Skilled Immigrants to the United States during the Great Recession*

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May 2014

* This research was supported by Grant SES-1020452 from the National Science Foundation.

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Abstract

Skilled immigration to the United States has been multi-channeled via legislation on permanent and temporary programs. This paper argues that skilled immigrants in the stock were not disadvantaged during the Great Recession because of a unique mechanism, which starts with the federal legislation that admits skilled nonimmigrants, proceeds to vest authority in employers, who perform rigorous screening and selection of temporary workers for future permanency, and ends with greater protection of those selected. To test this mechanism, the paper examines skilled immigrants' spatial mobility out of the country and their domestic labor market outcomes. The paper presents evidence from repeated, nationally representative survey data of college graduates in the US using intra-cohort and inter-cohort analysis. The major findings about the substantial cross-border mobility and high levels of labor force participation among at-entry temporary visa holders who later gained permanent residency provide strong evidence to support our proposed new hedging mechanism.

Key words: skilled immigration, visa pattern, economic risk, spatial mobility, labor market outcome

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Introduction

Economic crises induce risk of reduced work hours and greater probabilities of unemployment and underemployment. The 2007 financial crisis and the subsequent Great Recession were among the most severe economic challenges during the ongoing transformation from a postindustrial economy to a knowledge economy. Before the transformation to a knowledge economy – a change that has demanded more highly educated workers – scientists and professionals (i.e., the skilled workforce) were a relatively homogenous group that was privileged and well-protected by the primary labor market in times of economic crises. Alongside the burgeoning knowledge economy are large influxes of skilled immigration to developed countries, particularly to the United States, which has experienced a rapid increase in the size and heterogeneity of its skilled workforce. In the United States, the preexisting immigration legislations of employment-base programs and temporary worker programs and the practice of employers' authority to select foreign-born skilled workers may actually protect this part of the skilled workforce better than other parts. At the same time, greater economic opportunities in home countries that are emerging market economies and have avoided recession may provide unique opportunities for immigrants to develop their careers back in their home country.

While the hedging literature focuses on two traditional hedging institutions – the nuclear family and the welfare state – and their significant decline in recent decades, this paper turns to the labor market, both domestic and foreign, to identify the labor markets' hedging role for different demographic groups. Recent literature documents a disadvantage for unskilled immigrants during the Great Recession (e.g., Parrado, 2012). We focus instead on whether skilled immigrants are as disadvantaged as unskilled immigrants during the same period.

This paper takes advantage of the great heterogeneity of skilled workers to advance our understanding of the hedging of labor market institutions that differentially protect workers of various policy and demographic groups. The Great Recession offers a unique window of opportunity to pursue our two major research questions. How does the spatial distribution of the economic crisis create different choice sets of the host vs. home workplace, which, in turn, explain the staying vs. returning behavior of skilled immigrants? Do labor market institutions respond to the economic crisis differently for workers on distinct visa programs and create differential hedging for skilled workers?

The best available data to answer these questions are from the nationally representative samples of the National Survey of College Graduates (NSCG) in 2003 and 2010 because they are the only surveys that include representative college graduates with a Bachelor's degree or higher from US or foreign higher education institutions. We employ intra-cohort analyses to answer both questions and additional inter-cohort analyses to supplement answers to the second question. Our population is prime-age skilled workers who are less vulnerable to economic crises than younger and older workers. A quasi-experimental framework takes the Great Recession as the "treatment" given to immigrants and natives in observations in 2010 but not 2003. The differential treatment effect for immigrant visa patterns and natives, i.e., the effect of the institutional arrangement of distinct visa programs in the Great Recession, can be ascertained in a multivariate analysis.

Contrary to what we may think – that immigrants are disadvantaged especially during economic crises – our data show that immigrants on temporary and student entry visas appear to be better protected than the native-born and permanent visa holders in their work status and hours worked. In addition to the well-known individual self-selectivity (Borjas, 1987), the paper argues that stringent labor institution screening and selection of immigrants admitted on

temporary-worker and student visas may explain their better labor market outcomes under the Great Recession. At the same time, the growing demand for research and development in the home country absorbs substantial return migrants. These institutional and structural factors create a "double winning" situation for skilled workers on temporary and student visa programs. Findings of this study will add to the hedging literature and the literature on immigrants' assimilation with our idea regarding the hedging role of domestic labor market institution and global economic structure.

Background

Although a well-established literature has examined the economic outcomes of immigrants in the US labor market since Chiswick (1978), there have been relatively less research on the skilled workforce and even less on the impact of economic crises on this workforce. The deteriorating labor market conditions during the Great Recession have led to not only high and long-term unemployment but also a growth of underemployment (involuntary part-time work) and a substantial increase in discouraged workers no longer counted in the labor force (Elsby et al., 2010; Katz, 2010). Unemployment increases have disproportionately affected men, workers from goods-producing industries, young workers, and non-college workers (Hout et al., 2011). The Great Recession also hit local labor markets differentially. Within the United States, county level unemployment rates are spatially dispersed and correlated, and they evolved over the course of the Great Recession (Fogli et al. 2012). During this period, the high-skilled immigrant workforce was quite geographically responsive to employment opportunities within the United States (Cadena and Kovac 2013), while the low-skilled workforce appeared to repatriate at higher rates than did the high-skilled workforce (Depew et al. 2013). Furthermore, the repatriation intensified during the Great Recession (ibid.).

Researchers seek to identify factors and conditions that are responsible for the differential impacts of the Great Recession with two foci – labor-market institutions and the pre-crisis timing of these institutions. For example, in explaining the divergent unemployment pattern of France and Spain, the authors identify the pre-crisis strong labor protection legislation in France and the pre-crisis dismantled permanent and temporary contracts in Spain as a cause of the divergent unemployment pattern during and after the crisis (Bentolila et al., 2010). Likewise, in their study on the impact of the crisis on emerging market economies (Llaudes, 2010), the authors pay attention to pre-crisis economic fundamentals and find that the impact of the crisis is more pronounced in those emerging market economies that have had weaker pre-crisis fundamentals including growth, stock market performance, sovereign spreads, and credit growth. This wide literature on the Great Recession suggests the importance of labor market institutions and the timing of these institutions in varying the impact of economic crisis. In a sense, labor market institutions could reduce the impact of the crisis and thus have the capacity to hedge the crisis for certain worker groups.

Since the seminal evaluation of the impact of immigration on the labor market (Smith and Edmonston, 1997), immigration is a well-researched topic of low-skilled labor. Orrenius and Zavodny (2009) find that immigrants are more likely to work in risky jobs than US-born workers, partly due to their lower levels of human capital. In his thorough study of the impact of state immigration policy and the Great Recession on the spatial mobility and size of the Mexican immigrant population, Parrado (2012) highlights two salient processes in encouraging immigrants to relocate either within the United States or abroad: the enactment of local immigration control provisions and the variable impact of the economic recession across local areas. While Parrado's study does not address the skilled workforce, its conceptual ideas of legislation affecting the labor force and variable impact of the economic recession over space

suggest that these factors should be important for the skilled workforce.

