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Projected Impacts of U.S. Immigration on Per Capita Greenhouse Gas Emissions, 2050 and 2100

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Projected Impacts of U.S. Immigration on Per Capita Greenhouse Gas Emissions, 2050 and 2100

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Abstract

Immigration affects long-run projections of U.S. CO_2 emissions, via the impacts on population scale, population aging, and labor supply. This article estimates the labor supply effects, complementing an earlier paper in which the authors have modeled the effects of scale and aging. Labor supply effects on future CO_2 emissions are approximated based on recent survey data on earnings differences between immigrant and native-born households and on existing demographic projections. Gaps in average earnings are found to be substantial only for Hispanic immigrants, between 25 and 47 percent below native-born peers, depending on the age group and measure used. Impacts are estimated using a range of population projections and assumptions about future convergence, or assimilation, of the earnings of immigrants and their descendents to those of the descendents of the native-born population. If per capita earnings differences remain near current levels, the aggregate effects on per capita earnings and consumption are found to be affected more by the rate at which the immigrant population's earnings converge to native-born levels than by projected differences in future immigration. If assimilation is rapid, the impacts of immigration are proportional to the size of the first generation and negligible, regardless of the level of immigration. If future assimilation is impeded, the marginal impacts will be more substantial and vary with the level of immigration but still well below 10% in 2100 when calculated using the preferred measure of earning differences and only exceed 10% when the impacts are calculated using the alternate per capita earnings differences.

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About the Author

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Projected Impacts of U.S. Immigration on Per Capita Greenhouse Gas Emissions, 2050 and 2100

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Introduction

In a recent paper (Dalton, O'Neill, Prskawetz, Jiang, and Pitkin, 2006) we found that taking account of population aging reduces projected per capita emissions of carbon dioxide (the most important greenhouse gas) in the U.S. at the end of the century by as much as 40 percent. This result, from an energy-economic growth model, results from shifts in the age composition of the population, or "population aging." Older households supply less labor and have different patterns of consumption than younger households. This report describes our findings on how projected greenhouse gas emissions are affected by the level of immigration.

The bulk of the effects of international migration are incorporated, either explicitly or implicitly, in the three population scenarios in the Dalton, et. al. paper, which are detailed in Jiang and O'Neill (submitted). These effects include those of population size or scale, which are explicitly reflected in the alternative population scenarios. "Population size varies among the three scenarios by more than a factor of four in 2100, driven by differences in assumptions about fertility, mortality, and international migration."[1] The impacts of immigration on the household structure of the population, by contrast, are modeled implicitly, via (1) the assumed age structure of new immigrants (modal age 20-24) and (2) the combinations of demographic rates assumed in the different scenarios. The low population scenario couples low immigration with low fertility and projects smaller, older households than the other scenarios; the high population scenario couples high immigration with high fertility and results in larger, younger households than other scenarios; and the middle scenario is intermediate between these. By combining low immigration with lower fertility and high immigration with higher fertility, the scenarios implicitly reflect the effects of higher fertility rates among foreign-born than native-born women.[2]

The three population scenarios thus approximately indicate the effects of different levels of immigration on the size and age composition of the population and, in turn, on future greenhouse gas emissions. However they do not reflect the potential effects of differences in average earnings between foreign-born and native-born workers. These

[1] ("…because the U.S. is one of the world's major migration destination countries, immigration assumptions play a particularly important role in future population outcomes.")
[2] Explicit and precise would be better.

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gaps, which are believed to reflect differences in productivity or efficiency rather than the effects of discrimination, indicate that there is immigration-related heterogeneity in the population that is not reflected by the energy-economic model. These differences in labor productivity are potentially important, since Dalton et al. found that the aging effect on emissions acted primarily through changes in labor supply that affected the economic growth rate and hence emissions.

The likely immigration-related labor supply effects on the model's projections of carbon emissions are the primary focus of this report. Performing a full PET model analysis would require substantial new work on household projections, model development, and data analysis. Our aim is therefore to make a rough estimate of the likely effects based on economic data describing differences between immigrant and native-born households, and existing demographic projections. These results could then be used as a basis for deciding whether further analysis is warranted. The plan of the report is first to describe the current (2000-2005) data on differences by nativity in the model's key demographic and economic inputs and next to consider the range of theories about the speed at which the foreign-born rates will converge, or assimilate, to the native-born rates. In order to assess the implication of these differences and theories for projected carbon emissions, it is necessary to quantify the nativity composition of the population (foreign-born and their descendents), so the report then describes available long-term projections of the U.S. population by nativity. Based on these projections, the report then proposes an operational measure of the "immigrant composition" effect on emissions and calculates upper bounds on its size for the different model scenarios.

Population Heterogeneity by Nativity

Variations by Ethnicity in Earnings and Consumption

No information on nativity is available in the Consumer Expenditure Survey data (CES) that were used to calibrate the variations of consumption, labor income, savings, assets, and transfer and capital income across household types in the PET model. The best measures of differences in these variables by nativity status are obtained by using Hispanic origin of householder as a proxy indicator: 62.7 % of the population that is living in households with Hispanic householders live in households where the householder is foreign born (Current Population Survey March Supplement (CPS) 2003-2005, mean), almost quadruple the 16.4 % of the total population that lives with foreign born householders. Although the comparable fraction of persons in households with Asian or Pacific Islander (Asian) householders is even higher, 79.6 %, we focus on Hispanic householders because, as will be seen below, the gaps in labor income and other variables are much larger for Hispanic immigrants than for those of other ethnicity.

The percentage differences, or gaps, between the population in Hispanic households (where the householder is of Hispanic origin) and the population in all

households, are shown in the bottom panel of Table 1.[3] In this and the following tables the sample universe is persons, not households, giving a greater weight to large households. The gaps fall into two distinct ranges for the different variables, (1) for consumption, labor income, and, average government transfers above age 64 they are 34 – 36%, and (2) for savings, capital income, and capital assets they range from 63 to 72%. (The latter range extends to 87% if the minor "other household transfer" category is included.)

The near equality of the gaps in labor income and consumption is no coincidence. There is a strong behavioral connection between earnings and consumption rooted in the high proportion of pre-retirement total income that is comprised by earnings and the constraint placed by total income on consumption. Barring large differences in savings rates, the gaps in earnings and consumption are necessarily similar. A similar if slightly less mechanical connection can be made between labor income below retirement age and government transfers above retirement age, since a substantial share of the latter consist of Social Security and pensions that are based in part on pre-retirement earnings. Because of these relationships, differences between nativity and ethnic groups in labor income, or earnings, are a valid proxy measure of inter-group differences in consumption. This correspondence will allow us to use other surveys that include good information on earnings to measure more precisely the differences in earnings and consumption between foreign and native-born householders.

There is a similar correlation between the size of the gaps in savings, capital, and capital income. However, the absence of reliable data on any of these three variables in surveys that also include nativity makes it impossible to investigate the effects of nativity status on savings behavior and asset holdings. Exploratory investigations of CPS data suggest that low level of capital income (dividends, interest, and rents) for Hispanics is only in part an immigration effect that is narrowed in the second and later generations. However, the reliability of these data is questionable, as is shown below.

Data and Definitions

As a basis for investigating the effects of nativity on labor income, or earnings, and consumption, we use the Current Population Survey March Annual Demographic Supplement (CPS), which includes information on place of birth (U.S. or foreign born), year of arrival in the U.S. (if foreign born), and the nativity of each parent (foreign or native born).

Although the CPS does not have information on expenditures, it includes information on earnings, asset income (interest, dividends, and rents) and housing tenure (owner or renter occupier). In addition to these variables which directly or indirectly enter the household sector of the PET model, we also consider household size, which is significant both as a determinant of per capita labor inputs and consumption. These data are supplemented by independent information on house value of owner-occupied houses,

[3] This table has the same categories as Table 2 in Dalton et. al. (2006) but the data are more current here, 2004 instead of 1998.

which are a large component of household assets, from the 2000 Census (5% Public Use Microdata Sample, or PUMS).

In order to reduce sampling variance for small population strata, we pool the CPS samples for March 2003, 2004, and 2005.[4]

Are the CPS data consistent enough with the CES used to estimate the PET model that inferences drawn from the CPS can be assumed to apply to a model calibrated to the CES? To answer this question, we compare the sample means in the two datasets. The means are stratified by age, to control for the variability of earnings over the life course, and by race and Spanish origin[5], because of the high concentration of foreign-born population in Hispanic and Asian households.

The mean values of the model inputs in the different age and race groups are shown in the top part of Table 2. While average household size, average earnings per capita, and home ownership rate vary substantially among the population groups, the CPS means closely match the CES data, stratum by stratum, as seen in the percentage differences between the two estimates for these variables, shown in the lower panel of Table 2. For these three key variables, the two surveys are in close agreement. It is reasonable to infer that nativity effects measured in the CPS data on these variables are comparable to the CES.

By contrast, there are large (>100%) differences in asset income between the two surveys and lesser but still substantial differences in house values between the CES and the 2000 Census. This suggests that the coverage of asset income and the definition of house value differ between the two surveys. The impact of these differences on nativity effects is unclear.

Since assimilation is ofter not completed within the life of the first generation it will be impotant also to consider differences between the descendents of recent immigrants and the descents of native-born parentage. By combining information on place of birth and parents' nativity, we can further stratify the population into three nativity-generation classes for which measures of earnings can are available:

1. Foreign born (first immigrant generation),
2. Native born with one or two foreign-born parents (second immigrant generation), and
3. Native born with two native-born parents (third or higher immigrant generation).

According to the generally used definition of second generation as including people with one or two foreign-born parents there are 2.13 million Hispanic householders in the 2nd

[4] A total of 640,313 persons in 231,754 households.

[5] The race/origin categorization is Spanish-dominant: all persons of Spanish origin regardless of race are classified as Hispanic. The CPS allows persons to be coded as being of multiple races. The population living with non-Hispanic householders coded as being of more than one race were excluded from the tabulations presented here except those in which the householder is of exactly two races one of which is Native American, in which case the other race category is used: 99.1 % of the total CPS population is included in the resulting tabulations.

generation. (Table 3.) As the result of exogamy, i.e., unions between foreign and native-born, 40 % of these have just one foreign-born parent. Thus an expansive definition considerably increases the size of the 2nd generation. At the same time, the broad definition tends to raise the mean household earnings per person of the 2nd generation, which is substantially higher (by 11 %) for householders with just one foreign-born parent than for those with two.

The total populations in these households, the population measure employed in the PET model, are shown in the second column of Table 3. It should be noted that mean household size is substantially larger for 1st generation households, 3.5 persons, than 2nd generation households (3.1 and 2.9 persons, respectively, for two and one foreign-born parents). These differences in household size are a consequence mainly of differences in fertility rates and the number of minor children.

Which definition is used to determine nativity and generational status greatly affects the populations and mean per-person earnings in the different categories. As can be seen from the third column in Table 3, the 1st generation Hispanic population is 7.4 million (30 %) smaller than the population living in households in which the householder is 1st generation Hispanic or "1st generation Hispanic households," and the 2nd and 3rd-plus generation populations are correspondingly greater than the populations in the 2nd and 3rd-plus generation households. As a rule, parents have children of higher-order nativity than they are, the one exception being native-born parents with foreign-born partners. Thus the generational distribution of persons according to own status is skewed upward relative to the distribution according to householders' status.

Choice of reference person even affects population ethnicity; 1.3 million more persons (3.5 %) are identified as Hispanic than there are people living in Hispanic households (with a Hispanic householder).

Table 3 also shows populations and households for non-Hispanic households and population.

Henceforward in this report, the following conventions are used unless otherwise noted:

1. 2nd generation is defined has having one or two parents who are foreign born; and
2. the population is stratified according to the characteristics of the householder with whom each person lives.[6]

Variations in Earnings by Nativity and Immigrant Generation

When nativity and immigrant generation as well as controls on householder's age are added to the analysis, we find that there are large gaps between the mean per person pre-retirement earnings in foreign-born Hispanic households, those in native-born Hispanic households and those in non-Hispanic households whether native or foreign-born. (See top two charts in Figure 1 and Table 4). For those living in households where the householder is under age 45, the mean earnings in foreign-born households are below

[6] Own characteristics are used for the small number of CPS persons living in group quarters.

those in native-born 3rd-plus generation Hispanic households by 27 %, in native-born 3rd-plus generation *non*-Hispanic households by 49 %, and in foreign-born non-Hispanic households by 52 %. Similar gaps are seen in the next older age group, householder age 45 to 64 years.

