SOCIAL SECURITY ELIGIBILITY AND THE LABOR SUPPLY OF OLDER IMMIGRANTS

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The employment rate of native-born men falls at a much faster rate than that of immigrants as the two groups approach the age of retirement. The author draws on U.S. Census data from 1960–2000 to examine how the eligibility requirements for Social Security benefits affect immigrants' decisions to leave the labor market as they near retirement age. Because a person needs to have worked in the United States for at least ten years to qualify for benefits, newly arrived immigrants may not yet have accumulated the requisite employment credits to do this and thus have greater employment rates than other comparably aged persons. The probability that an older immigrant is employed falls once the ten-year work rule is satisfied. The implication of this finding is that immigration may affect the increase in retirement benefits that will inevitably occur as the baby boom generation retires.

There has been a historic increase in the number of both legal and illegal immigrants in the United States in recent decades. Not surprisingly, the number of older immigrants also grew rapidly. To wit, in 1980, 7.3% of persons aged 50–74 were foreign born. By 2009, the immigrant share in this population had risen to 12.8%. Although much of this increase is due to the aging of foreign-born persons who migrated at a younger age, many persons also migrate to the United States in their 50s and 60s. In 2009, for example, 18.9% of the foreign-born population aged 50–74 had been in the United States fewer than ten years.

In this paper, I examine the labor supply behavior of older immigrant men and document how the immigrant labor supply differs from that of natives (those born in the U.S.) as the two groups near retirement age.[1] There are two crucial differences between the age-employment profiles of older immigrant and native men. First, native employment rates decline at a much faster rate as they near retirement. Second, there is a crossover point in the two age-employment profiles as the men reach their late 50s or early 60s. Before that crossover age, natives tend to have larger employment rates. After that crossover age, natives have lower

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[1] Although some early studies examined how both earnings and labor supply adjust over the immigrant's life cycle (see Carliner 1980), almost all of the subsequent literature focuses on the evolution of wages. The literature on immigrant labor supply includes Duleep and Sanders (1993); Baker and Benjamin (1997); Borjas (2003); Kaushal (2009); and Lopez and Lozano (2009). The Kaushal study is related to the analysis in this paper since it examines the impact of the Supplemental Security Insurance program (SSI) on the labor supply of elderly immigrants. Duleep (1994) presented a related analysis examining whether the out-migration rates of immigrants in the United States are affected by whether the immigrant has already qualified for Social Security benefits.

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employment rates. The two age-employment profiles then converge around the age of 70.

The greater reluctance of immigrants to exit the labor market as they near retirement age results partly from the incentives introduced by the eligibility requirements for Social Security benefits. Even if a person has reached the Social Security retirement age, he needs to have worked in the United States for at least 40 quarters—the equivalent of ten years—to qualify for those benefits. This ten-year work rule will typically have no impact on the labor supply decisions of native men in their 50s or 60s since they would typically have acquired the requisite employment credits decades earlier. Many older immigrants, however, have only recently arrived in the United States (and even immigrants who arrived at a younger age may not have yet accumulated the 40 quarters of employment). The ten-year work rule can therefore have a substantial impact on labor supply as immigrants optimize their time allocation to ensure that they eventually qualify for the substantial increase in lifetime wealth provided by the Social Security system.[2]

To examine how the eligibility requirements in Social Security differentially influence the labor supply decisions of older natives and immigrants, I use data drawn from the 1960–2000 U.S. Censuses. My findings indicate that the ten-year work rule has a substantial impact on immigrant labor supply behavior. Specifically, immigrants in their 50s who have not yet accumulated the required employment credits have much greater employment rates than otherwise comparable persons. Once the ten-year work rule is satisfied, the probability that an older immigrant receives Social Security retirement benefits rises significantly and his probability of employment drops by seven to eleven percentage points. This link between immigrant labor supply and the Social Security eligibility rules, can, of course, have an important influence in any calculation of the rate of return on the taxes paid to the Social Security system and on estimates of the net economic benefits from immigration.[3]

Data and Basic Trends

My empirical analysis relies on data drawn from the 1960–2000 Integrated Public Use Microdata Series (IPUMS) of the U.S. Census. The 1960 and 1970 data files provide a 1% random sample of the population whereas the post-1970 files provide a 5% sample. Persons who are not citizens or who are naturalized citizens are classified as immigrants; all other persons are classified as natives. The sample consists of "older" men aged 50–74 who do not reside in group quarters.[4]

The trend in the immigrant share of this older population is illustrated in Figure 1. The bold lines use the 1960–2000 Census data. The immigrant share among men aged 50–74 fell from 14.9 to 7.0% between 1960 and 1980 but rose back to 10.8% by 2000. The dashed lines in the figure use data from the Annual Demographic Files of the Current Population Surveys (CPS) to illustrate the post-2000 trend. It is evident that the immigrant share in the older population has continued to rise at a fast pace. By 2009, 12.4% of older men were foreign born.

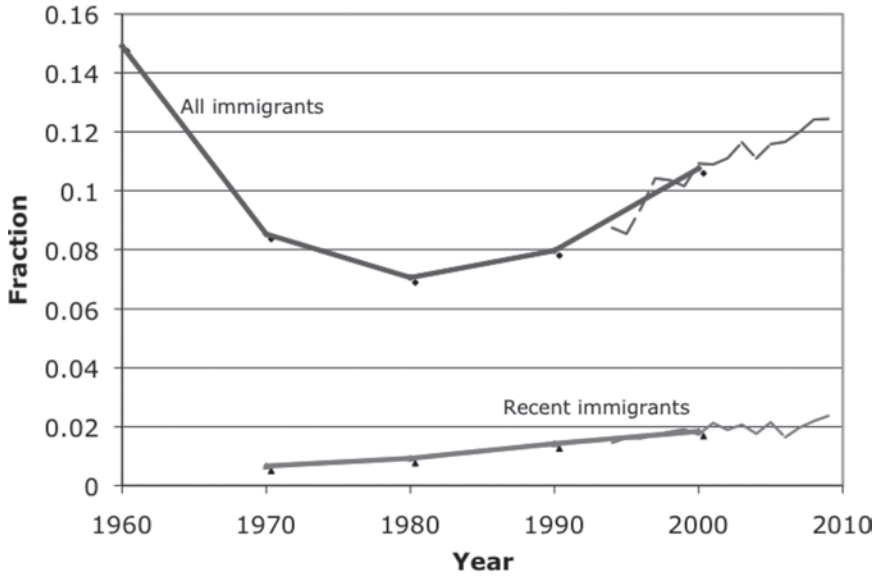
Part of the increase in the immigrant share cannot be attributed to the aging of immigrants who arrived in the United States

[2] An additional set of Social Security-related incentives is not explored in this paper. In particular, the payoff per additional year worked will differ between immigrants and natives even after the ten-year work rule is satisfied because older immigrants, on average, have worked fewer years in the United States than older natives. See Gustman and Steinmeier (2000) for a good discussion of how the Social Security benefits formula differentially affects immigrants and natives.