Research on the labor market outcomes of the skilled workforce has incorporated the 1965 Immigration Law that established the employment-based preference to attract high-skilled immigrants. Early research on US admission-group earning differentials focused on legal immigrants and documented the at-entry lower earning levels and over-time greater earning levels and growth of family-based immigrants than of employment-based immigrants. Researchers proposed that this was because the former enjoyed greater assistance from immigrant communities and networks (Duleep and Regets, 1996) and because employment-based immigrants experienced occupational downgrading, while family-based immigrants experienced occupational upgrading (Jasso and Rosenzweig, 1995). Recent research on earning differentials across visa patterns for skilled immigrant stock and skilled natives found salary advantages for those who arrived on a temporary worker program and managed to gain permanent residency (Hao 2013).

The Immigration Act of 1990 scaled up nonimmigrant programs for admitting high-skilled workers, such as the H-1B for specialized occupations and the L-1 for transferring managers, executives, and professionals (USCIS 2010). These programs serve a diverse range of nonimmigrants. The H-1B visa program has an annual limit of 65,000 to 195,000, but educational and research institutions are not subject to a numerical limit of H-1B applications. Employers often use H-1B to hire foreign students graduating from US higher-education institutions. In response, foreign students are increasingly from Asian countries (National Science Board 2008). The L-1 program is not subject to numerical limits, but the number of granted L-1 visas has been lower than the number of approved H-1B visas (GAO 2011).

Research on admission-group differentials in labor market outcomes in other advanced economies has also focused on legal immigrants. For example, group differential unemployment

rates have been explained by immigrant characteristics and host country demand for workers in specific occupations (Miller, 1999). More recent research has paid attention to nonimmigrant admission categories. Luthra (2009) showed that skilled workers with estimated H-lB status were channeled into contingent employment during the probationary period and, while temporary workers receive prevailing salaries, they are less likely to receive employer provided health care and retirement benefits. Depew et al. (2013) address the institutional features of the H-1B visa program that restricts temporary workers' job mobility. Brown and Bean (2009) showed that the temporary-to-permanent pathway for H-1B holders helps foreign graduate students obtain immigrant status in the US. Most science and engineering foreign students stay and work in the United States after graduation, and have become a key source of the skilled labor (Freeman, 2007). Empirical research has found that at-entry temporary skilled workers receive a salary premium compared to native skilled workers in the information technology industry (Hunt, 2011; Mithas and Lucas, 2010) and in major science, technology, engineering and mathematics (STEM) industries (Lofstrom and Hayes, 2012). The 1990 Immigration Act that established a temporary-to-permanent pathway for highly skilled workers has allowed employers to play a crucial role in skilled immigration and created institutional selection that gives a salary advantage to highly skilled temporarily admitted workers retained in the US (Hao 2013).

In order to better understand the skilled workforce in the economic crisis and whether and how labor market institution hedging is operating, we develop a theoretical rationale to account for the interaction of skilled workforce legislations and the economic crisis in determining the work status (full-time working, part-time working, unemployed, and out of the labor force) and hours worked.

Theoretical Consideration

For many foreign nationals in the United States, the pathway to legal permanent residency is a challenging and long process, demanding a variety of efforts to overcome hurdles and complete all necessary steps. Among high-skilled foreign nationals, some arrive in the US with a permanent residency visa or a dependent visa. However, an increasing share arrives with nonimmigrant visas, including temporary worker visas and foreign student visas. Each of these pathways from the initial visa type to legal immigration is associated with a different profile with respect to nationality, social background, and economic status (Massey and Malone 2002).

It is also important to recognize that the foreign-born stock at any point in time depends upon not only who enters the country for the first time but also who returns home subsequently. Some temporary workers are recruited for temporary jobs and these workers must return home. In addition, temporary workers and students are less attached to American society than permanent residents. The uncertainty of future US stay associated with the temporary-worker and international-student programs may lower their efforts to integrate. More importantly, temporary workers and students are also more likely to respond to economic shocks and return to their home country during economic downturns. The 2007-2009 economic crises hit the advanced economies in North America, Europe, and Oceana more than emerging market economies in Asia, Africa, and the Western Hemisphere (Llaudes et al., 2010). China and India are the two top sending countries of highly educated immigrants to the United States and these two countries are also among those countries that avoided the economic crisis with their substantial positive growth in GDP. China and India differ in the role of the state and the shape of the public finance. China's strong state with sufficient public finance sustained a large stimulus package to prevent a downturn, whereas India is a weak example on this point. However, both countries prioritize development and employ a strategy of placing US/UK-trained nationals in important research and development positions. These positions are reserved for the

brightest candidates, creating opportunities not found in the recession-hit United States and Europe. Thus the wide spatial distribution of economic opportunities across advanced and emerging market economies during the Great Recession help us to understand the driving forces of return migration behavior of immigrants. Under the rationale that the spatial distribution of the Great Recession may contribute to differential return migration across origin-country groups, and the fact that China showed a stronger growth than India during the Recession, we expect that skilled Chinese workers were more likely to exit the US labor market than their skilled Indian counterparts, who were more likely to do so than their skilled native counterparts. While it is impossible to test this directly because of the lack of data on those who exited the United States, an intra-cohort analysis that traces the compositional changes of the same cohort over time may provide indirect evidence for differential return migration trends.

In the United States the admissions of the skilled workforce have been multi-channeled, encompassing legal permanent residency (PR) based on the employment-based or family-based programs and temporary-worker programs directly recruiting workers from foreign countries (TW such as H-1B) or upon the graduation of foreign students (ST). The non-PR admission programs have become major channels since the 1990 Immigrant Act, particularly since the 1996 Illegal Immigration Reform and Immigrant Responsibility Act. For these nonimmigrants the pathway toward citizenship is well laid out through temporary worker programs that closely monitor and screen these workers' productivity. Employers can then use this metric as a basis for whether to sponsor nonimmigrants' applications for permanent residence.