From this we conclude that large nativity effects occur only for Hispanic households. In fact, we see that below age 45 in non-Hispanic households, mean per capita income in foreign-born households is slightly higher in foreign than native-born households. Because nativity effects are small on average in non-Hispanic households, our analysis of nativity effects on consumption and carbon emissions focuses on Hispanic households and combines non-Hispanic immigrants of different races.[7]

There is also a clear tendency for relative earnings to rise with longer residence in the U.S. These gains are modest during the first generation, e.g., mean earnings are only marginally higher when recent arrivals, who have been in the U.S. under 10 years, are excluded. (Second pair of bars in Figure 1.) Much stronger gains are seen between the 1st and 2nd immigrant generations, e.g., mean income in 2nd generation Hispanic households under age 45 is 30 % below that for 3rd-plus generation non-Hispanics, compared with 49 % between foreign-born Hispanic households and the same reference group. Among Hispanics this convergence toward the earnings of 3rd-plus generation non-Hispanic peers continues between the 2nd and 3rd-plus generations and can be described as assimilation.

(Among non-Hispanics, the relative gains in earnings are as strong between the first and 2nd immigrant generations as they are for Hispanics, however, they cannot accurately be described as assimilation, because the mean income exceeds and is therefore rising substantially above that in 3rd-plus generation.)

The convergence of Hispanic mean earnings toward the population or non-Hispanic native-born means is far from complete by the 3rd generation, however, leaving an earnings gap of 20 % or more for both the under 45 and age 45 to 64 households. This would seem to indicate that gains among Hispanic households reach a plateau and even halt after the 3rd generation. However two other possible explanations might account for this finding. (1) It possible that there are substantial gains after the third generation and the large share of 3rd generation Hispanics drags down the mean among the combined 3rd-plus generation group. The CPS data lack the information needed to distinguish the 3rd from 4th generations and test this hypothesis. (2) A second possibility is that those 3rd generation descendents of Hispanic immigrants who have the highest earnings have higher rates of exogamy and are less likely to self-identify as Hispanic than those with lower earnings. Duncan and Trejo (2005) find evidence of this pattern for Mexican Americans, the largest Hispanic subpopulation.

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[7] Borjas's (1994) analysis of variations in earnings and level education by national origin reveals exceptions to this simplified typology; Cubans, for example, have much higher earnings and education levels than Mexicans and Central Americans, while some Asian nationalities have low earnings and education on average. However, the differences among the dominant sending nations are consistent with the analytic simplification of a Hispanic / non-Hispanic typology to measure overall nativity impacts on mean household earnings.

Beyond the usual retirement age of 65, people in first-generation Hispanic foreign-born households achieve near parity in mean earnings with their native-born non-Hispanic peers. This could be the result of relatively higher rates of labor force participation by Hispanics than non-Hispanics. In any event, it is not important for our purposes because of the small share of post-retirement-age total income that is comprised of earnings. The gaps in total income between Hispanic households in different generations and the entire 65 and over population are similar to those in earnings between the same population strata under before age 65.

A final caveat about these measures of convergence or assimilation across immigrant generations must be noted. In cross-sectional comparisons, members of the second generation in any age group are not the offspring of the first generation in the same age group, but of the first generation 20 or 30 years older and who were at the *same* age 20-30 years earlier. Actual historical progress between generations may differ from the proxy measure used here.

Much larger gaps in mean asset income, of up to 80 %, are seen between foreign and native-born Hispanic households and non-Hispanic peers (Figure 2). For mean owner-occupied home value, which is at best a crude measure of wealth because it is gross of any mortgage debt, the gaps are in the range of 40 to 60 % (Figure 3).

Due to the high fertility rates of both 1st generation and native-born Hispanics, average household sizes of households (number of persons) in which the householder is Hispanic are substantially larger than non-Hispanic households of comparable age. For example, the average number of persons in households with a 1st generation Hispanic householder age under 45 is 3.87, which exceeds by more than a third the 2.87 persons in households with Hispanic householders of the same age but native-born and in the 3rd or higher generation. See Figure 4. Therefore, when mean earnings, asset income, and house value are measured on a household basis rather than per person within the household, the gaps between means for the population in Hispanic households and non-Hispanic households and between 1st and 2nd generation and 3rd –plus generation households are lower than those reported above by more than a third. The gap between the population in 1st generation Hispanic foreign-born households where the householder has been in the U.S. for 10 or more years and all households age under 45 is 44 % when measured per capita and 25 % measured per household and at age 45 to 64 is 47 % when measured per capita and 30 % measured per household. See Table 5. The choice of measures does not, however, alter the relative differences between generations for Hispanic households.

We conclude from this analysis that there are large gaps between the earnings of Hispanic households and those of the total population at similar ages as used in the PET model simulations. These gaps are greatest for the first generation, decline substantially in the 2nd generation, and further in the 3rd–plus generation; below age 65 they vary little across age groups and above age 65 the gaps in mean total income are similar to those in earnings at younger ages. Due to the larger average size of Hispanic households, the gaps in mean earnings for households are substantially smaller than the gaps in means for persons. (Table 6.) It can be inferred that the unmeasured gaps between Hispanics in different generations and the population mean in average consumption and associated carbon emissions are of similar size. The gaps for immigrants of other ethnicities are

found to be negligible. Therefore, the impact of immigration on long-term per capita emissions can be inferred from the differences between the Hispanic and total population. The size of the impacts that depends on

1. Whether the gaps in earnings for Hispanic generations can be assumed to be constant over time;
2. The projected share of the total population that will be in Hispanic households, by immigrant generation; and
3. Whether the gaps in earnings on a person or household basis are applicable.

These issues are taken up in the following sections of this report.

Gaps and Intergenerational Gains in Per Capita Hispanic Earnings

Whether the cross-sectional differences in the earnings across immigrant generations are a reliable indicator of future differences has been a subject of many scholarly inquiries and much debate. These studies have attempted to deal with a forest of empirical complexities created by the diversity of immigrants and their children's paths of assimilation in earnings and skills. Further complexities arise from the dynamic nature and variations in the speed of the process of adaptation (Borjas 1994). Much sound empirical work on immigrant adaptation has of necessity focused on narrow segments of the immigrant population in specific periods.

For purposes of estimating future impacts, however, we are concerned not with the variations, complexities, and differences but with the central tendencies of immigrant adaptation that might reasonably be expected to persist over the very long term of 50 to 100 years. The competing theories in the scholarly literature about immigrant adaptation have radically different implications for the long-term future of immigrants and their descendents, and no scholarly consensus has emerged. Therefore, our estimates will incorporate a range of assumptions about future gaps in earnings and consumption for the descendents of Hispanic immigrants corresponding to the range of impacts implied by the major theories. This range is used only for later generations, because the differences are much larger for these generations and the combined size of these generations is much larger than the 1st generation under even the highest immigration assumptions.

1st Generation Gaps

The gaps we have measured in earnings between Hispanic households in the 1st immigrant generation and all households are in large part the result of gaps in earnings per worker, which have been extensively studied by labor economists. Borjas (1994) parses the cross-sectional gaps into those of newly arrived migrants, many of whom arrive with a deficit in labor force skills or "quality," and those of earlier migrants, who have acquired skills, e.g. English language, and attained relatively higher earnings. In this formulation, the size of the mean wage or earning gap for the 1st generation is then the net result of (1) the labor force quality or efficiency of new immigrants, (2) their rate

of acquiring U.S. labor-market skills and higher earnings, and (3) the numbers of immigrants at different stages of adaptation. An additional factor in the calculation is differences in wage rates according to skill level.

Borjas (1995) and others find that the gaps in earnings and skills for new immigrants increased from 1970 to 1990. However, 90 percent of the increased gap for all new immigrants could be attributed to changes in the national origin of immigrants, especially relative increases in inflows from Mexico and other Latin American nations (Borjas 1992). However, Borjas and Friedberg (2006) report a reversal of the aggregate trend in the late 1990s. Using more recent data through 2002, Smith (2006) also finds that the trend toward wider gaps for new immigrants has recently reversed.

Studies of the rate of convergence of immigrant cohort earnings to national norms have focused on differences by national origin (Duleep and Regets 1997) and measurement issues, most notably the effect of selective emigration of immigrants with lower skills and earnings (Borjas 1994). Using a panel of Social Security records matched to the SIPP and CPS, Lubotsky (2000) finds that selective emigration causes overestimation of "both the rate of earnings growth among immigrants who remain in the U.S. and the secular decline in the level of earnings across arrival cohorts." Relatively little research has been done on temporal variations either in the rate of wage gains or selective emigration, and the attention of labor economists has recently shifted to the 2nd generation children of immigrants and the impacts of immigration on the wages of native-born workers (Card 2005).

For our purposes, however, what matters is the is the combined, cumulative effect of changes in the (1) endowments of new immigrants, their (2) advancement and (3) emigration after arrival, (4) skill wage rates, and the (5) relative population of recent and long settled immigrants on the gap in mean per capita earnings for Hispanic households before retirement age relative to all households. The size of the gap as measured by data from the Census increased moderately between 1980 and 2000, possibly reflecting the trends in earnings per worker reported by Borjas (1994). However, more recent annual CPS data show no widening and some narrowing, possibly reflecting the reduced per worker gaps reported by Smith (2006).[8]

Since there is no theory supporting or empirical evidence for a sustained trend in the gap in mean per capita earnings for 1st generation Hispanic households, our estimates are based on the assumption that this gap will remain at the present level as measured in the 2002-05 CPS.

Gaps in the 2nd and Later Generations

Research on long-term economic assimilation of immigrants has necessarily referred to the progress of the children and grandchildren of the "first wave" of immigrants, those who arrived 1880-1920, as a benchmark for assessing the early progress of the children of the "second wave" of immigrants, those who arrived since 1965 (the Hart-Celler Act).

[8] Large differences between contemporaneous 2000 Census and CPS measures of the gap are apparently a result of differences in the instruments and methods in the two surveys.

Many of these studies have measured literacy and educational attainment rather than earnings or income, because of a dearth of comparable data on earnings rather than any theoretical consideration. There are no readily available data on the earnings and income of the old (first wave) 1st generation immigrants, and most of the 2nd generation children of the new immigrants are still so young that their level of formal education is a better indicator of their earnings potential than is current earnings.

By this measure, there is consensus though not unanimity in the field that the descendents of the first-wave European immigrants largely closed the originally large gaps in educational attainment by the third or fourth generation (Alba et.al. 2001). However, there are substantial disagreements about whether it is valid to compare the economic situation of today's first and young second generations with that of first and young second generation European populations 75 years ago (Perlman and Waldinger 1997). If immigrants are more disadvantaged today relative to native populations than they were early last century because of labor market conditions, fewer manufacturing jobs, or racial discrimination, then the prospects for substantial future reductions in earnings gaps by the third generation might be considered more remote than if the initial disadvantages faced by immigrants today are comparable to earlier ones.

Card (2005) concludes from his study of the recent educational progress of immigrants' children (to 2000) that most of the "U.S.-born children [of immigrants] will catch up with the children of natives." Smith (2006) analyzes the generational progress of different race groups from the Census of 1940 forward (including immigrant cohorts born as long ago as the 1860s) and concludes that generational progress of Latinos in education has not lagged substantially behind other immigrant groups.

By contrast, based on a detailed longitudinal analysis of high school completion by the cohort of children in high school in 1994-95 Perreira et al. (2006) conclude that the children of immigrants "make significant gains in educational attainment relative to their parents" but that these gains stall and are even slightly reversed in the third generation. This finding suggests that the descendents of Hispanic immigrants will close the gaps in education and, presumably, earnings with the descendents of native-born Hispanics, but not with those of native-born non-Hispanics, i.e., the segmented assimilation hypothesis (Rumbaut 1997).

Borjas (1994) also finds slow convergence among the descendents of the first wave: "the ethnic differentials introduced…may linger, to some extent…until some 100 years, or four generations, have elapsed since the migration took place." This study relates to ours more directly than most because the initial observations of gaps include constructed estimates of wages in 1910 and because the length of time considered is comparable to the length of our projections.

Citing lagging Mexican assimilation differences between Mexican and earlier immigration, Huntington (2004) argues that the current gaps could endure even further into the future.

The range of scholarly opinion about the future assimilation of the recent immigrants is aptly summarized by Alba et. al. (2001):

> This remains an unsettled, profoundly important question. On the one hand, the legal and institutional impediments that most severely obstructed non-European immigrants' entry into the socioeconomic mainstream in the earlier period have been largely dismantled. On the other hand, many scholars see new impediments that may lead to "segmented assimilation" for those non-European groups with low levels of human capital and other disadvantages, such as high rates of undocumented status (Portes and Zhou 1993). This cardinal uncertainty, however, is resolved neither by our results nor by those of Borjas (1994); resolution must await analyses of the new arrivals' U.S.-born generations.

