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Comments Welcome

*Crime and Immigration: Further Evidence on the Connection*

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April 2005

We appreciate the excellent research assistance of Yonita Grigorova and Kyung Park. Points of view expressed in this paper do not represent the official view of the Federal Reserve Bank of Chicago or any other entity. All errors are our own. Please do not cite without permission of the authors.

## *Crime and Immigration: Further Evidence on the Connection*

Despite the widespread perception of a link between immigration and crime, evidence available ten years ago suggested that cities that had experienced higher immigration over the 1980s had no higher crime rates than otherwise similar cities, and immigrant involvement in crime, as captured by their incarceration, was less than that of the native born, and much less than that of natives with similar characteristics. More recently arrived immigrants had the lowest comparative incarceration rates, despite relatively poor labor market outcomes. Nonetheless, incarceration rates, like other immigrant outcomes, appeared to converge toward that of the native born with time in the country. Since that research was conducted, crime rates have fallen considerably, immigration has increased, and new legislation affecting who is eligible to immigrate and the treatment of immigrants once they have arrived has been enacted. These new policies have the potential to affect who comes to the country and their activities once inside the U.S.

Analysis of newly available data supports the earlier conclusions that immigrants are less likely than natives to commit crimes. However, that gap is even larger in 2000, with foreign born having institutionalization rates 20% as large as the native born. These results stand in some contrast to conclusions about immigrant outcomes in labor markets, health status, and other arenas. We find little evidence that these findings are driven by the increased deportation of criminal aliens, but it may be that greater sanctions for non-citizens involved in crime have had a deterrent effect. However, we do not find substantial increases in the rate at which immigrants become citizens, as might be expected.

## *Crime and Immigration: Further Evidence on the Connection*

Ten years ago, immigration rates were high and crime rates were high and rising. Many observers posited a link between immigration and crime and legislation was enacted to increase criminal penalties for non-citizens. Despite the widespread perception of a link between immigration and crime, evidence available from a variety of sources suggested that: 1) cities that had experienced higher immigration over the 1980s had lower crime rates than otherwise similar cities, and 2) immigrant involvement in crime, as captured by their incarceration, was less than that of the native born, and much less than that of the native born with similar characteristics. More recently arrived immigrants had the lowest comparative incarceration rates, despite relatively poor labor market outcomes. Nonetheless, incarceration rates, like other immigrant outcomes, appeared to converge toward that of the native born with time in the country.

Many things have changed in the intervening 10 years. Crime rates have fallen, immigration has increased, and new legislation has been enacted that affects eligibility to immigrate and the treatment of immigrants once they have arrived. This new context and these policies have the potential to affect who comes to the country and their activities once inside the U.S. The policy and practice of detention and deportation of immigrants due to criminal activity precipitated by the 1996 Anti-Terrorism and Effective Death Penalty Act and the 1996 Welfare Reform Act particularly changed the incentives and punishments of criminal activity differentially for immigrants and the native born. Both of these pieces of legislation may have changed the incentives to become a U.S. citizen, which in turn is related to criminal punishments. During the same time period, changes in the labor market and elsewhere may have changed the returns to market work and exerted independent influence on migrant patterns and immigrant behavior.

These changes in the labor market, legal environment, and elsewhere likely interact in complicated ways to determine the incentives to commit crime and the probability of incarceration conditional upon criminal behavior. In this paper we analyze newly available data to see whether recent experience should lead us to revise our understanding of how immigration is related to crime. The new estimates strengthen earlier conclusions that immigrants are less likely than natives to commit crimes and that they assimilate with time in the United States, indicating some important differences between the 1990s and the 1980s in this regard. The differences between immigrants and natives are dramatic, and in some contrast to conclusions about immigrant outcomes in labor markets, health status, and other arenas. It is difficult to find definitive measures of deportation activity in order to assess the sensitivity of our measures to this policy. In our multiple attempts to account for deportation, we find little evidence that these findings are driven by the increased deportation of criminal aliens, but it may be that greater sanctions for non-citizens involved in crime have had a deterrent effect.

## I. Immigration and Criminal Activity

In a series of papers in the 1990s, Butcher and Piehl presented several stylized facts about the relationship between immigration and criminal activity. Analysis of city-level crime rates showed that the percent of a city's population that was foreign born was strongly correlated with the crime rate. However, this correlation appears to be due to some other factor associated with these high-crime cities (most of which are large, coastal, ports of entry), as changes in immigration are uncorrelated with changes in crime rate. The conclusion is the same whether these changes are measured over short or long time spans (Butcher and Piehl 1998b). Updated analyses along the same lines reveal the same general pattern for changes during the 1990s, with

the added emphasis that the estimated relationship between changes in crime rates and changes in immigration are statistically significantly negative for the more recent period.<sup>1</sup>

A second paper found interesting patterns across immigrant cohorts. Overall, immigrant males were much less likely to be institutionalized than native-born males in the United States. And, the cross-cohort patterns indicated a fair degree of assimilation with time in the country of immigrants toward the higher rates of natives. The lower observed institutionalization propensities of immigrants were particularly striking when demographic characteristics well-known to be higher correlated with crime (such as education) were held constant (Butcher and Piehl 1998a).

In contrast to the findings in the labor market literature at that time, this analysis found that more recent immigrants appeared to be increasingly positively selected with regard to the likelihood of incarceration. Using analytic techniques that will be described below and a variety of robustness checks, Butcher and Piehl concluded that their findings were not driven by biases such as that arising from the deportation of noncitizens with criminal records. In fact, in a related paper (Butcher and Piehl 2000), they found that noncitizens served longer in prison than comparable native-born citizens or other foreign born. This conclusion held when controlling for sentence length. That paper concludes that INS processes that might lead to deportation did not accelerate noncitizens through the state prison system but rather caused them to be held (e.g., not paroled or otherwise released) until the INS was able to take physical custody. Regardless of the particular mechanism at work, the estimates of that paper suggest that measures of institutionalization may overstate the extent of underlying criminal activity among noncitizens.

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<sup>1</sup> Details are available from the authors upon request.

Noncitizens may also be institutionalized while awaiting deportation, or while the process for deportation evolves (included waiting for hearings). Legomsky (1999) reports that following the 1996 Anti-terrorism and Effective Death Penalty Act, “mandatory detention now applies to almost all noncitizens who are inadmissible or deportable on crime-related grounds – not just to those convicted of aggravated felonies (p.532).” Thus there are several reasons that noncitizens may have higher probabilities than natives of being observed in an institutional setting.<sup>2</sup> The INS has been surprisingly ineffective at removing criminal aliens. Shuck and Williams (1999) note that there is tremendous political support for removing criminal aliens, and large fiscal incentives for doing so. Nonetheless, their best assessment of the evidence is that the INS has removed “fewer than twenty percent of the nearly 300,000 criminal aliens estimated to be already under law enforcement supervision.” In their assessment of the political economy around the removal of criminal aliens, Shuck and Williams find that the federal government focused on procedural reforms rather than identification and information management, which should have been first order concerns. They attribute the policy failure to a misalignment of incentives between federal and state (and local) agencies. A recent New York Times investigation reported that city sanctuary policies, such as the one in Los Angeles that prohibits police from inquiring about immigration status unless there is a formal charge of a crime, mean that those who have been deported can frequently return to the United States and resume their lives (LeDuff 2005). Regardless of the reasons behind the implementation problems, the existence of these inefficiencies is central to interpretation of the results of any analysis of criminal justice outcomes for immigrants.

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<sup>2</sup> Of course there are other factors at work. Immigrants may be less likely to report crimes, so perpetrators of these crimes may have lower rates of detection (see Butcher and Piehl 1998a for some discussion). Also, bail decisions may be influenced by citizenship status. To the extent that information is available on these possibilities, we include in the discussion of the results in section V of the paper.

The scholarly literature on immigration is much more voluminous with regard to wages and employment. Immigrants' labor market outcomes receive a great deal of scholarly attention because, in part, labor market outcomes are thought to be linked to other important outcomes. The economic model of crime (Becker 1968), for example, explicitly posits that those who have poor labor market opportunities, *ceteris paribus*, will be more likely to engage in criminal activity. Similar arguments suggest that those with poor labor market outcomes may have poor outcomes along any number of other dimensions. Since immigrants typically have poor labor market outcomes relative to similar natives, researchers and policy makers have naturally inquired whether immigrants have poor outcomes relative to natives in other areas that society cares about.

Borjas (2004) provides an excellent accounting of the experience of immigrants in the U.S. labor market; only a broad summary of those results is provided here for males, to provide a context for the results to follow. Male immigrants have slightly lower employment rates, but wage rates that substantially below those of the native born. While in 1960 immigrants' wages were 6.5% above those of natives, by 2000 they were 19% lower. Those who arrived most recently have larger deficits: in 1960 those who arrived recently earned 9% below natives, a gap that expanded to 38% in 1990. Interestingly, the most recent cohort in 2000 appeared much better, a fact which can be attributed to engineers and computer scientists (Borjas and Friedberg 2004). In addition to, and because of, beginning at lower relative earnings, immigrant cohorts arriving after 1970 are not expected to fully assimilate to the higher native earnings rates. A related finding is that those who immigrate at later ages experience less assimilation over time.

