

# Performance of Skilled Migrants in the U.S.

## A Dynamic Approach

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## Abstract

The initial occupational placements of male immigrants in the United States labor market vary significantly by country of origin even when education and other individual factors are taken into account. Does the heterogeneity persist over time? Using data from the 1980, 1990, and 2000 Censuses, this paper finds that the performance of migrants from countries with lower initial occupational placement levels improves at a

higher rate compared with that of migrants originating from countries with higher initial performance levels. Nevertheless, the magnitude of convergence suggests that full catch-up is unlikely. The impact of country specific attributes on the immigrants' occupational placement occurs mainly through their effect on initial performance and they lose significance when initial occupational levels are controlled for in the estimation.

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# Performance of Skilled Migrants in the U.S.: A Dynamic Approach

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## 1. INTRODUCTION

The performance of immigrants in the destination labor markets is among the key issues in the migration literature. Successful integration and career performance increase the benefits of migration to both the migrants and the destination countries. On the other hand, migrants' failures to receive wages or to obtain jobs that are commensurate with their qualifications might lead to social costs and negative public opinions on migration. The stereotypes of immigrant taxi drivers with physics doctorates exist because there is, at least, some anecdotal evidence to support it. The critical questions are how widespread and long lasting these labor market "under-placements" of skilled immigrants are. These issues are the focus of this paper.

There is significant variation among the findings in the literature on immigrants' performance in the destination labor markets. Some papers find that migrants perform quite well and catch up rapidly with the native workers<sup>1</sup> while others cast doubt whether convergence occurs at all.<sup>2</sup> This paper contributes to this debate by investigating the long-term convergence of labor market performance among male immigrants to the US who come from different countries. We track the same male cohorts in terms of age and arrival dates using data from 1980, 1990 and 2000 Censuses. While controlling for individual attributes and focusing on occupational quality indices as opposed to wages as a measure of assimilation, we answer three closely related questions. First, do the initial occupational placement levels of skilled immigrants differ by country of origin when other factors are taken into account? Second, how does occupational performance by country of origin change over time and, more specifically, do we observe convergence among migrants from vastly different origin countries? Finally, to what extent do country of origin attributes explain these temporal patterns of the occupational placement?

The first finding is that predicted entry-level occupational placement of the tertiary educated immigrants varies widely by country of origin. We observe significant variation even among neighboring countries that have similar economic and social characteristics. Thus narrow comparisons between natives and immigrants, or crude aggregations of migrants into large geographic areas are likely to overlook important variations that have important implications. Second, for the majority of these origin countries, there is evidence of significant improvement in the occupational placement of their migrants over time and a certain degree of convergence among migrants from different countries. In other words, individuals from countries with low initial performance improve faster than those migrants from countries with higher initial

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<sup>1</sup> Chiswick (1978)

<sup>2</sup> Borjas (1985), Lubotsky (2007), Kim (2009)

performance. Third, the extent of convergence weakens over time; the rate of improvement experienced by a cohort declines within the second decade. The fourth finding is that country specific attributes impact on the improvement in immigrants' occupational performance occurs mainly through their effect on initial placement: thus, they lose significance when initial occupational levels are controlled for in the estimation.

Most papers in the literature focus on wages to assess performance, assimilation and convergence in destination labor markets. In this paper, we use measures of occupational placements instead of earnings because the former are less likely to vary by city or state within the US. This is a significant advantage when measuring performance of people spread over a large geographic area where costs of living and other local factors strongly influence wages. For example, the wages in metropolitan areas like New York City and San Francisco for medium skilled occupations tend to be higher than wages of high skilled occupations in more sparsely populated areas. In addition, characteristics of occupations are less likely to be volatile relative to wages as labor market conditions change over time. In short, biases due to geographic and time effects are less of a concern when occupational placement indices are used as measures of performance.

One main concern is that the magnitude and patterns of return migration can potentially bias the results in this paper. Although prior literature acknowledged this problem and some researchers made inferences about the nature of the selectivity in return decisions, the bias stemming from out-migration is typically left unresolved in studies that rely exclusively on census data. We evaluate to what extent attrition of cohort size due to return migration affects the samples by country. We conclude that estimates are not significantly affected by patterns in return migration. Furthermore, working with data from several Censuses raises serious methodological concerns because the samples are based on responses of different individuals. To check whether results change significantly when correcting for the potential biases, we rerun the individual-level regressions using pseudo-panel techniques. The patterns are robust to these methodological changes.

