

# Involuntary Part-Time Employment Problems among College-Educated Immigrants in the United States

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## Introduction

This paper is the fourth in a series of five research papers that examines the nature of labor force underutilization problems of foreign-born college graduates in the United States. This series of research papers examines labor market underutilization problems among different subgroups of foreign-born college graduates, with a special focus on those foreign-born individuals who earned their college degrees from overseas colleges and universities. Two of our previous papers on the levels of labor force participation and unemployment among immigrant professionals, *Findings from an Examination of the Labor Force Participation of College-Educated Immigrants in the United States* and *Unemployment Problems among College-Educated Immigrants in the United States*, examined patterns of labor force participation among various foreign-born college-educated adults as well as their unemployment experiences in the United States. We found exceptionally high rates of labor force attachment among immigrants with degrees from overseas postsecondary institutions, with very little evidence of underutilization problems associated with discouragement in participating in the labor market among these individuals.

Our analysis of the unemployment problems of foreign-born college graduates revealed a somewhat elevated unemployment problem among immigrant college graduates relative to their native-born counterparts. After statistically controlling for other key variables known to affect the likelihood of unemployment, we found that immigrants with Indian college degrees were somewhat more likely to be unemployed than were their U.S.-educated immigrant counterparts. Most of these differences were concentrated among Indian-educated women. For men, we found no statistically significant differences in the chance of being unemployed between U.S.- and foreign-educated immigrants.

Workers can encounter impediments to success in the labor market at the time of labor market entry (measured by labor force participation), after labor market entry (measured by unemployment), and after securing jobs in the form of involuntary part-time employment.

Involuntary part-time employment is a form of labor market underutilization, as these individuals desire full-time positions but can only find part-time work.<sup>1</sup> Among college graduates, involuntary part-time employment results in underutilization of the human capital they have acquired throughout their lives, including completing college and university degree programs. They are willing and able to work in full-time jobs and express a desire to work in full-time jobs, but find themselves working in part-time positions and, therefore, not utilizing their human capital to the fullest extent.

In this paper, we examine the involuntary part-time employment problems among immigrant college graduates, with a special focus on those immigrants to the United States who earned their most recent college degrees from institutions located outside the United States. The paper presents the levels and

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<sup>1</sup> We have defined involuntary part-time employment in this paper as including those part-time employed workers who stated a desire for full-time jobs. The NSCG asked respondents whether they *usually* worked 35 or more hours per week (defined as full-time employment) or *usually* less than 35 hours per week (defined as part-time employment) at the jobs where they worked during the week of October 1, 2003. [The word *usually* excludes those persons who were only temporarily working less than 35 hours during the week of October 1, 2003, because of vacations, holidays, personal or family illnesses/problems, bad weather, and other temporary reasons.] Among those who were working less than 35 hours per week, the Survey asked if they wanted to work a full-time work week of 35 hours or more. Those who answered in the affirmative are defined in this paper as involuntary part-time workers. This definition is similar but not identical to the “part-time for economic reasons” measure published monthly by the U.S. Bureau of Labor Statistics (BLS) in its monthly *Employment Situation*, where it is defined as those who usually worked 1 to 34 hours in the job held during the reference week for an economic reason such as slack work or unfavorable business conditions, inability to find full-time work, or seasonal declines in demand. [Similar to the NSCG, the BLS also defines part-time workers based on the number of hours that they *usually* worked on the job held during the survey’s reference week, thereby excluding persons who usually worked full time but worked less than 35 hours during the reference week for reasons such as vacations, holidays, illness, and bad weather.]

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variations in involuntary part-time employment rates by the demographic characteristics of college-educated immigrants, including gender, age, marital status, presence of children in the household, and school enrollment status at the time of the NSCG survey; human capital characteristics such as level of college education completed, country in which the most recent college degree was earned, major field of study of most recent college degree, English language proficiency; and immigration-related traits, including the year in which the immigrant first entered the United States, as well as the type of visa with which the United States was entered for more than six months.

The year of entry into the United States is a measure of the time immigrants have had to assimilate into their adopted country and its labor market and improve their employment and earnings experiences. The type of visa with which immigrants enter the United States is a measure of their initial commitment to the labor market as well as commitment by employers seeking their skills and abilities. Immigrants who enter the United States with work visas are likely to have a much stronger connection to the U.S. labor market and are, therefore, more likely to work in or have a desire for full-time employment. Individuals with a stronger initial connection to the labor market might be less likely to work in part-time positions, and we might expect that when they do work in part-time positions, it is more likely to be involuntary.

Involuntary part-time employment could be related to local labor market conditions. Poor local labor market conditions might reduce full-time employment opportunities, forcing some workers to settle for part-time jobs even though they have a desire for full-time positions. Since labor market problems, including involuntary part-time employment, could be related to local labor market conditions, we have also examined the involuntary part-time employment rates of immigrant college graduates by their region of residence in the United States.

This paper begins with an analysis of some basic measures of labor market outcomes (hours of work and earnings) of workers who are involuntarily employed part-time. Workers who are employed in a part-time job, but have a desire for full-time jobs suffer negative consequences in the labor market in the form of lost hours of paid work. We present a comparison of the employment and earnings of involuntarily part-time employed college graduates with those of their full-time employed counterparts. We have used the differences between the labor market outcomes of these two groups to represent the potential labor market losses associated with involuntary part-time employment.

The next section of this paper contains a descriptive analysis of the prevalence of involuntary part-time employment among college graduates. We begin with a comparison of the involuntary part-time employment rates between native-born and foreign-born college graduates, after which the descriptive section of this paper focuses entirely on the prevalence of involuntary part-time employment among different subgroups of foreign-born college graduates. Since the problem of involuntary part-time employment exists only among those who are employed in part-time positions, we have measured the prevalence of involuntary part-time employment as a share of all part-time employment.

The descriptive analysis in this paper presents overall involuntary part-time employment rates among 25- to 64-year old immigrant college graduates compared with those of their native-born counterparts. This comparison between native-born and foreign-born workers is presented for all college graduates and separately for males and females. The remainder of the descriptive section focuses on findings from an examination of involuntary part-time employment rates among immigrant college graduates. It begins with a descriptive analysis of involuntary part-time employment rates among immigrant college graduates by their demographic traits, educational attainment, country/region of most recent college degree, year of

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entry, and type of entry visa to the United States. The descriptive analysis is followed by findings from multivariate regression analysis of the likelihood of involuntary part-time work among part-time-employed college-educated immigrants.

The multivariate regression analysis will provide insights into the independent impact of different traits of immigrant college graduates on the likelihood of involuntary part-time employment. For example, the involuntary part-time employment rate was higher among men than among women. These differences could be due to a greater difficulty in getting full-time jobs among immigrant men or it could be due to systematic differences between men and women in their demographic, human capital, and immigration-related traits. Multivariate regression analysis allows us to estimate the relationship between involuntary part-time employment and gender after statistically controlling for other factors (demographics, major field of study, English-speaking ability, and the like) that are found to be related to the likelihood of involuntary part-time employment. The descriptive as well as regression analyses of involuntary part-time employment in this paper are presented for all college-educated immigrants and separately for male and female immigrants.

## Data Source and Definitions

This paper is based on the authors' analysis of the 2003 National Survey of College Graduates (NSCG) public use data file. The 2003 NSCG contains detailed information on employment and educational status of respondents and their demographic characteristics. The NSCG 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 2000 decennial census long-form survey respondents with bachelor's or higher degrees. The NSCG database contains nearly 450 variables providing detailed information on level of college educational attainment and school enrollment status, labor market status and job characteristics of employed survey respondents, and their demographic traits, including nativity status and the country/region of the world in which foreign-born college graduates earned their most recent college degrees. The contents and sample size of the 2003 NSCG provide a rich database that is ideally 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 that they were working for pay or profit during the NSCG Survey reference week were classified as employed. The NSCG asked all employed respondents whether they *usually* worked more than 35 or less than 35 hours per week on the jobs they held during the week of October 1, 2003. The word *usually* excludes those persons who were working less than 35 hours during the week of October 1, 2003, only temporarily because of vacations, holidays, personal or family illnesses/problems, bad weather, and other temporary reasons. Respondents who reported that they *usually* worked less than 35 hours per week were asked a follow-up question about their desire for full-time work: "During the week of October 1, did you want to work a full-time work week of 35 or more hours?" Those who responded in the affirmative were classified as

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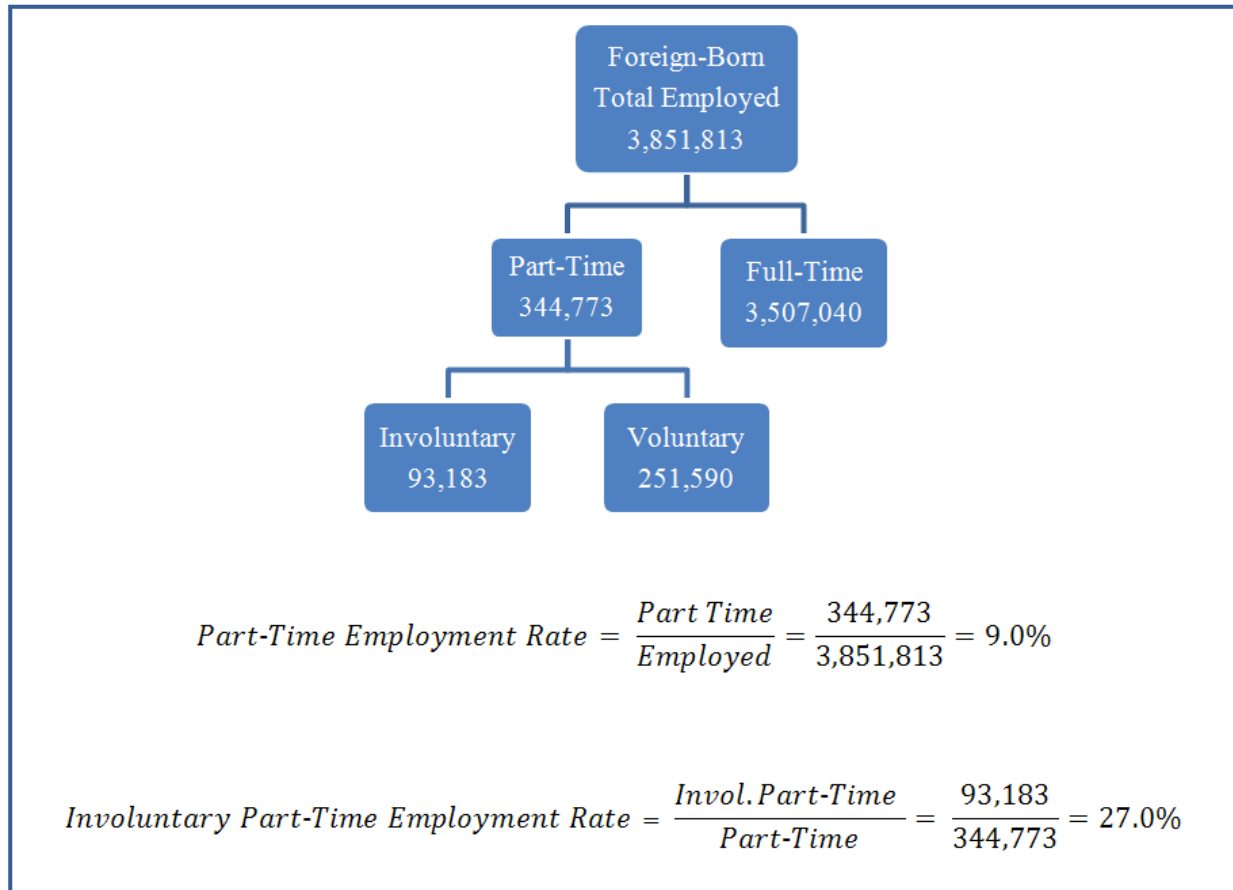
involuntarily part-time employed in this paper. The remaining part-time-employed workers were classified as those who chose to work in a part-time position—voluntarily part-time employed.

The NSCG also asks respondents the reason for their part-time employment status: “For which of the following reasons were you working less than 35 hours during the week of October 1?” Respondents were asked to mark any of the eight possible responses to this question. Two of the eight responses (on layoff from a job and suitable job not available) might represent involuntary part-time employment. However, upon comparing these two responses against the response to the question about wanting to work a full-time work week during the week of October 1, we found that a number of respondents who identified their reason for working part-time as “suitable job not available” or “on layoff from a job” responded “no” to the question of whether they wanted to work a full-time work week during the week of October 1. Even though these respondents stated reasons for part-time employment that did not appear voluntary, because they did not explicitly state a desire to have a full-time work week, they were excluded from our measure of involuntary part-time work. In order to be considered involuntary, part-time workers should reveal a clear preference for full-time employment (Cam, 2012; Stratton, 1996).

We have chosen a definition of involuntary part-time employment that is restricted to only those part-time workers who explicitly stated a desire for full-time work during the reference week of the NSCG. Putting such a restriction on the definition of involuntary part-time employment resulted in excluding from the measurement workers who did not express a desire for full-time employment even though they stated that they were working in part-time positions (involuntarily) because suitable jobs were not available or because they were on layoff. This exclusion resulted in a reduction of the share of involuntary part-time workers by nearly 5 percentage points among 25- to 64-year old part-time-employed immigrant college graduates, and by nearly 4 percent among their native-born counterparts.

The two measures utilized in this paper to measure the prevalence of part-time employment and involuntary part-time employment, are defined in Figure 1. *Part-time employment rate* is defined as the *proportion of employed workers* that usually worked less than 35 hours per week on the job that they held at the time of the 2003 NSCG. So, for example (from Figure 1), out of 3.85 million employed foreign-born college-educated immigrants, 344,773 were employed in part-time positions; therefore, the part-time employment rate among foreign-born college graduates was 9 percent ( $344,773 \div 3,851,813$ ). The *involuntary part-time employment rate* is defined as the *proportion of part-time-employed workers* who wanted to work a full-time work week during the 2003 NSCG reference week. For example (from Figure 1), 93,183 out of 344,773 foreign-born part-time-employed college graduates expressed a desire for a full-time work week during the week of October 1, 2003, yielding an involuntary part-time work rate of 27 percent ( $93,183 \div 344,773$ ).

**Figure 1: Concepts and Measures to Define Part-Time Employment and Involuntary Part-Time Employment**



The age of respondents included in the 2003 NSCG data ranges between 23 and 76 years. However, the analysis in this paper is restricted to individuals between 25 and 64 years of age. Because of the markedly lower labor force attachment of the elderly population associated with retirement income compared with the nonelderly, the elderly population (65 years and older) was excluded from analyses presented in this paper. At the lower end of the age spectrum, among part-time-employed college-graduate respondents to the NSCG, there was only one respondent aged 24 and none aged 23. So we have restricted the age at the lower end of the range to 25 years and older. The part-time employment rate is computed only among employed college-graduates, and the involuntary part-time employment rate is computed only among part-time-employed college graduates. Therefore, the analyses presented in this paper are restricted to two sets of household populations: 1) the population of 25- to 64-year-old college-graduate U.S. residents who were employed during the reference week of the 2003 NSCG—the week of October 1, 2003; and 2) the subset of the population in #1 that usually worked less than 35 hours in the jobs they held during the reference week.

### **A Comparison of Labor Market Outcomes of Involuntary Part-Time-Employed and Full-Time-Employed College Graduates**

Involuntary part-time employment imposes different kinds of costs on workers themselves, as well as on the economy. Involuntary part-time employment represents underutilized human capital in the form of



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lost output associated with diminished actual hours of labor supply relative to potential hours of supply that involuntarily part-time workers are willing to work at the prevailing wage rate. The consequence is diminished economic output for the nation. For the workers, involuntary part-time employment reduces their actual hours of work relative to their desire to work at the prevailing wage rate, which in turn reduces their total weekly earnings. Persons who are employed in part-time positions are likely to have lower family incomes and a higher incidence of poverty (Terry, 1981). Some researchers have claimed involuntary part-time employment to be an important stepping stone for people entering the labor market or an alternative to unemployment among those who lose their jobs, while others have considered it to be a dead end with a low probability of workers transitioning from involuntary part-time positions to full-time positions (Mansson & Ottosson, 2011; Buddelmeyer, Mourre, & Ward, 2005; Farber, 1999).

Trends in involuntary part-time employment are used to measure the strength of the labor market (U.S. Bureau of Labor Statistics, 2008). During recessionary times, the share of part-time workers who are involuntarily employed in part-time positions can be quite volatile. For example, during the Great Recession of 2008-09, the share of involuntary part-time workers among all part-time workers rose from 18 percent in 2007 to 23 percent in 2008 and 32 percent in 2009, peaked at 33 percent in 2010, and stood at 32 percent in 2011.<sup>2</sup> Each month, the Bureau of Labor Statistics produces estimates of involuntary part-time employment (or part-time employment for economic reasons) as one of six alternative measures of labor underutilization. These measures capture a more complete picture of the extent of underutilization of the productive potential of American workers than is captured by the official unemployment rate (Lee & Mowry, 2009).

Table 1 presents labor market costs of involuntary part-time employment among college graduates. We compared employment intensity and earning outcomes of involuntarily part-time-employed workers with those of workers who were employed in full-time positions during the 2003 NSCG reference week. We reviewed five labor market outcomes for college graduates, comparing the experiences of those who worked a full-time work week with those who worked a part-time work week but wanted to work a full-time work week. The comparisons are presented separately for all, native-born, and immigrant college graduates.

The impact of involuntary part-time employment on weekly hours of work is quite substantial. The mean weekly work hours of full-time workers were more than double those among involuntary part-time workers (46 hours versus 21 hours). College-educated workers in involuntary part-time jobs worked 25 fewer hours, or 54 percent, less per week than did their counterparts with full-time jobs. This gap was about equally large among native-born and foreign-born college graduates. In addition to diminished weekly hours of work, we found that workers who were involuntarily employed part-time (fewer than 35 hours per week) also worked fewer weeks per year compared with those who were in full time positions (35 or more hours per week), with the former working an average of 5 fewer weeks per year than the latter, representing 10 to 11 percent fewer annual weeks of work.

The combined result of fewer hours per week and fewer weeks per year is a large gap in annual hours of work between the two groups. On average, college graduates in involuntary part-time positions worked over 1,300 fewer hours annually compared with their counterparts employed in full-time positions.

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<sup>2</sup> U.S. Bureau of Labor Statistics, Labor Force Statistics from the Current Population Survey, retrieved from <http://data.bls.gov/pdq/SurveyOutputServlet>; computations of involuntary part-time employment rates by authors.

Annual weeks and hours gaps were about the same among native-born and foreign-born college graduates.