Given their relatively poor labor market outcomes, one might predict that immigrants' use of welfare is higher than that of similar natives. In general, one finds that immigrants are less

likely to use welfare than similar natives (Butcher and Hu 2000). Home ownership, often cited as an important feature in American society, both as a stabilizing influence and a generator of wealth, also differs between immigrants and the native born. Immigrants are less likely to own homes than the native born, and this gap widened between 1980 and 2000. However, this gap is mainly driven by location choice and country of origin of immigrants. Increases in immigrant enclaves in the future may be expected to generate increases in demand for owner-occupied housing (Borjas 2002). Additional research has examined the participation of immigrants in mainstream financial institutions. Use of banks and participation in financial markets may be important ways that individuals can improve their financial well-being. If immigrants are reluctant to participate in these markets, then they may have a more difficult time assimilating to U.S. standards of living over time. Recent evidence suggests that immigrants are less likely to participate in financial markets, that these differences tend to persist, and may be driven by immigrants' experience with financial institutions in their countries of origin (Osili and Paulson 2004a, b).

Taken together, this research gives a much richer picture of how immigrants fare in the United States, how that has changed over time, and how immigrants are likely to affect the United States. Our work on immigration and crime is part of this literature that examines a rich array of immigrants' outcomes in the United States. In some cases, these outcomes are quite different from what one might expect given immigrants' labor market outcomes.

## II. Immigrants, the Native Born, and Institutionalization across Three Decades

Descriptive statistics for native-born citizens and immigrants<sup>3</sup> in our extracts of the 5% Public Use Microsamples of the U.S. Census in 1980, 1990, and 2000 are reported in Table 1.<sup>4</sup> We follow the convention of Butcher and Piehl (1998b) and restrict our attention to only males aged 18-40, a population for which the coarse Census measure of “institutionalization” reasonably approximates “incarceration.”<sup>5</sup> Because of the age restriction of the samples, it is not surprising that the mean age of the native born is close to that of immigrants.

The educational distributions are very different for immigrants and the native born. In 1980, the proportions with some college and with a college degree were quite similar across the two groups, while among immigrants the proportion without a high school degree was nearly twice that of natives. The educational distribution for immigrants is essentially unchanged over the past twenty years. Over this same period, the native born have greatly increased their education – in 2000 only 12% had less than a high school degree and there was a 50% increase in the number with some college education. By the end of the period under study, immigrants were nearly three times as likely as the native born to have less than a high school education. The fraction immigrant in the sample nearly tripled over this period – from approximately 6% to about 17% -- and it is perhaps remarkable that the populations are not even more different.

As has been well documented elsewhere, the racial and ethnic distributions for immigrants and natives are quite different, and changing over time. Immigrants are much less likely than natives to be white, non-Hispanic and much more likely be Asian and Hispanic.

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<sup>3</sup> We omit those born in outlying areas of the United States and those born abroad to U.S. citizens in order to simplify the analysis.

<sup>4</sup> Throughout the paper we reported estimates using the person weight reported by the Census (there are no weights in 1980).

These differences have grown in magnitude over time, with nearly 60% of immigrants in 2000 reporting their ethnicity as Hispanic and over 20% defining their race as Asian or Pacific Islander.<sup>6</sup>

In our analyses of immigrants over time, we will categorize immigrants by their year of arrival in the United States, generally grouping into five year cohorts. These cohorts vary by size both because of immigration and emigration patterns and also due to the age restriction on the sample. Recent cohorts contain tens of thousands of members, while the earliest cohorts available in any given Census contain about a thousand members, all at the oldest ages in the sample. For our analyses we emphasize those who arrived in the U.S. more recently both because of their relevance to policy discussions and for statistical precision.

The incidence of citizenship is highly correlated with how long immigrants have been in the country. Overall about 30% of immigrants are naturalized citizens of the United States, and this number fell somewhat over the past twenty years. The bottom of Table 1 shows that the rate of citizenship is strongly related to when immigrants arrived: in 1980, 80% of those who arrived before 1960 were naturalized. Because of this relationship and because citizenship determines key dimensions of criminal punishment, this variable will be of particular interest in the analyses to come.

Table 2 reports descriptive statistics about institutionalization for immigrants and the native born. The first row reports the proportion in an institution on the day of the census, a number which has risen from 1.3% of the population of young men in 1980 to 3% in 2000. When this population statistic is disaggregated, tremendous variation is revealed. For example,

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<sup>5</sup> See Butcher and Piehl (1998b) for a comparison of the measure of “institutionalization” by age in the 1980 Census when more detailed categories were available.

immigrants have substantially lower institutionalization rates, and this ranking holds for all racial and ethnic groups. Immigrants had an institutionalization rate 30% that of natives in 1980, 49% in 1990, and 20% in 2000. In 1980 immigrants who were citizens had a higher institutionalization rate than those who were not, but in 1990 and 2000 the situation was reversed. There are several potential explanations for this shift, some having to do with incentives for citizenship and others having to do with the detention and deportation of noncitizens. We explore these explanations later in the paper.

The bottom part of Table 2 shows that the cohort pattern identified by Butcher and Piehl (1998a) continues to be observed in 2000: more recent immigrants have lower institutionalization rates than immigrants who arrived earlier. This pattern is consistent with the interpretation in that earlier paper: immigrants are positively selected on the crime commission dimension and assimilate toward the higher native rate with time in the country. Whether this argument still holds will be examined in the next section of the paper.

Figure 1 shows the fraction immigrant inside and outside of institutions in each Census. Although the fraction immigrant in the nation as a whole increased dramatically between each of these Censuses, the fraction immigrant in institutions actually fell from 1990 to 2000. In the most recent Census, nearly four percent of young men in institutions were immigrant while 17 percent of the general population (of young men) were immigrants.

Figure 2 shows the relationship between age and institutionalization for the native born and for the most recent immigrants for each of the three Census years. For the native-born Americans, the age-institutionalization curve peaks in the early twenties and gradually falls off in a pattern well-known to criminologists. The institutionalization rates increased each decade for

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<sup>6</sup> There is much more information available in 1990 and 2000 about race, ethnicity, and heritage. Future drafts of this paper will incorporate further analyses using this information.

each age group. The most dramatic feature of the graph is the relatively low rates for recent immigrants. One possible explanation for the low rates is that it takes several years of exposure to the U.S. criminal justice system before one is likely to be institutionalized and recent immigrants have not accumulated enough experience (either to begin criminal enterprises, to be caught by law enforcement, or to have cases processed through the system). This may also be behind the relatively linear relationship between age and institutionalization among immigrants.

Setting aside this “exposure time” hypothesis (which we explore in a subsequent section), there are several other features to note. Recent immigrants have not had increases in institutionalization comparable to natives and, in fact, it appears that the line for 2000 is shifted down from 1990. Despite the fact that the estimates bounce around somewhat, no big changes appear in the basic shape of the relationship between age and institutionalization.

Although immigrants have lower institutionalization rates than natives, they share characteristics with native-born Americans who have high institutionalization rates. These characteristics include education and race, but also age, as immigrants are under-represented (relative to natives) in the youngest ages in this analysis (ages 18-21), when native institutionalization rates are lowest. Figure 3 calculates the institutionalization rates we expect to see among various groups of immigrants based on the institutionalization propensities of the native born.<sup>7</sup> This exercise reveals just how low the observed rates are, considering the lower educational attainment and other characteristics of immigrants.

Simply predicting institutionalization for immigrants based on their ages and the native-born institutionalization propensities in 1980 gives an average predicted institutionalization rate of 0.013 for immigrants, up from their observed rate of 0.004 and equal to the rate of the native

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<sup>7</sup> We run logits on a sample of the native-born only and then predict institutionalization for immigrants.

born. The effect for 1990 and 2000 is similar: predictions based on age-institutionalization relationship give immigrants institutionalization rates similar to those of natives. Thus, the simple comparison of means in Table 2 shows that institutionalization of immigrants is greatly affected by the ages under consideration. We also predicted institutionalization rates for citizen and noncitizen immigrants (not shown) based on age and found these were very similar.

The second bar in Figure 3 for each year represents predictions based on age, education, race, and ethnicity. This model predicts an institutionalization rate for immigrants of 0.073, ten times the observed rate in the data. Furthermore, for this specification, in all years the predicted institutionalization rate is about 50% higher for noncitizens than it is for citizens (not shown). Clearly, immigrants have characteristics which, in the native born population, are highly correlated with institutionalization.

As we turn to an analysis of the meaning of these differences for our understanding of immigrant selection and assimilation, we bear in mind the large and increasing differences in characteristics between immigrants and natives. While the gaps in observed institutionalization rates are large, we know that some of this is due to differences in the age distribution and we also know that controlling for other characteristics will increase the estimated gap between immigrants and natives. In section IV we explore the effect of years since arrival in the U.S. and the role of citizenship in our estimates, sometimes as specification checks and sometimes to test hypotheses. We also consider the possible bias in our estimates due to deportation (which biases down the institutionalization of immigrants) and detention (which induces upward bias in institutionalization). We have direct measures of neither of these important statuses, and therefore report several different approaches for sorting out these phenomena.

### III. Institutionalization by Immigrant Cohort

Table 3a reports the marginal effects, evaluated at the sample mean, for logit models for institutionalization in the 1980, 1990, and 2000 Censuses. Here, we examine the differences in institutionalization rates for different cohorts of immigrants, controlling for differences in characteristics. The first column shows the overall difference in institutionalization for immigrants and the native born, controlling for a full set of age indicators. In 1980, immigrant institutionalization rates are about one percentage point below natives; in 1990, they are a little more than one percentage point lower; and in 2000, they are nearly three percentage points lower.