Occupational status has important implications for understanding economic and social costs and benefits of migration. In the US, there is continuous media coverage about skilled immigrants from certain countries being employed in low skilled jobs while similarly educated immigrants from other countries climbing career ladders very rapidly. Research focusing on occupational mobility of immigrants could provide rigorous grounds for such observations. More importantly, analysis could identify the barriers that prevent migrants from obtaining jobs suitable for their education levels and how those barriers could be removed. It is possible that the under-

placement and underperformance of migrants are due to the fact that diplomas earned in their home countries are of no value in the destination countries. Whether this arises from poor education quality or acquisition of non-transferable skills, it requires policymakers to rethink national education policies and global creation of human capital (Mattoo et al. 2008).

The next section reviews the literature on the performance of male migrants United States and the determinants of their performance. Section 3 focuses on the dynamic analysis of the occupational placement over time using census data. It includes three sub-sections: the first introduces the empirical strategy and describes the data; the second presents the results; and the third is dedicated to robustness checks. The impact of country attributes on the occupational performance is evaluated in section 4, which is divided into two sub-sections, one presenting the empirical framework and the other describing the results. Section 5 summarizes the findings and discusses their policy implications.

## **2. LITERATURE REVIEW**

Literature on the performance of immigrants in destination labor markets<sup>3</sup> mostly focuses on their earnings, especially relative to those of the natives with similar education and demographic characteristics. One of the main findings is that migrants in the United States tend to earn less than natives and this gap depends on the country of origin. For example, immigrants coming from countries that more closely resemble the United States (such as Canada and Western Europe) tend to have higher initial earnings relative to those from other countries such as Mexico<sup>4</sup>.

The debate, however, is not on the extent of the initial earning gaps but on what happens to them over time. This is related to the “assimilation effect” which receives special attention as it relates to the accumulation of destination specific human capital (language skills, cultural knowledge and social capital) that increases wages and other measures of performance over time. Chiswick (1978) and subsequent papers<sup>5</sup> claim that, as time passes, immigrant’s existing and newer skills are gradually more valued in the destination country labor markets, and consequently their earnings increase even though, at the time of migration, they suffer from a poor transferability of their skills. As a result, immigrants’ earnings grow faster than those of natives’, which they eventually may even overcome. This can happen because, as suggested by Chiswick

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<sup>3</sup> Borjas (1994) and LaLonde and Topel (1997)

<sup>4</sup> Chiswick (1977, 1978, 1986), Borjas (1987, 2000)

<sup>5</sup> Further elaborated by Chiswick(1986), Duleep and Dowhan (2002), Duleep and Regets (1994, 1997, 1999)

(1978), US immigrants are positively self-selected with respect to unobservable abilities and motivation. Furthermore, there is evidence of certain degree of heterogeneity in the assimilation rates of immigrants coming from different origin countries<sup>6</sup>.

Borjas (1985, 1995) and others<sup>7</sup>, on the other hand, highlight the importance of “cohort effects” – the unobserved quality of successive immigrant cohorts measured by ability and motivation – which has declined steadily over time. Once these are controlled for, the convergence between immigrants’ and natives’ earnings becomes less likely. In support of this argument, Borjas (1987) presents a more nuanced description of the selection mechanisms, which relate to the characteristics of origin (versus destination) countries.

More recent studies rely on combinations of cross-section and longitudinal sources rather than the widely used repeated cross-section data to produce assimilation estimates that control for biases caused by individual heterogeneity and out-migration. More recently, Lubotsky (2007) finds previous studies to have overestimated the wage progress of immigrants who arrived between 1960 and 1980. Focusing on period 1994-2004, Kim (2009a) obtains little evidence of convergence between earnings of immigrants and natives, both at aggregate level, and by migrant’s country of origin.

Most of these papers discussed above use wages and monetary compensation as measures of immigrants' performance which provide a useful metric for easy comparison across professions and locations. Yet, the focus on wages creates other complications. First, monetary compensation might reflect local living costs and other factors. Second, wages might exhibit changes over time such as due to inflation and labor market conditions. When dealing with assimilation effects over several decades, more stable metrics of performance might be preferred.