We argue that nonimmigrant admission programs induce a new labor-market institutional selection that is not applied to natives and PR immigrants. First, the cost of hiring a temporary worker is high, including fees for a certification and a partition for the needed skills and pay at the prevailing wage level. To recruit high-quality workers and offset the high cost, employers use

institution networks and governmental/private employment services in source countries (Massey et al., 1998). Domestically, employers choose graduating international students to fill temporary or permanent jobs. Second, temporary worker programs provide employers with the visa portability of temporary workers and thus employers have the vested authority to select suitable temporary workers and to retain them as permanent workers if so desired. Within the three to six years of the temporary-work period, employers can observe temporary workers' performance on the job and determine whom to retain and whom to dismiss. In a fundamentally different way, this employer selection overcomes the inherent uncertainty of traditional recruiting practices for native-born workers and PR immigrants. In traditional recruitment, employers must resort to such signals as educational credentials and recommendation letters (Arrow, 1973; Spence, 1974). Rather than relying on signals, employers can screen temporary worker directly based on the actual performance. This employer on-the-job screening may retain qualified workers with greater productivity. In sum, nonimmigrant admission programs enable firms to exercise more stringent screening of workers. We call this process labor market institutional selection, which is very different from individual self-selection widely recognized in the immigration literature. Labor-market institutional selection is uniquely present for nonimmigrants but absent for employment-based legal immigrants, as they are offered a permanent job and permanent residence at admission. Institutional selection, in contrast, occurs not only at the first entry but also after, up to the point of adjustment to legal permanent residency. This contrast between nonimmigrant and immigrant through visa patterns from the first entry to the present legal status provides an opportunity to empirically examine whether the institutional selection argument can be substantiated.

We assume that institutional selection raises worker productivity and firm efficiency, which become more crucial for firms to survive economic crises. Our hypothesis is that labor-

market institutional selection, manifested in direct recruitment of foreign temporary workers and graduating international students, and on-the-job screening, create special advantage and protection for those who have gained legal permanent residency. Although unconventional, we suggest that neither natives nor PR immigrants can enjoy this advantage and protection as foreign-born skilled workers who experienced the transition from nonimmigrants to legal immigrants can. Thus the corresponding working hypothesis is that foreign-born skilled workers with the at-entry temporary worker or foreign student visa and present permanent residency (the TW/ST-PR visa pattern) will have better labor market outcomes than natives and the foreign born who had permanent residency when first arrived (the PR-PR visa pattern), regardless of economic crises (Hypothesis 1). The Great Recession hit all workers but labor market institutional selection provided better protection for the TW/ST-PR visa pattern during the economic downturn. Therefore, we expect that the Great Recession has a weaker impact on workers with the TW/ST-PR visa pattern than that on natives and the foreign born with the PR-PR visa pattern (Hypothesis 2). Next we focus on whether the temporary work programs worked the same under the shadow of the Great Recession as before. Although the Great Recession was associated with more part-time jobs and fewer hours worked, we suspect that the institutional selection may still dominates. Our third working hypothesis states that labor market institutional selection under the shadow of the Great Recession remains significant (Hypothesis 3). If these empirical linkages can be established, we have evidence that nonimmigrant admission programs open the door for a labor-market institutional selection of high-skilled workers. If the selection occurs at economic downturns, such selection will justify the better protection for these at-entry nonimmigrants who have remained in the US. Because human capital is an important hedging factor on the supply side, evidence for the labor-market institutional selection and hedging must

control for human capital stock like advanced degrees, STEM fields of study, and work experience.

Study Design

We define our population as prime aged, highly-educated individuals who are less vulnerable to economic crises than other workers. Table 1 lists how the three groups used in our analysis are defined: (A) a cohort of the native-born and foreign-born who entered the US labor market in 1994-2000, aged 25-44 in 2003 (and the foreign born entered the US 1966-2000); (B) the evolution of Group A in 2010 such that they were similar in all respects except seven years older; and (C) a cohort of the native-born and foreign-born who entered the US labor market 2001-2007, aged 25-44 in 2010 (and the foreign born entered the US 1966-2007). Groups A and B are used in an intra-cohort analysis and Groups A and C are used an inter-cohort analysis.

(Table 1 about here)

To ensure close comparisons between Groups A and B in the intra-cohort analysis and between A and C in the inter-cohort analysis, we use the propensity score matching method (PSM). PSM minimizes the observed bias between individuals in the two groups in comparisons by estimating a propensity score for every individual, defined as the probability that the individual was exposed to the "treatment" of interest given the observed covariates (Rosenbaum & Rubin 1983). In our setting, the treatment is the Great Recession. Individuals are matched to each other on time-invariant initial conditions, including the at-entry visa types, country of origin, gender, birth year for intra-cohort groups and age for inter-cohort groups. Multiple specifications of the matching model are compared to determine the best match (Stuart, 2010). The PSM helps determine a commonly supported analytic sample and identify a finite number of block groups, within which the propensity scores are similar. This has the effect of balancing the

distribution of observed covariates in group A and group B for the intra-cohort analysis and group C for the inter-cohort analysis. We include a set of dummy variables for these block groups in our multivariate modeling to enable the comparison of like individuals and minimize the threat to validity from observational bias.

Before testing our three hypotheses, we first examined global labor relocation through the departure patterns for three selected groups: natives, Chinese nationals, and Indian nationals. We described the immigrant origin group shares and the native share of the cohort observed in 2003 (Group A) and the changes in these shares when the cohort evolved to 2010 (Group B). To break down this bulk change, we described the share changes by age groups. To understand the demographic features of these changes, we further examined a number of characteristics (degree, study-field, and at-entry visa). All of this compiles a profile for each of the three selected groups –native-born, Chinese immigrants, and Indian immigrants – the comparison of which can identify which subgroups in a particular immigrant group have a higher rate of departing the United States using the native born as the reference. Following a similar method used in Jasso and Rosenzweig (1990), we examine the intra-cohort compositional changes and relate them to our expectations of differential return migration of skilled workers by origin country groups.

For those immigrants who remained in the United States, we examined which patterns of at-entry visa and present legal status (hereafter visa patterns) better protect immigrants against economic risks than others to offer evidence to test Hypotheses 1-3. To identify the Great Recession's differential effects across visa patterns, we used the difference-in-differences (DiD) approach. Taking (1) the difference in a work status (say part-time working) between 2003 and 2010 for the native born, (2) the same difference for one of the four visa patterns, we obtain DiD estimates as the difference in these two differences. In effect, the DiD adjusts the cohort change

of an immigrant group according to the native base. The DiD captures the differential effect of the Great Recession for various visa patterns as well as for natives.

To model the four work statuses we used a multinomial logit model. Interaction terms between the indicator for Group B (which experienced the Great Recession) and each of the four visa patterns were used to capture the DiD. Let p_j ($j = 2,3,4$) be the probability for a work status (part-time working, unemployed, out of labor force), p_1 the probability for full-time working, B the indicator for Group B, V a set of dummy variables indicating the visa patterns with natives as the reference, and Z a vector of control variables (country of origin, later arrival, highest degree obtained, STEM fields, age, gender, and the block groups identified via PSM). The multinomial logit model is expressed below:

$$\log\left(\frac{p_j}{p_1}\right) = \beta_{0j} + \beta_{1j}B + \beta_{2j}V + \beta_{3j}B \cdot V + \beta_{4j}Z \qquad (1)$$

where β_{3j} is the estimated DiD.