[3] Gustman and Steinmeier (2000) presented a detailed calculation of the rate of return to Social Security taxes for both immigrants and natives. Their analysis, however, did not take into account the interplay between the ten-year work rule and the labor supply behavior of immigrants.

[4] Trent, Davern, and Stevenson (2010) showed that the 2000 Census file gives inaccurate counts of the population of persons aged 65 or more. It is unclear how those Census errors influence the results reported in this paper. To assess the sensitivity of the results, however, I estimated the main regression models using the 1980–1990 Censuses (surveys that are unaffected by the inaccurate counts) and the results were qualitatively similar to those reported below.

Figure 1. The Immigrant Share in the Population of Men Aged 50–74



Source: Author's calculations from the 1960–2000 U.S. decennial Censuses and the 1994–2009 Annual Demographic Files of the Current Population Surveys.

at younger ages. To illustrate, I define a "recent" immigrant as someone who migrated in the ten-year period prior to the Census cross-section. I then compute the "recent immigrant share" as the ratio of the number of recent immigrants to the total population.[5] Figure 1 also shows that the recent immigrant share in the older population rose rapidly, from 0.9% in 1980 to 1.8% in 2000, and the CPS data show that this rise continued after 2000. In fact, the shares reported in Figure 1 suggest that around 20% of the population of older immigrant men comprise persons who have been in the United States fewer than ten years.[6]

This fact can generate important differences in labor supply behavior between immigrants and natives as the two groups reach retirement age. After all, a relatively large number of older immigrants will reach the retirement age thresholds of 62 or 65, which were built into the Social Security system prior to their having worked in the United States for ten years.[7] Social Security benefits, however, are granted only to persons who have worked at least 40 quarters in the United States.[8] The ten-year work rule implies that a

[5] The recent immigrant share cannot be calculated in the 1960 Census because that survey does not report detailed information on the year of immigration for foreign-born persons.

[6] Moreover, some immigrants will not have accumulated the requisite work credits even after living in the United States for ten years. In 2000, for example, 22.7% of immigrant men (aged 50–61) who arrived between 1985 and 1989 did not work in 1999. Hence, the number of immigrants who have been in the country more than ten years overstates the number that will qualify for Social Security retirement benefits. I discuss this issue in more detail below.

[7] In 1983, Congress enacted a gradual increase in the age for collecting full Social Security retirement benefits. In particular, the retirement age at which a worker can collect full benefits has increased from 65 to 67 over a 22-year period. The first birth cohort affected by this increase is composed of persons born in 1938. Thus, the increase in retirement age did not go into effect until after 2000. This change in the Social Security retirement age does not affect the empirical analysis in this paper because most of the evidence is based on the trends in labor supply between 1980 and 2000.

[8] The 40 quarters of employment need not be consecutive.

person's Social Security wealth (the present value of lifetime benefits a person can expect to receive over his lifetime) jumps dramatically (from zero) after the 40th quarter of employment. In addition, persons who qualify for Social Security benefits also qualify for Medicare Part A benefits at age 65. The value of the benefits provided by the Medicare program generates an even greater increase in the present value of lifetime wealth after the 40th quarter of employment. Many immigrant men in their 50s, therefore, will be keenly aware of the financial gain associated with accumulating the 40th quarter of employment whereas most native men will have accumulated the requisite 40 quarters much earlier in their working lives.

It is important to emphasize that the definition of "a quarter of employment" is quite liberal. In 2010, a quarter counted toward the ten-year work rule if a person earned at least $1,090 in that quarter.[9] Even a worker earning the minimum wage and working only four 40-hour weeks during the quarter meets this threshold. Since the per-quarter earnings threshold is likely to be met by most workers, the ten-year work rule can have a substantial impact on work incentives at the extensive margin of a worker's labor supply decision—that is, the decision of whether to work in a given quarter.[10]

As they attempt to satisfy the ten-year work rule, some older immigrant men will have much greater incentives to enter or remain in the labor market than comparable native men. The additional labor supply provided by immigrants may also affect the slope of the age-employment profile since fewer immigrants withdraw from the labor market as retirement age nears. In short, the ten-year work rule will likely flatten the age-employment profile of older immigrants relative to natives, and it may even reverse the direction of the employment gap between immigrants and natives in their late 50s and early 60s.[11]

I document the labor supply differences between older immigrants and natives by focusing on two alternative measures of employment: (1) the probability that a person worked during the Census week and (2) the fraction of weeks worked in the calendar year prior to the Census (including all persons who work zero weeks). It is instructive to begin the descriptive analysis by comparing the employment propensities of immigrants with natives in the 2000 cross-section. Figure 2 illustrates the age-employment profiles for older immigrants and natives using both of the employment variables.

Regardless of how employment is defined, natives in their early 50s have higher employment rates than comparably aged immigrants. At age 50, for example, the employment rate for native men is 82.3% whereas it is 75.7% for immigrant men. At the same time, the figure reveals a much faster decline in the employment rate of natives as the groups near retirement age. By age 63, in fact, the native employment advantage has been reversed: the employment rate for immigrants is 47.8% whereas for natives it is 43.3%. In other words, there has been a 10.7-percentage-point shift in the employment rate of immigrants relative to

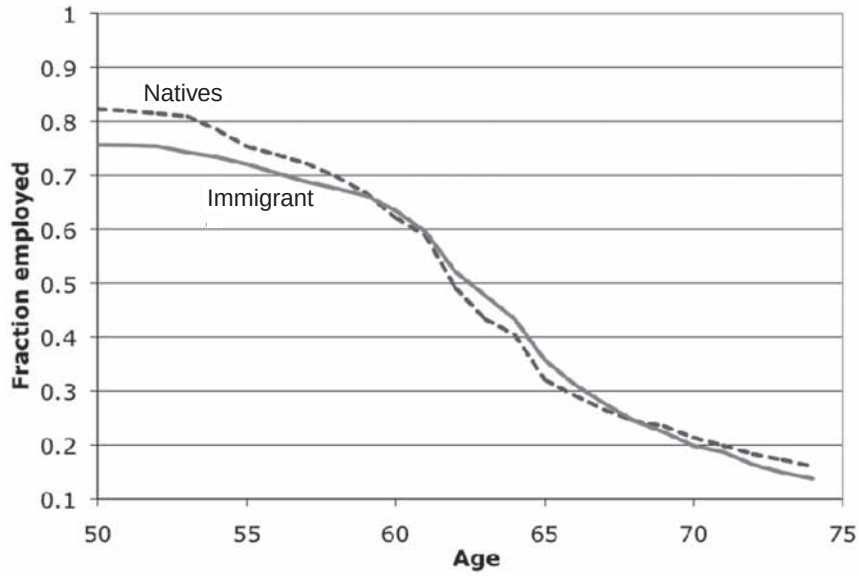
[9] In 2010, a worker earned one credit (up to a total of four per year) for every $1,090 of covered earnings. This method of counting the number of quarters worked, therefore, suggests that if a person works one month during the year and earns $4,360 in that month, he would get credit for a full year (four quarters) of work.

