

Findings from an Examination of the Labor Force Participation of College-Educated Immigrants in the United States

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Introduction

The previous paper prepared by the authors, *The Earnings of Foreign-Educated College Graduates: An Examination of the Determinants of the Hourly Earnings of College-Educated Immigrants* examined determinants of hourly earnings of employed U.S. immigrants with a college education. The authors found sizable impacts of human capital on hourly earnings of employed, college-educated immigrants. Human capital measures included in the wage study were traditional measures such as college degree level, years of work experience, and type of educational human capital represented by major field of study. Two additional measures of human capital included in the wage study are pertinent to immigrants. One is English language proficiency—an important human capital trait that is considered to be the most basic form of human capital of immigrants in the U.S. labor market (Chiswick & Miller, 1992).

The other important measure of human capital is the region or country in which immigrant college graduates earned their most recent college degrees. The degree of transferability of a foreign college education to the U.S. labor market varies widely by country. College degrees from certain countries have limited human capital transferability to the U.S. labor market, and earnings and other labor market outcomes of immigrant college graduates from these countries are likely to be inferior compared with those of immigrants with either U.S. college degrees or college degrees from countries that are linguistically, socially, and economically more similar to the United States. The latter group of immigrants is likely to assimilate more quickly into the U.S. labor market and experience less labor market downgrading compared with their peers with college degrees from countries that are linguistically, socially, and culturally dissimilar. Among immigrants who lack U.S. schooling, labor market outcomes, including hourly wages, are expected to be better among those with schooling from highly developed countries and where English is an official language (Bratsberg & Ragan, 2002). The country or region of the world in which immigrants earn their college credentials is therefore likely to affect their earnings and other labor market outcomes.

The previous paper found that the hourly wages of employed immigrants varied widely by immigrants' gender, level of college education, work experience, and major field of study, as well as the country or region in which their college degrees were earned and the type of visas they held when they first entered the United States. Among male immigrants, the study found a sizable wage premium among married men compared with their unmarried counterparts, and a modest wage premium for those with better English-speaking ability. Since participation in the labor market is closely related to wages, variables that influence wages indirectly influence labor market participation.

In this current paper, the authors present findings from the examination of labor force participation among college-educated immigrants. The first step of labor market participation is entry into the labor market by either working or actively looking for work. College-educated immigrants who do not enter the American labor market clearly do not avail themselves of the opportunity to utilize their education and human capital. This examination was designed to shed light on the variation in labor market participation, and therefore labor market utilization, among different groups of college-educated immigrants.

The paper begins with a descriptive analysis of the total population of 23- to 64-year-old college graduates and the prevalence of immigrants in different subgroups of this population.ⁱ Overall labor force participation rates of immigrant college graduates are then compared with those of their native-born counterparts. The remainder of the paper focuses on findings from the examination of labor force participation among immigrant college graduates, and begins with a descriptive analysis of the level of participation among graduates by their demographic traits, educational attainment, country/region of most recent college degree, and type of visa. The labor force attachment is examined separately by gender because of the different levels and patterns of attachment among male and female immigrants.

Data Source and Definitions

This paper relies on data from the 2003 National Survey of College Graduates (NSCG), which gathered detailed information on employment and educational status of respondents and their demographic characteristics. The database contains responses of a sample of 100,400 U.S. residents who held bachelor's or higher degrees at the time of the 2000 decennial census. The age of the NSCG sample respondents was between 23 and 76 years in 2003. The 2003 NSCG sample was drawn from the 2000 decennial census long-form survey. The NSCG database contains nearly 450 variables providing detailed information on educational attainment and school enrollment status, labor market status and job characteristics of employed respondents, and demographic traits of college graduates, including nativity status and the country in which foreign-born college graduates earned their most recent college degrees. The contents and sample size of the 2003 NSCG provide a rich and appropriate database that is perfectly suited to this study.

The authors identified immigrants as those respondents who were born abroad. Based on answers to questions regarding citizenship, the NSCG classifies all respondents into four categories: (1) native-born U.S. citizen; (2) naturalized U.S. citizen; (3) not a U.S. citizen—permanent U.S. resident, and (4) not

a U.S. citizen—temporary U.S. resident. The foreign-born or immigrant population consists of naturalized U.S. citizens and both categories of non-U.S. citizens—permanent and temporary U.S. residents.

The NSCG questionnaire contains questions about respondents' employment status during the survey reference week—the week of October 1, 2003. Respondents were asked to report whether they were working for pay or profit during the survey reference week; those who reported currently working were classified as employed. Labor force status of the working-age population and definitions of the labor force and labor force participation rate are presented in Figure 1. Those who reported not currently working were asked a follow-up question about whether they had looked for paid employment during the four weeks preceding the survey reference week. Those who replied affirmatively were classified as being unemployed. Also classified as unemployed were those respondents who replied that they had not looked for paid employment during the four weeks preceding the survey reference week because they were on a layoff from a job.

Figure 1: Labor Force Concepts and Measures

$$\begin{aligned} \text{Population} &= \text{Employed} + \text{Unemployed} + \text{Not in the labor force} \\ \text{Labor Force} &= \text{Employed} + \text{Unemployed} \\ \text{Labor Force Participation Rate} &= \frac{\text{Labor Force}}{\text{Working-Age Population}} \end{aligned}$$

The remaining respondents were classified as a third labor market category—not in the labor force. The term “labor force” represents labor supply and is the sum of individuals who are employed (working for pay or profit) and unemployed (not working but actively looked for work in the past four weeks). The labor force participation rate is the proportion of the population that is in the labor force and measures the percentage of individuals in a group (for example, immigrants) who are in the labor force (employed or unemployed). So, for example, out of 100 college-educated immigrants, if 80 are employed and 6 are unemployed (not employed but looking for work), then the labor force is (80+6=86) and the labor force participation rate is (86/100=86%).

Analyses in this paper are based upon individuals between 23 and 64 years of age,ⁱⁱ while the age of respondents included in the 2003 NSCG data ranges between 23 and 76 years. Because of the lower labor force attachment of the elderly population and different labor force behaviors of the elderly

compared with the non-elderly, the elderly population (65 years and older) was excluded from analyses presented in this paper.

Immigrant Share of the U.S. College-Educated Population

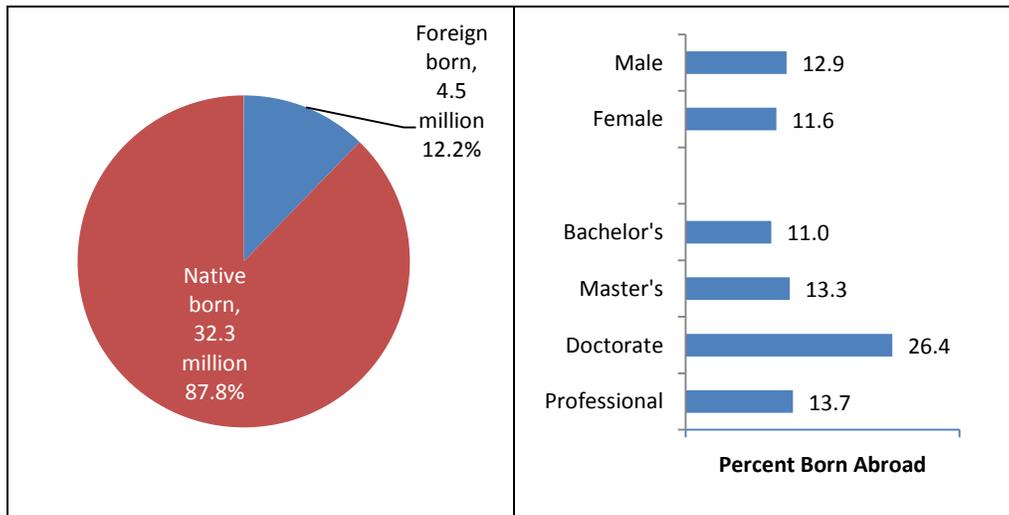
According to the 2003 NSCG, there were 36.813 million college-educated residents between the ages of 23 and 64 in the United States. Of this total, over 12 percent, or 4.506 million, were born abroad (immigrants).ⁱⁱⁱ The shares of immigrants varied across demographic and educational groups of the college-educated population. The following section presents an examination of these shares, which provides insight into the concentration of immigrants across demographic and educational subgroups of the college-educated population of the United States.

Immigrant Share by Gender and Type of College Degree

The immigrant share was slightly higher among male college graduates than among females (12.9% versus 11.6%). For reasons that are described in detail in a subsequent section of this paper, the labor force participation rate is higher among men than among women. The higher share of immigrants among male college graduates is likely to raise the labor force participation rate of immigrant college graduates overall.

Educational attainment is closely associated with labor market outcome, including labor force participation. Higher levels of education are associated with higher rates of participation in the labor market. Even among college-educated individuals, those with higher levels of college education are likely to participate at higher rates than are those with lower levels of college education. The higher rate of labor market participation among better-educated individuals is mostly attributable to higher expected wages that attract these individuals to enter the labor market. An examination of the concentration of immigrant college graduates at each college degree level found higher concentrations of immigrants among those with graduate degrees, especially those with doctorate degrees, than among those with bachelor's degrees. As shown in Figure 2, the overall share of immigrants among all college graduates was 12.2 percent. The share of immigrants was slightly below average, 11 percent, among those with bachelor's degrees; slightly above average, 13 percent, among those with master's degrees; and more than twice the average, 26 percent, among those with doctorate degrees. Individuals with professional degrees, such as an MD or a JD, were somewhat more likely to be born abroad (14% versus 12% among all college graduates).

Figure 2: Immigrant Shares of 23- to 64-Year-Old College Graduates, by Gender and Degree Type, U.S., 2003

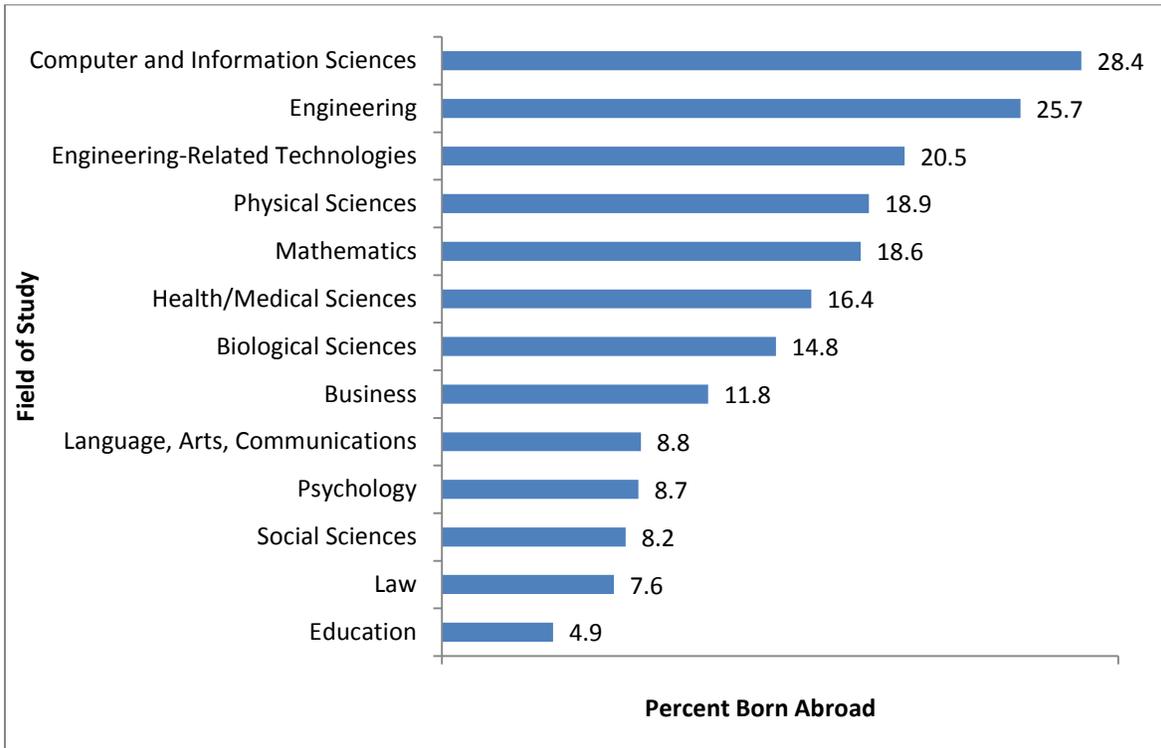


Immigrant Share by Major Field of Study

Immigrant graduates also systematically differed from their native-born counterparts by major field of study. Figure 3 presents immigrant shares among college graduates by major field of study for their most recent college degrees. The authors aggregated 143 college majors reported in the NSCG into 13 broad major fields of study. Seven of these 13 groups had above-average shares of immigrants (overall share of immigrants among 23- to 64-year-old college graduates was 12.2%; Figure 2). Most of these seven fields with an overrepresentation of immigrants were in the areas of computer science, engineering, mathematics, and the sciences—fields that typically do not require the levels of American cultural knowledge and English language skills needed in other fields.