**Table 1: Differences in Labor Market Outcomes of Involuntarily Part-Time- and Full-Time-Employed College Graduates between the Ages of 25 and 64 Years, by Nativity Status, 2003**

| Economic Outcomes/Nativity Status | (A)<br>Full-Time<br>Employed | (B)<br>Involuntarily<br>Part-Time<br>Employed | (C)<br>Absolute<br>Difference<br>(B-A) | (D)<br>Relative<br>Difference<br>(C÷A) (%) |
|-----------------------------------|------------------------------|---|--|--|
| <b>Mean weekly hours:</b>         |                              |   |  |  |
| All 25-64 year olds               | 46                           | 21  | -25                                    | -54.3                                      |
| Native-born 25-64 year olds       | 46                           | 21  | -25                                    | -54.3                                      |
| Foreign-born, 25-64 year olds     | 45                           | 21  | -24                                    | -53.3                                      |
| <b>Mean annual weeks:</b>         |                              |   |  |  |
| All 25-64 year olds               | 50                           | 44  | -5                                     | -10.6                                      |
| Native-born 25-64 year olds       | 50                           | 44  | -5                                     | -10.9                                      |
| Foreign-born, 25-64 year olds     | 50                           | 45  | -5                                     | -9.6                                       |
| <b>Mean annual hours:</b>         |                              |   |  |  |
| All 25-64 year olds               | 2,282                        | 964   | -1,318                                 | -57.8                                      |
| Native-born 25-64 year olds       | 2,285                        | 964   | -1,320                                 | -57.8                                      |
| Foreign-born, 25-64 year olds     | 2,263                        | 962   | -1,301                                 | -57.5                                      |
| <b>Percent mal-employed:</b>      |                              |   |  |  |
| All 25-64 year olds               | 23%                          | 38%   | 15%                                    | 62.4                                       |
| Native-born 25-64 year olds       | 23%                          | 37%   | 14%                                    | 61.6                                       |
| Foreign-born, 25-64 year olds     | 25%                          | 41%   | 16%                                    | 62.2                                       |
| <b>Mean hourly earnings:</b>      |                              |   |  |  |
| All 25-64 year olds               | \$33.90                      | \$30.70                                       | -\$3.20                                | -9.4                                       |
| Native-born 25-64 year olds       | \$33.61                      | \$31.80                                       | -\$1.81                                | -5.4                                       |
| Foreign-born, 25-64 year olds     | \$35.90                      | \$25.72                                       | -\$10.18                               | -28.3                                      |
| <b>Mean annual earnings:</b>      |                              |   |  |  |
| All 25-64 year olds               | \$68,802                     | \$21,059                                      | -\$47,743                              | -69.4                                      |
| Native-born 25-64 year olds       | \$68,629                     | \$21,408                                      | -\$47,221                              | -68.8                                      |
| Foreign-born, 25-64 year olds     | \$70,017                     | \$19,474                                      | -\$50,543                              | -72.2                                      |

Involuntary part-time employment among college graduates not only is associated with lower employment intensity (weekly hours, annual weeks, and annual hours) but also is associated with weaker access to jobs in the college labor market. A large part of the earnings advantage of a college degree is linked to the ability of the college graduate in finding employment in college labor market occupations. College labor market jobs (typically, professional, technical, managerial, and high-level sales occupations) utilize the skills and knowledge that typically are acquired with a college education. College graduates who work in occupations outside the college labor market face a labor market problem that economists refer to as “overeducation” or “mal-employment.” Mal-employed college graduates earn only half as much as their counterparts employed in college labor market occupations (Fogg & Harrington,

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2011). The next paper in this series will examine in detail the concept of mal-employment and the prevalence of mal-employment problems among college-educated immigrants, and especially its prevalence on those with degrees from overseas colleges and universities. In this paper, we have utilized mal-employment to measure the difference in access to college labor market jobs among involuntarily part-time-employed college graduates and their counterparts working in full-time jobs.

Findings presented in Table 1 indicate higher rates of mal-employment among college graduates working in part-time jobs involuntarily compared with those working in full-time jobs. Involuntarily part-time-employed college graduates (all, native-, and foreign-born) were between 14 and 16 percentage points more likely to be mal-employed than were their counterparts with full-time jobs. The mal-employment rate of involuntarily part-time-employed college graduates was over 60 percent higher than that of full-time-employed college graduates.

Involuntary part-time employment among college graduates also is associated with lower hourly earnings. The hourly earnings of 25- to 64-year old college graduates with involuntary part-time jobs was \$3.20, or 9 percent, lower than that of full-time-employed college graduates (\$30.70 versus \$33.90). The hourly earnings gap was smaller among native-born college graduates and considerably larger among college-educated immigrants. The mean hourly earnings of native-born college graduates was \$33.61 among those with full-time jobs and \$31.80 among the involuntarily part-time employed, yielding a gap of \$1.81, or 5 percent. Among college-educated immigrants, the mean hourly earnings of those working part-time involuntarily was \$25.72—over \$10, or 28 percent, less than the mean hourly earnings of their counterparts with full-time jobs. The hourly earnings of college-educated immigrants who were employed involuntarily in part-time positions was \$25.72, or nearly \$5 lower than that of their native-born counterparts, whereas the hourly earnings of full-time-employed college-educated immigrants was \$35.90, or \$2.30 higher than that of their native-born counterparts.

The combined effect of fewer annual hours of work and lower hourly wages translate into a sizable gap between the mean annual earnings of involuntarily part-time- and full-time-employed college graduates. Among native-born college graduates, the mean annual earnings of those employed involuntarily in part-time positions was only \$21,400, a level that was \$47,200, or 69 percent, lower than the mean annual earnings of full-time-employed native-born college graduates (\$68,600). The earnings gap between these two groups of immigrant college graduates was \$50,500. Mean annual earnings was only \$19,400 among involuntarily part-time-employed immigrants, which was 72 percent lower than the \$70,000 mean annual earnings of full-time-employed college-educated immigrants.

Involuntary part-time employment among college graduates imposes steep labor market costs among native-born as well as foreign-born persons. Among the native born, compared with full-time-employed college graduates, those who were in part-time positions involuntarily worked 25 (or 54%) fewer hours per week, worked 5 (or 11%) fewer weeks per year, worked 1,320 (or 58%) fewer hours per year, had a 14 percentage point (or 62%) higher likelihood of mal-employment, earned \$1.80 (or 5%) less in hourly earnings, and earned \$47,200 (or 69%) less in annual earnings. Among immigrants, compared with full-time-employed college graduates, those who were in part-time positions involuntarily worked 24 (or 53%) fewer hours per week, worked 5 (or 10%) fewer weeks per year, worked 1,300 (or 58%) fewer hours per year, had a 16 percentage point (or 62%) higher likelihood of mal-employment, earned \$10 (or 28%) less in hourly earnings, and earned \$50,500 (or 72%) less in annual earnings. Underemployment or underutilization of college-educated immigrants in the form of involuntary part-time employment is expected to result in sizable employment and earnings losses.

## Involuntary Part-Time Employment among Native-Born and Foreign-Born College Graduates

As noted in the previous section, employment intensity and earnings of college graduates involuntarily employed in part-time positions were considerably lower than those of college graduates with full-time jobs. The hours and earnings losses from involuntary part-time employment were especially large among immigrant college graduates. In this section, we examine the prevalence of involuntary part-time employment among college graduates—all, native-born, and foreign-born. Since the involuntary part-time rate in this paper is measured as a percentage of part-time employed persons, we also present the share of all employed persons in each group who were working in part-time jobs (part-time employment rate).

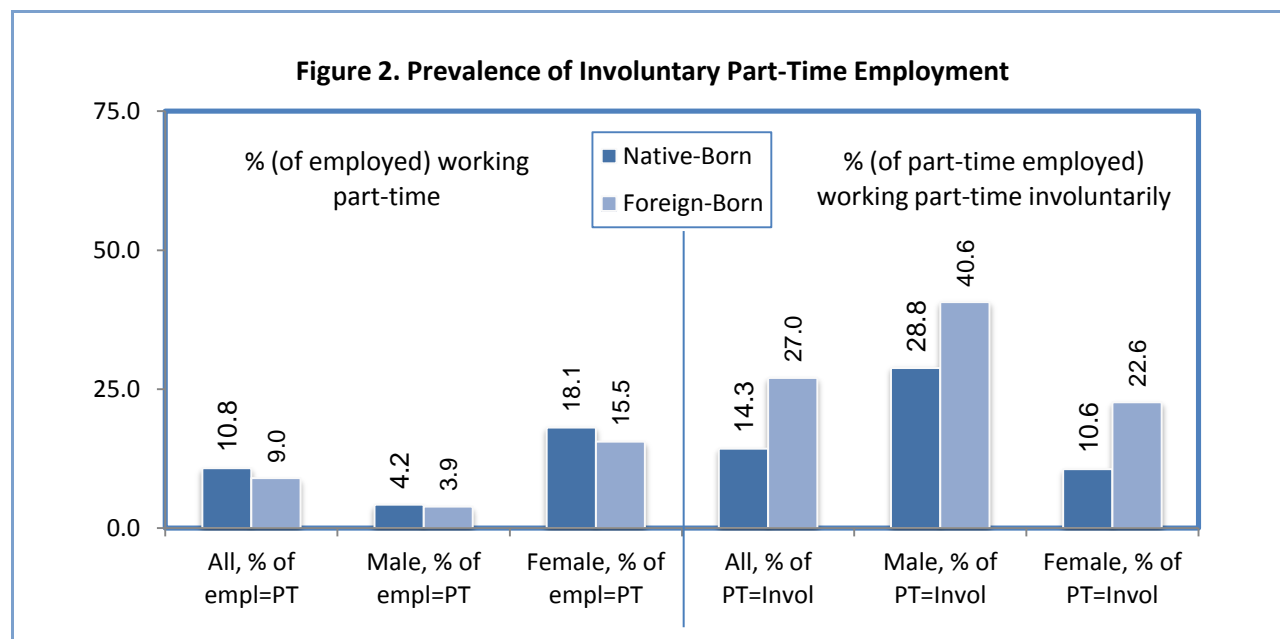
Of 31.441 million college graduates who were employed at the time of the NSCG reference date, 3.312 million, or 10.5 percent, were employed in part-time positions. The NSCG data reveal that 517,500, or nearly 16 percent of all part-time-employed college graduates, were working part-time involuntarily and had a desire to work in full-time jobs. The share of part-time employment was considerably lower among male than among female college graduates, 4 percent versus 18 percent, revealing a strong preference for full-time employment among males (Table 2). This strong preference for full-time employment among men is also evident among men who were employed in part-time positions; over 30 percent of part-time-employed males were involuntary part-time workers with a desire for full-time work. In contrast, only 12 percent of part-time employed college-educated women were involuntarily working in part-time positions. A comparison of the share of part-time employment among native-born and foreign-born men and women reveals similar patterns with a much smaller share of men than women employed in part-time positions. Only 4 percent of men in both groups were employed in part-time positions. Part-time employment was about four times higher among women—18 percent among native-born college-educated women and 15.5 percent among their foreign-born counterparts.

**Table 2: Part-Time and Involuntary Part-Time Employment Among 25- to 64-Year-Old Foreign-Born and Native-Born College Graduates, by Gender, U.S., 2003**

| Nativity and Gender        | Total Employed | Number Working Part-Time | Percent (of Total Employed) Working Part-Time | Number Working Part-Time | Number Working Part-Time Involuntarily | Percent (of Part-Time Employed) Working Part-Time Involuntarily |
|----------------------------|----------------|--------------------------|---|--------------------------|--|---|
| <b>All, 25-64</b>          | 31,441,061     | 3,312,092                | 10.5  | 3,312,092                | 517,522                                | 15.6  |
| Male                       | 16,692,460     | 689,575                  | 4.1   | 689,575                  | 208,609                                | 30.3  |
| Female                     | 14,748,601     | 2,622,517                | 17.8  | 2,622,517                | 308,913                                | 11.8  |
| <b>Native-born, 25-64</b>  | 27,589,248     | 2,967,319                | 10.8  | 2,967,319                | 424,339                                | 14.3  |
| Male                       | 14,519,424     | 605,685                  | 4.2   | 605,685                  | 174,511                                | 28.8  |
| Female                     | 13,069,824     | 2,361,634                | 18.1  | 2,361,634                | 249,828                                | 10.6  |
| <b>Foreign-born, 25-64</b> | 3,851,813      | 344,773                  | 9.0   | 344,773                  | 93,183                                 | 27.0  |
| Male                       | 2,173,036      | 83,890                   | 3.9   | 83,890                   | 34,098                                 | 40.6  |
| Female                     | 1,678,777      | 260,883                  | 15.5  | 260,883                  | 59,085                                 | 22.6  |

There were, however, large differences between native-born and foreign-born college graduates in the prevalence of involuntary part-time employment (Figure 2). The proportion of part-time workers who desire to work full-time (working part-time involuntarily) was 14 percent among all native-born and 27

percent among all foreign-born college graduates; 28 percent among native-born men and 41 percent among foreign-born men; and 11 percent among native-born women and 23 percent among foreign-born women. While the prevalence of part-time employment was very similar among native-born and foreign-born college graduates; the share of involuntary part-time employment was nearly twice as high among immigrants—27 percent among foreign-born versus 14 percent among native-born; 40 percent among foreign-born males versus 29 percent among native-born males; and 23 percent among foreign-born females versus 11 percent among native-born females.



## Part-Time and Involuntary Part-Time Employment among Immigrant College Graduates: A Descriptive Analysis

The remainder of this paper will focus on foreign-born college graduates. In this section, we present findings from our examination of the prevalence of part-time and involuntary part-time employment among immigrants by their demographic characteristics, school enrollment activities at the time of the 2003 NSCG, human capital characteristics, immigration-related characteristics, and region of residence in the United States. Demographic characteristics include gender (already presented in the section above), age, marital status, presence of young children, and disability status. Human capital characteristics presented in this section include level of college degree, major field of study of most recent college degree, English-speaking proficiency, and country or region in which immigrant college graduates earned their most recent college degrees. Immigration-related characteristics in this analysis are presented by the year of entry and type of entry visa into the United States.

Since involuntary part-time employment is a labor market problem, it is likely to be related to local labor market conditions of the workers. The NSCG public use data file does not have a large enough sample size to provide fine geographic details about place of residence of respondents while protecting respondent confidentiality. Consequently, the NSCG data file restricts geographic coding of responses to broader geographic areas—four regions of the country—and, thus, we are limited to this level of geographic detail to reflect variations in labor market conditions across different regions of the nation.

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We also examined data on involuntary part-time employment in the context of school enrollment activities of individuals. College graduates engaged in school activities, particularly those who were enrolled in school on a full-time basis, were less likely to be full-time employed and or have a desire for full-time employment. Consequently, we expect part-time employment among those enrolled in a full-time school program to be largely voluntary, thereby resulting in lower rates of involuntary part-time employment. Furthermore, even though measurement of part-time and involuntary part-time employment is restricted to those who were employed at the time of the NSCG, an immigrant who is enrolled in school on a full-time basis might be legally restricted in the amount of labor market work he/she can perform, which would likely result in higher rates of part-time and *voluntary* part-time (and lower shares of *involuntary* part-time) employment among this group.

### Age

Age may have an effect on the need or desire for full-time employment, particularly among women, as they might be more likely to choose part-time work during their childrearing years, when they typically devote more time to home activities and family life (Walsh, 2007). Involuntary part-time work among men might be expected to follow their desire for full-time work over their life cycle, which likely increases in their prime working years (when desire for part-time work might be expected to decrease) and declines as they approach retirement (when the desire for part-time work might be expected to rise). Furthermore, among young individuals, the higher their level of educational attainment, the more likely they are to be enrolled in school. (Leppel & Clain, 1993). Thus, young college-educated immigrants would be more likely to be enrolled in school with less time left over for the labor market, thus increasing their likelihood of voluntarily working in part-time jobs and reducing their likelihood of being employed part-time involuntarily.

Our examination of trends in part-time and involuntary part-time employment among college-educated immigrant males by age does not identify any type of systematic pattern related to involuntary part-time employment (Table 3). The share of college-graduate males employed part-time is quite low across all age groups, although both younger and older men were slightly more likely to hold part-time jobs than were those in the middle age categories, but no clear trend in the incidence of involuntary part-time employment among males can be identified by age. The share of employed male immigrants who held part-time jobs was nearly 5 percent of 25- to 34-year olds, declined to 2.9 percent among 45- to 54-year olds, and rose back to 5.1 percent in the preretirement age group. The share of male immigrants who involuntarily held part-time jobs doubled from 24 percent among the relatively younger men between the ages of 25 and 34 to one-half among 35- to 44-year olds and 44 percent among 45- to 64-year olds.

As was the case for all women, the data reveal that part-time employment among immigrant women exceeded that of men across all age groups, whereas the share of college-graduate immigrant women who worked involuntarily in part-time employment was lower than that of immigrant men. Involuntary part-time employment rates among college-educated immigrant women increased with age from just 17 percent among the youngest women to 22 percent and 27 percent among women in the next two age groups (35-44 and 45-54, respectively) and then down again to 24 percent among women in the preretirement age group. Among all immigrants, involuntary part-time employment increased from just 19 percent among those between the ages of 25 and 34, to 28 percent and then 31 percent among immigrants in the next two age groups, respectively, and remained at 31 percent among those in the preretirement ages of 55 to 64 years.



**Table 3: Part-Time Employment and Involuntary Part-Time Employment among 25- to 64-Year-Old Foreign-Born College Graduates, by Age, U.S., 2003**

| Age        | Percent of Males Employed in Part-Time Jobs | Percent of Males Part-Time Employed Involuntarily | Percent of Females Employed in Part-Time Jobs | Percent of Females Part-Time Employed Involuntarily | Percent of All Employed in Part-Time Jobs | Percent of All Part-Time Employed Involuntarily |
|------------|---|---|---|---|---|---|
| All, 25-64 | 3.9   | 40.6  | 15.5  | 22.6  | 9.0                                       | 27.0  |
| 25-34      | 4.9   | 23.8  | 14.4  | 16.6  | 9.3                                       | 18.6  |
| 35-44      | 3.5   | 50.0  | 17.3  | 22.4  | 9.4                                       | 28.3  |
| 45-54      | 2.9   | 44.1  | 15.5  | 27.4  | 8.4                                       | 30.7  |
| 55-64      | 5.1   | 43.8  | 13.0  | 23.5  | 8.3                                       | 30.9  |

### Marital Status and Presence of Children

Labor market outcomes vary systematically with marital status of workers and the presence of children, especially young children. In a previous paper in this series on labor force participation (*Findings from an Examination of the Labor Force Participation of College-Educated Immigrants in the United States*), we found that labor force participation was higher among married men and men with children compared with unmarried men and men without children. In contrast, marriage and the presence of children had the opposite effect on labor force participation among women—college-educated immigrant women who were married were less likely to participate in the labor force than were women who were not married. Women with children were considerably less likely to participate in the labor market than were women without children.

Our examination of unemployment rates by marital status and presence of young children (*Unemployment Problems among College-Educated Immigrants in the United States*) found that immigrant males who were married and those with children, especially those with young preschool-aged children, were less likely to be unemployed than were their counterparts who were not married and had no children. Among college-educated immigrant women, we found that while the likelihood of unemployment was very similar among married and unmarried women, the unemployment rate of women was much higher among those with the youngest children compared with those with older children or those with no children.

In the case of involuntary part-time employment, groups with a higher desire for full-time jobs are more likely to face this labor market problem if they face barriers to finding full-time employment. One measure of the desire for full-time employment among groups of college graduates is the share of employed persons with full-time jobs. If a group, such as male college graduates, has a high share of full-time employment, it is likely that there is not a lot of voluntary part-time employment in this group and, therefore, even though they may have a low rate of part-time employment, most of their part-time employment is likely to be involuntary.