[10] Other aspects of the Social Security benefit formula may affect labor supply at the intensive margin. For instance, monthly Social Security benefits depend on a person's average earnings in a highly nonlinear (and progressive) way. A worker's Average Indexed Monthly Earnings (AIME) is calculated by indexing the worker's past earnings to changes in average wage levels over the worker's lifetime and then averaging them. In 2010, monthly benefits were calculated as follows: 90% of the first $680 of AIME, plus 32% of the next $3,420, and 15% of any earnings above that level (up to a cap). An immigrant's AIME will be very sensitive to the age at migration because the average is carried out over 40 years of lifetime work (regardless of how long the immigrant has been in the United States).

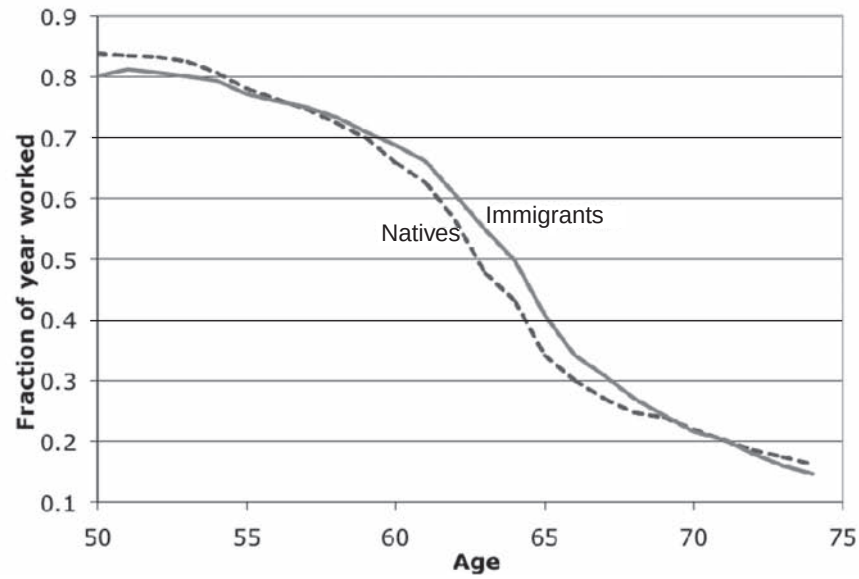
[11] As with the immigrant influx among prime-age workers, there are substantial differences in the skills of older immigrants. The rise in the immigrant share for older men was steepest in the sample of high school dropouts. In 1980, 7.8% of older workers with less than a high school education were foreign-born. By 2000, this number had risen to 19.3%. In contrast, the rise in the immigrant share among older college graduates was modest, from 7.7% in 1980 to 11.0% in 2000.

Figure 2. Age-Employment Profiles in the 2000 Census Cross-Section

A. Employment rate



B. Fraction of weeks worked



Source: Author's calculations from the 2000 U.S. decennial Census.

natives between the ages of 50 and 63 (from −6.6 % to +4.1%).

Of course, these empirical regularities are difficult to interpret because the cross-section age-employment profiles illustrated in Figure 2 contaminate aging and cohort effects in the immigrant population (Borjas 1985). The aging effect arises because immigrants acquire relatively more human capital than native workers as they accumulate experience in the U.S. labor market, and their labor supply may adjust accordingly. Cohort effects arise because there may be permanent differences in skills across immigrant waves, and these permanent skill differentials might lead to differences in labor supply.

It turns out, however, that relatively flat age-employment profiles and crossover points are a feature of the labor supply data for immigrants who enter the country in their 50s, even after adjusting for the existence of aging and cohort effects. To construct the age-employment profile of a particular cohort of immigrants—a cohort being defined in terms of both age at arrival and calendar year of arrival—I used the 1970–2000 Censuses. Results are given in Panel A of Figure 3. To simplify the exposition, the figure considers immigrants who arrived in the United States between the ages of 50 and 54. In addition, I consider three year-of-arrival cohorts: those arriving in the periods 1965–1969, 1975–1979, or 1985–1989. By judiciously using the data provided by the repeated cross-sections, it is possible to track the specific immigrant cohorts across Censuses and compare their labor supply behavior to that of comparably aged natives.[12]

To understand this figure more clearly, it is instructive to track the employment rate of a specific cohort of older immigrants across Censuses. Consider, for example, the group of immigrants who came to the United States between 1965 and 1969 and were 50–54 years old at the time of arrival. At the time of entry in 1970, this immigrant group worked 80.4% of the year; a comparably aged group of native persons worked 87.4% of the time available (the native profile is given by the corresponding dashed line in the figure).

Fast-forward ten years. By 1980, the original immigrant cohort and the comparison group of natives were 60–64 years old. Figure 3 shows that a crossover occurred, and that immigrants began to work a larger fraction of the year than natives: 69.3 versus 60.3%. At the 2000 Census, when both groups were 70–74 years old, the fraction of weeks worked by the two groups was roughly similar—both immigrants and natives were working about 20% of the time.

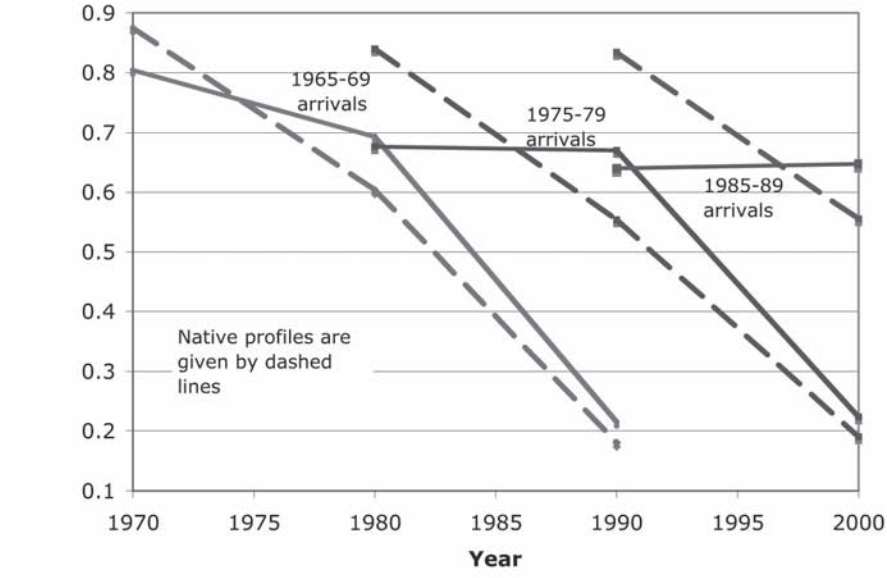
The age-employment profile for this particular cohort of immigrants is flatter than it is for comparably aged natives, and it crosses that of natives at some point before retirement age. The two profiles tend to converge after retirement age. This general pattern characterizes the experience of other newly arrived immigrant cohorts as well.

