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Evidence on Selective Immigration, Deterrence, and Deportation

Much of the concern about immigration adversely affecting crime derives from the fact that immigrants tend to have characteristics in common with native born populations that are disproportionately incarcerated. This perception of a link between immigration and crime led to legislation in the 1990s increasing punishments toward criminal aliens. Despite the widespread perception of a link between immigration and crime, immigrants have much lower institutionalization (incarceration) rates than the native born. More recently arrived immigrants have the lowest comparative incarceration rates, and this difference increased from 1980 to 2000.

We present a model of immigrant self-selection that suggests why, despite poor labor market outcomes, immigrants may have better incarceration outcomes than the native-born. We examine whether the improvement in immigrants' relative incarceration rates over the last three decades is linked to increased deportation, immigrant self-selection, or deterrence. Our evidence suggests that deportation and deterrence of immigrants' crime commission from the threat of deportation are not driving the results. Rather, immigrants appear to be self-selected to have low criminal propensities and this has increased over time.

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I. Introduction

Much of the concern about immigration adversely affecting crime derives from the fact that immigrants tend to have characteristics in common with native born populations that are disproportionately incarcerated: they have low average levels of education, very low average wages, and many are young, male, and Hispanic. For similar reasons, there are general concerns about immigration adding to the "underclass" in the United States, and thus increasing dependence on government cash assistance, subsidized medical care, decreasing homeownership, and generally creating pockets of entrenched poverty with the adverse social outcomes that tends to imply. During the 1990s, when immigration rates were high and crime rates were high and rising, observers posited a link between immigration and crime and several significant pieces of federal legislation were enacted to increase criminal penalties for noncitizens.

Economic theories tend to support the concern about a link between immigration and crime. The economic model of crime (Becker 1968), for example, posits that those who have poor labor market outcomes, and thus low opportunity costs from giving up activities in the legal sector, will be more likely to engage in criminal activity. Many studies have documented immigrants' poor labor market outcomes (see for example, Borjas (2004)), in part because of the low skills that many immigrants bring with them and in part because migration forces the loss of other elements of human capital (e.g., language, social networks) that enable individuals to make full use of their skills. A unidimensional model of skills would lead one to expect that a population with poor labor market outcomes would also have poor outcomes in other arenas – crime, health, family life, etc. – that society values.

In this paper, we examine immigrants' institutionalization rates as a proxy for their incarceration and, thus, their involvement in criminal activity. Contrary to what one might expect from the labor market studies, immigrants have very low rates of institutionalization compared to the native-born. Their relative rates of institutionalization have fallen over the last three decades. In addition, more recent cohorts have better criminal justice outcomes than earlier cohorts, and synthetic cohort analyses show that with time in the country, immigrants' relative rates of institutionalization tend to decrease. If one assumed that the "skills" people bring when they immigrate predict outcomes the same way as they do for natives, this is precisely the opposite of what one would predict from most synthetic cohort analyses of immigrants' labor market outcomes. After documenting immigrants' low institutionalization rates, the cohort patterns in institutionalization, and how these have changed over time, we investigate potential reasons for these changes. Are the much lower relative institutionalization rates of immigrants in 2000 compared to 1990 due to changes in self-selection in immigration? Did the changes in laws enacted in the 1990s that increased penalties for criminal noncitizens change out-migration patterns through increased deportation? Or did these increasing penalties simply deter immigrants from committing crimes in the United States?

We present a variety of tests of these potential explanations. We rule out deportation as an important factor for the observed differences in institutionalization. Our investigation of enumeration practices also fails to explain the results. Instead, the evidence suggests that there are multiple dimensions to who self-selects to immigrate to the United States. Over the 1990s, those immigrants who chose to come to the United States were less likely to be involved in criminal activity than earlier immigrants and the native born.

II. Immigrant Self-Selection

The scholarly literature on immigration is much more voluminous with regard to wages and employment than it is with regard to criminal justice outcomes. Borjas (2004) provides a thorough accounting of the experience of immigrants in the U.S. labor market. Male immigrants have slightly lower employment rates, but wage rates that are 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. 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.

Borjas (1987) provides a framework for understanding these changes in immigrants' labor market outcomes over time. He adapts a version of the Roy model (1951) to the problem of immigrant self-selection. Suppose in each country, there is a distribution of skill that is transferable across country boundaries. However, skill is translated into earnings in different ways in each country, and the distribution of earnings is more unequal in some countries than in others. Thus, being low skilled may translate into a very different earnings level in one country than in another. Immigrants will choose to move to a country if their earnings, given their skill set, will be higher than in their country of origin.

This model gives insight into the change in immigrants' earnings in the U.S. over the last four decades. As the sending countries changed from predominantly European countries to predominantly Latin American and Asian countries there was a shift in the skills of immigrants coming to the U.S. (because European countries tend to have earnings distributions that are more compressed than the United States, and Latin American countries tend to have distributions that are more dispersed). Thus, the model predicts there would be a shift in the rank in the skill

distribution of those who immigrate to the U.S. Those from Sweden, for example, who find their "offer" from the U.S. earnings distribution would be higher than the offer from their own country's earnings distribution would tend to be of high skill. On the other hand, immigrants from Mexico would tend to come from the lower end of the wage distribution, as those with high levels of skill would prefer the high wages from the relatively unequal wage distribution in Mexico. This model demonstrates why it might be that in recent years the United States drew immigrants who where predominantly low-skilled.[1]

There is recent evidence on the issue of self-selection of Mexican immigrants. Chiquiar and Hanson (2005) examine the question of immigrant self-selection from Mexico using Mexican and U.S. Census data from 1990 and 2000. Contrary to what one might expect from the Borjas-Roy model, they find that Mexican immigrants in the U.S. tend to be selected from the middle to upper part of the observable skill distribution compared to Mexicans who remain in Mexico. Ibarraran and Lubotsky (2005), on the other hand, find that households that report having members who have emigrated to the U.S. tend to be selected from the lower part of the observable skill distribution.[2]

The focus in the above papers is on selection along a dimension of observable skills. Our focus, on the other hand, is on unobservable attributes that determine criminal involvement and other social outcomes. Perhaps migration decisions depend on returns in other sectors in addition to the labor market. For example, perhaps people consider their returns to illegal

[1] It also suggests that as the U.S. wage distribution became more unequal, we should have seen a change in the skills of immigrants coming to the United States. Interestingly, the most recent cohort in 2000 appeared to have much higher relative wages than the most recent cohort in 1980 and 1990, a fact that can be attributed to engineers and computer scientists (Borjas and Friedberg 2004).

[2] The difference between these likely arises because Ibarraran and Lubotsky's methodology should pick up those individuals who are undercounted in the U.S. Census – young, low-skilled single men. We will address the undercount issue below. In addition, Ibarraran and Lubotsky suggest that education among Mexican immigrants in the U.S. is likely to be misreported.

activities as well. This might cause those with high illegal earnings to remain in the source country rather than taking the risk of developing capacities in a new legal environment. Or, perhaps the migration costs vary across individuals in ways that are correlated with success in multiple social domains (including criminality), as would be the case if social networks in the U.S. ease migration and those networks are more stable if the members are successful in one domain or another.

To see this, consider the Roy model presented in Borjas (1994) in which migration depends on an index that is a function of wages in the source and host country as well as migration costs:

$$(1) \qquad I = (\mu_1 - \mu_0 - \pi) + (\varepsilon_1 - \varepsilon_0)$$

where μ_1 is the mean log earnings (of immigrants) in the host country, μ_0 is the mean log earnings of immigrants in the source country, π is the cost of migration divided by the wage in the source country (which Borjas calls the "time cost" of migration), and ε_1 and ε_0 are the deviations in earnings in the two countries. When $I > 0$, the individual migrates; when $I < 0$, the individual stays.

Borjas analyzes the case where migration costs are constant in the population (and thus proportional to wages), but if migration costs vary with social networks (Chiquiar and Hanson 2005 and Hanson *forthcoming*) or other factors related to success in the U.S., this reduces the cost of emigrating from the source country. In this case, the Roy model implies that those with productive social networks will require a lower wage premium to reach the migration threshold. This model of selection implies that the correlation between wages and other outcomes at the country level may not be as strong as it is in individual-level data for the native born.

Finally, consider what happens when policy toward immigrants changes in the U.S., as happened in the 1990s when criminal penalties for noncitizens were dramatically increased and eligibility for welfare was reduced. This would reduce the benefits to migration, as the index in (1) is now a function of these other attributes of the package associated with living in the U.S.:

$$(2) \qquad I = f(\mu_1, \mu_0, \pi, \varepsilon\ , \varepsilon_0, \delta)$$

where I is negatively related to δ, the expected policy environment. This deterrent effect will itself affect the migration decision, reinforcing other mechanisms that select immigrants with better social outcomes, including lower criminal propensities.

If immigrants with different social networks face different migration costs, then the process of migration may be one that peels apart different dimensions of skill and selection. Among immigrants, those with poor wage outcomes may nonetheless have relatively good social outcomes. As a brief illustration, we show the relationship in the U.S. between mean real wages and three other outcomes (average institutionalization, welfare receipt, and labor force participation) for the 20 countries with the largest immigrant populations in the U.S.[3] In Figures 1, 2, and 3, the line is a country-level linear regression weighted by the size of the immigrant population in the United States. We also plot the analogous information for the native-born in the U.S. While the relationship between real wages and the other outcomes is negative for institutionalization and welfare receipt and positive for labor force participation, as predicted by a one dimensional model of skill, there is a great deal of variation. For instance, there are many countries whose people have very low wages in the United States, but also have very low rates of institutionalization and welfare receipt, and higher rates of labor force participation than expected given their wages. Immigrants may have poor real wage outcomes, but relatively good

[3] The data are for men aged 18-40 in the 2000 Census. The data are described later in the text. The top immigrant countries were selected based on the number of men in this age group in the 1990 Census.

outcomes in one or another social domain, suggesting selection along more than one dimension of "skill."

III. Immigrants' Non-Labor Market Outcomes

The discussion above gives some insight into why comparisons of natives' and immigrants' labor market and non-labor market outcomes may give a different picture of how immigrants fare in the United States. The literature on immigration has analyzed many outcomes, providing a broader picture of how immigration may affect the United States. For example, research shows 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 wellbeing. If immigrants are reluctant to participate in these markets, then they may have more difficulty 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).

Research on the crime outcomes of immigrants is limited (Mears 2002). Immigrant males were much less likely to be institutionalized than native-born males in the United States in

1980 and 1990 and the lower observed institutionalization propensities of immigrants are particularly striking given the demographic characteristics well-known to be highly correlated with crime (such as education). In addition, more recent immigrants have the lowest institutionalization rates of all immigrant cohorts, when analyzed relative to the experience of the native born (Butcher and Piehl 1998a). This evidence is consistent with self-report data on criminal activity: youth born abroad are statistically significantly less likely than native-born youth to report being criminally active (Butcher and Piehl 1998b).

Taken together, this research gives a rich 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. The literature reveals different patterns depending on the outcome considered. In some cases, these outcomes are quite different from what one might expect given immigrants' labor market outcomes.

IV. Comparison of Immigrant and Native Born Institutionalization Rates across Three Decades

A. Descriptive Statistics

We use data from the 5% Public Use Microsamples of the U.S. Census in 1980, 1990, and 2000 to examine institutionalization rates for men ages 18-40. [4] Butcher and Piehl (1998b) shows that for this population, institutionalization closely approximates incarceration.[5] Descriptive statistics for native-born citizens and immigrants are reported in Table 1.[6]

[4] 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.

[5] The 1980 Census identifies the incarcerated among the institutionalized. For men aged 18-40, at least 70% of the institutionalized are incarcerated. In addition, Butcher and Piehl (1998b) demonstrates that limiting the 1980 analysis to only those who are incarcerated does not substantively change the results.