College graduates with degrees in computer and informational sciences included the highest share of immigrants (Figure 3). Over 28 of every 100 college graduates with most-recent college degrees in the field of computer and informational sciences were born abroad. Immigrant shares were also high among graduates with degrees in engineering (26%), engineering-related technologies (21%), and physical sciences and mathematics (19% each). One in six health and medical science majors and nearly 15 percent of biological science majors were born abroad. The remaining six major fields had average or below-average immigrant shares ranging from 12 percent among business majors and about 9 percent among language arts and communications and psychology majors to less than 8 percent among law majors and only 5 percent among education majors.

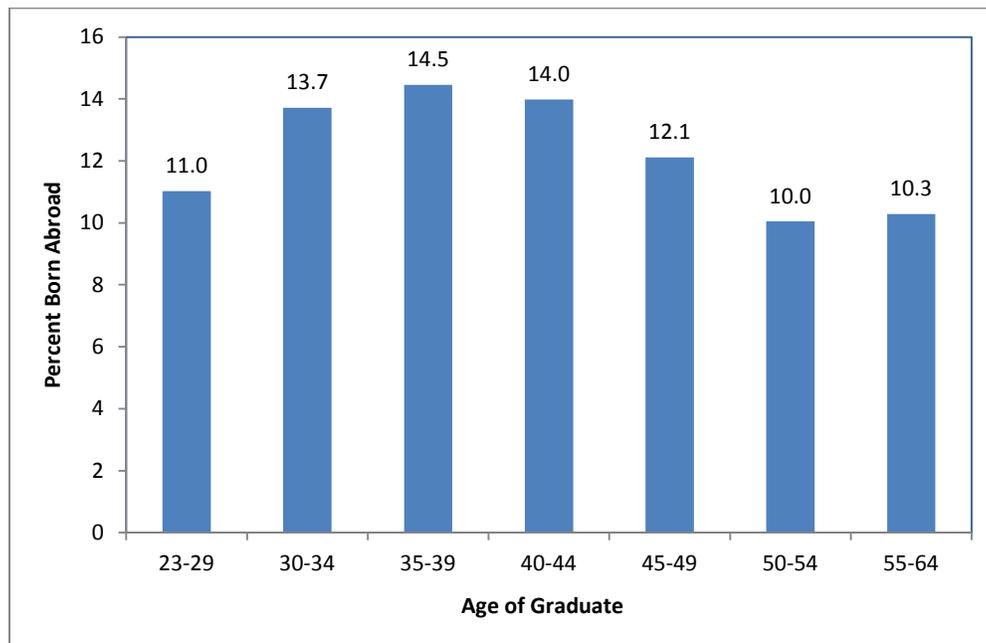
Figure 3: Immigrant Shares of 23- to 64-Year-Old College Graduates, by Major Field of Study of Most Recent College Degree, U.S., 2003



Immigrant Share by Age

College-educated immigrants also were found to be younger than their native-born counterparts (Figure 4). The median age of 23- to 64-year-old immigrant college graduates was 43 years compared with 44 years among their native-born counterparts. Immigrants were somewhat overrepresented among younger college graduates (30-44 years old) compared with older college graduates (45-64 years old) and young adults between 23 and 29 years of age. An examination of the share of immigrants among different age groups of college graduates found that 14 percent of 30- to 34-year-old, 15 percent of 35- to 39-year-old, and 14 percent of 40- to 44-year-old college graduates in the United States were born abroad. The immigrant share among older college graduates was smaller—12 percent among those between the ages of 45 and 49 and 10 percent among 50- to 64-year-olds. Immigrants also were slightly underrepresented (11%) among college graduates between the ages of 23 and 29 in 2003. This examination found an overrepresentation of immigrants among age groups that are typically associated with higher levels of labor force attachment.

Figure 4: Immigrant Shares of 23- to 64-Year-Old College Graduates, by Age, U.S., 2003



Demographic and Educational Characteristics of College-Educated Immigrants and Native-Born College Graduates in the United States

This section presents a comparison of demographic and educational characteristics of immigrant college graduates between the ages of 23 and 64 and their native-born counterparts. Demographic characteristics related to gender, college degree level, major field of study, and age composition of foreign-born and native-born college graduates have been presented and are closely associated with individuals' degree of labor market attachment. Marital status and presence of children also were examined among immigrant and native-born college graduates by gender; both traits are known to be related to labor market participation. The presence of children throughout this paper pertains to presence of children living with the immigrant in his/her household in the United States. Two additional factors, which are expected to reduce labor market participation, include having a disability or being enrolled in school, particularly in a full-time program. Therefore, a comparison is provided of prevalence of disabilities and school enrollment status among foreign-born and native-born college graduates at the time of the 2003 NSCG survey.

Gender and Type of College Degree

The higher concentrations of immigrants among male and highly educated college graduates mean that college graduates who were born abroad tend to be better educated and more likely to be male than are their native-born counterparts. Findings in Table 1 present differences in gender and educational composition of immigrant and native-born college graduate populations. College graduates who were born abroad had a small male majority (52.5%), whereas their native-born counterparts were 49 percent male among 23- to 64-year-olds, yielding a small female majority (50.6%). Differences by educational attainment between foreign-born and native-born college graduates were sizable. The share of college graduates with bachelor’s degrees was 58 percent among immigrants compared with nearly two-thirds among their native-born counterparts. Thus, 42 percent of college-educated immigrants had graduate degrees (master’s, doctorate, or professional degrees) at the time of the 2003 NSCG survey compared with 34 percent of those who were born in the United States.

Table 1: Percentage Distribution of 23- to 64-Year-Old Foreign-Born and Native-Born College Graduates, by Gender and College Degree Type, U.S., 2003

	Percent Native-Born	Percent Foreign-Born	Absolute Difference (Percentage Points)	Relative Difference (Percent)
Total	100.0	100.0	---	---
Male	49.4	52.5	3.1	6.3
Female	50.6	47.5	-3.1	-6.1
Bachelor’s degree	65.5	57.8	-7.7	-11.8
Master’s degree	25.9	28.5	2.6	10.0
Doctorate	2.8	7.1	4.3	153.6
Professional degree	5.8	6.6	0.8	13.8

Compared with their native-born counterparts, immigrants were 3 percentage points more likely to have master’s degrees. The share of college-educated immigrants with master’s degrees was 10 percent higher than the share among native-born individuals—28.5 percent versus 25.9 percent. At the doctorate level, the difference in the share of immigrant versus native-born persons with doctorate degrees was over 4 percentage points, or 154 percent (7.1% versus 2.8%). Even at the professional degree level, immigrants were 1 percentage point more likely than native-born graduates to have professional degrees (6.6% versus 5.8%). Since higher educational levels are closely associated with higher rates of labor market

participation, the higher educational levels of immigrant college graduates is expected to raise the overall labor force participation among these individuals.

Major Field of Study

As stated in a previous section, an overrepresentation of immigrants was found in scientific, engineering, and information-related fields of study. This section presents an examination of the distribution of immigrant college graduates and their native-born counterparts by major field of study of their most recent college degrees. As presented in Table 2, findings reveal that one-quarter of immigrants earned their college degrees in business-related fields of study—a share slightly lower than that among native-born college graduates. The second largest major field group among immigrants was those with engineering degrees. Over 15 of every 100 immigrant college graduates studied engineering—nearly 2.5 times greater than the share of native-born college graduates with engineering degrees (6.2%). Thirteen percent of immigrants had college degrees in health and medical sciences compared with 9 percent among U.S.-born college graduates. In contrast, language, arts, and communications majors accounted for nearly 9 percent of immigrants and 13 percent of U.S.-born graduates.

Table 2: Percentage Distribution of 23- to 64-Year-Old Foreign-Born and Native-Born College Graduates, by Major Field of Study of Most Recent College Degree, U.S., 2003

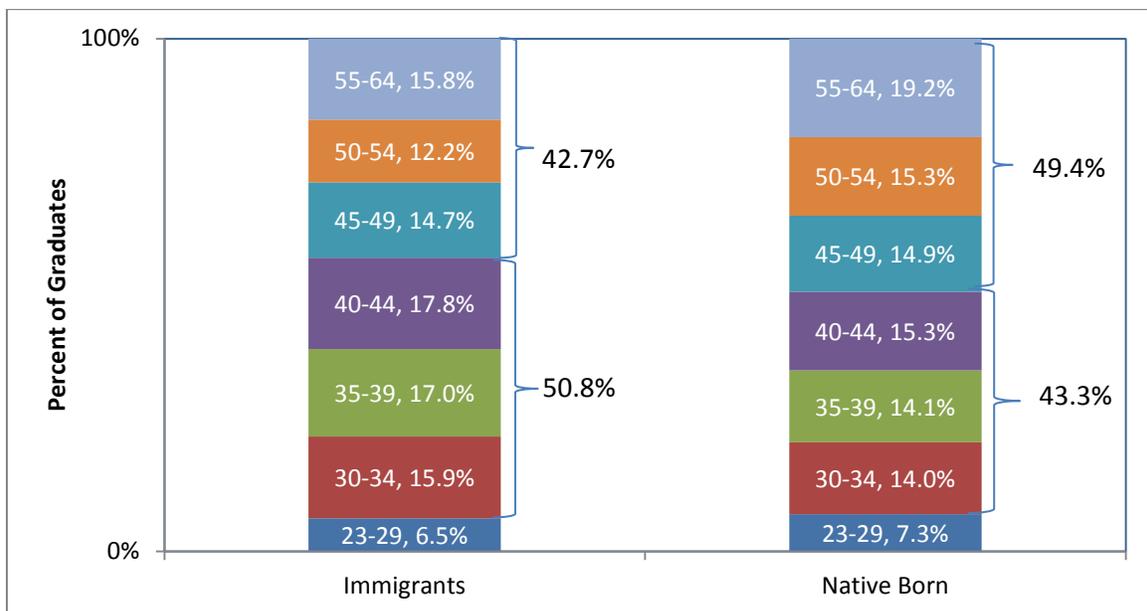
Major Field of Study	Percent		
	Immigrants	Native Born	Immigrants/ Native Born
Business	25.1	26.1	0.962
Engineering	15.4	6.2	2.484
Health/Medical Sciences	13.0	9.3	1.398
Language, Arts, Communication	8.9	12.8	0.695
Computer and Information Sciences	6.3	2.2	2.864
Biological Sciences	6.1	4.9	1.245
Education	5.8	15.6	0.372
Social Sciences	5.7	9.0	0.633
Physical Sciences	3.9	2.3	1.696
Psychology	2.9	4.2	0.690
Mathematics	2.2	1.4	1.571
Law	2.1	3.6	0.583
Engineering-Related Technologies	1.7	0.9	1.889
Other fields	0.8	1.4	0.571
Total	100.0	100.0	---

The fifth and sixth largest shares of immigrants were in the fields of computer and information sciences and biological sciences, respectively. Over 6 percent of immigrant graduates studied computer and information sciences, compared with only 2 percent of native-born college graduates. Immigrants also had much higher shares relative to native-born college graduates, albeit small in absolute size, in the fields of physical sciences, mathematics, and engineering-related technologies. In contrast, native-born graduates were more likely than immigrants to earn their college degrees in education; language, arts, and communication; social sciences; psychology; and law.