Chiswick (1977) and Jasso and Rosenzweig (1986, 1988) are among the first papers to the study migrants’ occupational placement. In a widely cited paper, Jasso and Rosenzweig (1995) identify the differences in occupational placement of migrants entering the United States through family reunification versus skill based visa programs. Powers and Seltzer (1998) and Powers et al. (1998) provide gender-specific evidence of improvement in initially undocumented immigrants’ occupational status on the US market. Green (1999) employs 1981, 1986 and 1991 censuses to show that after a period of adjustment, Canadian immigrants are more likely to be found in professional and more skilled manufacturing occupations compared to natives, but this pattern declines across successive cohorts. Using 2000 US Census data, Mattoo et al. (2008)

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<sup>6</sup> Chiswick, 1978, Borjas, 1995, 2000, Duleep and Regets, 1997, Schoeni, 1997

<sup>7</sup> Funkhouser and Trejo (1995), Lalonde and Topel (1990), and Baker and Benjamin (1994) for Canada

analyze to what extent skilled migrants from various countries are employed in unskilled jobs in the US labor market. Their study finds evidence of significant variation in immigrants' occupational placement which persists even after accounting for education and experience accumulated in the US. However, a large part of the variation is explained by country of origin attributes that affect the quality of human capital on one hand, and by US immigration policy affecting selection of migrants on the other. Therefore, the authors conclude that the "underplaced" immigrants suffer primarily from low (or poorly transferable) skill levels rather than skill underutilization. Chiswick et al. (2005) design and test on Australian longitudinal data a model of immigrants' occupational mobility. The model predicts that occupational mobility from the last job in the country of origin to the first and then the subsequent ones in the destination countries follows a U shape, the depth of which depends on the similarity between origin and destination countries, but also on migrants' skill levels. Evidence of downward occupational mobility is also found, for the United States, by Akresh (2006b), a study relying on data from the US New Immigrant Survey-Pilot. Exploring unique dimensions of the same database, such as information on migrants' occupational placement before, immediately after, and several years post-migration, Akresh (2008) assesses how performance paths differ across various immigrant admission categories.

### **3. DYNAMIC PATTERNS IN OCCUPATIONAL PLACEMENT OF SKILLED MIGRANTS BY COUNTRY OF ORIGIN**

Our estimation focuses on occupational placement as an indicator of performance and aims to identify how migrants' performance patterns differ by country of origin. We control for some important human capital characteristics, and especially account for the part of the assimilation effect that is common to migrants irrespective of origin. Finally, we attempt to disentangle the inferred country of origin effects by identifying various country attributes explaining it.

The evaluation of assimilation patterns uses the "synthetic cohort" approach introduced by Borjas (1985) for earnings and implemented by Green (1999) for occupational choice. By using country of origin attributes to explain performance, the results parallel the conclusions of the static occupational placement analysis by Mattoo et al. (2008), but also are related to Borjas (1987, 2000) and Jasso and Rosenzweig (1986) who focus on earnings. We evaluate the convergence in immigrants' occupational placement indicators, employing a model which has also been used by Borjas (2000). Finally, our results of negative correlation between entry levels of occupational placement and improvements over time and by country (while controlling for



human capital characteristics) relate to work by Borjas (2000), Duleep and Regets (1997) and Hu (2000).

### **3.1. EMPIRICAL FRAMEWORK**

The estimation employs OLS with country fixed effects to explain immigrants' performance - proxied by occupational placement (OP) - as of Census year  $t$  for migrant  $i$  who came to the US in decade  $d$ . Decades are attributed to cohorts in the sense used by Borjas (1985), where the implicit assumption is that migrants arriving within a decade are homogeneous with respect to ability.

The estimations rely on data from the 5% PUMS samples of the US Censuses 1980, 1990 and 2000<sup>8</sup> and focus on employed male immigrants, not living in "group quarters",<sup>9</sup> not enrolled in school as of 1980, 1990 or 2000, and whose reported years of immigration lie within the 1970-1989 interval. The sample in Census 1980 is random, each observation representing 20 individuals in the US population, while Censuses 1990 and 2000 are weighted so that each observation represents a different number of individuals in the US.