[6] Throughout the paper we reported estimates using the person weight reported by the Census (there are no weights in 1980).

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. 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.

In our analyses of immigrants over time, we 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.

In these data, "immigrant" is equivalent to "foreign born." In many contexts, legal distinctions are made between the foreign born who intend to become permanent residents, and those who are more transient. For example, permanent resident aliens typically have the right to work in the U.S., while those on a student visa do not. However, the important distinction in terms of the legal treatment of criminal aliens is made between immigrants who have naturalized and those who have not, since the latter are subject to deportation. Thus, it is important to pay attention to how citizenship status has changed over time for our subsequent analyses of institutionalization rates.

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, for example, 80% of those who had 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 that 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, 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 middle part of the table shows the variation in institutionalization rates with education and race/ethnicity. While the rates for immigrants are in all cases much lower than for natives, the strong correlation with education is observed in both groups. The cross-racial group pattern too shows the same features for both groups.

The bottom part of Table 2 shows that more recent immigrants have lower institutionalization rates than immigrants who arrived earlier. This pattern is consistent with the idea that immigrants are positively selected on the crime commission dimension and assimilate toward the higher native rate with time in the country. We will examine evidence on this point in greater detail later in the paper.

Figure 4 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) was immigrant.

Figure 5 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 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. The estimates bounce around somewhat and 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 6 reports the institutionalization rates we expect to see among various groups of immigrants based on the institutionalization propensities of the native born.[7] 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 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

[7] These calculations come from running logits on a sample of the native born only and then using the estimated coefficients to predict institutionalization for immigrants.

affected by the ages under consideration. Predicted institutionalization rates for citizen and noncitizen immigrants (not shown) based on age and are very similar.

The second bar in Figure 6 for each year represents predictions based on age, education, race, and ethnicity. This model predicts and 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 that in the native born population are highly correlated with institutionalization.

B. Data Considerations and Corroborating Evidence

The basic result from the tables and figures described above is that immigrants, despite having characteristics that in the native population are highly correlated with institutionalization, have very low institutionalization rates, and their institutionalization rates relative to the native born fell between 1990 and 2000. In this section, we discuss whether these results can be reliably used to estimate how institutionalization and criminal propensities changed over time.

i. Enumeration Issues

These institutionalization rates are measures of the number of individuals in institutions divided by the number of individuals overall. Mismeasurement of either the numerator or the denominator would result in poor estimates of institutionalization rates.

a. The Numerator

In our context we are concerned with whether the total number of institutionalized individuals are counted correctly, and particularly concerned that any mismeasurement does not differ systematically between the native-born and immigrant populations. For our detailed analysis of changes over time (below) we are also concerned with whether mismeasurement in the institutionalized population changes over time.

The institutionalized population is a subset of the "special populations" category in the U.S. Census. The Census has separate questionnaires and procedures for those housed in group quarters, including institutions. Many of those living in institutions, including prisons and jails, are deemed unable to fill out their own questionnaires. Thus, Census enumerators fill out these forms over several weeks using administrative data. (See the data appendix for a more detailed description of Census enumeration procedures in special populations.) Thus, the Census records for the incarcerated population should be as good as the administrative data on which they are based.

There very large incentives for the administrators of prisons and jails to accurately count their inmates. Thus, we would expect this population to be accurately counted relative to the rest of the population.

The next question is whether there are systematic differences in the counting of immigrants and the native born, and whether the differences in counting changed over time. While it is plausible that not all the foreign born are properly identified, there are incentives for criminal justice administrators to identify the foreign born, particularly those who are not citizens. The incentives to identify noncitizen aliens increased over this time period. Thus, if anything, we would expect any undercount of institutionalized immigrants to decrease relative to the native born over the time period. These changes in mismeasurement would be expected to increase the measured institutionalization rate of immigrants relative to the native born.

b. The Denominator

A second source of mismeasurement comes from the undercount of the overall population. The "undercount" arises when the Census does not enumerate some individuals, and this is thought to be more likely in certain populations, particularly those that are more likely to be transient. The 2000 Census is widely reputed to have improved the undercount problem

relative to the 1990 Census. In our case then, if the denominator in the calculation of institutionalization rates got larger, not because the population actually grew, but because more of the individuals who were here were enumerated, then we would find a spurious decrease in the institutionalization rate between 1990 and 2000. Again, we are not necessarily concerned if the undercount improved for all populations in the same way, but if immigrants are more likely to be undercounted than the general population and the undercount improved for them then we could find a spurious decrease in the relative institutionalization rates of immigrants to the native born.

The data appendix provides more details on the potential impact of changes in the undercount on our estimates of immigrant institutionalization rates in 1990 and 2000. Our simulations demonstrate that it is unlikely our estimates are purely driven by changes in the undercount. Suppose that the institutionalization rate for immigrants in 1990 and 2000 were actually the same. In order for changes in the undercount to generate the estimates of institutionalization in Table 2, the relative undercount of immigrants to the native born would have to be 37:1 (e.g., the Census missed 37 immigrants for every 1 missed native).

ii. Incarceration and its relationship to Crime Commission

A second important question is whether we can use the information on institutionalization rates to make inferences about immigrants' commission of crime in the United States. If Census measures of institutionalization were poor measures of the true incarceration rates, then these measures would not tell us much about how immigration affects public safety. Alternatively, if immigrants are less likely than the native born to be caught for a given criminal act, then the institutionalization rates may change without crime rates being affected.

We can use information on Metropolitan Area (MA) crime rates and immigrant density to provide some corroborating evidence on the relationship between immigration and crime. Figure

7 shows the change in MA crime rates graphed against the change in fraction immigrant for 1990 to 2000 for the 24 largest MAs (with reliable data). Here we see that those areas that had the largest increases in their fraction immigrant had the largest decreases in their crime rates. This confirms earlier results in Butcher and Piehl (1998a) that presents a thorough analysis of changes in metropolitan crime rates and immigration patterns between 1980 and 1990. This analysis at the Metropolitan Area level also confirms the results from the individual level Census data reported here: immigrants' criminality improved relative to the native born between 1990 and 2000.

V. 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.[8] Column 4 adds controls for race and ethnicity.[9]

[8] College degree and above is the omitted category.

[9] White non-Hispanic is the omitted category.

Finally, column 5 includes controls for whether or not the individual is a 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 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. There are several mechanisms by which such shifts could occur, including selective immigration.

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 estimate 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 estimate as the "between-Census" prediction.

Table 3b calculates the within- and between-Census estimates of changes in institutionalization for a number of immigrant cohorts.[10] 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.

[10] Standard errors are calculated as for the difference between two independent means.

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 holds constant exposure to the criminal justice system, as discussed above, and also limits the bias resulting from any return migration.[11] 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 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.[12] Indeed, he finds that many of the studies focusing on immigrant wage assimilation overstate 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

[11] 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 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).

[12] 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 (Ibarraran and Lubotsky 2005). In our case, the problem would be most serious if immigration or institutionalization status were disproportionately misallocated. However, very few observations have allocated data for the key pieces of information in this study.

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 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 explanations for our estimates, we examine how sensitive our results are to the choice of where to evaluate the marginal effects. Appendix Tables 1a and 1b 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 uneven ways. 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 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.

Next we consider the potential role of age-at-arrival. As pointed out by Friedberg (1992) age-at-arrival will vary systematically across cohorts, especially when the data are limited to a restrictive set of ages. Those who arrived earlier, must have arrived at an earlier age in order to still be under 40 years old and be in our sample. It is likely that those who arrive at earlier ages have a greater potential to assimilate to U.S. norms than those who arrive at older ages. If there are systematic changes in age-at-arrival across Censuses, that could affect our cohort patterns. Thus, Appendix Tables 2a and 2b contain a final robustness check on our main results. Here we

restrict the sample to those immigrants who arrived in the U.S. as children (younger than age 13). This serves to test whether our earlier results were driven by the changing age distribution within cohort. Comparing the results in these tables to those in Tables 3b and 3c we find quite comparable findings, in magnitude as well as sign. Thus we conclude that changing age at arrival is not an important driver of our finding that immigrants have improved relative to the native born over time.

VI. Deportation, Selection and Deterrence

Clearly immigrants are less likely to be institutionalized than the native born, and this difference is larger in 2000 than in earlier years. Further, the immigrants appear to improve relative to natives with time in the country, and this improvement is greater from 1990 to 2000 than it was from 1980 to 1990. There are several potential explanations for the time patterns in relative institutionalization rates discussed above. Changes in policies toward criminal aliens in the 1990s may have increased deportation, reducing the population of institutionalized immigrants relative to other immigrants and the native born. Alternatively, changes in the legal environment and the economic environment in the United States may have changed the types of immigrants who self-select to immigrate and to return to their countries of origin. Or, selection of the types of immigrants who come to the U.S. may have remained stable, but the increased criminal penalties may have had a deterrent effect, changing their behavior once here.

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 details see 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 and more likely to emigrate (such that they emigrate prior to committing those crimes), then both our within and between estimates of changes in institutionalization rates will 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, as opposed to self-selected out-migration, 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, as was shown in Butcher and Piehl (2000). 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 Violent Crime Law of 1994 and then the Anti-Terrorism and Effective Death Penalty Act of 1996 expanded the list of crimes for which noncitizen 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.

There are few definitive estimates in the literature of these key parameters. 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.[13]

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 estimate 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 identifying criminal aliens 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

[13] 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.

inefficiencies is central to interpretation of the results of any analysis of criminal justice outcomes for immigrants.

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;[14] from 1981 to 1990, about 10.2 million immigrants were expelled; and from 1991 to 2000, about 14.5 million immigrants were expelled.[15] 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%).[16] 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. 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-

[14] Fiscal Year 2002 Yearbook of Immigration Statistics
http://uscis.gov/graphics/shared/aboutus/statitstics/ENF2002list.htm

[15] The vast majority of these expulsions are voluntary departures. For example, from 1991-2000, only 939,749 of the expulsions were formal removals.

[16] The INS Immigration Statistics Reports
http://uscis.gov/graphics/shared/aboutus/statistics/ENF2002tables.pdf.

naturalized immigrants relative to citizens. One might expect this to have two effects. First, it might act as a deterrent such that noncitizens, 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.

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.[17] 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 4 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 for each of the cohorts.

Table 4 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 4 are relative to the most recent arrival cohort, which in 2000 has the lowest citizenship rates of all

[17] 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.

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) reports that those immigrants with the least English language proficiency, those with lower education, and those with lower incomes are less likely to become naturalized citizens. The direction of these correlations is the opposite direction implied by the hypothesis that, over time, criminally active immigrants increased their citizenship propensity.

We use the sample of citizens (native born and naturalized) to examine how institutionalization patterns changed over time for immigrants who are not subject to the increased threat of deportation due to legislation enacted in the 1990s. Tables 5a and 5b show that restricting our attention to citizens, immigrant and native, does not appreciably alter our conclusions from Tables 3b and 3c. 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, substantially moderates concerns that the estimation strategy is biased in favor immigrants due to deportation of criminal immigrants. It also suggests that the shift is not due to a deterrent effect from the threat of deportation, since citizens are not subject to deportation.

Next, we consider whether immigrants may be self-selected from among those with lower criminal propensities. If individuals who move are positively selected in some regard compared to those who stay put near where they were born,[18] then this may explain the better

[18] Butcher (1994) compares labor market outcomes for immigrant and native-born blacks and finds that immigrant blacks have better labor market outcomes than the native born. However, when the native born who have moved from their state of birth are used as the comparison group, outcomes are very similar. Suggesting that movers, whether native born or immigrant, are similar.

outcomes of immigrants with regard to criminal justice outcomes. To partially control for this unobserved quality, we compare immigrants to natives who have moved from their state of birth, rather than to the whole native-born population.[19] We recognize that this is a partial control for what it takes to immigrate across national boundaries, likely requiring living in a new culture with a new language. But we hope it goes some way to controlling for this important form of selection.