Findings presented in Table 4 reveal that although part-time employment was very low among all male college-educated immigrants, compared with their married counterparts, unmarried men were more likely to be employed in part-time jobs (6.7% versus 3.3%). The share of involuntary part-time employment among the small shares of part-time-employed immigrant men was slightly under 39 percent among unmarried men and a little over 41 percent among married men. Men with children, especially young (preschool-aged) children, in the household had very low levels of part-time employment (2.6% and

2.8%, respectively) while those with no children had a higher rate of part-time-employment (nearly 6%). Among these small shares of part-time-employed men, involuntary part-time employment was much more prevalent among men with children, particularly among those with young children. Men with young children cannot afford to spend a lot of time looking for better jobs, as they may face pressure to generate income for the family. Therefore, men with young children are more likely to either work full-time or part-time involuntarily (Leppel & Clain, 1993). Over 46 percent of the part-time employment among immigrant men with preschool-aged children was involuntary, compared with 43 percent among those with older children and 38 percent among men with no children in the household. Part of the difference in the higher rates of part-time employment and lower rates of involuntary part-time employment among immigrant men who were unmarried and had no children might be associated with their age. The discussion in the previous section found higher rates of part-time employment among young men (likely due to school enrollment and not having fully established their labor market careers) and a lower rate of involuntary part-time employment among younger men than among middle-aged men (who are more likely to be married and have young children in the household).

**Table 4: Part-Time and Involuntary Part-Time Employment among 25- to 64-Year-Old Foreign-Born College Graduates, by Marital Status and Presence of Children,\* U.S., 2003**

| Marital Status and Presence of Children in Household | Percent of Males Employed in Part-Time Jobs | Percent of Males Part-Time Employed Involuntarily | Percent of Females Employed in Part-Time Jobs | Percent of Females Part-Time Employed Involuntarily | Percent of All Employed in Part-Time Jobs | Percent of Part-Time All Employed Involuntarily |
|--|---|---|---|---|---|---|
| <b>Marital status:</b>                               |   |   |   |   |   |   |
| Not married  | 6.7   | 38.7  | 9.1   | 37.1  | 8.0                                       | 37.7  |
| Married  | 3.3   | 41.4  | 17.5  | 20.4  | 9.2                                       | 24.8  |
| <b>Presence of children:</b>                         |   |   |   |   |   |   |
| With children under 6                                | 2.6   | 46.3  | 20.2  | 12.5  | 9.4                                       | 18.4  |
| With children 6-18                                   | 2.8   | 43.2  | 20.1  | 28.0  | 10.3                                      | 30.3  |
| With no children                                     | 5.9   | 38.4  | 10.7  | 24.4  | 8.1                                       | 30.0  |

\* In this paper, we have defined immigrants with children as those immigrants who had children living with them in the United States.

The relationship between marriage and rate of part-time employment and rate of involuntary part-time employment among immigrant women is the opposite of that seen among males. Unsurprisingly, part-time employment was much higher among married women than among women who were not married at the time of the NSCG (17.5% versus 9.1%). Part-time employment was twice as high among immigrant women with children than among those without children (20% versus 10%).

In the first paper in this series, *The Earnings of Foreign-Educated College Graduates*, we described the basis of labor supply decisions among women and reasons for lower levels of labor market participation and labor supply among married women and women with children, especially young 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, 1964). 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/or children create more demands for home production, which in turn cause a resulting decline in female labor market participation (Triest, 1990) and a decline in the hours of labor supply and a



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preference for part-time work among married women and women with young children. Therefore, marriage and the presence of children are likely to suppress female labor supply in the form of lower rates of labor force participation and a lower intensity (hours of work) of labor supply among those who are employed.

The higher prevalence and, therefore, stronger preference for part-time employment among married women and women with children also is reflected in lower rates of involuntary part-time employment. One-fifth of part-time-employed college-educated immigrant women who were married stated that they would prefer full-time positions and were, therefore, working in their part-time positions involuntarily, compared with 37 percent of their counterparts who were not married at the time of the NSCG. Among part-time-employed immigrant women with preschool-aged children, only 13 percent were working in their part-time jobs involuntarily, compared with 24 to 28 percent among their counterparts with older children or with no children, respectively.

The considerably lower rates of part-time work among female college-educated immigrants who were unmarried and had no children compared with those of married women and women with children means that part-time employment among women is connected to their life circumstances and so is expected to change over their working lives as they take on different roles within the household. It appears that part-time work is used by women as a temporary alternative that offers a better work-life balance during certain stages of their lives (Caputo & Cianni, 2001; Blank, 1994). The preference for part-time employment among women who are married and who have children is also evident in the lower rates of involuntary part-time employment among these groups compared with the considerably higher rates of involuntary part-time employment among their unmarried and childless counterparts who also are more likely to be employed in full-time jobs—revealing their preference for full-time work.

### **School Enrollment and Disability Status**

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 and are more likely to work in part-time positions. The labor supply decision (labor market participation and hours of work) is based on how individuals choose to allocate the finite amount of time available during, say, a week. Among those who are enrolled in school, some of that finite amount of time is devoted to school activities and simply is 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 supply of these individuals.

Our analysis of the NSCG data reveals that among college-educated immigrants, the share of all employed working part-time was much higher among those who were enrolled in school compared with those who were not enrolled. At the time of the 2003 NSCG, nearly 16 percent of immigrant men who were enrolled in school were employed in part-time positions, compared with just under 3 percent among their counterparts not enrolled in school (Table 5). Nearly one half of the nonenrolled part-time-employed immigrant men were working part-time involuntarily, compared with 23 percent among their school-enrolled counterparts. The high rate of involuntary part-time employment combined with the high rate of full-time employment reveals a strong preference for full-time employment among out-of-school college-educated immigrant men. Similarly, the relatively lower rate of involuntary part-time employment and relatively higher rate of part-time employment among school-enrolled immigrant men suggests that their preference for part-time employment may stem from time constraints placed on them as they fulfill their school responsibilities and work restrictions imposed by their visa status. Immigrants enrolled in school

may be on student visas that limit the number of hours they can work as well as the locations where they can work (e.g., only on-campus jobs).

The differences in part-time and involuntary part-time employment among female college-educated immigrants followed a similar pattern to those of men with respect to school enrollment. Nearly one-quarter of employed female immigrants who were enrolled in school held part-time jobs, compared with 15 percent among foreign-born women who were not enrolled in school at the time of the NSCG. Involuntary part-time employment was nearly twice as high among nonenrolled women, compared with those who were enrolled in school at the time of the NSCG (24% versus 12%). Among all college-educated immigrants who were enrolled in school, nearly one-fifth were employed in part-time jobs, and among these part-time workers, nearly 17 percent reported wanting full-time jobs and were employed part-time involuntarily. In contrast, only 8 percent of all immigrant college graduates not enrolled in school held part-time jobs, and 29 percent of this part-time employment among immigrant college-educated workers was involuntary.

Having a disability has a strong negative impact on an individual's labor market outcomes. Research studies have consistently found sizable differences between labor market outcomes of 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; and when they are employed, they are more likely to earn lower wages (Fogg, Harrington, & McMahon, 2010; 2011).

**Table 5: Part-Time and Involuntary Part-Time Employment among 25- to 64-Year-Old Foreign-Born College Graduates, by School Enrollment and Disability Status, U.S., 2003**

| School Enrollment/Disability Status | Percent of Males Employed in Part-Time Jobs | Percent of Males Part-Time Employed Involuntarily | Percent of Females Employed in Part-Time Jobs | Percent of Females Part-Time Employed Involuntarily | Percent of All Employed in Part-Time Jobs | Percent of All Part-Time Employed Involuntarily |
|-------------------------------------|---|---|---|---|---|---|
| <b>School enrollment status:</b>    |   |   |   |   |   |   |
| Enrolled                            | 15.6  | 23.4  | 23.6  | 12.6  | 19.6                                      | 16.8  |
| Not enrolled                        | 2.9   | 48.1  | 14.7  | 24.4  | 8.0                                       | 29.4  |
| <b>Disability status:</b>           |   |   |   |   |   |   |
| With disabilities                   | 8.6   | 42.8  | 15.1  | 25.0  | 11.9                                      | 31.5  |
| Without disabilities                | 3.7   | 40.4  | 15.6  | 22.5  | 8.8                                       | 26.7  |

The 2003 NSCG disability measure is somewhat different than that adopted by the Census Bureau in both the American Community Survey and the Current Population Survey. The NSCG measure includes as disabled those who report limitation in one of the following four activities: 1) seeing words or letters in ordinary newsprint (with glasses/contact lenses if the respondent usually wears them); 2) hearing what is normally said in conversation with another person (with hearing aid if the respondent usually wears it); 3) walking or using stairs without human or mechanical assistance ; and 4) lifting or carrying something as heavy as 10 pounds, such as a bag of groceries (U.S. Department of Commerce, Economic and Statistics Administration, U.S. Census Bureau, for National Science Foundation, 2003). The NSCG does not include measures of cognitive or emotional limitations in its definition of disabilities. However, unlike the standard census measure, NSCG respondents were asked to rate the difficulty they had with the four activities (seeing, hearing, walking, and lifting) on a five-point scale: none, slight, moderate, severe,

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unable to do. We defined an individual as having a disability if he/she reported having moderate to severe difficulty with any of the four functional areas.

Among employed, college-educated immigrant men with disabilities, the share who worked in part-time jobs was nearly 9 percent, compared with less than 4 percent of their counterparts without disabilities. This means that at the time of the NSCG, over 91 percent of employed male immigrant college graduates with disabilities were employed in full-time positions, compared with 96 percent of those without disabilities. Since the NSCG disability measure only measures physical and sensory disabilities and not cognitive disabilities, it is likely that the existence of a physical disability among college graduates who had already secured employment did not hamper their access to full-time employment. In earlier papers, we found large gaps in labor force participation and unemployment rates between college-educated immigrants with and without disabilities. However, once they become employed, physical disabilities of these same college-educated immigrants appear to only modestly impede their access to full-time jobs. Among immigrant men who were employed in part-time positions, involuntary part-time employment represented 43 percent of those with disabilities and 40 percent among those without disabilities. Although both groups of men had a high rate of involuntary part-time employment, the size of the difference in this labor market underutilization problem between immigrant men with and without disabilities was not large.

Among college-educated immigrant women, there was almost no difference in the rate of part-time employment and a very small difference in involuntary part-time employment between women with and without disabilities. A little over 15 percent of both groups of women (with and without disabilities) were employed in part-time positions. Involuntary part-time employment represented one-quarter of part-time-employed women with disabilities and 22.5 percent of their counterparts without disabilities.

### **Level of College Education**

The labor market experiences of individuals with higher levels of education are generally better than those for individuals with lower levels of education. The analysis in this paper is focused only on college graduates, but even within the group of college graduates, those with higher levels of human capital—higher-level degrees—are expected to have better labor market outcomes. We analyzed the level of part-time and involuntary part-time employment among immigrant college graduates by level of college degree they had earned—bachelor’s, master’s, doctorate (PhD, DSc, EdD, etc.) or professional degrees (JD, MD, DDS, etc.). Findings are presented for male, female, and all college-educated immigrants in Table 6.

Although our previous papers on three labor market outcomes—earnings, labor force participation, and unemployment rates—found a sizable effect of the level of college degree on these outcomes, there appears to be little systematic association between the level of college degree of college-educated immigrants and the prevalence of part-time employment and involuntary part-time employment among them. The level of college education appears to affect the likelihood of finding employment, but once employed, the level of college education has little impact on access to full-time jobs or the prevalence of involuntary part-time employment. Among college-educated male immigrants, the part-time employment rate varied across different degree levels from 3.9 percent among those with bachelor’s degrees to 4.5 percent among master’s degree holders, and 2.2 percent and 3.3 percent, respectively, among immigrant men with doctorate or professional degrees. The variations in involuntary part-time employment also did not show systematic relationships with the level of college degree. Unsurprisingly, a large share of

immigrant men who worked part-time wanted access to full-time jobs. Nearly 44 percent of part-time-employed male immigrants with bachelor's degrees worked in part-time jobs involuntarily, compared with 36 percent among those with master's degrees, 57 percent among those with doctorates, and 26 percent among those with professional degrees. Immigrants with master's degrees may be in the midst of working toward their doctorate degrees and voluntarily working part-time as teaching or research assistants.

**Table 6: Part-Time and Involuntary Part-Time Employment among 25- to 64-Year-Old Foreign-Born College Graduates, by Educational Attainment, U.S., 2003**

| Level of College Degree | Percent of Males Employed in Part-Time Jobs | Percent of Males Part-Time Employed Involuntarily | Percent of Females Employed in Part-Time Jobs | Percent of Females Part-Time Employed Involuntarily | Percent of All Employed in Part-Time Jobs | Percent of All Part-Time Employed Involuntarily |
|-------------------------|---|---|---|---|---|---|
| Bachelor's              | 3.9   | 43.5  | 16.5  | 22.3  | 9.9                                       | 26.7  |
| Master's                | 4.5   | 36.4  | 14.2  | 23.6  | 8.5                                       | 27.7  |
| Doctorate               | 2.2   | 57.4  | 11.7  | 18.4  | 4.9                                       | 31.1  |
| Professional            | 3.3   | 25.7  | 15.2  | 24.6  | 8.3                                       | 24.8  |

The part-time employment rate of college-educated immigrant women declined somewhat across educational groups, falling from 16.5 percent at the bachelors' degree level to 14.2 percent at the master's level to just 11.7 percent among employed women with doctoral degrees. Somewhat surprisingly, women with professional degrees were somewhat more likely to work in part-time positions relative to their counterparts with other advanced degrees. The incidence of involuntary part-time employment was about the same for immigrant women with bachelor's, master's, and professional degrees, ranging from 22 to 24 percent of all workers stuck in part-time jobs but with a desire to work full-time. However, we found that women with doctoral degrees not only were less likely to work part-time, but when they did, they were less likely to work involuntarily in these positions.

Regression analyses presented in the second half of this paper may provide further insights into any independent effects (after statistically controlling for the effects of other variables known to influence labor market outcomes) of the level of college education on the likelihood of involuntary part-time employment among college-educated immigrants.

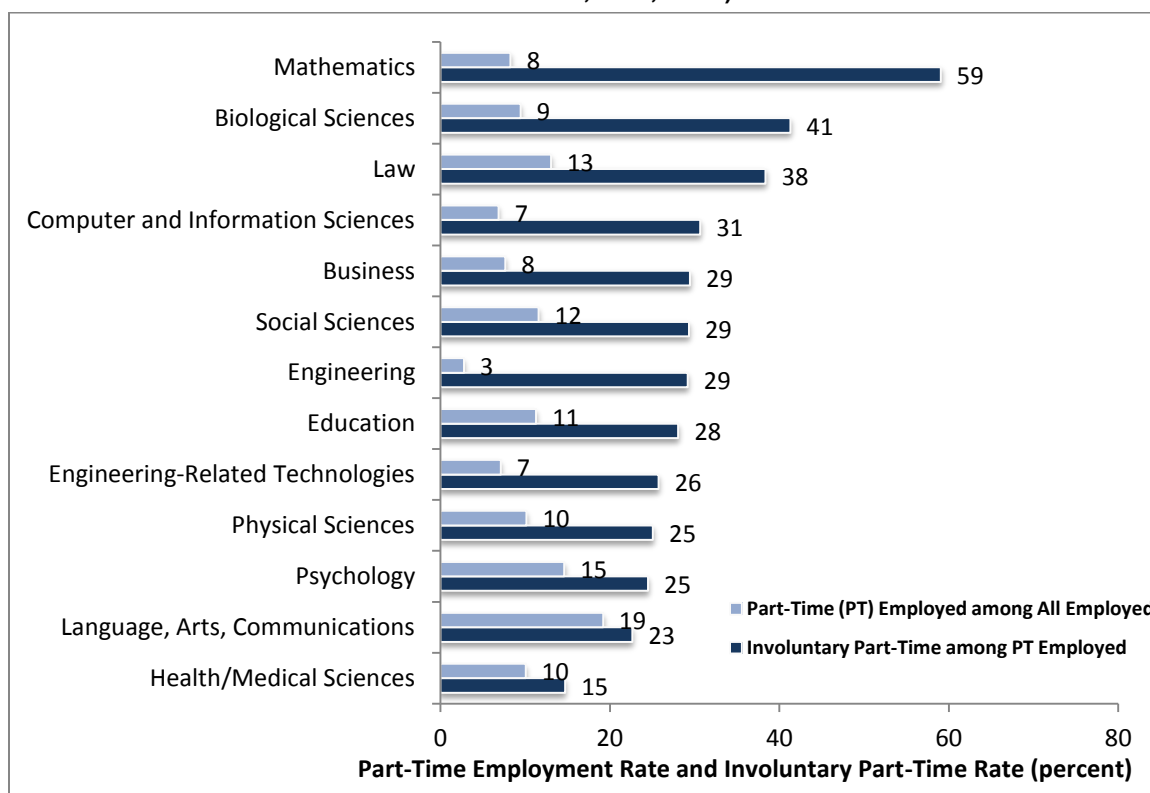
### Major Field of Study

Labor market outcomes of college graduates in the American economy vary widely by major field of study (Fogg, Harrington, & Harrington, 2004). The college major often can serve as a measure of the specific set of knowledge skills and abilities that the college graduate acquired in college. A considerable body of evidence suggests that some skill sets have a higher labor market demand relative to supply than do other skills. Indeed, the job market gains from a college degree appear to be closely associated with the field of study.

At the time of the 2003 NSCG, the part-time employment rate of immigrant college graduates varied from a low of just 3 percent among those who earned college degrees in engineering to a high of 19 percent among language, arts, and communications majors (Figure 3). Between these two extremes, part-time employment varied at the lower end between 7 and 9 percent among computer and information sciences, engineering-related technologies, mathematics, business, and biological science majors. College-educated

immigrants with degrees in physical sciences, health and medical sciences, education, social sciences, law, and psychology had double-digit part-time employment rates ranging from 10 to 15 percent. As noted in previous section, the prevalence of part-time employment differs by gender and within gender by marital status and the presence of children, especially young children, in the household of the immigrant. Differences in the prevalence of part-time employment by major field of study might therefore be attributable to better access to full-time employment among college graduates from certain major fields as well as to differences in gender composition of graduates within major fields of study.

**Figure 3: Part-Time and Involuntary Part-Time Employment Rates among Part-Time-Employed Immigrants by Major Field of Study of Most Recent College Degree (25- to 64-Year-Old Immigrant College Graduates, U.S., 2003)**



The rates of involuntary part-time employment among immigrant college graduates varied widely by major field of study. At the very top were mathematics majors, among whom part-time employment stood at a low of 8 percent, but within this group of part-time-employed college graduates with math degrees, nearly 6 out of 10 reported wanting full-time jobs (employed in part-time positions involuntarily). The prevalence of involuntary part-time employment was also high among college-graduate immigrants with degrees in biological sciences (41%) and law (38%). At the lower end, college graduates who had majored in health and medical science, humanities, psychology, and physical sciences had somewhat higher part-time employment rates that might be indicative of somewhat higher voluntary part-time employment and, conversely, lower involuntary part-time employment. Indeed, immigrant college graduates with degrees from these four major fields of study had involuntary part-time employment rates of 15 to 25 percent.