Columns 2-5 in Table 3a break out the differences between institutionalization rates for immigrants and the native born by cohort. Column 2 controls only for the age distribution. Column 3 includes controls for education.<sup>8</sup> Column 4 adds controls for race and ethnicity.<sup>9</sup> Finally, column 5 includes controls for whether or not the individual is an U.S. citizen. This variable is equal to one for the native born and for naturalized immigrants.

We can see several patterns in the estimated effects of immigrant cohorts in each of the three samples. First, nearly all the estimated effects for immigrant cohorts are negative. No matter in which year immigrants came to the U.S., they are less likely to be institutionalized than are the native born with similar characteristics.

Second, although the estimated cohort effects are negative, there are larger negative effects for more recent cohorts. More recent immigrants in each of the three Census samples are relatively less likely to be institutionalized, compared to immigrants who arrived earlier. With a

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<sup>8</sup> College degree and above is the omitted category.

<sup>9</sup> White non-Hispanic is the omitted category.

few exceptions, relative institutionalization rates rise as we move from more recent to earlier cohorts, regardless of the control variables included.

The cohort pattern in these estimates is open to several interpretations (see, for example, Borjas 1985). Immigrants who have been in the country for longer periods of time may be “assimilating” toward the higher institutionalization rates of the native-born. This could come through two effects. Immigrants may be increasing their participation in criminal activities with time in the country, or, they may have had more chances to get caught for a given level of criminal activity. The first of these would suggest that immigrants are changing their criminal activity as they learn more about opportunities in the illegal sector. The second we refer to as the “exposure time” hypothesis: it may take a while before an individual has a serious enough offense record to receive an incarcerative punishment. Alternatively, the people who came to the U.S. between 1970 and 1974 may be very different from the people who came between 1980 and 1985, for example.

If immigrants who came to the United States in different waves of immigration were identical in all respects, and institutionalization rates overall were stable over time, then within a Census sample, we could use earlier immigrants’ institutionalization rates as a predictor of the eventual institutionalization rates of later immigrants. We refer to this as the “within Census” prediction. On the other hand, since we have several Census samples, we can examine how the institutionalization rates for a given cohort change over time across Census samples. We refer to this as the “between-Census” prediction.

Table 3b calculates the within- and between-Census estimates of changes in institutionalization for a number of immigrant cohorts.<sup>10</sup> If there had been no change in overall institutionalization probabilities and no change in immigrant institutionalization propensities

over time, we would expect the within and between Census estimates to yield similar results. Here we see that they are quite different. In all three years, the within-Census estimates are positive, implying that we should expect immigrant institutionalization rates to rise relative to the native born with time in the country.

In contrast, following a given cohort across Census years generally shows the opposite result. Between 1980 and 1990, the 1975-1979 and 1970-1974 cohorts decreased their relative institutionalization rates once education is included in the controls. Between 1990 and 2000, all of the cohorts examined decreased their relative institutionalization rates, regardless of which controls are included. These estimates suggest, for example, between a 0.36 to a 0.86 percentage point decline in relative institutionalization for the 1985-1990 and 1980-1984 cohorts between 1990 and 2000 while the within estimates suggest that relative institutionalization rates should have increased by 0.1 to 0.5 percentage points.

These results strongly suggest that something changed across these decades. We will spend the remainder of the paper weighing the evidence for what that something might be. Before we do that, however, it is worth examining how relative institutionalization rates changed for the most recent two cohorts in each Census year. Table 3c computes the relative institutionalization rates for the two most recent cohorts for the three combinations of Censuses. This comparison also holds constant exposure to the criminal justice system, as discussed above, and also limits the bias resulting from any return migration.<sup>11</sup> Each of the cohorts had been in the country for less than five or between five and ten years. In every case, the recent arrivals

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<sup>10</sup> Standard errors are calculated as for the difference between two independent means.

<sup>11</sup> One of the potential problems with both the within and between comparisons is that cohorts that have been in the U.S. for longer periods of time may have changed their composition significantly from when they arrived. For example, suppose that those immigrants who fared worst in the U.S. were those most likely to return to their country of origin. Both the within and between comparisons could be affected by

have lower relative institutionalization rates in the later Census years. Once again, this suggests that immigrants who have arrived in the U.S. in the last two decades are less prone to criminal acts than previous immigrants, or that something else has changed. And once again, these effects are large, especially in 2000. Lubotsky (2000) points out that the Census may misclassify immigrants as recent arrivals who are actually re-entrants.<sup>12</sup> Indeed, he finds that many of the studies focusing on immigrant wage assimilation overstated the secular decline in the level of earnings across immigrant cohort due to the misclassification of these mostly low-wage multiple entrants as “recent immigrants.” It is less clear how this misclassification may affect our results. If some in the “recent immigrant” category are these re-entrants with very low skills, then we might expect, as a corollary to the wage studies, to find this group is relatively more likely to be incarcerated. On the other hand, the fact that they are re-entrants may suggest a certain fluidity of movement that allows them to escape detection, and thus to have lower institutionalization rates for a given level of criminal activity.

Before turning to a discussion of the potential biases in our estimates, we examine how sensitive our results are to the choice of where to evaluate the marginal effects. Tables 4a and 4b present estimates analogous to those in Tables 3b and 3c evaluated at a constant set of characteristics. Immigrant and native born characteristics change across the decades. In addition, the non-linear nature of the logit means that the marginal effects may differ depending on where they are calculated. Here we have chosen to evaluate the marginal effects for a 25 year old

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this selection process (although presumably they would be affected in the same direction, so this is not an explanation for why the within and between above are of opposite sign).

<sup>12</sup> Another source of misclassification may come from the allocation codes. If immigrants are more likely to be allocated incorrect data than the native born, then that might affect our results. There is evidence that immigrants are more likely to have allocated education data than are the native born, for example (Ibarra and Lubotsky 2005). In our case, the problem would be most serious if immigration or institutionalization status were disproportionately misallocated. Our preliminary investigations, however,

Hispanic with a high school degree. The estimates are qualitatively similar to those in Tables 3b and 3c – namely the within-Census estimates predict an increase in institutionalization while the between-Census estimates and the estimates holding constant exposure time show a decrease. However, the between-Census estimates of the relative decline in institutionalization are much larger here – from 1.5 to 6 percentage points, depending on the specification.

#### IV. Deportation, Citizenship, and Differences in Institutionalization Rates

In this section we will discuss potential problems with our estimates. In particular, we discuss how deportation and changes in citizenship rates.

If institutionalization mapped directly to underlying criminal behavior in the same way for all immigrant cohorts and for the native born, differences between institutionalization rates for immigrants and the native born could be interpreted as differences in criminality, and we could directly infer immigrants' criminality. There are several reasons to worry that criminality does not map to institutionalization in the same way for all immigrant cohorts and the native born. In particular, immigrants who are not citizens and who have committed crimes may be subject to deportation (for more detail, see Butcher and Piehl 2000 and Legomsky 1999).

Deportation may be thought of as a special case of "out-migration." Lubotsky (2000) notes that selective out-migration of less successful immigrants in the labor market may have overstated immigrant earnings growth with time in the country. If immigrants who are less successful in the labor market are more likely, all else equal, to commit crimes, but they emigrate prior to committing those crimes, then our institutionalization rates will, whether from the within or the

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suggest that very few observations have allocated data for these two pieces of information. Future drafts will check to see if our results are robust to excluding individuals with allocated data.

between Census estimates, lead us to infer too little criminality among immigrants (but will be accurate as to the commission of crime in the U.S.).

The implications of deportation for institutionalization rates are somewhat more complicated as they depend on the speed with which immigrants are removed from the country. Immigrants who have committed crimes generally are required to serve their sentences before being removed. So, deportation does not reduce institutionalization for the current offense, but may reduce institutionalization because removed immigrants are no longer in the U.S. to be institutionalized for subsequent violations. This effect would serve to reduce immigrant institutionalization rates relative to the native born. On the other hand, if immigrant removal is slow, perhaps because of backlogs in the system, immigrants may serve longer for a given sentence than do the native born. This would tend to inflate immigrant institutionalization rates relative to the native born.

In addition, if the probability that an immigrant is deported is changing over time, then deportation will also affect the comparisons of relative immigrant-native born institutionalization rates over time. The Anti-Terrorism and Effective Death Penalty Act of 1996 expanded the list of crimes for which non-citizen immigrants can be deported. Thus, one might expect that increased deportation over the 1990s would bias our estimates toward finding lower institutionalization rates among immigrants. As discussed earlier, Schuck and Williams (1999) document substantial inefficiencies in the deportation process.