Tables 6a and 6b report the results of this exercise. Here we find that selection matters a great deal to the estimates for various immigrant cohorts. The between-Census estimates are about one-third to one-half the magnitude when the comparison group is native movers rather than all natives. In fact, some of the between census estimates come very close to zero when controls for education are included. (Note that among natives, education is positively correlated with the likelihood of residing outside one's home state.) Holding exposure time constant in Table 6b, we similarly find that recently arrived immigrants have lower institutionalization rates than native-born movers. However, in contrast to results in Table 3c, the results for 2000-1990 compared to 1990-1980 do not show that the recently arrived in the later time period have lower relative institutionalization rates. Now the results are more similar across the decades, suggesting that native-born movers and immigrants responded to increased penalties for criminal activity in similar ways. These results suggest that migration, whether across national or state boundaries, tends to select individuals with lower criminal propensities.

[19] This measure is somewhat problematic since one reason a person may live outside his state of birth is if he is sent to a federal prison in another state. This would tend to increase the institutionalization rates of native born movers. This bias is likely to be small, however, as federal prisoners are a small fraction of all prisoners.

VII. Conclusion

The institutionalization experience of immigrants 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 suggest that more recent immigrant cohorts have lower institutionalization rates than earlier cohorts. Further, immigrants reduce their relative incarceration rates with time in the country. The fact that our results for immigrant citizens are similar to those for immigrants overall, convince us that increased deportation of criminal aliens in the 1990s is not driving these findings. In addition, one might expect a dramatic increase in the rate at which citizenship is taken up if crime-prone immigrants were taking up citizenship as protection against deportation. We do not observe such a shift. We do, however, find that immigrants do not look nearly as good when evaluated relative to natives who move. We read this as evidence that both internal and international migrants are self-selected from among those with lower criminal propensities. Together, this evidence suggests that selection of immigrants occurs over more than one dimension of skill.

References

Becker, Gary (1968). "Crime and Punishment: An Economic Approach," *Journal of Political Economy* vol. 76, p.169-.

Borjas, George J. (2004). "Immigration and the Labor Market 1960-2000," unpublished paper, Harvard University.

Borjas, George J. (2003). "The Labor Demand Curve is Downward Sloping: Reexamining the Impact of Immigration on the Labor Market," *The Quarterly Journal of Economics*, November: 1335-74.

Borjas, George (2002). "Home Ownership in the Immigrant Population," NBER working paper 8495, May.

Borjas, George (1994). "The Economics of Immigration," *Journal of Economic Literature*, vol. XXXII, pp. 1667-1717.

Borjas, George J. (1987) "Self-Selection and the Earnings of Immigrants," *American Economic Review*, pp. 531-553.

Borjas, George J. (1985). "Assimilation, Changes in Cohort Quality, and the Earnings of Immigrants," *Journal of Labor Economics*, vol.3 no. 4, October, pp. 463-489.

Borjas, George and Rachel M. Friedberg (2004). "What Happened to Immigrant Earnings in the 1990s," unpublished paper, Harvard University, March.

Butcher, Kristin and Luojia Hu (2000). "Use of Means-Tested Transfer Programs by Immigrants, Their Children, and Their Children's Children," in *Finding Jobs: Work and Welfare Reform*, Rebecca Blank and David Card, eds., Russell Sage: New York.

Butcher, Kristin F. (1994). "Black Immigrants in the United States: A Comparison with Native Blacks and Other Immigrants," *Industrial and Labor Relations Review*, vol. 47, no. 2, pp. 265-284.

Butcher, Kristin F. and Anne Morrison Piehl (2000). "The Role of Deportation in the Incarceration of Immigrants," in George Borjas, ed., *Issues in the Economics of Immigration*, Chicago: University of Chicago Press, pp.351-385.

Butcher, Kristin F. and Anne Morrison Piehl (1998a). "Recent Immigrants: Unexpected Implications for Crime and Incarceration," *Industrial and Labor Relations Review*, vol. 51, no. 4, July, pp.654-679.

Butcher, Kristin F. and Anne Morrison Piehl (1998b). "Cross-City Evidence on the Relationship between Immigration and Crime," *Journal of Policy Analysis and Management*, vol. 17, no. 3, Summer, pp.457-493.

Card, David (2001). "Immigrant Inflows, Native Outflows, and the Local Labor Market Impacts of Higher Immigration," *Journal of Labor Economics* 19, no. 1: 22-64;

Chiquiar, Daniel and Gordon Hanson (2005),"International Migration, Self-Selection, and the Distribution of Wages: Evidence from Mexico and the United States, *Journal of Political Economy*, 113(2): 239-281.

Fix, Michael, Jeffrey S. Passel, and Kenneth Sucher (2003). "Trends in Naturalization," *Immigrant Families and Workers*, Brief no. 3, Urban Institute, September.

Friedberg, Rachel M. (1992) "The Labor Market Assimilation of Immigrants in the United States: The Role of Age at Arrival," Unpublished paper, Brown University, 1992.

Hanson, Gordon (forthcoming), "Emigration, Labor Supply and Earnings in Mexico," in George Borjas, ed., *Mexican Immigration*, Chicago: University of Chicago Press and the National Bureau of Economic Research.

Ibarraran, Pablo and Darren Lubotsky (forthcoming). "Mexican Immigration and Self-selection: New Evidence from the 2000 Mexican Census," in George Borjas, ed., *Mexican Immigration*, Chicago: University of Chicago Press and the National Bureau of Economic Research.

LeDuff, Charlie (2005). "Police Say Immigrant Policy is Hindrance" *New York Times*, April 7.

Legomsky, Stephen H. (1999). "Symposium: Immigration Reform Article: The Detention Of Aliens: Theories, Rules, and Discretion" *University of Miami Inter-American Law Review*, vol. 30: 531.

Lubotsky, Darren, "Chutes or Ladders? A Longitudinal Analysis of Immigrant Earnings," Working Paper #445, Industrial Relations Section, Princeton University, August 2000.

Mears, Daniel P. (2002). "Immigration and Crime: What's the Connection?" *Federal Sentencing Reporter*, vol. 14, no. 5: 284-88.

Osili, Una and Anna Paulson (2004a). "Institutional Quality and Financial Market Development: Evidence from International Migrants in the U.S.," Federal Reserve Bank of Chicago working paper number 2004-19.

Osili, Una and Anna Paulson (2004b). "Prospects for Immigrant-Native Wealth Assimilation: Evidence from Financial Market Participation," Federal Reserve Bank of Chicago working paper number 2004-18.

Robinson, J. Gregory, Arjun Adlakha, and Kristen K. West (2002). "Coverage of Population in Census 2000: Results from Demographic Analysis," mimeo, prepared for the 2002 Annual Meeting of the Population Association of America.

Roy, A. (1951). "Some Thoughts on the Distribution of Earnings," Oxford Economic Papers, Vol 3., pp.135-146.

Schuck, Peter A. (1997). "INS Detention and Removal: A White Paper," *Georgetown Immigration Law Journal*, vol. 11: 667.

Schuck, Peter A. and John Williams (1999). "Removing Criminal Aliens: The Pitfalls and Promises o Federalism" *Harvard Journal of Law & Public Policy*, vol. 22: 367-.

Smith, James P. and Barry Edmonston, eds. (1997). *The New Americans: Economics, Demographic, and Fiscal Effects of Immigration,* Washington, DC: National Research Council.

Data Appendix

There are two potential problems with Census data that could affect our results. The first is the "undercount" – the problem of failing to enumerate individuals, typically thought to be more serious in poor and minority communities. The second potential problem has to do with how special populations, such as those in institutions are counted by the Census. For example, if a high fraction of those under correctional supervision are in transition (being transferred from one place to another) they may be missed in the population count. Thus, it is worth understanding how Census collects data for special populations.

1) Data Collection in Special Populations

Data collection in special populations, like the institutionalized population, may present particular challenges. For example, many of those in institutions may not be able to or may be unwilling to fill out Census forms. Additionally, in the case of prisoners, for example, people may frequently be moved between institutions, creating a difficulty in counting them on Census day.

There is a different Census form for those living in group quarters, and additional forms for those in military quarters and on-board ships. As mentioned in the data section, among those living in group quarters, some types of group quarters are designated as "institutions." Jails and prisons fall into this category, and although they are not separately identifiable in the PUMS data, by limiting our sample to men aged 18-40, a very high fraction of the institutionalized populations is in correctional facilities (based on comparisons to the 1980 Census where type of institution is identifiable).

In the 2000 Census, about half of those living in group quarters were unable to fill out Census forms.[20] A disproportionate share of those unable to fill out their own Census forms is in an institution (jail, prison, mental institution, for example). In this case, Census enumerators fill out the forms using the institutions' administrative records.

The enumeration procedure for group quarters takes place over several weeks. The Census enumerators ask where an inmate was on April 1. For those inmates who are in transit on April 1, if they reach their final destination on that day, then they are counted at the final destination. If they are in transit, then they are counted at their originating location.
Under these circumstances then, the institutionalized population is likely to be well-counted, since the institutions themselves are likely to keep accurate administrative records that document the number of inmates. Thus, the "undercount" of the institutionalized population is likely much less severe than of the overall population. In addition, the demographic information on inmates of correctional institutions is likely to be about as good as the administrative records themselves. Since there was more pressure and more incentive for correctional institutions to identify (non-naturalized) immigrants in their inmate populations in 2000 than in 1990, we would expect that a higher fraction of immigrants would be identified in 2000 than in 1990. Thus, any "undercount" of institutionalized immigrants would be likely higher in 1990 than in 2000.

2) The Undercount

The 1990 Census is widely viewed to have missed a substantial number of people. This problem is thought to be particularly severe in the case of poor and minority communities. The undercount does not present a problem for our analysis per se, if all populations are mis-counted to the same degree in all years. There may be a problem for our analysis of changes in

[20] Personal correspondence with Karen Humes, Special Populations Division, U.S. Census Bureau.

institutionalization between years, however, if the undercount changes across the years, or is different for different populations.

Consider, for example, the change in the institutionalization rates of immigrants between 1990 and 2000. Table 2 shows that the fraction institutionalized for immigrants in 1990 was 0.0107 and fell to 0.0068 in 2000. Our interpretation is that immigrants were less likely to be institutionalized in 2000 than in 1990. However, this change could happen mechanically if the undercount of minority communities was less severe in 2000 than in 1990. Our interpretation of this decline in institutionalization as signaling something about the behavior of immigrants in the U.S. would be flawed, if the decline really occurs not because the numerator (the institutionalized population) changed, but because the denominator (the total population) changed due to better data collection methodology.

Robinson et al. (2002) uses demographic analysis methodology to estimate the undercount in 1990 and 2000. They estimate that the net undercount in 1990 was 1.65% and in 2000 was a much smaller 0.12%. We can use these estimates to do some "back of the envelope" calculations as to how the undercount of the immigrant population might affect our estimate of the fraction of immigrants who are institutionalized. Appendix Table 1 shows how our estimate of the fraction of immigrants institutionalized would change under different assumptions about the undercount of immigrants in 1990 and 2000.