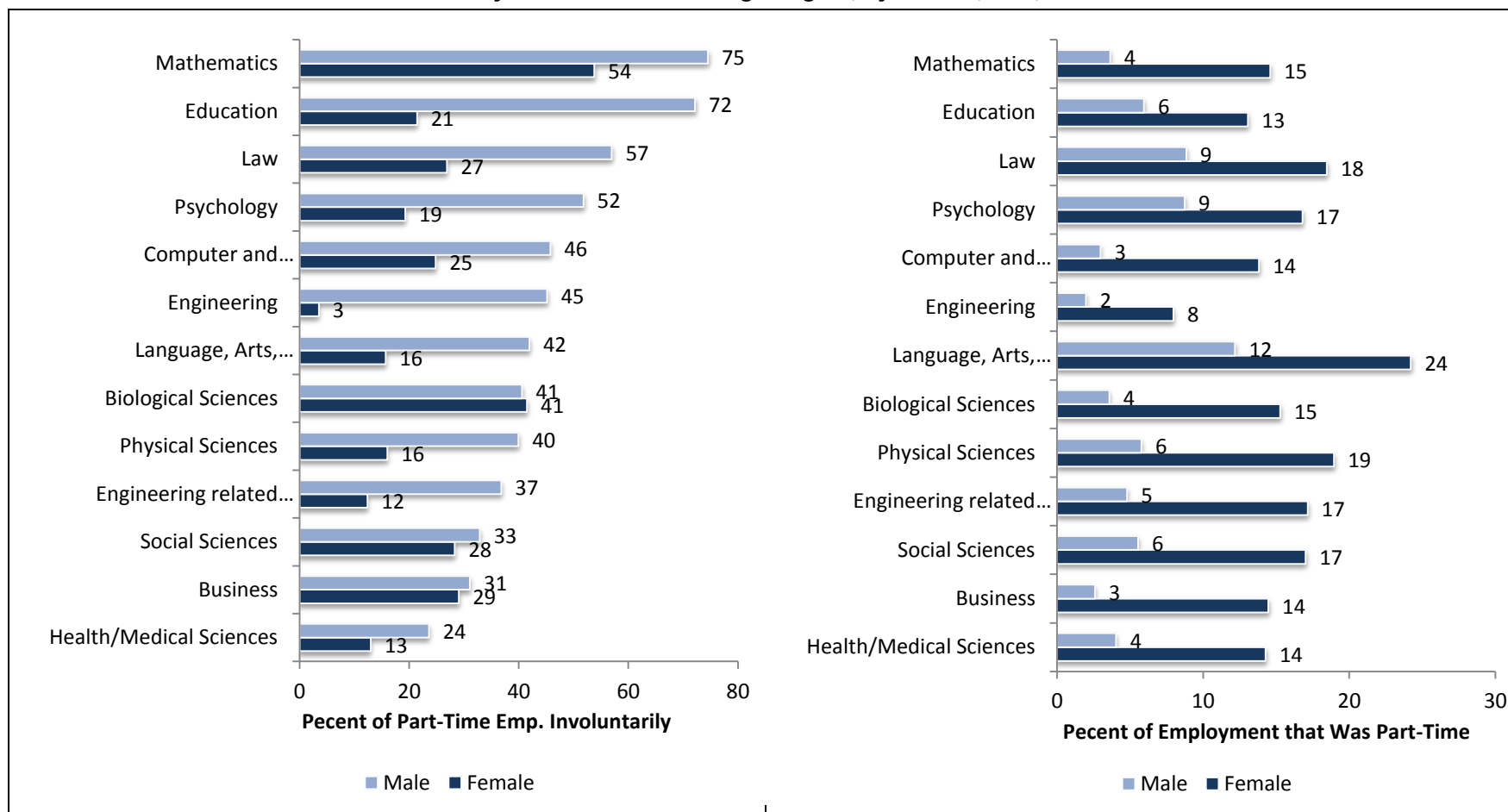
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The prevalence of involuntary part-time employment varied widely by major field of study among male as well as female college-educated immigrants. The left panel of Figure 4 presents the share of male and female college-educated immigrant part-time workers in each major field of study who were working part-time involuntarily (wanted full-time jobs). The right panel of Figure 4 contains the share of all workers with degrees in the same major fields of study (presented in the same order) who were employed in part-time positions. The data on the right side reveal large gender differences in the incidence of part-time employment in each major field of study. For example, 1 in 4 employed women with degrees in language, arts, and humanities worked in part-time jobs, but just 12 percent of men with degrees in this field were part-time workers. At the other end of the part-time employment distribution are engineering majors. Just 2 percent of employed male engineering degree holders worked part-time, while 8 percent of their female counterparts held part-time positions.

Among male immigrants who worked in part-time jobs, the rate of involuntary part-time employment was especially high among math and education majors, at 75 and 72 percent, respectively. Nearly 60 percent of part-time-employed male law majors and over half of psychology majors were employed in part-time jobs but wanted full-time positions. At the lower end, one-quarter, 29 percent, and one-third, respectively, of part-time-employed male immigrants with degrees from health and medical sciences, business, and social sciences were involuntarily working in their part-time positions and expressed a clear preference for full-time jobs.

Involuntary part-time employment among part-time-employed female immigrants was sharply lower than that of males in each major field of study except among those who had college degrees in biological sciences, among whom the incidence of involuntary part-time employment was the same as for their male counterparts (41%). Female immigrant college graduates with mathematics degrees had the highest rate of involuntary part-time employment (54%), followed by biological science majors (41%). Female immigrants with degrees from other science fields—social sciences and computer and information sciences—as well as those who had majored in business and law had involuntary part-time employment rates in the mid- to upper 20s. Involuntary part-time employment rates of men and women with degrees in engineering were widely different—3 percent among women and 45 percent among men. A look across to the right panel of Figure 4 reveals that although the part-time employment rate of female immigrants was much higher than that of their male counterparts (8% versus 2%), it also indicates that female engineering majors had the lowest rate of part-time employment compared with female immigrants from each of the remaining 12 major fields of study. Immigrant women with engineering degrees who had jobs at the time of the 2003 NSCG were mostly employed in full-time jobs, and among those who were working in part-time jobs, only 3 percent did so involuntarily.

**Figure 4. Part-Time and Involuntary Part-Time Employment Rates among 25- to 64-Year Old Immigrant College Graduates by Major Field of Study of Most Recent College Degree, by Gender, U.S., 2003**





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## Country or Region of College Degree

Our earlier paper that examined hourly wages found that the country in which an immigrant earned a college degree influences the degree of transferability of the education and skills acquired prior to immigration to the United States. The portability of human capital (education and skills) that is acquired abroad determines the labor market pathways of immigrants in the United States. According to the immigrant assimilation model (Akresh, 2008), the imperfect portability of human capital acquired in different countries to the labor market in the United States (or any destination country) means that immigrants typically experience an initial downward trend in their labor market outcomes. However, after spending some time in the United States, their labor market outcomes and overall socioeconomic position tends to improve as they accumulate U.S.-specific experiences and skills (such as language fluency, social and job contacts, and familiarity with business cultures and practices) that are necessary to succeed in the U.S. labor market (Akresh, 2008; Batalova, Fix, & Creticos, 2008; Chiswick, 1978).

Immigrants therefore typically experience a U-shaped trajectory in their labor market outcomes, with the depth of the U's trough determined by the degree of transferability of skills, education, and experience acquired prior to immigration (Chiswick, Lee, & Miller 2005; Duleep & Regets, 1999). Chiswick and Miller (2009) have stated that some immigrants' human capital has greater international transferability than that of others. For example, individuals from countries that are linguistically, socially, and economically more similar to the United States are likely to assimilate quicker into the U.S. labor force and to experience less labor market downgrading than their peers with more dissimilar origins. Among immigrants who don't have U.S. schooling, labor market outcomes are expected to be better for immigrants with schooling from highly developed countries and where English is an official language (Bratsberg & Ragan, 2002).

In the earlier sections of this paper, we noted that although groups of immigrants with certain demographic and human capital characteristics face difficulties in entering the labor market (low labor force participation rates) and in finding employment (high unemployment rates), our analysis of involuntary part-time employment among the same demographic and human capital subgroups of immigrants (who had already secured employment at the time of the NSCG ) found weaker relationships between these traits of immigrants and the prevalence of involuntary part-time employment.

In this section, we present findings from our examination of the association between involuntary part-time employment among part-time-employed immigrant college graduates and the country in which they earned their most recent college degrees—again, based on findings of the NSCG. About 9 percent of employed immigrants with college degrees from abroad were working in part-time positions, representing a rate of part-time employment that was about the same as that among employed immigrants with U.S. college degrees (Table 7). The rate of part-time employment among immigrant males with and without U.S. college degrees was about the same (4%), while immigrant women with non-U.S. college degrees were slightly more likely to work in part-time jobs than were those with U.S. college degrees (16% versus 15%). Among the part-time employed, the prevalence of involuntary part-time employment was slightly higher among immigrants with non-U.S. college degrees (28%) than among their counterparts with U.S. college degrees (26%). Among male immigrants, the prevalence of involuntary employment was slightly higher among those with U.S. college degrees (42%) than among those with college degrees from abroad (39%), whereas among women, 24 percent of those with foreign college degrees were employed in part-time jobs involuntarily, compared with 21 percent among those with U.S. college degrees.



Underutilization in the form of involuntary part-time employment was somewhat more prevalent among all immigrants with foreign college degrees than among their counterparts with U.S. college degrees. Male immigrants with U.S. college degrees were somewhat *more* likely to be involuntarily part-time employed than were those with foreign college degrees, while female immigrants with U.S. college degrees were somewhat *less* likely to be involuntarily part-time employed compared with those with college degrees from abroad. Employed immigrants with degrees from Chinese institutions of higher learning had the greatest chance of working in part-time jobs among all those with degrees from overseas colleges, with about 1 in 8 employed graduates of Chinese colleges working part-time. Among graduates from “other” Asian colleges (those who earned degrees in Asian nations aside from China, India, and the Philippines), a similar proportion worked in part-time jobs. In contrast, the share of employed college graduates with degrees from colleges located in Canada, the United Kingdom, Ireland, and Australia worked in part-time jobs at just half the rate of Asian immigrants (except those from India). About 9 percent of employed immigrants with degrees from U.S. colleges worked in part-time positions.

**Table 7: Involuntary Part-Time and Part-Time Employment among 25- to 64-Year-Old Foreign-Born College Graduates, by Country or Region of Most Recent College Degree, U.S., 2003**

*Involuntary Part-Time Employment: Percent of part-time employed working in involuntary PT jobs*

| Country/Region of Recent Degree                            | All  | Males | Females |
|--|------|-------|---------|
| All Immigrants with college degrees from abroad            | 27.8 | 39.0  | 24.3    |
| China  | 39.5 | 34.5  | 40.8    |
| Europe (excluding United Kingdom/Northern Ireland)         | 36.0 | 65.5  | 20.7    |
| Philippines  | 36.0 | 18.4  | 43.0    |
| Latin America (Mexico, Central & South America, Caribbean) | 32.8 | 40.1  | 30.6    |
| Asia (excluding China, India, Philippines)                 | 30.3 | 37.0  | 28.0    |
| Africa   | 26.9 | 89.7  | 14.9    |
| United States  | 26.4 | 41.9  | 21.3    |
| India  | 17.7 | 21.5  | 16.9    |
| Canada, United Kingdom/Northern Ireland, Australia         | 6.4  | 9.8   | 5.8     |

*Part-Time Employment: Percent of employed working in part-time jobs*

| Country/Region of Recent Degree                            | All  | Males | Females |
|--|------|-------|---------|
| All Immigrants with college degrees from abroad            | 9.0  | 3.8   | 15.8    |
| China  | 13.4 | 6.2   | 19.7    |
| Europe (excluding United Kingdom/Northern Ireland)         | 8.5  | 4.6   | 15.1    |
| Philippines  | 6.1  | 4.7   | 6.8     |
| Latin America (Mexico, Central & South America, Caribbean) | 9.7  | 4.0   | 17.4    |
| Asia (excluding China, India, Philippines)                 | 12.5 | 5.6   | 21.8    |
| Africa   | 9.8  | 2.5   | 21.8    |
| United States  | 8.9  | 3.9   | 15.3    |
| India  | 9.4  | 2.6   | 20.5    |
| Canada, United Kingdom/Northern Ireland, Australia         | 7.2  | 1.7   | 19.3    |

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Immigrants with college degrees earned in China also had the highest rate of involuntary part-time employment. Nearly 4 of 10 immigrants with their most recent college degrees from China who were employed in part-time jobs at the time of the NSCG reported wanting to work in full-time positions. Overall, involuntary part-time employment ranged from 36 percent of foreign-born college graduates with degrees from two regions of the world—Europe (excluding the United Kingdom/Northern Ireland) and the Philippines—to one-third among those with Latin American college degrees and 30 percent among those with college degrees from institutions in “other” Asian nations (excluding China, India, and the Philippines). Immigrants with college degrees from Africa had a slightly higher involuntary part-time employment rate than did immigrants with college degrees earned in the United States. College graduates with degrees from Canada, the United Kingdom/Northern Ireland, or Australia/New Zealand—English-speaking countries that are also socially and economically similar to the United States—had lower rates of involuntary part-time employment (6% versus 26%) than did immigrants with U.S. college degrees, as did immigrants with Indian college degrees, among whom involuntary part-time employment was 18% versus 26% among immigrants with U.S. college degrees.

As noted in previous sections of this paper and presented in the second half of Table 7, part-time employment was low among male immigrants and especially low among certain subgroups of male immigrant workers. The prevalence of involuntary part-time employment was highest among male college-educated immigrants with African college degrees. Nearly 9 out of 10 part-time male immigrant workers with African college degrees were working involuntarily in part-time jobs. Only 2.5 percent of male immigrants with African college degrees were employed in part-time jobs at the time of the NSCG, and 90 percent of this group reported wanting to work in full-time positions. The second highest rate of involuntary part-time employment was among part-time-employed men with European (excluding United Kingdom/Northern Ireland) college degrees. Two-thirds of these men were working part-time involuntarily.

Male immigrants with college degrees earned in the U.S. higher education system had the third highest level of involuntary part-time employment (42%) of the nine countries or regions of college degrees presented in Table 7. Although immigrants with U.S. college degrees fared better than their counterparts with degrees from most countries/regions abroad on previous measures of labor underutilization, labor force participation, and unemployment, immigrant men with U.S. college degrees appeared to have higher rates of involuntary part-time employment compared with their counterparts with college degrees from six other countries or regions. There could be many reasons for the higher rate of involuntary part-time employment among immigrant men with U.S. college degrees. Findings from our regression analysis presented in the second half of this paper will disentangle the effects of different variables on the likelihood of involuntary part-time employment among immigrant college graduates.

Among college-educated immigrant women, those with college degrees from the Philippines had the highest rate of involuntary part-time employment (43%). Immigrant women with Filipino college degrees also had the lowest rate of part-time employment (6.8%) compared with part-time employment rates ranging from 15 to 22 percent among immigrant women with college degrees from other countries, including the United States. Our previous paper (*Unemployment Problems among College-Educated Immigrants in the United States*) found an unemployment rate among immigrants with college degrees from the Philippines that was lower even than that of immigrants with U.S. college degrees. The lower unemployment rate among immigrants with Filipino college degrees was largely due to the lower unemployment rate among Philippines-educated immigrant women. Our examination of the major field of

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study of these women found that nearly 40 percent had earned degrees in health sciences (a major field of study associated with low unemployment rates among college-educated immigrants) compared with only 15 percent among the remaining immigrant women, including those with U.S. college degrees. Large numbers of graduates of nursing programs in the Philippines migrated to the United States between 1995 and 2011 in response to widespread labor shortage problems in the nursing field (Martel, 2012).

Furthermore, our examination of the class of admission of Philippines-educated immigrant women found that nearly one-quarter had entered the United States with work visas, compared with just 7 percent among immigrant women with college degrees from other countries (including the United States). These traits reflect a stronger focus on work among immigrant women with Filipino college degrees, which likely underlies their lower rates of part-time employment or, conversely, higher rates of full-time employment and a greater desire for full-time employment among those working in part-time jobs at the time of the NSCG. Unfortunately, a large proportion of part-time-working immigrant women with Filipino college degrees with a desire for full-time employment were unable to secure full-time jobs.

Involuntary employment in part-time jobs was also quite high among immigrant women with college degrees from China (41%), Latin America (31%), and Asia (excluding China, India, and the Philippines). Immigrant women with British, Canadian, or Australian college degrees had the lowest rates of involuntary part-time employment. Only 6 percent of women with degrees from these English-speaking countries, which have economic and social structures similar to those of the United States, who were working in part-time jobs at the time of the NSCG reported a desire for full-time employment. Almost all of the part-time employment among these women was voluntary. Immigrant women with African, Indian, and U.S. college degrees also had lower rates of involuntary part-time employment—15, 17, and 21 percent, respectively—compared with their counterparts with a college education from other countries or regions of the world.

Immigrants with college degrees earned abroad experienced somewhat higher rates of involuntary part-time employment than did their U.S.-educated counterparts. Among all college-educated immigrants, only those with Canadian, British, and Australian college degrees and Indian college degrees had lower rates of involuntary part-time employment. The patterns were somewhat different between men and women. Among male immigrants, those with college degrees from six countries/regions of the world had lower rates of involuntary part-time employment than did their U.S.-educated counterparts. Among immigrant women, the rate of involuntary part-time employment of U.S.-educated women was lower than that of their counterparts from six countries or regions across the world. The differences in involuntary part-time employment rates of immigrants from different countries may vary for a variety of reasons. Findings from our regression analysis presented in subsequent sections of this paper will provide insights into the independent effect of country or region of college degree on the likelihood of involuntary part-time employment among college-educated immigrants.

### **English Language Proficiency**

Proficiency in the English language is a valued human capital trait in the U.S. labor market. Chiswick and Miller (1992) consider English language proficiency 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 the labor market success of immigrants, Carnevale, Fry, and Lowell (2001) found that understanding English is the most important English ability in the U.S. labor market and that the positive labor market impact of English reading, writing, and speaking ability among immigrants is contingent upon their ability to understand spoken English.

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Most studies on the effect of English language ability of immigrants on their labor market success use the self-reported English-speaking ability of respondents on the decennial census long-form survey. Our measure of the English language proficiency of NSCG respondents also is based on self-reported English-speaking ability of immigrant college graduates. However, because the NSCG does not provide data on English language proficiency of respondents and the NSCG sample is drawn from college graduates in the 2000 decennial census, we used the 2000 decennial census data to obtain this information. We measured the average English language proficiency of nonelderly college-educated immigrants from 168 different countries from the decennial census and used this measure to represent the English-speaking ability of nonelderly, college-educated immigrants from each of these same 168 countries in the NSCG. The mean English language proficiency of the immigrant group of nonelderly and college graduates in the workforce ranged between 3.06 to 4.96 on the following five-point scale of English-speaking proficiency: 1= does not speak English; 2= bilingual, speaks a non-English language and speaks English “not well”; 3=bilingual, speaks a non-English language and speaks English “well”; 4=bilingual, speaks a non-English language and speaks English “very well”; 5 = speaks only English.

We classified all college-educated immigrants in the labor force at the time of the 2003 NSCG into two groups based on their English-speaking proficiency. The first group of immigrants was from countries with average English-speaking proficiency of nonelderly college graduates at the time of the 2000 decennial census rated between 3.06 and 3.99. This level represents the “speaks English well” level of English-speaking proficiency. We refer to this group as “English rating well.” The other group consisted of immigrants from countries where the average English-speaking proficiency of nonelderly college graduates was at or above 4.0. This level represents the “speaks English very well” level of English-speaking proficiency. We refer to this group as “English rating very well.”

