reform based access to public benefits and selected rights increasingly on citizenship.¹² This is a crucial aspect for my analysis, as I

¹⁰First, becoming a citizen moves your relatives up in the queue to get a green card. Second, a citizen can sponsor not only his/her spouse and unmarried children of any age, as legal permanent residents are allowed to, but also his/her married children of any age, siblings and parents, which permanent residents are not allowed to do.

¹¹First, citizenship is required for certain jobs: employment in some federal government agencies, bureaus, think tanks, and many public safety positions with state and local governments is limited to U.S. citizens. Second, the act of naturalization may remove employment barriers other than those stated by the law. For example, some employers may prefer to hire naturalized citizens because of discrimination by employers, employees, customers or unions (Becker (1971)) or because of a concern that noncitizens may be less committed to the job and are more likely to return to the home country. In addition, in all jobs in which travel is an important component citizens may also be preferred because of the greater ease with which those who have a U.S. passport may travel abroad. Bratsberg, Ragan, and Nasir (2002) find that naturalization provides greater access to white-collar, public sector and union employment.

¹²Prior to welfare reform, legal immigrants living in the United States were eligible for public benefits on more or less the same terms as citizens. The welfare legislation passed

discuss in section 3.2.1.

There are also costs to citizenship. First, there are costs related to the naturalization process: to naturalize, applicants must pay a fee,¹³ demonstrate the ability to read, write, speak, and understand English, and pass an examination on U.S. government and history. Some immigrants can find the naturalization procedures too complex or be afraid to fail to pass the examination. In fact, a significant proportion of petitions for naturalization are denied.¹⁴ Second, those who naturalize are subject to any military draft. Third, depending on the dual citizenship laws in the country of origin, those who naturalize in the U.S. can be obliged to forfeit rights in the home country: the right to hold a second passport and to travel freely back and forth from the origin country without need of any special visa, the right to work in another country, pension, inheritance or other selected rights. In the case of Mexico, for example, the loss of the Mexican nationality implied the loss of rights to own land. Finally, there can be a psychological cost in the act of renouncing their former nationality, increased by the formal oath of allegiance to the U.S. still required as a step of the naturalization process. Available anecdotal evidence suggests that the renunciation oath itself deters some eligible aliens from naturalizing. The oath is hardly clear of what it requires of applicants; taken at a face value, however, it appears to demand the severing of all ties to one's country of origin (Schuck (1998)). Not all eligible aliens understand that the oath is not enforced, and the U.S. government does nothing to publicize that absence of enforcement. Others may refuse to take the oath on principle, even equipped with the knowledge of its lack of practical effect (Spiro (1998b)).

The net value of citizenship varies from immigrant to immigrant depending on the magnitude of the various costs and benefits and the weights attached to them. To the extent that costs and benefits vary based on some given socio-demographic characteristics, then these characteristics should be used as explanatory variables in a model for the decision to naturalize.

in 1996 (Personal Responsibility and Work Opportunity Reconciliation Act) restricted foreign-born eligibility for a wide range of public programs, with all restrictions on welfare use by foreign-born persons lifted once the immigrant become a naturalized citizen. A consequence of the illegal immigration reform (Illegal Immigration and Immigrant Responsibility Act) is that only foreign-born people who naturalized are granted the right to "residential security", *i.e.* not to be deported for minor crimes or misdemeanors.

¹³The current fee for processing a naturalization application (Form N-400) is 320\$. There is also an additional fee of 50\$ for fingerprinting.

¹⁴For example, in fiscal year 1996 the number of petitions for naturalization denied (229,842) are as high as 17% of the number of petitions filed in the same year (1,277,403), and 23% of the number of petitions filed in the previous year (959,963).

There can also be systematic differences based on country of origin. This is the case for differences in granting dual nationality rights, but not only. Several economic, political and geographical conditions of the country of origin are likely to be important in promoting or discouraging immigrants' propensity to naturalize, because they affect, for example, the likelihood of return migration. Country of origin may also matter given the role of immigrants' ethnic networks in the receiving country.

Benefits and costs also vary over time, and this is the source of variation I exploit in this paper. The fact that six important sending countries eased restrictions on dual citizenship during the 1990s offers the opportunity to identify the effect of allowing dual citizenship on naturalization by considering the change in naturalization rate among eligible immigrants from the countries that allowed dual citizenship net of the change in all the other countries. Table 1 reports the change between 1990 and 2000 in the naturalization rate of immigrants coming from the six Latin American countries that allowed dual citizenship in the 1990s versus the change over time in the naturalization rate of immigrants from all other countries.

Group/Year	1990	2000	Time Difference
Dep.var.: naturalization rate			
Colom. Dom.Rep. Ecuad. C.Rica Braz. Mex.	27.8%	31.6%	3.8%
other countries	58.1%	59.0%	0.9%
Group difference at a point in time	30.3%	27.4%	
$DD = 3.8\% - 0.9\% = 30.3\% - 27.4\% = 2.9\%$			

Table 1: DD estimate of the effect of allowing dual citizenship on naturalization

The naturalization rate of immigrants from Colombia, Dominican Republic, Ecuador, Costa Rica, Brazil and Mexico increased of 3.8 percent between 1990 and 2000, while it increased only of 0.9 percent for all the other immigrants. The difference between the two changes (2.9%) can be interpreted as an estimate of the effect of allowing dual citizenship under the assumption that in the 1990s there was no contemporaneous shock that affected differentially the naturalization rate of immigrants coming from the two groups.

For this identification strategy to hold, I need to control for the existence of other factors that *differentially* affected naturalization by origin country

along the 1990s. In the next section I critically review the most common factors that commentators and researchers have proposed to explain trends in naturalization in the United States in the 1990s. As regards factors affecting the propensity to naturalize in the 1990s I argue that for all of them we should be able to rule out a different impact by country of origin once the probability to be naturalized is modeled as a function of individual socio-demographic characteristics and place of residence, and the effect of these variables is allowed to vary over time.

3.2 Trends in U.S. naturalization in the 1990s

As reported in Fix, Passel, and Sucher (2003), in the 1990s the number of naturalized citizens rose for the first time in decades, from 6.5 in 1990 to 7.5 million in the mid-1990s to over 11 million citizens by 2002. Since the early 1990s, naturalization rates among eligible populations have risen as well. The share of legal immigrants who had naturalized fell steadily from 64 percent in 1970 to 39 percent in 1996, but it rose since then to reach 49 percent in 2002 (Figure 1).

Commentators and researchers have explained the surge as a response to a series of different factors. One of them is the fact that some important sending countries eased the restrictions on dual nationality during the 1990s. In this section I list the other commonly cited factors, and I distinguish the ones that are likely to have affected the propensity to naturalize (and so the numerator of the naturalization rate) and the ones who affected the proportion of immigrants eligible to naturalize among all those residing in the U.S. (the denominator of the naturalization rate).

3.2.1 Factors influencing the propensity to naturalize in the 1990s

Annual naturalizations surged from 240,252 in 1992 to 888,788 in 2000, with a pick of 1,044,689 in 1996. Figure 2 plots the number of persons naturalized in each year over the 1990s by country or region of origin.¹⁵ The rise in naturalizations was particularly sharp among people from Mexico, Ecuador and other Latin American countries, both those granting dual nationality in the 1990s and those keeping existing policies. These figures *per se* are not

¹⁵Caution should be exercised in drawing conclusions from these data about yearly trends in naturalization given the large backlogs in naturalization applications. Backlogs began to rise significantly in the early 1990s as the number of petitions filed for naturalization exceeded the number of naturalized persons. They dramatically dropped in 1996 as a result of the program Citizenship USA, but then they exploded again in 1997 and in 1998 because of a slowdown in processing of naturalizations in 1997.

informative of differential changes in naturalization rates by origin country, because they are in part driven by increases in the number of those eligible to naturalize.

For example, in fiscal year 1994, the first of the 2.68 million illegal aliens who were granted legal permanent resident status under the provisions of the Immigration Reform and Control Act (IRCA) of 1986 became eligible to naturalize. Given that 75 percent of the unauthorized immigrant population legalizing under the Immigration Reform and Control Act of 1986 (IRCA) was from Mexico, this fact alone can partly explain why the rise in naturalizations in the middle of the 1990s is particularly sharp for Mexicans. My identification strategy is robust only if I can rule out or control for any factor that drives preferences towards naturalization to change differentially across country of origin. Differential increases in the number of naturalizations due to differential increases in the population eligible to naturalize (because of differences in the year in which legal permanent status was acquired) should be a mechanical effect controlled for in the analysis that compares naturalization rates. One might argue that being legalized under an amnesty increases the likelihood of naturalization once the residence requirement is met.¹⁶ This would be a concern because it would imply a higher propensity to naturalize among Mexicans starting in 1994. Evidence from administrative data, though, shows that this should not be the case, because the naturalization rate of IRCA legal permanent residents is very close to that of other legal permanent residents, when controlling for country of origin and year granted permanent residence (Rytina (2002)).

There are a number of other factors that can explain the rise in naturalizations in the 1990s. The Green Card Replacement Program, begun in 1992 by the Immigration and Naturalization Service, required that long-term permanent residents replace their resident cards with new, more counterfeit-resistant cards. Many immigrants chose to naturalize rather than apply for new cards (U.S. Immigration and Naturalization Service (1997)). There is no clear reason for this factor to affect differently people because they come from different countries, once you control for personal characteristics such as length of stay in the United States.

In August 1995 the INS started the program Citizenship USA, which was aimed at reducing the significant backlog of naturalization applications accumulated in INS offices. The number of petitions for naturalizations

¹⁶This could happen if the psychological costs associated with the legalization process increased the propensity to naturalize by amplifying the returns of integration and full membership rights guaranteed by citizenship.

filed increased from 206,668 in 1991 to 959,963 in 1995, but INS resources to adjudicate naturalization applications did not evidently keep pace with the increase in filing given that, by summer 1995, the pending caseload was about 800,000 and waiting times in the largest offices exceeded 2 years. The goal of Citizenship USA was to return to historical processing times of approximately six months. One of the reasons for the spike in the number of persons naturalized in 1996 (Figure 2) is the success of the program in reducing backlogs.¹⁷ The key cities identified for the effort were those with the largest number of pending cases: Chicago, Los Angeles, Miami, New York, San Francisco. Different geographical concentration of resources would explain higher naturalization rates as the result of this program among immigrant populations concentrated where the backlogs were higher. So, when controlling for place of residence, there should not be any other reason for this campaign to affect the probability to naturalize differentially by country of origin.¹⁸

Also, political events taking place in the 1990s may have led to the increased naturalization rate among eligible immigrants. Proposition 187 was passed in California in 1994 in an attempt to curtail social services to unauthorized immigrants, and in 1995–96 the nation was debating the virtues of restricting benefits to legal immigrants. The media and many scholars argue that Proposition 187 and a perceived anti-immigrant sentiment encouraged many immigrants to naturalize as a way to protect their rights and cast their vote against anti-immigrant legislation. To the extent that the anti-immigrant rethoric of the early 1990s encouraged immigrants to attain citizenship at different rates given different intensity of anti-immigrant campaigns in different states, this effect is controlled for when conditioning changes in naturalization rates to place of residence. This factor could still explain different changes by country of origin if the reaction to anti-immigrant sentiments, mainly targeting illegal immigrants, were bigger among immigrant populations with high rates of unauthorized residents. This would be a concern, given that in 1990, of the estimated 3.5 million unauthorized aliens residing in the U.S., 2.04 million (58 percent) were from

¹⁷Processing of naturalizations slowed down again in 1997, when 1,412,712 petitions for naturalizations were filed but only 598,225 persons were naturalized. At the end of 1997, there were more than 1 million of applications pending a decision. Backlogs began to decrease only in 1999-2001.