Data Appendix Table 1: Estimates of How the

Undercount Might affect Fraction of Immigrants Institutionalized

Undercount Ratio Immigrants:Native-born	Fraction Institutionalized	
	1990	2000
1:1	0.0105	0.00679
2:1	0.0104	0.00678
3:1	0.0102	0.006776
37:1	0.0067	0.0065

These calculations are based on the numbers reported in Tables 1 and 2. For example, in 1990, there were 209,878 immigrants in our sample. The fraction institutionalized was 0.0107, implying 2245.7 institutionalized immigrants in 1990. If we assume the undercount estimate applies to the non-institutionalized population, then we need to subtract the number of institutionalized immigrants from the full sample, multiply this number by the fraction "missing" and then add this number back onto the estimate of the total number of immigrants:

(209878-2245.7) * 0.0165 = 3425.9

Thus, the fraction institutionalized among the immigrants, assuming a 1.65% undercount would be:

2245.7 / (209878 + 3425.9) = 0.0105.

Using this formulation, we can examine what the effect on the estimate of the fraction of immigrants institutionalized would be given different assumptions about the severity of the undercount in the non-institutionalized immigrant population.

Assuming that the undercount is three times larger for immigrants than for the overall population (e.g., there are three "missing" immigrants for every "missing" person overall), we would still find that the fraction institutionalized among immigrants was over 1.5 times higher in 1990 than in 2000. In order for the undercount to be the only reason that the fraction institutionalized among immigrants declined between 1990 and 2000, we would have to think that the undercount was about 37 times bigger for immigrants than for the population overall.

In sum, neither the improvement in the undercount of the overall population between 1990 and 2000, nor specialized undercount problems that pertain to the institutionalized population would be likely to mechanically generate our finding that there was a substantial decline in the fraction of immigrants institutionalized between 1990 and 2000.

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

	1980		*1990*		*2000*	
Characteristic	*Native-Born*	*Immigrants*	*Native-Born*	*Immigrants*	*Native-Born*	*Immigrants*
Age	27.834	28.793	29.085	29.280	29.321	29.671
	(0.0047)	(0.0178)	(0.0046)	(0.0137)	(0.0050)	(0.0107)
< H.S.Degree	0.1925	0.3449	0.1268	0.3258	0.1241	0.3396
	(0.0003)	(0.0013)	(0.0002)	(0.0010)	(0.0002)	(0.0008)
H.S.Degree	0.3909	0.2365	0.3545	0.2470	0.3506	0.2693
	(0.0004)	(0.0012)	(0.0003)	(0.0009)	(0.0003)	(0.0007)
Some College	0.2285	0.2029	0.3222	0.2228	0.3256	0.1889
	(0.0003)	(0.0011)	(0.0003)	(0.0009)	(0.0003)	(0.0007)
College Degree	0.1880	0.2157	0.1964	0.2043	0.1997	0.2023
	(0.0003)	(0.0011)	(0.0003)	(0.0009)	(0.0003)	(0.0007)
Black	0.1143	0.0682	0.1243	0.0807	0.1401	0.0719
	(0.0002)	(0.0007)	(0.0002)	(0.0006)	(0.0003)	(0.0004)
White non-Hispanic	0.8330	0.3421	0.8084	0.1994	0.7631	0.1547
	(0.0003)	(0.0013)	(0.0003)	(0.0009)	(0.0003)	(0.0006)
Asian or Pacific	0.0060	0.1957	0.0082	0.2347	0.0169	0.2198
	(0.0001)	(0.0011)	(0.0001)	(0.0009)	(0.0001)	(0.0007)
Other Race	0.0024	0.0270	0.0005	0.0034	0.0405	0.3400
	(0.0000)	(0.0005)	(0.0000)	(0.0001)	(0.0001)	(0.0008)
Hispanic	0.0405	0.3975	0.0519	0.4977	0.0784	0.5671
	(0.0001)	(0.0014)	(0.0002)	(0.0011)	(0.0002)	(0.0008)
U.S. Citizen	1	0.3306	1	0.2903	1	0.2667
		(0.0013)		(0.0010)		(0.0007)
Citizen: 96-00						0.0445
						(0.0007)
Citizen: 91-95						0.1392
						(0.0012)
Citizen: 85-90				0.0674		0.2991
				(0.0010)		(0.0015)
Citizen: 80-84				0.2388		0.4863
				(0.0018)		(0.0022)
Citizen: 75-79		0.0730		0.3973		0.5874
		(0.0012)		(0.0025)		(0.0031)
Citizen: 70-74		0.2604		0.4771		0.6671
		(0.0025)		(0.0032)		(0.0043)
Citizen: 65-69		0.4345		0.5839		0.7292
		(0.0034)		(0.0044)		(0.0057)
Citizen: 60-64		0.5875		0.6809		0.7667
		(0.0041)		(0.0054)		(0.0100)
Citizen: 50-59		0.7890		0.7699		
		(0.0034)		(0.0057)		
Citizen: 40-49		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 Parentheses; Sample Size in Square Brackets)

Group	*1980*		*1990*		*2000*	
			All			
Full Sample	0.0129		0.0206		0.0299	
	(0.00008)		(0.00010)		(0.00011)	
	[2,027,504]		[2,193,947]		[2,228,495]	
			By Immigrant Status			
	1980		*1990*		*2000*	
	Native-Born	*Immigrants*	*Native-Born*	*Immigrants*	*Native-Born*	*Immigrants*
All	0.0135	0.0042	0.0217	0.0107	0.0345	0.0068
	(0.00008)	(0.00018)	(0.00010)	(0.00022)	(0.00013)	(0.00014)
	[1,900,111]	[127,392]	[1,984,069]	[209,878]	[1,875,961]	[352,534]
< H.S Degree	0.0389	0.0076	0.0673	0.0167	0.1104	0.0101
	(0.00032)	(0.0041)	(0.00049)	(0.0048)	(0.00064)	(0.0028)
H.S. Degree	0.0101	0.0041	0.0229	0.0119	0.0412	0.0082
	(0.00011)	(0.00037)	(0.00018)	(0.00048)	(0.00024)	(0.00024)
Some College	0.0069	0.0024	0.0143	0.0082	0.0171	0.0047
	(0.00013)	(0.00030)	(0.00015)	(0.00042)	(0.00017)	(0.00027)
Black	0.0445	0.0078	0.0811	0.0289	0.1132	0.0179
	(0.0004)	(0.00095)	(0.00060)	(0.00142)	(0.00065)	(0.00087)
White Non-Hispanic	0.0088	0.0040	0.0116	0.0052	0.0170	0.0039
	(0.00007)	(0.00030)	(0.00008)	(0.00035)	(0.00011)	(0.00027)
Asian or Pacific	0.0086	0.0011	0.0130	0.0024	0.0253	0.0037
	(0.00087)	(0.00021)	(0.00090)	(0.00022)	(0.00090)	(0.00022)
Hispanic	0.0210	0.0054	0.0396	0.0152	0.0659	0.0079
	(0.00052)	(0.00032)	(0.00062)	(0.00037)	(0.00066)	(0.00020)
U.S. Citizen		0.0055		0.0097		0.0051
		(0.00036)		(0.00040)		(0.00023)
Immigrant Cohorts						
1996-2000						0.0037
						(0.00020)
1991-1995						0.0050
						(0.00025)
1985-1990				0.0068		0.0072
				(0.00032)		(0.00028)
1980-1984				0.0117		0.0106
				(0.00046)		(0.00046)
1975-1979		0.0029		0.0117		0.0096
		(0.00025)		(0.00055)		(0.00061)
1970-1974		0.0036		0.0128		0.0141
		(0.00034)		(0.00072)		(0.00108)
1965-1969		0.0039		0.0172		0.0098
		(0.00043)		(0.00115)		(0.00127)
1960-1964		0.0067		0.0163		0.0183
		(0.00068)		(0.00147)		(0.00309)
1950-1959		0.0065		0.0090		
		(0.00068)		(0.00128)		
1940-1949		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				-0.0110				-0.0276			
	(0.0002)				(0.0003)				(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	-0.0219	-0.0155	-0.0134	-0.0138
					(0.0004)	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0002)	(0.0001)	(0.0002)
1980-1984					-0.0097	-0.0094	-0.0083	-0.0083	-0.0183	-0.0136	-0.0119	-0.0123
					(0.0006)	(0.0003)	(0.0002)	(0.0003)	(0.0004)	(0.0002)	(0.0002)	(0.0002)
1975-1979	-0.0100	-0.0073	-0.0066	-0.0061	-0.0091	-0.0090	-0.0079	-0.0079	-0.0189	-0.0131	-0.0115	-0.0118
	(0.0002)	(0.0001)	(0.0001)	(0.0002)	(0.0007)	(0.0003)	(0.0002)	(0.0003)	(0.0005)	(0.0002)	(0.0002)	(0.0002)
1970-1974	-0.0090	-0.0070	-0.0064	-0.0059	-0.0076	-0.0081	-0.0073	-0.0073	-0.0151	-0.0106	-0.0098	-0.0104
	(0.0003)	(0.0002)	(0.0001)	(0.0002)	(0.0011)	(0.0005)	(0.0003)	(0.0004)	(0.0009)	(0.0004)	(0.0003)	(0.0003)
1965-1969	-0.0084	-0.0065	-0.0058	-0.0054	-0.0043	-0.0049	-0.0049	-0.0049	-0.0180	-0.0111	-0.0100	-0.0104
	(0.0004)	(0.0002)	(0.0002)	(0.0003)	(0.0014)	(0.0008)	(0.0006)	(0.0006)	(0.0011)	(0.0007)	(0.0005)	(0.0004)
1960-1964	-0.0059	-0.0045	-0.0038	-0.0030	-0.0044	-0.0031	-0.0031	-0.0031	-0.0097	-0.0045	-0.0048	-0.0058
	(0.0007)	(0.0004)	(0.0004)	(0.0005)	(0.0019)	(0.0013)	(0.0010)	(0.0010)	(0.0027)	(0.0019)	(0.0014)	(0.0013)
1950-1959	-0.0060	-0.0038	-0.0029	-0.0023	-0.0096	-0.0060	-0.0041	-0.0041				
	(0.0007)	(0.0005)	(0.0005)	(0.0006)	(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		0.1920	0.1153	0.1153		0.2468	0.1630	0.1621
		(0.0017)	(0.0013)	(0.0013)		(0.0054)	(0.0038)	(0.0038)		(0.0046)	(0.0035)	(0.0035)
H.S. Degree		0.0150	0.0117	0.0117		0.0491	0.0315	0.0315		0.0689	0.0469	0.0466
		(0.0004)	(0.0004)	(0.0004)		(0.0014)	(0.0010)	(0.0010)		(0.0014)	(0.0010)	(0.0010)
Some College		0.0110	0.0085	0.0085		0.0356	0.0243	0.0243		0.0349	0.0243	0.0242
		(0.0005)	(0.0005)	(0.0005)		(0.0013)	(0.0010)	(0.0010)		(0.0011)	(0.0008)	(0.0008)

	1980					1991					2000				
Black				0.0162	0.0162				0.0393	0.0393				0.0432	0.0430
				(0.0003)	(0.0003)				(0.0007)	(0.0007)				(0.0006)	(0.0006)
American Indian				0.0094	0.0094				0.0173	0.0173				0.0043	0.0043
				(0.0008)	(0.0008)				(0.0013)	(0.0013)				(0.0006)	(0.0006)
Asian or Pacific				0.0007	0.0006				0.0013	0.0013				0.0081	0.0083
				(0.0007)	(0.0007)				(0.0009)	(0.0009)				(0.0008)	(0.0008)
Other Race				0.0074	0.0074				0.0314	0.0314				-0.0010	-0.0010
				(0.0012)	(0.0012)				(0.0071)	(0.0071)				(0.0003)	(0.0003)
Hispanic				0.0027	0.0027				0.0119	0.0119				0.0165	0.0164
				(0.0003)	(0.0003)				(0.0005)	(0.0005)				(0.0005)	(0.0005)
U.S. Citizen					0.0025					0.0000					-0.0053
					(0.0005)					(0.0008)					(0.0010)
Age Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Psuedo 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

Notes: 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. 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.