Three different metrics are used as the dependent variable, denoted as OP (Occupational Placement). The first indicates the prestige level and the other two quantify the educational content of each occupational category. The prestige index and net educational content variables are available from Ruggles et al. (2009) whereas the third variable is based on our own calculations. The first metric, labeled as the Prestige Index, does not vary by census year, and measures the prestige associated with an occupation. The second, labeled Education Index 1, indicates the educational content of each occupation and is based on the share of individuals with undergraduate and graduate degrees who declare that as their occupation. Both the Prestige Index and Education Index take values from 1 to 100. The last variable, labeled Education Index 2, also indicates the educational content of an occupation, and is calculated as the weighted average of the number of education years of all individuals, male and female, native and foreign-born alike, who declare that category as their occupation. Education Index 2 has a much smaller variance than the other two measures of occupational placement, ranging from 9 to 17. Table 3 lists the three indices for selected occupations.

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<sup>8</sup> The data were downloaded from [www.ipums.org](http://www.ipums.org) where they were made available by Ruggles et al. (2009)

<sup>9</sup> Group quarters are institutions and other group living arrangements, such as rooming houses and military barracks.

In the first stage of the analysis, OP is regressed on several human capital indicators for each migrant in the relevant sample. These are (i) work experience (proxied by age and age squared), (ii) general assimilation effect (represented by a dummy variable indicating whether migration took place in the first or the second half of the decade),<sup>10</sup> and (iii) level of education. This is captured by six dummy variables that group the years of education into the following categories: less than five, five to nine, ten to twelve, high-school level, some college, Bachelor's Degree or higher. Finally, we add country dummies for each migrant.

The estimation samples include only migrants who earned their final degrees before migration to the United States. Since a variable indicating the place where education was obtained is not directly available in the census, we construct it using the number of years of education and the age at migration.<sup>11</sup> Age restrictions ensure cohort comparability across censuses.<sup>12</sup> Regressions for each of the three OP indices are weighted and run *separately* for each census year  $t$  (where  $t=1980, 1990$  or  $2000$ ) and decade of arrival  $d$  (where  $d = 1970-1979$  or  $1980-1989$ ). The first cohort (1970-9 arrival) is observed three times (in each census) whereas the second cohort (1980-9 arrival) is observed only twice (1990 and 2000 censuses). These *five* estimations are performed separately for each OP measure, resulting in a total of *fifteen* estimations. The estimated equation is given by:

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<sup>10</sup> Usage of intervals is justified by the fact that Census 1980 and Census 1990 do not provide the exact individual years of migration, but only the year interval.

<sup>11</sup> A person is considered "US educated" if he arrived in the US before he would have normally acquired the declared education level. For example, if a university graduate arrives at the age of 23 or older, then he is considered "foreign educated". Likewise, a high-school graduate arriving at 18 is assumed to have completed his studies abroad. Time since migration is reported as intervals of 5 years in Census 1980 and as smaller intervals for Census 1990. As such, to construct the age at migration variable for those Censuses, we make the imperfect assumption that migrants reported by Censuses 1990 and 1980 arrived in the middle year of the reported interval. We use different ages at which individuals complete their education. For example, we use 23 years Bachelor's and higher Degree holders. On the other hand, it takes into account inadvertently those individuals who have completed their Master's degree, Professional degree or PhD in the US after the age of 23. This is because Censuses 1980 does not allow identification of individuals with Bachelor's degree, Master's degree, Professional degree and PhD, so we use the more restrictive education 1980 classification for cross-Census comparability purposes.

<sup>12</sup> Censuses report occupation only for people aged 16 or more. When following the members of the 1980s arrival cohort through 1990 and 2000 censuses, we set the minimum age to 16 for Census 1990 and 26 for Census 2000, whereas when analyzing individuals arriving in the 1970s, whose performances can be captured by all three censuses, the minimum ages are defined as 16, 26 and 36 for Censuses 1980, 1990 and 2000, respectively. To reduce the effect of cohorts shrinking across censuses because of older individuals, we also place upper limits on the age intervals used in the samples: 40 for Census 1980, 50 for Census 1990 and 60 for Census 2000.