The number of hours worked is a widely used quantitative measure of labor market outcome, measuring the magnitude of workers' productivity and work effort (Bloom et al. 2012). We ask how the number of hours worked per week on the principal job was affected by the same set of covariates for work status using a Tobit model that censored the number of hours worked at 0 for respondents who did not work. The same interaction terms are used to estimate the differential effect of the Great Recession on hours worked per week (y for observed hours among those who were working and y^* its latent form for both working and non-working people). The Tobit model takes into account both the probability of not working for the censored individuals and linear relationship between hours worked and covariates for individuals who were working. The Tobit model takes the following form:

$y = y^*$ if $y^* > 0$

$$y = 0 \text{ if } y^* \le 0$$
$$y^* = \delta_0 + \delta_1 B + \delta_2 V + \delta_3 B \cdot V + \delta_4 Z + \varepsilon \quad (2)$$

where δ_3 is a the estimated DiD.

Data, Samples, and Measures

The analysis draws on data from the National Survey of College Graduates (NSCG) 2003 and 2010. The NSCG interviewed a probability sample of college graduates aged 75 or younger living in the United States.[1] The NSCG is the only college-graduate survey that covers the complete foreign-born stock who earned their highest degree from US or foreign higher education institutions. The rarely available information in both surveys includes the visa status at first entry and at the survey time, country of origin, and arrival cohort among the foreign-born; the year, place, and field of up to five academic degrees; and the work status and hours worked per week for the principal job. This set of information is required for the present study.

We select three groups for our intra- and inter-cohort analyses as defined in Table 1. Because we study labor market outcomes, we fixed a range of labor market entry years (equivalently a range of 3-7 years duration of labor market experience) to enable the comparability of the two intra-cohort groups. The labor market entry year is not directly observed in the survey and we approximate it by the year of the highest degree conferment among natives and those foreign-born nationals who earned their highest or the most recent degree from a US higher education institution. For foreign-born nationals who have only foreign degrees, we approximate it by the year of arrival in the US. Table 1 also lists other criteria of group selection, including age and the arrival year among the foreign born.

[1] In 2003, the NSCG used as its sampling frame the 2000 long form decennial Census. The 2010 Census replaced the long form survey with the American Community Survey (ACS); the 2009 ACS served as the sampling frame for the 2010 NSCG.

(Table 1 about here)

We have two dependent variables: work status (full-time, part-time, unemployed, and out of labor force) and hours worked per week on the principal job (respondents with non-working status assigned 0 hours worked). One key explanatory variable is the indicator for the cohort evolution to 2010 that signals having experienced the Great Recession, as compared to the counterpart group observed in 2003. A second key explanatory variable is the visa pattern experienced between the first entry to the US and the legal status at the time of survey. For foreign-born nationals the visa status at the first entry into the US is recorded as permanent resident (PR), temporary worker (TW), student (ST), and others; the visa statuses at the survey time include PR (as well as naturalized citizen) and TW. By cross-classifying the at-entry visa and the present status we come up with four visa patterns for the foreign born: PR (regardless of later naturalization), TW/ST-PR (regardless of later naturalization), TW/ST-TW, and a residual pattern, with the native-born as the reference. We emphasize the visa pattern from initial TW/ST because the TW/ST-PR represents the successful pathway from nonimmigrant to legal migrant while the TW/ST-TW indicates the ongoing process of maintaining nonimmigrant status. The latter two categories are intended to capture the underlying labor market institutional screening and selection. The third key explanatory variable is the country/region of origin. The country/region of origin includes the United States, China, India, Europe, Asia except for China and India, and a residual group. Among the major sending countries of skilled immigrants, China and India are ranked the top two and much distanced from the third rank of Europe. The control variables include the highest degree (Bachelor's, Master's, doctoral, professional), science, technology, engineering and mathematics (STEM) fields of the highest degree, later arrival (after

1996), gender, age, marital status, and living with children under age 6.[2] Also included are a finite number of block groups identified from the PSM for either intra- and inter-cohort analysis. These control variables ensure rigorous testing of our hypotheses by holding constant human capital measured by educational levels, study fields, and experience and demographic characteristics, all of which are examined within propensity score matched block groups. Appendix Table 1 shows the weighted distribution of all variables used in the analysis by the three groups used for intra- and inter-cohort analyses.

Intra-cohort Analysis

This section analyzes the labor market outcomes of a cohort of skilled workers, both native-born and foreign-born, in 2003 and its evolution in 2010. Specifically this intra-cohort analysis examines a cohort with 3-7 years of US labor market experience in 2003 from NSCG 2003 and traces its evolution in 2010 from NSCG 2010. Given that migration and mortality are the two demographic mechanisms that reduce the cohort size and change the cohort composition from 2003 to 2010, for this relatively young cohort, the emigration of the native born and the return migration of the foreign born can be conceived as the major mechanisms of the changes in cohort composition of immigration legal status groups. We take advantage of this compositional change and its underlying rationale of return migration to understand the impact of uneven global, spatial distribution of the Recession. We continue on to model work status and hours worked to test our Hypothesis 1 about the impact of immigration legal status patterns and Hypothesis 2 about the impact of Great Recession. We present the results below.

[2] We briefly examined the migration intention of foreign-born skilled workers by their visa type at first entry before 2000. Their intentions to come to the US differ. Nearly two thirds of high-skilled workers with an initial PR visa considered the family as the primary reason for their migration whereas only 6-14% of initial nonimmigrant visa holders so considered. These motivational differences can affect work effort but due to the lack of this measure for the native born, we are unable to explore this possibility.

Differential Return Migration

To view the global labor relocation of a cohort (Group A and 7 years later, Group B), we use the ratio of a dichotomous demographic characteristics, e.g., the BA ratio (BA to above-BA). If the ratio is smaller for Grade B in 2010 than Group A in 2003, we can infer that BA's exited the US more than the above-BA's. Table 2 presents the trends for the study-field ratio (STEM to non-STEM), and the visa ratio (at-entry TW/ST to PR/others). The BA and study-field ratios are compared across native-born, China-born, and India-born; the visa ratio is compared between the two foreign-born groups. We examine these ratios in turn below. There is virtually no change in the BA to above-BA ratio among natives as a whole and, yet, the age group patterns show a general decline, suggesting fewer BA's relative to above-BA's in older groups over the 7 years, perhaps due to the global relocation of a small fraction of native-born prime-age BA's. Using the natives as the reference, we see that the BA to above-BA ratio changed substantially among the China-born: a 35% decline in total and the age pattern is unclear. This perhaps corresponds to the Chinese policy to attract US-trained college graduates to develop their careers back in China (CPC Central Office 2008). Turning to the STEM to non-STEM ratio, we observe that more STEM natives relocated overseas and the younger ones were more likely to make such a move. In contrast, STEM Chinese and Indians were more likely to stay in the US, particularly the younger ones. The last ratio is relevant for the foreign-born Chinese and Indians only. In general, Chinese and Indian at-entry non-immigrants (TW/ST) were more likely to stay than the at-entry immigrants (PR/others). Two reasons were possible for this trend. First, rigorous institutional selections were applied to at-entry nonimmigrants (TW/STs). Second, at-entry immigrants (PRs) can take a job back in the home country without losing their PR status so long as they spend the minimal required time in the US. While the age group pattern is unclear for the Chinese-born, it

is consistently positive for the India-born, with the two younger groups more likely to stay. This implies that the US labor market favors Indian TW/STs.