Indeed, the numbers of immigrants deported (both voluntary departures and formal removals) increased over the three decades we examine. From 1971 to 1980, about 7.5 million immigrants were expelled;<sup>13</sup> from 1981 to 1990, about 10.2 million immigrants were expelled;

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<sup>13</sup> Fiscal Year 2002 Yearbook of Immigration Statistics  
<http://uscis.gov/graphics/shared/aboutus/statistics/ENF2002list.htm>

and from 1991 to 2000, about 14.5 million immigrants were expelled.<sup>14</sup> Among those deported, not simply excluded, the most common administrative reasons given during the 1990s were “attempted entry without proper documents” (35%) and “criminal activity” (31%).<sup>15</sup> It is difficult to use these aggregate numbers to gain traction for the issue at hand: the extent of the bias in our estimates across synthetic cohorts.<sup>16</sup> So for now we turn to a different approach to checking for the robustness of the estimates reported earlier: restricting our attention to U.S. citizens, for whom detention and deportation are not relevant considerations. In addition, immigrants who have become citizens are less likely to emigrate, so this should also mitigate problems due to selective voluntary out-migration.

Before we report on our analyses for citizens only, we consider the possibility of changes in the nature of citizenship over time. In addition to increasing the list of criminal offenses for which one could be deported if one was not a citizen, the Anti-Terrorism and Effective Death Penalty Act made this change in law retroactive. That is, if a noncitizen had committed one of these deportable offenses before the law was enacted, he or she was now subject to deportation. Thus, this law increased the punishment associated with a particular conviction for non-naturalized immigrants relative to citizens. One might expect this to have two effects. First, it might act as a deterrent such that non-citizens, knowing they could be subject to banishment in addition to a term of incarceration, are now less likely to commit crimes than they were in the past. Secondly, it might have given immigrants an incentive to become naturalized citizens.

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<sup>14</sup> The vast majority of these expulsions are voluntary departures. For example, from 1991-2000, only 939,749 of the expulsions were formal removals.

<sup>15</sup> The INS Immigration Statistics Reports <http://uscis.gov/graphics/shared/aboutus/statistics/ENF2002tables.pdf>.

<sup>16</sup> Future drafts of this paper will attempt to back out estimates of the potential bias, which may require first estimating the stock of detainees from the reported flow numbers.

Indeed, the Personal Responsibility and Work Opportunity Reconciliation Act of 1996, better known as “welfare reform,” may also have given immigrants an incentive to become citizens. As originally passed, the welfare reform bill barred non-naturalized immigrants from receipt of most forms of welfare; as revised, only immigrants who arrived after the law are subject to the ban.<sup>17</sup> Anecdotes at the time suggested that immigrants were lining up to apply for citizenship as the atmosphere in the mid-1990s gave immigrants new incentives to naturalize.

Table 5 reports our inquiry into changes in citizenship status by immigrant cohort across the three Censuses. Here, we estimate a logit for citizenship among immigrants only. We evaluated the marginal effects at the sample means. As in table 3a, we control for a full set of age dummies in all regressions; the second set of results adds controls for education; the third set adds controls for race and ethnicity. In this case, the omitted category is the most recent cohort in each Census year, so the baseline varies across samples. The first column for each year shows the raw statistic for fraction citizen among each of the cohorts.

Table 5 shows the extent to which different immigrant cohorts “take up” citizenship over this time period. Perhaps unsurprisingly, those who have just arrived have low rates of citizenship – under 10% -- and those who have been in the country over 20 years hover around 70%. This general pattern is relatively stable over time. Note that the estimates in Table 5 are relative to the most recent arrival cohort, which in 2000 has the lowest citizenship rates of all cohorts in all years. These results give us no reason to believe that immigrants in great numbers sought protection from the increased penalties for criminal activity by naturalizing as citizens. Fix et al. (2003) report that those immigrants with the least English language proficiency, those with lower education, and those with lower incomes are less likely to become naturalized

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<sup>17</sup> States had the option to use state funds to extend benefits to immigrants left out of the federal statute. Many, especially many with large immigrant populations chose to do so.

citizens. While the direction of these correlations is the opposite direction of the hypothesis that, over time, criminally active immigrants increased their citizenship propensity, these aggregate data do not provide a powerful test. Because the data have passed a week test, we maintain some caution as we proceed to use citizens as a robustness check for the earlier findings.

Table 6 shows that restricting our attention to citizens, immigrant and native, does not appreciably alter our conclusions from Table 3b. Here we do see some negative within-Census predictions, but in all cases the between-Census predictions are larger in absolute value. Among citizens, immigrants are much less likely than natives to be institutionalized, and the magnitude of the difference with the native born has grown substantially over time. The fact that citizens continue to show the same patterns, even when the incentive for criminally active immigrants to become citizens increased, moderates concerns that the estimation strategy is biased in favor immigrants, due to deportation of criminal immigrants.

## V. Conclusion

The description of the institutionalization experience of immigrants presented here raises questions that have bearing on our basic understandings of criminal behavior, immigrant selection and assimilation, and, by extension, public policies related to crime and to immigration. We have shown that immigrants have substantially lower institutionalization than natives, and that this differential has grown over the time period that institutionalization expanded. In 2000, male young adult immigrants are institutionalized at one-fifth the rate of comparable native-born Americans. Although immigrants continue to be much more likely than natives to have low levels of education, this has not caused institutionalization rates to rise. In fact, when we predict

the institutionalization rate for immigrants based on the experiences of natives, we find that the observed rate is one-tenth of the predicted one.

Analyses across immigrant cohorts reveal apparent assimilation toward the higher institutionalization of natives when within-Census estimates are used or when comparing cohorts across Census years without controlling for education or demographics. When controlling for education (with or without controlling for race and ethnicity), the conclusion reverses: immigrants appear to improve over time relative to the native born. Our reading of the literature and the results for immigrant citizens convince us that deportation is not driving these findings. Furthermore, one might expect a dramatic increase in the rate at which citizenship is taken up if deportation were a substantial negative penalty for crime-prone immigrants. We do not observe such a shift. It is not possible to definitively map institutionalization outcomes onto criminal propensity of population groups, in part due to the possibility of selective out-migration. Rather, we conclude that the evidence is fairly strong that the U.S. is attracting immigrants that are substantially less likely to be criminally active in the U.S. than are the native born. These results strengthen earlier research conclusions that immigrants appear to be positively selected with regard to criminality, a finding in some contrast to conclusions drawn about earnings and other outcomes.

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**Table 1. Summary Statistics: Characteristics of Immigrants and Natives in 1980, 1990 and 2000**  
(Standard Errors in Parenthesis)

Characteristic	1980		1990		2000	
	Native-Born	Immigrants	Native-Born	Immigrants	Native-Born	Immigrants
Age	27.834 (0.0047)	28.793 ( 0.0178)	29.085 (0.0046)	29.280 ( 0.0137)	29.321 (0.0050)	29.671 (0.0107)
< H.S.Degree	0.1925 (0.0003)	0.3449 (0.0013)	0.1268 (0.0002)	0.3258 ( 0.0010)	0.1241 (0.0002)	0.3396 (0.0008)
H.S.Degree	0.3909 (0.0004)	0.2365 (0.0012)	0.3545 (0.0003)	0.2470 (0.0009)	0.3506 (0.0003)	0.2693 (0.0007)
Some College	0.2285 (0.0003)	0.2029 (0.0011)	0.3222 (0.0003)	0.2228 (0.0009)	0.3256 (0.0003)	0.1889 (0.0007)
College Degree	0.1880 (0.0003)	0.2157 (0.0011)	0.1964 (0.0003)	0.2043 (0.0009)	0.1997 (0.0003)	0.2023 (0.0007)
Black	0.1143 (0.0002)	0.0682 (0.0007)	0.1243 (0.0002)	0.0807 (0.0006)	0.1401 (0.0003)	0.0719 (0.0004)
White non-Hispanic	0.8330 (0.0003)	0.3421 (0.0013)	0.8084 (0.0003)	0.1994 (0.0009)	0.7631 (0.0003)	0.1547 (0.0006)
Asian or Pacific	0.0060 (0.0001)	0.1957 (0.0011)	0.0082 (0.0001)	0.2347 (0.0009)	0.0169 (0.0001)	0.2198 (0.0007)
Other Race	0.0024 (0.0000)	0.0270 (0.0005)	0.0005 (0.0000)	0.0034 (0.0001)	0.0405 (0.0001)	0.3400 (0.0008)
Hispanic	0.0405 (0.0001)	0.3975 (0.0014)	0.0519 (0.0002)	0.4977 (0.0011)	0.0784 (0.0002)	0.5671 (0.0008)
U.S. Citizen	1	0.3306 (0.0013)	1	0.2903 (0.0010)	1	0.2667 (0.0007)
<b>U.S. Citizen by Cohort</b>						
1996-2000 citizenship						0.0445 (0.0007)
91-95 citizenship						0.1392 (0.0012)
85-90 citizenship				0.0674 (0.0010)		0.2991 (0.0015)
80-84 citizenship				0.2388 (0.0018)		0.4863 (0.0022)
75-79 citizenship		0.0730 (0.0012)		0.3973 (0.0025)		0.5874 (0.0031)
70-74 citizenship		0.2604 (0.0025)		0.4771 (0.0032)		0.6671 (0.0043)
65-69 citizenship		0.4345 (0.0034)		0.5839 (0.0044)		0.7292 (0.0057)
60-64 citizenship		0.5875 (0.0041)		0.6809 (0.0054)		0.7667 (0.0100)
50-59 citizenship		0.7890 (0.0034)		0.7699 (0.0057)		
before 50 citizenship		0.8965 (0.0057)				
No. Obs	1,900,112	127,392	1,984,069	209,878	1,875,961	352,534

Notes: These data are from the 1980, 1990 and 2000 Integrated Public Use Microdata Series (IPUMS) of the U.S. Census. The data include men aged 18-40 inclusive. Those born in U.S. outlying areas, born abroad of American parents, or born at sea are excluded from the sample. All means are weighted to reflect sampling.