$$\ln OP_i = \alpha + \beta_1 AGE_i + \beta_2 AGE_i^2 + \beta_3 YRS\_IN\_USA\_DUMMY_i + \sum_{e=1}^6 \beta_{4e} EDUC\_DUMMY_{ie} + \sum_{c=1}^{122} \beta_{5c} CTRY\_DUMMY_{ic} + \varepsilon_i \quad (1)$$

In this equation,  $i$  represents a single individual,  $e$  stands for the type of education and  $c$  for the country of origin.<sup>13</sup> The specification is related to the econometric models previously used in the migration literature for estimating earnings assimilation as discussed earlier.<sup>14</sup>

After equation (1) is estimated for each cohort (1970-9 and 1980-9 arrivals) for each census and OP measures, we construct synthetic individuals who are identical in terms of their personal characteristics and human capital endowments but differ in terms of their origin countries. We then predict the occupational placements,  $\hat{OP} = e^{predicted(\ln OP)}$ , of these hypothetical migrants in each decade based on the estimation results. As a result, all the variation in the predicted levels of performance stems from the coefficients on country dummies,  $\beta_5$ , since these hypothetical individuals are identical in terms of their individual characteristics. Next, we calculate the predicted Occupational Placement Improvement  $\Delta \hat{OP}_{c,(t+10)-t} = \hat{OP}_{c,t+10} - \hat{OP}_{c,t}$  as the predicted change in the level of professional achievement of hypothetical individual  $i$  from country  $c$ , between years  $t$  and  $t+10$ .

We construct two hypothetical individuals per country (Table 1), each with at least a Bachelor's Degree (earned before migrating), and who were at 25 years old at the time of their arrival in the United States. The first person is assumed to arrive in 1975, and the second in

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<sup>13</sup> In accordance with most studies explaining earnings, the dependent variable is logged, which enables us to interpret the coefficient of each explanatory variable as the approximate percentage rather than unit change in the occupational placement index.

<sup>14</sup> As stated by Borjas (1995) and LaLonde and Topel (1990) there are three types of biases that can affect the accuracy of assimilation estimates measured in our case as  $\beta_3$ . These are cohort effects, period effects and the return migration effect. Cohort effects refer to unobservable changes in the quality of cohorts entering the US at different times. To account for the potential biases, we follow the progress of a group of individuals who arrive at a given time through several censuses, so that the errors due to unobserved differences cancel out. Period effects reflect modification of labor market conditions from one census to another. To eliminate them, studies focusing on earnings measure assimilation of migrants relative to a comparison group expected to have been influenced similarly by the changes in the economy. In our particular case, since the paper focuses on cross-country comparisons, period effects should be of no significant concern since it is assumed that changes in labor market conditions affect all immigrants. A third source of bias is the non-random cohort attrition related to either mortality or return migration. The bias introduced by the mortality rate, is dealt with by imposing upper limits on the ages of individuals. Later on in this paper, we attempt to address the concerns about return migration by identifying the countries with the highest rate of attrition and re-estimating our equations after excluding those countries from the sample.

1985.<sup>15</sup> The 1975 migrant is observed in all three censuses, the 1985 migrant only in the last two censuses. The individual arriving in 1975 is 30 years old in 1980 (therefore 40 in 1990, and 50 in 2000), while the one arriving in 1985 is 30 years old in 1990 (and 40 in 2000). Since our hypothetical individuals have tertiary education, all predictions from this point on will be associated with skilled migrants, justifying the title of the paper.

Finally, our analysis produces the following eight sets of predicted occupational placement indicators for each of the 112 countries that will be used in section 3.2. to assess skilled immigrants' performance over time and by country: (1)  $\hat{OP}_{1980}$ ,  $\hat{OP}_{1990}$ ,  $\hat{OP}_{2000}$ ,  $\Delta\hat{OP}_{1980-1990}$ ,  $\Delta\hat{OP}_{1990-2000}$ , for the hypothetical individual who arrived in the 1975; (2)  $\hat{OP}_{1990}$ ,  $\hat{OP}_{2000}$ ,  $\Delta\hat{OP}_{1990-2000}$ , for the hypothetical individual who arrived in the 1985.<sup>16</sup>