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)*
1996-2000 Cohort												
Within Census [a]									0.0035	0.0011	0.0008	0.0008
									(0.0003)	(0.0002)	(0.0002)	(0.0002)
1991-1995 Cohort												
Within Census [a]									0.0056	0.0024	0.0018	0.0017
									(0.0005)	(0.0002)	(0.0002)	(0.0002)
1985-1990 Cohort												
Within Census [a]					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 [b]					-0.0074	-0.0043	-0.0039	-0.0043				
					(0.0005)	(0.0003)	(0.0002)	(0.0003)				
1980-1984 Cohort												
Within Census [a]					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 [b]					-0.0086	-0.0042	-0.0036	-0.0041				
					(0.0006)	(0.0003)	(0.0002)	(0.0003)				
1975-1979 Cohort												
Within Census [a]	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 [b]	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)				
1970-1974 Cohort												
Within Census [a]	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 [b]	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 3a; column (1) here corresponds to the specification in column (2) in (2) in Table 3a etc. Standard errors are calculated as for the difference between two means.

[a]Within Census differences are calculated by subtracting the given cohort's probability from the probability for the cohort that arrived 10 years earlier.

[a]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)

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

Notes: These numbers are calculated from Table 3a, 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 3a for list of controls. Standard errors are calculated as for difference between two means.

Table 4. **Marginal Effects for Logit Estimates of Citizenship**
Immigrants Only
(Standard Errors in Parentheses)

	1980				**1990**				**2000**			
	Raw Mean	(1)	(2)	(3)	*Raw Mean*	(1)	(2)	(3)	*Raw Mean*	(1)	(2)	(3)
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*				*0.2991*	0.4432	0.4559	0.4628
					(0.0010)				*(0.0015)*	(0.0039)	(0.0039)	(0.0039)
1980-1984					*0.2388*	0.3079	0.3140	0.3140	*0.4863*	0.6222	0.6378	0.6433
					(0.0018)	(0.0043)	(0.0043)	(0.0044)	*(0.0022)*	(0.0035)	(0.0035)	(0.0035)
1975-1979	*0.0730*				*0.3973*	0.4876	0.4948	0.5012	*0.5874*	0.6868	0.6940	0.7017
	(0.0012)				*(0.0025)*	(0.0042)	(0.0042)	(0.0043)	*(0.0031)*	(0.0030)	(0.0030)	(0.0030)
1970-1974	*0.2604*	0.3309	0.3398	0.3550	*0.4771*	0.5588	0.5679	0.5869	*0.6671*	0.7178	0.7179	0.7293
	(0.0025)	(0.0049)	(0.0050)	(0.0051)	*(0.0032)*	(0.0041)	(0.0041)	(0.0041)	*(0.0043)*	(0.0028)	(0.0030)	(0.0029)
1965-1969	*0.4345*	0.5059	0.5113	0.5270	*0.5839*	0.6287	0.6275	0.6475	*0.7292*	0.7312	0.7284	0.7408
	(0.0034)	(0.0044)	(0.0045)	(0.0046)	*(0.0044)*	(0.0037)	(0.0038)	(0.0037)	*(0.0057)*	(0.0029)	(0.0032)	(0.0031)
1960-1964	*0.5875*	0.6132	0.6116	0.6293	*0.6809*	0.6761	0.6699	0.6894	*0.7667*	0.7347	0.7308	0.7432
	(0.0041)	(0.0037)	(0.0038)	(0.0039)	*(0.0054)*	(0.0034)	(0.0036)	(0.0034)	*(0.0100)*	(0.0039)	(0.0047)	(0.0044)
1950-1959	*0.7890*	0.7212	0.7180	0.7223	*0.7699*	0.7070	0.7020	0.7139				
	(0.0034)	(0.0026)	(0.0027)	(0.0028)	*(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)								
Psuedo R-square		0.2444	0.2534	0.2615		0.1656	0.1849	0.1980		0.1911	0.2277	0.2455

Notes: 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. The marginal effects are evaluated at the sample means. 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 5a. **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)*
1996-2000 Cohort									
Within Census [a]							-0.0013	-0.0006	-0.0005
							(0.0010)	(0.0005)	(0.0003)
1991-1995 Cohort									
Within Census [a]							0.0023	0.0010	0.0005
							(0.0008)	(0.0004)	(0.0003)
1985-1990 Cohort									
Within Census [a]				0.0011	0.0018	0.0015	0.0011	0.0011	0.0008
				(0.0017)	(0.0008)	(0.0005)	(0.0008)	(0.0005)	(0.0003)
Between Census [b]				-0.0137	-0.0065	-0.0054			
				(0.0014)	(0.0006)	(0.0004)			
1980-1984 Cohort									
Within Census [a]				0.0019	0.0019	0.0014	0.0014	0.0020	0.0013
				(0.0018)	(0.0010)	(0.0007)	(0.0010)	(0.0006)	(0.0004)
Between Census [b]				-0.0140	-0.0072	-0.0060			
				(0.0012)	(0.0006)	(0.0004)			
1975-1979 Cohort									
Within Census [a]	-0.0025	-0.0005	-0.0003	0.0046	0.0042	0.0029	-0.0007	0.0004	0.0004
	(0.0014)	(0.0006)	(0.0005)	(0.0019)	(0.0012)	(0.0009)	(0.0011)	(0.0008)	(0.0005)
Between Census [b]	-0.0055	-0.0030	-0.0022	-0.0137	-0.0072	-0.0060			
	(0.0016)	(0.0008)	(0.0006)	(0.0012)	(0.0007)	(0.0005)			
1970-1974 Cohort									
Within Census [a]	0.0024	0.0028	0.0029	0.0021	0.0042	0.0036	0.0090	0.0086	0.0069
	(0.0012)	(0.0007)	(0.0007)	(0.0025)	(0.0019)	(0.0014)	(0.0034)	(0.0028)	(0.0021)
Between Census [b]	-0.0021	-0.0015	-0.0012	-0.0144	-0.0072	-0.0061			
	(0.0017)	(0.0009)	(0.0007)	(0.0017)	(0.0010)	(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.

[a]Within Census differences are calculated by subtracting the given cohort's probability from the probability for the cohort that arrived 10 years earlier.

[a]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 5b. **Differences in Institutionalization Rates Across Immigrant Arrival Cohorts**
Naturalized U.S. Citizens and Native-Born Only
(Standard Errors in Parentheses)

	1980 versus 1990			**1990 versus 2000**		
Years since Arrival						
	(1)	*(2)*	*(3)*	*(1)*	*(2)*	*(3)*
Fewer than 5	-0.0066	-0.0048	-0.0037	-0.0124	-0.0059	-0.0049
	(0.0018)	(0.0007)	(0.0005)	(0.0016)	(0.0007)	(0.0004)
Between 5 and 10	-0.0040	-0.0034	-0.0027	-0.0163	-0.0082	-0.0065
	(0.0013)	(0.0006)	(0.0005)	(0.0011)	(0.0006)	(0.0004)
	1980 versus 2000					
Fewer than 5	-0.0190	-0.0107	-0.0085			
	(0.0015)	(0.0006)	(0.0005)			
Between 5 and 10	-0.0203	-0.0116	-0.0092			
	(0.0009)	(0.0005)	(0.0004)			

Notes: These numbers are calculated from marginal effects for logit estimates -- 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

Table 6a. **Institutionalization and Immigrant Arrival Cohorts Compared to the Native-Born in 1980, 1990 and 2000**
All Immigrants and Native-Born who have Moved across States
(Standard Errors in Parentheses)

	1980				**1990**				**2000**			
	(1)	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*
1996-2000 Cohort												
Within Census [a]									0.0036	0.0012	0.0010	0.0010
									(0.0003)	(0.0003)	(0.0002)	(0.0003)
1991-1995 Cohort												
Within Census [a]									0.0051	-0.0080	0.0020	0.0021
									(0.0025)	(0.0002)	(0.0002)	(0.0002)
1985-1990 Cohort												
Within Census [a]					0.0053	0.0022	0.0018	0.0018	0.0031	0.0025	0.0023	0.0024
					(0.0008)	(0.0004)	(0.0003)	(0.0004)	(0.0005)	(0.0003)	(0.0002)	(0.0002)
Between Census [b]					-0.0030	-0.0013	-0.0015	-0.0019				
					(0.0005)	(0.0003)	(0.0003)	(0.0003)				
1980-1984 Cohort												
Within Census [a]					0.0018	0.0011	0.0010	0.0010	0.0028	0.0022	0.0018	0.0018
					(0.0012)	(0.0005)	(0.0004)	(0.0042)	(0.0008)	(0.0003)	(0.0003)	(0.0003)
Between Census [b]					-0.0044	-0.0011	-0.0011	-0.0014				
					(0.0006)	(0.0003)	(0.0002)	(0.0003)				
1975-1979 Cohort												
Within Census [a]	0.0017	0.0009	0.0009	0.0008	0.0046	0.0032	0.0025	0.0038	0.0009	0.0014	0.0012	0.0011
	(0.0005)	(0.0002)	(0.0002)	(0.0003)	(0.0015)	(0.0007)	(0.0005)	(0.0009)	(0.0010)	(0.0005)	(0.0004)	(0.0003)
Between Census [b]	0.0017	-0.0010	-0.0008	-0.0013	-0.0051	-0.0010	-0.0010	-0.0012				
	(0.0007)	(0.0003)	(0.0003)	(0.0004)	(0.0008)	(0.0003)	(0.0003)	(0.0003)				
1970-1974 Cohort												
Within Census [a]	0.0030	0.0021	0.0023	0.0025	0.0029	0.0036	0.0033	0.0024	0.0046	0.0038	0.0035	0.0031
	(0.0007)	(0.0003)	(0.0004)	(0.0005)	(0.0020)	(0.0010)	(0.0009)	(0.0043)	(0.0022)	(0.0012)	(0.0010)	(0.0009)
Between Census [b]	0.0019	-0.0007	-0.0006	-0.0010	-0.0034	0.0000	-0.0003	-0.0007				
	(0.0011)	(0.0004)	(0.0004)	(0.0042)	(0.0012)	(0.0005)	(0.0004)	(0.0042)				

Notes*:* These numbers are calculated using marginal effects calculated from logit estimates, not shown. 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.
[a]Within Census differences are calculated by subtracting the given cohort's probability from the probability for the cohort that arrived 10 years earlier.
[a]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 6b. **Differences in Institutionalization Rates Across Immigrant Arrival Cohorts**
All Immigrants and Native-Born who have Moved across States
(Standard Errors in Parentheses)

	1980 versus 1990				1990 versus 2000			
Years since Arrival	*(1)*	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*
Fewer than 5	-0.0036	-0.0032	-0.0026	-0.0031	-0.0065	-0.0025	-0.0025	-0.0029
	(0.0005)	(0.0003)	(0.0003)	(0.0003)	(0.0005)	(0.0003)	(0.0003)	(0.0003)
Between 5 and 10	0.0001	-0.0019	-0.0016	-0.0021	-0.0095	0.0069	-0.0031	-0.0034
	(0.0006)	(0.0003)	(0.0003)	(0.0004)	(0.0026)	(0.0003)	(0.0003)	(0.0003)
	1980 versus 2000							
Fewer than 5	-0.0101	-0.0057	-0.0051	0.0043				
	(0.0003)	(0.0002)	(0.0002)	(0.0003)				
Between 5 and 10	-0.0094	0.0050	-0.0047	-0.0055				
	(0.0025)	(0.0002)	(0.0002)	(0.0003)				

Notes: These numbers are calculated from marginal effects for logit estimates -- 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. See notes to Table 8a for list of controls. Standard errors are calculated as for difference between two means.