**Table 2. Fraction of the Population Institutionalized in 1980, 1990 and 2000**  
(Standard Errors in Parenthesis; Sample Size in Square Brackets)

<i>Group</i>	<i>1980</i>		<i>1990</i>		<i>2000</i>	
	<b>All</b>					
Full Sample	0.0129 (0.00008) [2,027,504]		0.0206 (0.00010) [2,193,947]		0.0299 (0.00011) [2,228,495]	
	<b>By Immigrant Status</b>					
	<i>Native-Born</i>	<i>Immigrants</i>	<i>Native-Born</i>	<i>Immigrants</i>	<i>Native-Born</i>	<i>Immigrants</i>
All	0.0135 (0.00008) [1,900,111]	0.0042 (0.00018) [127,392]	0.0217 (0.00010) [1,984,069]	0.0107 (0.00022) [209,878]	0.0345 (0.00013) [1,875,961]	0.0068 (0.00014) [352,534]
Black	0.0445 (0.0004)	0.0078 (0.00095)	0.0811 (0.00060)	0.0289 (0.00142)	0.1132 (0.00065)	0.0179 (0.00087)
White Non-Hispanic	0.0088 (0.00007)	0.0040 (0.00030)	0.0116 (0.00008)	0.0052 (0.00035)	0.0170 (0.00011)	0.0039 (0.00027)
Asian or Pacific	0.0086 (0.00087)	0.0011 (0.00021)	0.0130 (0.00090)	0.0024 (0.00022)	0.0253 (0.00090)	0.0037 (0.00022)
Other	0.0342 (0.00268)	0.0049 (0.00119)	0.0492 (0.0068)	0.0228 (0.00554)	0.0600 (0.00087)	0.0068 (0.00023)
Hispanic	0.0210 (0.00052)	0.0054 (0.00032)	0.0396 (0.00062)	0.0152 (0.00037)	0.0659 (0.00066)	0.0079 (0.00020)
U.S. Citizen		0.0055 (0.00036)		0.0097 (0.00040)		0.0051 (0.00023)
Not a U.S. Citizen		0.0035 (0.00020)		0.0111 (0.00027)		0.0074 (0.00017)
<i>Immigrant Cohorts</i> 1996-2000						0.0037 (0.00020)
91-95						0.0050 (0.00025)
85-90				0.0068 (0.00032)		0.0072 (0.00028)
80-84				0.0117 (0.00046)		0.0106 (0.00046)
75-79		0.0029 (0.00025)		0.0117 (0.00055)		0.0096 (0.00061)
70-74		0.0036 (0.00034)		0.0128 (0.00072)		0.0141 (0.00108)
65-69		0.0039 (0.00043)		0.0172 (0.00115)		0.0098 (0.00127)
60-64		0.0067 (0.00068)		0.0163 (0.00147)		0.0183 (0.00309)
50-59		0.0065 (0.00068)		0.0090 (0.00128)		
before 50		0.0089 (0.0018)				

*Notes:* These data are from the 1980, 1990 and 2000 Integrated Public Use Microdata Series (IPUMS) of the U.S. Census. The data include men aged 18-40 inclusive. All means are weighted to reflect sampling.

**Table 3a. Marginal Effects for Logit Estimates of Institutionalization – Evaluated at Sample Mean  
(Robust Standard Errors in Parentheses)**

	1980	1990	2000
Immigrant	-0.0090 (0.0002)	-0.0110 (0.0003)	-0.0276 (0.0002)
1996-2000			-0.0254 -0.0166 -0.0142 -0.0146 (0.0002) (0.0002) (0.0001) (0.0002)
1991-1995			-0.0239 -0.0160 -0.0137 -0.0141 (0.0003) (0.0002) (0.0001) (0.0001)
1985-1990		-0.0144 -0.0112 -0.0095 -0.0095 (0.0004) (0.0002) (0.0002) (0.0002)	-0.0219 -0.0155 -0.0134 -0.0138 (0.0003) (0.0002) (0.0001) (0.0002)
1980-1984		-0.0097 -0.0094 -0.0083 -0.0083 (0.0006) (0.0003) (0.0002) (0.0003)	-0.0183 -0.0136 -0.0119 -0.0123 (0.0004) (0.0002) (0.0002) (0.0002)
1975-1979	-0.0100 -0.0073 -0.0066 -0.0061 (0.0002) (0.0001) (0.0001) (0.0002)	-0.0091 -0.0090 -0.0079 -0.0079 (0.0007) (0.0003) (0.0002) (0.0003)	-0.0189 -0.0131 -0.0115 -0.0118 (0.0005) (0.0002) (0.0002) (0.0002)
1970-1974	-0.0090 -0.0070 -0.0064 -0.0059 (0.0003) (0.0002) (0.0001) (0.0002)	-0.0076 -0.0081 -0.0073 -0.0073 (0.0011) (0.0005) (0.0003) (0.0004)	-0.0151 -0.0106 -0.0098 -0.0104 (0.0009) (0.0004) (0.0003) (0.0003)
1965-1969	-0.0084 -0.0065 -0.0058 -0.0054 (0.0004) (0.0002) (0.0002) (0.0003)	-0.0043 -0.0049 -0.0049 -0.0049 (0.0014) (0.0008) (0.0006) (0.0006)	-0.0180 -0.0111 -0.0100 -0.0104 (0.0011) (0.0007) (0.0005) (0.0004)
1960-1964	-0.0059 -0.0045 -0.0038 -0.0030 (0.0007) (0.0004) (0.0004) (0.0005)	-0.0044 -0.0031 -0.0031 -0.0031 (0.0019) (0.0013) (0.0010) (0.0010)	-0.0097 -0.0045 -0.0048 -0.0058 (0.0027) (0.0019) (0.0014) (0.0013)
1950-1959	-0.0060 -0.0038 -0.0029 -0.0023 (0.0007) (0.0005) (0.0005) (0.0006)	-0.0096 -0.0060 -0.0041 -0.0041 (0.0017) (0.0012) (0.0012) (0.0012)	
1940-1950	-0.0015 -0.0007 0.0002 0.0007 (0.0021) (0.0015) (0.0015) (0.0016)		
Less than H.S.	0.0735 0.0519 0.0519 (0.0017) (0.0013) (0.0013)	0.1920 0.1153 0.1153 (0.0054) (0.0038) (0.0038)	0.2468 0.1630 0.1621 (0.0046) (0.0035) (0.0035)
H.S. Degree	0.0150 0.0117 0.0117 (0.0004) (0.0004) (0.0004)	0.0491 0.0315 0.0315 (0.0014) (0.0010) (0.0010)	0.0689 0.0469 0.0466 (0.0014) (0.0010) (0.0010)
Some College	0.0110 0.0085 0.0085 (0.0005) (0.0005) (0.0005)	0.0356 0.0243 0.0243 (0.0013) (0.0010) (0.0010)	0.0349 0.0243 0.0242 (0.0011) (0.0008) (0.0008)
Black	0.0162 0.0162 (0.0003) (0.0003)	0.0393 0.0393 (0.0007) (0.0007)	0.0432 0.0430 (0.0006) (0.0006)
American Indian	0.0094 0.0094 (0.0008) (0.0008)	0.0173 0.0173 (0.0013) (0.0013)	0.0043 0.0043 (0.0006) (0.0006)
Asian or Pacific	0.0007 0.0006	0.0013 0.0013	0.0081 0.0083

Other Race	(0.0007) (0.0007)	(0.0009) (0.0009)	(0.0008) (0.0008)
	0.0074 0.0074	0.0314 0.0314	-0.0010 -0.0010
Hispanic	(0.0012) (0.0012)	(0.0071) (0.0071)	(0.0003) (0.0003)
	0.0027 0.0027	0.0119 0.0119	0.0165 0.0164
U.S. Citizen	(0.0003) (0.0003)	(0.0005) (0.0005)	(0.0005) (0.0005)
	0.0025 0.0025	0.0000 0.0000	-0.0053 -0.0053
	(0.0005)	(0.0008)	(0.0010)

Age Dummies	Yes														
Pseudo R-square	0.0085	0.0089	0.0838	0.1122	0.1122	0.0072	0.0077	0.0779	0.1379	0.1379	0.0213	0.0221	0.1166	0.1739	0.1739

Note: The marginal effects are calculated at the sample means. Number of observations for 1980 is 2,027,504. Number of observations for 1990 is 2,193,947. Number of observations for 2000 is 2,228,495.