(Table 2 about here)

These ratios compile very different profiles for the native-born, China-born, and India-born skilled workers and better our understanding of their global relocation under the Recession. Overall, natives were unlikely to relocate to overseas jobs and, if they did, those with STEM fields would do so. In contrast, the China-born and the India-born with STEM were more likely to stay in the US. It seems that the US labor market favored China-born BA's and Indian at-entry nonimmigrants (TW/STs.)

Although there are no individual panel data to provide direct evidence regarding which individuals have emigrated, we can adduce evidence from cohort changes in time-persistent individual characteristics over the 7-year period that witnessed the Great Recession. Any changes in the time-persistent characteristics after the adjustment to natives' change must be due to selection because no cohort additions are possible, given that we have carefully defined the intra-cohort groups by multiple characteristics and used the sampling weights to restore the population patterns in each survey. Under the rationale that the spatial distribution of the Great Recession may contribute to differential return migration across origin-country groups, we expected that skilled Chinese workers were more likely to exit the U.S. labor market than the Indian counterparts, who were more likely to do so than the native counterparts. The profiles summed up above are consistent with this expectation.

Labor Market Outcomes

We first describe labor market outcomes by visa patterns for the same cohort as it evolved from 2003 to 2010 as defined in the intra-cohort analysis. The first row of Table 3 shows that the population share for native remained virtually the same at 82-83% in 2003 and 2010.

The initial permanent residency holders (PR-PR) had a share of 6% in both years (and the other foreign-born group who had an initial dependent visa occupied a 4% share in both years, not shown in the table.) However, the share for those who first entered the US on nonimmigrant visas and obtained PR before the time of survey (TW/ST-PR) increased from 5% to 7%, corresponding to the decrease by 2 percentage points for TW/ST-TW, suggesting the some TW/STs in 2003 gained PR status afterwards. Turning to the labor market outcomes, the table shows several differences by nativity and visa patterns in the aftermath of the Recession. First, the group that changed from initial nonimmigrant status to legal immigrant status (TW/ST-PR) had the highest percentage for full-time working in 2003 among the four groups. Second, from 2003 to 2007 the percentage of full-time working declined mildly for natives and initial permanent residents (PR-PR) but increased for all initial nonimmigrants, regardless of their current status (including TW/ST-PR and TW/ST-TW). Third, TW/ST-TW showed a very high percentage of full-time work in 2010. The changes in hours worked reveal the same patterns. These patterns depict a simple fact that the labor market retained skilled foreign-born guest workers who worked full-time and those selected out might have left the country, more so during the Great Recession than before.

(Table 3 about here)

We argue that the labor market institution selection according to various visa programs may boost different responses to the Recession, leading to distinct labor market outcomes for those remaining in the U.S. Using natives as the reference, we examine (1) how labor market outcomes differ by visa patterns, and (2) differential effects of the Recession on the labor market outcomes of groups of different legal status patterns, holding other covariates constant. The propensity score matching technique is used to enhance the causal inference of the Recession effect on labor market outcomes.

Table 4 shows the intra-cohort estimates of two incremental multinomial logit models for work status and two incremental Tobit models for hours worked. Model 1, the baseline model, does not include the interaction terms between the indicator for Group B that captures the evolution of the cohort in 2010 and visa patterns while Model 2 does. The coefficients from the multinomial logit models are the log odds of being in a given work status vs. full-time working. The coefficients from the Tobit models are changes in hours worked for both working and nonworking individuals and are proportionally larger for working people (weighted by the inverse probability of working, see Greene 2003).

(Table 4 about here)

Regarding the estimates for work status, we interpret the direction and significance of the estimates of the coefficients (as log odds) and the magnitude in terms of odds ratios. Before discussing the key explanatory variables, we briefly examine the control variables. As expected, above-BA degrees, STEM fields, male and older ages (with a demolishing rate) are associated with lower likelihood of part-time, unemployed, or out of labor force (OLF) as well as more hours worked. Being married and living with children under age 6 leads to a greater likelihood of part-time and OLF as well as fewer hours worked, mainly due to the influence on women who make up nearly half of the population. The next set of explanatory variables includes immigration-related variables, including origin country/region and post-1996 arrival cohort. A peculiar pattern is that European skilled workers were more likely to be working part-time but overall more hours worked than Chinese and Indian origin workers, all others being equal. In addition, later arrivals exhibited worse labor market outcomes than earlier arrivals, perhaps because they had a shorter duration to adapt.

With the above covariates held constant, we examine the key explanatory variables. With respect to the estimates of visa patterns in Model 1, the first impression is the vast heterogeneity

of “immigrant” effects. Holding a permanent residence status at first entry and present (the PR-PR visa pattern) helped prevent part-time work but increased unemployment. Those who had an at-entry nonimmigrant status and managed to obtain permanent residency afterwards (TW/ST-PR) were also less likely to work part-time versus full-time than natives – the corresponding odds ratio is 43% (exp(-.852)=0.43) of the odds for natives, which is smaller than the odds ratio for PR-PRs versus natives. In contrast to the PR group though, TW/ST-PRs were significantly less likely to be out of labor force versus full-time – the corresponding odds ratio is 38% exp(-.956)=0.38) of the odds for native. Those who were currently still in temporary-worker programs (TW/ST-TWs) were actually similar to the native born, suggesting an on-going employer screening and retaining full-time temporary workers. The results for hours worked provide additional patterns of the relative size of immigrant effects on one dimension: PR-PRs actually worked 1.5 hours less per week despite that they were less likely to work part-time than full-time; TW/ST-PRs worked about 2 more hours per week than natives, consistent with their part-time vs. full-time pattern. As expected, the indicator of Group B with the Recession experience increased the likelihood of working part time or out of the labor force versus working full time. This Recession effect is assumed to be constant across all visa patterns. The average Recession effect for both native-born and foreign-born was less than one hour per week. Thus the hours worked results show that the Recession effect is relatively smaller in size than the immigrant effects for the skilled workforce. Overall the results from Model 1 in Table 4 provide substantial evidence to support Hypothesis 1 that foreign-born skilled workers with the TW/ST-PR visa pattern will have better labor market outcomes than natives and the foreign born with the PR-PR visa pattern, regardless of economic crises.