Age

The median age of 23- to 64-year-old college graduates at the time of the 2003 NSCG survey was 43 years among immigrants and 44 years among native-born college graduates. An examination of the age distribution of immigrants in comparison with that of native-born 23- to 64-year-old college graduates revealed that immigrants were more likely to be between the ages of 30 and 44, whereas native-born graduates were more likely to be between 45 and 64 (Figure 5). Over one-half of all immigrant college graduates were between the ages of 30 and 44, compared with 43 percent of native-born college graduates. In contrast, nearly one-half of native-born graduates were 45 to 64 years old, compared with 43 percent of immigrants. Native-born college graduates also were somewhat more likely than immigrants to be in the youngest age group (23-29 years; 7.3% versus 6.5%). The age groups with larger concentrations of immigrants are also those associated with a strong labor market attachment.

Figure 5: Percentage Distribution of 23- to 64-Year-Old Immigrant and Native-Born College Graduates, by Age, U.S., 2003



Marital Status, Presence of Children, School Enrollment Status, and Disability Status

Labor force participation also is influenced by marital status, presence of children, school enrollment status, and disability status. The likelihood of labor force participation is higher among married men and men with children. Marriage and the presence of children have been found to have the opposite effect on labor force participation among women—married women and women with children are less likely to participate in the labor force. This is particularly true among immigrant women since immigrant families carry with them the cultures and traditions from their native lands, where the traditional division of labor within a family may be more prevalent—with the husband as primary breadwinner and the wife primarily being responsible for home production (work in the home, including caring for children).

Labor supply decisions of women, particularly married women, are based on their allocation of time between not only labor market work and leisure but also home production of goods and services, which includes caring for children (Becker, 1965). Thus, supplying labor in the labor market and earning a wage are worthwhile for women if the additional earnings can make up for lost leisure time and home production. Marriage and children create more demands for home production, which in turn cause a resulting decline in female labor market participation (Triest, 1990). Therefore, marriage and the presence of children are likely to suppress female labor market participation and female labor supply.

Marriage also changes the focus of time distribution between work and leisure/home production from the individual to the family. Distribution of time among leisure, labor market work, and work in the home for each member of the family and among family members is determined by the tastes of family members and “specialization of functions” (Mincer, 1962). A change in the wage of one family member may have a different effect on labor supply of other family members compared with the effect on the family member whose wage has changed. For example, an increase in wage of the husband in a married-couple family will result in an increase in income for the family. This increase in family income will result in an increase in consumption of all *superior*^{iv} goods and services, including leisure and home production, resulting in higher consumption of leisure and home production for the family as a whole without increasing the husband’s demand for leisure, as predicted by the neoclassical labor supply theory. The higher demand for leisure and home production in the family resulting from an increase in the husband’s wage may cause a decline in labor supply of the wife.

The husband’s labor supply in a married-couple family may respond not just to a change to his own wage but also to changes in the family labor supply that may occur due to the change in his wage. If

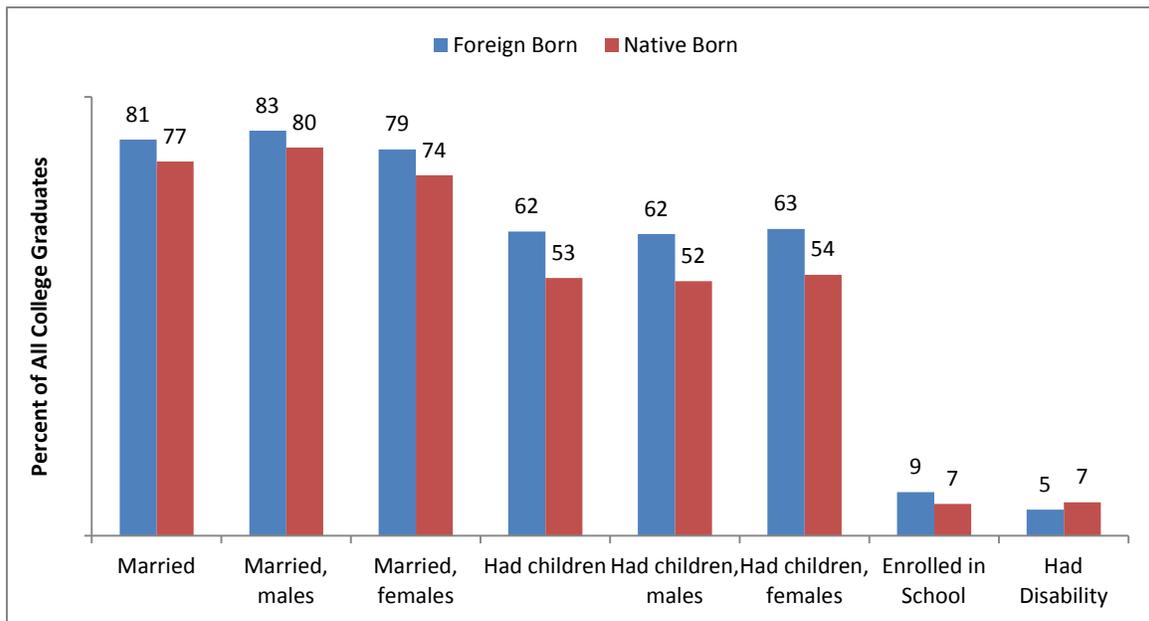
an increase in the husband's wage results in a decrease in the labor supply of his wife, the husband may respond with an increase in his own labor supply to compensate for a decline in the family labor supply. Therefore, an increase in the husband's wage is likely to result in a reduction in the wife's labor supply and an increase in the husband's labor supply. Thus, marriage is likely to have a positive impact on the labor supply of men and a negative impact on the labor supply of women.

Individuals who are enrolled in school are less likely to participate in the labor market, and when they do participate, they supply fewer hours of labor. The labor market decision is based on how individuals choose to allocate the finite amount of time during a day. Among those who are enrolled in school, some of that finite amount of time is devoted to schooling activities and is simply not available for distribution to leisure, labor market work, or home production of goods and services and caring for children. Therefore, enrollment in school is likely to reduce the labor market participation and labor supply of individuals.

Disability has a strong negative impact on an individual's labor market participation. Research studies and empirical evidence have consistently found sizable differences in labor force participation and overall labor market outcomes between individuals with and without disabilities. Individuals with disabilities are less likely to participate in the labor market, and when they do, they are more likely to be unemployed; when they are employed, they are more likely to earn lower wages (Fogg, Harrington, & McMahon, 2010; 2011). There are a number of reasons for discrepancies between labor market outcomes of individuals with and without disabilities, but a discussion of these reasons is beyond the scope of this paper.

Figure 6 provides a comparison of marital status, presence of children, school enrollment, and disability status among immigrant and native-born college graduates. College graduates who were born abroad were more likely than their native-born counterparts to be married (81% versus 77%) and have children (62% versus 53%). A separate comparison of marital status and presence of children between immigrant and native-born men and women found that immigrant men and women were more likely to be married and have children compared with native-born men and women. Since marriage and the presence of children have opposite effects on labor force participation among men and women, the higher marriage rates among college-educated immigrant males can be expected to increase labor force participation among immigrants, while higher marriage rates among immigrant women are expected to push the immigrant labor force participation rate downward. Similarly, higher shares of immigrant males and females with children can be expected to move the overall immigrant labor force participation rate in opposite directions.

Figure 6: Marital Status, Presence of Children, School Enrollment Status, and Disability Status among 23- to 64-Year-Old College Graduates, by Nativity Status, U.S., 2003



Respondents to the 2003 NSCG survey were asked to report whether they currently were either enrolled in or taking courses at a college or university. Those who responded affirmatively to this question were included in estimates as the percentage of graduates who reported being enrolled in school. Findings show that among 23- to 64-year-old college graduates, immigrants were more likely than native-born individuals to be enrolled in school (9% versus 7%).

The NSCG also asks respondents about their disabilities, and focuses on physical disabilities, including sensory disabilities. Respondents were asked about the degree of difficulty they usually experienced in four activities—seeing, hearing, walking, and lifting. Respondents were asked to select one of the following five degrees of difficulty: none, slight, moderate, severe, and unable to do. Those who selected moderate, severe, or unable to do were classified as individuals with physical or sensory disabilities. Based on this definition of disability, immigrants were less likely than native-born college graduates to report having physical (walking or lifting) or sensory (vision or hearing) disabilities (5% versus 7%).

Selected Characteristics of College-Educated Immigrants in the United States

This section provides a description of traits that are specifically relevant to immigrants; therefore, traits are presented for immigrant college graduates only. These traits include: country of birth, English-speaking ability, possession of U.S. college degrees, and type of visa with which immigrants first entered the United States for six months or more.

Country of Birth

The place of birth of immigrant college graduates residing in the United States in October 2003 varied widely (Table 3). The authors aggregated 168 countries into broad regions across the world and identified cases where the sample sizes of immigrants from a country were large enough to identify that country separately. Australia/New Zealand is identified separately despite the small sample size, since it is a separate continent and immigrants could not be aggregated from that country/continent with any other region of the world. (See Appendix A for a listing of countries included in each region.)

Table 3: Number and Percentage Distribution of 23- to 64-Year-Old Foreign-Born College Graduates, by Place of Birth, U.S., 2003

Place of Birth	Number of Immigrants Residing in U.S. in 2003	Percentage Distribution
Total	4,506,303	100.0
Asia	2,360,483	52.4
Asia (excluding India, China, & Philippines)	1,060,023	23.5
India	595,009	13.2
Philippines	432,151	9.6
China*	273,300	6.1
Europe	860,394	19.1
Europe (excluding United Kingdom/Northern Ireland)	692,670	15.4
United Kingdom/Northern Ireland	167,724	3.7
Latin America (Mexico, Central/South America, & Caribbean)	800,884	17.8
Africa	238,485	5.3
Canada	217,816	4.8
Australia/New Zealand	28,241	0.6

*China includes Taiwan and Hong Kong.