¹⁸Borjas (2002) mentions that it is possible that the political activists who ran the Citizenship USA initiative targeted particular groups of immigrants: groups that would be the most likely to support the incumbent Democratic administration in the 1996 presidential election. If so and if partisanship was perceived to be related to country of origin, this campaign might have targeted differently immigrants coming from different countries.

Mexico, and 159,000 (11 percent of the remaining unauthorized population) were from the other 5 countries changing dual citizenship laws (Table 2).

Finally, the passage of 1996 welfare reform, restricting public benefits for non-citizens, may have represented a further incentive to naturalize, as a way to retain access to social programs. Fix, Passel, and Sucher (2003) provide some evidence against the notion that the surge in naturalizations is a response to legislation restricting public benefits for non-citizens: recently naturalized immigrants use public benefits (except for Supplemental Security Income) at slightly lower rates than do the pool of currently eligible immigrants. If citizenship was sought after the welfare reform to protect access to the social safety net, then this effect should be largely controlled for by allowing naturalization rates to vary in time differently by state of residence (each state implemented a specific welfare reform program) and by personal characteristics that predict different access to means-tested programs with categorical restrictions such as the ones in the U.S. welfare system.

Overall, the factors listed in this section should not affect differentially naturalization rates by country of origin once you control for observable socio-demographic characteristics and you allow their effect on the propensity to naturalize to vary over time. There are two sources of concern though: the first is related to different rates of illegal immigration, particularly high among immigrants from the countries under analysis in this paper, and the possibility that this may explain a different impact on naturalization of factors such as the anti-immigrant rethoric of the early 1990s. Second, ethnic networks in the receiving country may have a role in the way in which these factors affect the naturalization rate. For example, social networks have been shown to affect a woman's propensity to use welfare (Bertrand, Luttmer, and Mullainathan (2000)), and they may matter as well in the way in which restrictive welfare reforms encouraged immigrants to naturalize. In the empirical analysis I include one measure of urban concentration of an immigrant group in the attempt to control for the different intensity of network effects by country of origin.

3.2.2 Factors influencing the pool of immigrants eligible to naturalize in the 1990s

A comparison over time of naturalization rates across origin countries is informative of the effect of factors affecting the propensity to naturalize, such as recently granted dual citizenship rights, if citizenship is evaluated for those who are eligible to apply for it. This is not possible because data on eligible individuals (given age, lawful admission, and residence in

the United States) are not available by country of origin over time. The empirical analysis in this paper uses data drawn from the censuses (Section 4.4). Not all the foreign-born enumerated in the census are eligible for naturalization, even if they have resided in the U.S. long enough to meet the residence requirements included in the law. Notably, ineligible foreign-born included in census are nonimmigrants and undocumented immigrants, but their immigrant status is not reported.¹⁹

If rates of illegal immigration vary over time by country of origin, the comparison across origin countries of the fraction of naturalized citizens over a population that includes unauthorized residents is clearly affected by these different rates. This can be a problem given that the six Latin-American countries allowing dual citizenship in the 1990s were among the largest source countries for unauthorized immigration to the United States in 1990, and they also had relatively large increases in estimated unauthorized residents from 1990 to 2000. As shown in Table 2, the growth rate in the undocumented population from these countries is larger than on average (100 percent) and relative to any group of countries, excluding Oceania. In the empirical investigation, I propose two alternative ways to address the problem of different rates of illegal immigration by country of origin. The first is to restrict the analysis to cohort of immigrants that should be legal because they had enough time or opportunity (IRCA) to adjust their status. The second is to reweigh naturalization rates calculated on census (which includes illegal immigrants) by the probability to be legal by country of origin, over time in order to get an estimate of naturalization rates among those legal.

¹⁹An alternative could be using administrative data, but one would face other problems in this case. Administrative data on immigrants by country of origin are available only as flows of legal permanent residents by year of admissions and new naturalized citizens by year in which citizenship is granted. To define naturalization rates we would need to calculate stocks of legal permanent residents and naturalized citizens by year, but calculating stocks from flows need assumptions on mortality and return migration rates and is constrained by availability of flows data for all of the countries only since 1988. One more problem in using administrative data would be restricted availability of socio-demographic characteristics.

4 Empirical strategy

4.1 Basic strategic: exploiting recent changes in dual citizenship laws

The goal of this section is to define an empirical setting to test how recognition of dual nationality by sending states affects the naturalization decision of immigrants from those sending countries living in the United States. This question has so far received only marginal attention in the empirical literature.

There are two studies using as a source of identifying variation *cross-sectional* differences in dual nationality laws in sending countries. On census data for 1980, Yang (1994) estimates that the odds of naturalization of recent immigrants from countries that recognize dual citizenship are about 20 percent lower than those from countries without dual citizenship. He interprets his results as evidence that dual citizenship does not encourage naturalization in the United States, and he speculates that this may be due to immigrants' confusion about their rights under dual nationality, or perceptions that dual nationality rather than protecting rights, merely adds additional responsibilities. de la Garza (1996), looking at the cohort of immigrants who arrived in the U.S. in 1977, finds that by 1992 there is only a slight difference in naturalization rates between those who come from countries recognizing dual nationality and those that do not. Cross-sectional evidence though is not robust to the existence of differences by country of origin in other factors that may affect immigrants' naturalization decisions. Yang (1994) includes five measures of country-of-origin characteristics other than dual citizenship,²⁰ but his estimate of the effects of dual citizenship on the probability of naturalization is nevertheless potentially biased by the existence of other country-of-origin-specific characteristics correlated with dual citizenship laws and not included in his specification, such as cultural and historical factors explaining different preferences for naturalization or different rates of return migration.

There is one more recent study that proposes to exploit differences *in time* of recognition of dual nationality to evaluate its impact on the decision to naturalize. Jones-Correa (2001) considers nine Latin American countries

²⁰Yang (1994) includes the following measures of country-of-origin characteristics: per capita GNP, a dummy for socialist countries, a dummy for refugee-sending countries, distance between the capital city and the nearest U.S. entry port and a dummy for English as an official language. He also includes two measures that should proxy for immigrants' ethnic networks in the U.S.: size of immigrant ethnic community in 1975 and percentage of urban population of an immigrant group.

that passed legislation recognizing dual nationality between 1965 and 1997,²¹ and he finds that the naturalization rate of emigrants in the U.S. from each of these countries increased in the period after recognition of dual nationality. This before-after strategy, though, is potentially biased by the existence of any other time-varying factor that affects the probability of naturalization of immigrants residing in the United States. In the 1990s, in particular, there are many other factors that may have positively affected the propensity to naturalize among immigrants from these countries of origin as well as from any other countries, such as the Green Card Replacement Program in 1992, the "Citizenship USA" program in 1995 and the Welfare Reform passed in 1996 (section 3).

Ideally, the identification of the effects of the recognition of dual nationality on the propensity to naturalize would stem from an experiment that randomly assign changes in the law to different countries, and would be conducted on data on naturalization rates of immigrants in the United States by country, over time. Not only dual citizenship laws cannot be assumed to be random, but also data on naturalization rates by country of origin over time are not available.

I propose to identify the effects of the recognition of dual citizenship on the propensity to naturalize using a quasi-experimental design commonly referred to as difference-in-differences (DD) analysis. The DD strategy compares the change over time in naturalization rates of immigrants coming from a country that newly allowed dual citizenship, the target group, to the change over time in naturalization rates of immigrants from countries that did not change the law, the comparison group. As shown in Table 1, the naturalization rate of immigrants from Colombia, Dominican Republic, Ecuador, Costa Rica, Brazil and Mexico increased of 3.8 percentage points between 1990 and 2000, while it increased only of 0.9 percentage points for all the other immigrants. The difference between the two changes (2.9%) can be interpreted as an estimate of the effect of allowing dual citizenship under the assumption that in the 1990s there was no contemporaneous shock that affected differentially the naturalization rate of immigrants coming from the two groups.

A strength of the DD analysis relative to cross-sectional and before-after analyses is that it controls, in a parsimonious way, for differences in the propensity to naturalize across country of origin that are constant over

²¹Jones-Correa (2001) considers Brazil, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Mexico, Panama and Peru. Other ten Caribbean countries recognizing dual citizenship after 1965 are excluded from the analysis because data for naturalization rates are available only from 1988 onward.

time, as well as due to time-varying factors having a similar impact on the naturalization decision in the target and the comparison group. So, in this case, the critical assumption of the DD strategy is that changes in naturalization caused by factors other than changes in dual citizenship laws are the same for the target and the comparison group.

The DD analysis can also be cast in a regression framework. The regression specification that corresponds to Table 1 is as follows:²²

$$\Pr(N_{ijt}) = \alpha \Delta DC_j + \beta T_t + \delta(\Delta DC_j * T_t) + v_{ijt} \quad (1)$$

where N_{ijt} is an indicator of whether or not individual i from country of origin j is a naturalized citizen in year t , for $t = 1990$ or 2000 . ΔDC_j is a dummy for the six Latin America countries that allowed dual citizenship during the 1990s, and T_t is a dummy for observations drawn from Census 2000. The key parameter in equation (1) is δ , which is the DD estimate.

4.2 Accounting for individual and state characteristics

The results in Table 1 could be partly explained by differential changes over time in characteristics, such as education or length of stay in the U.S., for immigrants coming from countries in the target and comparison groups. Moreover, some of the factors listed in section 3 (such as welfare reform) may have differentially affected the decision to naturalize of people with different socio-demographic characteristics or living in different states. Given the different socio-demographic composition of immigrant populations coming from different countries, these effects would be picked-up by the DD estimate, which would then fail to identify the exclusive effect of dual citizenship recognition. Consequently, I estimate the following specification:

$$\Pr(N_{ijst}) = \alpha \Delta DC_j + \beta T_t + \delta(\Delta DC_j * T_t) + \rho_s + \mathbf{X}_{it} \boldsymbol{\theta} + \rho_s * T_t + (T_t * \tilde{\mathbf{X}}_{it}) \boldsymbol{\gamma} + \epsilon_{ijst} \quad (2)$$

which includes controls for state of residence effects (ρ_s) and socio-demographic characteristics (\mathbf{X}_{it}), such as cohort of entry and length of stay in the U.S., gender, age, education. Variables such as employment status, sector and occupation if employed, marital status, family composition or home ownership are left out because they are endogenous to the decision to naturalize and their inclusion could bias the estimated coefficients of other variables as well. The effects of state of residence and some of the personal

²²I estimate both linear probability models and probit models. As shown in section 5, the two specifications give similar results, so that some of the robustness checks are only presented for linear probability models.

characteristics are allowed to be different in 2000 from those estimated in 1990, by the inclusion of the interaction terms $\rho_s * T_t$ and $T_t * \tilde{\mathbf{X}}_{it}$, where $\tilde{\mathbf{X}}_{it}$ is a subset of \mathbf{X}_{it} . These terms are included to capture the effects of the factors listed in Section 3 and which may have an impact that differ based on state of residence or other observable characteristics. In this way, we avoid the effects of these factors to be picked-up by the interaction $\alpha_j * T_t$, as it would happen as long as immigrants coming from different countries tend to be concentrated in different states or to have different socio-demographic characteristics.

An expanded specification of the regression model that includes controls for individual socio-demographic characteristics does not only have the advantage to deliver more precise estimates and to strengthen the validity of the underlying identification assumption of the DD analysis, but it also addresses one further potential criticism of the Table 1 results. One might argue that naturalization rates are so higher for immigrant in the comparison group that it is unreasonable to expect this group to respond to changes in other factors affecting naturalization over the 1990s in the same way that immigrants from the target group do. Yet, naturalization rates are not so high in the comparison group when considering specific groups, such as younger or recent immigrants.