Figure 1: Institutionalization and Real Hourly Wages, 2000, by Country

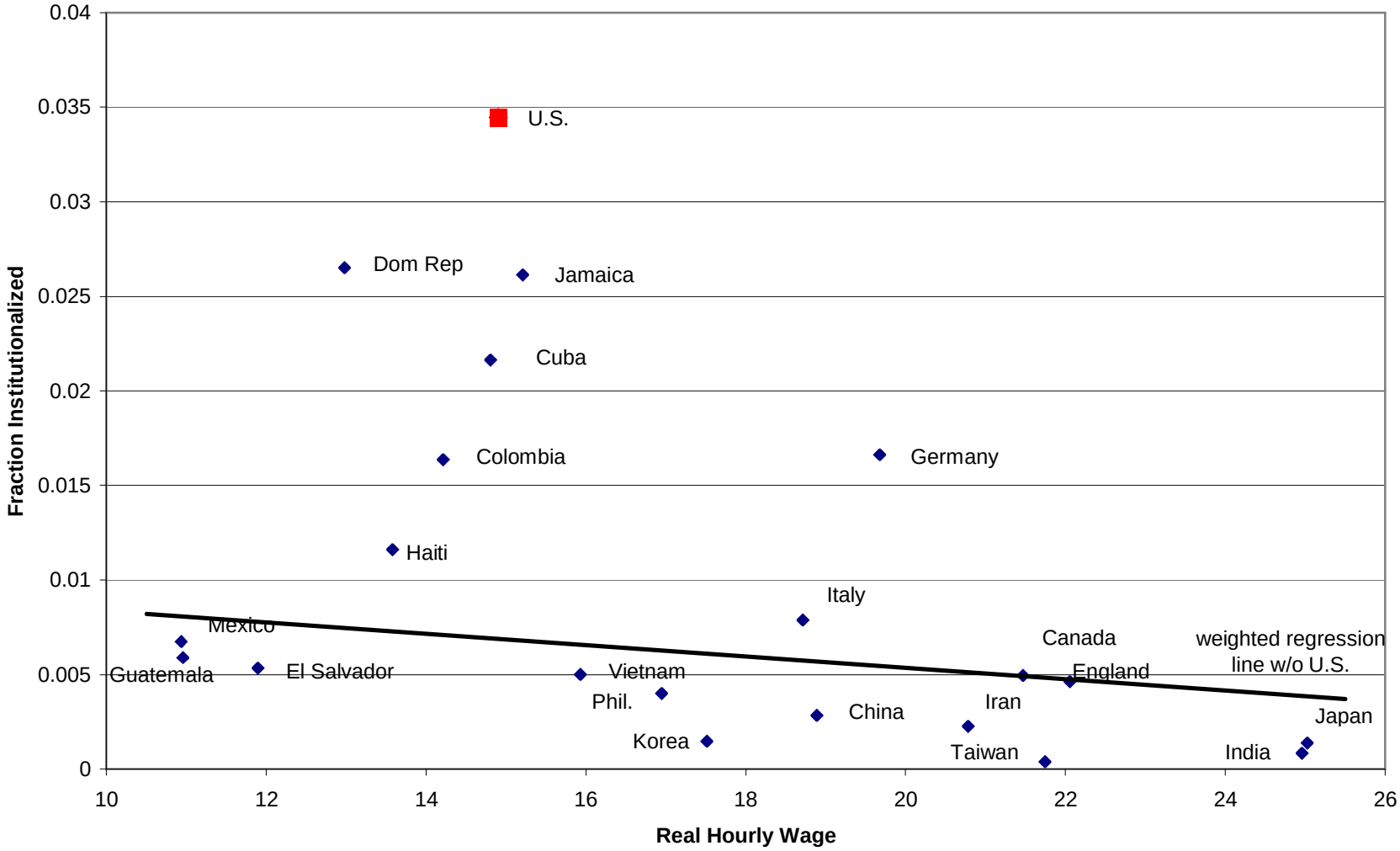


Figure 2: Real Hourly Wages vs.Welfare Receipt, 2000, by country

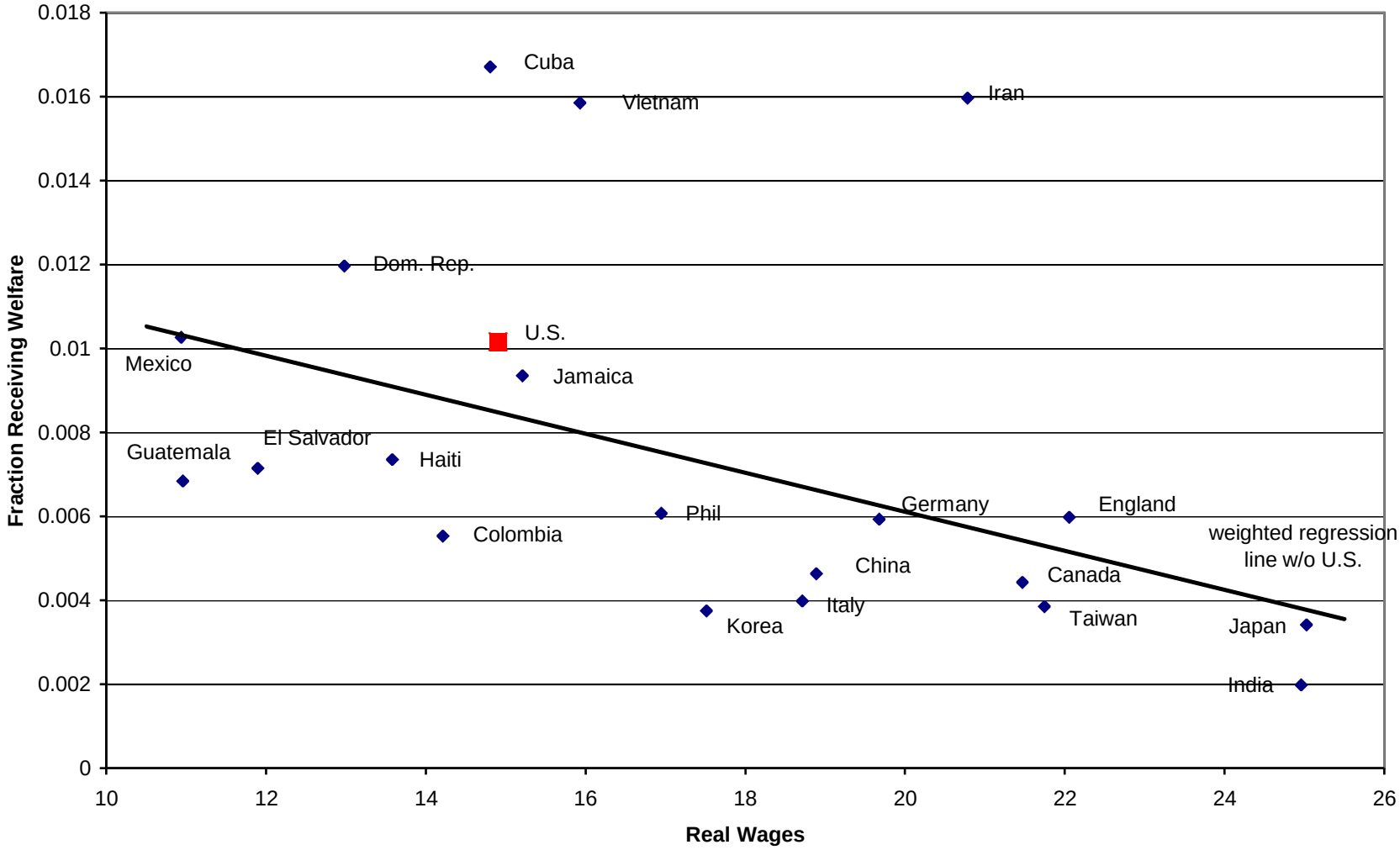


Figure 3: Real Hourly Wages vs. Labor Force Participation, 2000, by country

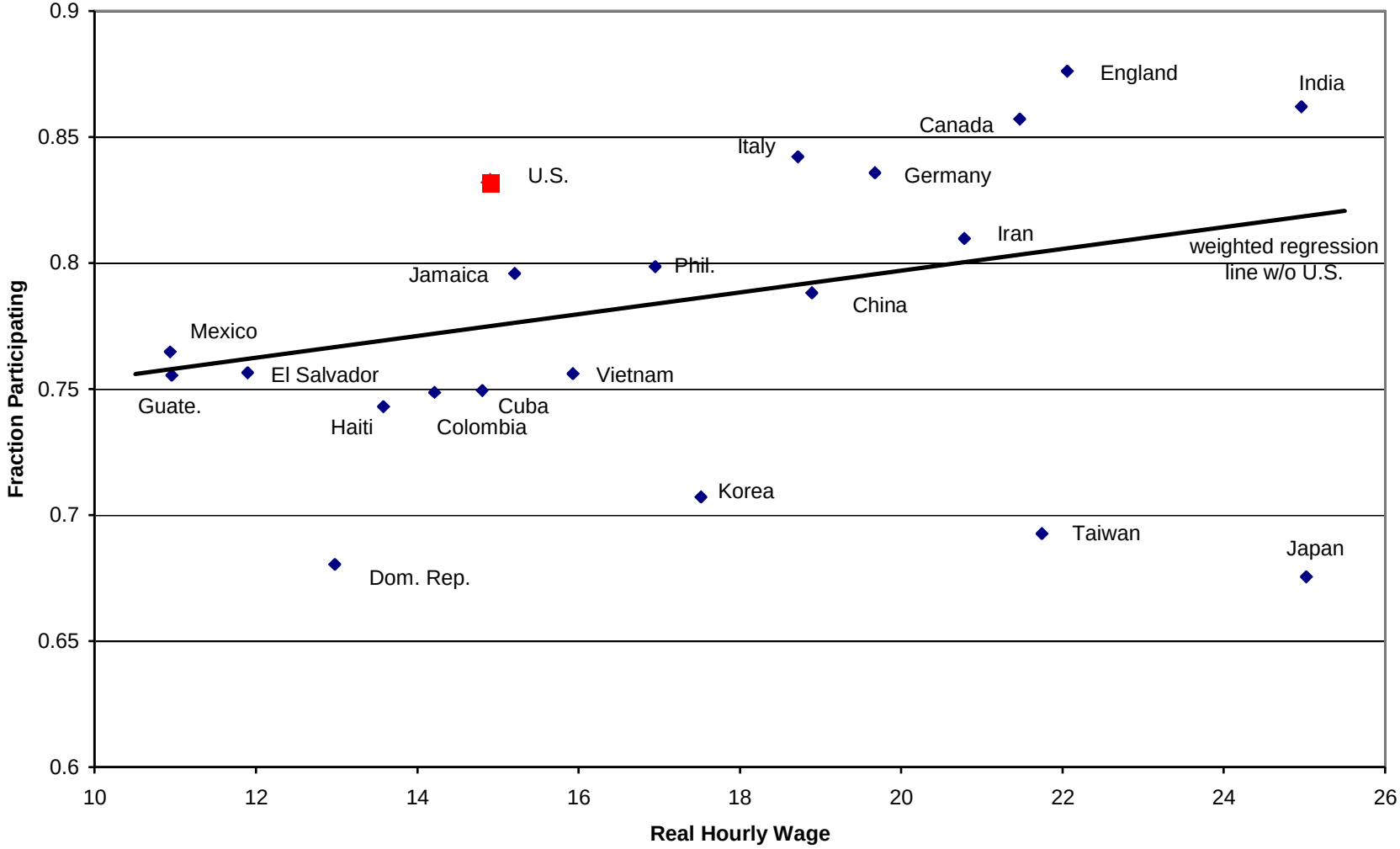