Findings from an examination of part-time and involuntary part-time employment rates of immigrant college-graduates by their English-speaking ability are presented in Table 8. Part-time employment was slightly more prevalent among immigrant college graduates who spoke English “very well” than it was among those who spoke English “well” (lower half of Table 8). Involuntary part-time employment among those employed in part-time jobs was somewhat lower among those with better English-speaking ability—28 percent among those who spoke English well versus 24 percent among those who spoke English very well. Among male immigrants, those in the “English rating very well” group were somewhat more likely to be involuntarily part-time employed than were their counterparts in the “English rating well” group (44% versus 39%). The association between involuntary part-time employment and English-speaking ability among immigrant females was different from that among males. Female college-educated immigrants who spoke English very well and were employed in part-time jobs were less likely to do so involuntarily compared with their counterparts who spoke English only “well.”

**Table 8: Involuntary Part-Time and Part-Time Employment among 25- to 64-Year-Old Foreign-Born College Graduates, by English-Speaking Proficiency,\* U.S., 2003**

*Involuntary Part-Time Employment: Percent of part-time employed working in involuntary PT jobs*

| English-Speaking Proficiency | All  | Male | Female |
|------------------------------|------|------|--------|
| Speaks well                  | 28.0 | 39.3 | 24.4   |
| Speaks very well             | 24.3 | 44.2 | 17.6   |

*Part-Time Employment: Percent of employed working in part-time jobs*

| English-Speaking Proficiency | All  | Male | Female |
|------------------------------|------|------|--------|
| Speaks well                  | 8.6  | 3.7  | 14.8   |
| Speaks very well             | 10.0 | 4.3  | 18.0   |

\*Scale: 3.06-3.99: speaks English well; 4-4.96: speaks English very well.

### Type of Entry Visa to the United States

Type of visa or class of admission provides information about some unobservable characteristics of an immigrant associated with the legal criteria under which the immigrant migrated. An immigrant who enters the United States with a work visa is less likely to make a downward transition into the U.S. labor market. Migrants who enter the United States with student visas are more likely to have U.S. degrees and are, therefore, also more likely to have a lateral/upward transition to the U.S. labor market after completing their education in the United States. In contrast, individuals who enter as permanent residents or as dependents of U.S. residents (family migrants) have less-explicit links between their decision to move to the United States and employment than do those coming to this country under other visa categories. Rather, their migration decisions are influenced by the prior immigration of their sponsoring relatives; therefore, they may have less-transferable labor market skills (Akresh, 2008).

Every legal immigrant enters the United States with a visa. The 2003 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. Respondents were asked to select from one of the following: 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 or training (e.g., F-1, J-1, H-3, etc.), temporary U.S. resident visa as 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 any other temporary U.S. resident visa such as those granted to religious workers, etc.

College-educated immigrants who entered the United States with work visas—all, men, and women—were much more likely to be employed in full-time positions. At the time of the 2003 NSCG, only 5 percent of all employed immigrants who had entered the United States with work visas were employed in part-time jobs. Immigrants who enter the United States with work visas usually have full-time jobs waiting for them. These immigrants arrive in this country with the express purpose of full-time employment. Therefore, they are much more likely to either be employed full-time or employed part-time involuntarily. The rate of involuntary part-time employment among immigrant college graduates who had entered the United States with work visas was 31 percent—a rate higher than that of immigrants in any of the remaining four entry visa categories. The rate of involuntary part-time employment was over one-quarter among part-time immigrants with Green Cards, student visas, or dependent visas, and 30 percent

among those with other types of visas such as religious workers and the like. The rate of part-time employment was highest among immigrants who had entered the United States with dependent visas. Labor market and employment are typically not as much a focus of immigrants who enter the United States as family migrants with dependent visas. Nearly 15 percent of immigrant college graduates who had entered the United States with dependent visas were employed in part-time positions at the time of the NSCG.

The part-time and involuntary part-time employment rates of male and female college-educated immigrants also varied systematically by type of visa with which they had first entered the United States (Table 9). Those who had entered with work visas were least likely to be employed in part-time positions—1.9 percent among males and 12 percent among females. The highest rate of part-time employment was among those who had entered the United States as family migrants with dependent visas—6 percent among men and nearly 20 percent among women.

**Table 9: Involuntary Part-Time and Part-Time Employment among 25- to 64-Year-Old Foreign-Born College Graduates, by Type of Entry Visa to the United States, U.S., 2003**

| Type of Entry Visa       | Percent of All Employed Working Part-Time | Percent of All Part-Time Employed Working PT Involuntarily | Percent of Males Employed Working Part-Time | Percent of Males Part-Time Employed Working PT Involuntarily | Percent of Females Employed Working Part-Time | Percent of Females Part-Time Employed Working PT Involuntarily |
|--------------------------|---|--|---|--|---|--|
| Permanent U.S. resident  | 9.2                                       | 26.5   | 3.8   | 43.7   | 14.8  | 21.9   |
| Temporary work visa      | 5.3                                       | 31.4   | 1.9   | 60.7   | 12.2  | 21.8   |
| Temporary student visa   | 7.7                                       | 26.0   | 4.2   | 34.6   | 15.2  | 21.0   |
| Temporary dependent visa | 14.6                                      | 26.3   | 6.0   | 32.6   | 19.8  | 25.2   |
| Temporary other visa     | 9.5                                       | 29.7   | 4.3   | 42.8   | 16.5  | 25.1   |

Among male immigrants, the highest rate of involuntary part-time employment was among those who had entered the United States with temporary work visas—61 percent, followed by those with Green Cards or other miscellaneous visas (43% each), student visas (35%), and dependent visas (33%). Somewhat surprisingly, the prevalence of involuntary part-time employment among female immigrants was higher among those who had entered the United States with dependent visas (25%) than among those with work visas (21%). It must be noted that although the migration decisions of family migrants are not labor market driven, family migrants with a college education might have a stronger desire to work than do their counterparts without a college education. Women comprised over 85 percent of family migrants (with dependent visas) in the subset of college graduates included in this paper (25- to 64-year-olds employed during week of October 1, 2003). The family migrant status of these women is likely to reduce their geographic mobility, as they choose to live near their sponsoring relatives. The reduced geographic mobility in turn may hamper their ability to find suitable full-time jobs and lead them to involuntarily accept part-time positions available in their local labor markets. The rate of involuntary part-time employment among women with other types of entry visas ranged from 21 to 22 percent among those who entered the United States with Green Cards, work visas, and student visas.



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## Year of Entry to the United States

The 2003 NSCG gathered data on the year in which an immigrant respondent to the survey had first entered the United States for a stay of six months or more. The six-month period ensures that the year of first entry records first entry with temporary or permanent resident visas and not with tourist or non-resident visas. We separated all immigrants into two groups: recent immigrants and established immigrants. Recent immigrants in this paper are defined as those who entered the United States after 1990. The remaining immigrants (those who entered in year 1990 or earlier) are what we refer to in this paper as established immigrants. Immigrants who have been in the United States for only a few years (generally less than 10 or 15 years) have been regarded by many researchers as recent immigrants (Lo, Want, Anisef, Preston, & Basu, 2010; Chapman & Bernstein, 2003; Douglas-Hall & Koball, 2004). Among college-educated immigrants between 25 and 64 years of age who were employed at the time of the 2003 NSCG, 32 percent had entered the United States after 1990. The share of recent immigrants among employed male immigrants was higher than the share among employed female immigrants (34% versus 29%).

Among male immigrants who were working in part-time jobs at the time of the NSCG, the proportion who were doing so involuntarily (wanted full-time jobs) was lower among recent immigrants than among established immigrants (36% versus 44%), whereas among female immigrants, recent arrivals had a slightly higher rate of involuntary part-time employment than did those who had arrived in 1990 or earlier (24% versus 22%). Since recently arrived immigrants have had less time to assimilate and adapt to the U.S. labor market, one would expect recently arrived immigrants to face greater difficulty in the labor market and endure higher rates of labor market underutilization.

However, recently arrived immigrants also typically are younger than established immigrants. In 2003, the median age of 25- to 64-year old college-educated immigrants was 36 among recent arrivals and 46 among earlier arrivals. Young individuals, especially those with higher levels of education who require a longer time to complete their education, also are more likely to be enrolled in school (Leppel & Clain, 1993). Among 25- to 64-year-old part-time-employed immigrants, the full-time school enrollment rate of those who had arrived to the United States recently (after 1990) was much higher than it was among earlier arrivals (established immigrants)—23% versus 7% among all, 47% versus 14% among men, and 10% versus 3% among women. School enrollment rates were particularly high among those who were employed in part-time positions, as individuals enrolled in school—especially full-time school—have limited time left over for work. They also may be restricted from full-time work due to their student visa status.

As shown in Table 10, part-time employment among recently arrived college-educated immigrants, who are more likely to be younger and enrolled in school, is more likely to be out of choice (voluntary). Thus, the lower rate of involuntary part-time employment among recent male immigrants is partly attributable to the lower age and higher rate of school enrollment among this group. The school enrollment rate of part-time-employed female immigrants did not vary as sharply as that among their male counterparts. Consequently, the involuntary part-time employment rate gap between recently arrived and established female immigrants was small. Among female immigrants in part-time jobs, recent arrivals were slightly more likely to face involuntary part-time employment than were those who had entered the United States in 1990 or earlier. Among female college-educated immigrants, the higher rate of involuntary part-time employment of recent arrivals compared with earlier arrivals is likely reflective of labor market difficulty due to the shorter time that they had had to assimilate and adapt to the U.S. labor market. However,

several other reasons could underlie the modest gap between involuntary part-time employment of recent and established female immigrants. The regression analysis is designed to disentangle the effects on involuntary part-time employment of recent arrival status of immigrants from other factors that are known to affect labor market underutilization in the form of involuntary part-time employment.

**Table 10: Part-Time and Involuntary Part-Time Employment of 25- to 64-Year-Old Recent (Entered After 1990) and Established (Entered 1990 or Earlier) College-Graduate Immigrants, by Gender, U.S., 2003**

*Percent of Employed Working Part-Time*

| Immigrant Status                         | Male | Female | All |
|--|------|--------|-----|
| Recent immigrants                        | 4.1  | 16.6   | 9.1 |
| Established immigrants                   | 3.7  | 15.1   | 8.9 |
| Absolute difference (recent-established) | 0.4  | 1.5    | 0.2 |
| Relative difference                      | 11.0 | 9.7    | 2.5 |

*Percent of Part-Time-Employed Working PT Involuntarily*

| Immigrant Status                         | Male  | Female | All  |
|--|-------|--------|------|
| Recent immigrants                        | 35.6  | 24.3   | 27.4 |
| Established immigrants                   | 43.5  | 21.9   | 26.9 |
| Absolute difference (recent-established) | -7.9  | 2.4    | 0.5  |
| Relative difference                      | -18.1 | 11.0   | 2.0  |

## Region of Residence

The labor market outcomes of workers are influenced both by their personal characteristics, particularly their human capital traits, as well as overall labor market conditions in the area in which they reside. Local labor markets in which they reside have an impact on labor market outcomes of college graduates by influencing their chances of employment, employment in full-time jobs, and employment in college labor market occupations. For example, workers who reside in strong labor markets, where the number of job vacancies equals or exceeds the number of unemployed job seekers, will be less likely to be unemployed than those who operate in weak labor markets where the number of unemployed substantially exceeds the number of vacant jobs. Even among employed workers, those who reside in strong labor markets will be less likely to experience underemployment in the form of part-time employment among those who want full-time jobs and employment in non-college labor market jobs among college graduates.

The NSCG does provide information on residence of workers, but because of confidentiality concerns, the residence of respondents is provided only at a broad multistate regional level. The NSCG data file identifies the region in which the respondent resided at the time of the Survey. We utilized four regions to examine the prevalence of involuntary part-time employment among college-educated immigrants who lived in these regions at the time of the 2003 NSCG. Appendix B contains a list of states that make up each of the four regions. We use these regions to partially account for differences in labor market conditions across the nation.



The incidence of part-time employment did not vary sharply across the four major regions of the nation among foreign-born college graduates, ranging from 8.4 percent of all employed working part-time in the South to a high of 9.6 percent in the Midwest (Table 11). Women in the Midwest were somewhat more likely to hold part-time positions relative to women residing in other regions of the country.

**Table 11: Involuntary Part-Time and Part-Time Employment among 25- to 64-Year-Old Foreign-Born College Graduates, by U.S. Region of Residence, October 2003**

| Region of Residence | Percent of All Employed Working Part-Time | Percent of All Part-Time Employed Working PT Involuntarily | Percent of Males Employed Working Part-Time | Percent of Males Part-Time Employed Working PT Involuntarily | Percent of Females Employed Working Part-Time | Percent of Females Part-Time Employed Working PT Involuntarily |
|---------------------|---|--|---|--|---|--|
| Northeast           | 9.3                                       | 28.0   | 4.0   | 40.7   | 15.9  | 24.0   |
| Midwest             | 9.6                                       | 24.4   | 3.7   | 33.2   | 18.2  | 21.8   |
| West                | 8.8                                       | 33.8   | 4.6   | 48.5   | 14.0  | 27.8   |
| South               | 8.4                                       | 20.0   | 2.9   | 33.7   | 15.6  | 16.6   |

College-educated immigrants who lived in one of the states comprising the West region were most likely to be working part-time involuntarily (34%). Involuntary part-time employment was also high among immigrant college graduates living in the Northeast region (28%). Among college-educated immigrants living in the Midwest region, about one-quarter were employed part-time involuntarily, and those who lived in the South had the lowest rate of involuntary part-time employment (20%). Male and female college-educated immigrants had similar patterns of involuntary part-time employment by U.S. region of residence in 2003—highest among residents of the West region and lowest among residents of the South region. Among male immigrants, the rate of involuntary part-time employment ranged from 49 percent in the West and 40 percent in the Northeast to 33 percent in the South and the Midwest.

The prevalence of involuntary part-time employment among college-educated immigrant women was 28 percent among those who lived in the West; 24 percent, in the Northeast; 22 percent, in the Midwest; and 17 percent, in the South. Involuntary part-time employment among immigrants, especially females, who lived in the South region was much lower than that of their counterparts who lived in the other three regions of the United States. Exploring reasons underlying the considerably lower rates of involuntary part-time employment among college-educated immigrant women living in the South region of the United States is beyond the scope of this paper.

## Multivariate Regression Analysis of the Likelihood of Involuntary Part-Time Employment among Foreign-Born College Graduates

The descriptive analysis presented in the sections above examine a number of variables that measure demographic traits, traditional human capital stock and quality, human capital pertinent to immigrants, type of visa and year of entry, and region of residence and affect underemployment problems in the form of involuntary part-time employment among college graduates who were born abroad. We have examined the level and variation of part-time employment among employed college graduates and involuntary part-time employment among college graduates who were employed in part-time positions among different groups of college-educated immigrants and separately for male and female college-educated immigrants.

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We also have discussed potential ways in which different traits of these immigrants may affect the likelihood of part-time employment and involuntary part-time employment. In this section, we present estimates of the independent impact of each of these variables on the probability of involuntary part-time employment using multivariate regression analysis. The logistic regression models we employ allow measurement of the independent effect of each of these key variables on the probability of involuntary part-time employment, after statistically controlling for other variables included as explanatory variables in the regression models. The explanatory variables include:

- Traditional human capital measures: educational attainment, major field of study (used to measure type of human capital).
- Human capital measures pertinent to immigrants: country or region in which immigrants earned their most recent college degree, English language proficiency.
- Immigration-related measures: class of admission (type of visa) of first entry to the United States, year of first entry to the United States. The year of entry identifies recently entered immigrants, who are more likely to be underemployed and generally have poorer labor market outcomes, since they have had a shorter time to assimilate.
- Demographic controls: demographic variables that are known to influence labor market outcomes and involuntary part-time employment—gender, age, marital status, presence of young children, disability status, and school enrollment status at the time of the NSCG.
- Residence in the United States at the time of the NSCG: The likelihood of all labor market outcomes and labor market problems, including involuntary part-time employment, are influenced by the strength of the local labor market. Although the NSCG does not provide state or local geographic detail of the residence of respondents, it does provide data on the regions in the United States in which respondents resided at the time of the Survey. We include region of residence of immigrants at the time of the 2003 NSCG as an explanatory variable in the regressions to statistically control for and measure the effect of the regional U.S. labor market on the likelihood of involuntary part-time employment among immigrant college graduates working in part-time positions.

The regressions were estimated for immigrant college graduates who were employed part-time (working less than 35 hours per week) in the jobs they held at the time of the NSCG during the week of October 1, 2003. We estimated the regression equations for all college-educated immigrants and separately for male and female college-educated immigrants. Similar to the descriptive analysis of involuntary part-time employment presented in the first part of this paper, the regression analysis includes immigrant college graduates between the ages of 25 and 64 who were employed at the time of the 2003 NSCG in jobs where the usual work week was less than 35 hours (employed part-time). The definitions of the dependent variable and all explanatory variables, as well as the complete output from the estimated regression models, are presented in Appendix C.

The primary objective of the multivariate regression analysis is to estimate the independent effects of the explanatory variables on the probability of involuntary part-time employment among college-educated immigrants who were working in part-time jobs at the time of the 2003 NSCG. The multivariate regression equations for all, male, and female college-educated immigrants were estimated with a dependent variable representing the involuntary part-time status of part-time-employed immigrants at the time of the 2003 NSCG taking on the value of 1 if the individual immigrant was working part-time involuntarily and 0 if the immigrant was working part-time voluntarily. We estimated logistic regression

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models that are considered appropriate in cases of dichotomous dependent variables (taking on the value 1 or 0; Greene, 2008; Kmenta 1986).

The estimated coefficients in the logistic regression models are difficult to interpret because they measure the impact of a change in an explanatory variable on the log of odds. The coefficients simply indicate the direction and relative strength of the explanatory variables on the outcome of involuntary part-time employment. The computer program (STATA) that we used to estimate these regression models provides several measures to interpret logistic regression coefficients. We provide two of these additional measures for each explanatory variable that enable us to better interpret the impact of each explanatory variable on the probability of involuntary part-time employment among college-educated immigrants. The first measure is the ratio of odds, which measures the regression-adjusted ratio of the odds of involuntary part-time employment of the group represented by the explanatory variable (for example, the variable “male” that represents males) to the odds of involuntary part-time employment of the reference group (females). The second measure is the marginal effect for each explanatory variable, which measures the marginal effect of the change in an explanatory variable (at the mean value of all explanatory variables) on the probability of involuntary part-time employment.

An example is provided here to illustrate the three measures. The positive and statistically significant coefficient of the explanatory variable “computer & information sciences” (in Table 12) should be interpreted to mean that immigrants with a computer and information science college major are likely to have a higher regression-adjusted probability of involuntary part-time employment than are immigrants in the reference group—humanities majors. Other than that, the coefficient (+0.805) is difficult to interpret. The estimated ratio of odds for the “computer & information sciences” explanatory variable (in the same Table 12) is 2.237. This means that the regression-adjusted odds of involuntary part-time employment among immigrants with a computer and information sciences major were 2.2 times (223%) higher than the odds of involuntary part-time employment among immigrants with a humanities major field of study. The estimated marginal effect for the “computer & information sciences” explanatory variable is .148. This means that after statistically controlling for other variables known to influence involuntary part-time employment, the regression-adjusted probability of involuntary part-time employment among part-time employed immigrants with a computer and information sciences major is expected to be 14.8 percentage points higher than that of their counterparts with a humanities college major.