Asia is the primary source of college-educated immigrants to the United States, and accounted for more than half (52%) of 23- to 64-year old college-educated immigrants in 2003—with 13 percent from India, 10 percent from the Philippines, 6 percent from China, and 24 percent from other countries in Asia. Nearly 1 in 5 college-educated immigrants was born in Europe, with 3.7 percent from the United

Kingdom (UK) and another 15 percent from the rest of Europe. Latin America was the birthplace of 18 percent of college-educated immigrants; of the remaining 10 percent, about 5 percent each were born in Canada and Africa, and only 0.6 percent reported Australia or New Zealand as their place of birth.

English-Speaking Ability

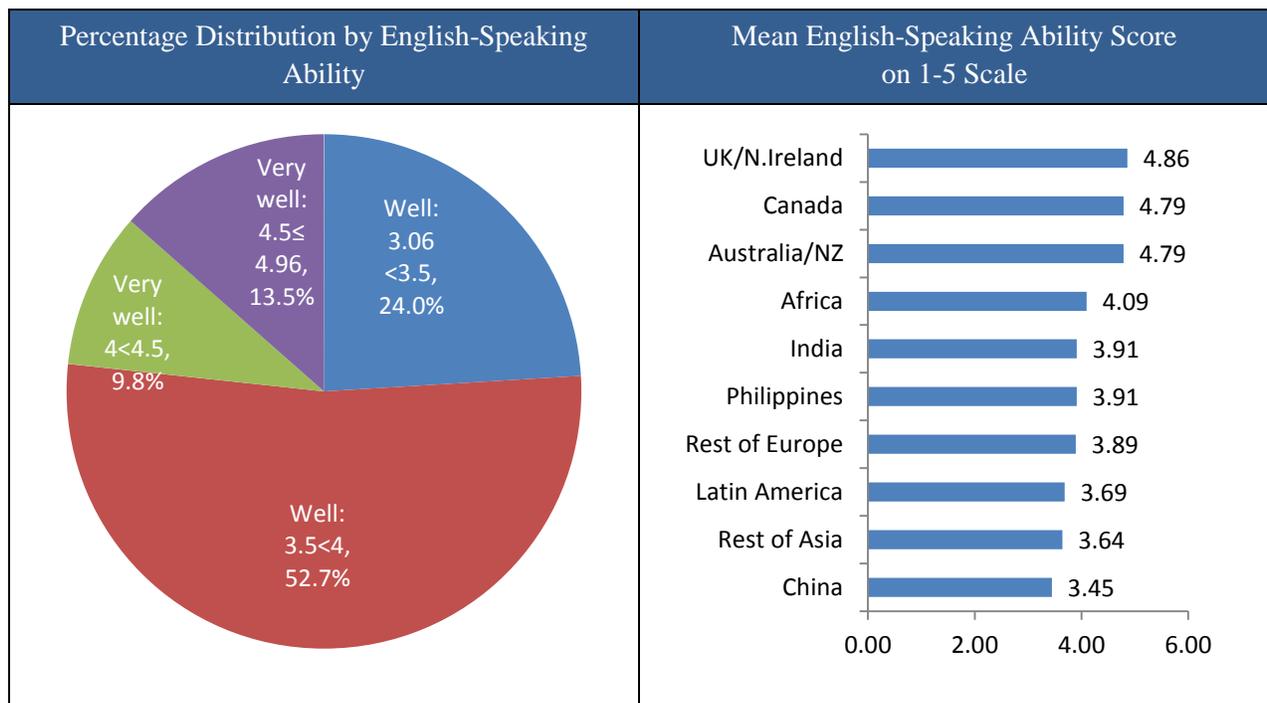
English language proficiency is an important human capital trait in the U.S. labor market. Chiswick and Miller (1992) consider English language proficiency of immigrants in the United States to be very important and to be the most basic form of human capital in the U.S. labor market. While all aspects of English language proficiency—reading, writing, speaking, and understanding English—are important to labor market success of immigrants, Carnevale, Fry, and Lowell (2001) found that understanding English was the most important English language ability in the U.S. labor market and that the positive labor market impact of English reading, writing, and speaking ability among immigrants was contingent upon their ability to understand spoken English. Their study examined the connection between English language proficiency and earnings of all immigrants, not just college-educated immigrants. Among college-educated immigrants, the ability to speak, read, and write as well as understand English was closely connected with labor market success.

The NSCG survey does not provide data on English language proficiency of respondents. However, since the NSCG sample was drawn from college graduates in the 2000 decennial census, the authors measured average English language proficiency of non-elderly college-educated immigrants from each of the 168 countries from the 2000 decennial census and used these measures to represent English-speaking ability of non-elderly college-educated immigrants from each of the same 168 countries in the NSCG. The question regarding English-speaking proficiency of respondents to the 2000 decennial census was restricted to only those respondents who spoke a language other than English at home. Respondents who spoke a language other than English at home were asked to rate their English-speaking ability on the following four-point scale: 1=does not speak English, 2=speaks English but not well, 3=speaks English well, and 4=speaks English very well. Classification of English-speaking ability of immigrants using this four-point scale would exclude from analysis those immigrants who spoke only English at home. In order to include this group of immigrants in the analysis, the four-point scale was modified into a five-point scale that included 5=speaks only English. The mean English-speaking proficiency of the non-elderly immigrant college graduates included in this paper ranged between 3.06 and 4.96 on the 1-5 scale.

Findings from an examination of English-speaking proficiency of college-educated immigrants (cumulatively, as well as separately by country/region of birth) are presented in Figure 7. The left half of the chart contains a distribution of 23- to 64-year-old college-educated immigrants by their English-

speaking proficiency. Mean English-speaking proficiency of immigrants from the 168 countries derived from 2000 decennial census data was divided into four categories: Speaks English well, lower half ($3.06 < 3.5$); Speaks English well, upper half ($3.5 < 4.0$); speaks English very well, lower half ($4.0 < 4.5$); and speaks English very well, upper half ($4.5 \leq 4.96$). Over three-quarters of college-educated immigrants reported speaking English “well” (upper half and lower half), and the remaining 23 percent reported speaking English “very well” (upper half and lower half).

Figure 7: English-Speaking Ability of 23- to 64-Year-Old Foreign-Born College Graduates, U.S., 2003



Findings from an examination of mean English-speaking scores on a scale of 1-5 by country/region of birth of college immigrants from the 2003 NSCG data are presented in the right half of Figure 7. At the top, with English-speaking proficiency scores of 4.8 and higher, were immigrants from the United Kingdom, Canada, and Australia (all English-speaking countries). Although one would expect immigrants from the three English-speaking countries to be perfectly proficient English speakers, English-speaking ability is self-reported and it is likely that some British/Irish, Canadian, and Australian immigrants to the United States do not consider their English-speaking ability to be perfect. Moreover, some people born in these countries may have reported speaking another language at home, thereby restricting their highest score to 4 on a scale of 1-5. Since the authors assigned the mean English-speaking rating of all college-educated residents of a country to all college-educated immigrants from that country

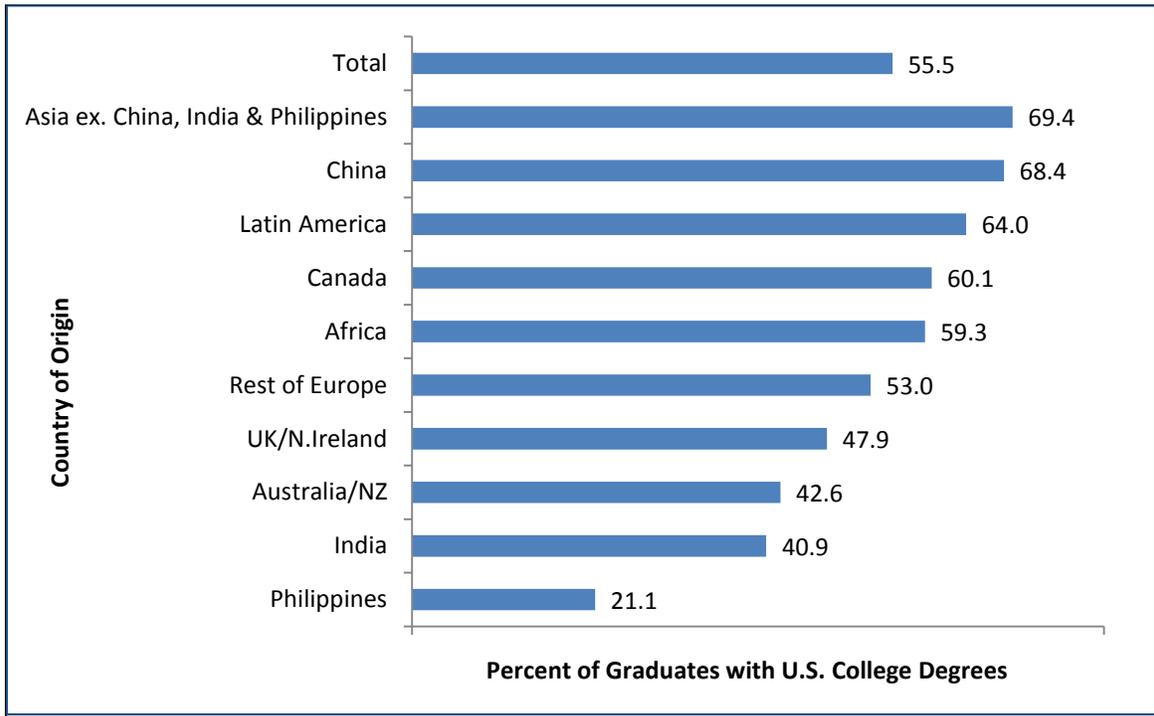
to the United States, the presence of a few residents who rated their English-speaking ability as less than perfect or identified themselves as speaking a language other than English in their homes would reduce the overall English-speaking rating to less than 5, the highest score.

The mean English-speaking proficiency of immigrants from the remaining countries/regions varied from high scores of 4.09 among African immigrants—who tend to come from English-speaking countries such as Ghana, Nigeria, and Liberia—and 3.91 among immigrants from India and the Philippines to low scores of 3.69 among immigrants from Latin America and 3.45 among Chinese immigrants.

Immigrants with U.S. and Foreign College Degrees

As noted in the previous paper, *The Earnings of Foreign-Educated College Graduates: An Examination of the Determinants of the Hourly Earnings of College-Educated Immigrants*, limited transferability of human capital from abroad to the U.S. labor market means that immigrants with college degrees earned abroad are not likely to fare as well in the U.S. labor market as are immigrants who have college degrees from educational institutions in the United States. An examination of the share of all college-educated immigrants with U.S. college degrees found that in 2003, over half (55%) of all immigrants in the United States with college degrees had earned their most recent degrees from U.S. colleges or universities (Figure 8). The share of immigrant college graduates with U.S. degrees varied by country of birth. The highest share of U.S. college degrees was among college-educated immigrants from China and Asia, excluding the Philippines and India; two-thirds of immigrants from each of these two areas had graduated with U.S. college degrees. The share of U.S. college degrees was also high among immigrants from Latin America (64%), Canada (60%), and Africa (59%). About half of immigrants from Europe (53%) and UK/Northern Ireland (48%), and approximately 42 percent of immigrants from India and Australia had U.S. college degrees, whereas only 1 in 5 immigrants from the Philippines had degrees from U.S. colleges or universities. Some of the differences in labor market outcomes of immigrants from different countries might be due to different shares of U.S. college degrees among these immigrants, which may result in different assimilation pathways. Those groups with smaller shares of U.S. college degrees are likely to face a more pronounced initial downward mobility in the U.S. labor market because of a longer assimilation period required for immigrants whose educational human capital from abroad is not readily transferable to the U.S. labor market.