4.3 Data: sample restrictions and variables definition

In this paper I use microdata from the 1990 and 2000 U.S. Census, specifically the Integrated Public Use Microsample Series (IPUMS) files (Ruggles and Sobek (2003)). I combine the 5 percent samples with the 1 percent samples.²³ I restrict the sample to foreign-born people who were at least 18 when they arrived in the U.S. and who have resided there for at least 5 years (3 years if married to a U.S. citizen). Given the interest in the voluntary decision to naturalize, adulthood at the time of entry is imposed in an attempt to reduce cases of immigrants deriving citizenship from their parents' naturalization. The restriction on length of stay in the U.S. ensures that immigrants in the sample are eligible for naturalization, if they entered in the U.S. as legal permanent residents. When applying these restrictions, I am left with a sample of 1,342,300 individual observations for immigrants not younger than 21, of which 519,249 are immigrants residing in the U.S. in 1990 since at least 1986, and 823,051 are immigrants in the U.S. in 2000 and entered not later than 1996.

²³They are respectively 1-in-20 and 1-in-100 national random samples of the population.

These sample restrictions, though, might not be sufficient to identify immigrants eligible to naturalize. Not all foreign-born enumerated in the census are eligible for naturalization, even if they have resided in the U.S. long enough to meet residence requirements. Notably, ineligible foreign-born included in census are nonimmigrants and undocumented immigrants. The likelihood of including non-immigrants in the sample may be small because nonimmigrant aliens usually cannot stay in the U.S. longer than five years. The problem of illegal immigrants is more serious. To address this problem I propose two strategies. First, I restrict the analysis to immigrants in census 2000 who came to live in the U.S. before 1982, so that, even if entered illegally, they should have legalized under IRCA provisions²⁴ and become eligible to naturalize by the middle of the 1990s. To ensure comparability in average length of stay, immigrants in census 1990 are only considered if they entered before 1972. A second strategy is to reweigh individual data on the outcome variable (naturalization status) by the probability to be legal.

As explained in Appendix 1, estimates of the unauthorized immigrant population residing in the United States in different years, by country of origin, are used to define the probability of being legal, conditional on country of origin and census from which the observation is drawn. Ideally, we would like this probability to be conditioned on personal characteristics too, but estimates of the illegal population by socio-demographic characteristics are not available by year and country of origin.

The dependent variable is reported naturalization status. False report of citizenship has been shown to be a problem in the Consumer Population Survey (Passel and Clark (1997)), but it appears to be present in census as well. In census 1990 and 2000, between 3 and 4 percent of those who were at least 18 when they arrived in the U.S. and reported to be naturalized do not meet the residence requirement imposed by the law. This reporting problem is not a concern in my analysis, though, because the restriction on length of stay in the U.S. excludes these cases from the sample. Comparison of INS records and CPS data on naturalization also shows that, among long-term immigrants from Mexico and Central America, approximately one-third of those who reported to be naturalized citizens are likely not to be. This source of overreporting, if also present in census, would be a concern in my analysis only if overreporting changed over time. If overreporting stayed the same, then its effect would be differenced-out in time in the DD specification.

²⁴Two groups of immigrants were eligible for legalization under IRCA. Aliens who had been unlawfully residing in the United States since before January 1, 1982 (pre-1982 immigrants) and aliens employed in seasonal agricultural work for a minimum of 90 days in the year prior to May, 1986 (SAWs).

The socio-demographic characteristics included in the empirical specification are state of residence, education,²⁵ age,²⁶ gender, cohort of entry²⁷ and length of stay in the U.S.,²⁸ and they are mainly expressed by the use of dummies. Sixty-six specific countries or areas of origin are defined. Table 3 reports naturalization rates by year, country/region of origin and length of stay in the U.S., while Table 4 reports variable means by year and some country of origin (the 6 Latin American countries granting dual nationality in the 1990s, the others Latin American countries and all the other countries).

5 Results

5.1 Full sample

This section describes the estimated effect of recognizing dual citizenship on the decision to naturalize among immigrants residing in the U.S., when this effect is identified through variation between 1990 and 2000 in the set of countries granting dual nationality. Table 5 presents difference-in-differences estimates of the effect of dual nationality on the probability of naturalization, from both linear probability models and probit models. The treatment group is given by the six Latin American countries granting dual citizenship between 1991 and 1996 (Colombia, the Dominican Republic, Costa Rica, Ecuador, Brazil and Mexico) and the comparison group is given by all the other sending countries. Estimates in the first four columns indicate that granting dual citizenship increased the probability of naturalization between 1990 and 2000 among immigrants from countries in the treatment group of around 3 percentage points, which represents a relative effect of about 11 percent. The effect is similar in models that control for individual socio-demographic characteristics or not, and the results from linear and probit

²⁵I consider 7 possible educational attainments: at most 4th grade, 5th to 8th grade, 9th to 12th grade, high school degree, some college, Bachelor degree and at least a master degree.

²⁶I consider 8 age classes: less than 30, 31 to 35, 36 to 40, 41 to 45, 46 to 50, 51 to 55, 56 to 65 and more than 65.

²⁷I consider 11 cohort of entries in the U.S. (see Table 4).

²⁸Length of stay in the U.S. is in general controlled for through the inclusion of dummies. Only when splitting the sample by length of stay in the U.S. (section 5.2), I include a discrete variable reporting years of residence in the U.S. (average number of years for census 1990, where the year of entry in the U.S. is only available by classes).

models are very similar.²⁹ As shown in columns (4) and (5), the effect of dual citizenship was significantly larger for immigrants coming from Colombia (13 percentage points, or 37 percent), the Dominican Republic (7 percent or 22 percent), Costa Rica (9 percentage points or 22 percent) and Ecuador (13 percentage points or 33 percent) than for those coming from Brazil (3.5 percentage points or 9 percent) and from Mexico (1.5 percentage points or 6 percent). This result is what one would expect since Brazil and Mexico were the last countries to grant dual nationality, so that their nationals in 2000 had been exposed to the new law for fewer years than those from other countries, and they had a shorter period to change their behavior in response to a change in the law.³⁰ These results, though, are potentially biased by other factors confounding the effects of granting dual nationality, such as differential changes in the fraction of unauthorized immigrants among the total immigrant population from each country. Results in section 5.3 indicate that this is likely to be the case.

5.2 Analysis by length of stay in the U.S.

Table 6 presents difference-in-differences estimates of the effect of dual nationality on the probability of naturalization when the analysis is restricted to immigrants who have been in the U.S. *for at least twenty years*. As shown by a comparison between Table 5 and Table 6, the effect of dual citizenship was significantly larger for older cohort of immigrants (plus 10 percentage points or 24 percent) than for all immigrants (plus 3 percentage points or 11 percent). As for all immigrants, the effect of dual nationality is estimated to be larger, at least in absolute terms, among immigrants from those countries that granted dual nationality earlier in the 1990s. In this case, though, the effect is large also among Mexicans (plus 11-13 percentage points), as large as in other countries in proportional terms (30-33 percent). Only among older cohort of immigrants from Brazil, the effect of dual citizenship is not economically significant, nor statistically significant in the case of a linear

²⁹In a basic DD specification with no individual controls, the two models deliver the same exact estimates. In this case, the fitted probabilities from a LPM are simply the average N_{ijt} within each cell defined by treatment and time dummies. The fact that results from the two models are very similar when including other controls is not surprising given that all of the socio-demographic characteristics are controlled for through the inclusion of dummy variables for exclusive categories.

³⁰This effect is exacerbated by the large backlogs in naturalization applications in 1997 and 1998.

probability model.³¹ Overall, evidence that dual citizenship had large effects on the probability of naturalization among older cohort of immigrants can be interpreted as strong evidence of the disincentive effect that prohibition of dual nationality has on the propensity to naturalize. Immigrants who have been in the U.S. for more than 20 years and who have not naturalized are clearly facing a cost that prevents them from naturalizing, and they are the natural group where to look for identifying the effects of allowing dual citizenship. Moreover, for this group I am more confident that other factors affecting differential changes in naturalization rates across countries of origin should be controlled for and therefore should not bias the DD estimate. For example, the effects of welfare reform on the propensity to naturalize among this group, which is made up on average by older immigrants than the ones entered more recently (given the sample restriction on age at arrival), should be due, if present, to rules restricting access to Supplemental Security Income (SSI) among non-citizens. Given that SSI is a means-tested federal program for the aged (age 65 or older), blind or disabled people, the interaction terms between the year-2000 dummy and age and education should be controlling for changes in naturalization among those who want to keep eligibility for this program. More importantly, the presence of unauthorized residents should be less of a concern in this sample. The sample restriction on at least twenty years of residence in the U.S. ensures that all the foreign-born individuals observed in 2000 entered in the U.S. before 1982, which in turns guarantees that, if entered illegally, they could have legalized under the provisions of IRCA, and be eligible to naturalize by 1995. Immigrants observed in 1990 are only considered if they entered before 1970,³² which makes the samples from different censuses similar in terms of average length of stay in the United States,³³ and it also increases the likelihood that immigrants observed in 1990 are eligible to naturalize: first, illegal immigration to the United States was a growing phenomenon in the 1970s (Passel and Woodrow (1984)); second, many undocumented immigrants anticipate to become legal when they enter the United States because they are in a queue

³¹Inspection of the distribution of immigrants by years of residence in the U.S. (Table 4) reveals that a particularly low proportion of immigrants from Brazil have been in the U.S. for more than 20 years (in 2000, 22 percent versus 33 percent among immigrants from other countries in the treatment group), so that the case of Brazil is not the most relevant one when looking at older cohorts of immigrants.

³²I cannot restrict the sample to immigrants entered before 1972 and 1982 (respectively in census 1990 and census 2000) because in census 1990 I can only distinguish between people entered between 1965 and 1969 and those entered between 1970 and 1974.

³³This is necessary given that the naturalization rate among older cohorts of immigrants is on average much higher than among more recent immigrants (Table 3).

to get legal permanent residence through family reunification, so that longer length of residence decreases the probability of illegal status. A concern is that comparing pre-1980 immigrants in 2000 to pre-1970 immigrants in 1990 could not be appropriate because pre-1970 immigrants entered primarily under the quota system prior to the 1965 Amendments. This concern is big when comparing immigrants coming from different parts of the world, and it is addressed in section 5.4 by restricting the analysis to Latin American countries, which should have been affected more similarly by the change in immigration policy in 1965. The fact that results are similar when restricting the sample to Latin American countries (except for the case of Mexico) is then a strong robustness check for the results presented in this section.

Table 7 presents difference-in-differences estimates of the effect of dual nationality on the probability of naturalization when the analysis is restricted to immigrants who have been in the U.S. *for at most 15 years*. The naturalization rate among immigrants from countries in the treatment group decreased from 20 percent to 17 percent, while it slightly increased (from 35 to 36 percent) among immigrants from all other countries, and this delivers a DD estimate of -4.7 percent. The DD estimate increases but stays negative when controlling for individual socio-demographic characteristics. Columns (3) and (4) show that the negative DD estimate is driven by a relative decrease in the naturalization rate of recent Mexican immigrants, while the estimated DD coefficient is positive for Brazil, Colombia and Ecuador.³⁴ The case for Mexico stems against evidence from INS data on the recent surge in naturalizations among the Mexican-born (Figure 2), where at least half of them pertain to people that resided in the U.S. between 10 and 14 years.³⁵ In general, it is likely that results for recent immigrants are in some way biased by changing proportions of unauthorized aliens among the total immigrant population. The restriction on length of stay between 5 and 15 years means that the 1990 sample is made up of immigrants who entered between 1975 and 1985, and the 2000 sample is given by immigrants who entered between 1985 and 1995. Both groups are likely to include unauthorized immigrants, given that IRCA provisions do not apply to any of them. The direction of the bias depends on how the proportion of unauthorized

³⁴The DD coefficient for Costa Rica is neither economically nor statistically significant. Given that immigration from Costa Rica is relatively less recent than immigration from other countries in the treatment group, the case of Costa Rica should not be of major concern in this case.