Summary statistics including size of cohorts, weighted and not-weighted, and information on sample structure by age, years since in the US and education are presented in Table 2. The first three columns refer to the individuals who arrived during the 1970s and whose performance levels are captured by Censuses 1970, 1980, 1990. Arrivals in the 1980s are summarized in columns 4 and 5. The first row indicates the size of the five samples, while the second row shows the equivalent in the whole US population. In principle, the numbers for each decade should decline across censuses due to return migration or mortality. Counter-intuitively, it can be observed that samples sometimes increase over time. For example, there are 1,668,342 migrants arriving in the 1980s according to 1990 census and they increase to 1,704,575 in 2000 census. The biggest increase in cohort size occurs between Census 1980 and Census 1990 for the 1970s arrivals (22,893 individuals). This may be due to measurement errors, including earlier undercounting of undocumented migrants and methodological differences across censuses. These issues will be detailed below. Despite the upward bias, the relative constancy in the shares of migrants by half-decade of arrival, as well as the stable proportion of the highly educated individuals (4+ years of college) across samples are positive signs that the data capture the same people over time.

The US Censuses are among the richest databases available. However, as mentioned before, they have caveats. First, it is impossible to follow the exact same individual through

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<sup>15</sup> Because variable "years since migration" is identified by half decades, the 1975 and 1985 arrivals refer to intervals 1975-1979 and 1985-1989 respectively.

<sup>16</sup> To ensure readability, only the 80 most important sending countries are displayed in graphs and used as basis for the regressions of predicted indices on country-specific variables. These 80 countries represent 97% of the male immigrants who were in the US as of Census 1990, and meet the criteria by which we constructed this paper's dataset: employed, not living in group quarters, not in school, having entered the US in the 1970s or the 1980s.

several censuses. In addition, censuses do not identify the legal status of immigrants and do not track return migration. Finally, throughout decades, there have been changes in methodology and coverage. Thus, the fact that the question asking for the year of immigration was reformulated between the last two censuses complicates the task of accurately isolating immigrants by cohort. The 1980 and 1990 questionnaires require that individuals report the year they came to stay, while the 2000 one asks for the year they came to live in the US, implying that for those having entered the country a multiple number of times, prior experience may not be observed. In addition, some individuals may declare the year of immigration as the year when they received their permanent residence, although they may have already spent time in the US as students, on work visas or as undocumented migrants.<sup>17</sup>

Since censuses are filled out in the spring, we assume the information gathered by Census 2000 about immigrants arriving in 2000 cannot fully mirror the degree of comprehensiveness available for that year. Therefore, we choose to exclude the 2000 arrivals from the 2000 dataset. The same issue also arises with respect to Censuses 1980 and 1990. For the reasons detailed above, we consider interval 1975-1980 from Census 1980 to be equivalent to interval 1975-1979 as reported in Census 1990.

### **3.2. EMPIRICAL RESULTS**

The coefficients based on the estimation of equation (1) with Education Index 1 as a dependent variable are provided in Table 4. Annex table A1 provides the results for the other two specifications. Assuming migrants arriving in the first and the second half of a decade from a given country are homogeneous with respect to ability, the coefficient for years since migration ( $\beta_3$ ) provides the part of the assimilation effect that is common to all migrants regardless of country of origin.<sup>18</sup> That effect is negative and significant in each specification, indicating that, other things being constant, the occupational placement of an individual that has migrated during the second part of a decade is about 3-4% lower than that of one who has arrived earlier, i.e, in the first part of the decade.<sup>19</sup> Thus, in accordance with the previous literature focusing on earnings, experience acquired in the US labor market is an important determinant of performance.

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<sup>17</sup> Jasso et al. (2000) claim that recent immigrants sampled in the decennial censuses “may be neither recent nor immigrant.”

<sup>18</sup> Whatever is country-specific in the assimilation effect is captured by the coefficients of the country dummies.

<sup>19</sup> The effect is 6% for the 1975 arrival, evaluated in the first decade after migration.

The estimations show a different picture for the general work experience, measured by age and its quadratic term. The small magnitude of the coefficients indicates that, work experience acquired prior to migration matters less or not at all for the occupational placement in the US. In addition, the prevalently quadratic shape of the relationship between occupational placement and age (exceptions being the first and the last period of evaluation for the 1975 arrivals) suggests that migrating at an older age is associated with a lower occupational placement. In most cases, the highest occupational placement is attained when the migrant is in his thirties.