Findings from our regression analysis of involuntary part-time employment among college-educated immigrants who were working in part-time jobs at the time of the 2003 NSCG are presented in five separate tables (Tables 12-16), each containing one of the following five sets of explanatory variables: traditional human capital measures, human capital measures pertaining to immigrants, immigration-related variables (class of admission (visa type) and year of entry to the United States), demographic traits, and the four regions of residence. Although we have presented the findings for each set of explanatory variables separately, all of these explanatory variables were included together in the regression models we estimated.<sup>3</sup>

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<sup>3</sup> Tabulations in the regression section of this paper contain the following regression results for all variables: coefficients, ratio of odds, marginal effect, and statistical significance at .01, .05, and .10 levels; however, the discussion will focus only on findings that meet the .05 level of statistical significance;  $p < .05$ .

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### Level of Education and Major Field of Study

Table 12 contains estimated regression findings for the effect of the level of education and major field of study on involuntary part-time employment among all, male, and female part-time immigrant workers. The coefficients of each level of education—master’s, doctorate, and professional degree—are not statistically significant among all immigrants, which means that after adjusting for all other explanatory variables included in the regression, the likelihood of involuntary part-time employment among all immigrants with master’s, doctorate, or a professional degrees was no different from that of immigrants with only bachelor’s degrees (reference group).

Findings for male and female immigrants also indicate no statistically significant regression-adjusted effect of additional education on the probability of involuntary part-time employment. The only exception is among female immigrants with professional degrees, among whom the regression-adjusted likelihood of involuntary part-time employment is estimated to be 18 percentage points higher than that of their counterparts with only bachelor’s degrees. It is likely that women with professional college degrees, who have clearly made sizable investments in their education, have a stronger desire for full-time employment than do their counterparts with bachelor’s degrees and might consider part-time employment as a stepping stone to full-time positions.

Analysis of the regression-adjusted impact of major fields of study found that immigrants who had majored in computer and informational science, mathematics, biological sciences, and business were more likely to be involuntarily part-time employed compared with those who had majored in arts, language, and communication (humanities)—the reference group. The regression-adjusted likelihood of involuntary part-time employment among college-educated immigrants with these four college majors was estimated to be between 10 and 39 percentage points higher than among humanities majors. The coefficients of immigrants with the remaining eight major fields of study did not meet the .05 level of statistical significance, which means that their likelihood of involuntary part-time employment was similar to that of the reference group—those who majored in the humanities.

Regression findings on the effect of college major and the likelihood of involuntary part-time employment was somewhat different among male and female immigrants. It should be noted that since females comprise a large majority (76%) of all part-time-employed immigrants, the descriptive and regression findings in this paper for all immigrants are heavily weighted by findings for female immigrants. Male immigrants who had majored in mathematics had a higher regression-adjusted likelihood of involuntary part-time employment than did humanities majors (the reference group). According to estimates of marginal effects, men with college degrees in mathematics were 46 percentage points more likely to be employed part-time involuntarily than were the reference group—humanities majors. It should be noted that only 3 percent of all employed male mathematics majors were employed in part-time jobs, compared with 12 percent among their counterparts with humanities degrees. Male immigrants with math degrees appear to have had a strong desire to work in full-time positions, and although most of them succeeded in gaining full-time jobs, a large part of the small minority who worked in part-time positions did so involuntarily.

**Table 12: Regression-Adjusted Effect of Educational Attainment and Major Field of Study on the Probability of Involuntary Part-Time Employment among 25- to 64-Year-Old College-Educated Immigrants in the U.S. Employed Part-Time in 2003<sup>a</sup>**

| Variable   | All                      |               |                 | Male                     |               |                 | Female                   |               |                 |
|--|--------------------------|---------------|-----------------|--------------------------|---------------|-----------------|--------------------------|---------------|-----------------|
| <b>Educational Attainment/Major Field of Study</b>             | Coefficient <sup>b</sup> | Ratio of Odds | Marginal Effect | Coefficient <sup>b</sup> | Ratio of Odds | Marginal Effect | Coefficient <sup>b</sup> | Ratio of Odds | Marginal Effect |
| Master's degree  | .086                     | 1.090         | .016            | -.022                    | .978          | -.005           | .167                     | 1.181         | .024            |
| Doctorate degree   | -.161                    | .851          | -.030           | .124                     | 1.132         | .029            | -.113                    | .893          | -.016           |
| Professional degree  | .461                     | 1.586         | .085            | -1.137                   | .321          | -.270           | 1.240***                 | 3.455         | .178            |
| Bachelor's degree (reference group)                            | --                       | --            | --              | --                       | --            | --              | --                       | --            | --              |
| Computer & information sciences                                | .805**                   | 2.237         | .148            | .133                     | 1.142         | .032            | 1.130**                  | 3.097         | .162            |
| Mathematics  | 2.144***                 | 8.537         | .394            | 1.935*                   | 6.924         | .462            | 2.453***                 | 11.623        | .352            |
| Biological sciences  | 1.271***                 | 3.565         | .233            | -.048                    | .954          | -.011           | 1.576***                 | 4.836         | .226            |
| Physical sciences  | .382                     | 1.466         | .070            | .090                     | 1.095         | .021            | .389                     | 1.475         | .056            |
| Psychology   | .243                     | 1.275         | .045            | .523                     | 1.687         | .124            | .252                     | 1.287         | .036            |
| Social sciences  | .591*                    | 1.806         | .108            | -.129                    | .879          | -.032           | .957**                   | 2.603         | .137            |
| Engineering  | .346                     | 1.413         | .063            | .484                     | 1.623         | .115            | -1.752                   | .173          | -.249           |
| Health/medical sciences  | -.514                    | .598          | -.094           | -.564                    | .569          | -.134           | -.687*                   | .503          | -.098           |
| Education  | .397                     | 1.487         | .073            | 1.198                    | 3.313         | .286            | .271                     | 1.312         | .039            |
| Engineering-related technologies                               | .129                     | 1.137         | .023            | .202                     | 1.224         | .047            | -.040                    | .961          | -.005           |
| Business   | .538**                   | 1.713         | .099            | -.156                    | .856          | -.037           | .678**                   | 1.969         | .097            |
| Law  | .562                     | 1.755         | .103            | .834                     | 2.303         | .198            | -.167                    | .846          | -.023           |
| Arts, language, & communications (humanities; reference group) | --                       | --            | --              | --                       | --            | --              | --                       | --            | --              |

<sup>a</sup>Other explanatory variables in the regression model include region/country of most recent college degree, English-speaking proficiency, type of entry visa, recent immigrant status, gender, age, marital status, presence of young children, school enrollment status, disability status, and U.S. region of residence in 2003 (dependent variable: involuntary part-time employment status: 1= employed part-time involuntarily, 0=employed part-time voluntarily).

<sup>b</sup>Statistical significance: \*\*\* .01 level, \*\* .05 level, \* .10 level.

Immigrant women with college degrees in science-related fields and business had a higher regression-adjusted likelihood of involuntary part-time employment compared with those with college degrees in the humanities. Women from five major fields—computer and information sciences, mathematics, biological sciences, social sciences, and business—were between 10 and 35 percentage points more likely to face involuntary part-time employment than were humanities majors after statistically controlling for the effects of other variables included in the regression that are known to affect involuntary part-time employment.

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### Country/Region of College Degree and English Language Proficiency

According to the descriptive analysis presented in earlier sections of this paper, the rate of involuntary part-time employment was 26 percent among immigrants with college degrees from the United States who were working in part-time positions at the time of the 2003 NSCG. This involuntary part-time employment rate was higher than that of immigrants with degrees from Canada, the United Kingdom, and Australia, among whom the involuntary part-time employment rate was only 6 percent, and immigrants with Indian college degrees, among whom 18 percent were employed in part-time positions involuntarily. The involuntary part-time employment rates of immigrants with college degrees from the remaining six regions/countries across the world were higher than that of their counterparts with U.S. college degrees. Among female college-educated immigrants with part-time jobs, descriptive analysis revealed that 21 percent of those with U.S. college degrees were working part-time involuntarily—a rate higher than that of women with degrees from Canada, the United Kingdom, and Australia (6%), Africa (15%), and India (17%). Part-time employment was very low among college-educated immigrant men regardless of the country in which they had earned their college degrees, and among the very small numbers who were working in part-time jobs, many were doing so involuntarily. The male involuntary part-time employment rate ranged from 10 percent of part-time workers with college degrees from the three countries similar to the United States—Canada, the United Kingdom, and Australia; to 18, 21, and 42 percent, respectively, among those with college degrees from the Philippines, India, and the United States.

Regression-adjusted differences (Table 13) between the rate of involuntary part-time employment of immigrants with U.S. college degrees and college degrees from abroad were not statistically significant except among immigrants with college degrees from Canada, the United Kingdom, or Australia. After statistically controlling for all other variables in the regression that are known to affect the likelihood of involuntary part-time employment among U.S. immigrants, the regression-adjusted involuntary part-time employment rate of immigrants from these three countries (Canada, UK, and Australia) was estimated to be 33 percentage points lower than that of their counterparts with U.S. degrees. Among male immigrants, there were no regression-adjusted differences in the likelihood of involuntary part-time employment by country/region of college degree, except for men with college degrees from the Philippines, among whom the regression-adjusted involuntary part-time employment rate was estimated to be 38 percentage points lower than that of their U.S.-educated counterparts.

Similar to their male counterparts, the regression-adjusted difference in the involuntary part-time employment rates of female immigrants by country/region of their college degrees were much smaller than the differences found in the descriptive analysis section of this paper. The regression-adjusted involuntary part-time employment rate of women with Canadian, British, and Australian college degrees was estimated to be 21 percentage points lower than that of their U.S.-educated counterparts (reference group). Involuntary part-time employment was estimated to be 15 percentage points higher among immigrant women with Filipino college degrees than among their counterparts with U.S. college degrees. Among immigrant women with college degrees from the remaining six countries/regions of the world, the regression-adjusted involuntary part-time employment rate was not statistically different from that of immigrant women with U.S. college degrees.



**Table 13: Regression-Adjusted Effect of Country/Region of Most Recent College Degree and English-Speaking Proficiency on Probability of Involuntary Part-Time Employment among 25- to 64-Year-Old College-Educated Immigrants in the U.S. Employed Part-Time, 2003<sup>a</sup>**

| Variable  | All                      |               |                 | Male                     |               |                 | Female                   |               |                 |
|---|--------------------------|---------------|-----------------|--------------------------|---------------|-----------------|--------------------------|---------------|-----------------|
| Region/Country of Most Recent College Degree/English-Speaking Proficiency | Coefficient <sup>b</sup> | Ratio of Odds | Marginal Effect | Coefficient <sup>b</sup> | Ratio of Odds | Marginal Effect | Coefficient <sup>b</sup> | Ratio of Odds | Marginal Effect |
| Canada, UK/N. Ireland, Australia  | -1.820***                | .162          | -.333           | -2.584*                  | .075          | -.615           | -1.496**                 | .224          | -.214           |
| Europe excluding UK/N. Ireland  | .051                     | 1.053         | .010            | .998*                    | 2.714         | .238            | -.580                    | .560          | -.083           |
| <b>Asia</b>   |                          |               |                 |                          |               |                 |                          |               |                 |
| India   | -.490                    | .613          | -.090           | -1.261*                  | .283          | -.300           | -.399                    | .671          | -.057           |
| China   | .329                     | 1.389         | .061            | .600                     | 1.821         | .142            | .374                     | 1.454         | .054            |
| Philippines   | .265                     | 1.303         | .049            | -1.597**                 | .202          | -.380           | 1.070***                 | 2.916         | .153            |
| Rest of Asia  | -.014                    | .986          | -.003           | -.641                    | .527          | -.152           | .094                     | 1.098         | .013            |
| Africa  | -.021                    | .980          | -.004           | 2.704                    | 14.934        | .644            | -.559                    | .572          | -.080           |
| Latin America (Mexico, N. & S. America, Caribbean)                        | .070                     | 1.073         | .013            | -.821                    | .440          | -.195           | .122                     | 1.130         | .018            |
| U.S. (reference group)  | --                       | --            | --              | --                       | --            | --              | --                       | --            | --              |
| Speaks English very well  | -.170                    | .844          | -.031           | -.352                    | .703          | -.084           | -.491                    | .612          | -.070           |
| Speaks English well (reference group)                                     | --                       | --            | --              | --                       | --            | --              | --                       | --            | --              |

<sup>a</sup>Other explanatory variables in the regression model include educational attainment, major field of study, type of entry visa, recent immigrant status, gender, age, marital status, presence of young children, school enrollment status, disability status, and U.S. region of residence in 2003 (dependent variable: involuntary part-time employment status: 1 = employed part-time involuntarily, 0 = employed part-time voluntarily).

<sup>b</sup>Statistical significance: \*\*\* .01 level, \*\* .05 level, \* .10 level.

The differences between men and women in the rates of involuntary part-time employment of immigrants with Filipino college degrees compared with their counterparts with U.S. degrees warrants further research. As noted in our previous paper (*Unemployment Problems among College-Educated Immigrants in the United States*), immigrant women with Filipino college degrees had above-average shares of health sciences degrees (40% versus 15% among all immigrant women with college degrees) and above-average shares of U.S. entry with work visas (25% versus 7% among all immigrant women with college degrees). Female immigrants with Filipino college degrees appear to have had a much stronger work-oriented migration to the U.S. than did immigrant women educated elsewhere, including those with U.S. college degrees.

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The effect of English language proficiency on involuntary part-time employment of college-educated immigrants was measured in our regression equation with a variable that represented immigrants from countries of the world where 23- to 64-year old college graduates, on average, rated themselves as speaking English very well. The regression findings for this variable represent the likelihood of involuntary part-time employment among immigrant college graduates from these countries (where college graduates rated themselves as speaking English “very well”) relative to their counterparts from countries where college graduates rated themselves as speaking English “well.” In our descriptive analysis, we found some differences in the involuntary part-time employment rate of college-educated immigrants by English-speaking proficiency, but after statistically controlling for other variables that are known to affect the likelihood of involuntary part-time employment among immigrants, the involuntary part-time employment rate of college-educated immigrants from countries where college graduates rated themselves as speaking English “very well” was expected to be no different from that of the reference group (immigrants from countries where college graduates rated themselves as speaking English “well”). The coefficient of this variable was not statistically significant in regression equations that we estimated for all, male, and female immigrant college graduates.

### **Type of Visa and Recent Immigration Status**

The descriptive analysis presented in this paper found somewhat lower involuntary part-time employment rates among college-educated immigrants who had first entered the United States with employment or student visas compared with those who had entered as permanent residents (with a Green Card), dependents of U.S. permanent residents, citizens, or temporary U.S. visa-holders, or with other types of temporary visas such as ones granted to religious workers, etc. Findings from our regression analysis (Table 14) found no statistically significant differences by type of entry visa in the regression-adjusted likelihood of involuntary part-time employment among all, male, and female college-educated immigrants.

Recently entered immigrants had spent less time in the United States and, therefore, had had less time to assimilate than those who had entered earlier and spent more time in this country. We defined as recent entrants those college-educated immigrants who entered the United States after 1990 (between 1991 and October 2003 when the NSCG was conducted). Immigrants who had entered the United States in 1990 or earlier are defined as “established immigrants.” According to findings from our regression analysis of college-educated immigrants (Table 14), the regression-adjusted likelihood of involuntary part-time employment among all, male, and female college-educated immigrants who entered the United States between 1991 and 2003 (recent immigrants) was not statistically different from that among their counterparts who had entered the United States in 1990 or earlier.



**Table 14: Regression-Adjusted Effect of Type of U.S. Entry Visa and Recent Immigrant Status on Probability of Involuntary Part-Time Employment among 25- to 64-Year-Old College-Educated Immigrants in the U.S. Employed Part-Time, 2003<sup>a</sup>**

| Variable  | All                      |                     |                    | Male                     |                     |                    | Female                   |                     |                    |
|---|--------------------------|---------------------|--------------------|--------------------------|---------------------|--------------------|--------------------------|---------------------|--------------------|
| Entry Visa/<br>Recent<br>Immigrant<br>Status                            | Coefficient <sup>b</sup> | Ratio<br>of<br>Odds | Marginal<br>Effect | Coefficient <sup>b</sup> | Ratio<br>of<br>Odds | Marginal<br>Effect | Coefficient <sup>b</sup> | Ratio<br>of<br>Odds | Marginal<br>Effect |
| Temporary:<br>Employment  | .370                     | 1.448               | .068               | 1.272*                   | 3.569               | .303               | .085                     | 1.089               | .012               |
| Temporary:<br>Student   | -.043                    | .958                | -.008              | -.198                    | .820                | -.047              | -.097                    | .907                | -.014              |
| Temporary:<br>Dependent   | .046                     | 1.047               | .008               | -.797                    | .450                | -.190              | .107                     | 1.113               | .015               |
| Temporary:<br>Other   | .165                     | 1.180               | .030               | -.271                    | .762                | -.064              | .349                     | 1.417               | .050               |
| Permanent<br>resident (reference<br>group)                              | --                       | --                  | --                 | --                       | --                  | --                 | --                       | --                  | --                 |
| Recent Immigrant<br>(entry 1991 or<br>after)                            | .390*                    | 1.477               | .071               | .124                     | 1.132               | .029               | .414                     | 1.513               | .059               |
| Established<br>Immigrant (entry<br>1990 or earlier;<br>reference group) | --                       | --                  | --                 | --                       | --                  | --                 | --                       | --                  | --                 |

<sup>a</sup>Other explanatory variables in the regression model include educational attainment, major field of study, region/country of most recent college degree, English-speaking proficiency, gender, age, marital status, presence of young children, school enrollment status, disability status, and U.S. region of residence in 2003 (dependent variable: involuntary part-time employment status: 1=employed part-time involuntarily; 0=employed part-time voluntarily).

<sup>b</sup>Statistical significance: \*\*\* .01 level, \*\* .05 level, \* .10 level.

### Demographic Characteristics

The descriptive analysis presented in the first part of this paper presented differences in involuntary part-time employment rates of college-educated immigrants by gender, age, marital status, presence of young children in the household, school enrollment status, and disability status. We included variables representing these traits of immigrant college graduates as demographic controls in our regression analysis. The regression-adjusted effects of these demographic traits on the likelihood of involuntary part-time employment for all college-educated immigrants and separately for males and females are presented in Table 15.

Even after controlling for all of the variables included in the regression equation for all immigrants, the likelihood of involuntary part-time employment was estimated to be nearly 17 percentage points higher among male immigrants compared with females. We found very low rates of part-time employment among college-educated immigrant men, and when men did work in part-time jobs, many did so involuntarily and expressed a desire for full-time employment.