Figure 4. Fraction Immigrant Inside and Outside Institutions

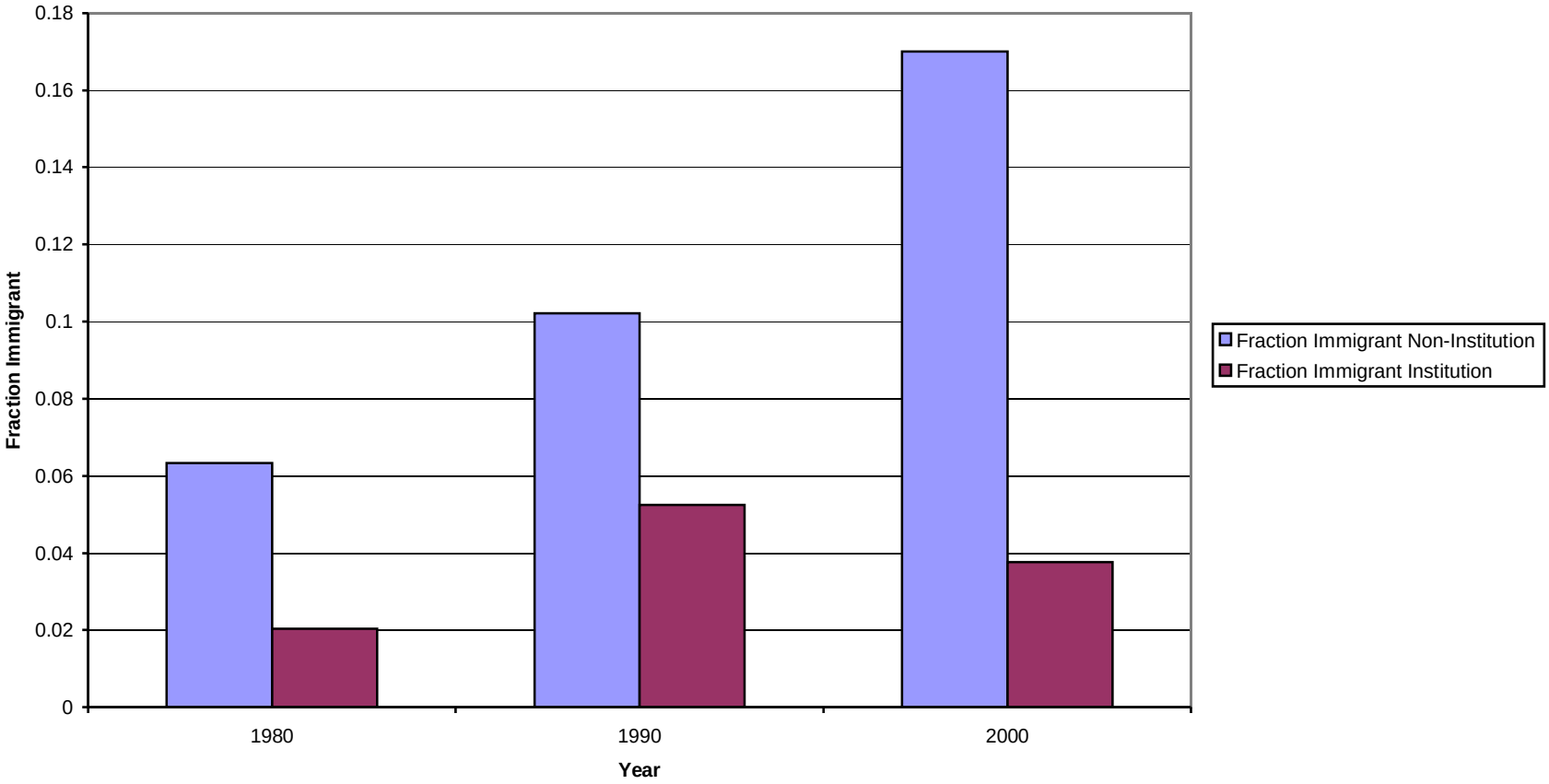


Figure 5. Institutionalization by Age
Native-born and Most Recent Immigrant Cohort
1980, 1990,and 2000 Census

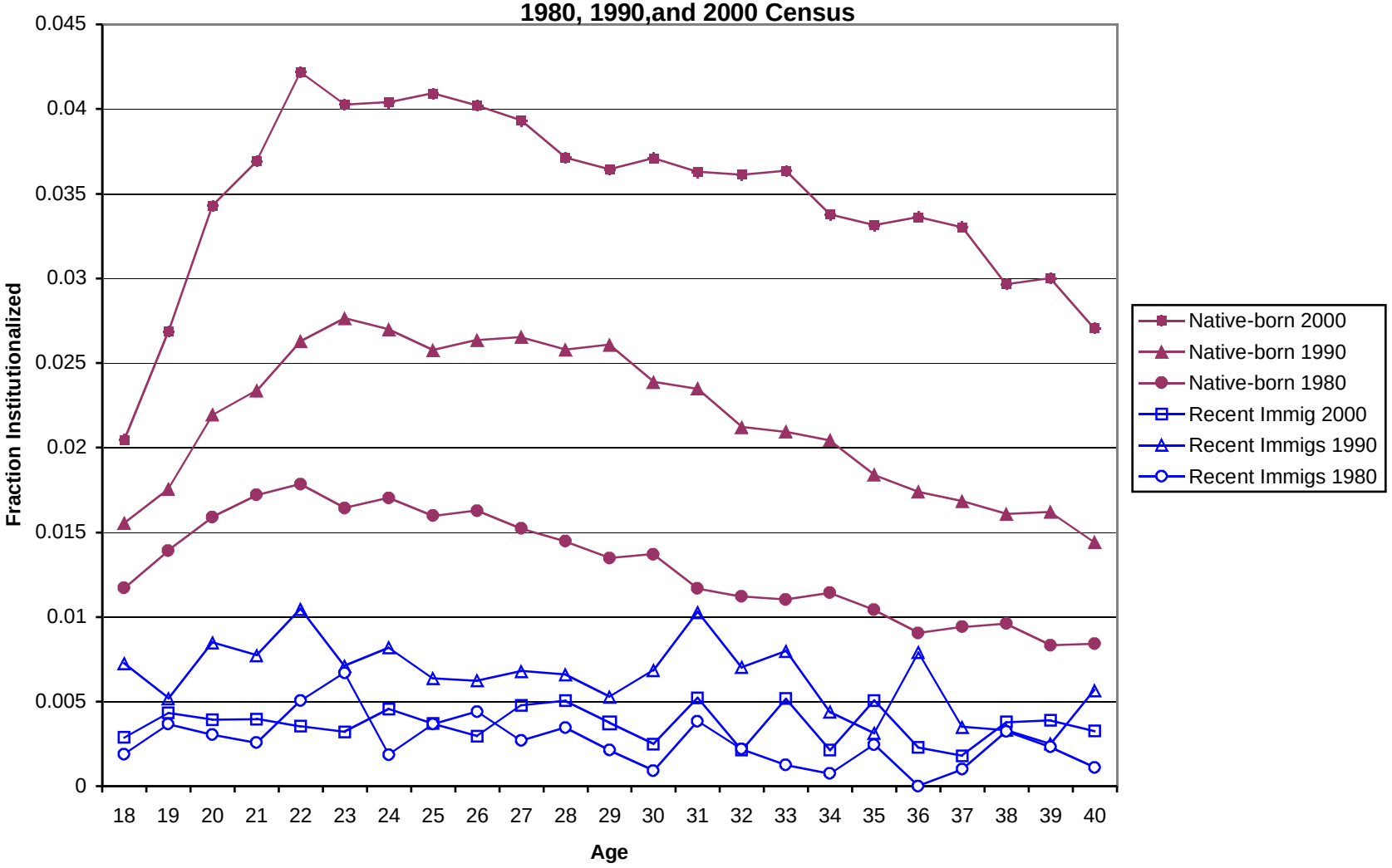
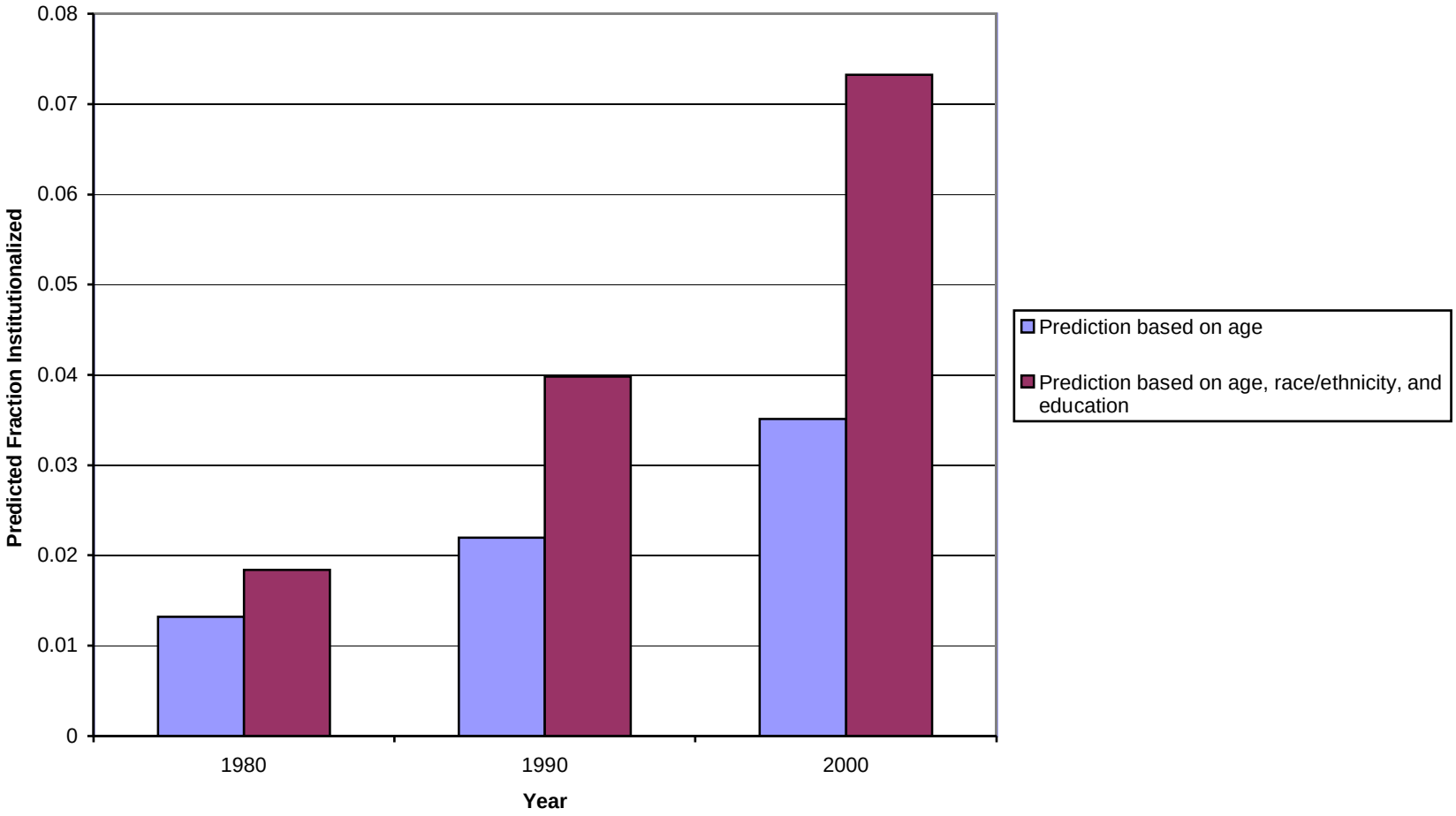
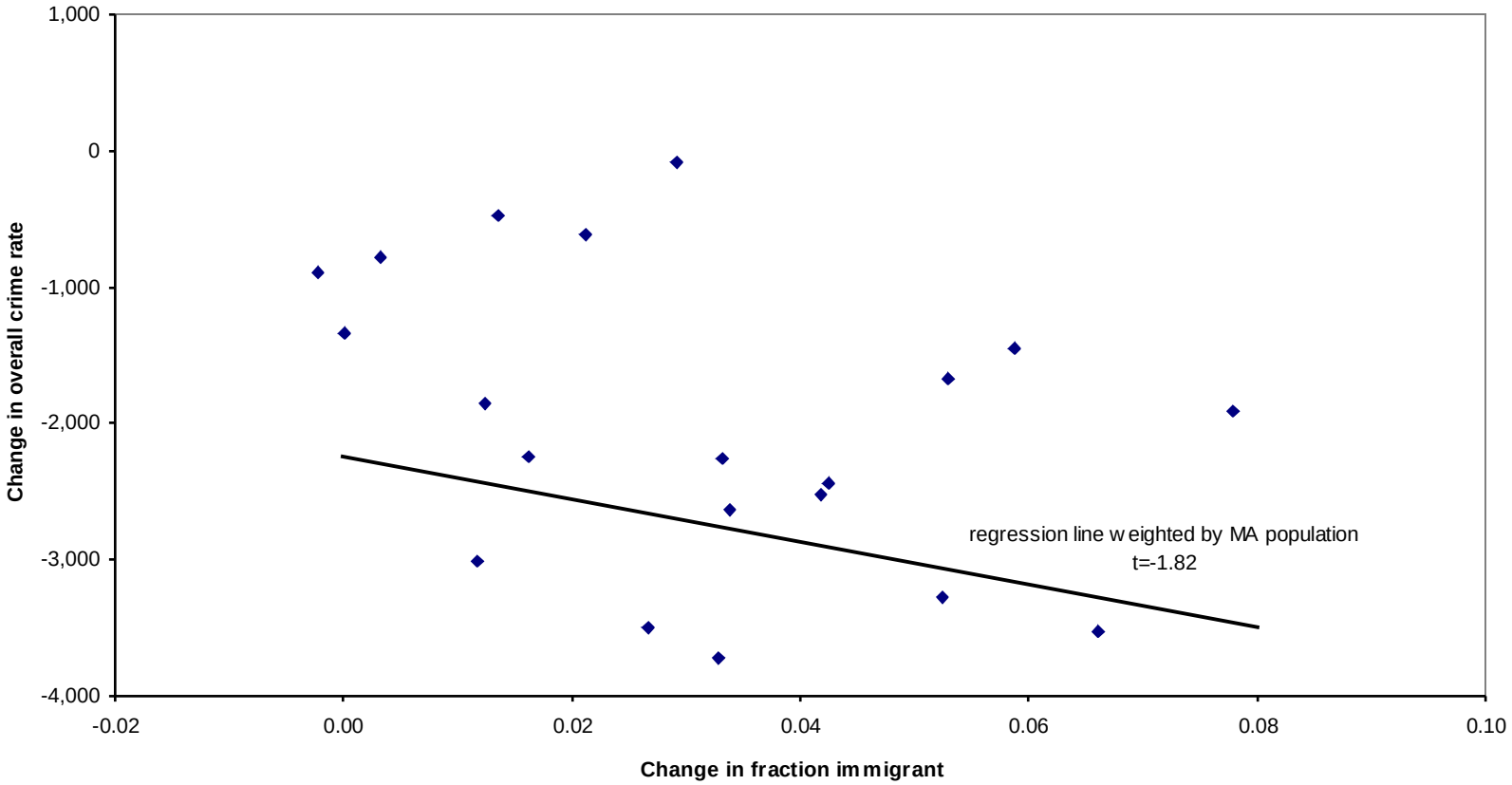