The coefficients of the education dummies suggest that, as expected, the higher the educational level, the higher is the occupational placement index. In particular, having a bachelor's or a higher degree is associated with an increase in the occupational placement by 70-80% compared the "no schooling" scenario. The magnitudes of the coefficients for all explanatory variables depend on the choice for the dependent variable (as evident when comparing Table 4 with Annex Table A1), however the sign and the factors' order of importance stay the same.

We illustrate country-of-origin effects graphically using the occupational placement of our hypothetical individuals where the predictions are based on the estimated coefficients of equation 1. Figure 1 presents the 1990  $\hat{OP}$  by country for the hypothetical individual arriving in the US in 1985. The results suggest that entry level occupational placement of skilled male US immigrants varies greatly by country of origin. The highest level of performance is attained by migrants from developed countries (such as Australia and Canada with scores of 85 and 79 respectively) while the lowest indices are seen among those from Latin American countries (such as Mexico at 47).<sup>20</sup> These patterns confirm findings in Mattoo et al. (2008).

The progress within the ten years closest to migration is presented in Figure 2 where we plot the change in OP (i.e.  $\Delta\hat{OP}$ ) between years 1990 and 2000 in the y-axis and the original  $\hat{OP}$  in 1990 in the x-axis for the 1985 arrivals. The same exercise is performed for the 1975 arrivals in Figure 3a. The negative correlation between the *entry level* OP and *change* in the OP over the next decade in Figures 2 and 3a show that there is significant improvement in the occupational placement levels for skilled immigrants coming from different countries. Additionally, this negative correlation suggests the existence of a convergence effect such that the differences in

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<sup>20</sup> For comparison, as of Census 1990, the weighted average occupational index calculated for all US-born skilled males (irrespective of wage or employment status) is about 77.

performance levels among various countries decline. These patterns are robust to alternative definitions of occupational placement, as illustrated by Figures A1 (a and b), and A2 (a and b).

The next issue is whether the strength of the negative correlation survives over time. Figure 3 (Panels a and b) plot the performance of the 1975 arrival migrant over 20 years since migration. The first panel shows the progress between 1980 and 1990 versus initial occupational placement in 1980, while the second plots the placement change between 1990 and 2000 versus the level in 1990. The convergence continues in the second decade since arrival, but at a reduced rate as the slope is smaller. Results are again robust to using the alternative indices of occupational placement (Figures A1 b and c and A2 b and c).

The natural question is whether the convergence suggested by the data leads to full catch-up<sup>21</sup> by migrants from countries experiencing low initial performances to the level of migrants from countries that started at a higher level. Figure 4 reveals, the line is flatter than the 45-degree line indicating catch-up but it is not completely flat, indicating that there is no complete catching-up. Figure A3 shows the same patterns for the 1985 arrival using alternative measures of occupational placement.

A common question in the literature focuses on the convergence between the migrants and the natives rather than migrants from different countries. As the data reveal so far, there is significant variation among migrants even if they come from similar neighboring countries. As an exercise, we performed the identical exercises with the inclusion of the American born workers in the sample with a native fixed effect. Even though they overwhelm the sample in terms of size, the inclusion of the native workers do not change the at all. A hypothetical native worker also improves over time and is generally places around 15-18<sup>th</sup> in terms of ranking. The countries that surpass the native worker in terms of performance tend to be smaller or English speaking OECD countries that account for around 12-15% of the migrant population depending on the census.<sup>22</sup>

Another potential issue is the performance and assimilation of migrants without tertiary education. We replicated the same exercise for migrant with only high school education where the diploma was again obtained in the home country. We also observe significant variation in terms of initial performance but we fail to find much improvement over time or catching-up by migrants who are placed at the lower end in terms of occupational performance. These results

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<sup>21</sup> We define full catch-up as migrants from countries with low-performance reaching to identical levels of countries that were initially at the high end.