**Table 15: Regression-Adjusted Effect of Selected Demographic Characteristics on Probability of Involuntary Part-Time Employment among 25- to 64-Year-Old Part-Time-Employed College-Educated Immigrants in the U.S., 2003<sup>a</sup>**

| Variable                                     | All                      |               |                 | Male                     |               |                 | Female                   |               |                 |
|--|--------------------------|---------------|-----------------|--------------------------|---------------|-----------------|--------------------------|---------------|-----------------|
| Demographics                                 | Coefficient <sup>b</sup> | Ratio of Odds | Marginal Effect | Coefficient <sup>b</sup> | Ratio of Odds | Marginal Effect | Coefficient <sup>b</sup> | Ratio of Odds | Marginal Effect |
| Male   | .902***                  | 2.463         | .165            | --                       | --            | --              | --                       | --            | --              |
| Female (reference group)                     | --                       | --            | --              | --                       | --            | --              | --                       | --            | --              |
| Married                                      | -.643***                 | .526          | -.118           | -.093                    | .912          | -.022           | -1.075***                | .341          | -.154           |
| Not married (reference group)                | --                       | --            | --              | --                       | --            | --              | --                       | --            | --              |
| Preschool-aged children                      | -.441**                  | .644          | -.081           | .595                     | 1.813         | .142            | -.926***                 | .396          | -.133           |
| No preschool-aged children (reference group) | --                       | --            | --              | --                       | --            | --              | --                       | --            | --              |
| Enrolled in school                           | -1.394***                | .248          | -.255           | -1.706***                | .182          | -.406           | -1.358***                | .257          | -.194           |
| Not enrolled (reference group)               | --                       | --            | --              | --                       | --            | --              | --                       | --            | --              |
| With disabilities                            | -.111                    | .895          | -.020           | -.287                    | .750          | -.069           | .069                     | 1.071         | .010            |
| Without disabilities (reference group)       | --                       | --            | --              | --                       | --            | --              | --                       | --            | --              |
| Age  | .019**                   | 1.019         | .003            | .007                     | 1.008         | .002            | .006                     | 1.006         | .001            |
| 30 years (reference group)                   | --                       | --            | --              | --                       | --            | --              | --                       | --            | --              |

<sup>a</sup>Other explanatory variables in the regression model include educational attainment, major field of study, region/country of most recent college degree, English-speaking proficiency, type of entry visa, recent immigrant status, and U.S. region of residence in 2003 (dependent variable: involuntary part-time employment status: 1=employed part-time involuntarily; 0=employed part-time voluntarily).

<sup>b</sup>Statistical significance: \*\*\* .01 level, \*\* .05 level, \* .10 level.

Among married immigrants, the regression-adjusted involuntary part-time employment rate was estimated to be 12 percentage points lower compared with those who were not married. Estimates of the regression-adjusted effect of marital status on involuntary part-time employment of male immigrants revealed that there was no statistically significant difference between the likelihood of involuntary part-time employment between married and unmarried men. Among immigrant women, the regression coefficient measuring the effect of marriage on involuntary part-time employment was negative and statistically significant at the .01 level, and the marginal effect revealed that the regression-adjusted probability of involuntary part-time employment among married immigrant women was expected to be 15 percentage points lower than among unmarried women.

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The presence of preschool-aged children (under 6 years) is estimated to reduce the desire for full-time employment among women, as their family and household responsibilities leave less time for labor market activities. This is especially true since many college-educated immigrant women with young children are likely to be married. Our analysis of 2010 American Community Survey data found that nearly 94 percent of college-educated immigrant women in the United States with preschool-aged children were married. In married-couple families with young children, there is a sharper division of responsibilities and, typically, at least until the child grows up, the wife assumes more of the household responsibilities while the husband is more likely to be the primary breadwinner. Consequently, women with young children in the household are more likely to voluntarily work in part-time jobs.

The opposite is expected among men with young children in the household, especially in intact families where a sharper division of labor typically results in a concentration on household production among wives and a focus on the labor market among husbands. Men with young children are more likely to work in full-time positions, and when they work in part-time jobs it is more likely to be involuntary. According to the descriptive analysis presented in the first part of this paper, involuntary part-time employment among college-educated immigrant women with young children was nearly one-half that among their counterparts without children. The rate of involuntary part-time employment of male immigrants was higher among men with young children compared with their counterparts without any children in the household.

The regression-adjusted likelihood of involuntary part-time employment among immigrants with at least one preschool-aged child present in the household was estimated to be 8 percentage points higher than among their counterparts with no preschool-aged children in the household. The presence of a preschool-aged child in the household was estimated not to have an impact on the regression-adjusted likelihood of involuntary part-time employment among immigrant men.

The amount of labor that a worker can supply is contingent upon the amount of (finite) time that the worker can devote to labor market activities. The more time an individual spends per day on non-labor market activities, the less time is left over for labor market activities. Individuals who are enrolled in school have less time for labor market work. Therefore, individuals who are enrolled in school are more likely to choose part-time work voluntarily. A comparison of the rates of involuntary part-time employment among college-educated immigrants by school enrollment status at the time of the 2003 NSCG (presented in the descriptive section of this paper) found a lower rate of involuntary part-time employment among immigrants who were enrolled in school than among those who were not enrolled. Our regression results found that the regression-adjusted likelihood of involuntary part-time employment among immigrants who were enrolled in school was 25 percentage points lower than among those who were not enrolled in school at the time of the 2003 NSCG.

The disability status of college-educated immigrants also was included in the regression equation as a demographic control because a wide range of research has found a negative impact of disability on labor market outcomes. People with disabilities are less likely to participate in the labor force, and when they do participate in the labor force, they are more likely to be unemployed. When employed, individuals with disabilities are likely to have lower earnings and fewer hours of work than workers without disabilities. According to the descriptive analysis presented at the beginning of this paper, the involuntary part-time employment rate of college-educated immigrants was somewhat higher (4 percentage points) among college-educated immigrants with disabilities than among those without disabilities. Regression findings presented in Table 15 reveal that among all, male, and female, college-educated immigrants there

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was no statistically significant difference between the regression-adjusted likelihood of involuntary part-time employment among those with and without disabilities.

The descriptive analysis presented in earlier sections of this paper found an increase in involuntary part-time employment by age among all immigrants and female immigrants, but did not find a systematic association between age and involuntary part-time employment among male immigrants. The youngest group of immigrant college graduates, 25- to 34-year-olds, had the lowest rate of involuntary part-time employment (19%), which increased by 10 percentage points among 35- to 44-year-olds (28%) and then by another 3 percentage points (31%) among 45- to 54-year-olds and 55- to 64-year-olds. The regression-adjusted effect of age on involuntary part-time employment is estimated to be statistically significant and positive. For every 10 additional years of age, the regression-adjusted likelihood of involuntary part-time employment among college-educated immigrants was estimated to increase by 3 percentage points among all immigrants. However, the regression equations estimated for men and women separately did not find statistically significant differences in the likelihood of involuntary part-time employment by age.

### **Region of Residence in the United States**

The region of residence of workers is expected to affect their labor market outcomes. Our descriptive analysis of the prevalence of involuntary part-time employment by U.S. region of residence of immigrants at the time of the NSCG found sizable differences. One-third of the part-time college-educated immigrant workers who lived in the West region and one-fifth of those who lived in the South region reported that they wanted to work in full-time jobs. The involuntary part-time employment rate was 28 percent in the Northeast region and 24 percent in the Midwest region.

Our regression findings presented in Table 16 revealed that after controlling for other variables known to affect involuntary part-time employment among college-educated immigrants (included in the regression models), the regression-adjusted likelihood of involuntary part-time employment of immigrants living in the West region was estimated to be 12 percentage points higher than that of the reference group (those living in the South region). The regression-adjusted likelihood of involuntary part-time employment among immigrants living in the Northeast and Midwest regions was estimated to be no different from that of the reference group—those living in the South region. Among immigrant men, there was no statistically significant difference between the regression-adjusted likelihood of part-time employment by region of residence in 2003. The regression-adjusted likelihood of involuntary part-time employment among female immigrants mirrored that found among all immigrants: those living in the West region had a 10-percentage-point higher regression-adjusted likelihood of involuntary part-time employment than did their counterparts in the reference group (those living in the South region).

**Table 16: Regression-Adjusted Effect of U.S. Region of Residence on Probability of Involuntary Part-Time Employment among 25- to 64-Year-Old Part-Time-Employed College-Educated Immigrants, 2003<sup>a</sup>**

| Variable                 | All                      |               |                 | Male                     |               |                 | Female                   |               |                 |
|--------------------------|--------------------------|---------------|-----------------|--------------------------|---------------|-----------------|--------------------------|---------------|-----------------|
| U.S. Region of Residence | Coefficient <sup>b</sup> | Ratio of Odds | Marginal Effect | Coefficient <sup>b</sup> | Ratio of Odds | Marginal Effect | Coefficient <sup>b</sup> | Ratio of Odds | Marginal Effect |
| Northeast                | .392*                    | 1.480         | .072            | .123                     | 1.131         | .029            | .538**                   | 1.713         | .077            |
| Midwest                  | .417*                    | 1.518         | .077            | .055                     | 1.057         | .014            | .596*                    | 1.815         | .085            |
| West                     | .673***                  | 1.961         | .124            | .620                     | 1.859         | .148            | .669***                  | 1.952         | .096            |
| South (reference group)  | --                       | --            | --              | --                       | --            | --              | --                       | --            | --              |

<sup>a</sup>Other explanatory variables in the regression model include educational attainment, major field of study, region/country of most recent college degree, English-speaking proficiency, type of entry visa, recent immigrant status, gender, age, marital status, presence of young children, school enrollment status, and disability status (dependent variable: involuntary part-time employment status: 1= employed part-time involuntarily; 0=employed part-time voluntarily).

<sup>b</sup>Statistical significance: \*\*\* .01 level, \*\* .05 level, \* .10 level.

## Summary and Conclusions

Involuntary part-time employment among college graduates imposes steep labor market costs. Among immigrants, compared with full-time employed college graduates, those who were in part-time positions involuntarily worked 24 (or 53%) fewer hours per week, 5 (or 10%) fewer weeks per year, and 1,300 (or 58%) fewer hours per year; had a 16-percentage-point (or 62%) higher likelihood of mal-employment, earned \$10 (or 28%) lower hourly earnings, and earned \$50,500 (or 72%) lower annual earnings. Underemployment or underutilization of college-educated immigrants in the form of involuntary part-time employment is expected to result in sizable losses in employment and earnings.

Although college graduates who were born abroad were less likely to work in part-time jobs than were their native-born counterparts (9% versus 11%), the prevalence of involuntary part-time employment was considerably higher among immigrants (27%) than among those who were born in the United States (14%). Male college-educated immigrants were considerably more likely to be employed in part-time positions involuntarily than were female college-educated immigrants (41% versus 23%).

Involuntary part-time employment varied among college-educated immigrants by other demographic characteristics such as age, marital status, disability status, and school enrollment status. Generally, immigrants with a stronger labor market focus (such as those without children, the unmarried, or those not enrolled in school) were more likely to work full-time and have a desire for full-time employment, and when they worked in part-time positions, they were more likely to do so involuntarily.

The authors found little systematic association between level of college degree of college-educated immigrants and prevalence of involuntary part-time employment among them. Even though level of college education affects the likelihood of finding employment, once employed, the level of college education of immigrants did not affect their likelihood of being employed part-time involuntarily.

The rate of involuntary part-time employment among immigrant college graduates, however, varied widely by major field of study. At the very top were mathematics majors, among whom nearly 6 out of 10 part-time workers reported wanting full-time jobs. The prevalence of involuntary part-time employment was also high (about 40%) among college-graduate immigrants with degrees in the biological sciences and law. At the

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lower end, college graduates who had majored in health and medical science majors, humanities, psychology, and physical sciences had somewhat higher part-time employment rates that might be indicative of somewhat higher voluntary part-time employment and, conversely, lower involuntary part-time employment.

Other traits of immigrants that were related to involuntary part-time employment were type of entry visa and region of residence in the United States in 2003. Immigrants who had entered the United States with work visas had a higher rate of involuntary part-time employment than did all other entry visa groups. Entry to the United States with work visas indicated a stronger commitment to the labor market and a greater desire for full-time employment. Over 95 percent of these (work visas) immigrants were employed in full-time positions, and out of the remainder who were working in part-time positions, over 31 percent were doing so involuntarily. This rate was 5 percentage points higher than the involuntary part-time employment rate (about 26%) among those who had entered the United States with other types of visas (permanent resident, student, or dependent visas). Immigrants living in the South region of the United States at the time of the 2003 NSCG had a considerably lower rate of involuntary part-time employment (20%) than did those living in other regions: West (34%), Northeast (28%), and Midwest (24%).

The main focus of this paper is the variation in involuntary part-time employment by country or region where immigrant college graduates earned their college degrees. Immigrants who earned their college degrees abroad were somewhat more likely to be involuntarily employed in part-time jobs than were those with U.S. degrees (28% versus 26%). Among part-time-employed college-educated immigrants with non-U.S. college degrees, the rate of involuntary part-time employment was just 6 percent among those with a British, Canadian, or Australian college degree and 18 percent among Indian college degree holders. Immigrants with college degrees from these two regions of the world had lower rates of involuntary part-time employment than the 26 percent rate among those with U.S. college degrees. The involuntary part-time employment rates of immigrants from the remaining six countries or regions of the world were higher than that of their U.S.-educated counterparts, ranging from nearly 40 percent among immigrants with Chinese college degrees to 27 percent among those with college degrees from Africa.

Part-time employment was not common among employed immigrant college graduates. However, among those working part-time, the proportion doing so involuntarily was quite high (27%). Involuntary part-time employment was systematically related to the country where college-educated immigrants had earned their college degrees. Having a college degree from abroad, particularly from China, Europe (excluding the United Kingdom), the Philippines, Latin America, Asia (excluding India), and Africa, was closely associated with high rates of involuntary part-time employment.

Since part-time employment is not widely prevalent among employed college-educated immigrants, the share of all employed college-educated immigrants facing this underutilization problem (involuntary part-time employment) was relatively small. However, among those working in part-time positions, a sizable share reported wanting to work full-time. Moreover, labor market underutilization in the form of involuntary part-time employment imposed steep costs on college-educated immigrants. Findings in this paper show that compared with full-time-employed college-educated immigrants, those working in part-time jobs involuntarily had 72 percent lower annual earnings, 58 percent lower annual hours of work, and a considerably higher likelihood of working in non-college labor market jobs.



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## Appendix A: Countries in World Regions

| <b><u>REGION</u></b>                        | <b><u>COUNTRIES</u></b>   |  |
|---|---|--|
| <b>Canada</b>                               | Canada  |  |
| <b>United Kingdom/<br/>Northern Ireland</b> | United Kingdom, not specified<br>England<br>Scotland<br>Wales<br>Northern Ireland   |  |
| <b>Rest of Europe</b>                       | Albania<br>Austria<br>Belgium<br>Bulgaria<br>Czechoslovakia<br>Denmark<br>Finland<br>France<br>Germany, not specified<br>Greece<br>Hungary<br>Iceland<br>Ireland<br>Italy<br>Luxembourg<br>Malta<br>Netherlands<br>Norway<br>Poland<br>Portugal<br>Azores Islands<br>Romania<br>Spain<br>Sweden | Switzerland<br>Yugoslavia<br>Europe, not specified<br>Southern Europe, not specified<br>Czech, Rep. of Slovakia<br>Serbia-Montenegro<br>Slovenia<br>Macedonia<br>Bosnia-Hercegovina<br>Croatia<br>USSR<br>Estonia<br>Latvia<br>Lithuania<br>Moldova<br>Belarus [Byelarus]<br>Russia<br>Kazakhstan<br>Armenia<br>Azerbaijan<br>Georgia<br>Uzbekistan<br>Ukraine<br>Turkmenistan |
| <b>India</b>                                | India   |  |
| <b>China</b>                                | China   |  |
| <b>Philippines</b>                          | Philippines   |  |
| <b>Rest of Asia</b>                         | Afghanistan<br>Bahrain<br>Bangladesh<br>Myanmar [formerly Burma]<br>Cambodia<br>Cyprus<br>Hong Kong<br>Indonesia<br>Iran<br>Iraq  | Israel<br>Japan<br>Jordan<br>Korea, not specified<br>South Korea<br>Kuwait<br>Laos<br>Lebanon<br>Macao<br>Malaysia   |

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|--|--------------------------------|------------------------------------|
| <b>Rest of Asia</b><br>(continued)                 | Nepal                          | Thailand                           |
|  | Pakistan                       | Turkey                             |
|  | Saudi Arabia                   | Vietnam                            |
|  | Singapore                      | Yemen, Peoples Democratic Republic |
|  | Sri Lanka                      | Yemen, Unified [1991 and after]    |
|  | Syria                          | Middle East, not specified         |
|  | Taiwan                         |                                    |
| <b>Central and South America and the Caribbean</b> | Belize                         | Netherlands Antilles               |
|  | Costa Rica                     | St. Kitts-Nevis                    |
|  | El Salvador                    | St. Lucia                          |
|  | Guatemala                      | St. Vincent and the Grenadin       |
|  | Honduras                       | Trinidad and Tobago                |
|  | Mexico                         | Caribbean, not specified           |
|  | Nicaragua                      | West Indies, not specified         |
|  | Panama                         | Argentina                          |
|  | Central America, not specified | Bolivia                            |
|  | Antigua and Barbuda            | Brazil                             |
|  | Aruba                          | Chile                              |
|  | Bahamas                        | Colombia                           |
|  | Barbados                       | Ecuador                            |
|  | Cuba                           | Guyana                             |
|  | Dominica                       | Paraguay                           |
|  | Dominican Republic             | Peru                               |
|  | Grenada                        | Surinam                            |
|  | Haiti                          | Uruguay                            |
|  | Jamaica                        | Venezuela                          |
|  |                                | South America, not specified       |
| <b>Africa</b>                                      | Algeria                        | Senegal                            |
|  | Angola                         | Sierra Leone                       |
|  | Cameroon                       | South Africa                       |
|  | Congo                          | Sudan                              |
|  | Egypt                          | Tanzania                           |
|  | Ethiopia                       | Tunisia                            |
|  | Ghana                          | Uganda                             |
|  | Ivory Coast                    | Zaire                              |
|  | Kenya                          | Zambia                             |
|  | Liberia                        | Zimbabwe                           |
|  | Libya                          | Africa, not specified              |
|  | Madagascar                     | Central Africa, not specified      |
|  | Morocco                        | Eastern Africa, not specified      |
|  | Mozambique                     | Western Africa, not specified      |
|  | Nigeria                        | Southern Africa, not specified     |
|  | Rwanda                         |                                    |
| <b>Australia/<br/>New Zealand</b>                  | Australia                      | Western Samoa                      |
|  | Fiji                           | Oceania, not specified             |
|  | New Zealand                    |                                    |
|  | Tonga                          |                                    |

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## Appendix B: States Included in the Four Regions of the United States

### NORTHEAST

Connecticut  
Maine  
Massachusetts  
New Hampshire  
Rhode Island  
Vermont  
New Jersey  
New York  
Pennsylvania