In view of this inherent uncertainty, we develop two estimates that are intended to span the range of foreseeable gaps in mean per capita earnings of 2nd and higher generation Hispanic households, one based on the assumption that their earnings will converge to the mean for the entire population (a rapid assimilation scenario), and the other based on the assumption that the earnings gap remains at the current (2002-05 CPS) level for 1st generation Hispanic households for all their descendents (an impeded assimilation scenario).

Projections of Population by Ethnicity, Nativity, and Immigrant Generation

Although the foreign stock and foreign-born populations are not broken out in the Jiang-O'Neill projections (Jiang and O'Neill, submitted) used in the Dalton et al. aging and emissions study, other recent projections of the U.S. population (U.S. Bureau of the Census 2000; Edmonston and Passel 1992; Suro and Passel 2003) do identify these subpopulations and can be used to set bounds on the foreign stock and foreign-born shares implied in the Jiang-O'Neill series. These shares in turn provide a basis for inferring the approximate size of populations subject to the possible labor supply effects in the assimilation scenarios outlined above.

The three J-O projections of population and households (small/old, medium, and large/young scenarios) closely parallel total population in the corresponding Census 2000 low, middle, and high series, despite the different launch years[9]. See Figure 5. However, Hispanics are a larger share of the total population in the J-O projections than in the corresponding Census 2000 series, and substantially so after 2050. See Figure 6. This is in part due to higher projected levels of Hispanic immigration in the J-O Small-Old and Medium series than in the corresponding Census 2000 projections and much higher levels of non-Hispanic immigration in the Census 2000 High projection than in the corresponding J-O Large-Young series.[10] See Figure 7.

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[9] The launch year of the 2000 Census series is 1999, with base populations estimated on the basis of the 1990 Census. The launch year of the J-O series is 2000, with base populations from the census of that year.

[10] The Census Bureau's projections of the origins of immigrants is based on "projected growth of the working-age component of the population of various world regions to the year 2050" and reflect "considerably more rapid population growth through the early part of the next century for countries of

Irrespective of the level of future Hispanic immigration, the projected foreign-born share of total Hispanic population declines steadily from the early years of the 21st century through 2100 in all three Census 2000 projection series; from 36% in 2000 to a range of 14 to 25 % at mid-century and 6 to 12% at the end of the century. The decline begins from 2000 in the low and medium series and starts after 2010 in the high series. Although the Census 2000 enumerated level of 40% is significantly above the projection's launch level of 36%[11], and the projected levels in the early years of the century are therefore on the low side, the projection of medium and long-term (2050 and 2100) declines should still be valid. See Figure 8. The same long-term trend is seen in Edmonston and Passel's 1992 projections (Figure 9), which fall between the Census 2000 low and medium series in both total and Hispanic population in the medium and long term.

Disregarding the Census low series, in which the assumed levels of future Hispanic immigration are well below the lowest of the J-O assumptions, we can infer from the Census Bureau 2000 results that the J-O projections imply a foreign-born share of the Hispanic population in the range of 20-25% in 2050, declining to 9-12% in 2100, with the higher figure applicable to the Large-Young scenario and the lower end of the range to the Small-Old scenario. Although the Census Bureau 2000 estimates for 2000 are 4 to 5% below the actual fraction in Census 2000[12], no adjustment is made to this estimate so that it is consistent with the projections. The Edmonston-Passel projections show a slower decline, from 30% in 2050 to 23% in 2090. These ranges of the 1st generation Hispanic population can be used to estimate the impacts of immigration under the rapid assimilation scenario.

For the impeded assimilation scenario, we need to know not only the number of 1st generation Hispanics, but the number of 2nd generation plus the future number who are descendents of these cohorts, *i.e.* in the 3rd and higher generations. The Edmondston-Passel projections are of some help in this regard, showing the combined 1st and 2nd generations in 2010 rising from 72% of all Hispanics in 2010 to 83% in the combined 1st, 2nd, and 3rd generations by 2050. They use a maximal definition of foreign stock, i.e., children are second-generation if either parent is foreign born and third-generation if any grandparent is foreign born. To do this they model intermarriage among immigrant generations. However, the usefulness of the Edmonston-Passel projections is limited by the fact they are obsolete, dating from the early 1990s, and that the long-term mix of generations in 2090 appears inconsistent with those in the Census Bureau's 2000 projections: The total Hispanic population in 2090, 106 million, is closest to the low

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South Asia, sub-Saharan Africa and the Middle East, than for countries of the Western Hemisphere including Mexico, which have seen considerable declines in fertility in recent years."

[11] The estimate for 2000 launch year is derived from the 1990 Census. In 2004 the Census Bureau issued a revised projection series that is based Census 2000 populations but otherwise uses the same assumptions as the Census Bureau 2000 middle series, however the later projections are of limited use for our purposes since they do not break out the foreign born population.

[12] 40.2%, according to SF4.

Census Bureau projection of 87 million, yet the 1st generation (foreign-born) 23% is almost twice that in the *highest* Census Bureau projection, 14%.[13] [14]

Current data allow us to project lower bounds on the fraction of Hispanics who will not be assimilated in the impeded assimilation scenario, that is those who are either descended from today's 1st and 2nd generations or from future new immigrants.

- The fraction of Hispanics currently in the 1st and 2nd generations is 74.2% (CPS 2004-2006).
- The fraction of all births to Hispanic mothers that are 2nd generation, with a foreign-born mother or father (husband), is 62.7% and the fraction with at least one foreign-born parent or grandparent is 80.8% (Current Population Survey June 2004).
- The fraction of future Hispanic births to the descendents of current or future 1st and 2nd generations will increase as long as immigration continues.

Therefore the fraction of all such potentially unassimilated native-born Hispanics in 2100 will be at least 81% (the current fraction of Hispanic births), since most of the earlier cohorts with lower fractions will have died. Adding in the projected numbers of foreign-born Hispanics in the different Census Bureau 2000 series gives a range of a total of between 81.8% and 83.0% potentially unassimilated Hispanics in the low and high series respectively in 2100. The actual fraction will be higher, because the fraction of native-born Hispanics who are potentially unassimilated will increase above 81% in each cohort born after 2005.[15] [16]

Note that this result is generally consistent with that of Edmonston and Passel.

The results of the projections of the Hispanic population when estimates of immigrant generation are added to the Census Bureau 2000 projections are shown in Table 9. The Hispanic and foreign-born Hispanic populations are directly from the Census Bureau projections. The share of the native-born Hispanic population in the 2nd generation in 2000 is from the March 2002 Current Population Survey; the share of the native-born Hispanic population in 2100 that is descended from or in this and later immigration cohorts is assumed to be 85%, as derived above; and the corresponding share in 2050 is derived by linear interpolation between these two levels.

The bottom panel of Table 9 is calculated from the top three panels and shows the fraction of the total Hispanic population that belongs to or is descended from either the current (2000) 2nd generation or later immigrant generations. This population potentially affected by impeded assimilation ranges between 85.6% and 86.7% of the 2100 Hispanic

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[13] These results might imply either Hispanic birth rates are substantially lower in Edmonston-Passel or that Hispanic emigration rates are substantially higher than those in any of the Census Bureau series.

[14] The more recent, updated version of these projections by Suro and Passel (2002) give less generational detail and go forward only to 2020.

[15] By applying the same logic, we estimate the minimum fraction of Hispanic women of child-bearing age, 15 to 44, in cohorts potentially subject to impeded assimilation in 2050 at over 83% in 2050 in the low Census Bureau 2000 series, compared with 77.2% in 2004-6.

[16] Also, as noted above, the launch-year estimate of the 1st generation is 4% to 5% below the current observed level.

population in the different series. The narrow range is due to the dominance of native-born descendents of immigrants in all three series.[17] If assimilation is rapid, the affected population is just the first, foreign-born, generation, which ranges between 5.6% and 11.6% of the 2100 Hispanic population in the different series.

Population or Household Base

As we found in Section 1(c), above, the gap between the mean earnings of first-generation Hispanic households under age 65 and all households of similar age is 30% and that the gap is substantially larger, 47%, when measured on a per capita basis, due to the larger average size of Hispanic households. This difference raises the question of which measure to use in projecting the impacts of immigration on future average earnings and consumption.

The answer depends in part on whether or not the average projected immigration effects in the Census Bureau series are to be used to modify the earnings and consumption in the PET model analysis (Dalton et al. 2006) based on the corresponding Jiang-O'Neill series. Since the PET model uses households as the unit of analyis, and the Jiang-O'Neill series already incorporate large variations in average family and household size by assumption (e.g., high marriage paired with high fertility and high immigration), the smaller, per household, gaps should for the sake of consistency be used to estimate how immigration effects might modify the results of the PET model simulations. Since the Census Bureau projection series also pair low immigration and low fertility on the one hand and high net immigration and high fertility on the other hand, the same logic would argue for using the per household gaps. However, the larger, per capita, gaps may be of interest for analytic purposes, and we therefore calculate total immigration effects on earnings and consumption using both measures.

A somewhat related issue arises because of the difference between the Hispanic population as projected here, and the population in Hispanic households (with a Hispanic householder), the measure called for by the methodology of the Dalton, O'Neill, Prskawetz, Jiang, and Pitkin paper. According to the 2000 Census[18] the Hispanic population in households does exceed the population in households with Hispanic householders, but by just 3.5%. We assume that this difference will remain negligible in the future and do not factor it into our calculations of immigration effects.

Projected Effects on Average Per Capita Earnings

The projected impacts of immigration on average earnings per household in 2050 and 2100 along with comparable estimates for 2000 are shown in Table 10.

In the rapid assimilation scenario, average per capita earnings are actually reduced below present levels in all series, irrespective of whether the gap is measured on a

[17] The range would be only slightly greater if the fractions of native-born descended from current or future immigrants were projected separately for each series rather than derived from the current level and by the same upper-bound assumption for all three series.
[18] Summary files 1 and 2.

household or person basis. This results from the declining share of immigrants in the population from its current historically high level.

The impacts on average earnings are much larger in the impeded assimilation scenario projections, between -8.2% and -9.2% in 2100, when the per-household gap is used, and between -12.6% and -14.2%, when the larger per capita gap in earnings is used. These narrow ranges occur despite an almost 10:1 variation in net immigration of Hispanics between the high and low Census Bureau 2000 series at the end of the century. In all series the gaps in 2050 are intermediate between 2000 and those in 2100.

Since the impact of immigration on average per capita earnings in 2000 is estimated to be between -1.3% and -3.1%, depending on assimilation assumption and the base of the gap, the projected *increases* in the size of the gap are correspondingly smaller than the projections for 2050 and 2100, with the largest increases still less than an incremental impact of -12%.

Conclusions

This report has documented the differences in average labor earnings between immigrants and the total population. Considerable variations in earnings among immigrants of different origins are found. The earnings of most non-Hispanic immigrants appear to converge to near or above the levels of their native-born peers, while the earnings of Hispanic immigrants and many of their descendents remain below population-wide age-group averages. The impacts of immigration on earnings, consumption, and carbon emissions are therefore occur entirely in the Hispanic population.

If per capita differences in earnings between Hispanic immigrants and the population mean remain near current levels, the aggregate effects on earnings and consumption not otherwise incorporated in the PET model estimates are found to be affected more by the rate of the immigrant population's assimilation to average population levels of earnings than by projected differences in future immigration. If assimilation is rapid, the impacts of immigration are proportional to the size of the first generation and will be negligible, regardless of the level of immigration or the basis for measuring differences in consumption. If assimilation of the descendents of immigrants is impeded, the marginal impacts will be more substantial but still well below 10% in 2100 when calculated using the preferred per household measure of earning differences. Only when the impacts are calculated using the larger per capita measure of differences in earnings and the assumption of impeded assimilation do the marginal impacts exceed 10% by 2100.

In view of the fact that the earnings gap in the impeded assimilation scenario implies a complete halt and even a slight reversal of past earnings assimilation by second and later generation Hispanic immigrants, the latter estimates can considered to be an upper bound of immigration effects on average per capita earnings and carbon emissions associated with household consumption in the next century.

Further, it should be noted that these impacts on average per capita earnings and emissions tend to counteract the scale effects of immigration because they are in a

downward direction. These effects lower the carbon emissions reported in the Dalton, O'Neill, Prskawetz, Jiang, and Pitkin paper, and our rough estimates indicate that they are unlikely to be large. The proportional differences are similar in different population scenarios.

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Tables and Figures.