In contrast to Panel A, Panel B illustrates the age-employment profiles of immigrants who arrived at younger ages. Although these profiles also show a relative increase in employment as immigrants age, the increase is small when compared to the employment increase experienced by immigrants who arrived at older ages. Consider the immigrants who arrived in 1950–1959 and were 50–54 years old at the time of the 1980 Census. This cohort of immigrants entered the country when they were in their 20s or early 30s. The employment rate of this group in 1980 was essentially equal to that of natives: both groups worked about 85% of the time. By 1990, when both groups were 60–64 years old, the fraction of time worked is about ten percentage points larger for immigrants, and the two profiles again converge by 2000. However, the ten-percentage-point increase in relative employment is far smaller than the twenty- to thirty-percentage-point shift in relative employment experienced by the immigrant cohorts that arrived at older ages, illustrated in Panel A of the figure.

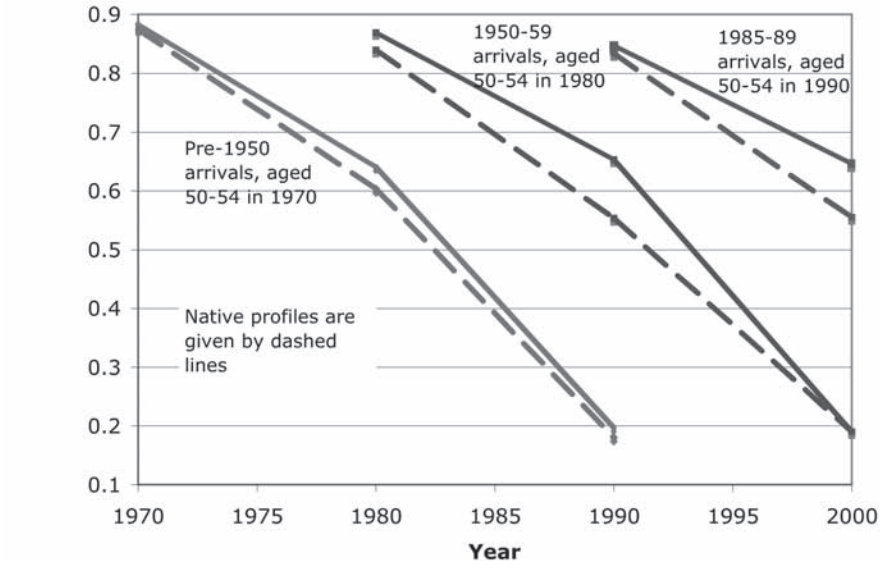
[12] It is well known that this tracking of immigrant cohorts across Census cross-sections is contaminated by non-random return migration rates in the immigrant population. Remarkably little data is available on the size and composition of return migrants. As a result, it is difficult to cleanse the synthetic cohorts for the effects of selective return migration (see Borjas and Bratsberg (1996)).

Figure 3. Longitudinal Age-Employment Profiles, Using Fraction of Time Worked

Panel A. Age-employment profiles of immigrants aged 50–54 at time of arrival



Panel B. Age-employment profiles of immigrants who arrived at younger ages



Source: Author's calculations from the 1960–2000 U.S. decennial Censuses.

Panel A of Figure 3 also highlights the presence of sizable cohort effects, which can be visualized as the vertical gap in employment rates between immigrants and natives at the time of entry. For example, recently arrived immigrants in 1970 worked 80.4% of the year compared to 87.4% for natives, for a gap of –7.0 percentage points. In 1980, recently arrived immigrants worked 67.6% of the year compared to 84.0% for comparably aged natives, for a gap of −16.4 percentage points. In 1990, recently arrived immigrants worked 64.0% of the year compared to 83.4% for natives, for a gap of −19.6 percentage points. There was clearly a systematic decline in the relative employment propensity of immigrants across successive waves. This decline, of course, mirrors the well-documented decline in the relative earnings of successive immigrant waves over the same period.

As noted above, I introduce a simple hypothesis to explain the empirical regularity insofar as older immigrants (particularly those who are recent arrivals to the United States) experience a labor supply "bump" as they near retirement age. In particular, the excess labor supply of newly arrived older immigrants results partly from the incentives introduced by the ten-years-of-work eligibility requirement for Social Security and Medicare benefits. This ten-year work rule will not influence the labor supply behavior of native-born men because they will ostensibly have accumulated far more than ten years of employment long before they turn 50. Similarly, the rule will not affect the labor supply decision of immigrants who arrived at younger ages. However, it can strongly influence the labor supply decisions of many older immigrants since a significant number of these immigrants have lived in the United States for a relatively short time.

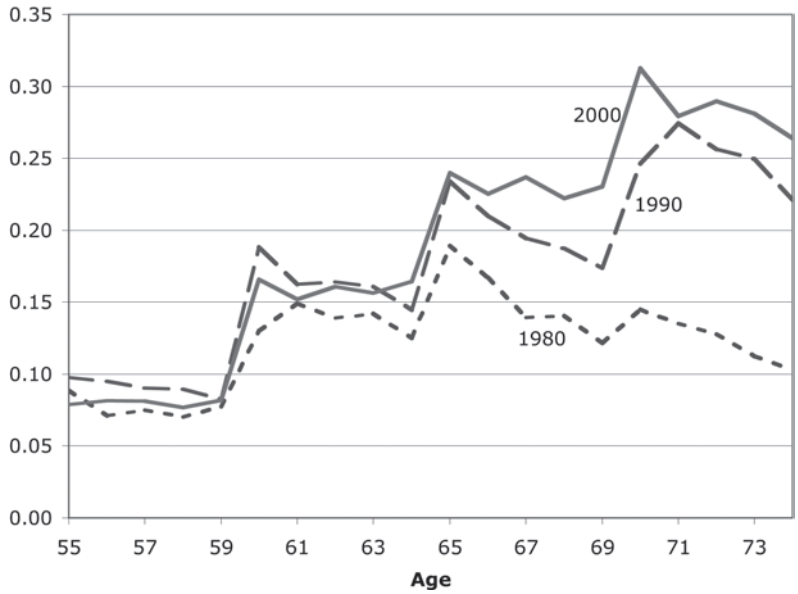
In fact, the number of immigrants who cannot satisfy the ten-year work rule unless they provide "excess" labor supply as they near retirement age is substantial and growing. To illustrate this, I calculated the fraction of immigrant men who cannot satisfy the ten-year work rule at age 62 (a measure of the ineligibility rate). Put differently, I used the available information on an immigrant's age at migration to determine whether a worker aged 62 or below will have lived in the United States for less than ten years (and hence be ineligible for retirement benefits) at age 62. Similarly, I determined whether an immigrant aged 63 or above had lived in the United States for less than ten years at the time he turned 62.