³⁵The median years of residence of persons from North America (which includes Mexico) naturalizing in the 1990s were 11 for those naturalized in 1990, 14 in 1995, 11 in 1996 and 10 in 1998 and 1999 (INS Statistical Yearbooks, various years).

among recent immigrants has changed over time for each country of origin. Next section provides some evidence on this issue.

The fact that the DD estimates obtained on a sample of immigrants who have been in the U.S. for a shorter period are less supportive of a positive and strong relationship between dual nationality and naturalization should be interpreted with caution for one more reason other than the confounding effects of unauthorized entries. The naturalization decision among the pool of recent immigrants is more likely to be affected in the 1990s by some other factors than those we are able to control for in the empirical analysis. For example, visa backlogs for spouses and minor children of permanent resident aliens could justify increasing naturalization among recent immigrants interested in sponsoring relatives in the U.S., given that becoming a citizen moves your relatives up in the queue to get a green card. This incentive may vary by country of origin and bias the DD estimates.

5.3 A correction for the proportion of unauthorized aliens

Table 8 presents difference-in-differences estimates of the effect of dual nationality on the probability of naturalization when individual data on the outcome variable are weighted by the inverse of the probability to be legal, conditional on country of origin and year in which the individual is observed to reside in the United States. Appendix 1 provides details on how the probability of legal status is estimated. Intuitively, this weighting scheme gives more weight to observations for naturalized individuals from countries with a high share of unauthorized aliens among the total resident population in the United States. In practice, naturalization rates by country of origin calculated on data reweighted in this way are proxies for naturalization rates among the *legal* foreign-born population. A comparison between the first and the last two columns of Table 3 shows that naturalization rates corrected for the presence of unauthorized aliens are higher than without correction for all Latin American countries, which are historically the largest source countries for unauthorized immigration to the United States. The difference is particularly large for the countries in the treatment group, characterized by a very high concentration of the illegal population.³⁶

As reported in Table 8, granting dual citizenship increased the "cor-

³⁶The foreign-born population from Mexico, Colombia, the Dominican Republic, Costa Rica, Ecuador and Brazil represent 27 and 37 percent of the total foreign-born population counted in the 1990 and 2000 censuses (Table A1), while the unauthorized population from these same countries represent 63 and 75 percent of the total unauthorized population estimated to reside in the United States in 1990 and 2000 (Table 3).

rected" probability of naturalization between 1990 and 2000 among immigrants from Colombia, the Dominican Republic, Costa Rica, Ecuador and Brazil. The positive estimated effect is larger, both in absolute and in proportional terms, than the one estimated on data that do not correct for the presence of illegal immigrants in census totals. The same is true for recent immigrants, except than for Costa Rica. This result means that not accounting for the presence of illegal aliens in census data downward-biased the DD estimate of dual citizenship for these countries. On the contrary, the estimated coefficient for the interaction term *Mexico*year 2000* shows that the "corrected" probability of naturalization among Mexican-born people decreased between 1990 and 2000 relative to people from other countries.

Differences in the DD estimates on data with or without correction for the proportion of illegal aliens are due to country-specific trends in the probability of legal status.

In general, trends in the unauthorized population in the United States can be summarized as follow: the undocumented immigrant population increased in the early 1980s reaching a peak when IRCA was enacted (almost 5 million in early 1987). After the IRCA legalization program was completed at the end of 1988 the undocumented population had been reduced to its lowest level since the 1970s (2.2 million in 1988), but then it increased to a level of at least 3.4 million in 1992, up to 5 million in 1996 and 7 million in 2000.

Undocumented immigrants legalizing under IRCA are represented in census 1990 and they all entered before 1985,³⁷ so that the probability of legal status should be at a very low level in 1985 for those coming from countries that sent illegals to the U.S. in the 1970s and 1980s. Most of the nearly 2.7 million unauthorized residents who adjusted from unauthorized to temporary lawful residence in 1987 and 1988 under IRCA were granted lawful permanent residence in 1989-1992, so that they started to become to be eligible to naturalize in 1994. The probability of legal status in 1995, then, should be higher for populations that largely legalized under IRCA, and lower for those coming from countries sending large flows of illegal immigrants in 1988-1994.

Table A1 shows that the estimated probability of legal status is very low

³⁷Two separate legalization programs were mandated in the 1986 IRCA program. A general amnesty program for aliens who had been unlawfully residing in the United States since before 1982 (pre-'82 entrants), under which 1.6 million people legalized. The second program, applied only to individuals employed in seasonal agriculture work (SAWs) for a minimum of 90 days in the year prior to May, 1986, legalized another 1.1 million immigrants.

in both 1990 and 2000 among Mexicans, but that it increases from 0.42 to 0.58. This is due to the fact that the IRCA legalization program disproportionately involved foreign-born from Mexico: the unauthorized population from Mexico decreased from 2.86 million at passage of IRCA to 823 thousands in 1988, and was still less than half of its pre-IRCA total in 1992 (1,32 million). The probability of legal status slightly increased also among immigrants from the Dominican Republic, while it decreased for Costa Rica, Colombia, Ecuador, and it plunged from 0.86 to 0.59 for Brazil. This is due to a particularly sharp growth of the unauthorized population from these four countries over the 1990s (Table 3). These changes in the probability of legal status are mirrored in changes in the "corrected" naturalization rate between 1990 and 2000. The "corrected" naturalization rate decreases from 0.63 to 0.49 among people from Mexico, while it increases among people from the other countries in the treatment group. It increases for people from the Dominican Republic *despite* the slight increase in the probability of legal status, and it increases in Brazil *because* of the drop in the probability of legal status.

As regards the countries in the comparison group, the probability of legal status increases in most of the Latin American countries (with the notable exceptions of Nicaragua and Venezuela) and also on average in all the other countries. These estimated differential changes in the probability of legal status explain the differences between the DD estimates obtained on data with or without correction for the proportion of illegal aliens.

The result for Mexico is puzzling. Once we correct for changing proportion of the unauthorized population between 1985 and 1995, there is evidence of a relative drop between 1990 and 2000 in the likelihood of naturalization among Mexican-born immigrants relative to other ethnic groups. This evidence is hard to explain as a result of granting dual nationality rights, which would predict the opposite effect. Further investigation is needed to improve our understanding of the factors affecting the naturalization decision of Mexican-born people in the 1990s.

5.4 Only Latin American countries in the comparison group

Table 9 presents difference-in-differences estimates of the effect of dual nationality on the probability of naturalization when the control group is restricted to the Latin American countries not changing the law on dual citizenship. This group can be a better comparison group because of a variety of reasons, such as geographical proximity or more similar effects of the 1965 change in immigration policy. The results are similar to those obtained with

the larger comparison group, except for Mexico and Brazil. The naturalization rate among Mexican-born slightly decreased between 1990 and 2000, with the result being driven by the sample of recent immigrants. The DD estimate of dual nationality is not economically significant when restricting the sample to older cohort of immigrants, and this is at odds with the positive coefficient estimated when using as a comparison group the full set of countries. In the case of Brazil, the estimated DD coefficient is negative in both the full sample and the one restricted to older cohorts. Estimates in the sample of recent immigrants are not statistically significant, sometimes not even economically significant.

Table 10 presents results for the full sample and the sample of recent immigrants when the dependent variable is divided by the probability of legal status. Results are supportive of a positive impact of dual citizenship on naturalization for all countries except Mexico. The case of Mexico again is puzzling because it shows a relative decrease in the naturalization rate against the predictions and also common knowledge about increasing naturalizations among the Mexican-born population in the 1990s.

6 Conclusions

This paper explores whether or not recognition of dual nationality by sending countries positively affects the U.S. naturalization rate of immigrants from those countries. The empirical analysis draws on data from the 1990 and 2000 U.S. censuses and examines immigrants from the countries of Colombia, the Dominican Republic, Ecuador, Costa Rica, Brazil and Mexico, all of which changed their laws to permit dual citizenship in the 1990s. The estimates suggest that recognition of dual nationality by Colombia, the Dominican Republic, Ecuador, Costa Rica and Brazil positively affects the U.S. naturalization rate of immigrants from those countries. This result is robust to controls for other factors driving the propensity to naturalize over the 1990s and it is even stronger in magnitude when re-weighting the sample for the presence of unauthorized immigrants among those represented in census. On the other hand, results are mixed for the case of Mexico. This is not surprising for at least two reasons. First, estimates of the trend in the naturalization rate among Mexican-born individuals are the ones mostly at risk to be sensitive to the changing proportion of unauthorized immigrants in the United States and to changes over time in the over-reporting of naturalization status. Second, dual nationality in Mexico was approved only in March 1998, as a temporary and non-voting right, so that it is probably less

likely to find an impact of the law on the decision to naturalize as early as in 2000.

Evidence of a positive relationship between dual citizenship and naturalization, as the one arising from my estimates for immigrants from Colombia, the Dominican Republic, Ecuador, Costa Rica and Brazil, makes it interesting to explore further research issues. I plan to investigate the effect of dual citizenship on a broader set of outcomes, typically used as measures of assimilation in the society of the country of residence, such as home ownership, occupational status, wage growth. Evidence of a relationship between dual citizenship and these outcomes could be interpreted through the impact that dual citizenship has on naturalization. I actually plan to explore the possibility of using changes in dual citizenship laws as a way to identify exogenous variation in naturalization useful to study the consequences of naturalization on a variety of outcomes. The estimation results in this paper provide strong support that changes in dual citizenship laws can serve as a *relevant* instrument for naturalization. The fact that a change in the law allowing for dual nationality increases the likelihood of naturalizing by reducing a cost not related to the immigrant's unobserved characteristics should guarantee that changes in the law also satisfy the crucial requirement for a *valid* instrument.

There are also some open estimation issues. First, the results of my analysis are informative of a causal relationship between granting dual citizenship and propensity to naturalize only under the assumption that there is no reverse causality between the passage of the law by sending countries and factors that lead to an increase in the naturalization rate among those coming from these countries. Pressures from nationals abroad, the need for financial and human resources and forces of globalization spur sending countries to adopt dual nationality (Guarnizo (2001)). Recognition of dual nationality in two of the countries that are the focus of this paper (Colombia and the Dominican Republic) happened via bottom-up decision-making pathways, *i.e.* as a response to pressures from immigrants living in the United States (Jones-Correa (2001)). In general, even in cases in which changes in the law happened with little concerted pressure from the immigrant community abroad (Brazil and Costa Rica), there is a concern that upward trends in naturalization rates predate the passage of the law, or that some unobservable factors drive both of the two events. As a partial way to address this concern, I plan to run some tests on the relationship between time of passage of dual citizenship laws and trends in (legal) migration flows and naturalization petitions (from administrative data).

Second, there is a concern of self-selection in the individual claim of dual

citizenship. Home country regulations are neither a necessary nor sufficient condition for dual citizenship. In Canada, a minority of immigrants report dual nationality regardless of legal status and a majority of legal dual citizens never report dual nationality (Bloemraad (2004)). Given self-report of dual citizenship status, an analysis on Canadian censuses would allow to control for the observable characteristics of dual citizens. On the other hand, there could be an open concern of selection on unobservable characteristics. For this reason, in implementing an instrumental variable estimation of the effects of naturalization it is probably more reliable to only use variation in the laws by origin countries to identify variation in naturalization, instead of using self-reported dual-citizenship (as it would be feasible on Canadian census data).