Table 1. **Total consumption expenditures, savings, income, government and other transfers by different age of householder, total and Hispanic householders, per capita 2004**

Source: BLS CES 2004

All CUs

		Age of Householder							
	Mean	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Consumption	15,572	12,490	13,683	13,741	17,158	19,761	17,570	16,600	14,378
Savings	2,351	394	821	2,864	2,830	4,231	2,314	1,955	269
Labor income	18,769	11,354	17,785	19,518	24,807	23,925	9,936	4,688	2,824
Capital income	2,695	241	1,007	1,277	2,243	5,557	6,741	8,203	6,364
Capital	47,855	225	11,164	26,158	50,910	93,704	109,334	126,894	118,070
Gov. transfers	221	-627	-1,073	-1,075	-1,155	200	6,262	8,217	8,726
HH transfers	244	576	156	197	141	507	246	190	287

Hispanic CUs

		Age of Householder							
	Mean	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Consumption	10,219	8,709	9,896	9,644	11,986	11,221	10,615	12,991	8,688
Savings	880	-1,065	429	1,325	759	1,839	2,725	-747	4,241
Labor income	12,052	9,355	11,154	12,196	15,797	14,112	8,583	2,794	2,774
Capital income	752	149	378	214	1,775	1,905	1,779	2,632	609
Capital	16,847	2,468	5,200	12,548	27,391	36,809	55,968	63,159	55,510
Gov. transfers	-215	-503	-682	-591	-619	444	3,493	5,471	6,644
Other transfers	32	102	23	17	-60	57	400	-47	0

Percent Difference, Hispanic - All CUs

		Age of Householder							
	Mean	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Consumption	-34%	-30%	-28%	-30%	-30%	-43%	-40%	-22%	-40%
Savings	-63%	-370%	-48%	-54%	-73%	-57%	18%	-138%	1474%
Labor income	-36%	-18%	-37%	-38%	-36%	-41%	-14%	-40%	-2%
Capital income	-72%	-38%	-62%	-83%	-21%	-66%	-74%	-68%	-90%
Capital	-65%	999%	-53%	-52%	-46%	-61%	-49%	-50%	-53%
Gov. transfers	-197%	-20%	-36%	-45%	-46%	122%	-44%	-33%	-24%
Other transfers	-87%	-82%	-85%	-91%	-143%	-89%	63%	-125%	-100%

Table 2. **Per Capita Earnings, Asset Income, Household Size, and Home Ownership 2004 CES and March 2003-2005 CPS Means Compared**

		Household size (persons)		Earnings per person		Asset income* per person		Home ownership per household			House value, owners per person	
	Age of Householder	CES	CPS	CES	CPS	CES	CPS	CES	CPS	Census 2000	CES	Census 2000
Hispanic	<45	3.63	3.62	$ 11,356	$ 11,530	$ 48	$ 121	41.7%	39.2%	38.2%	$ 20,176	$ 28,670
	45-64	3.06	3.05	$ 15,175	$ 15,243	$ 123	$ 347	64.9%	61.9%	59.2%	$ 45,433	$ 37,602
	>=65	2.11	2.06	$ 6,524	$ 5,852	$ 279	$ 653	64.9%	66.6%	62.7%	$ 63,454	$ 48,181
White,	<45	2.68	2.88	$ 20,893	$ 21,641	$ 210	$ 495	58.5%	63.6%	60.5%	$ 44,377	$ 46,497
not Hispanic	45-64	2.33	2.38	$ 27,225	$ 27,739	$ 737	$ 1,601	84.7%	83.8%	82.2%	$ 80,614	$ 69,281
	>=65	1.64	1.64	$ 7,360	$ 6,478	$ 2,012	$ 3,082	83.1%	83.1%	80.4%	$ 94,994	$ 79,848
Black,	<45	2.95	2.86	$ 12,119	$ 12,724	$ 57	$ 165	37.3%	35.7%	34.3%	$ 18,164	$ 30,262
not Hispanic	45-64	2.46	2.37	$ 16,064	$ 16,732	$ 56	$ 467	60.0%	60.6%	58.8%	$ 32,401	$ 37,406
	>=65	2.01	1.82	$ 5,426	$ 5,246	$ 328	$ 604	65.9%	68.1%	65.1%	$ 43,673	$ 39,448
Asian, or Pac.Islander	<45	2.88	3.00	$ 22,161	$ 23,017	$ 192	$ 427	50.9%	48.9%	42.0%	$ 59,175	$ 62,419
not Hispanic	45-64	3.04	3.09	$ 25,277	$ 23,887	$ 339	$ 948	72.9%	73.2%	69.3%	$ 97,063	$ 73,116
	>=65	2.00	2.13	$ 8,418	$ 9,012	$ 1,358	$ 2,638	67.5%	66.1%	61.9%	$ 102,412	$ 98,489
Total	<45		3.78		$ 18,654		$ 379		55.3%	53.5%		$ 43,543
	45-64		3.20		$ 25,023		$ 1,313		78.9%	77.4%		$ 63,903
	>=65		2.12		$ 6,391		$ 2,674		80.5%	78.1%		$ 75,023

* Interest, dividends, and rents.

		Difference CPS - CES				Difference Census - CES
Hispanic	<45	-0.3%	1.5%	150.7%	-6.1%	42.1%
	45-64	-0.5%	0.5%	183.5%	-4.6%	-17.2%
	>=65	-2.3%	-10.3%	133.9%	2.6%	-24.1%
White,	<45	7.5%	3.6%	136.0%	8.7%	4.8%
not Hispanic	45-64	2.1%	1.9%	117.4%	-1.1%	-14.1%
	>=65	-0.2%	-12.0%	53.2%	0.0%	-15.9%
Black,	<45	-3.1%	5.0%	189.5%	-4.4%	66.6%
not Hispanic	45-64	-3.5%	4.2%	736.2%	1.0%	15.4%
	>=65	-9.8%	-3.3%	84.0%	3.4%	-9.7%
Asian, or Pac.Islander	<45	3.9%	3.9%	122.0%	-3.9%	5.5%
not Hispanic	45-64	1.8%	-5.5%	180.1%	0.4%	-24.7%
	>=65	6.1%	7.0%	94.3%	-2.2%	-3.8%

Table 3. **Population and Earnings by Ethnicity, Nativity and Immigrant Generation**
Mean of 2003-2005 Current Population Survey, March Annual Demographic Supplement

		Households *by Householder Characteristics*	**Population** *by Householder Characteristics*	**Population** *by Person Characteristics*
Hispanics				
	Number	(thousands)	(thousands)	(thousands)
Foreign Born		6,875	24,371	17,016
Native born	Both parents foreign born	1,278	3,998	8,902
	Mother foreign born, father native born	357	1,041	1,539
	Father foreign born, mother native born	496	1,436	2,410
	Both parents native born	2,733	8,023	10,367
Total		11,739	38,869	40,234
	Mean Persons Per Household	(persons)		
Foreign Born		3.5		
Native born	Both parents foreign born	3.1		
	Mother foreign born, father native born	2.9		
	Father foreign born, mother native born	2.9		
	Both parents native born	2.9		
Total		3.3		
Non-Hispanics				
	Number	(thousands)	(thousands)	(thousands)
Foreign Born		8,065	22,445	17,875
Native born	Both parents foreign born	3,219	6,474	9,557
	Mother foreign born, father native born	1,780	4,262	4,736
	Father foreign born, mother native born	2,102	4,456	4,794
	Both parents native born	85,250	208,168	207,478
Total		100,417	245,805	244,440
	Mean Persons Per Household	(persons)		
Foreign Born		2.8		
Native born	Both parents foreign born	2.0		
	Mother foreign born, father native born	2.4		
	Father foreign born, mother native born	2.1		
	Both parents native born	2.4		
Total		2.4		

Table 4. **Mean Per Capita Earnings, Asset Income, Home Ownership, and House Value, by Nativity-Generation, Ethnicity and Age of Householder**
Souce: Current Population Survey, March, 2003-2005 Average

	Hispanic householder			**Non-Hispanic householder**			**All householders**		
	Age of householder:								
	Under 45	*45 to 64*	*65 or older*	*Under 45*	*45 to 64*	*65 or older*	*Under 45*	*45 to 64*	*65 or older*
Earnings Per Person									
Foreign born	$ 10,142	$ 12,922	$ 6,231	$ 21,262	$ 23,327	$ 8,431	$ 14,696	$ 18,821	$ 7,699
Foreign born 10+ years in US	*$ 10,502*	*$ 13,146*	*$ 6,122*	*$ 22,407*	*$ 24,072*	*$ 8,098*	*$ 15,551*	*$ 19,423*	*$ 7,500*
Native born, 2nd generation	$ 13,893	$ 17,940	$ 5,063	$ 24,421	$ 29,737	$ 6,366	$ 19,679	$ 27,005	$ 6,252
Native born, 3rd+ generation	$ 13,958	$ 19,781	$ 5,652	$ 19,873	$ 26,207	$ 6,251	$ 19,596	$ 26,011	$ 6,240
All	$ 11,530	$ 15,243	$ 5,852	$ 20,223	$ 26,114	$ 6,426	$ 18,654	$ 25,023	$ 6,391
Asset income*									
Foreign born	$ 88	$ 248	$ 506	$ 388	$ 949	$ 2,383	$ 211	$ 646	$ 1,759
Foreign born 10+ years in US	*$ 108*	*$ 265*	*$ 544*	*$ 482*	*$ 1,044*	*$ 2,458*	*$ 266*	*$ 713*	*$ 1,879*
Native born, 2nd generation	$ 206	$ 652	$ 1,108	$ 611	$ 2,315	$ 3,542	$ 428	$ 1,930	$ 3,328
Native born, 3rd+ generation	$ 154	$ 441	$ 594	$ 432	$ 1,421	$ 2,710	$ 419	$ 1,391	$ 2,670
All	$ 121	$ 347	$ 653	$ 436	$ 1,421	$ 2,805	$ 379	$ 1,313	$ 2,674
Home ownership									
Foreign born	39.3%	58.9%	60.5%	54.2%	74.3%	71.5%	45.4%	67.6%	67.9%
Foreign born 10+ years in US	*48.8%*	*62.3%*	*62.7%*	*66.0%*	*78.7%*	*77.4%*	*56.1%*	*71.7%*	*73.0%*
Native born, 2nd generation	48.8%	76.3%	83.8%	66.9%	87.5%	85.4%	58.7%	84.9%	85.3%
Native born, 3rd+ generation	49.5%	76.7%	86.3%	65.6%	85.1%	85.9%	64.8%	84.8%	85.9%
All	42.9%	65.5%	71.4%	64.5%	84.2%	84.8%	60.6%	82.3%	84.0%
House value **									
Foreign born	$ 24,521	$ 33,427	$ 47,770	$ 58,945	$ 75,996	$ 99,821	$ 41,228	$ 60,822	$ 86,517
Foreign born 10+ years in US	*$ 24,887*	*$ 33,876*	*$ 48,074*	*$ 58,918*	*$ 77,898*	*$ 100,723*	*$ 40,603*	*$ 61,813*	*$ 87,235*
Native born, 2nd+ generation	$ 34,422	$ 42,847	$ 48,486	$ 44,402	$ 65,148	$ 74,821	$ 43,874	$ 64,310	$ 74,079
All	$ 28,670	$ 37,602	$ 48,180	$ 45,393	$ 66,030	$ 76,301	$ 43,543	$ 63,903	$ 75,023
House value per capita***									
Foreign born	$ 9,631	$ 19,698	$ 28,923	$ 31,969	$ 56,470	$ 71,389	$ 18,718	$ 41,144	$ 58,718
Foreign born 10+ years in US	*$ 12,139*	*$ 21,111*	*$ 30,151*	*$ 38,873*	*$ 61,293*	*$ 77,969*	*$ 22,767*	*$ 44,333*	*$ 63,652*
Native born, 2nd generation	$ 16,792	$ 32,678	$ 40,642	$ 29,692	$ 57,018	$ 63,918	$ 25,764	$ 54,609	$ 63,179
Native born, 3rd+ generation	$ 17,035	$ 32,865	$ 41,844	$ 29,110	$ 55,438	$ 64,290	$ 28,434	$ 54,560	$ 63,657
All	$ 12,299	$ 24,632	$ 34,385	$ 29,291	$ 55,614	$ 64,705	$ 26,398	$ 52,621	$ 63,007

* dividend, interest and rent income.
** from Census 2000, persons in owner households only
*** All households, 2000.