It is important to note that this exercise uses the number of years that the immigrant has lived in the United States to determine whether he is eligible to receive Social Security benefits when he reaches the threshold age of 62. As noted above, employment rates of older immigrants in their 50s are far below 100%; therefore, many immigrants who have lived in the United States even more than ten years will still be ineligible for Social Security benefits because they have not worked the requisite number of quarters. In other words, the variable "years lived in the United States" is a fuzzy proxy for the "quarters of employment" variable that determines Social Security eligibility. As a result, the calculated ineligibility rates *understate* the true fraction of ineligible persons in the older immigrant population.

Figure 4 shows the age-profile for the observed ineligibility rate. In 2000, the typical 60-year-old immigrant had a 15.2% probability of not qualifying for retirement benefits when he reached age 62. Similarly, 31.2% of immigrants aged 70 were not eligible for retirement benefits when *they* turned 62. In fact, around 20 to 30% of immigrants over the age of 62 were not eligible for retirement benefits at the age of 62. Figure 4 also shows that the ineligibility rate has risen over time. In 1980, only about 15% of persons aged 63–67 did not satisfy the ten-year work rule; by 2000, nearly 20% did not satisfy this rule. The ten-year work rule, therefore, can have a quantitatively important influence on the work incentives of the older immigrant population.[13]

[13] Although the identification strategy used in this paper focuses on the ten-year work rule, there have been changes in the Social Security benefits formula over time that could, in principle, provide additional variation. For instance, there was a gradual elimination of the earnings test for Social Security benefits. Further, as

Figure 4. Fraction of Immigrants Ineligible for Social Security at Age 62



Source: Author's calculations from the 1980–2000 U.S. decennial Censuses. A person is ineligible to receive Social Security benefits at age 62 if (a) he is younger than 62 but will not have been in the United States for ten years when he turns 62; (b) he is older than 62 and was not in the United States for ten years at the time he turned 62.

The Impact of Social Security Eligibility

Using the 1980–2000 Census data, I conduct a formal analysis of the determinants of the labor supply of older immigrants, with a specific focus on the impact of Social Security eligibility.[14] The simplest version of the regression model is

$$p_{ij} = \delta A_j + \alpha y_j + \beta C_j + \gamma_i^0 \pi_j^0 + \gamma_i^1 \pi_j^1 + \lambda_i E_j + \varepsilon_{ij} \quad (1)$$

where p_{ij} gives the probability of employment for immigrant j; $p_{n\ell}$ gives the employment probability for native ℓ; A gives the worker's age as of the time of the Census; y_j gives the number of years since migration; C is a vector of dummy variables indicating the calendar year in which the migration occurred; π^0 is a dummy variable indicating whether the observation was drawn from the 1980 Census; π^1 indicates whether the observation was drawn from the 1990 Census; and E is a vector of variables indicating if the immigrant or native is (potentially) eligible for the retirement benefits provided by the Social Security system. The regressions are estimated using the linear probability model.

$$p_{n\ell} = \delta A_\ell + \gamma_n^0 \pi_\ell^0 + \gamma_n^1 \pi_\ell^1 + \lambda_n E_\ell + \varepsilon_{n\ell}, \quad (2)$$

The coefficient vectors γ_i and γ_n give the period effects for immigrants and natives, respectively. The coefficient δ gives the aging effect for natives—the rate at which native employment changes as the person ages.

noted above, the age at which a person can collect full Social Security benefits began to increase after 2000. The regression model in equations (1) and (2) cannot use this time-series variation as an identification strategy since the variation is absorbed by the period effects.

[14] I do not use the data from the 1960 and 1970 Censuses because the number of older immigrants surveyed (particularly within age and year of arrival groups) tends to be relatively small.

The respective aging effect for immigrants is given by the sum of coefficients $(\delta+\alpha)$.[15] The vector *C* contains fixed effects indicating the (calendar year) cohort of arrival. The vector β thus measures the cohort effects—differences in time-of-entry employment probabilities across cohorts.

It is well known that the parameters of the model in equations (1) and (2) are not identified (see Borjas 1985). In order to separately identify the two period effects, the aging effects, and the cohort effects, a restriction must be imposed on the model. The typical restriction used by researchers is that the period effects are the same for immigrants and natives:

$$(3) \qquad \gamma_n^0 = \gamma_i^0, \text{ and } \gamma_n^1 = \gamma_i^1.$$

Thus, changes in macroeconomic conditions have the same impact on the labor supply of immigrants and natives (after conditioning for all the variables included in the regression model).[16]

The regression results are summarized in Table 1. The specification reported in the table is somewhat more general than the generic model in equations (1) and (2). In particular, the regressions include fourth-order polynomials in both age and years-since-migration. Column 1 of the table shows the estimated coefficients *after* imposing the restriction in equation (3).[17] The regressions reported in this column exclude the variables in the eligibility vector *E*.

The estimated cohort effects give the predicted difference in employment rates between a particular immigrant cohort and natives at the time of entry.[18]As the descriptive analysis implies, there exist cohort differences in labor supply, particularly in the "worked during the Census week" measure of labor supply—with the immigrant disadvantage rising over time. In the first column, the predicted (entry) employment rate for immigrants who arrived in the late 1960s is −2.8 percentage points below that of natives whereas the predicted rate for immigrants who arrived in the late 1990s is −15.6 percentage points below that of natives. The cohort effects, however, are much weaker in the regression that uses the fraction of time worked as the dependent variable. The cohort effect for immigrants arriving in the late 1960s is −18.5%; the respective statistic for the cohort arriving in the late 1990s is −21.9%.

Because both age and years-since-migration are introduced as fourth-order polynomials, it is difficult to "read" the implications of the regression directly from the regression coefficients. Instead, it is easier to summarize the evidence by calculating the aging effect (the rate of change of employment as a person ages one year) at particular points of the life cycle. I estimate this for two alternative scenarios. First, I evaluate the aging effect at age 60 for both natives and immigrants, assuming that the immigrants arrived in the United States at age 55 (so they are recent arrivals). Second, I evaluate the aging effect at age 60 for both natives and immigrants, this time assuming that the immigrants arrived in the United States at age 45.

Table 1 indicates that the predicted aging effect for natives and for immigrants who have been in the country for some time is quite similar, but that it is much smaller for recently arrived immigrants. The rate of change in the fraction of weeks worked for a native at age 60 is −0.043% (with a standard error of 0.0001). The comparable rate of change for an immigrant who has been in the United States for 15 years is almost identical (−0.042, with a standard error of 0.002). However, the rate of change is much smaller (−0.021, with a standard error of 0.001) for

[15] The vector δ was restricted to be equal in the two samples to reduce the amount of collinearity among the variables.

[16] See Crossley, McDonald, and Worswick (2001) for a detailed discussion of the restrictive assumption that must be made on the period effects in the context of immigrant benefit receipt.

[17] The estimates of the period effects are not reported in the table.

[18] For expositional convenience, I only report selected coefficients from the vector of cohort effects. The full vector contains indicators for arriving in the following periods: 1995–1999, 1990–1994, 1985–1989, 1980–1984, 1975–1979, 1970–1974, 1965–1969, 1960–1964, 1950–1959, and before 1950.