In general, future research could explore the effects of dual citizenship on many more outcomes other than the ones related to the assimilation process in the U.S., such as return migration (temporary or permanent) or the decision to migrate in the first place. Also, it would be informative to learn more about the impact of the context in the receiving country on the meaning and consequences of dual citizenship. A first feasible approach, given availability of data, would be a comparison between the American and the Canadian case, *i.e.* between a country that "tolerates but does not endorse" dual citizenship and a country that explicitly allows it and advises immigrants that multiple citizenship is permitted.³⁸

7 Appendix 1: the unauthorized population

Ideally, we would be interested in estimating a model for

$$\Pr(N_{ijt} = 1 \mid \alpha_j, T_t, L_i)$$

which is the probability to be naturalized of an individual i who is a permanent legal resident ($L_i = 1$) born in country j , living in the U.S. in year t . Given that immigrant status is not reported in census, we can only

³⁸On the website of U.S. Citizenship and Immigration Services (<http://uscis.gov/graphics/services/natz/index.htm>) there is no mention at all of dual citizenship rights. On the contrary, there are many reminders of the Oath of Allegiance as a requirement for naturalization and the responsibilities it entails, but no mention of the fact that it has never been enforced. On the website of Citizenship and Immigration Canada, there is explicit mention to the right of dual citizenship recognized by the Canadian law, and there is a section devoted to explain the meaning of dual citizenship, when it does occur and which are its advantages and disadvantages (<http://www.cic.gc.ca/english/citizen/dual-info.html>).

estimate a model for the probability to be naturalized conditional on country of origin and year, which is $\Pr(N_{ijt} = 1 \mid \alpha_j, T_t)$. By integrating out the conditional probability with respect to L , we get:

$$\Pr(N_{ijt} = 1 \mid \alpha_j, T_t) = \Pr(L_i = 1 \mid \alpha_j, T_t) \Pr(N_{ijt} = 1 \mid \alpha_j, T_t, L_i = 1) + \Pr(L_i = 0 \mid \alpha_j, T_t) \Pr(N_{ijt} = 1 \mid \alpha_j, T_t, L_i = 0)$$

Given that $\Pr(N_{ijt} = 1 \mid \alpha_j, T_t, L_i = 0) = 0$, we are left with:

$$\Pr(N_{ijt} = 1 \mid \alpha_j, T_t, L_i = 1) = \frac{\Pr(N_{ijt} = 1 \mid \alpha_j, T_t)}{\Pr(L_i = 1 \mid \alpha_j, T_t)}$$

I estimate the probability of legal status, $\Pr(i = \text{legal} \mid \alpha_j, T_t)$ through the proportion of legal permanent residents over the total immigrant population from country j ;, i.e. as

$$\Pr(L_i = 1 \mid \alpha_j, T_t) \simeq \left(\frac{\# \text{ legal}}{\# \text{ total}} \right)_{jt} = \left(\frac{\# \text{ legal}}{\# \text{ legal} + \# \text{ unauthorized}} \right)_{jt}$$

The first step was to estimate $(\# \text{ unauthorized}_{jt})$, the number of unauthorized residents by country of origin living in the U.S. in 1990 or in 2000, who were already in the U.S. in 1985 and 1995 respectively . This is due to the fact that my analysis is restricted to foreign-born people in census 1990 and 2000 who meet the residence requirement for naturalization (5 years, reduced to 3 only for those married to a U.S. citizen). Estimates of the unauthorized population are developed by the INS and available for different dates.

To get an estimate of the unauthorized population in the U.S. in 1990 but entered before 1985 I use the following components:

1. I start with the estimated number of unauthorized residents in October 1988, which distinguishes between those who entered before 1982 and those who entered between January 1982 and October 1988 (Warren (1995))
2. I add to each component of (1) an estimate of those who legalized under the provisions of IRCA, respectively as pre-'82 entrants and as SAW's

3. I calculate the flows of undocumented who entered in the three years 1982, 1983 and 1984 as the fraction $\frac{36}{81}$ of the total flows of undocumented who entered in the 81 months between January 1982 and October 1988.
4. I estimate the undocumented population resident in the U.S. in October 1988 but entered before 1985 as the sum of all the pre-'82 undocumented entrants and the 1982-1984 flows of undocumented estimated in (3)
5. The estimates of the undocumented population in 1985 still resident in the U.S. in October 1988 are adjusted "forward" to the census date (April 1990) by assuming an emigration rate over 17 months of 11 percent.

To get an estimate of the unauthorized population residing in the U.S. in 2000 but entered before 1995 I use the following components:

1. I start with the estimated number of unauthorized residents in 1990 and in 2000 (U.S. Immigration and Naturalization Service (2002))
2. I estimate the flows of unauthorized aliens entered between 1990 and 1994 as half of the unauthorized population in 2000 entered between 1990 and 1999 (assumed to be 78 percent of the unauthorized population in 2000, as it is for the total in Table 3, U.S. Immigration and Naturalization Service (2002))
3. I calculate the unauthorized population in 2000 who entered before 1995 as the sum of the 1990-1994 flows in (2) and 43 percent of the unauthorized population in 2000 entered before 1990 (as for the total in Table 3, U.S. Immigration and Naturalization Service (2002))

The second step was to define ($\# total_{jt}$), the total foreign-born population by country of origin, as 1990 / 2000 Census counts of the foreign-born population by country of origin entered at least five years before, adjusted for estimated undercount. I assume a 20 percent undercount rate of the illegal foreign-born population in census 1990 (Costanzo, Davis, Irazi, Goodkind, and Ramirez (2001)) and a 10 percent undercount rate in census 2000 (Robinson (2001)). The rate of census undercount was set at one-fourth of the rate of unauthorized residents.

These assumptions allow to calculate ($\# legal_{jt}$) in census 1990 as:

$$\# \text{ legal}_{jt} = \frac{(\text{census} \# \text{ total}_{jt} - 0.8 \# \text{ unauthorized}_{jt})}{0.95}$$

and in census 200 as:

$$\# \text{ legal}_{jt} = \frac{(\text{census} \# \text{ total}_{jt} - 0.9 \# \text{ unauthorized}_{jt})}{0.975}$$

In these calculations nonimmigrant residents (temporary workers, students, etc.) are assumed not to be included in census totals. This assumption is taken for simplicity but it is supported by the fact that the likelihood of including nonimmigrants in a sample of foreign-born who have entered at least five years before is small because temporary residents usually cannot stay more than five years.

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Table 2
Estimated Unauthorized Resident Population, by country of Origin: 1990 and 2000 (*in thousands*)

Country of origin	Unauthorized population		Change, 1990 to 2000	
	1990	2000	in levels	% relative to 1990
Mexico	2,040	4,808	2,768	136
CostaRica	5	17	12	240
DominicanRepublic	46	91	45	98
Brazil	20	77	57	285
Colombia	51	141	90	176
Ecuador	37	108	71	192
other Central and South America	750	866	116	15
excluding El Salvador and Nicaragua	402	656	254	63
Canada	25	47	22	88
Europe	191	123	-68	-36
Asia	311	500	189	61
Africa	82	131	49	60
Oceania	10	23	13	130
All countries	3,500	7,000	3,500	100

Sources: INS (2002)

Table 3: Naturalization rate (naturalized citizens over total immigrants) by country of origin, 1990-2000

	1990	2000	at least 20 years in the US		at most 15 years in the US		divided by prob(legal) ^(a)	
			1990	2000	1990	2000	1990	2000
Treatment group								
Mexico	0.27	0.28	0.39	0.49	0.20	0.15	0.63	0.49
Costa Rica	0.40	0.52	0.55	0.77	0.24	0.24	0.46	0.65
Dominican Republic	0.31	0.41	0.50	0.67	0.21	0.26	0.35	0.45
Brazil	0.36	0.34	0.62	0.64	0.16	0.22	0.41	0.57
Colombia	0.35	0.55	0.58	0.81	0.19	0.31	0.44	0.71
Ecuador	0.30	0.43	0.45	0.71	0.17	0.20	0.40	0.60
ALL	0.28	0.32	0.42	0.53	0.20	0.17	0.59	0.51
Other Latin America								
Belize	0.40	0.59	0.63	0.77	0.29	0.29	0.63	0.67
El Salvador	0.20	0.30	0.52	0.60	0.15	0.13	0.81	0.46
Guatemala	0.24	0.29	0.48	0.64	0.16	0.13	0.59	0.43
Honduras	0.35	0.34	0.69	0.74	0.20	0.17	0.58	0.59
Nicaragua	0.27	0.36	0.65	0.75	0.15	0.19	0.49	0.74
Panama	0.63	0.65	0.81	0.81	0.41	0.41	0.67	0.70
Cuba	0.48	0.69	0.65	0.89	0.19	0.31	0.49	0.70
Haiti	0.31	0.53	0.63	0.75	0.20	0.34	0.44	0.61
Jamaica	0.49	0.63	0.74	0.80	0.31	0.44	0.55	0.66
British West Indies	0.46	0.59	0.66	0.79	0.30	0.36	0.56	0.64
Argentina	0.52	0.61	0.72	0.81	0.25	0.29	0.56	0.67
Bolivia	0.44	0.50	0.75	0.84	0.23	0.23	0.66	0.62
Chile	0.42	0.50	0.68	0.73	0.24	0.23	0.48	0.60
British Guyana	0.53	0.70	0.83	0.88	0.42	0.55	0.60	0.75
Peru	0.38	0.48	0.66	0.81	0.23	0.28	0.47	0.58
Venezuela	0.28	0.36	0.61	0.67	0.18	0.19	0.36	0.54
ALL	0.41	0.51	0.66	0.80	0.22	0.26	0.56	0.61
Other countries								
Canada	0.59	0.47	0.71	0.63	0.14	0.18	0.62	0.49
Atlantic Islands	0.47	0.50	0.69	0.69	0.31	0.32	0.65	0.55
Northern Europe	0.68	0.47	0.79	0.64	0.11	0.11	0.69	0.48
UkIreland	0.60	0.53	0.75	0.69	0.16	0.19	0.62	0.53
Western Europe	0.70	0.61	0.81	0.77	0.21	0.20	0.71	0.63
Southern Europe	0.69	0.68	0.82	0.77	0.30	0.33	0.71	0.70
Germany	0.74	0.66	0.82	0.77	0.22	0.21	0.74	0.66
Eastern Europe	0.79	0.67	0.89	0.87	0.46	0.37	0.87	0.71
exUSSR	0.83	0.67	0.89	0.89	0.67	0.57	0.83	0.71
China	0.60	0.60	0.84	0.91	0.41	0.40	0.63	0.67
HongKong	0.65	0.73	0.86	0.94	0.53	0.56	0.66	0.75
Taiwan	0.55	0.72	0.94	0.94	0.44	0.47	0.56	0.73
Japan	0.45	0.43	0.65	0.64	0.13	0.12	0.46	0.45
Korea	0.54	0.58	0.88	0.85	0.41	0.32	0.54	0.61
Cambodia	0.28	0.53	0.79	0.71	0.27	0.36	0.28	0.55
Indonesia	0.55	0.55	0.69	0.75	0.28	0.29	0.58	0.60
Laos	0.21	0.49	0.40	0.68	0.21	0.31	0.22	0.50
Malaysia	0.39	0.34	0.73	0.73	0.31	0.19	0.52	0.41
Philippines	0.69	0.72	0.87	0.91	0.56	0.52	0.74	0.75
Singapore	0.40	0.35	0.76	0.78	0.24	0.16	0.58	0.50
Thailand	0.42	0.52	0.61	0.68	0.29	0.27	0.43	0.53
Vietnam	0.56	0.67	0.80	0.90	0.55	0.52	0.57	0.67
Afganistan	0.36	0.67	0.77	0.82	0.33	0.55	0.41	0.69
India	0.49	0.56	0.74	0.84	0.35	0.35	0.52	0.60
Bangladesh	0.42	0.49	0.76	0.86	0.33	0.39	0.72	0.60
Pakistan	0.53	0.58	0.83	0.88	0.41	0.43	0.75	0.64
other Southwest Asia	0.63	0.67	0.82	0.92	0.53	0.46	0.69	0.76
Iran	0.37	0.69	0.82	0.82	0.28	0.55	0.45	0.72
Iraq	0.63	0.68	0.93	0.90	0.51	0.43	0.66	0.72
Israel	0.68	0.69	0.89	0.89	0.50	0.48	0.78	0.71
Jordan	0.68	0.70	0.88	0.91	0.58	0.53	0.76	0.75
Kuwait	0.35	0.49	0.76	0.76	0.33	0.39	0.64	0.67
Lebanon	0.66	0.74	0.91	0.92	0.54	0.57	0.74	0.75
Syria	0.64	0.71	0.91	0.94	0.45	0.51	0.69	0.73
other Middle East	0.60	0.57	0.86	0.83	0.40	0.34	0.67	0.67
Turkey	0.63	0.62	0.86	0.88	0.31	0.35	0.66	0.66
Northern Africa	0.67	0.70	0.89	0.92	0.50	0.47	0.76	0.77
West Africa	0.24	0.49	0.50	0.73	0.19	0.31	0.49	0.64
East Africa	0.40	0.51	0.69	0.76	0.32	0.37	0.49	0.59
Central Africa	0.32	0.36	0.67	0.65	0.27	0.22	0.63	0.62
Southern Africa	0.58	0.55	0.82	0.82	0.48	0.33	0.67	0.59
Australia	0.36	0.33	0.62	0.54	0.08	0.08	0.37	0.33
New Zealand	0.35	0.38	0.64	0.62	0.11	0.15	0.40	0.39
Pacific Islands	0.48	0.55	0.74	0.73	0.40	0.40	0.61	0.75
ALL	0.63	0.62	0.81	0.80	0.39	0.40	0.66	0.65