Hypothesis 2 states that the Great Recession has a weaker impact on workers with the TW/ST-PR visa pattern than that on natives and workers with the PR-PR visa pattern. To

estimate these differential Great Recession effects, we added the interaction terms between Group B and visa patterns in Model 2, some of which have sizable and significant coefficients. The presence of the interaction terms reveals that the recession effect on labor market outcomes for the native born is somewhat stronger than the average Recession effect (log odds is 0.285 for part-time vs. full-time and 0.399 for OLF vs. full-time, and the reduction of hours worked is 1.179). The log odds of Recession for TW/ST-PRs above and beyond that for natives is -0.395 for part-time vs. full-time, significant at the 0.05 level. In other words, the odds of part-time to full-time for TW/ST-PRs in 2010 was actually *smaller*, only 90% (exp(-0.395+0.285)=.90) of that in 2003 . The differential Recession effect is even greater for those who were still nonimmigrants at the time of the 2010 survey (TW/ST-TWs): the odds ratio of part-time to full-time in 2010 was only 34% (exp(-1.350+0.285)=.34) of the odds in 2003. TW/ST-TWs also experienced a differential Recession effect on the odds for OLF vs. full-time in 2010: 13% (exp(-2.414+0.399)=0.13) of the odds in 2003. With respect to hours worked, the Great Recession reduced the hours worked per week by 0.8 hours on average from Model 1. Model 2 shows that natives and PRs worked 1.179 fewer hours in 2010 than in 2003, whereas TW/ST-PRs did not significantly change their hours worked (1.285-1.179=0.106) and TW/ST-TWs actually worked substantially more hours (5.719-1.179=4.54) in 2010 than in 2003. These results provide a direct test of hypothesis 2 that the Great Recession had weaker effects on labor market outcomes for those with the TW/ST-PR visa patterns. The finding of even stronger effect for those with TW/ST-TW visa pattern may reflect the particular work patterns of a very small group (n=122, 1% of Group B) who had a minimum of 13 years of US stay on a nonimmigrant status.

One advantage of intra-cohort analysis is to fix a cohort while examining their labor market outcomes as influenced by the policy and labor market institutional selection at two different points in time. A drawback of intra-cohort analysis in this study is the different age or

life cycle stage at the two different points in time because labor market outcomes can change with age. While a short time interval, like the 7-year interval in our intra-cohort analysis, minimizes the drawback, one of our research questions requires an examination of two different cohorts of the same ages at two different points in time. This leads us to the inter-cohort analysis below.

Inter-cohort Analysis

Inter-cohort analysis compares outcomes at the same life stage of two different cohorts. Specifically we are interested in knowing whether the labor market selection remained the same during the Great Recession by examining the labor market outcomes of a cohort of skilled workers who have 3-7 years of US labor market experience in 2010 as compared to a counter-part cohort in 2003.

We first describe labor market outcomes by visa patterns at the same life stage of the two different cohorts defined for our inter-cohort analysis. Table 5 shows that the population shares for natives and initial permanent residents (PR-PR) remained the same at 83% and 6% in both years, respectively. A moderate change is showed for those initial nonimmigrants – a smaller percentage having adjusted to the PR status in 2010 than in 2003, and correspondingly, a larger percentage having remained nonimmigrants in 2010 than in 2003. This suggests a moderately slower process of status adjustment under the Great Recession than before. With respect to full-time working, the table shows an overall decline for all legal status patterns and yet differential percentage point changes across legal status patterns, with PR-PRs and TW/ST-TWs experiencing a more modest decline than natives (2 vs. 4 percentage points). Among the 2010 cohort, initial nonimmigrants had higher percentages full-time working than natives and initial

immigrants. This pattern is consistent with our intra-cohort analysis that found that the labor market tended to retain skilled guest workers who worked full-time.

(Table 5 about here)

Multivariate inter-cohort analysis is used to test our Hypothesis 3, which posits that labor market institutional selection under the shadow of the Great Recession remains significant. The inter-cohort analysis contrasts the 2003 cohort (Group A) against the 2010 cohort (Group C). The key difference between the two cohorts is that the Great Recession, as a treatment in a natural experiment, is applied to the later cohort only. The key similarity is the same career stage at the time of observation. We use the same Model 1 and Model 2 specifications as in Table 3 for this inter-cohort analysis and present the results in Table 6.

(Table 6 about here)

With one exception, remarkably similar influence of advanced degrees, STEM fields, male, age, marital status, and having young children is found for the inter-cohort analysis as for the intra-cohort analysis. The exception lies in the influence of Master's degree on part-time working, which was nonsignificant before but now significant and negative. This suggests that Master's degrees did not protect stable employment under the shadow of the Great Recession. Among origin groups, Europe and other Asian origin workers continued to have less stable work status. One difference from the intra-cohort results is that Indian origin workers were less likely to work part-time vs. full-time than Chinese origin workers. The influence of being in the most-recent arrival group had virtually the same negative influence for both inter- and intra-cohort analyses.

Evidence to support Hypothesis 3 is from the estimates for visa patterns in Model 1 and its interaction with Group C (observed in 2010) in Model 2. The results show that skilled workers with the TW/ST-PR visa pattern were less likely in the part-time status or out of the

labor force. The impact of the Great Recession (captured by the coefficient for Group C) has the same negative impact across the visa patterns given the sweeping nonsignificant interaction terms in Model 2 with one exception. In this exception workers with the TW/ST-TW visa pattern were less like to be unemployed, which was mechanically required by temporary worker programs such as the H-1B because if an H-1B worker were unemployed, s/he would have left the country or adjusted to a legal status through other channels.

Conclusions

This paper joins a growing literature on hedging economic risks by proposing a new hedging mechanism. In essence, this hedging mechanism parallels foreign-born individuals' pathway to legal status obtainment but operates at the institutional level. It starts with the federal legislation of admitting skilled nonimmigrants through temporary-worker visa programs, proceeds to vest the implementation authority in employers, who perform rigorous screening and selection for future sponsorship of permanent residency, and ends with greater protection of those chosen. To test such a mechanism, the paper examines two related issues concerning the under-researched population of highly-skilled immigrants – spatial mobility out of the host country and outcomes in the host labor market. Having the option and ability to actually move away from a recession-hit advanced economy implies greater economic opportunity and a strategy of reducing risks; maintaining high levels of labor force participation under the condition of economic crisis is an indicator of reduced risks. The paper presents evidence from analyzing repeated, nationally representative survey data of college graduates using demographic techniques of intra-cohort and inter-cohort analysis. The major findings about the substantial cross-border mobility and high levels of labor force participation among at-entry temporary visa

holders who managed to gain legal permanent residency provide strong evidence to support our proposed new hedging mechanism.