Table 1. Basic Regression Results

	Employment Rate		*Fraction of Time Worked*	
	(1)	*(2)*	*(1)*	*(2)*
Selected cohort effects:				
1995–99 arrivals	−0.156	−0.214	−0.215	−0.281
	(0.005)	(0.006)	(0.004)	(0.006)
1985–89 arrivals	−0.145	−0.208	−0.236	−0.307
	(0.006)	(0.007)	(0.005)	(0.007)
1975–79 arrivals	−0.093	−0.167	−0.215	−0.298
	(0.006)	(0.008)	(0.006)	(0.008)
1965–69 arrivals	−0.028	−0.107	−0.185	−0.274
	(0.007)	(0.009)	(0.006)	(0.008)
Aging effects:				
Natives at age 60	−0.045	−0.030	−0.043	−0.031
	(0.0001)	(0.0002)	(0.0001)	(0.0002)
Imm. at age 60 and 5 years in U.S.	−0.034	−0.009	−0.021	0.002
	(0.001)	(0.001)	(0.001)	(0.001)
Imm. at age 60 and 15 years in U.S.	−0.049	−0.031	−0.042	−0.027
	(0.0002)	(0.0004)	(0.0002)	(0.0004)
Eligibility effects:				
Natives aged 62–64	—	−0.104	—	−0.071
		(0.001)		(0.001)
Natives aged 65+	—	−0.174	—	−0.149
		(0.002)		(0.002)
Imm. aged 62–64	—	−0.034	—	−0.009
		(0.006)		(0.006)
Imm. aged 65+	—	−0.114	—	–0.074
		(0.005)		(0.004)
Imm. aged 50–61 and satisfy work rule	—	−0.066	—	−0.073
		(0.008)		(0.008)
Imm. aged 62–64 and satisfy work rule	—	−0.066	—	−0.067
		(0.010)		(0.009)
Imm. aged 65+ and satisfy work rule	—	−0.111	—	−0.132
		(0.009)		(0.008)

Notes: Standard errors are reported in parentheses. The regression specification is given by equations (1) and (2) in the text, but both age and years since migration are introduced as fourth-order polynomials.

an immigrant who has been in the United States for only five years.

The second column of Table 1 introduces the vector of variables (E) capturing the worker's eligibility for Social Security benefits. It is well known that there is a discreet drop in native labor supply at ages 62 and 65, for many natives take advantage of the threshold retirement ages in the Social Security system. The vector E in the native equation, therefore, includes two dummy variables indicating whether the native person is aged 62–64 and 65 or above. The coefficients of these dummy variables measure "steps" in the age-employment profile of natives. In the immigrant equation, the specification of E is slightly more complex because eligibility depends not only on age but also on satisfying the ten-year work rule. In addition to introducing the dummy variables to capture the steps at ages 62 and 65, I introduce interactions that describe whether immigrants in each of the three relevant age groups (50–62, 62–64, and 65 or above) have *potentially* satisfied the ten-year work rule. It is important to emphasize again that the Census data do not provide information on how many years a person has worked in the

United States. My measure of whether the immigrant has satisfied the ten-year work rule is instead given by the number of years that the immigrant has lived in the country.

The results reported in the second column of Table 1 support the hypothesis that the ten-year work rule influences the labor supply decision of older immigrants. In particular, the age-employment profile drops by only –0.9 percentage points when an immigrant reaches age 62 (as compared to a drop of −7.1 percentage points for natives), but this drop increases by an additional −6.7 percentage points if the immigrant has also satisfied the ten-year work rule. Similarly, the employment rate of an immigrants drops by another −7.4 percentage points when he reaches age 65 (as compared to a −14.9 percentage point drop for natives), but this drop increases by −13.2 percentage points if the immigrant has satisfied the ten-year work rule. In fact, even the employment rates of immigrants aged 50–61 are affected by the ten-year work rule. The level of the age-employment profile for these immigrants drops by −7.3 percentage points if they have already met the ten-year work rule. In short, the eligibility restrictions implied by the ten-year work rule seem to provide a strong incentive for immigrants who arrived at older ages to accumulate work credits prior to their reaching retirement age; there is a significant drop in employment once they have accumulated them.[19]

It is instructive to summarize the regression results by tracing out the implications of the coefficients for the age-employment profiles of immigrants and natives. Figure 5 illustrates these predicted profiles, which assume that a given immigrant arrives at age 57. The profiles indicate that the immigrant labor supply is flatter than that of natives and that the two profiles cross at age 61. At the point in which an immigrant satisfies the ten-year work rule (or age 67 in this exercise), there is a significant drop in labor supply, and the two age-employment profiles tend to converge thereafter. It is notable that the age-employment profiles implied by the regression closely mirror the actual age-employment profiles illustrated in the previous section.

Figure 5 also illustrates the age-employment profile resulting from the removal of the ten-year work rule as a prerequisite for retirement benefits. The predicted profile now tends to resemble that of native workers. For instance, the immigrant profile is now about as steep as that of natives before the age of 62. There is, however, still a bump in the labor supply of immigrants in the early 60s. Perhaps immigrants nearing retirement age use their remaining work years to increase the Average Indexed Monthly Earnings (AIME) that determines the level of Social Security monthly benefits.

Table 2 shows that the estimated "eligibility effect" is robust to changes in the basic specification of the model. The first column adds a measure of the individual's potential wage as a regressor. This wage is defined as the cell mean of the log weekly earnings of a group of workers defined by country of birth, educational attainment, and age (calculated in the sample of persons who report positive weekly earnings).[20] The inclusion of the potential wage does not alter any of the results of the analysis. The coefficient of the predicted wage is positive and significant, and it implies that the labor supply elasticity is around 0.25.[21]

Note that this labor supply elasticity measures the impact of wages on the propensity to work rather than on hours worked for workers (which is the usual labor supply