Sources. Census 1990 (1% and 5%) and Census 2000 (1% and 5%)

Restrictions. Foreign-born individuals who arrived in the U.S. at least 18 and who have resided in the U.S. at least 5 years (3 if married to a U.S. citizen)

Notes. (a) see Appendix 1 and Table A1

Table 4: Variable Means for Foreign-born by Region or Country of origin^(a), 1990-2000

Variable	1990								2000							
	Mexico	Costa Rica	Dominican Republic	Brazil	Colombia	Ecuador	other Latin America	other countries	Mexico	Costa Rica	Dominican Republic	Brazil	Colombia	Ecuador	other Latin America	other countries
entered in the U.S.																
before 1950	0.06	0.04	0.01	0.06	0.01	0.01	0.02	0.20	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.04
1950-1959	0.07	0.06	0.02	0.08	0.03	0.05	0.05	0.13	0.03	0.05	0.01	0.03	0.02	0.02	0.03	0.09
1960-1964	0.06	0.16	0.09	0.11	0.09	0.10	0.11	0.08	0.03	0.09	0.04	0.04	0.05	0.05	0.05	0.05
1965-1969	0.09	0.16	0.15	0.13	0.16	0.19	0.16	0.09	0.04	0.11	0.07	0.05	0.09	0.10	0.08	0.07
1970-1974	0.19	0.20	0.16	0.12	0.19	0.22	0.16	0.11	0.09	0.11	0.07	0.04	0.10	0.10	0.09	0.08
1975-1979	0.25	0.13	0.21	0.14	0.17	0.17	0.15	0.16	0.12	0.09	0.10	0.05	0.10	0.08	0.09	0.12
1980-1981	0.15	0.12	0.16	0.12	0.18	0.12	0.20	0.10	0.07	0.07	0.07	0.04	0.09	0.07	0.11	0.07
1982-1984	0.13	0.11	0.19	0.20	0.16	0.12	0.14	0.11	0.07	0.07	0.10	0.07	0.09	0.07	0.09	0.08
1985-1990	0.01	0.02	0.01	0.04	0.02	0.01	0.01	0.01	0.32	0.22	0.30	0.37	0.28	0.27	0.28	0.22
1991-1994	-	-	-	-	-	-	-	-	0.20	0.17	0.23	0.26	0.16	0.22	0.16	0.18
1995-1997	-	-	-	-	-	-	-	-	0.01	0.02	0.01	0.03	0.01	0.01	0.01	0.01
Years in the U.S.																
0 to 5	0.01	0.02	0.01	0.04	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.03	0.01	0.01	0.01	0.01
6 to 9	0.27	0.22	0.35	0.32	0.34	0.24	0.34	0.21	0.27	0.22	0.29	0.33	0.21	0.28	0.22	0.23
11 to 15	0.25	0.13	0.21	0.14	0.17	0.17	0.15	0.16	0.25	0.16	0.24	0.31	0.23	0.21	0.22	0.17
16 to 20	0.19	0.20	0.16	0.12	0.19	0.22	0.16	0.11	0.14	0.14	0.17	0.12	0.18	0.14	0.20	0.15
21 or more	0.28	0.43	0.27	0.38	0.29	0.36	0.34	0.51	0.32	0.46	0.29	0.22	0.37	0.36	0.36	0.44
Female	0.47	0.60	0.58	0.58	0.57	0.55	0.54	0.56	0.47	0.59	0.57	0.58	0.58	0.50	0.54	0.55
Education																
at most 4th grade	0.35	0.06	0.18	0.07	0.07	0.07	0.10	0.08	0.24	0.05	0.13	0.03	0.06	0.06	0.10	0.06
5th to 8th grade	0.32	0.16	0.27	0.07	0.10	0.14	0.18	0.13	0.32	0.14	0.23	0.06	0.10	0.17	0.16	0.08
9th to 12th grade	0.15	0.19	0.21	0.11	0.20	0.23	0.20	0.14	0.19	0.16	0.23	0.11	0.16	0.20	0.20	0.11
High School	0.09	0.24	0.18	0.24	0.27	0.26	0.21	0.21	0.13	0.25	0.19	0.24	0.27	0.26	0.22	0.20
Some College	0.05	0.17	0.08	0.18	0.16	0.15	0.13	0.13	0.06	0.19	0.12	0.19	0.18	0.17	0.14	0.14
Bachelors	0.03	0.14	0.06	0.23	0.15	0.11	0.12	0.20	0.03	0.15	0.07	0.24	0.16	0.10	0.12	0.25
Masters	0.01	0.05	0.02	0.11	0.06	0.04	0.06	0.12	0.01	0.06	0.04	0.13	0.08	0.04	0.05	0.16
Age																
30 or less	0.12	0.07	0.09	0.12	0.10	0.09	0.08	0.04	0.14	0.07	0.07	0.09	0.04	0.11	0.07	0.05
31 to 35	0.17	0.12	0.15	0.14	0.13	0.11	0.12	0.09	0.17	0.10	0.13	0.18	0.10	0.12	0.11	0.08
36 to 40	0.17	0.15	0.17	0.14	0.15	0.14	0.13	0.11	0.16	0.13	0.16	0.20	0.17	0.15	0.14	0.11
41 to 45	0.14	0.16	0.15	0.12	0.15	0.17	0.12	0.11	0.14	0.13	0.15	0.15	0.16	0.14	0.14	0.13
46 to 50	0.10	0.14	0.13	0.12	0.14	0.15	0.12	0.10	0.11	0.13	0.13	0.11	0.13	0.11	0.12	0.12
51 to 55	0.07	0.09	0.09	0.10	0.10	0.10	0.10	0.09	0.08	0.11	0.10	0.07	0.11	0.11	0.10	0.11
56 to 65	0.11	0.15	0.12	0.15	0.13	0.14	0.17	0.15	0.11	0.18	0.13	0.12	0.17	0.15	0.16	0.17
more than 65	0.12	0.14	0.10	0.12	0.08	0.11	0.17	0.31	0.08	0.16	0.11	0.08	0.12	0.12	0.17	0.23
State of residence ^(b)																
California	0.55	0.32	0.01	0.19	0.11	0.17	0.21	0.28	0.49	0.24	0.01	0.13	0.08	0.09	0.20	0.30
Florida	0.01	0.15	0.08	0.13	0.25	0.09	0.35	0.06	0.02	0.20	0.10	0.22	0.30	0.10	0.30	0.05
Illinois	0.06	0.02	0.00	0.03	0.02	0.04	0.02	0.05	0.06	0.01	0.00	0.01	0.02	0.04	0.01	0.05
New Jersey	0.00	0.09	0.11	0.12	0.14	0.14	0.07	0.06	0.01	0.12	0.14	0.12	0.15	0.19	0.06	0.06
New York	0.01	0.19	0.68	0.17	0.28	0.45	0.19	0.14	0.01	0.14	0.58	0.12	0.23	0.46	0.20	0.13
Texas	0.26	0.04	0.00	0.05	0.04	0.02	0.03	0.04	0.21	0.05	0.01	0.03	0.04	0.01	0.04	0.04
other State	0.12	0.19	0.11	0.31	0.14	0.10	0.13	0.37	0.21	0.23	0.16	0.37	0.18	0.10	0.18	0.36
Naturalized citizen	0.27	0.40	0.31	0.36	0.35	0.30	0.41	0.63	0.28	0.52	0.41	0.34	0.55	0.43	0.51	0.62
Number of observations	91,432	1,111	6,996	1,535	7,554	3,669	80,765	326,185	201,753	1,744	18,467	4,210	13,214	7,649	143,635	432,379

Sources. Census 1990 (1% and 5%) and Census 2000 (1% and 5%)

Restrictions. Foreign-born individuals who arrived in the U.S at least 18 and who have resided in the U.S. at least 5 years (3 if married to a U.S. citizen)

Notes. (a) 66 separate country/area of origin are defined in the regression analysis (b) all 50 States are separately defined in the regression analysis

Table 5: DD estimate of the impact of changes of dual citizenship laws on naturalization rate

Dependent variable: naturalization status

	(1) LPM / PROBIT	(2) LPM	(3) PROBIT	(4) LPM	(5) PROBIT
variables:					
treatment dummy * 2000	0.034*** (0.002)	0.037*** (0.002)	0.032*** (0.003)		
Mexico * year 2000	-	-	-	0.017*** (0.002)	0.011*** (0.003)
Costa Rica * year 2000	-	-	-	0.099*** (0.017)	0.094*** (0.020)
Dominican Republic * year 2000	-	-	-	0.074*** (0.006)	0.070*** (0.008)
Brazil * year 2000	-	-	-	0.035*** (0.013)	0.043*** (0.016)
Colombia * year 2000	-	-	-	0.137*** (0.006)	0.130*** (0.007)
Ecuador * year 2000	-	-	-	0.127*** (0.009)	0.136*** (0.011)
other explanatory variables:					
year effect	X	X	X	X	X
treatment dummy	X	X	X		
socio-demographic controls ^(a)		X	X	X	X
state fixed effects		X	X	X	X
country of origin fixed effects ^(b)				X	X
interactions with year 2000:					
age		X	X	X	X
education		X	X	X	X
state of residence		X	X	X	X

Sources. Census 1990 (1% and 5%) and Census 2000 (1% and 5%)

Restrictions. Foreign-born individuals who arrived in the U.S at least 18 and who have resided in the U.S. at least 5 years (3 if married to a U.S. citizen)

Notes. Number of observations: 1,342,300. Robust standard errors in parentheses. * statistical significance at the 90% level of confidence ** at the 95% level *** at the 99% level. For probit models, the table reports derivatives of the probability of being naturalized calculated at the mean of the sample.

Treatment group: Mexico, Costa Rica, Dominican Republic, Brazil, Colombia and Ecuador.