Figure 8: Shares of 23- to 64-Year-Old Foreign-Born College Graduates Who Earned Their Most Recent College Degrees from U.S. Colleges or Universities, U.S., 2003



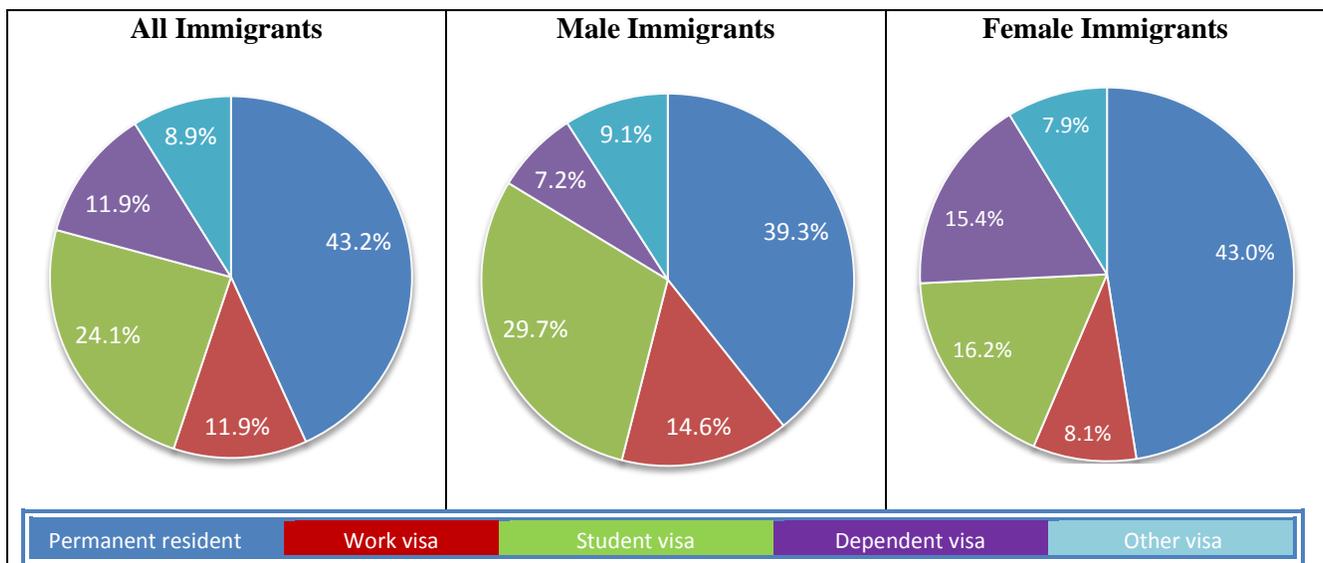
Types of Entry Visas among College-Educated Immigrants

Every legal immigrant enters the United States with a visa, and an immigrant’s class of admission to this country is a reasonably good predictor of his or her labor market outcome. The type of visa or class of admission is postulated to be related to labor market outcome, as it provides information about some unobservable characteristics of the immigrant, such as characteristics under which the immigrant migrated (Akresh, 2008). An immigrant who enters the United States with a work visa is more likely to make a lateral rather than downward transition into the U.S. labor market, in part because the immigrant must have a valid job offer in order to obtain that type of visa. Migrants who enter the United States with student visas are more likely than other immigrants to have degrees earned in the United States and are therefore also more likely to make lateral transitions into the U.S. labor market. In contrast, individuals who enter as permanent residents or dependents of U.S. residents (family migrants) do not make their migration decisions based on their earning potential; rather, their migration decisions are influenced by prior immigration of their sponsoring relatives. Therefore, they may be less likely than immigrants with work visas or student visas to have transferable labor market skills.

The NSCG questionnaire asks foreign-born respondents to identify the type of visa they held when they first visited the United States for six months or longer. This is done to exclude those who entered the country on tourist or business visas that are for six months or less. Respondents with non-tourist visas are asked to select from one of the following visa types: permanent U.S. resident visa (colloquially known as a “green card”), temporary U.S. resident visa for work (e.g., H-1B, L-1A, L-1B, etc.), temporary U.S. resident visa for study (e.g., F-1, J-1, H-3, etc.), temporary U.S. resident visa as a dependent of another person (e.g., F-2, H-4, J-2, K-2, etc.), or temporary U.S. resident visa for any other reason. The last category includes U.S. resident visas such as asylees or religious workers and other types of temporary visas.

As shown in Figure 9, the single largest entry visa category among college-educated immigrants in the United States in 2003 was the permanent U.S. resident visa. Over 43 percent of the foreign-born population in the United States with college degrees entered the country with green cards. About one quarter entered with student visas; about 12 percent entered as dependents of U.S. residents; another 12 percent were issued work visas; and the remaining 9 percent were issued other types of U.S. resident

Figure 9: Percentage Distribution of 23- to 64-Year-Old Foreign-Born College Graduates by Type of Visa for First 6+ Months Entry to the United States, 2003



visas, including visas for asylees or religious workers, and other types of temporary visas. Female immigrants were twice as likely as male immigrants to enter the United States with dependent visas (15.4% versus 7.2%). Female immigrants were also more likely to enter with green cards than were their male counterparts (43.0% versus 39.3%). In contrast, entry to the United States with work visas was

nearly twice as prevalent among male immigrants compared with female immigrants (29.7% versus 16.2%).

Labor Force Participation Rates

This section presents a descriptive analysis of labor force participation rates of different subgroups of immigrants, beginning with a comparison of labor force participation rates among immigrant and native-born college graduates. Respondents to the 2003 NSCG were asked about their labor force status during the week of October 1, 2003; labor force participation measures in this paper are based on the labor force status of college graduates during the week of October 1, 2003.

At the time of the 2003 NSCG survey, the labor force participation rate of 23- to 64-year-old college-educated immigrants was higher than that among native-born graduates (Table 4). Immigrant males, as well as females, had higher rates of participation in the labor force than did their native-born counterparts. The labor force participation rate was 1.8 percentage points higher among immigrants compared with native-born college graduates. The labor force participation rates among immigrant college graduates exceeded those of their native-born counterparts by 2.4 percentage points among males and 0.4 percentage points among females.

Table 4: Labor Force Participation and Unemployment Rates of 23- to 64-Year-Old Foreign-Born and Native-Born College Graduates, by Gender, U.S., 2003

	(A)	(B)	(C)	(D)
Gender	Percent Foreign Born	Percent Native Born	Absolute Change (Percentage Points) (Col. A–Col. B)	Relative Change (Percent) (Col. C/Col. B)
Labor Force Participation Rate				
All	89.8	88.0	1.8	2.0%
Male	96.1	93.7	2.4	2.6%
Female	82.9	82.5	0.4	0.5%
Unemployment Rate				
All	4.8	3.0	1.8	60.0%
Male	4.3	2.9	1.4	48.3%
Female	5.5	3.1	2.4	77.4%

Although it is not the focus of this paper, it should be noted that while immigrant college graduates were more likely than native-born graduates to participate in the labor force, immigrants were

less successful in finding employment, which is evidenced by the higher unemployment rate among immigrants than among native-born college graduates. The unemployment rate measures the proportion of the labor force that consists of individuals who are unemployed (i.e., not employed but actively seeking and available to work). At the time of the NSCG survey in October 2003, the unemployment rate was 4.8 percent among immigrant college graduates and 3 percent among native-born college graduates. Although both groups of college graduates had low rates of unemployment, the immigrant unemployment rate was nearly 62 percent higher than that of native-born college graduates. The unemployment rate differential was higher among college-educated women, where the rate for immigrant women was nearly 80 percent higher than that of native-born women (5.5% versus 3.1%). A future paper will focus on underutilization of college-educated immigrants in the form of unemployment.

Human Capital and Demographic Traits of Immigrants and Their Labor Market Participation

Higher levels of educational attainment and human capital in general are associated with better employment and earnings outcomes. Even among college-educated individuals, those with higher-level degrees are expected to fare better in the labor market compared with those with lower-level degrees. How do human capital levels influence the labor supply decision? The decision to enter the labor market is strongly influenced by the wages the labor market entrant is expected to earn. Hourly wages are considered to be a strong determinant of the decision to participate in the labor force. According to neoclassical theory of labor supply, individuals distribute the finite amount of time per day (24 hours) between work (to earn an income) and leisure and non-work activities such as schooling and household activities such as taking care of children, cooking, cleaning, and the like. Individuals are paid a wage in the labor market in return for work. For each hour the individual spends in the labor market, he/she sacrifices one hour of leisure and/or non-work activities. Conversely, each additional hour of leisure entails a reduction in work by one hour and, therefore, a reduction in income by the amount of the hourly wage. Therefore, hourly wage is considered to be the price of leisure. An increase in hourly wage increases the price of leisure, which in turn reduces “consumption” of leisure and a substitution of leisure with work—an increase in the individual’s labor supply. This is called the “substitution effect” of a change in hourly wage. The substitution effect leads to an increase in the labor supply when the hourly wage increases, and a decrease in labor supply when the hourly wage decreases.

An increase in hourly wage also leads to an increase in income. Higher income levels lead to an increase in consumption of those goods and services that are not *inferior*,^v including consumption of leisure. An increase in leisure time reduces time at work and, therefore, the individual’s labor supply. This

is called the “income effect” of a change in hourly wage. When hourly wage increases, the income effect is expected to lead to a decrease in labor supply, and when the hourly wage declines, the income effect is expected to lead to an increase in labor supply. The actual effect of a change in hourly wage on labor supply is the net of the income and substitution effect. If the income effect is stronger than the substitution effect, the labor supply will change in the opposite direction of a change in wages. If the substitution effect is stronger than the income effect, the labor supply will change in the same direction as the change in wages.

Changes in labor supply can occur when individuals who already are employed increase their hours of work or when individuals who are not in the labor force decide to enter the labor force. Conversely, a decrease in labor supply occurs when hours of work of employed individuals decrease or when individuals decide to withdraw from the labor force. For individuals who are not participating in the labor market, almost all of the effect of a change in wages on labor supply occurs in the form of the substitution effect, since they do not have hours of work to create a sizable income effect. The income effect is determined by the size of the wage increment and number of hours of work.

An individual’s decision to participate in the labor force is therefore based on a subjective preference for the rate at which he/she would trade leisure for earnings from working in the labor market. Based on individual preferences, each individual has a certain wage below which he/she will not be willing to trade leisure time. This wage is called the “reservation wage” and is based on the value an individual places on leisure. If the expected wage in the labor market exceeds an individual’s reservation wage, the individual will enter the labor market; conversely, if the expected wage is lower than the reservation wage, the individual will not participate in the labor market.

An individual’s human capital characteristics influence his/her labor market participation through wages. Individuals with higher levels of human capital are expected to earn higher wages and, therefore, are more likely to participate in the labor force. This is why college graduates are more likely to participate in the labor market than are high school graduates, who in turn are more likely to participate in the labor force than are high school dropouts. Even among those with the same level of college education, hourly wages vary by major field of study of the college degree. Although this may be partly attributable to labor demand conditions—wherein skills acquired in certain major fields might be in greater demand in the labor market or the supply of college graduates in certain majors might not be sufficient—major field of study does provide a measure of the type of human capital acquired by college graduates.