**Table 3b. Institutionalization and Immigrant Arrival Cohorts Compared to the Native-Born in 1980, 1990 and 2000**  
(Standard Errors in Parentheses)

	1980				1990				2000			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
<i>1996-2000 Cohort</i>												
Within Census <sup>a</sup>									0.0035	0.0011	0.0008	0.0008
									(0.0003)	(0.0002)	(0.0002)	(0.0002)
<i>1991-1995 Cohort</i>												
Within Census <sup>a</sup>									0.0056	0.0024	0.0018	0.0017
									(0.0005)	(0.0002)	(0.0002)	(0.0002)
<i>1985-1990 Cohort</i>												
Within Census <sup>a</sup>					0.0053	0.0022	0.0016	0.0016	0.0030	0.0024	0.0019	0.0019
					(0.0008)	(0.0004)	(0.0003)	(0.0004)	(0.0006)	(0.0003)	(0.0002)	(0.0002)
Between Census <sup>b</sup>					-0.0074	-0.0043	-0.0039	-0.0043				
					(0.0005)	(0.0003)	(0.0002)	(0.0003)				
<i>1980-1984 Cohort</i>												
Within Census <sup>a</sup>					0.0020	0.0013	0.0010	0.0010	0.0032	0.0030	0.0021	0.0020
					(0.0012)	(0.0005)	(0.0004)	(0.0005)	(0.0010)	(0.0005)	(0.0003)	(0.0003)
Between Census <sup>b</sup>					-0.0086	-0.0042	-0.0036	-0.0041				
					(0.0006)	(0.0003)	(0.0002)	(0.0003)				
<i>1975-1979 Cohort</i>												
Within Census <sup>a</sup>	0.0016	0.0008	0.0008	0.0007	0.0048	0.0041	0.0029	0.0030	0.0009	0.0020	0.0015	0.0014
	(0.0005)	(0.0002)	(0.0002)	(0.0003)	(0.0016)	(0.0008)	(0.0006)	(0.0007)	(0.0013)	(0.0007)	(0.0005)	(0.0004)
Between Census <sup>b</sup>	0.0009	-0.0016	-0.0012	-0.0018	-0.0098	-0.0042	-0.0036	-0.0040				
	(0.0008)	(0.0003)	(0.0003)	(0.0004)	(0.0009)	(0.0004)	(0.0003)	(0.0003)				
<i>1970-1974 Cohort</i>												
Within Census <sup>a</sup>	0.0032	0.0025	0.0026	0.0029	0.0032	0.0050	0.0041	0.0041	0.0054	0.0061	0.0051	0.0045
	(0.0007)	(0.0004)	(0.0004)	(0.0005)	(0.0022)	(0.0014)	(0.0010)	(0.0011)	(0.0028)	(0.0020)	(0.0015)	(0.0013)
Between Census <sup>b</sup>	0.0014	-0.0011	-0.0009	-0.0014	-0.0075	-0.0025	-0.0025	-0.0031				
	(0.0011)	(0.0005)	(0.0004)	(0.0004)	(0.0014)	(0.0006)	(0.0004)	(0.0005)				

Notes: These numbers are calculated using the marginal effects calculated from logit estimates reported in Table 3. All specifications include a full set of age dummies. Controls are: (1) age dummies; (2) age, education, (3) age, education, race/ethnicity; (4) age, race, ethnicity, education, and u.s. citizen. Standard errors are calculated as for the difference between two means.

<sup>a</sup>Within Census differences are calculated by subtracting the given cohort's probability from the probability for the cohort that arrived 10 years earlier.

<sup>b</sup>Between Census differences are calculated by subtracting the probability for a given cohort in the two different Censuses (Probability in later census – probability in earlier census).

**Table 3c. Differences in Institutionalization Rates Across Immigrant Arrival Cohorts**  
(Standard Errors in Parentheses)

<i>Years Since Arrival</i>	<b>1980 versus 1990</b>				<b>1990 versus 2000</b>			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Fewer than 5	-0.0044 (0.0005)	-0.0039 (0.0002)	-0.0029 (0.0002)	-0.0034 (0.0003)	-0.0110 (0.0005)	-0.0054 (0.0003)	-0.0047 (0.0002)	-0.0051 (0.0003)
Between 5 and 10	-0.0007 (0.0007)	-0.0024 (0.0003)	-0.0019 (0.0002)	-0.0024 (0.0003)	-0.0142 (0.0006)	-0.0067 (0.0003)	-0.0054 (0.0002)	-0.0058 (0.0003)
Fewer than 5	-0.0154 (0.0003)	-0.0093 (0.0002)	-0.0076 (0.0002)	-0.0085 (0.0003)				
Between 5 and 10	-0.0148 (0.0004)	-0.0090 (0.0002)	-0.0074 (0.0002)	-0.0082 (0.0003)				

*Notes:* These numbers are calculated from Table 3b, subtracting the relative institutionalization rate for a cohort in 1980 (1990 respectively) from the relative institutionalization rate of the cohort in 1990 (2000 respectively) that had been in the U.S. for a comparable length of time. The bottom panel subtracts 1980 values from 2000 values. Column numbers refer to the specification from which the institutionalization rates were estimated, as in the previous two tables. See Table 3b for list of controls. Standard errors are calculated as for difference between two means.

**Table 4a. Institutionalization and Immigrant Arrival Cohorts Compared to the Native-Born in 1980, 1990 and 2000**  
**Evaluated at a constant set of characteristics across Censuses**  
 (Standard Errors in Parentheses)

	1980				1990				2000			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
<i>1996-2000 Cohort</i>												
Within Census <sup>a</sup>									0.0041	0.0023	0.0023	0.0026
									(0.0012)	(0.0000)	(0.0000)	(0.0082)
<i>1991-1995 Cohort</i>												
Within Census <sup>a</sup>									0.0070	0.0051	0.0052	0.0062
									(0.0012)	(0.0000)	(0.0000)	(0.0081)
<i>1985-1990 Cohort</i>												
Within Census <sup>a</sup>				0.0063	0.0038	0.0040	0.0040	0.0040	0.0030	0.0042	0.0045	0.0056
				(2.0000)	(3.0000)	(4.0000)	(5.0000)	(5.0000)	(0.0014)	(0.0000)	(0.0000)	(0.0081)
Between Census <sup>b</sup>				-0.0146	-0.0248	-0.0345	-0.0605	-0.0605				
				(0.0011)	(0.0008)	(0.0012)	(0.0063)	(0.0063)				
<i>1980-1984 Cohort</i>												
Within Census <sup>a</sup>				0.0025	0.0022	0.0025	0.0025	0.0025	0.0044	0.0084	0.0087	0.0108
				(0.0016)	(0.0013)	(0.0018)	(0.0034)	(0.0034)	(0.0017)	(0.0000)	(0.0000)	(0.0078)
Between Census <sup>b</sup>				-0.0160	-0.0245	-0.0339	-0.0592	-0.0592				
				(0.0012)	(0.0008)	(0.0011)	(0.0061)	(0.0061)				
<i>1975-1979 Cohort</i>												
Within Census <sup>a</sup>	0.0018	0.0009	0.0010	0.0061	0.0080	0.0085	0.0085	0.0085	0.0011	0.0060	0.0068	0.0089
	(0.0008)	(0.0005)	(0.0007)	(0.0021)	(0.0018)	(0.0022)	(0.0034)	(0.0034)	(0.0022)	(0.0000)	(0.0000)	(0.0080)
Between Census <sup>b</sup>	0.0012	-0.0069	-0.0121	-0.0179	-0.0245	-0.0340	-0.0589	-0.0589				
	(0.0011)	(0.0009)	(0.0013)	(0.0015)	(0.0008)	(0.0012)	(0.0061)	(0.0061)				
<i>1970-1974 Cohort</i>												
Within Census <sup>a</sup>	0.0040	0.0037	0.0043	0.0041	0.0101	0.0124	0.0123	0.0123	0.0085	0.0201	0.0258	0.0327
	(0.0010)	(0.0007)	(0.0009)	(0.0029)	(0.0029)	(0.0033)	(0.0041)	(0.0041)	(0.0045)	(0.0000)	(0.0000)	(0.0110)
Between Census <sup>b</sup>	0.0019	-0.0056	-0.0108	-0.0140	-0.0183	-0.0276	-0.0509	-0.0509				
	(0.0015)	(0.0011)	(0.0015)	(0.0020)	(0.0011)	(0.0014)	(0.0059)	(0.0059)				

*Notes:* These numbers are calculated using marginal effects calculated from logit estimates, not shown. Here, we evaluate the marginal effects at the same values across all censuses: 25 year old Hispanics with a high school degree. All specifications include a full set of age dummies. Controls are: (1) age dummies; (2) age, education, race/ethnicity; (3) age, education, race/ethnicity; (4) age, race, ethnicity, education, and u.s. citizen. Standard errors are calculated as for the difference between two means.

<sup>a</sup>Within Census differences are calculated by subtracting the given cohort's probability from the probability for the cohort that arrived 10 years earlier.

<sup>b</sup>Between Census differences are calculated by subtracting the probability for a given cohort in the two different Censuses (Probability in later census - probability in earlier census).

**Table 4b. Differences in Institutionalization Rates Across Immigrant Arrival Cohorts Evaluated at a constant set of characteristics across Censuses**

(Standard Errors in Parentheses)

<i>Years Since Arrival</i>	1980 versus 1990				1990 versus 2000			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Fewer than 5	-0.0051 (0.0009)	-0.0107 (0.0008)	-0.0161 (0.0012)	-0.0202 (0.0027)	-0.0188 (0.0011)	-0.0271 (0.0008)	-0.0368 (0.0012)	-0.0632 (0.0064)
Between 5 and 10	-0.0006 (0.0010)	-0.0078 (0.0008)	-0.0133 (0.0012)	-0.0173 (0.0026)	-0.0230 (0.0012)	-0.0296 (0.0008)	-0.0392 (0.0011)	-0.0655 (0.0063)
			<b>1980 versus 2000</b>					
Fewer than 5	-0.0239 (0.0010)	-0.0378 (0.0003)	-0.0528 (0.0005)	-0.0834 (0.0059)				
Between 5 and 10	-0.0236 (0.0010)	-0.0374 (0.0004)	-0.0524 (0.0005)	-0.0828 (0.0059)				

*Notes:* These numbers are calculated from marginal effects for logit estimates as in Table 3c -- subtracting the relative institutionalization rate for a cohort in 1980 (1990 respectively) from the relative institutionalization rate of the cohort in 1990 (2000 respectively) that had been in the U.S. for a comparable length of time. The bottom panel subtracts 1980 values from 2000 values. Column numbers refer to the specification from which the institutionalization rates were estimated, as in Table 3c. See notes to Table 3b for list of controls. Marginal effects were calculated for 25 year old Hispanics with a high school degree. Standard errors are calculated as for difference between two means.