Control group: all the other countries not changing the law on dual nationality.

a) socio-demographic controls include gender, education, age, cohort of entry and length of stay in the U.S.

b) 66 country/area of origin are defined

Table 6: DD estimate of the impact of changes of dual citizenship laws on naturalization rate
Restriction: Immigrants who have been in the U.S. for at least 20 years

Dependent variable: naturalization status

	(1)	(2)	(3)	(4)	(5)
Model	LPM / PROBIT	LPM	PROBIT	LPM	PROBIT
variables:					
treatment dummy * 2000	0.103*** (0.003)	0.101*** (0.004)	0.095*** (0.004)		
Mexico * year 2000	-	-	-	0.131*** (0.004)	0.118*** (0.005)
Costa Rica * year 2000	-	-	-	0.179*** (0.027)	0.111*** (0.018)
Dominican Republic * year 2000	-	-	-	0.129*** (0.013)	0.074*** (0.009)
Brazil * year 2000	-	-	-	-0.008 (0.024)	-0.007*** (0.017)
Colombia * year 2000	-	-	-	0.182*** (0.012)	0.102*** (0.008)
Ecuador * year 2000	-	-	-	0.212*** (0.016)	0.138*** (0.012)
other explanatory variables:					
year effect	X	X	X	X	X
treatment dummy	X	X	X		
socio-demographic controls ^(a)		X	X	X	X
state fixed effects		X	X	X	X
country of origin fixed effects ^(b)				X	X
interactions with year 2000:					
age		X	X	X	X
education		X	X	X	X
state of residence		X	X	X	X

Sources. Census 1990 (1% and 5%) and Census 2000 (1% and 5%)

Restrictions. Foreign-born individuals who arrived in the U.S. at least 18 and who have resided in the U.S. at least 5 years (3 if married to a U.S. citizen)

Notes. Number of observations: 546,687. Robust standard errors in parentheses. * statistical significance at the 90% level of confidence ** at the 95% level *** at the 99% level. For probit models, the table reports derivatives of the probability of being naturalized calculated at the mean of the sample.

Treatment group: Mexico, Costa Rica, Dominican Republic, Brazil, Colombia and Ecuador.

Control group: all the other countries not changing the law on dual nationality.

a) socio-demographic controls include gender, education, age, cohort of entry and length of stay in the U.S.

b) 66 country/area of origin are defined

Table 7: DD estimate of the impact of changes of dual citizenship laws on naturalization rate
Restriction: Immigrants who have been in the U.S. for at most 15 years

Dependent variable: naturalization status

	(1)	(2)	(3)	(4)	(5)
	Model	LPM / PROBIT	LPM	LPM	PROBIT
variables:					
treatment dummy * 2000		-0.047*** (0.002)	-0.018*** (0.003)	-0.022*** (0.004)	
Mexico * year 2000		-	-	-0.047*** (0.003)	-0.088*** (0.004)
Costa Rica * year 2000		-	-	-0.007 (0.026)	-0.027 (0.034)
Dominican Republic * year 2000		-	-	0.035*** (0.008)	0.036*** (0.011)
Brazil * year 2000		-	-	0.047*** (0.015)	0.054*** (0.022)
Colombia * year 2000		-	-	0.079*** (0.009)	0.087*** (0.012)
Ecuador * year 2000		-	-	0.041*** (0.012)	0.041*** (0.017)
other explanatory variables:					
year effect		X	X	X	X
treatment dummy		X	X	X	X
socio-demographic controls ^(a)			X	X	X
state fixed effects			X	X	X
country of origin fixed effects ^(b)				X	X
interactions with year 2000:					
age			X	X	X
education			X	X	X
state of residence			X	X	X

Sources. Census 1990 (1% and 5%) and Census 2000 (1% and 5%)

Restrictions. Foreign-born individuals who arrived in the U.S at least 18 and who have resided in the U.S. at least 5 years (3 if married to a U.S. citizen)

Notes. Number of observations: 593,646. Robust standard errors in parentheses. * statistical significance at the 90% level of confidence ** at the 95% level *** at the 99% level. For probit models, the table reports derivatives of the probability of being naturalized calculated at the mean of the sample.

Treatment group: Mexico, Costa Rica, Dominican Republic, Brazil, Colombia and Ecuador.

Control group: all the other countries not changing the law on dual nationality.

a) socio-demographic controls include gender, education, age, cohort of entry and length of stay in the U.S.

b) 66 country/area of origin are defined

Table 8: Difference-in-differences estimate of the impact of changes of dual citizenship laws on naturalization rate

Dependent variable: naturalization status divided by probability to be legal (by census year and country of origin)

Sample	FULL			IMMIGRANTS WHO HAVE BEEN IN THE U.S. AT MOST 15 YEARS		
	(1)	(2)	(3)	(4)	(5)	(6)
interaction terms:						
treatment dummy * 2000	-0.092*** (0.003)	-0.064*** (0.004)		-0.185*** (0.004)	-0.130*** (0.005)	
Mexico * year 2000	-	-	-0.121*** (0.004)	-	-	-0.209*** (0.006)
Costa Rica * year 2000	-	-	0.169*** (0.021)	-	-	0.018 (0.031)
Dominican Republic * year 2000	-	-	0.085*** (0.007)	-	-	0.041*** (0.009)
Brazil * year 2000	-	-	0.237*** (0.017)	-	-	0.177*** (0.020)
Colombia * year 2000	-	-	0.210*** (0.008)	-	-	0.119*** (0.011)
Ecuador * year 2000	-	-	0.223*** (0.012)	-	-	0.079*** (0.016)
other explanatory variables:						
year effect	X	X	X	X	X	X
treatment dummy	X	X		X	X	
socio-demographic controls ^(a)		X	X		X	X
state fixed effects		X	X		X	X
country of origin fixed effects ^(b)			X			X
interactions with year 2000:						
age		X	X		X	X
education		X	X		X	X
state of residence		X	X		X	X

Sources. Census 1990 (1% and 5%) and Census 2000 (1% and 5%)

Restrictions. Foreign-born individuals who arrived in the U.S at least 18 and who have resided in the U.S. at least 5 years (3 if married to a U.S. citizen). Observations for immigrants from El Salvador, Guatemala, Bangladesh and Pakistan (Afghanistan and Iran in columns 3 through 6) are dropped.

Notes. OLS estimates. The treatment group includes Mexico, Costa Rica, Dominican Republic, Brazil, Colombia and Ecuador. The control groups is given by all the other countries not changing the law. Number of observations: 1,281,372 / 555,286. Standard errors in parentheses. * statistical significance at the 90% level of confidence ** at the 95% level *** at the 99% level

a) socio-demographic controls include gender, education, age, cohort of entry in the U.S. and length of stay in the U.S.

b) 66 country/area of origin are defined

Table 9: Difference-in-differences estimate of the impact of changes of dual citizenship laws on naturalization rate
Treatment group: Mexico, Costa Rica, Dominican Republic, Brazil, Colombia and Ecuador.
Control group: all the other countries Latin American countries

Dependent variable: naturalization status; Linear Probability Model

sample of immigrants	all			arrived before 1970 / 1980			arrived after 1975 / 1985		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
variables:									
treatment dummy * 2000	-0.064*** (0.003)	0.007*** (0.003)		-0.018*** (0.005)	0.042*** (0.006)		-0.079*** (0.003)	-0.015*** (0.004)	
Mexico * year 2000	-	-	-0.023*** (0.003)	-	-	0.003 (0.008)	-	-	-0.032*** (0.004)
Costa Rica * year 2000	-	-	0.024*** (0.017)	-	-	0.070** (0.027)	-	-	-0.033 (0.026)
Dominican Republic * year 2000	-	-	0.009 (0.007)	-	-	0.020*** (0.013)	-	-	0.003 (0.009)
Brazil * year 2000	-	-	-0.024* (0.013)	-	-	-0.109** (0.025)	-	-	0.019 (0.016)
Colombia * year 2000	-	-	0.081*** (0.006)	-	-	0.100*** (0.012)	-	-	0.050*** (0.009)
Ecuador * year 2000	-	-	0.050*** (0.009)	-	-	0.112*** (0.016)	-	-	-0.001 (0.012)
other explanatory variables:									
year effect	X	X	X	X	X	X	X	X	X
treatment dummy	X	X		X	X		X	X	
socio-demographic controls ^(a)		X	X		X	X		X	X
state fixed effects		X	X		X	X		X	X
country of origin fixed effects ^(b)			X			X			X
interactions with year 2000:									
age		X	X		X	X		X	X
education		X	X		X	X		X	X
state of residence		X	X		X	X		X	X
Number of observations	583,736	583,736	583,736	191,361	191,361	191,361	292,968	292,968	292,968

Sources. Census 1990 (1% and 5%) and Census 2000 (1% and 5%)

Restrictions. Foreign-born individuals who arrived in the U.S. at least 18 and who have resided in the U.S. at least 5 years (3 if married to a U.S. citizen)

Notes. Robust standard errors in parentheses. * statistical significance at the 90% level of confidence ** at the 95% level *** at the 99% level

a) socio-demographic controls include gender, education, age, cohort of entry in

b) 66 country/area of origin are defined

Table 10: Difference-in-differences estimate of the impact of changes of dual citizenship laws on naturalization rate
Treatment group: Mexico, Costa Rica, Dominican Republic, Brazil, Colombia and Ecuador.
Control group: all the other countries Latin American countries

Dependent variable: naturalization status divided by probability to be legal (by census year and country of origin)

Sample	FULL			IMMIGRANTS WHO HAVE BEEN IN THE U.S. AT MOST 15 YEARS		
	(1)	(2)	(3)	(4)	(5)	(6)
interaction terms:						
treatment dummy * 2000	-0.224*** (0.004)	-0.044*** (0.005)		-0.253*** (0.006)	-0.086*** (0.006)	
Mexico * year 2000	-	-	-0.179*** (0.009)	-	-	-0.224*** (0.010)
Costa Rica * year 2000	-	-	0.088*** (0.021)	-	-	-0.023 (0.032)
Dominican Republic * year 2000	-	-	0.032*** (0.008)	-	-	0.010 (0.011)
Brazil * year 2000	-	-	0.202*** (0.017)	-	-	0.133*** (0.021)
Colombia * year 2000	-	-	0.152*** (0.009)	-	-	0.077*** (0.012)
Ecuador * year 2000	-	-	0.152*** (0.012)	-	-	0.033** (0.016)
other explanatory variables:						
year effect	X	X	X	X	X	X
treatment dummy	X	X		X	X	
socio-demographic controls ^(a)		X	X		X	X
state fixed effects		X	X		X	X
country of origin fixed effects ^(b)			X			X
interactions with year 2000:						
age		X	X		X	X
education		X	X		X	X
state of residence		X	X		X	X

Sources. Census 1990 (1% and 5%) and Census 2000 (1% and 5%)

Restrictions. Foreign-born individuals who arrived in the U.S. at least 18 and who have resided in the U.S. at least 5 years (3 if married to a U.S. citizen). Observations for immigrants from El Salvador and Guatemala are dropped.