Table 5. **Mean Per Household Earnings, Asset Income, Home Ownership, and House Value, by Nativity-Generation, Ethnicity and Age of Householder**
Souce: Current Population Survey, March, 2003-2005 Average

	Hispanic householder			**Non-Hispanic householder**			**All householders**		
	Age of householder:								
	Under 45	*45 to 64*	*65 or older*	*Under 45*	*45 to 64*	*65 or older*	*Under 45*	*45 to 64*	*65 or older*
Earnings Per Household									
Foreign born	$ 39,232	$ 42,334	$ 13,071	$ 64,404	$ 69,056	$ 15,183	$ 51,054	$ 58,143	$ 14,550
Foreign born 10+ years in US	*$ 42,025*	*$ 43,068*	*$ 12,974*	*$ 72,337*	*$ 71,127*	*$ 15,297*	*$ 55,514*	*$ 59,491*	*$ 14,601*
Native born, 2nd generation	$ 45,855	$ 50,262	$ 10,044	$ 67,279	$ 70,814	$ 10,244	$ 58,574	$ 66,623	$ 10,229
Native born, 3rd+ generation	$ 45,053	$ 53,197	$ 11,477	$ 57,150	$ 61,949	$ 10,452	$ 56,643	$ 61,713	$ 10,468
All	$ 41,758	$ 46,450	$ 12,038	$ 58,319	$ 62,912	$ 10,741	$ 55,848	$ 61,578	$ 10,806
Asset income*									
Foreign born	$ 339	$ 812	$ 1,062	$ 1,177	$ 2,804	$ 4,294	$ 733	$ 1,990	$ 3,325
Foreign born 10+ years in US	*$ 436*	*$ 860*	*$ 1,090*	*$ 1,441*	*$ 3,042*	*$ 4,481*	*$ 883*	*$ 2,137*	*$ 3,466*
Native born, 2nd generation	$ 679	$ 1,826	$ 2,197	$ 1,683	$ 5,513	$ 5,699	$ 1,275	$ 4,761	$ 5,446
Native born, 3rd+ generation	$ 498	$ 1,185	$ 1,205	$ 1,242	$ 3,357	$ 4,531	$ 1,211	$ 3,299	$ 4,480
All	$ 439	$ 1,059	$ 1,344	$ 1,258	$ 3,422	$ 4,688	$ 1,136	$ 3,230	$ 4,521
Home ownership									
Foreign born	35.2%	54.4%	54.6%	46.5%	70.8%	67.7%	40.5%	64.1%	63.8%
Foreign born 10+ years in US	*44.0%*	*56.7%*	*55.7%*	*59.4%*	*75.1%*	*70.4%*	*50.9%*	*67.5%*	*66.0%*
Native born, 2nd generation	44.6%	72.8%	80.9%	58.5%	83.8%	81.6%	52.9%	81.6%	81.6%
Native born, 3rd+ generation	45.3%	72.3%	81.6%	59.3%	81.0%	82.4%	58.7%	80.7%	82.4%
All	39.2%	61.9%	66.6%	58.1%	80.4%	81.3%	55.3%	78.9%	80.5%
House value, owner households**									
Foreign born	$ 118,172	$ 140,534	$ 130,269	$ 218,830	$ 242,168	$ 197,702	$ 173,574	$ 212,115	$ 184,242
Foreign born 10+ years in US	*$ 121,417*	*$ 141,913*	*$ 130,729*	*$ 222,169*	*$ 245,439*	*$ 198,114*	*$ 174,424*	*$ 214,156*	*$ 184,675*
Native born, 2nd+ generation	$ 125,901	$ 131,827	$ 113,236	$ 143,688	$ 164,392	$ 134,907	$ 142,849	$ 163,382	$ 134,432
All									
House value, all households (2000)***									
Foreign born	$ 41,562	$ 76,471	$ 71,089	$ 101,699	$ 171,427	$ 133,917	$ 70,261	$ 135,970	$ 117,531
Foreign born 10+ years in US	*$ 53,468*	*$ 80,492*	*$ 72,800*	*$ 132,078*	*$ 184,256*	*$ 139,480*	*$ 88,774*	*$ 144,471*	*$ 121,879*
Native born, 2nd generation	$ 56,153	$ 95,912	$ 91,637	$ 84,059	$ 137,831	$ 110,118	$ 75,500	$ 133,290	$ 109,663
Native born, 3rd+ generation	$ 56,994	$ 95,255	$ 92,421	$ 85,205	$ 133,125	$ 111,140	$ 83,868	$ 131,923	$ 110,733
All									

* dividend, interest and rent income.
** from Census 2000, persons in owner households only
*** All households, 2000.

Table 6. **Mean Per Person Earnings in Hispanic Households Under Age 65**
By Nativity and Immigrant Generation Relative to All Households of Same Age
Souce: Current Population Survey, March, 2003-2005 Average

	Shortfall in Earnings Per Person	
Nativity and Generation of Householder	**Mean of Persons**	**Mean of Households**
Foreign born	47.0%	30.5%
Native born, 2nd generation	26.9%	18.1%
Native born, 3rd+ generation	23.1%	16.5%

Table 7: **Projections of U.S. Population and Households, Total and Hispanic**

	Total Population (millions)					**Hispanic Population**					**Hispanic Population** (share of total population)				
	2000	*2010*	*2050*	*2090*	*2100*	*2000*	*2010*	*2050*	*2090*	*2100*	*2000*	*2010*	*2050*	*2090*	*2100*
Jiang and O'Neill															
low series	281.4	303.7	328.5	269.9	250.5										
middle series	281.4	307.8	414.5	538.3	573.0										
high series	281.4	316.6	546.3	970.4	1117.0										
Census 2000															
low series	274.9	291.4	313.5	291.7	282.7	32.3	40.8	69.6	87.3	88.6	11.8%	14.0%	22.2%	29.9%	31.3%
middle series	275.3	299.9	403.7	533.6	571.0	32.5	43.7	98.2	170.5	190.3	11.8%	14.6%	24.3%	32.0%	33.3%
high series	275.8	310.9	552.8	1017.3	1182.4	32.7	47.6	147.0	342.7	412.6	11.8%	15.3%	26.6%	33.7%	34.9%
Census 2004															
Total	282.1	308.9	419.9			35.6	47.8	102.6			12.6%	15.5%	24.4%		
Edmonston and Passell 1992															
Total		299.4	369.4	431.9			38.6	72.4	106.1			12.9%	19.6%	24.6%	
Jiang and O'Neill	***Total Households***					***Hispanic Households***					***Hispanic Share of Total Households***				
low series	105.2	121.2	165.6	180.8	181.6	9.2	13.7	33.4	55.2	60.5	8.8%	11.3%	20.2%	30.5%	33.3%
middle series	105.2	121.0	166.6	214.9	230.9	9.2	13.8	36.8	74.6	87.6	8.8%	11.4%	22.1%	34.7%	37.9%
high series	105.2	120.3	171.8	278.9	320.3	9.2	13.9	41.3	105.1	131.2	8.8%	11.5%	24.1%	37.7%	41.0%

Table 8 : **Projections of U.S. Hispanic Foreign Born and Foreign Stock Population**

	Foreign Born or Foreign Stock Hispanic Population					Foreign Born or Foreign Stock Hispanic Population Share of Total Population					Foreign-Born Share of Hispanic Population				
	2000	*2010*	*2050*	*2090*	*2100*	*2000*	*2010*	*2050*	*2090*	*2100*	*2000*	*2010*	*2050*	*2090*	*2100*
Census 2000, Foreign Born															
low series	11.4	12.6	10.1	5.5	4.9	4.1%	4.3%	3.2%	1.9%	1.7%	35.2%	30.9%	14.5%	6.3%	5.6%
middle series	11.5	14.6	19.6	18.3	17.7	4.2%	4.9%	4.9%	3.4%	3.1%	35.5%	33.5%	20.0%	10.7%	9.3%
high series	11.7	17.5	37.3	47.0	47.7	4.2%	5.6%	6.8%	4.6%	4.0%	35.9%	36.7%	25.4%	13.7%	11.6%
Edmonston and Passell 1992															
Total Foreign Stock		32.6	59.7	77.4			10.9%	16.2%	17.9%			84.5%	82.5%	73.0%	
Foreign Born		15.1	21.8	24.2			5.0%	5.9%	5.6%			39.1%	30.1%	22.8%	
2nd generation		12.6	23.8	29.8			4.2%	6.4%	6.9%			32.6%	32.9%	28.1%	
3rd generation		4.9	14.1	23.4			1.6%	3.8%	5.4%			12.7%	19.5%	22.1%	
4+ generation		6.0	12.7	28.7			2.0%	3.4%	6.6%			15.5%	17.5%	27.0%	

Table 9. **Projections of Hispanic Population by Immigrant Generation, 2050 and 2100**

	Projection Series	2000	2050	2100
Population shares				
Hispanic Population[a]	Low	11.8%	22.2%	31.3%
share of total population	Middle	11.8%	24.3%	33.3%
	High	11.8%	26.6%	34.9%
Foreign-Born Hispanic Population[a]	Low	35.2%	14.5%	5.6%
share of Hispanic population	Middle	35.5%	20.0%	9.3%
	High	35.9%	25.4%	11.6%
Members and descendents of current 2nd and descendents of later immigrant generations [b]	All	*53.2%*	*69.1%*	*85.0%*
share of native-born Hispanic population				
Members and descendents of current 2nd and descendents of later immigrant generations	Low	34.5%	59.1%	80.3%
	Middle	34.3%	55.3%	77.1%
share of Hispanic population	High	34.1%	51.6%	75.2%
Members and descendents of current 2nd and members and descendents of later immigrant generations	Low	69.7%	73.6%	85.8%
	Middle	69.8%	75.3%	86.4%
share of Hispanic population	High	70.0%	76.9%	86.7%

a. United States Bureau of the Census 2000 projections.

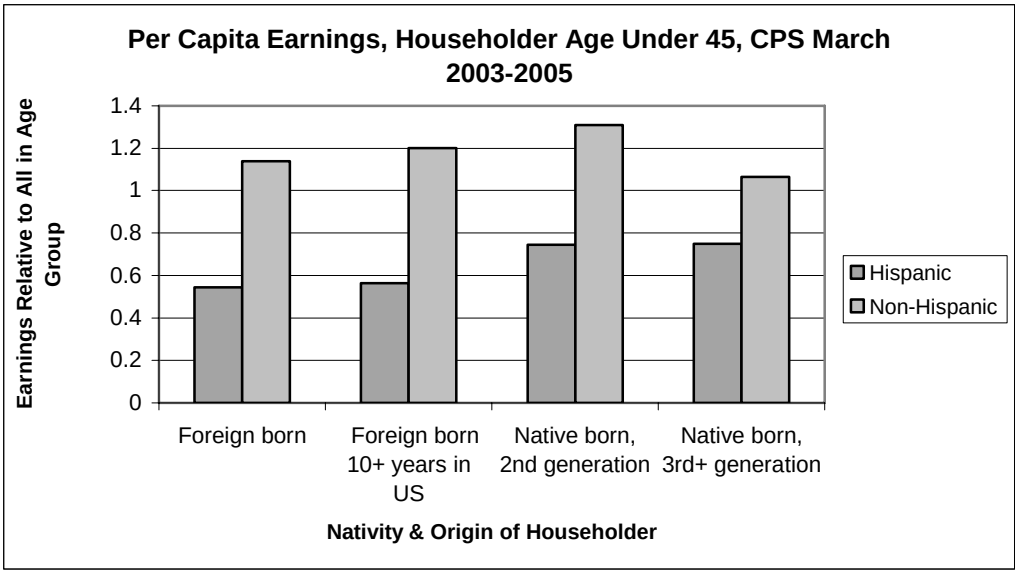
b. Sources: 2000 from Current Population Survey (March 2002); 2100 see text; 2050 interpolated between 2000 and 2100