Two types of human capital measures are pertinent to immigrants in the U.S. labor market. One important characteristic is English language proficiency; the other is the transferability of immigrants’

educational human capital to the U.S. labor market. Transferability of educational human capital is not an issue among immigrants with U.S. college degrees; however, among immigrants with college degrees earned abroad, the degree of transferability of their educational human capital to the U.S. labor market varies by the region or country in which the degree was earned.

As noted in the previous section, immigrants from countries that are linguistically, socially, and economically more similar to the United States are likely to assimilate more quickly into the U.S. labor force and to experience less labor market downgrading than are their peers from more dissimilar countries. Among immigrants who lack U.S. schooling, labor market returns, including hourly wages, are expected to be higher for immigrants with schooling from highly developed countries and where English is a widely spoken language (Bratsberg & Ragan, 2002). Indeed, the authors found sizable differences in the hourly earnings of college-educated immigrants by country or region in which they had earned their most recent college degrees. These differences also may affect the rate of labor force participation of immigrant college graduates.

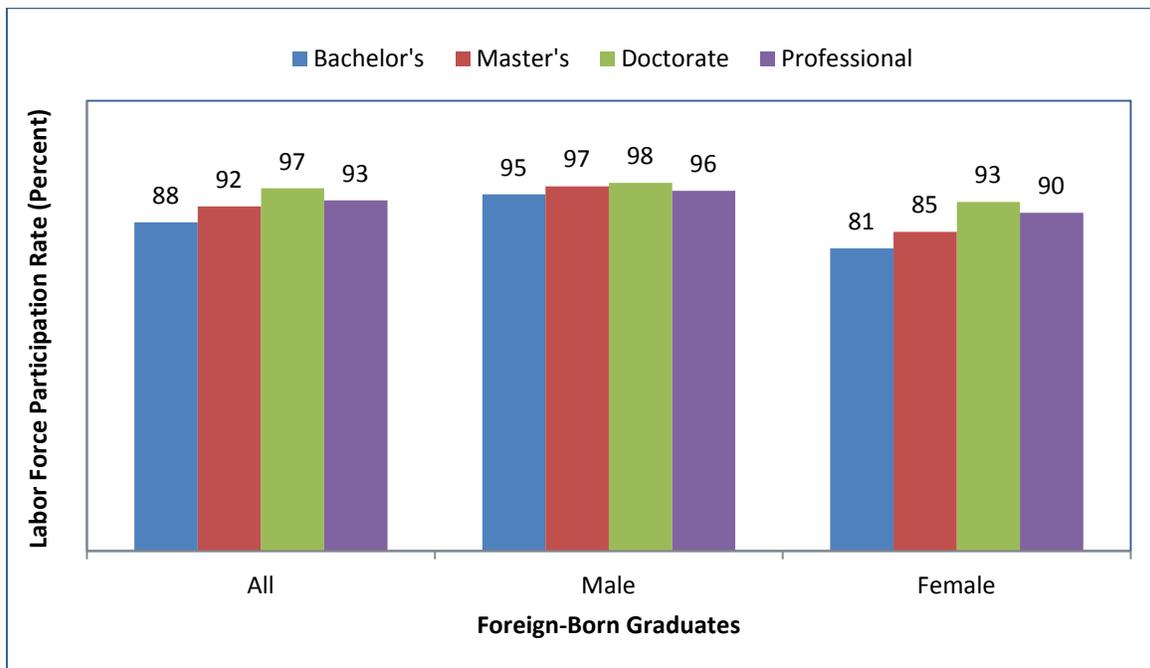
A number of additional factors contribute to an individual's decision to participate in the labor market, including his/her personal tastes and preferences for work. Individuals with more and higher-quality human capital are more likely to participate in the labor market, partly because of their potential to earn higher hourly wages. Labor market participation also varies with school enrollment status, disability status, age, marital status, and presence and age of children. Associations between labor market participation and age, marital status, and presence of children differ between men and women. Among immigrants, the type of visa with which they first entered the United States might also be related to their labor force participation. Immigrants with work visas are expected to have a higher labor market participation rate than are those with non-work visas. This is true partly because work visas are granted only to immigrants with established job offers from employers in the United States, while family-based and other green card holders are not required to have job offers before immigrating. Differences in rates of labor force participation among educational and demographic subgroups of college-educated immigrants are presented in the following sections.

Educational Attainment

The NSCG data reveal high labor force participation rates among college-educated immigrants. Within the group of college graduates, there were some variations in labor force participation based on degree level. The labor force participation rates were 88 percent among immigrants with bachelor's degrees, 92 percent among those with master's degrees, and nearly 97 percent among those with doctorate

degrees (Figure 10). Immigrants with professional degrees (law or medicine) were less likely to participate in the labor market than were their counterparts with doctorate degrees (93% versus 97%).

Figure 10: Labor Force Participation Rates of 23- to 64-Year-Old Foreign-Born College Graduates, by Educational Attainment, U.S., 2003



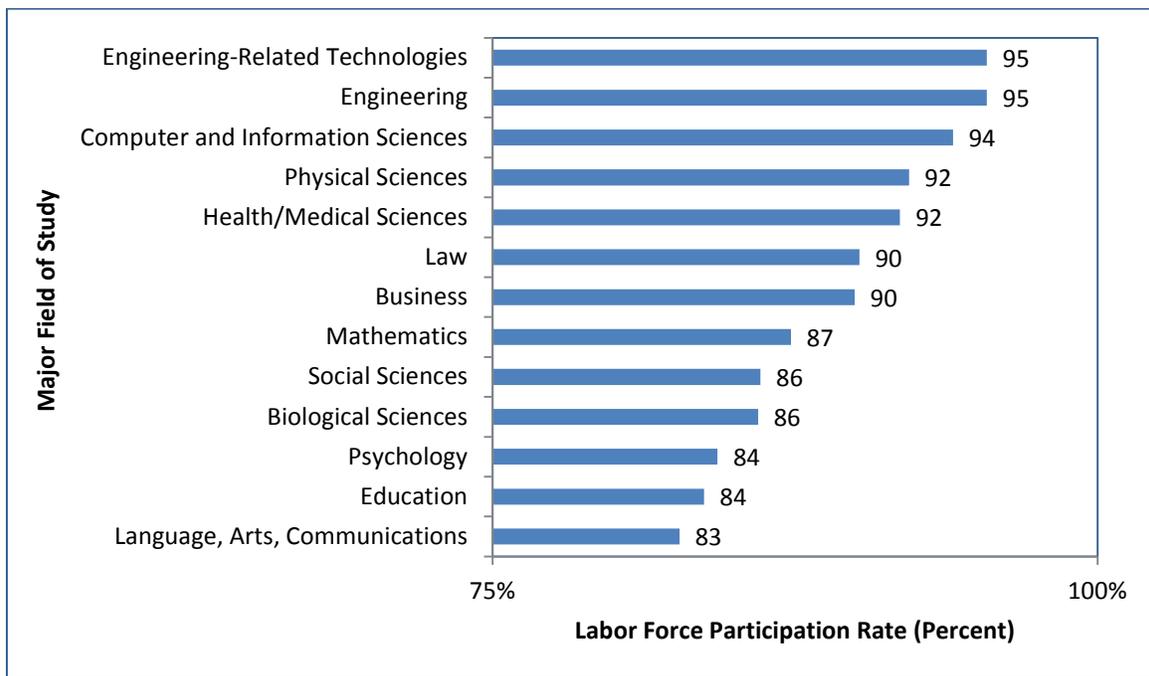
Labor force participation rates of male immigrants varied little by degree level, rising from 95 percent among those with bachelor's degrees, to 97 percent among those with master's degrees and 98 percent among those with doctorate-level degrees. Rates of labor force participation among female immigrants varied much more than among male immigrants, ranging from 81 percent among those with bachelor's degrees to 85 percent and 93 percent, respectively, among those with master's and doctorate degrees. Male and female immigrants with professional degrees had somewhat lower rates of labor force attachment than did their counterparts with doctorate degrees (96% versus 98% among males and 90% versus 93% among females). There could be a number of reasons for this finding, including quality and transferability to the U.S. labor market of professional degrees possessed by immigrants. Transferability might be more of an issue with professional degrees because of stringent certification requirements (doctors have to pass board exams and lawyers have to pass the bar) to practice in the United States.

Major Field of Study

Labor force participation rates of immigrants varied by major field of study, ranging from a high of 95 percent among engineering and engineering technology majors to a low of 83 percent among

language, arts, and communication majors (Figure 11). Immigrants with college degrees in the fields of engineering, engineering technology, and computer and information sciences had the highest rates of labor force participation (94 to 95% each). Health and medical sciences, physical sciences, business, and law majors also had high (90 to 92%) rates of labor force participation. At the lower end were immigrants with language/arts/communications, education, and psychology degrees, with labor force participation rates between 83 and 84 percent. Fields of study with higher labor force participation rates are more likely to be those with higher wages and, conversely, majors with lower rates of labor force participation are associated with lower wages. As noted above, economic theory postulates that wage is the primary determinant of labor supply decisions of individuals, particularly the decision to enter the labor market. Therefore, immigrants with degrees in fields of study that generally have higher earnings can be expected to participate in the labor market at higher rates.

Figure 11: Labor Force Participation Rates of 23- to 64-Year-Old Foreign-Born College Graduates, by Major Field of Study, U.S., 2003



English Language Proficiency

An examination into variation of labor force participation rates by English-speaking ability of immigrants shows almost no connection between the two. This may be due partly to the way in which English-speaking proficiency is measured. Moreover, immigrants often come to the United States specifically to seek work, and their English proficiency may actually come into play in determining the

kinds of jobs they end up getting (college labor market jobs, well paying) rather than whether they enter the workforce at all. The NSCG survey does not provide data on English language proficiency of respondents. However, since the NSCG sample was drawn from college graduates in the 2000 decennial census, the authors used that census to measure average English language proficiency.

In the 2000 decennial census, English-speaking proficiency was self-reported, and the authors measured it on the following five-point scale: 1= does not speak English, 2=bilingual, speaks English but not well, 3=bilingual, speaks English well, 4=bilingual, speaks English very well, 5=monolingual, speaks only English. From the census data, mean English-speaking proficiency (on this five-point scale) for non-elderly college-educated immigrants from each of the 168 countries was computed and ranged from 3.06 to 4.96 (Table 5). The mean English-speaking proficiency for each country was then assigned to the 2003 NSCG immigrant college graduates who were born in that country. So, for example, if the mean English-speaking proficiency from the 2000 decennial census of 23- to 64-year-old college-educated immigrants born in Canada was 4.96, then all 23- to 64-year-old immigrants in the 2003 NSCG data who were born in Canada were assigned an English-speaking proficiency of 4.96. It is possible that assigning countrywide averages to all individuals from that country may have masked the actual relationship between English language proficiency and labor market participation for each individual immigrant.

Table 5: Labor Force Participation Rates of 23- to 64-Year-Old Foreign-Born College Graduates, by English-Speaking Proficiency, U.S., 2003

English-Speaking Proficiency	Labor Force Participation All (%)	Labor Force Participation Male (%)	Labor Force Participation Female (%)
Well, 3.06-3.49	90.6	96.5	84.7
Well, 3.5-3.99	89.7	96.2	82.5
Very well, 4.0-4.49	88.2	95.0	79.4
Very well, 4.5-4.96	90.2	95.8	83.8

Country/Region of College Degree

The country from which an immigrant received a college degree is closely related to degree of transferability to the U.S. labor market of skills and education acquired prior to immigration. The degree of transferability of skills and education, in turn, determines the time needed to assimilate, during which an immigrant experiences downward labor market mobility. Examination of labor force participation rate by country and region in which immigrants obtained their college degrees revealed little variation. Labor force participation rates of all immigrant college graduates by country or region of their college degrees varied from 92 percent among those with degrees from China and 91 percent among those with degrees

from the United States and Europe, excluding the UK and Northern Ireland, to 82 percent among those with college degrees from Asia, excluding China, India, and the Philippines, and 85 percent among those with college degrees from India (Table 6).