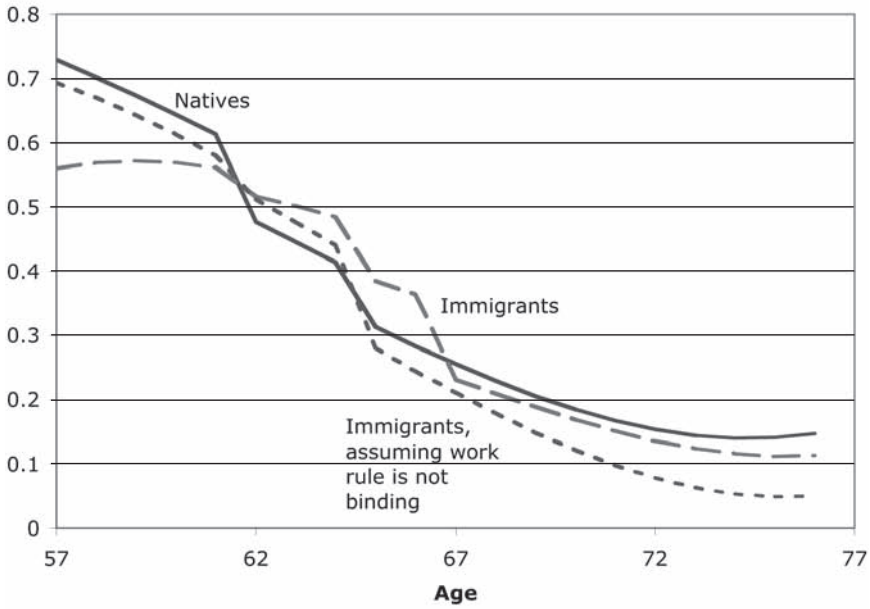
[19] As noted above, selective return migration by the foreign-born can contaminate the evidence provided by regression models that "track" specific cohorts of immigrants across Censuses. Although the available data do not permit an empirical evaluation of the bias, it seems plausible to argue that selective return migration attenuates the eligibility effects. In particular, selective return migration would most likely lead to a disproportionate "filtering out" of those migrants who do not feel it necessary to temporarily increase their labor supply in order to qualify for future Social Security benefits.

[20] I use four education groups (high school dropouts, high school graduates, persons with some college, and college graduates) to define the cells, as well as five age groups: ages 50–54, 55–59, 60–64, 65–69, and 70–74.

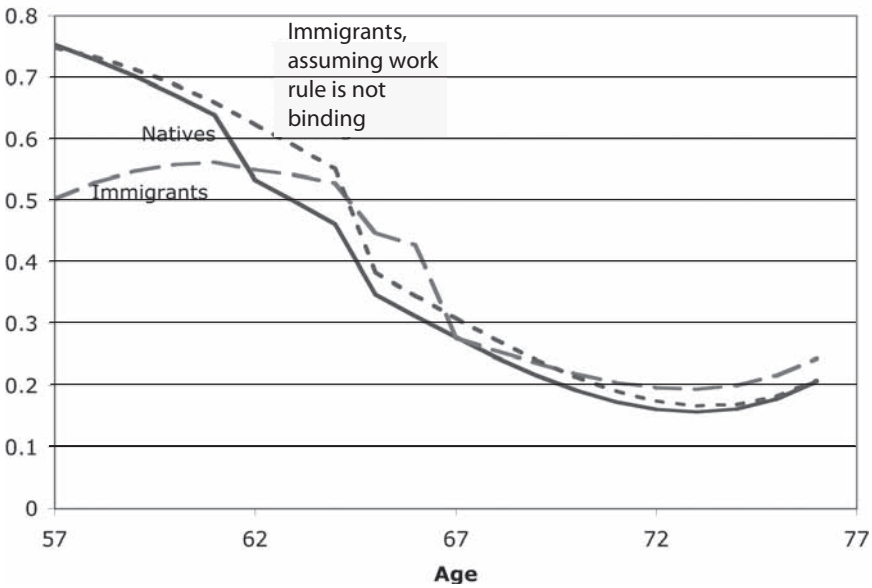
[21] This elasticity is in the range of the estimates reported in Pencavel (1997) and Juhn, Murphy, and Topel (2002), in which the labor supply elasticity (as defined above) is estimated to be between 0.1 and 0.3 for prime-age men.

Figure 5. Predicted Age-Employment Profiles (Assuming Immigrant Migrated at Age 57 in the Period 1985–1989)

A. Employment rate



B. Fraction of weeks worked



Notes: The predicted age-employment profiles use the regressions reported in column 2 of Table 1. The "assuming work rule is not binding" counterfactual profile is derived by assuming that immigrants satisfy the ten-year work rule regardless of how long they have resided in the United States.

Table 2. Estimated Eligibility Effects in Additional Regression Specifications

	Employment Rate		*Social Security Receipt*	
	(1)	*(2)*	*(1)*	*(2)*
Eligibility effects:				
Natives aged 62–64	−0.111	−0.111	0.259	0.258
	(0.001)	(0.001)	(0.001)	(0.001)
Natives aged 65+	−0.095	−0.087	0.426	0.422
	(0.002)	(0.002)	(0.001)	(0.001)
Imm. aged 62–64	−0.046	−0.046	−0.066	−0.066
	(0.006)	(0.006)	(0.005)	(0.005)
Imm. aged 65+	−0.112	−0.110	−0.118	−0.119
	(0.005)	(0.005)	(0.004)	(0.004)
Imm. aged 50–61 and satisfy work rule	−0.071	−0.071	−0.067	−0.067
	(0.008)	(0.008)	(0.006)	(0.006)
Imm. aged 62–64 and satisfy work rule	−0.080	−0.091	0.127	0.134
	(0.010)	(0.010)	(0.008)	(0.008)
Imm. aged 65+ and satisfy work rule	−0.091	−0.141	0.402	0.435
	(0.009)	(0.009)	(0.007)	(0.007)
Log predicted weekly wage	0.253	0.268	−0.112	−0.123
	(0.001)	(0.001)	(0.001)	(0.001)
Log predicted weekly wage × satisfy work rule	—	−0.102	—	0.066
		(0.002)		(0.002)

Notes: Standard errors are reported in parentheses. The regression specification is given by equations (1) and (2) in the text, but both age and years since migration are introduced as fourth-order polynomials. The log predicted weekly wage for a person equals the mean cell of log weekly earnings in the sample of workers with valid weekly earnings, where the cell is defined by country of birth, education, and age. The "satisfy work rule" variable used to define the interaction term is equal to 1 if the worker is foreign–born and has lived in the United States at least 10 years, and zero otherwise.

elasticity estimated in models with interior solutions in the neoclassical model of labor-leisure choice). Because the analysis focuses on the impact of the eligibility requirements on the propensity to work, the labor-leisure model has an interesting additional implication about how this measure of the labor supply elasticity differs among workers depending on their eligibility status.

Suppose, for instance, that an immigrant has worked the requisite number of quarters required for Social Security eligibility. His present value of lifetime wealth includes the amount of Social Security benefits that he can expect to receive during his retirement years. Conversely, a comparable immigrant who has yet to fulfill the ten-year work rule has a substantially lower level of lifetime wealth. At any point in time, a person's decision of whether to work is based on a comparison of his reservation wage with the market wage. As long as leisure is a normal good, the greater wealth associated with being eligible for Social Security benefits implies that eligible persons have higher reservation wages. As a result, any given wage change will be more likely to draw a person into the labor market if the person is not yet eligible for Social Security. Put differently, the labor supply elasticity estimated in the first column of Table 2 should be lower for workers who are already eligible for Social Security.