Cross-border mobility may supplement within-country mobility under the Great Recession because this economic crisis is distributed unevenly across countries, and sending countries may offer relatively greater career opportunities than receiving countries for those who were not chosen by the employers. While it is not straightforward to study immigrants' spatial mobility crossing national borders based on population data in the host country, we utilize intra-cohort analysis to ascertain certain attributes of immigrants who stayed in the host countries and the characteristics of those who left the host country. The findings about a substantial exodus of Chinese and Indian skilled workers not only fill the gap in the literature on the international scale of spatial mobility among skilled immigrants but also help understand the selection of skilled immigrant stock, a condition that must be taken into account when studying their labor market outcomes. The pattern that US employers were more likely to select above-BA, STEM workers from China and STEM, initial temporary workers from India under the shadow of the Great Recession points toward the upper hand of the US labor market in the global context, despite that the Great Recession hit the US stronger than China and India.

Second, the paper seeks to explain the observed differential labor market outcomes between the native born and the foreign born and among visa patterns of the foreign born. We call attention to the unique feature of skilled immigrant stock that an increasing portion has been rigorously selected by US employers and offer a fresh idea of how legislation can induce labor market institutional selection and results in hedging of economic risks. In this reasoning, legislation that recruits skilled workers through temporary worker programs provides stronger protection of skilled workers experienced the transition from an initial nonimmigrant status to legal permanent residency. The force of this institutional selection is strong enough to have

withstood the Great Recession's blow. Evidence to support this argument comes from (1) the better work outcomes for workers with initial nonimmigrant visa patterns than other skilled workers under the shadow of the Great Recession within a cohort who entered the US labor market in the 1990s (from intra-cohort analysis); and (2) the Great Recession did not have a stronger negative impact on initial nonimmigrant skilled workers than other skilled workers among those who entered the US labor market within a few years before the Great Recession (from inter-cohort analysis).

From the individual immigrant perspective, both the greater opportunity in the home-country labor market and the better protection in the host-country labor market work in tandem to reduce economic risks. From employers' perspective, relying on foreign-born workers with measured higher productivity help firms reduce their costs and increase efficiency to withstand economic crises. From the home labor market perspective, uneven distribution of a global economic crisis may present an opportunity to attract talent, albeit not always the top, for research and development goals that are crucial for emerging market economies. This paper provides a fresh conceptual tool and convincing evidence for understanding this new hedging mechanism against economic risks from the individual and institutional perspectives.

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Appendix Table 1. Weighted Distribution of Variables Used in Analysis: By Cohorts

Variable	Group A (2003) Intra-cohort Inter-cohort	Group B (2010) Intra-cohort	Group C (2010) Inter-cohort
Dependent Variables			
Work status			
Full-time	0.80	0.78	0.76
Part-time	0.09	0.10	0.12
Unemployed	0.03	0.03	0.04
Out of labor force	0.08	0.09	0.08
Hours worked	38.62	38.43	36.89
Independent Variables			
Visa pattern			
Native	0.83	0.82	0.83
PR-PR	0.06	0.06	0.06
TW/ST-PR	0.05	0.07	0.04
TW/ST-TW	0.03	0.01	0.04
Residual	0.04	0.04	0.04
Origin country/region			
US	0.83	0.82	0.83
China	0.02	0.02	0.02
India	0.03	0.03	0.03
Europe	0.04	0.04	0.04
Other Asia	0.04	0.05	0.04
Residual	0.04	0.04	0.04
Arrival after 1990 among imm	0.62	0.68	0.82
Degree			
Bachelor's	0.65	0.65	0.66
Master's	0.26	0.26	0.26
Doctoral	0.03	0.03	0.03
Professional	0.06	0.06	0.05
STEM fields	0.22	0.20	0.18
Age	32.71	39.14	31.79
Male	0.47	0.48	0.43
Marital status			
Married/cohabiting	0.71	0.78	0.65
Widowed/divorced/separated	0.05	0.08	0.04
Never married	0.24	0.14	0.30
Living with children under 6	0.39	0.38	0.33
Region of residence			
Northeast	0.22	0.21	0.20
Midwest	0.23	0.21	0.22
South	0.33	0.33	0.32
West	0.23	0.25	0.26
n	20,260	12,215	16,448

Table 1. Cohort Definitions for Intra- and Inter-cohort Analyses

Group A (2003) Intra-cohort analysis Inter-cohort analysis	Group B (2010) Intra-cohort analysis	Group C (2010) Inter-cohort analysis
• a Bachelor's degree or above • aged 25-44 in 2003 • entered the U.S. labor market 1993 - 2000 • arrived in the U.S. 1966 – 2000 for the foreign born Source: NSCG 2003	• a Bachelor's degree or above • aged 32-51 in 2010 • entered the U.S. labor market 1993 - 2000 • arrived in the U.S. 1966 – 2000 for the foreign born Source: NSCG 2010	• a Bachelor's degree or above • aged 25-44 in 2010 • entered the U.S. labor market 2000 - 2007 • arrived in the U.S. 1973 – 2007 for the foreign born Source: NSCG 2010

Table 2. Weighted 2003-2010 Changes in Selected Attribute Ratios by Origin Country and Age Group: Intra-cohort Analysis

Origin Country	Group A (2003)				Group B (2010)				Proportional Change			
	Total	[1]	[2]	[3]	Total	[1]	[2]	[3]	Total	[1]	[2]	[3]
	25-44	25-29	30-34	35-44	32-51	32-36	37-41	42-51				
BA Ratio												
U.S.	2.01	9.59	2.03	0.66	2.02	8.99	1.87	0.56	0.00	-0.06	-0.08	-0.16
China	0.61	3.35	0.58	0.41	0.40	2.18	0.49	0.24	-0.35	-0.35	-0.16	-0.41
India	0.88	1.80	0.84	0.53	0.89	2.03	0.90	0.43	0.02	0.13	0.06	-0.19
STEM Ratio												
U.S.	0.22	0.25	0.20	0.20	0.19	0.20	0.17	0.20	-0.13	-0.20	-0.16	-0.01
China	1.25	0.93	0.86	1.75	2.02	1.47	2.05	2.13	0.61	0.57	1.39	0.22
India	1.63	1.66	2.15	1.12	2.43	2.64	3.24	1.60	0.49	0.59	0.51	0.42
TW/ST Ratio												
China	1.12	0.48	0.86	1.65	1.84	0.41	0.97	3.44	0.64	-0.16	0.12	1.08
India	1.13	0.85	1.07	1.51	2.13	1.66	2.92	1.77	0.89	0.96	1.73	0.17

Note: BA ratio is BA to above-BA; STEM ratio STEM to non-STEM; TW/ST ratio is TW/ST to PR. Proportional change=(Group B #)/(Group A #)-1

Table 3. Weighted Intra-cohort Patterns of Work Status and Hours Worked by Visa Patterns