Table 6: Labor Force Participation Rates of 23- to 64-Year-Old Foreign-Born College Graduates, by Country/Region of College Degree, U.S., 2003

Country/Region of College Degree	Labor Force Participation All (%)	Labor Force Participation Men (%)	Labor Force Participation Women (%)	Men Minus Women (Percentage Points)
All	89.8	96.1	82.9	13.2
China	91.8	97.4	87.6	9.8
United States	91.1	95.9	85.6	10.3
Europe (excluding UK/N. Ireland)	90.9	97.8	81.6	16.2
Canada	90.2	96.3	82.5	13.8
Latin America (Mexico, Central/South America, & Caribbean)	89.9	96.3	83.0	13.3
Philippines	89.7	93.6	87.7	5.9
UK/N. Ireland	89.3	95.0	74.1	20.9
Africa	88.5	97.3	77.2	20.1
India	85.4	98.4	70.9	27.5
Asia (excluding China, India, & Philippines)	82.2	93.6	70.9	22.7

There was little variation in the labor force participation rates of male immigrants (94% to 98%) but greater variation in the rates for female immigrants (71% to 87%). Consequently, there were sizable gaps between labor force participation rates of male and female immigrants by country or region in which their college degrees were obtained. The largest gap was among immigrants with degrees from India, with a male-female gap in the labor force participation rate of 27 percentage points (98.4% among males versus 70.9% among females). This gap is more than twice as large as that among all college-educated immigrants (13.2 percentage points). Immigrants with college degrees from Asian countries excluding China, India, and the Philippines; Africa; and the UK/Northern Ireland also had large male-female gaps in labor force participation rates (between 20 and 23 percentage points). The smallest gender gap in participation rates was among immigrants with college degrees from the Philippines (5.9 percentage points), China (9.8 percentage points), and the United States (10.3 percentage points). As a result of the large differences in male and female labor force participation rates among immigrants with degrees from certain countries/regions, the ranking of these countries or regions by labor force participation among solely male immigrants is different from that based on overall labor force participation rates.

Entry Visa Type

Since immigrants with work visas enter the United States with the specific intention to work, it is not surprising to find a high rate (94%) of labor force participation among these individuals (Table 7). Male as well as female immigrants who entered the United States with work visas had higher rates of labor force participation compared with their counterparts with different types of entry visas. Those who entered the country with student visas also had a high rate of labor force participation (93%). Student visa entrants had the second highest rate of participation among male as well as female immigrants. Most college-educated immigrants who entered the United States with dependent visas were women.

Table 7: Labor Force Participation Rates of 23- to 64-Year-Old Foreign-Born College Graduates, by Entry Visa Type, U.S., 2003

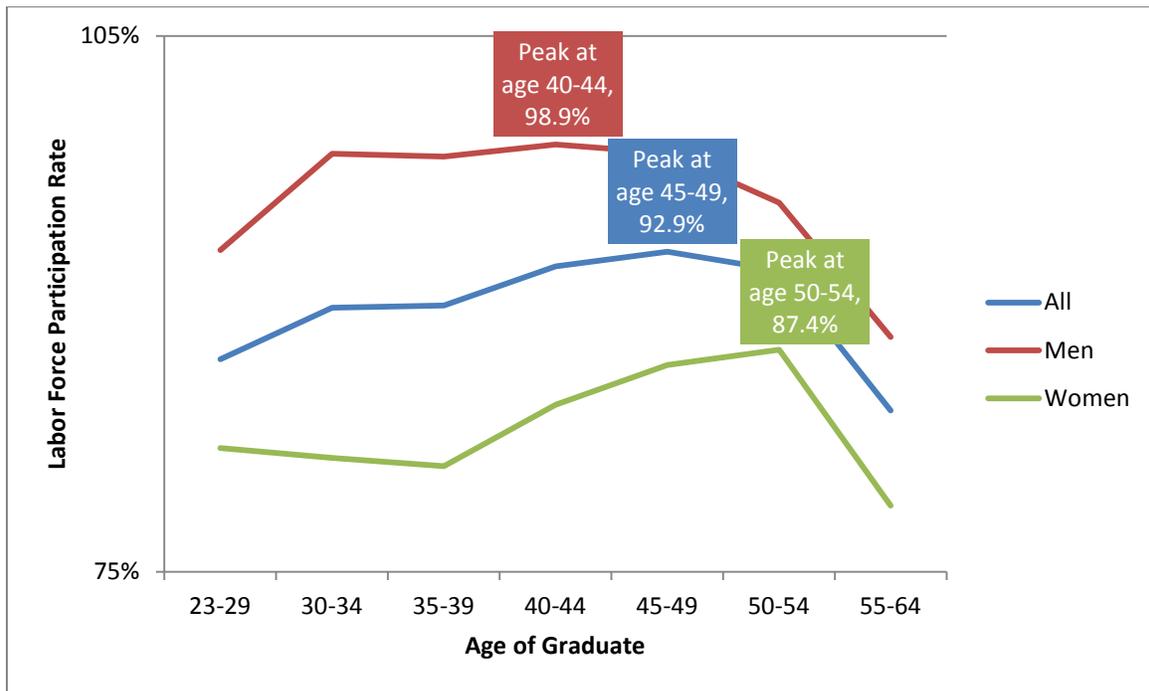
Entry Visa Type	Labor Force Participation All (%)	Labor Force Participation Men (%)	Labor Force Participation Women (%)
All	89.8	96.1	82.9
Work visa	94.0	98.0	86.7
Student visa	92.8	97.4	84.3
Other miscellaneous visa	90.4	95.7	84.3
Permanent U.S. resident	88.8	94.8	83.4
Dependent visa	82.9	94.3	77.6

Immigrants with dependent visas are much less likely than those with other types of entry visas to leave their countries of origin with the specific purpose of employment. This is evident in lower overall labor force participation among these individuals (83 percent). The labor force participation rate of men who entered the country with dependent visas was 94 percent, the lowest rate among male immigrants, and was 78 percent among women with dependent entry visas (the lowest participation rate among female immigrants).

Age

Participation in the labor market changes over the lifecycle of individuals. For example, teenagers are not as closely tied into the labor market as are young adults, who in turn have a lower rate of labor market attachment than do individuals in the prime working years—typically between the ages of 25 and 54, after which labor market attachment generally declines during the preretirement years between the ages of 55 and 64. The trend line of labor force participation by age therefore resembles an inverted U-shape, as illustrated in Figure 12.

Figure 12: Labor Force Participation Rates of 23- to 64-Year-Old Foreign-Born College Graduates, by Age, U.S., 2003



Examination of labor force participation of college-educated immigrants reveals a gradual inverted U-shaped pattern of participation, increasing with age from 87 percent among 23- to 29-year-olds to 90 percent among those ages 30 to 34 and 35 to 39, and 92 percent among 40- to 44-year-olds, reaching a peak at 93 percent among 45- to 49-year-olds, after which it declines to 92 percent among those ages 50 to 54, and 84 percent among those in the preretirement age of 55 to 64. Among male college-educated immigrants, the labor force participation rate increased from 93 percent among 23- to 29-year-olds and reached a peak of 99 percent among 40- to 44-year olds, declining thereafter down to 88 percent among those of preretirement age (55 to 64 years).

Labor force participation among women differs from that of men; the trend by age typically resembles an M-shaped pattern with an initial rise followed by a decline during childbearing ages and an increase thereafter followed by another decline as women approach retirement age. Among college-educated immigrant women in this study, a partial M-shaped pattern was observed. The overall labor force participation rate of 83 percent among female college-educated immigrants is a high rate of labor force participation. As is noted in the next section, 80 percent of married immigrant women with college degrees were participating in the labor market. The increased career orientation of women and declining birth rates among college-educated women has resulted in a stronger labor force attachment among

women, with fewer and shorter interruptions during childbearing ages. These changes have made the lifecycle pattern of labor force participation of women increasingly similar to that of men (Blau & Kahn, 2007).

Marital Status and Presence of Children

The decision to allocate time among work in the labor market, leisure, and home production (raising children, preparing food, cleaning, and performing other household tasks) among married couples is generally made in the context of the family. The husband and wife often allocate their pooled time to work and home production to produce home products and income to buy market goods as cheaply as possible, given their wages and productivity in household production versus labor market work. Traditionally, women have specialized in household production whereas men have specialized in labor market work (Becker, 1985). These traditional gender roles and specialization have been changing, and these changes are evident in the rising labor force participation and labor supply of women, particularly married women. However, married women (with or without children) are still less likely to participate in the labor force than are unmarried women (including those who are never married, single, divorced, or separated).

An examination of the labor force status of all 23- to 64-year-old college-educated women, regardless of their nativity status, found sizable gaps between labor force participation rates of married women and those who were not married at the time of the NSCG survey in October 2003. The labor force participation rate of married women was lower than that of unmarried women by 12 percentage points among all 23- to 64-year-old college-graduate women, by 16 percentage points among those with children, and by 8 percentage points among those without children. Similarly, large gaps existed in labor force participation rates of married and unmarried foreign-born college graduates. Findings in Table 8 also reveal that women with children were less likely to participate in the labor market than those without children, especially if they were married. The labor force participation of women has increased over time, but the gaps between labor force participation of married and unmarried women (with and without children) indicate that there is still a gender-based division of labor within married-couple families, even those with college-educated wives.

Table 8: Labor Force Participation Rates of 23- to 64-Year-Old Female (All and Foreign-Born) College Graduates, by Marital Status and Presence of Children, U.S., 2003

Presence of Children	Labor Force Participation Unmarried (%)	Labor Force Participation Married (%)	Married Minus Unmarried (Percentage Points)
All	91.7	79.5	-12.3
With children	93.7	77.6	-16.2
Without children	91.0	82.9	-8.1
Foreign Born	93.3	80.2	-13.0
With children	93.0	78.0	-15.0
Without children	93.4	85.9	-7.5

A comparison of labor force participation rates of college-educated male and female immigrants by marital status and presence of young children is presented in Table 9. The relationship between labor force participation and marital status and presence of children among male college-educated immigrants was opposite that among their female counterparts. Married immigrant men were more likely than those who were unmarried to participate in the labor force (3.5 percentage points), whereas married immigrant women were less likely than their unmarried counterparts to participate in the labor force (-13 percentage points).

The presence of children was associated with a higher level of labor force participation among immigrant men than among their female counterparts. The labor force participation rate among college-educated immigrants with children of any age was 3.7 percentage points higher among men with children compared with that among men without children and 9.2 percentage points lower among women with children compared with that among women without children. These gaps were even larger among those with very young children under 6 years old and those without any children—a rate of participation 5 percentage points higher among immigrant men with very young children compared with those with no children, and a rate 16.2 percentage points lower among immigrant women with preschool-aged children compared with those with no children.