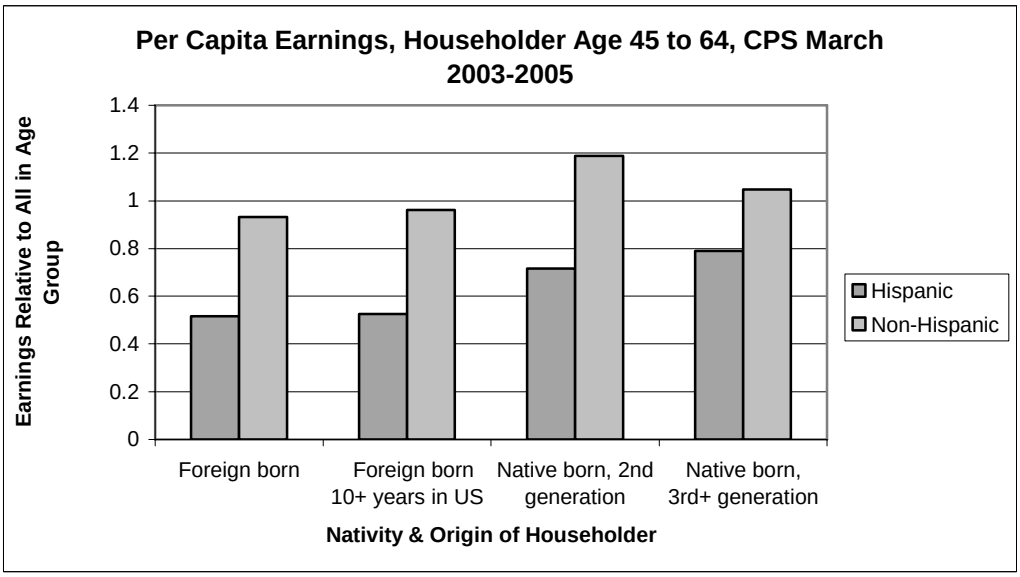
Table 10. **Projections of Impacts of Immigration on Average Earnings, 2050 and 2100**

Impacts on average earnings with current per household gap = -30.5% [c,d]				
Rapid assimilation scenario	Low	-1.3%	-1.0%	-0.5%
impact on total consumption relative to baseline	Middle	-1.3%	-1.5%	-0.9%
	High	-1.3%	-2.1%	-1.2%
Impeded assimilation scenario	Low	-2.0%	-5.0%	-8.2%
impact on total consumption relative to baseline	Middle	-2.0%	-5.6%	-8.8%
	High	-2.0%	-6.2%	-9.2%
Impacts on average earnings with current per capita gap = -47.0% [c]				
Rapid assimilation scenario	Low	-1.9%	-1.5%	-0.8%
impact on total consumption relative to baseline	Middle	-2.0%	-2.3%	-1.5%
	High	-2.0%	-3.2%	-1.9%
Impeded assimilation scenario	Low	-3.0%	-7.7%	-12.6%
impact on total consumption relative to baseline	Middle	-3.1%	-8.6%	-13.5%
	High	-3.1%	-9.6%	-14.2%

c. Gap estimated from Current population survey data on household income, March 2003-2005, average for households under age 65. See text and Tables 4 and 5.
d. Populations from Table 9.

Figure 1


Per Capita Earnings, Householder Age Under 45, CPS March 2003-2005
Earnings Relative to All in Age Group
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Foreign born
Foreign born 10+ years in US
Native born, 2nd generation
Native born, 3rd+ generation
Hispanic
Non-Hispanic
Nativity & Origin of Householder


Per Capita Earnings, Householder Age 45 to 64, CPS March 2003-2005
Earnings Relative to All in Age Group
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Foreign born
Foreign born 10+ years in US
Native born, 2nd generation
Native born, 3rd+ generation
Hispanic
Non-Hispanic
Nativity & Origin of Householder

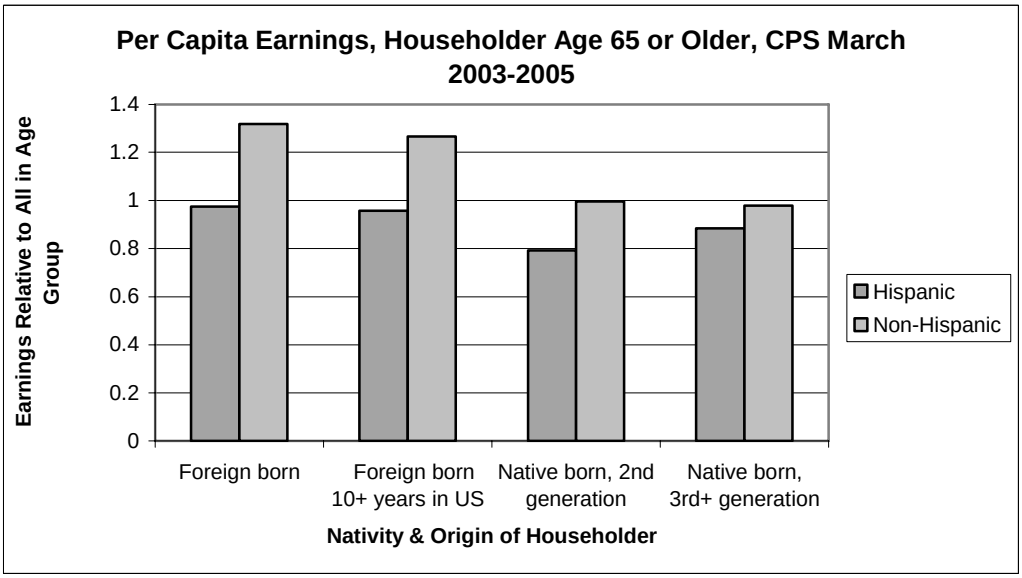
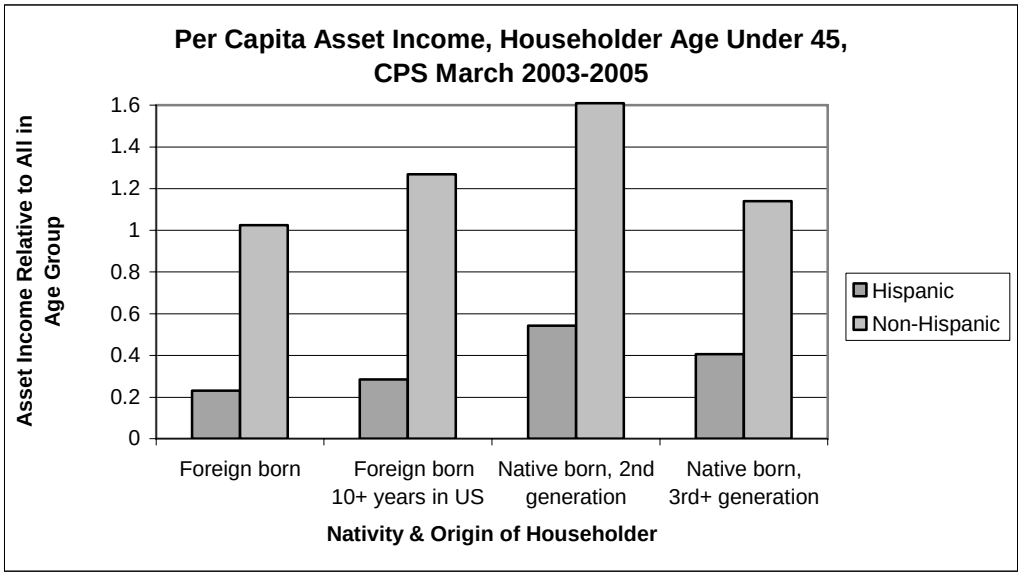
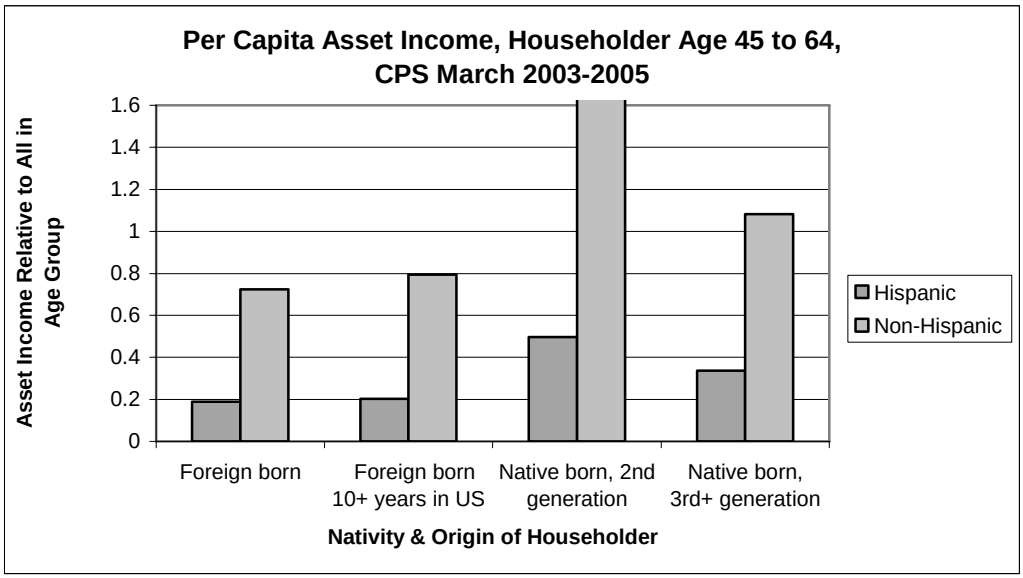

Per Capita Earnings, Householder Age 65 or Older, CPS March 2003-2005
Earnings Relative to All in Age Group
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Foreign born
Foreign born 10+ years in US
Native born, 2nd generation
Native born, 3rd+ generation
Hispanic
Non-Hispanic
Nativity & Origin of Householder

Figure 2


Per Capita Asset Income, Householder Age Under 45,
CPS March 2003-2005
Asset Income Relative to All in Age Group
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Foreign born
Foreign born 10+ years in US
Native born, 2nd generation
Native born, 3rd+ generation
Nativity & Origin of Householder
Hispanic
Non-Hispanic


Per Capita Asset Income, Householder Age 45 to 64,
CPS March 2003-2005
Asset Income Relative to All in Age Group
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Foreign born
Foreign born 10+ years in US
Native born, 2nd generation
Native born, 3rd+ generation
Nativity & Origin of Householder
Hispanic
Non-Hispanic

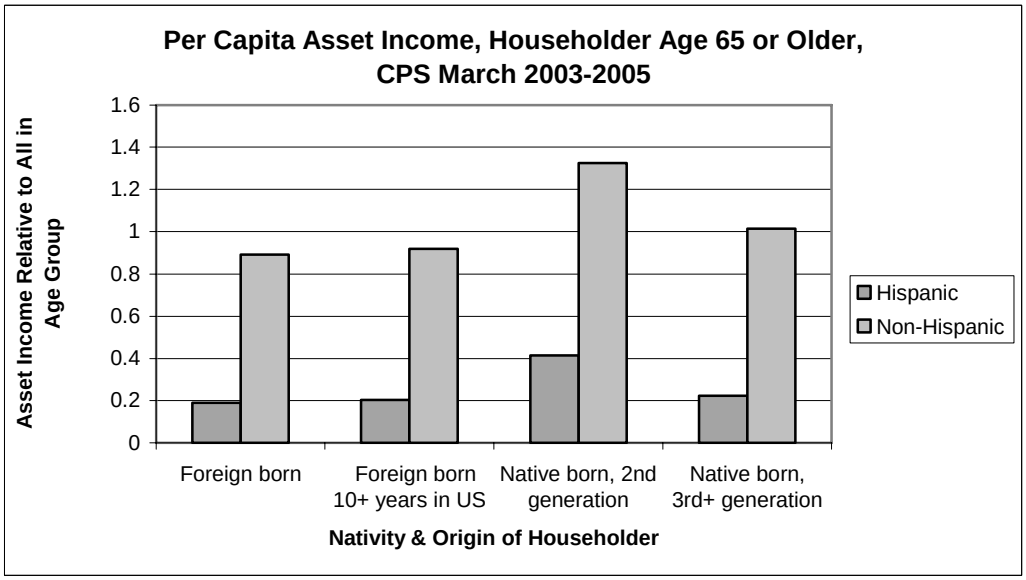
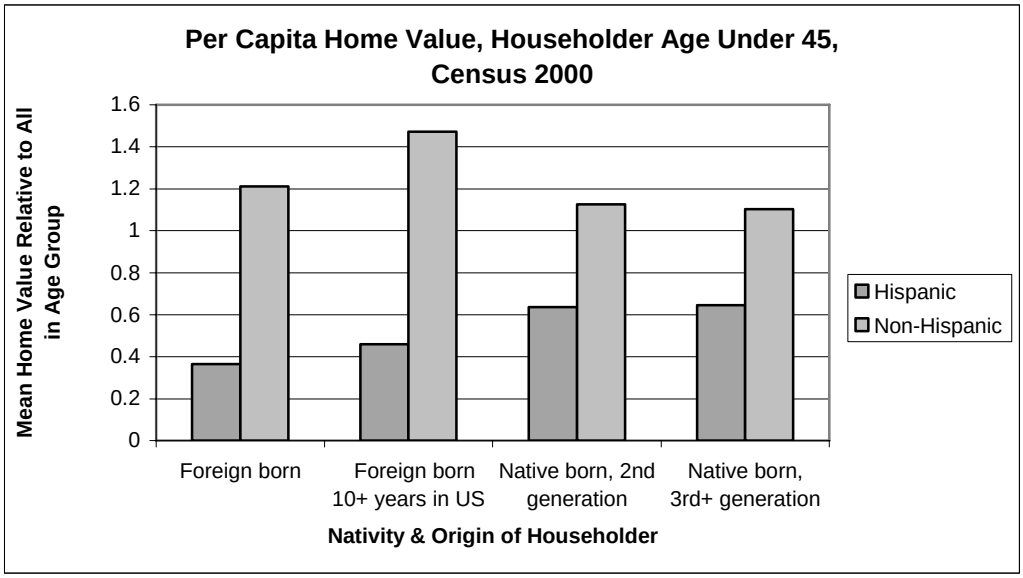
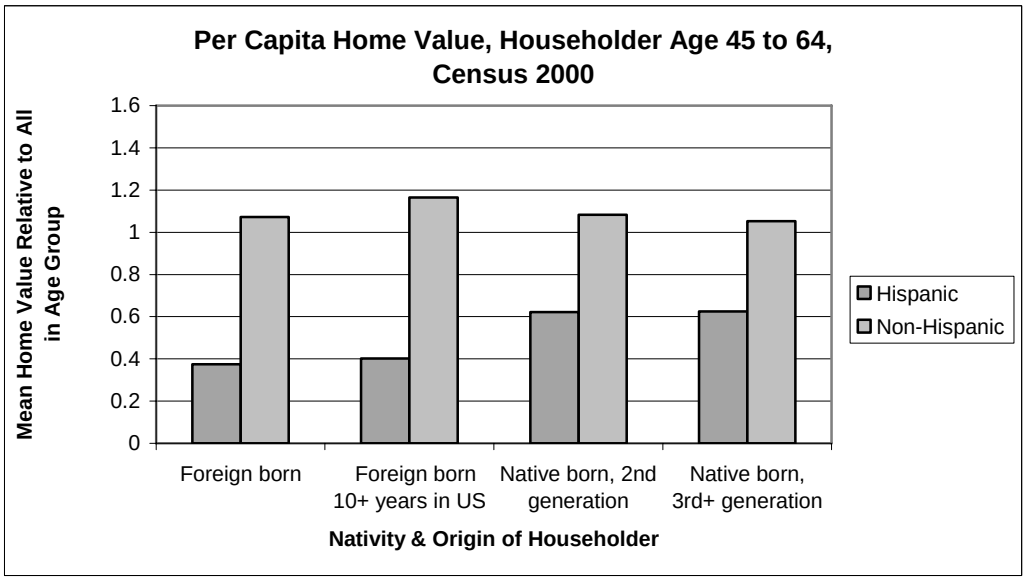