### MIDWEST

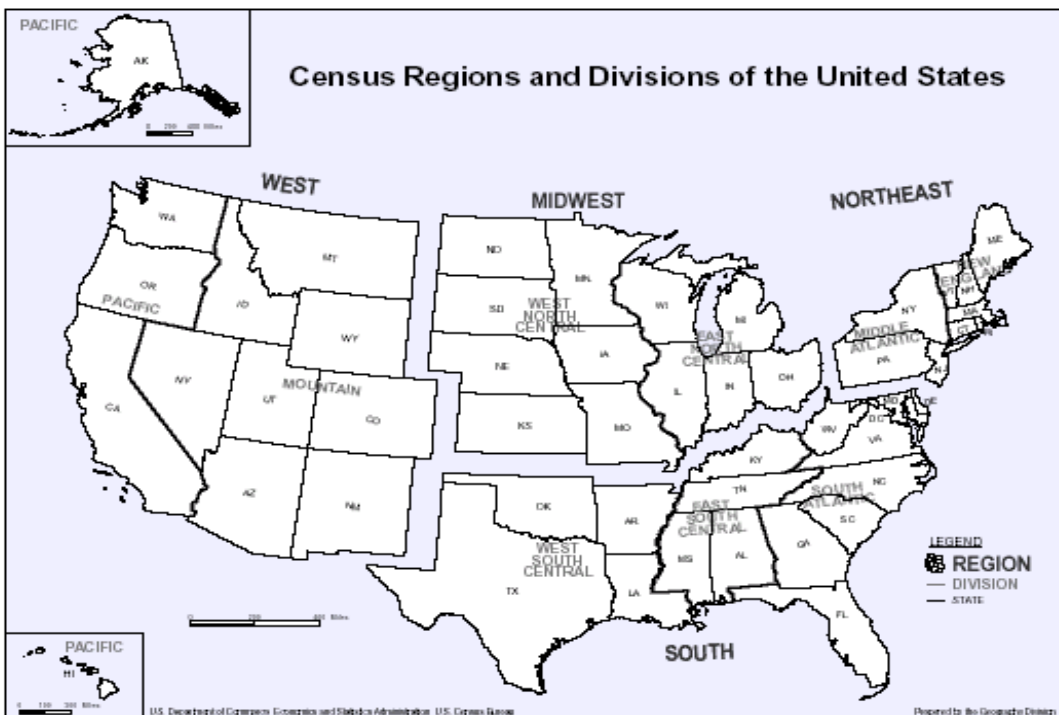
Illinois  
Indiana  
Michigan  
Ohio  
Wisconsin  
Iowa  
Kansas  
Minnesota  
Missouri  
Nebraska  
North Dakota  
South Dakota

### WEST

Alaska  
California  
Hawaii  
Oregon  
Washington  
Arizona  
Colorado  
Idaho  
Montana  
Nevada  
New Mexico  
Utah  
Wyoming

### SOUTH

Delaware  
District of Columbia  
Florida  
Georgia  
Maryland  
North Carolina  
South Carolina  
Virginia  
West Virginia  
Alabama  
Kentucky  
Mississippi  
Tennessee  
Arkansas  
Louisiana  
Oklahoma  
Texas



## Appendix C: Findings from Regression Analysis of Involuntary Part-Time Employment

### ALL IMMIGRANTS UNDER AGE 65 EMPLOYED PART-TIME, OCTOBER 2003

| Variable  | Coef.  | Robust Std. Err. | Z      | P> Z  | 95% Conf. Interval | 95% Conf. Interval | Marginal Effect |
|---|--------|------------------|--------|-------|--------------------|--------------------|-----------------|
| Male  | .902   | 0.217            | 4.150  | 0.000 | 0.476              | 1.326              | 0.165           |
| Age   | .019   | 0.012            | 1.530  | 0.126 | -0.005             | 0.042              | 0.003           |
| Entered the US Between 1991 and 2003              | .390   | 0.264            | 1.470  | 0.140 | -0.128             | 0.907              | 0.071           |
| Speaks English Very Well                          | -.170  | 0.291            | -0.590 | 0.558 | -0.740             | 0.400              | -0.031          |
| Master's Degree                                   | .086   | 0.225            | 0.380  | 0.703 | -0.356             | 0.528              | 0.016           |
| Doctorate Degree                                  | -.161  | 0.363            | -0.440 | 0.657 | -0.874             | 0.551              | -0.030          |
| Professional Degree                               | .461   | 0.463            | 1.000  | 0.318 | -0.445             | 1.370              | 0.085           |
| Computer Science                                  | .805   | 0.456            | 1.770  | 0.077 | -0.087             | 1.700              | 0.148           |
| Mathematics                                       | 2.144  | 0.633            | 3.390  | 0.001 | 0.908              | 3.387              | 0.394           |
| Biological Sciences                               | 1.271  | 0.431            | 2.950  | 0.003 | 0.427              | 2.117              | 0.233           |
| Physical Sciences                                 | .382   | 0.410            | 0.930  | 0.353 | -0.423             | 1.185              | 0.070           |
| Psychology  | .243   | 0.500            | 0.490  | 0.627 | -0.737             | 1.223              | 0.045           |
| Social Sciences                                   | .591   | 0.398            | 1.490  | 0.137 | -0.189             | 1.370              | 0.108           |
| Engineering                                       | .346   | 0.378            | 0.910  | 0.361 | -0.396             | 1.087              | 0.063           |
| Health Sciences                                   | -.514  | 0.413            | -1.240 | 0.215 | -1.320             | 0.297              | -0.094          |
| Education   | .397   | 0.386            | 1.030  | 0.303 | -0.360             | 1.155              | 0.073           |
| Engineering-Related Technologies                  | .129   | 0.765            | 0.170  | 0.868 | -1.372             | 1.627              | 0.023           |
| Business  | .538   | 0.315            | 1.710  | 0.087 | -0.079             | 1.158              | 0.099           |
| Law   | .562   | 0.660            | 0.850  | 0.393 | -0.730             | 1.858              | 0.103           |
| Degree from Canada, Australia, UK/N. Ireland      | -1.820 | 0.564            | -3.230 | 0.001 | -2.923             | -0.713             | -0.333          |
| Degree from Europe ex. UK/N. Ireland              | .051   | 0.358            | 0.140  | 0.886 | -0.650             | 0.753              | 0.010           |
| Degree from India                                 | -.490  | 0.394            | -1.240 | 0.215 | -1.260             | 0.284              | -0.090          |
| Degree from China                                 | .329   | 0.523            | 0.630  | 0.528 | -0.695             | 1.356              | 0.061           |
| Degree from the Philippines                       | .265   | 0.533            | 0.500  | 0.619 | -0.780             | 1.309              | 0.049           |
| Degree from Asia, ex. China, India, & Philippines | -.014  | 0.371            | -0.040 | 0.970 | -0.741             | 0.713              | -0.003          |
| Degree from Africa                                | -.021  | 0.627            | -0.030 | 0.972 | -1.250             | 1.206              | -0.004          |
| Degree from Latin America                         | .070   | 0.414            | 0.170  | 0.865 | -0.741             | 0.882              | 0.013           |
| Work Visa   | .370   | 0.362            | 1.020  | 0.306 | -0.339             | 1.081              | 0.068           |
| Student Visa                                      | -.043  | 0.265            | -0.160 | 0.875 | -0.561             | 0.478              | -0.008          |
| Dependent Visa                                    | .046   | 0.275            | 0.170  | 0.867 | -0.493             | 0.586              | 0.008           |
| Other Visa  | .165   | 0.326            | 0.510  | 0.611 | -0.473             | 0.803              | 0.030           |
| Married   | -.643  | 0.264            | -2.440 | 0.015 | -1.161             | -0.126             | -0.118          |
| With Preschool-Aged Children                      | -.441  | 0.256            | -1.720 | 0.085 | -0.941             | 0.061              | -0.081          |
| Enrolled in School                                | -1.394 | 0.416            | -3.350 | 0.001 | -2.207             | -0.578             | -0.255          |
| With Disabilities                                 | -.111  | 0.370            | -0.300 | 0.765 | -0.836             | 0.615              | -0.020          |
| Northeast   | .392   | 0.283            | 1.380  | 0.167 | -0.163             | 0.946              | 0.072           |
| Midwest   | .417   | 0.315            | 1.320  | 0.186 | -0.201             | 1.035              | 0.077           |
| West  | .673   | 0.263            | 2.560  | 0.011 | 0.157              | 1.190              | 0.124           |
| Constant  | -1.638 | 0.423            | -3.880 | 0.000 | -2.467             | -0.811             | --              |

Logistic regression: dependent variable: 1= Involuntary part-time employed; 0 = voluntary part-time employed.

Number of observations = 1,184.

Wald chi2(38) = 102.95.

Prob > chi2 = 0.0000.

Log pseudolikelihood = -607.24412.

Pseudo R2 = 0.1219.

### MALE IMMIGRANTS UNDER AGE 65 EMPLOYED PART-TIME, OCTOBER 2003

| Variable  | Coef.  | Robust Std. Err. | Z      | P> Z  | 95% Conf. Interval | 95% Conf. Interval | Marginal Effect |
|---|--------|------------------|--------|-------|--------------------|--------------------|-----------------|
| Age   | .007   | 0.022            | 0.340  | 0.735 | -0.035             | 0.050              | 0.002           |
| Entered the US Between 1991 and 2003              | .124   | 0.548            | 0.220  | 0.823 | -0.951             | 1.195              | 0.029           |
| Speaks English Very Well                          | -.352  | 0.472            | -0.740 | 0.457 | -1.277             | 0.574              | -0.084          |
| Master's Degree                                   | -.022  | 0.423            | -0.050 | 0.957 | -0.851             | 0.806              | -0.005          |
| Doctorate Degree                                  | .124   | 0.594            | 0.200  | 0.838 | -1.044             | 1.286              | 0.029           |
| Professional Degree                               | -1.137 | 0.979            | -1.160 | 0.247 | -3.054             | 0.785              | -0.270          |
| Computer Science                                  | .133   | 0.779            | 0.170  | 0.863 | -1.392             | 1.661              | 0.032           |
| Mathematics                                       | 1.935  | 0.950            | 2.040  | 0.041 | 0.079              | 3.801              | 0.462           |
| Biological Sciences                               | -.048  | 0.783            | -0.060 | 0.952 | -1.581             | 1.486              | -0.011          |
| Physical Sciences                                 | .090   | 0.695            | 0.130  | 0.898 | -1.273             | 1.451              | 0.021           |
| Psychology  | .523   | 0.880            | 0.590  | 0.553 | -1.203             | 2.245              | 0.124           |
| Social Sciences                                   | -.129  | 0.748            | -0.180 | 0.860 | -1.598             | 1.333              | -0.032          |
| Engineering                                       | .484   | 0.667            | 0.730  | 0.468 | -0.822             | 1.790              | 0.115           |
| Health Sciences                                   | -.564  | 0.978            | -0.570 | 0.565 | -2.480             | 1.355              | -0.134          |
| Education   | 1.198  | 0.905            | 1.330  | 0.185 | -0.575             | 2.974              | 0.286           |
| Engineering-Related Technologies                  | .202   | 0.939            | 0.210  | 0.833 | -1.642             | 2.039              | 0.047           |
| Business  | -.156  | 0.668            | -0.230 | 0.816 | -1.464             | 1.153              | -0.037          |
| Law   | .834   | 0.975            | 0.850  | 0.393 | -1.078             | 2.745              | 0.198           |
| Degree from Canada, Australia, UK/N. Ireland      | -2.584 | 1.082            | -2.390 | 0.017 | -4.702             | -0.462             | -0.615          |
| Degree from Europe ex. UK/N. Ireland              | .998   | 0.656            | 1.520  | 0.128 | -0.286             | 2.285              | 0.238           |
| Degree from India                                 | -1.261 | 0.741            | -1.700 | 0.089 | -2.712             | 0.192              | -0.300          |
| Degree from China                                 | .600   | 1.081            | 0.550  | 0.581 | -1.522             | 2.716              | 0.142           |
| Degree from the Philippines                       | -1.597 | 0.981            | -1.630 | 0.103 | -3.519             | 0.325              | -0.380          |
| Degree from Asia, ex. China, India, & Philippines | -.641  | 0.606            | -1.050 | 0.292 | -1.828             | 0.549              | -0.152          |
| Degree from Africa                                | 2.704  | 1.399            | 1.930  | 0.053 | -0.036             | 5.449              | 0.644           |
| Degree from Latin America                         | -.821  | 0.942            | -0.870 | 0.384 | -2.668             | 1.026              | -0.195          |
| Work Visa   | 1.272  | 0.682            | 1.860  | 0.062 | -0.066             | 2.609              | 0.303           |
| Student Visa                                      | -.198  | 0.419            | -0.480 | 0.635 | -1.020             | 0.622              | -0.047          |
| Dependent Visa                                    | -.797  | 0.612            | -1.300 | 0.193 | -1.997             | 0.403              | -0.190          |
| Other Visa  | -.271  | 0.723            | -0.370 | 0.709 | -1.688             | 1.148              | -0.064          |
| Married   | -.093  | 0.509            | -0.180 | 0.857 | -1.090             | 0.906              | -0.022          |
| With Preschool-Aged Children                      | .595   | 0.487            | 1.220  | 0.221 | -0.358             | 1.551              | 0.142           |
| Enrolled in School                                | -1.706 | 0.720            | -2.370 | 0.018 | -3.115             | -0.294             | -0.406          |
| With Disabilities                                 | -.287  | 0.537            | -0.540 | 0.590 | -1.343             | 0.764              | -0.069          |
| Northeast   | .123   | 0.546            | 0.230  | 0.822 | -0.947             | 1.193              | 0.029           |
| Midwest   | .055   | 0.576            | 0.100  | 0.921 | -1.072             | 1.186              | 0.014           |
| West  | .620   | 0.495            | 1.260  | 0.209 | -0.348             | 1.591              | 0.148           |
| Constant  | -.245  | 0.750            | -0.330 | 0.744 | -1.716             | 1.226              | --              |

Logistic regression: dependent variable: 1= involuntary part-time employed; 0 = voluntary part-time employed.

Number of observations = 333.

Wald chi2(38) = 48.88.

Prob > chi2 = 0.0914.

Log pseudolikelihood = 157.99994.

Pseudo R2 = 0.1885.

### FEMALE IMMIGRANTS UNDER AGE 65 EMPLOYED PART-TIME, OCTOBER 2003

| Variable  | Coef.  | Robust Std. Err. | Z      | P> Z  | 95% Conf. Interval | 95% Conf. Interval | Marginal Effect |
|---|--------|------------------|--------|-------|--------------------|--------------------|-----------------|
| Age   | .006   | 0.016            | 0.390  | 0.696 | -0.025             | 0.037              | 0.001           |
| Entered the US Between 1991 and 2003              | .414   | 0.309            | 1.340  | 0.181 | -0.192             | 1.021              | 0.059           |
| Speaks English Very Well                          | -.491  | 0.408            | -1.200 | 0.228 | -1.293             | 0.308              | -0.070          |
| Master's Degree                                   | .167   | 0.289            | 0.570  | 0.566 | -0.401             | 0.733              | 0.024           |
| Doctorate Degree                                  | -.113  | 0.534            | -0.210 | 0.834 | -1.158             | 0.934              | -0.016          |
| Professional Degree                               | 1.240  | 0.525            | 2.360  | 0.018 | 0.212              | 2.269              | 0.178           |
| Computer Science                                  | 1.130  | 0.546            | 2.080  | 0.038 | 0.063              | 2.203              | 0.162           |
| Mathematics                                       | 2.453  | 0.890            | 2.760  | 0.006 | 0.712              | 4.200              | 0.352           |
| Biological Sciences                               | 1.576  | 0.476            | 3.320  | 0.001 | 0.646              | 2.510              | 0.226           |
| Physical Sciences                                 | .389   | 0.553            | 0.700  | 0.483 | -0.696             | 1.472              | 0.056           |
| Psychology  | .252   | 0.633            | 0.400  | 0.688 | -0.986             | 1.494              | 0.036           |
| Social Sciences                                   | .957   | 0.448            | 2.140  | 0.032 | 0.080              | 1.835              | 0.137           |
| Engineering                                       | -1.752 | 0.834            | -2.090 | 0.037 | -3.376             | -0.105             | -0.249          |
| Health Sciences                                   | -.687  | 0.518            | -1.320 | 0.186 | -1.699             | 0.330              | -0.098          |
| Education   | .271   | 0.462            | 0.590  | 0.554 | -0.632             | 1.180              | 0.039           |
| Engineering Related Technologies                  | -.040  | 0.965            | -0.040 | 0.970 | -1.929             | 1.855              | -0.005          |
| Business  | .678   | 0.359            | 1.890  | 0.058 | -0.024             | 1.384              | 0.097           |
| Law   | -.167  | 0.781            | -0.210 | 0.834 | -1.694             | 1.367              | -0.023          |
| Degree from Canada, Australia, UK/N. Ireland      | -1.496 | 0.714            | -2.090 | 0.036 | -2.895             | -0.095             | -0.214          |
| Degree from Europe ex. UK/N. Ireland              | -.580  | 0.518            | -1.120 | 0.262 | -1.596             | 0.435              | -0.083          |
| Degree from India                                 | -.399  | 0.457            | -0.870 | 0.385 | -1.293             | 0.499              | -0.057          |
| Degree from China                                 | .374   | 0.687            | 0.550  | 0.583 | -0.969             | 1.725              | 0.054           |
| Degree from the Philippines                       | 1.070  | 0.479            | 2.230  | 0.026 | 0.130              | 2.008              | 0.153           |
| Degree from Asia, ex. China, India, & Philippines | .094   | 0.461            | 0.200  | 0.839 | -0.810             | 0.997              | 0.013           |
| Degree from Africa                                | -.559  | 1.010            | -0.550 | 0.580 | -2.539             | 1.421              | -0.080          |
| Degree from Latin America                         | .122   | 0.462            | 0.270  | 0.791 | -0.783             | 1.027              | 0.018           |
| Work Visa   | .085   | 0.528            | 0.160  | 0.870 | -0.948             | 1.121              | 0.012           |
| Student Visa                                      | -.097  | 0.337            | -0.280 | 0.777 | -0.756             | 0.565              | -0.014          |
| Dependent Visa                                    | .107   | 0.313            | 0.340  | 0.735 | -0.507             | 0.718              | 0.015           |
| Other Visa  | .349   | 0.379            | 0.920  | 0.360 | -0.396             | 1.089              | 0.050           |
| Married   | -1.075 | 0.302            | -3.550 | 0.000 | -1.667             | -0.481             | -0.154          |
| With Preschool-Aged Children                      | -.926  | 0.323            | -2.870 | 0.004 | -1.559             | -0.293             | -0.133          |
| Enrolled in School                                | -1.358 | 0.571            | -2.370 | 0.018 | -2.477             | -0.237             | -0.194          |
| With Disabilities                                 | .069   | 0.496            | 0.140  | 0.887 | -0.902             | 1.042              | 0.010           |
| Northeast   | .538   | 0.327            | 1.640  | 0.101 | -0.104             | 1.179              | 0.077           |
| Midwest   | .596   | 0.376            | 1.590  | 0.113 | -0.140             | 1.332              | 0.085           |
| West  | .669   | 0.314            | 2.130  | 0.033 | 0.052              | 1.284              | 0.096           |
| Constant  | -1.211 | 0.537            | -2.260 | 0.024 | -2.266             | -0.160             | --              |

Logistic regression: dependent variable: 1= involuntary part-time employed; 0 = voluntary part-time employed.

Number of observations = 851.

Wald chi2(38) = 84.96.

Prob > chi2 = 0.0000.

Log pseudolikelihood = 408.2786.

Pseudo R2 = 0.1491.