Table 9: Labor Force Participation Rates of 23- to 64-Year-Old Foreign-Born Male and Female College Graduates, by Marital Status and Presence of Children, U.S., 2003

Marital Status and Presence of Children	Labor Force Participation Foreign-Born Men (%)	Labor Force Participation Foreign-Born Women (%)
Married	96.7	80.2
Unmarried	93.2	93.3
Difference (married minus unmarried)	3.5	-13.0
With children of any age	97.5	79.5
With no children	93.8	88.8
Difference (with children minus with no children)	3.7	-9.2
With children under 6	98.8	72.6
With no children	93.8	88.8
Difference (with children under 6 minus with no children)	5.0	-16.2

School Enrollment and Disability Status

Since the labor supply decision is made within a constraint of 24 hours that are to be distributed among work, leisure, and other activities, enrollment in school—especially on a full-time basis—is expected to have a negative effect on labor supply and labor market participation. The labor force participation rates for all immigrants and for male and female immigrants separately who were enrolled in school on a full-time basis were considerably lower than those of their counterparts who were not attending school full-time (attending part-time or not at all). The labor force participation rate of college-educated immigrants who were full-time students was lower than that of immigrant college graduates who were not full-time students by 10 percentage points among all college-educated immigrants, 11 percentage points among male immigrants, and 8 percentage points among female immigrants (Table 10).

The NSCG data also include physical or sensory disability status of participants at the time of the survey on October 1, 2003. As noted previously, immigrant college graduates were less likely to have disabilities than were those who were native born (7% versus 9%). Among those immigrants who reported having physical or sensory disabilities, the labor force participation rate was 82 percent compared with 90 percent among their counterparts without disabilities. Thus, the rate of labor force participation among immigrants with college degrees who reported having disabilities was quite high but still about 8 points lower than the rate among immigrants without disabilities. The labor force participation gap by disability status was much higher among male immigrants than among female immigrants. Male immigrants with reported physical or sensory disabilities had a labor force participation

rate of 85 percent—12 percentage points lower than the 97 percent rate of participation among those without disabilities. The gap between labor force attachment of female immigrants with and without disabilities was smaller (4 percentage points).

Table 10: Labor Force Participation Rates of 23- to 64-Year-Old Foreign-Born College Graduates, by School Enrollment Status and Disability Status, by Gender, U.S., 2003

School Enrollment and Disability Status	All Foreign Born (%)	Foreign-Born Men (%)	Foreign-Born Women (%)
Full-time student	79.8	85.3	74.8
Not a full-time student	90.1	96.4	83.2
Difference	-10.3	-11.1	-8.4
With disabilities	81.9	84.8	79.1
Without disabilities	90.3	96.7	83.2
Difference	-8.4	-11.9	-4.1

Conclusion

Labor force participation patterns are quite different among men and women. Women with children and married women have lower rates of labor force participation than do their counterparts who are unmarried and have no children, while among men these traits (marriage and children) result in higher rates of participation. Findings presented in this paper reveal that these differences in male and female labor force participation rates (by marital status and presence of children) were clearly present among college-educated immigrants. The lifecycle pattern of labor force participation also varies by gender, with men seeing a steady rise in labor force participation with age until reaching a peak during prime working age and declining thereafter during preretirement and retirement ages. This lifecycle pattern resembles an inverted U. Among women, labor force participation rises with age initially and declines during childbearing ages, after which it rises again and is followed by a decline as retirement age approaches. Thus, the pattern of labor force participation over the working-age lifetime of women resembles an M.

Because of these different patterns among men and women, the examination of labor force participation rates among immigrants is presented separately for males and females. Male immigrants had very high rates of labor force participation, with little variation in rates by different educational and demographic characteristics, as well as by country or region in which they had earned their most recent college degrees. This overall high level of labor force participation leaves little variation (especially due

to underutilization) to estimate a labor force participation regression equation for male as well as female immigrants.

The labor force participation rate among female immigrants was also quite high. Nearly 83 percent of immigrant women were in the labor force at the time of the 2003 NSCG survey. This rate of participation is especially high given that 83 percent of these 23- to 64-year-old immigrant college-educated women were married and 62 percent had children. In fact, the rate of labor force participation among unmarried immigrant college-educated women was 94.4 percent. Although the labor force participation rate of immigrant women was high, it was still lower than that of immigrant men. However, the lower rates of labor market participation of immigrant women compared with men appears to be due to the different patterns of participation among females—especially immigrant females—and may not represent underutilization such as the suppressed labor market participation that has been occurring over the past decade in the U.S. youth labor market.

A look at female labor force participation rates by country or region of college degree showed more variation than among men, but the variation appeared to be due mainly to cultural differences among women. For example, immigrant men with college degrees from India had the highest rate of labor market participation compared with men with degrees from other countries and regions, including those with U.S. degrees. In contrast, immigrant women with college degrees from India had the lowest rate of labor force participation compared with those who had earned college degrees from other regions or countries. These variations in labor force participation rates by country or region of college degree do not appear to reflect the transferability of the educational human capital acquired abroad to the U.S. labor market (as it did in the case of hourly earnings). Rather, it appears more likely to reflect preferences and cultural practices (in the case of women) around labor market participation among immigrants from different countries, especially married women and women with children. It also is possible that some female immigrants were in the United States on H-4 dependent visas (which do not include work authorization) as wives of immigrants with H-1B visas and, thus, the lower labor force participation rates among some of these immigrant women may be related to their visa status rather than culture.

Findings in this report show a near absence of underutilization among immigrants in the form of low rates of labor force participation. Analysis of the 2003 NSCG data found that the labor force participation rate for immigrant males was very high and that while the rate among females was lower than that among males, the lower rate appears to have occurred mainly among women who were married and those who had children. The high rate of labor market participation among unmarried immigrant women (94.4%) indicates a lack of underutilization among female immigrants as well. There also appears

to be little variation in labor force participation rates among male immigrants based on country/region of college degree—unlike findings from the previous analysis in which sizable and systematic differences were found in the hourly wages of immigrants (male and female) by region or country of college degree. While labor force participation rates did vary by region/country of college degree among female immigrants, this variation appears to be attributable largely to cultural differences related to female labor market participation in certain countries/regions of the world rather than the degree of transferability of the human capital acquired in these countries to the U.S. labor market.

Appendix A: Countries in Each Region of the World

Region	Countries
- Canada	Canada
- UK/N. Ireland	United Kingdom, not specified England Scotland Wales Northern Ireland
- Rest of Europe	Albania Austria Belgium Bulgaria Czechoslovakia Denmark Finland France Germany, not specified Greece Hungary Iceland Ireland Italy Luxembourg Malta Netherlands Norway Poland Portugal Azores Islands Romania Spain Sweden Switzerland Yugoslavia Europe, not specified

- **Rest of Europe (continued)**
 - Moldova
 - Southern Europe, not specified
 - Czech, Rep. of Slovakia
 - Serbia-Montenegro
 - Slovenia
 - Macedonia
 - Bosnia-Hercegovina
 - Croatia
 - USSR
 - Estonia
 - Latvia
 - Lithuania
 - Belarus [Byelarus]
 - Russia
 - Kazakhstan
 - Armenia
 - Azerbaijan
 - Georgia
 - Uzbekistan
 - Ukraine
 - Turkmenistan
- **India**
 - India
- **China**
 - China
- **Philippines**
 - Philippines
- **Rest of Asia**
 - Afghanistan
 - Bahrain
 - Bangladesh
 - Myanmar [formerly Burma]
 - Cambodia
 - Cyprus
 - Hong Kong
 - Indonesia
 - Iran
 - Iraq
 - Israel
 - Japan

- **Rest of Asia (continued)**

Jordan
Korea, not specified
South Korea
Kuwait
Laos
Lebanon
Macao
Malaysia
Nepal
Pakistan
Saudi Arabia
Singapore
Sri Lanka
Syria
Taiwan
Thailand
Turkey
Vietnam
Yemen, Peoples Democratic Republic
Yemen, Unified [1991 and after]
Middle East, not specified

- **C. & S. America & Caribbean**

Belize
Costa Rica
El Salvador
Guatemala
Honduras
Mexico
Nicaragua
Panama
Central America, not specified
Antigua and Barbuda
Aruba
Bahamas
Barbados
Cuba
Dominica
Dominican Republic
Grenada
Haiti

- **C. & S. America & Caribbean (continued)**

Jamaica
Netherlands Antilles
St. Kitts-Nevis
St. Lucia
St. Vincent and the Grenadin
Trinidad and Tobago
Caribbean, not specified
West Indies, not specified
Argentina
Bolivia
Brazil
Chile
Colombia
Ecuador
Guyana
Paraguay
Peru
Surinam
Uruguay
Venezuela
South America, not specified

- **Africa**

Algeria
Angola
Cameroon
Congo
Egypt
Ethiopia
Ghana
Ivory Coast
Kenya
Liberia
Libya
Madagascar
Morocco
Mozambique
Nigeria
Rwanda
Senegal
Sierra Leone

- **Africa (continued)**
 - South Africa
 - Sudan
 - Tanzania
 - Tunisia
 - Uganda
 - Zaire
 - Zambia
 - Zimbabwe
 - Africa, not specified
 - Central Africa, not specified
 - Eastern Africa, not specified
 - Western Africa, not specified
 - Southern Africa, not specified
- **Australia/NZ**
 - Australia
 - Fiji
 - New Zealand
 - Tonga
 - Western Samoa
 - Oceania, not specified

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Endnotes

ⁱ The age range of respondents to the NSCG survey is 23 to 76 years. However, because of the limited labor force attachment of the elderly population (65 years and older), the authors restricted discussion in this paper to only those under the age of 65.

ⁱⁱ The 2003 NSCG data do not provide any way to directly identify immigrants who are not eligible to work in the United States. However, we indirectly identified at least a part of all those who may not be eligible to work. We first identified those immigrants who held temporary visas (other than work visas) at the time of the 2003 NSCG survey. Within this group, we selected those immigrants who reported that they were not looking for work and reviewed the reasons why they were not looking for work. Respondents could select one or more reasons out of the following: family, illness/disability, layoff, retired, did not need/want work, suitable job not available, student, other. Immigrants with temporary student visas, dependent visas, or other visas who were not looking for work because they were students or chose “other” were then identified as immigrants who might not be eligible to work. The category “other” reason for not looking for work might include “not eligible to work.” In this manner, we identified 20,500 immigrants who met the criteria that we used to identify those who may not be eligible to work in the United States. These 20,500 immigrants were excluded from the analysis for this paper.

ⁱⁱⁱ Individuals who were born abroad of American parents were not included in our measure of immigrants. The National Survey of College Graduates, as well as the U.S. Census Bureau, classifies respondents born in Puerto Rico as native born. There are valid reasons to treat these individuals as foreign born (many speak Spanish as a first language and their migration experience to the U.S. mainland can mirror immigration), but also valid reasons *not* to treat them as foreign born (they are U.S. citizens by birth; can travel freely between Puerto Rico and the U.S. mainland at will; can never be deported, and have immediate, permanent lifetime work authorization). However, the NSCG does not identify individuals born in Puerto Rico separately and includes them in the native-born population. Our definition of immigrants therefore excludes those who were born in Puerto Rico.

^{iv} Superior goods and services, also called normal goods and services, see a rise in demand with an increase in consumer income.

^v An *inferior* good or service is one for which consumption declines with an increase in income as consumers shift (substitute) their consumption to *superior* substitutes for the inferior good. For example, an increase in income will lead to a decrease in the demand for costume jewelry (inferior good) and an increase in the demand for real jewelry (superior good).