Per Capita Asset Income, Householder Age 65 or Older,
CPS March 2003-2005
Asset Income Relative to All in Age Group
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Foreign born
Foreign born 10+ years in US
Native born, 2nd generation
Native born, 3rd+ generation
Nativity & Origin of Householder
Hispanic
Non-Hispanic

Figure 3


Per Capita Home Value, Householder Age Under 45, Census 2000
Mean Home Value Relative to All in Age Group
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Foreign born
Foreign born 10+ years in US
Native born, 2nd generation
Native born, 3rd+ generation
Nativity & Origin of Householder
Hispanic
Non-Hispanic


Per Capita Home Value, Householder Age 45 to 64, Census 2000
Mean Home Value Relative to All in Age Group
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Foreign born
Foreign born 10+ years in US
Native born, 2nd generation
Native born, 3rd+ generation
Nativity & Origin of Householder
Hispanic
Non-Hispanic

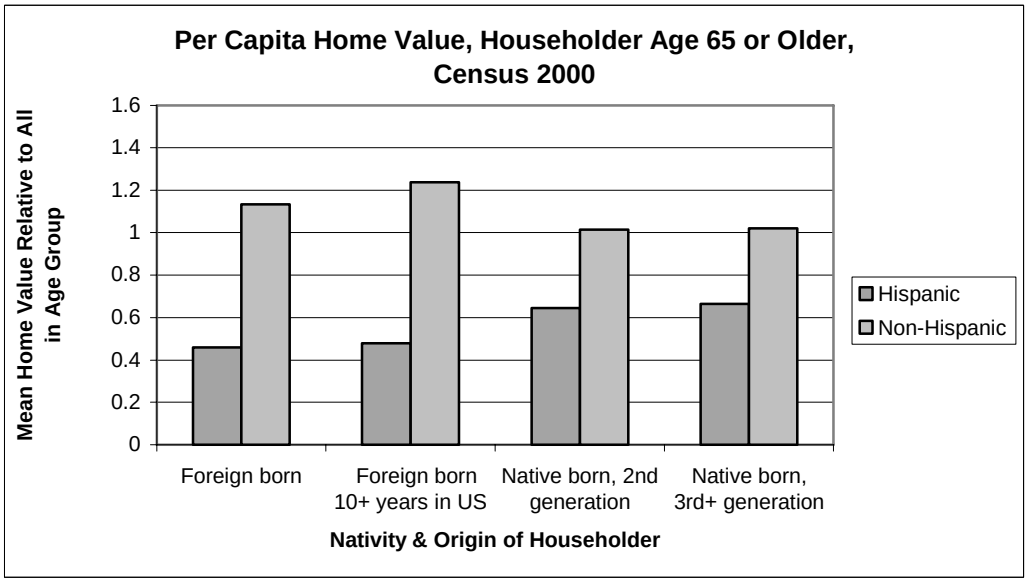
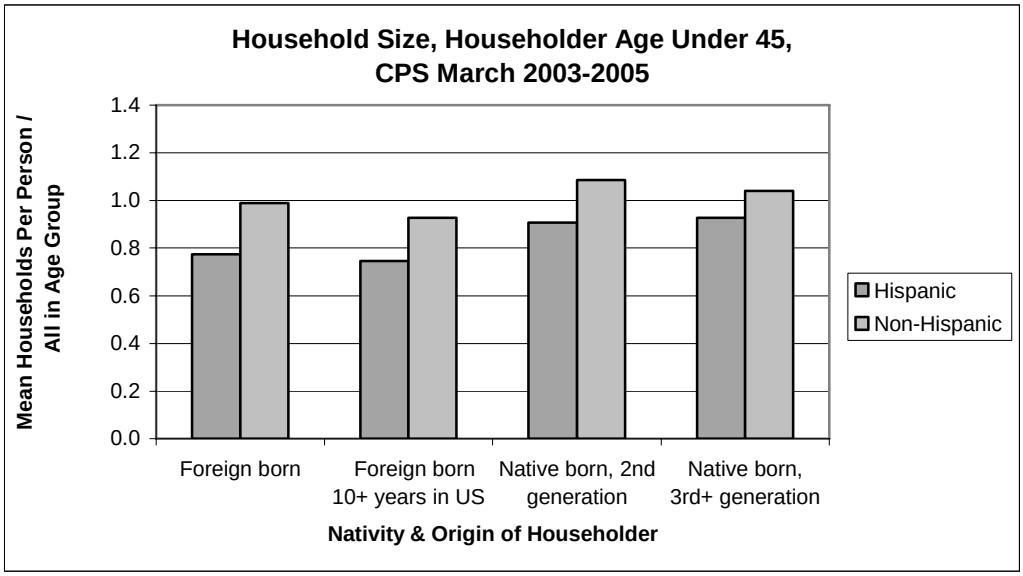
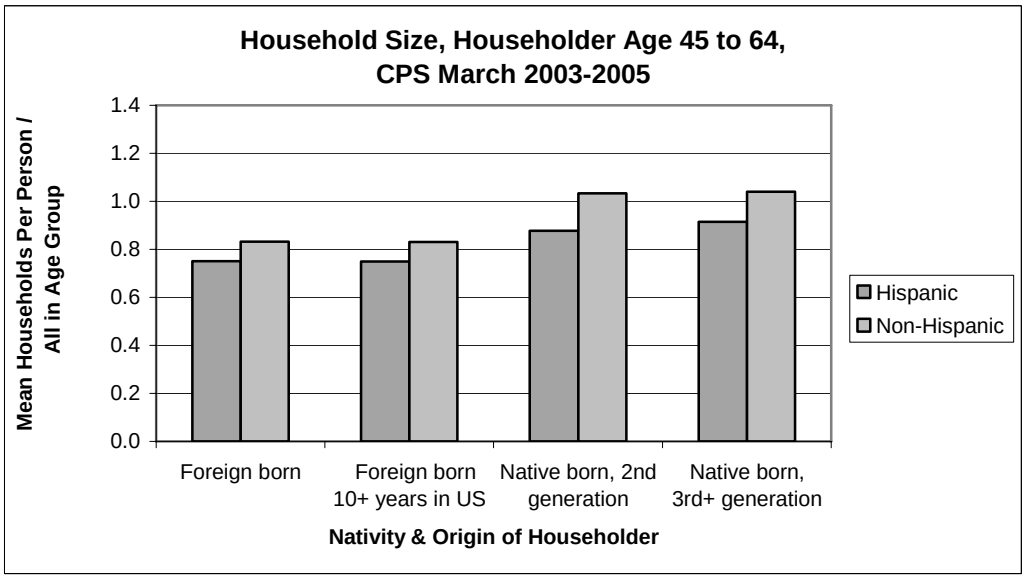

Per Capita Home Value, Householder Age 65 or Older, Census 2000
Mean Home Value Relative to All in Age Group
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Foreign born
Foreign born 10+ years in US
Native born, 2nd generation
Native born, 3rd+ generation
Nativity & Origin of Householder
Hispanic
Non-Hispanic

Figure 4


Household Size, Householder Age Under 45,
CPS March 2003-2005
Mean Households Per Person / All in Age Group
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Foreign born
Foreign born 10+ years in US
Native born, 2nd generation
Native born, 3rd+ generation
Nativity & Origin of Householder
Hispanic
Non-Hispanic


Household Size, Householder Age 45 to 64,
CPS March 2003-2005
Mean Households Per Person / All in Age Group
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Foreign born
Foreign born 10+ years in US
Native born, 2nd generation
Native born, 3rd+ generation
Nativity & Origin of Householder
Hispanic
Non-Hispanic

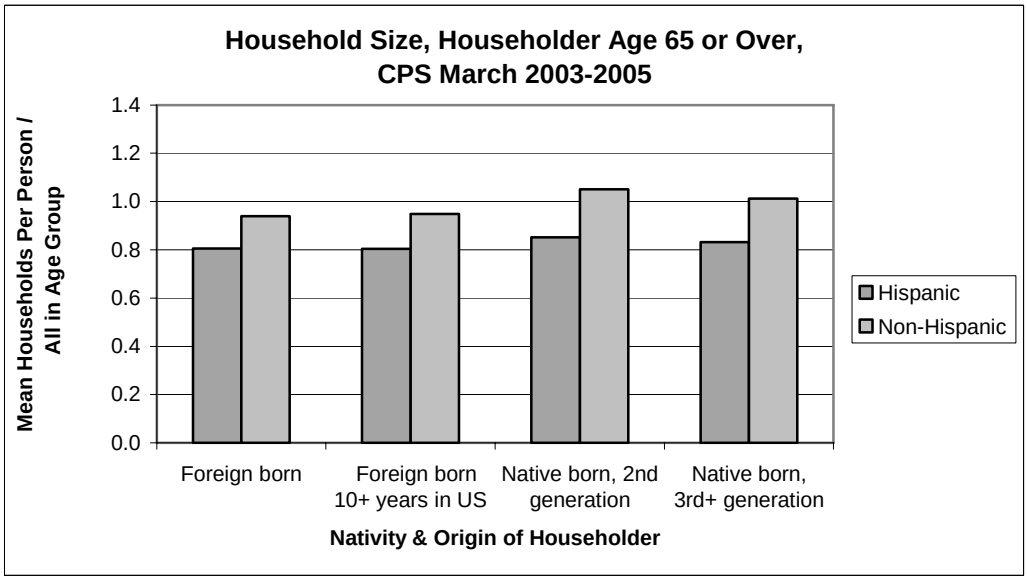

Household Size, Householder Age 65 or Over,
CPS March 2003-2005
Mean Households Per Person / All in Age Group
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Foreign born
Foreign born 10+ years in US
Native born, 2nd generation
Native born, 3rd+ generation
Nativity & Origin of Householder
Hispanic
Non-Hispanic

Figure 5.