This straightforward implication of the labor-leisure model is tested in Column 2 of the table. In particular, I interact the worker's potential wage with a variable indicating whether the immigrant has resided in the United States for at least ten years. The regression coefficient of this interaction term is −0.102 (with a standard error of 0.002). In other words, the labor supply response

associated with a particular wage increase (at the extensive margin) is much greater for persons who have yet to potentially qualify for Social Security benefits.[22]

The last two columns of Table 2 report the eligibility coefficients from regression models in which the dependent variable is a dummy variable indicating whether the person receives Social Security benefits. The eligibility effects (as well as the wage effect) are essentially a mirror image of the coefficients in the employment rate regressions presented in the first two columns. For instance, the fraction of immigrants receiving retirement benefits jumps significantly once they satisfy the ten-year work rule.

As noted above, the identification of the employment effects of the ten-year work rule is based on a comparison of immigrants who have been in the United States fewer than ten years with otherwise equivalent immigrants who have been in the country for at least ten years. This identification strategy is imprecise because the number of years that an immigrant has resided in the United States does not correctly measure the number of years that he has actually worked in the country. Moreover, it is not possible to resort to typical measurement error arguments to say that the eligibility effects estimated in Tables 1 and 2 are understated because the measurement error is nonclassical. Even if the immigrant's year of arrival in the United States is measured correctly, those immigrants who have been in the United States fewer than ten years certainly do not qualify for Social Security benefits. However, some who have been in the country for at least ten years will not qualify.

An alternative identification strategy is to use a regression discontinuity design, one that explicitly compares immigrants who have been in the United States just short of ten years (and are surely ineligible) with immigrants who are almost certainly eligible. The limitations of the available data on year-of-migration in the Census suggest a specific benchmark—the comparison of immigrants who have been in the country between five and nine years with immigrants who have been in the country from fifteen to nineteen years.[23] The former group of immigrants, of course, does not qualify at all for Social Security benefits whereas most immigrant men in the latter group should have had sufficient time to acquire the prerequisite 40 quarters of employment. The cost of this identification strategy is that it "discards" the labor supply information provided by the vast majority of immigrants and instead identifies the eligibility effect from changes in labor supply observed in a small subset of the older immigrant population.

Table 3 summarizes the results of the regression analysis when the regression model in equations (1) and (2) is estimated on the pooled sample of native workers and immigrants who have been in the United States either 5–9 years or 15–19 years. To a large extent, this analysis confirms the results reported above. Immigrants who have already become eligible for Social Security benefits tend to have lower work propensities than those who have yet to become eligible. In particular, the age-employment profile drops by 11.8 percentage point when an immigrant reaches age 65 (as compared to a drop of 17.4 percentage points for natives), but this drop increases by an additional 3.5 percentage points if he has also satisfied the ten-year work rule. Note, however, that the eligibility effect is not significantly different from zero

[22] I also estimated the regression model using a more general specification for the interaction term. In particular, I interacted the log weekly wage variable with variables indicating eligibility for each of the three age groups (50–61, 62–64, and 65+). Each of the three interaction terms was negative and significant. In particular, the coefficient for the main effect of the predicted log wage was 0.268 (0.001). The interaction of this variable with the eligibility variable for persons aged 50–61 was –0.086 (0.003); the interaction for persons aged 62–64 was –0.079 (0.006); and the interaction for persons aged 65+ was −0.150 (0.009).

[23] The 1980 and 1990 Censuses report the calendar year of migration in approximately five-year intervals. For those two Census years, therefore, the immigrants included in the analysis summarized in Table 3 migrated either in the period 1975–1980 or 1965–1969 (for the 1980 Census), or the period 1985–1990 or 1975–1980 for the 1990 Census. The 2000 Census, in contrast, does report the actual calendar year of migration.

Table 3. Estimated Eligibility Effects in Sample of Immigrants Who Have Been in the Country 5–9 or 15–19 Years

	Employment Rate		*Social Security Receipt*	
	(1)	*(2)*	*(1)*	*(2)*
Eligibility effects:				
Natives aged 62–64	−0.102	−0.111	0.253	0.257
	(0.001)	(0.001)	(0.001)	(0.001)
Natives aged 65+	−0.174	−0.095	0.460	0.422
	(0.002)	(0.002)	(0.002)	(0.002)
Imm. aged 62–64	−0.009	−0.046	−0.065	−0.058
	(0.009)	(0.006)	(0.007)	(0.007)
Imm. aged 65+	−0.118	−0.112	−0.093	−0.092
	(0.007)	(0.005)	(0.005)	(0.005)
Imm. aged 50–61 and satisfy work rule	−0.041	−0.071	−0.009	−0.004
	(0.005)	(0.008)	(0.004)	(0.004)
Imm. aged 62–64 and satisfy work rule	0.005	−0.080	0.085	0.092
	(0.012)	(0.010)	(0.009)	(0.009)
Imm. aged 65+ and satisfy work rule	−0.035	−0.091	0.320	0.320
	(0.008)	(0.009)	(0.006)	(0.006)
Log predicted weekly wage	—	0.253		−0.124
		(0.001)		(0.001)

Notes: Standard errors are reported in parentheses. The regression specification is given by equations (1) and (2) in the text, but both age and years since migration are introduced as fourth-order polynomials. The log predicted weekly wage for a person equals the mean cell of log weekly earnings in the sample of workers with valid weekly earnings, in which the cell is defined by country of birth, education, and age.

for the sample of immigrants aged 62–64. The second column of Table 3 adds the worker's potential wage to the regression. The labor supply elasticity is positive and of the same magnitude as in the full sample (0.25, with a standard error of 0.001). The introduction of the worker's potential wage increases the size of the eligibility effects for immigrants (and all the effects are now statistically significant).

Summary and Conclusions

The number of older immigrants in the United States is growing rapidly. Using data drawn from the 1960–2000 decennial Censuses, I have documented two empirical regularities that differentiate the age-employment profiles of older immigrants and natives. First, I have shown that the employment rate of natives declines much faster as they near retirement. Second, I have shown that there is a crossover point in the age-employment profiles of immigrants and natives that typically occurs when they reach their late 50s or early 60s. Before that crossover age, natives typically have larger employment rates. After the crossover age, immigrants have larger employment rates.

I have argued that the greater reluctance of immigrants to exit the labor market as they near retirement age results partly from the incentives introduced by the eligibility requirements for Social Security benefits. In particular, even after reaching retirement age, a worker needs to be employed for at least ten years in order to be eligible for benefits. Although the ten-year work rule will typically not influence the labor supply behavior of older native persons, it may be a significant constraint for immigrants. After all, a sizable number of older immigrants have been in the United States for a relatively short period of time.

The data indicate that the ten-year work rule indeed "encourages" immigrants who

arrived in their 50s and 60s to accumulate work credits at a rapid pace. Upon satisfying the ten-year work rule, immigrants begin receiving Social Security benefits and their employment propensities decline substantially.

This finding may have important implications for assessing the net benefits from immigration. For instance, it is sometimes argued that immigration can partly fund the increase in retirement benefits that will inevitably occur as the baby boom generation retires. However, because potential retirees can "game" the Social Security system, the labor supply response to the eligibility rules can easily distort the magnitude of the net contribution from the immigrant workforce. It would be of great interest to calculate the dollar value of this distortion.

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