**Table 5: Marginal Effects for Logit Estimates of Citizenship – Immigrants Only**  
 Evaluated at Sample Mean  
 (Robust Standard Errors in Parentheses)

	1980	1990	2000
	<i>Raw Mean</i>	<i>Raw Mean</i>	<i>Raw Mean</i>
1996-2000			0.0445 (0.0007)
1991-1995			0.1392 0.2413 0.2433 0.2381 (0.0012) (0.0045) (0.0045) (0.0045)
1985-1990		0.0674 (0.0010)	0.2991 0.4432 0.4559 0.4628 (0.0015) (0.0039) (0.0039) (0.0039)
1980-1984		0.2388 0.3079 0.3140 0.3140 (0.0018) (0.0043) (0.0043) (0.0044)	0.4863 0.6222 0.6378 0.6433 (0.0022) (0.0035) (0.0035) (0.0035)
1975-1979	0.0730 (0.0012)	0.3973 0.4876 0.4948 0.5012 (0.0025) (0.0042) (0.0042) (0.0043)	0.5874 0.6868 0.6940 0.7017 (0.0031) (0.0030) (0.0030) (0.0030)
1970-1974	0.2604 0.3309 0.3398 0.3550 (0.0025) (0.0049) (0.0050) (0.0051)	0.4771 0.5588 0.5679 0.5869 (0.0032) (0.0041) (0.0041) (0.0041)	0.6671 0.7178 0.7179 0.7293 (0.0043) (0.0028) (0.0030) (0.0029)
1965-1969	0.4345 0.5059 0.5113 0.5270 (0.0034) (0.0044) (0.0045) (0.0046)	0.5839 0.6287 0.6275 0.6475 (0.0044) (0.0037) (0.0038) (0.0037)	0.7292 0.7312 0.7284 0.7408 (0.0057) (0.0029) (0.0032) (0.0031)
1960-1964	0.5875 0.6132 0.6116 0.6293 (0.0041) (0.0037) (0.0038) (0.0039)	0.6809 0.6761 0.6699 0.6894 (0.0054) (0.0034) (0.0036) (0.0034)	0.7667 0.7347 0.7308 0.7432 (0.0100) (0.0039) (0.0047) (0.0044)
1950-1959	0.7890 0.7212 0.7180 0.7223 (0.0034) (0.0026) (0.0027) (0.0028)	0.7699 0.7070 0.7020 0.7139 (0.0057) (0.0031) (0.0033) (0.0032)	
1940-1950	0.8965 0.7163 0.7174 0.7220 (0.0057) (0.0025) (0.0026) (0.0025)		
Pseudo R-square	0.2444 0.2534 0.2615	0.1656 0.1849 0.1980	0.1911 0.2277 0.2455

**Note:** The marginal effects are calculated at the sample means. The first column is just the raw fraction citizen for each Census year. The second set of results is for a logit controlling for a full set of age dummies; the third set of results adds controls for education. The fourth set adds controls for race and ethnicity. In all cases, the most recent arrival cohort is the excluded immigrant category. Number of observations for 1980 is 127,392. Number of observations for 1990 is 209,878. Number of observations for 2000 is 352,534.

**Table 6. Institutionalization and Immigrant Arrival Cohorts Compared to the Native-Born in 1980, 1990 and 2000**  
**Naturalized U.S. Citizens and Native-Born Only**  
 (Standard Errors in Parentheses)

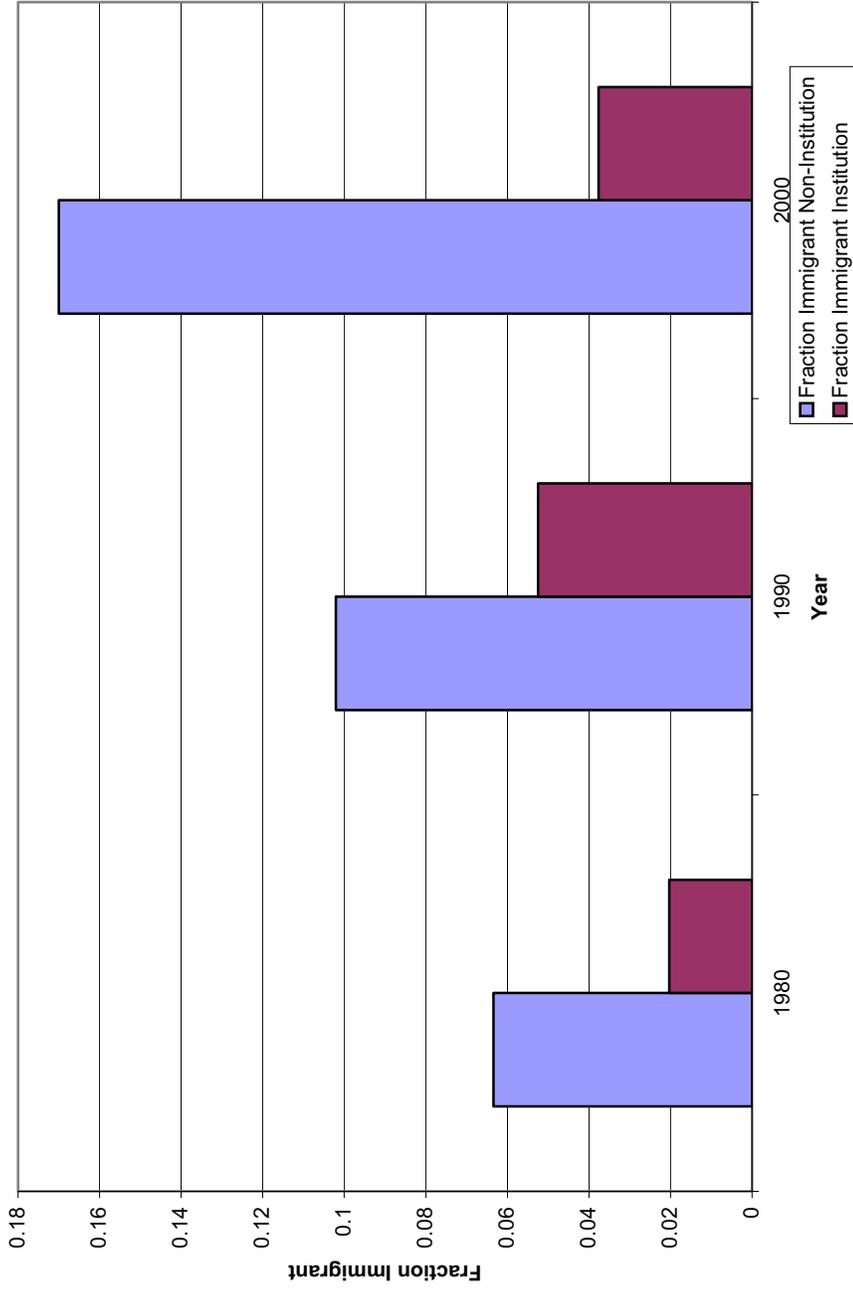
	1980			1990			2000		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
<i>1996-2000 Cohort</i>									
Within Census <sup>a</sup>							-0.0013 (0.0010)	-0.0006 (0.0005)	-0.0005 (0.0003)
<i>1991-1995 Cohort</i>									
Within Census <sup>a</sup>							0.0023 (0.0008)	0.0010 (0.0004)	0.0005 (0.0003)
<i>1985-1990 Cohort</i>									
Within Census <sup>a</sup>				0.0011 (0.0017)	0.0018 (0.0008)	0.0015 (0.0005)	0.0011 (0.0008)	0.0011 (0.0005)	0.0008 (0.0003)
Between Census <sup>b</sup>				-0.0137 (0.0014)	-0.0065 (0.0006)	-0.0054 (0.0004)			
<i>1980-1984 Cohort</i>									
Within Census <sup>a</sup>				0.0019 (0.0018)	0.0019 (0.0010)	0.0014 (0.0007)	0.0014 (0.0010)	0.0020 (0.0006)	0.0013 (0.0004)
Between Census <sup>b</sup>				-0.0140 (0.0012)	-0.0072 (0.0006)	-0.0060 (0.0004)			
<i>1975-1979 Cohort</i>									
Within Census <sup>a</sup>	-0.0025 (0.0014)	-0.0005 (0.0006)	-0.0003 (0.0005)	0.0046 (0.0019)	0.0042 (0.0012)	0.0029 (0.0009)	-0.0007 (0.0011)	0.0004 (0.0008)	0.0004 (0.0005)
Between Census <sup>b</sup>	-0.0055 (0.0016)	-0.0030 (0.0008)	-0.0022 (0.0006)	-0.0137 (0.0012)	-0.0072 (0.0007)	-0.0060 (0.0005)			
<i>1970-1974 Cohort</i>									
Within Census <sup>a</sup>	0.0024 (0.0012)	0.0028 (0.0007)	0.0029 (0.0007)	0.0021 (0.0025)	0.0042 (0.0019)	0.0036 (0.0014)	0.0090 (0.0034)	0.0086 (0.0028)	0.0069 (0.0021)
Between Census <sup>b</sup>	-0.0021 (0.0017)	-0.0015 (0.0009)	-0.0012 (0.0007)	-0.0144 (0.0017)	-0.0072 (0.0010)	-0.0061 (0.0007)			

Notes: These numbers are calculated using marginal effects calculated from logit estimates, not shown. Controls are: (1) age dummies; (2) age, education; (3) age, education, race/ethnicity; (4) age, race, ethnicity, education. Standard errors are calculated as for the difference between two means. The sample is limited to native-born and naturalized citizens.