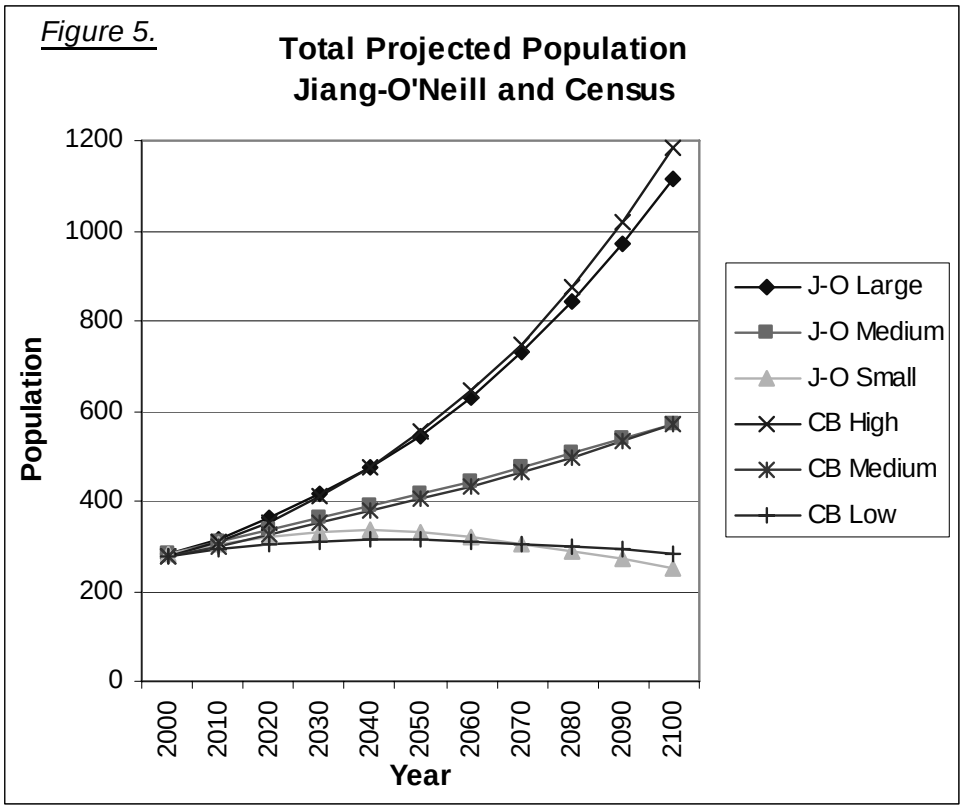


Figure 6.

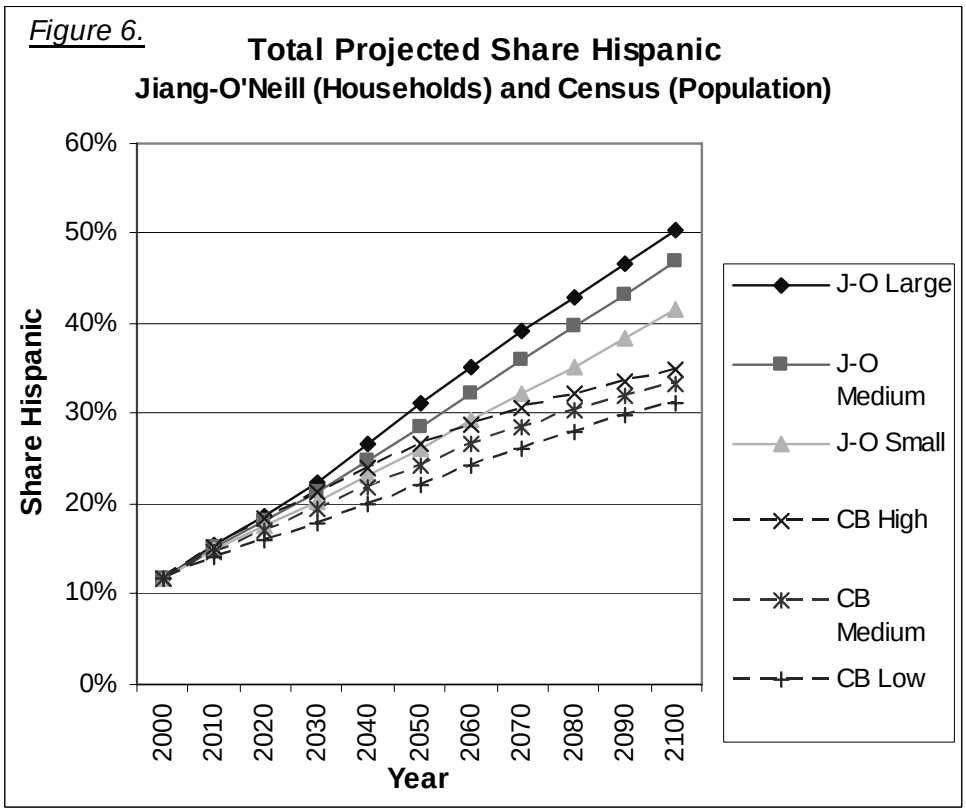
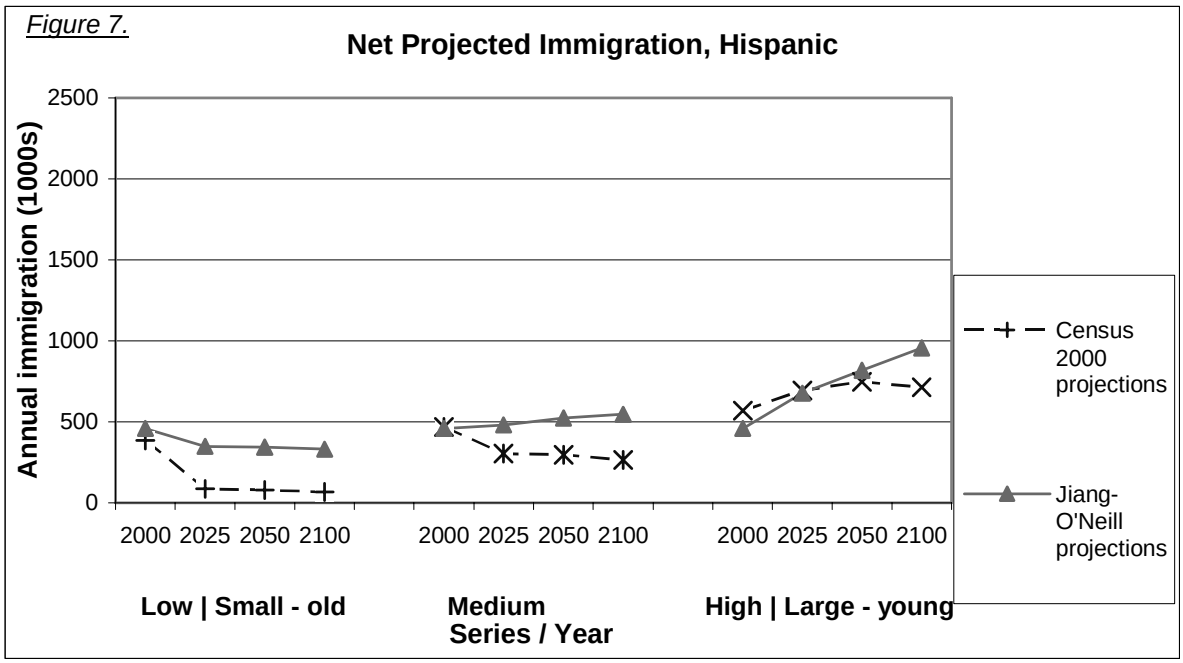


Figure 7.


Net Projected Immigration, Hispanic
Annual immigration (1000s)
2500
2000
1500
1000
500
0
2000 2025 2050 2100
2000 2025 2050 2100
2000 2025 2050 2100
Low | Small - old
Medium
High | Large - young
Series / Year
Census 2000 projections
Jiang-O'Neill projections

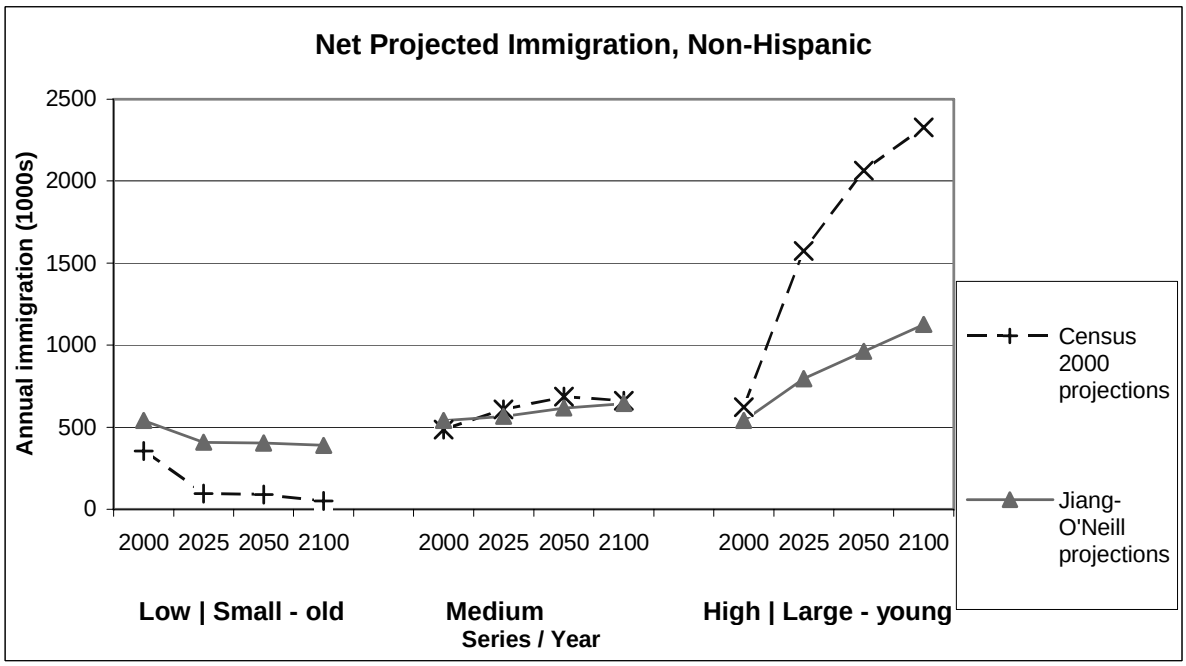

Net Projected Immigration, Non-Hispanic
Annual immigration (1000s)
2500
2000
1500
1000
500
0
2000 2025 2050 2100
2000 2025 2050 2100
2000 2025 2050 2100
Low | Small - old
Medium
High | Large - young
Series / Year
Census 2000 projections
Jiang-O'Neill projections

Figure 8.

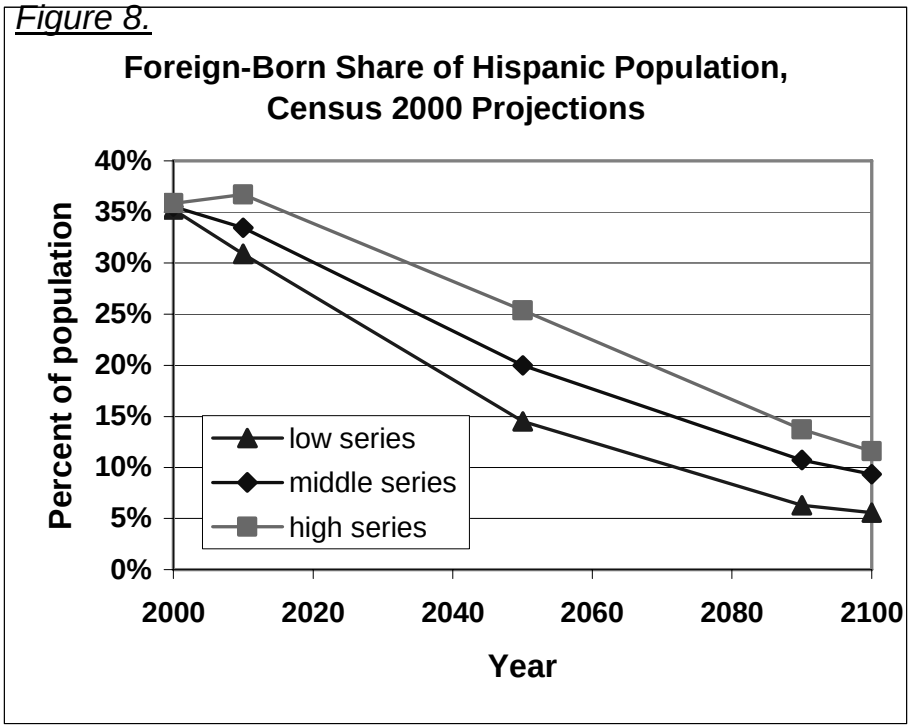


Figure 9.