Notes. OLS estimates. Number of observations: 533,119 / 261,455. Standard errors in parentheses. * statistical significance at the 90% level of confidence ** at the 95% level *** at the 99% level

Table A1: Estimates of the probability of legal status by country/region of origin in 1985 and 1995

	1990				2000			
	census total foreign-born ^(a)	entered before 1985 ^(a)	unauthorized in 1985 still in the U.S. in 1990 ^(b)	probability legal status ^(d)	census total foreign-born ^(a)	entered before 1995 ^(a)	unauthorized in 1995 still in the U.S. in 2000 ^(c)	probability legal status ^(d)
Treatment group								
Mexico	4,262.90	3,005.62	2,011.10	0.42	9,163.46	6,545.55	2,922.92	0.58
Costa Rica	43.53	33.41	5.04	0.86	72.01	50.48	10.33	0.80
Dominican Republic	344.05	239.77	31.15	0.88	685.95	561.12	55.32	0.90
Brazil	82.02	42.31	6.25	0.86	209.61	109.05	46.81	0.59
Colombia	286.53	206.38	48.16	0.79	515.21	357.89	85.72	0.77
Ecuador	138.57	104.30	28.18	0.75	292.25	213.09	65.66	0.71
	5,157.59				10,938.49			
Other Latin America								
Belize	30.71	24.88	9.99	0.64	42.13	36.04	4.86	0.87
El Salvador	465.29	300.34	269.37	0.25	815.57	651.77	236.48	0.66
Guatemala	220.57	132.42	93.15	0.40	480.00	348.00	117.94	0.68
Honduras	106.31	63.63	28.18	0.61	281.43	185.64	83.89	0.57
Nicaragua	168.05	83.52	41.53	0.56	224.45	192.24	103.96	0.49
Panama	83.48	65.33	4.65	0.93	104.13	89.60	6.69	0.93
Cuba	737.93	688.41	2.77	1.00	870.20	723.57	7.30	0.99
Haiti	221.47	162.32	53.80	0.70	422.84	335.50	46.20	0.87
Jamaica	332.43	254.61	28.58	0.90	554.90	470.17	22.49	0.95
British West Indies	263.29	201.87	40.64	0.81	388.82	325.00	26.14	0.92
Argentina	94.72	73.91	6.25	0.92	126.14	94.37	9.12	0.91
Bolivia	29.84	18.27	6.92	0.66	50.25	37.11	7.90	0.80
Chile	56.49	43.98	6.13	0.87	80.62	61.99	10.33	0.84
British Guyana	119.34	85.69	10.48	0.89	212.37	180.72	13.37	0.93
Peru	144.44	93.52	19.58	0.81	275.11	208.80	37.08	0.83
Venezuela	41.59	26.85	6.25	0.79	106.08	59.59	20.67	0.67
Other countries								
Canada	739.59	662.63	36.19	0.95	820.71	661.70	28.57	0.96
Atlantic Islands	23.43	16.82	5.04	0.73	34.70	27.96	2.43	0.92
Northern Europe	160.74	133.32	3.11	0.98	134.80	102.37	2.13	0.98
UK and Ireland	808.98	695.91	26.40	0.96	831.37	704.97	6.08	0.99
Western Europe	372.86	323.19	3.90	0.99	382.85	306.29	8.21	0.97
Southern Europe	1,054.73	982.71	25.45	0.98	989.30	892.84	20.37	0.98
Germany	714.26	661.42	3.11	1.00	705.11	614.65	2.13	1.00
Eastern Europe	825.91	706.32	68.57	0.91	1,069.20	798.57	47.11	0.94
former USSR	394.49	297.31	0.40	1.00	881.08	585.28	30.09	0.95
China	534.23	363.12	17.01	0.96	997.30	723.92	69.91	0.91
Hong Kong	146.10	109.72	3.07	0.97	201.36	170.18	3.77	0.98
Taiwan	247.33	162.92	2.02	0.99	325.23	258.96	3.77	0.99
Japan	290.93	163.21	2.02	0.99	346.45	214.09	8.51	0.96
Korea	564.36	390.53	2.02	1.00	870.54	674.11	33.44	0.95
Cambodia	120.28	89.15	2.02	0.98	137.37	126.29	3.77	0.97
Indonesia	47.90	31.83	2.02	0.94	74.06	49.63	3.77	0.93
Laos	177.42	121.92	2.02	0.98	205.93	192.52	3.77	0.98
Malaysia	32.13	13.36	3.62	0.75	49.88	32.72	5.47	0.84
Philippines	914.42	674.01	54.78	0.92	1,374.21	1,157.06	51.67	0.96
Singapore	12.30	6.07	2.02	0.70	20.80	11.77	3.77	0.70
Thailand	106.91	73.88	2.02	0.97	168.85	135.01	3.77	0.97
Vietnam	538.60	404.43	2.02	1.00	992.00	841.47	3.77	1.00
Afghanistan	28.04	16.92	2.02	0.89	59.29	42.75	1.22	0.97
India	454.89	309.12	16.81	0.95	285.18	244.44	42.56	0.94
Bangladesh	21.50	10.77	5.04	0.58	92.11	64.45	10.33	0.81
Pakistan	86.12	53.53	17.50	0.70	112.97	89.27	15.81	0.90
other Southwest Asia	33.75	22.77	2.02	0.92	47.85	37.29	5.59	0.87
Iran	210.73	145.16	29.37	0.81	21.60	13.25	9.12	0.96
Iraq	44.02	40.03	2.02	0.95	107.73	91.26	3.77	0.94
Israel/Palestina	104.29	72.06	9.79	0.87	53.94	45.12	2.43	0.97
Jordan	30.64	22.15	2.44	0.90	51.30	29.08	2.43	0.94
Kuwait	8.60	3.87	2.02	0.54	81.72	55.48	3.77	0.73
Lebanon	88.75	63.66	7.02	0.90	178.16	119.25	1.22	0.99
Syria	37.30	25.24	2.02	0.92	273.97	168.93	1.22	0.97
other Middle East	34.01	18.76	2.02	0.90	196.72	106.03	4.38	0.85
Turkey	53.85	41.31	2.02	0.95	12.24	6.43	3.65	0.94
Northern Africa	102.69	76.08	9.41	0.88	62.43	39.02	12.04	0.90
West Africa	105.61	73.10	42.84	0.49	61.03	39.38	40.00	0.77
East Africa	79.93	48.85	10.11	0.81	22.97	15.82	15.08	0.86
Central Africa	9.80	5.71	3.18	0.51	63.58	49.78	2.92	0.57
Southern Africa	35.91	21.88	3.18	0.86	65.26	42.86	2.92	0.93
Australia	41.29	29.58	1.34	0.96	59.69	35.70	0.61	0.98
New Zealand	15.55	10.55	1.34	0.88	19.84	14.86	0.61	0.96
Pacific Islands	46.21	31.92	7.29	0.79	96.15	67.80	13.37	0.74

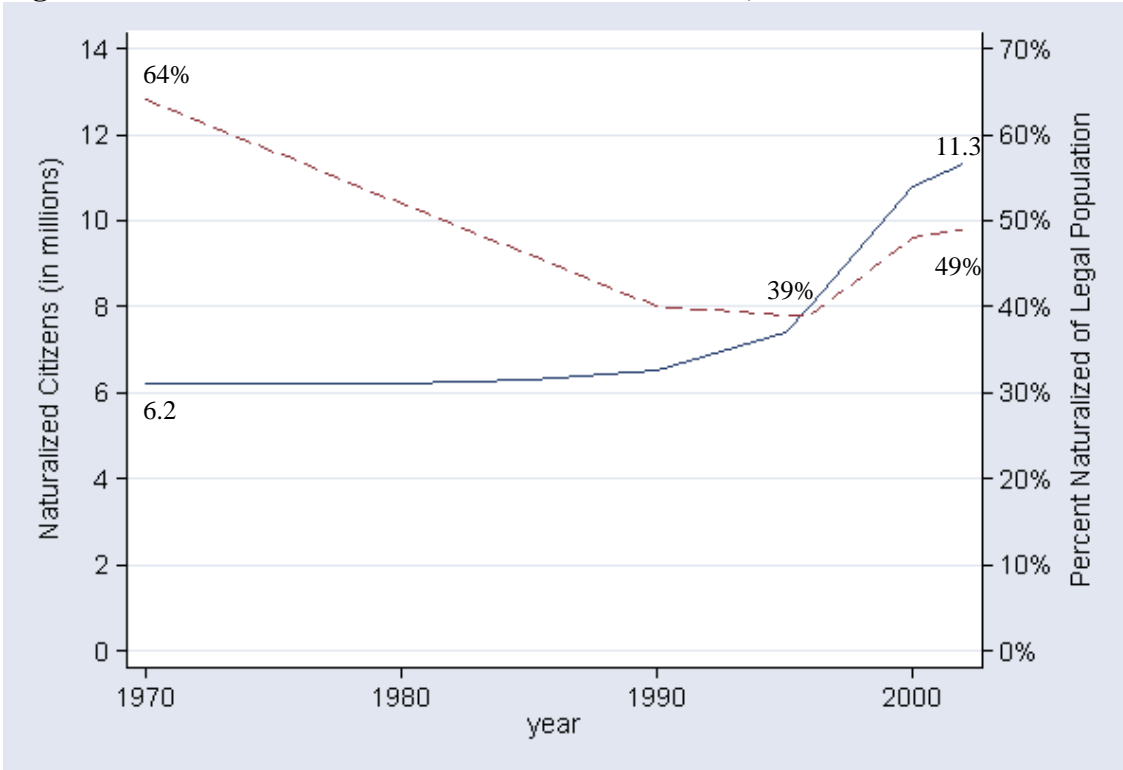
Notes. (a) Foreign-born population counted in the censuses (in thousands)

(b) estimated number of undocumented immigrants in 1985 still residing in the U.S. in 1990 (calculations based on estimates in Warren (1994))

(c) estimated number of undocumented immigrants in 1995 still residing in the U.S. in 2000 (calculations based on estimates in INS (2002))

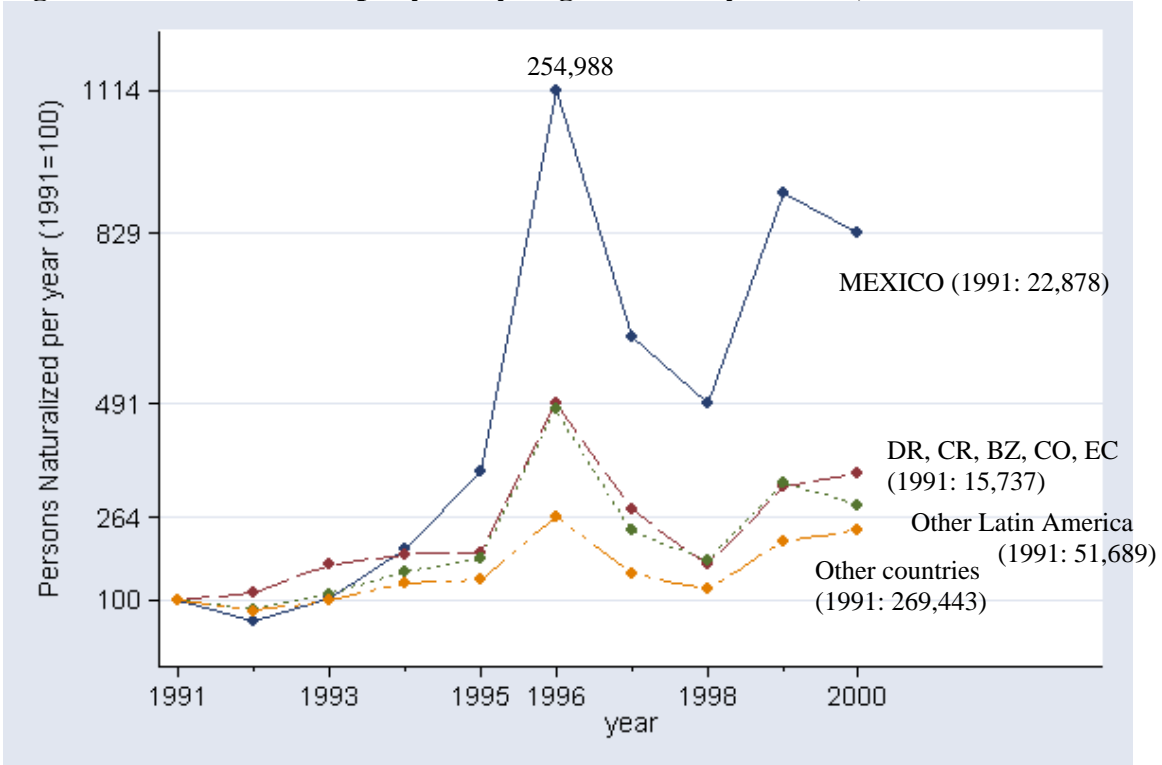
(d) legal / (legal+illegal) assuming a 20 (5) percent undercount rate for the illegal (legal) foreign-born population in census 1990; 10 (2.5) percent undercount rate in census 2000

Figure 1: Naturalized citizens and Naturalization Rate, 1970-2002



Source: Fig. 1, Fix, Passel and Sucher (2003). Urban Institute estimates on Census and CPS data.

Figure 2: Naturalizations per year by Region/Country of Birth, 1991-2001



Source: INS, 2001 Statistical Yearbook

DR: Dominican Republic, CR: Costa Rica, BZ: Brazil, CO: Colombia, EC: Ecuador