<sup>a</sup>Within Census differences are calculated by subtracting the given cohort's probability from the probability for the cohort that arrived 10 years earlier.

<sup>b</sup>Between Census differences are calculated by subtracting the probability for a given cohort in the two different Censuses (Probability in later census – probability in earlier census).

Figure 1 - Fraction Immigrant Inside and Outside Institutions



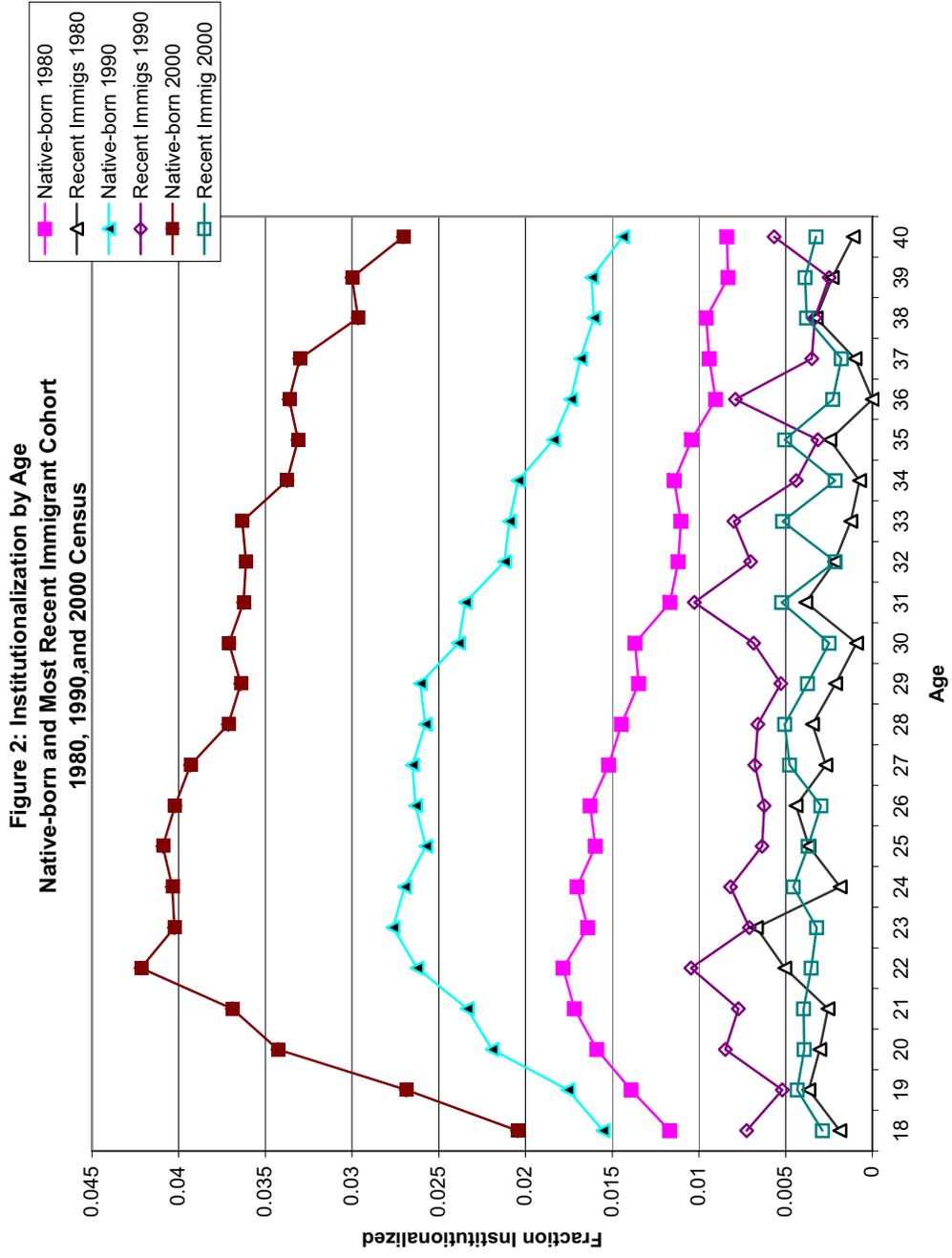
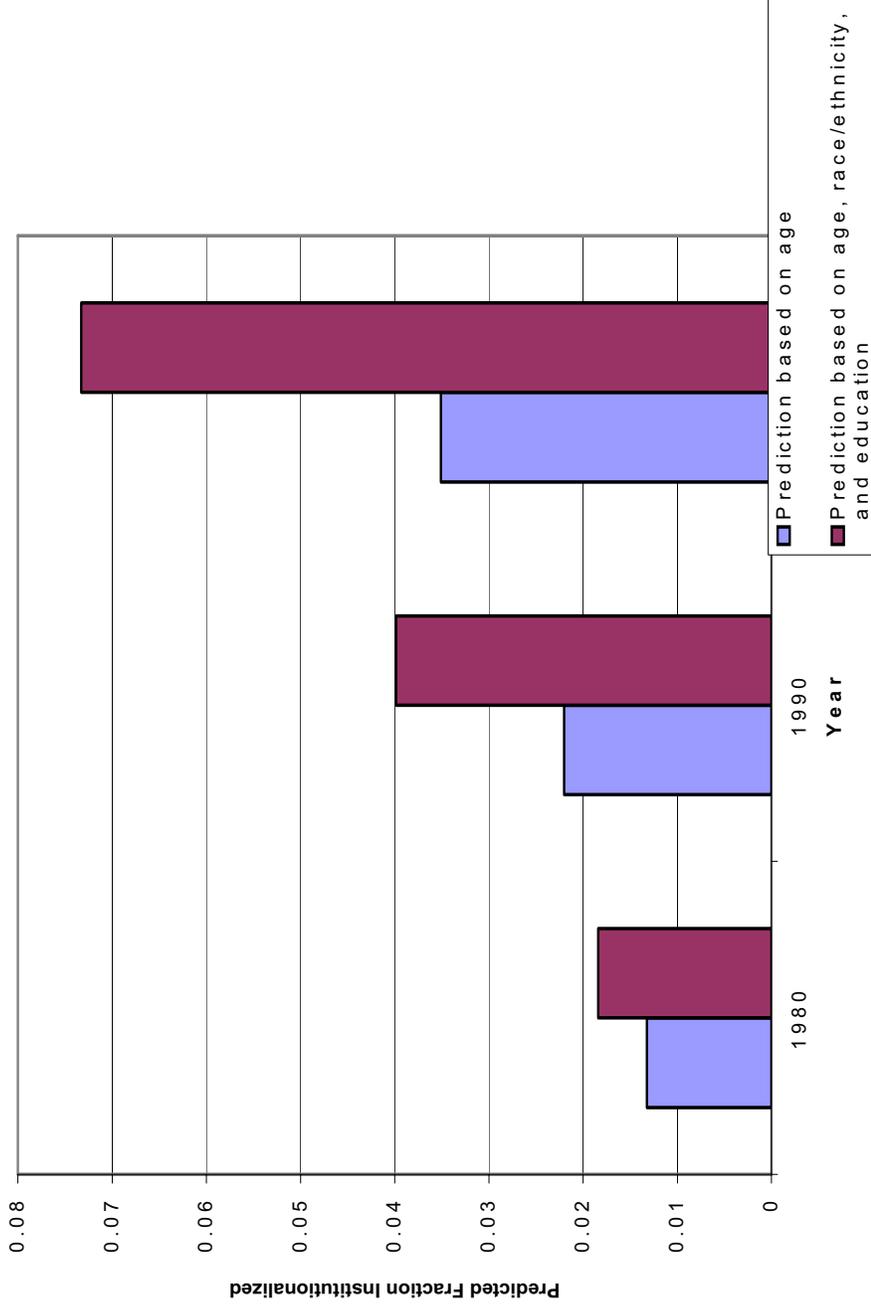


Figure 3: Predicted Institutionalization Rates For Immigrants



Notes: These numbers are calculated from logit regressions using the 5% Public Use Microdata Samples of the U.S. Census. Predictions are created by running the logits for natives alone and predicting immigrant institutionalization rates using these coefficients and the characteristics of immigrants. Controls include a full set of age dummies and dichotomous variables for black, Asian, other race, Hispanic origin, high school dropout, high school degree, and some college.