Variable	Native		PR-PR		TW/ST-PR		TW/ST-TW	
	2003	2010	2003	2010	2003	2010	2003	2010
Population share	0.83	0.82	0.06	0.06	0.05	0.07	0.03	0.01
Work status								
Full-time	0.81	0.79	0.76	0.77	0.83	0.85	0.81	0.95
Part-time	0.09	0.11	0.08	0.07	0.08	0.08	0.08	0.03
Unemployed	0.02	0.02	0.05	0.06	0.03	0.02	0.02	0.02
Out of labor force	0.08	0.08	0.11	0.11	0.06	0.06	0.08	0.00
Hours worked	39.1	38.9	35.3	36.0	40.0	40.5	39.7	44.9

Table 4. Intra-cohort Analysis of Work Status and Hours Worked

Variable	Work Status						Hours Worked	
	Part-time vs. Full-time		Unemployed vs. Full-time		OLF vs. Full-time			
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Degree								
Master's	0.088	0.085	-0.398***	-0.400***	-0.361***	-0.365***	1.795***	1.812***
Doctoral	-0.344***	-0.349***	-0.919***	-0.925***	-0.987***	-0.996***	6.142***	6.176***
Professional	-0.043	-0.046	-1.112***	-1.113***	-1.016***	-1.020***	8.527***	8.539***
STEM fields	-0.569***	-0.573***	-0.112	-0.114	-0.295***	-0.298***	1.097***	1.115***
Male	-1.435***	-1.436***	-0.434***	-0.433***	-1.891***	-1.889***	9.073***	9.068***
Age	0.067	0.056	0.275***	0.261***	-0.135*	-0.153**	-0.087	-0.006
Age-squared	-0.001	-0.001	-0.003***	-0.003**	0.002*	0.002*	0.001	0.000
Marital status								
Married	0.425*	0.407*	-0.890**	-0.890**	0.776***	0.785***	-1.853*	-1.844*
Wid/Div/Sep	0.177	0.158	-0.602	-0.603	-0.135	-0.125	-0.915	-0.897
Children under 6	0.264***	0.267***	-0.109	-0.113	0.923***	0.920***	-3.322***	-3.312***
Origin country								
India	-0.015	0.001	0.144	0.155	0.169	0.188	0.580	0.499
Europe	0.535***	0.550***	-0.167	-0.161	0.096	0.103	2.163***	2.127***
Other Asia	0.533***	0.540***	-0.118	-0.111	0.571***	0.579***	-0.727	-0.774
Arrival post-1996	0.330**	0.344**	0.197	0.212	0.722***	0.736***	-3.552***	-3.643***
Visa pattern								
PR-PR	-0.606***	-0.630***	0.460*	0.473*	-0.274	-0.250	-1.549**	-1.658*
TW/ST-PR	-0.852***	-0.681***	0.065	0.188	-0.956***	-0.841***	2.098***	1.592*
TW/ST-TW	-0.197	-0.093	-0.259	-0.200	-0.310	-0.146	1.076	0.520
Group B (2010)	0.246***	0.285***	-0.145	-0.087	0.328***	0.399***	-0.865**	-1.179***
Group B X								
PR-PR	--	0.018	--	-0.066	--	-0.095	--	0.486
TW/ST-PR	--	-0.395*	--	-0.291	--	-0.278	--	1.285*
TW/ST-TW	--	-1.350*	--	-0.625	--	-2.414*	--	5.719***

Note: All models control for the residual visa pattern and its interaction with Grade B, the origin residual category, as well as the region of residence.

* p<.05 ** p<.01 *** p<.001

Table 5. Weighted Inter-cohort Patterns of Work Status and Hours Worked by Visa Patterns

Variable	Native		PR-PR		TW/ST-PR		TW/ST-TW	
	2003	2010	2003	2010	2003	2010	2003	2010
Population share	0.83	0.83	0.06	0.06	0.05	0.04	0.03	0.04
Work status								
Full-time	0.81	0.77	0.76	0.74	0.83	0.80	0.81	0.79
Part-time	0.09	0.13	0.08	0.10	0.08	0.08	0.08	0.06
Unemployed	0.02	0.03	0.05	0.07	0.03	0.04	0.02	0.04
Out of labor force	0.08	0.07	0.11	0.08	0.06	0.08	0.08	0.11
Hours worked	39.1	37.6	35.3	34.9	40.0	37.7	39.7	37.1

Table 6. Inter-cohort analysis of Work Status and Hours Worked

Variable	Work Status						Hours Worked	
	Part-time vs. Full-time		Unemployed vs. Full-time		OLF vs. Full-time			
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Degree								
Master's	0.110*	0.110*	-0.433***	-0.433***	-0.305***	-0.304***	1.814***	1.810***
Doctoral	-0.297**	-0.300**	-1.113***	-1.126***	-0.980***	-0.971***	6.868***	6.881***
Professional	-0.125	-0.128	-0.935***	-0.945***	-1.117***	-1.109***	9.193***	9.195***
STEM fields	-0.608***	-0.610***	-0.157*	-0.164*	-0.240***	-0.236***	1.402***	1.406***
Male	-1.063***	-1.062***	-0.309***	-0.307***	-1.380***	-1.380***	7.582***	7.575***
Age								
Age-squared	-0.176*	-0.173*	0.148	0.160	-0.415***	-0.421***	1.124**	1.102**
Marital status	0.003*	0.003*	-0.002	-0.002	0.006***	0.006***	-0.017**	-0.016**
Married								
Wid/Div/Sep	-0.136*	-0.134*	-0.636***	-0.628***	-0.167*	-0.172*	1.479***	1.480***
Children under 6	-0.430***	-0.428***	-0.268	-0.265	-0.791***	-0.793***	2.183***	2.177***
Origin country								
India	-0.315*	-0.317*	0.149	0.144	-0.217	-0.216	1.116	1.162
Europe	0.698***	0.698***	-0.246	-0.251	0.165	0.162	1.395*	1.394*
Other Asia	0.547***	0.550***	-0.024	-0.017	0.274*	0.274*	-0.524	-0.556
Arrival post-1990	0.277**	0.298**	0.330**	0.375**	0.721***	0.701***	-4.122***	-4.222***
Visa patterns								
PR-PR	-0.519***	-0.529***	0.495**	0.550**	-0.014	-0.006	-2.016***	-2.213**
TW/ST-PR	-0.451**	-0.395*	0.230	0.345	-0.362*	-0.459*	0.392	0.093
TW/ST-TW	0.046	0.039	-0.377	-0.063	0.112	0.005	-0.228	-0.211
Group C (2010)	0.130***	0.150***	0.307***	0.404***	0.088*	0.033	-0.976***	-1.019***
Group C X								
PR-PR	--	-0.008	--	-0.155	--	0.014	--	0.553
TW/ST-PR	--	-0.174	--	-0.325	--	0.237	--	1.042
TW/ST-TW	--	-0.026	--	-0.685*	--	0.216	--	0.142

Note: All models control for the residual visa pattern and its interaction with Grade C, the origin residual category, as well as the region of residence.

* p<.05 ** p<.01 *** p<.001