Figure 6. Predicted Institutionalization Rates For Immigrants



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.

Figure 7. Changes in Metropolitan Area (MA) Crime Rates by Changes in Fraction Immigrant 1990 to 2000



Appendix Table 1a. **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)*
1996-2000 Cohort												
Within Census [a]									0.0041	0.0023	0.0023	0.0026
									(0.0012)	(0.0000)	(0.0000)	(0.0082)
1991-1995 Cohort												
Within Census [a]									0.0070	0.0051	0.0052	0.0062
									(0.0012)	(0.0000)	(0.0000)	(0.0081)
1985-1990 Cohort												
Within Census [a]					0.0063	0.0038	0.0040	0.0040	0.0030	0.0042	0.0045	0.0056
					(2.0000)	(3.0000)	(4.0000)	(5.0000)	(0.0014)	(0.0000)	(0.0000)	(0.0081)
Between Census [b]					-0.0146	-0.0248	-0.0345	-0.0605				
					(0.0011)	(0.0008)	(0.0012)	(0.0063)				
1980-1984 Cohort												
Within Census [a]					0.0025	0.0022	0.0025	0.0025	0.0044	0.0084	0.0087	0.0108
					(0.0016)	(0.0013)	(0.0018)	(0.0034)	(0.0017)	(0.0000)	(0.0000	(0.0078)
Between Census [b]					-0.0160	-0.0245	-0.0339	-0.0592				
					(0.0012)	(0.0008)	(0.0011)	(0.0061)				
1975-1979 Cohort												
Within Census [a]	0.0018	0.0009	0.0010	0.0007	0.0061	0.0080	0.0085	0.0085	0.0011	0.0060	0.0068	0.0089
	(0.0008)	(0.0005)	(0.0007)	0.0012	(0.0021)	(0.0018)	(0.0022)	(0.0034)	(0.0022)	(0.0000)	(0.0000)	(0.0080)
Between Census [b]	0.0012	-0.0069	-0.0121	-0.0162	-0.0179	-0.0245	-0.0340	-0.0589				
	(0.0011)	(0.0009)	(0.0013)	(0.0026)	(0.0015)	(0.0008)	(0.0012)	(0.0061)				
1970-1974 Cohort												
Within Census [a]	0.0040	0.0037	0.0043	0.0033	0.0041	0.0101	0.0124	0.0123	0.0085	0.0201	0.0258	0.0327
	(0.0010)	(0.0007)	(0.0009)	0.0012	(0.0029)	(0.0029)	(0.0033)	(0.0041)	(0.0045)	(0.0000)	(0.0000)	(0.0110)
Between Census [b]	0.0019	-0.0056	-0.0108	-0.0149	-0.0140	-0.0183	-0.0276	-0.0509				
	(0.0015)	(0.0011)	(0.0015)	(0.0026)	(0.0020)	(0.0011)	(0.0014)	(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; (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.

[a]Within Census differences are calculated by subtracting the given cohort's probability from the probability for the cohort that arrived 10 years earlier.

[a]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).

Appendix Table 1b. **Differences in Institutionalization Rates Across Immigrant Arrival Cohorts Evaluated at a constant set of characteristics across Censuses**
(Standard Errors in Parentheses)

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

Notes: These numbers are calculated from marginal effects for logit estimates -- 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. See notes to Table 4a 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.

Appendix Table 2a. **Institutionalization and Immigrant Arrival Cohorts Compared to the Native-Born in 1980, 1990 and 2000**
Immigrants who Arrived as Children and Native-Born
(Standard Errors in Parentheses)

	1980				1990				2000			
	(1)	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*
1996-2000 Cohort												
Within Census [a]									0.0032	0.0011	0.0008	0.0009
									(0.0004)	(0.0002)	(0.0002)	(0.0002)
1991-1995 Cohort												
Within Census [a]									0.0041	0.0017	0.0013	0.0014
									(0.0006)	(0.0002)	(0.0002)	(0.0002)
1985-1990 Cohort												
Within Census [a]					0.0002	0.0015	0.0011	0.0011	0.0030	0.0017	0.0015	0.0016
					(0.0009)	(0.0004)	(0.0016)	(0.0004)	(0.0008)	(0.0003)	(0.0002)	(0.0002)
Between Census [b]					-0.0124	-0.0048	-0.0042	-0.0041				
					(0.0005)	(0.0003)	(0.0016)	(0.0003)				
1980-1984 Cohort												
Within Census [a]					0.0017	-0.0005	-0.0002	0.0000	0.0021	0.0016	0.0012	0.0011
					(0.0014)	(0.0005)	(0.0004)	(0.0004)	(0.0029)	(0.0011)	(0.0007)	(0.0006)
Between Census [b]					-0.0085	-0.0051	-0.0042	-0.0040				
					(0.0006)	(0.0003)	(0.0002)	(0.0003)				
1975-1979 Cohort												
Within Census [a]	0.0005	0.0002	0.0002	0.0001	0.0060	0.0023	0.0016	0.0015	0.0198	0.0143	0.0122	0.0125
	(0.0005)	(0.0002)	(0.0002)	(0.0003)	(0.0029)	(0.0011)	(0.0008)	(0.0007)	(0.0008)	(0.0003)	(0.0002)	(0.0002)
Between Census [b]	-0.0002	-0.0023	-0.0018	-0.0026	-0.0096	-0.0046	-0.0038	-0.0037				
	(0.0008)	(0.0003)	(0.0003)	(0.0004)	(0.0011)	(0.0004)	(0.0003)	(0.0003)				
1970-1974 Cohort												
Within Census [a]	0.0010	0.0008	0.0009	0.0009	0.0103	0.0101	0.0087	0.0090	0.0184	0.0131	0.0115	0.0119
	(0.0009)	(0.0004)	(0.0004)	(0.0005)	(0.0012)	(0.0004)	(0.0003)	(0.0003)	(0.0029)	(0.0011)	(0.0007)	(0.0005)
Between Census [b]	-0.0008	-0.0029	-0.0021	-0.0027	-0.0080	-0.0030	-0.0029	-0.0029				
	(0.0013)	(0.0005)	(0.0003)	(0.0004)	(0.0031)	(0.0012)	(0.0007)	(0.0006)				

Notes*:* These numbers are calculated using marginal effects calculated from logit estimates, not shown. 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.
[a]Within Census differences are calculated by subtracting the given cohort's probability from the probability for the cohort that arrived 10 years earlier.
[a]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).

Appendix Table 2b. **Differences in Institutionalization Rates Across Immigrant Arrival Cohorts**
Immigrants who Arrived as Children and Native-Born
(Standard Errors in Parentheses)

	1980 versus 1990				1990 versus 2000			
Years since Arrival	*(1)*	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*
Fewer than 5	-0.0004	-0.0039	-0.0029	-0.0037	-0.0156	-0.0058	-0.0050	-0.0050
	(0.0005)	(0.0002)	(0.0016)	(0.0003)	(0.0005)	(0.0003)	(0.0016)	(0.0003)
Between 5 and 10	-0.0025	-0.0024	-0.0020	-0.0027	-0.0126	-0.0068	-0.0055	-0.0054
	(0.0007)	(0.0003)	(0.0002)	(0.0003)	(0.0006)	(0.0003)	(0.0002)	(0.0003)
	1980 versus 2000							
Fewer than 5	-0.0160	-0.0097	-0.0079	-0.0087				
	(0.0003)	(0.0002)	(0.0002)	(0.0003)				
Between 5 and 10	-0.0151	-0.0093	-0.0075	-0.0081				
	(0.0004)	(0.0002)	(0.0002)	(0.0003)				

Notes: These numbers are calculated from marginal effects for logit estimates -- 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. See notes to Table 7a for list of controls. Standard errors are calculated as for difference between two means.

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