<sup>22</sup> Detailed results are available upon request.

indicate that there is a significant difference between tertiary educated and other migrants. The first group seems to overcome initial gaps in placement while the latter do not.<sup>23</sup>

The issue of convergence has also been explored by the literature (measuring migrants' performance by earnings), sometimes with conflicting results.<sup>24</sup> To further test the strength of convergence detected by examining our charts, we regress the change in hypothetical individuals' occupational placement during a decade on their occupational placement at the beginning of the decade. In accordance with the predictions of classical  $\beta$ -convergence models (Barro,1991, Barro,1997) the  $\theta$  coefficients conditional on human capital endowments are expected to be negative and significant. For each pair of Census years  $t=1980, 1990$  and  $2000$ ,

$$(1/10)\Delta predicted \ln OP_c = \theta * predicted (\ln OP_{initial,c}) + \eta_c \quad (2)$$

where  $c$  represents the country of origin.<sup>25,26</sup> Table 5 presents the estimation results, which provide evidence of strong convergence as suggested by the negative and significant coefficients for the predicted log of OP in 1980 and 1990 respectively. This result holds for all the alternative specifications of the dependent variable.

### 3.3. EXAMINATION OF MAJOR SOURCES OF BIAS

The findings of the previous section may reflect a distorted picture of the real trends in immigrants' occupational placement if there are factors that systematically impact the composition of cohorts across censuses. This section aims at quantifying the effect of two important sources of bias: out-migration and usage of repeated cross-section datasets.

<sup>23</sup> The details of this exercise are also available upon request.

<sup>24</sup> Duleep and Regets (1997) detect significant negative correlation between the initial earnings and earnings' growth when controlling for the education level of migrants. Conditional on similar initial human capital endowments, Borjas (2000) finds similar results, but they are not robust to simple attempts to control for the measurement error bias. In addition, when human capital variables are not accounted for, Borjas obtains a positive, but weak correlation between wages and their growth. Like Duleep and Regets (1997), Hu (2000) provides evidence of significant conditional convergence. He also finds that convergence is present even when not controlling for education and other human capital indicators, but that, as Borjas (2000) showed, it is weaker than the conditional convergence.

<sup>25</sup> To account for the heteroscedasticity due to the sampling error, all regressions are weighted by a factor  $(n_t^{-1} + n_{t+10}^{-1})^{-1}$  as described in Borjas (2000), where  $n_t$  is the number of skilled people by country and half-decade of arrival, in Census year  $t$ .

<sup>26</sup> 10 stands for the number of years within a decade. When comparing the performance of the 1975 arrival in 1980 and 2000, the dependent variable is divided by 20.



Many studies have shown that out-migration can be selective.<sup>27</sup> Thus, the set of individuals who decide to return to their countries of origin or leave the US for other destinations may not be a random sample from the initial distribution of the migrants. If the most (least) able members of a cohort decide to out-migrate, the improvement in occupational placement across the decade is understated (overstated). A differential selective effect of return migration by country of origin may affect the results obtained in the paper. Examining the effects of return migration is a challenging task when using the US Censuses as a data source mainly because different individuals are surveyed in different years.<sup>28</sup> Duleep and Regest (1997) suggest a method for testing the sensitivity of results based on US Census data to biases caused by sampling error and migration. The approach taken here is a very simple one and consists of calculating the rate of attrition for the skilled immigrants in a particular cohort over the decade that is closest to their arrival in the US. As the next step, the countries with the highest rates of return migration are identified and excluded them from the samples. Re-estimating equation (1) and examining the relationship between the new predicted occupational placements obtained after eliminating those countries from the sample, we find that the improvement patterns do not differ from the ones obtained before trimming the sample.

Another source of bias is related to the fact that the sample of people responding to the long-form questionnaires of the US Censuses is drawn anew each decade from the entire population of the country. Hence, the validity of the inferences stated in this paper may be affected by the comparison of different sets of individuals over time. Because real panel data is typically less easily available repeated cross-section datasets, researchers have determined the conditions under which the latter can produce unbiased estimates equivalent to the ones based on estimating genuine panels. The pseudo-panel methodology in which repeated cross-sections are treated as panels was introduced by Deaton (1985) and consists of estimating economic relationships based on cohort means rather than individual observations. This approach is based on the assumption that the cohort population means are genuine panels in that, at the population level, the groups contain the same individuals over time. Applying the pseudo-panel analysis to our data we find our results to be robust to the changes in the methodology.<sup>29</sup> The successful

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<sup>27</sup> Jasso and Rosenzweig (1988), Borjas (1989), Borjas and Bratsberg (1996), Hu (2000), Lubotsky (2007)

<sup>28</sup> All the detailed information available in the census databases comes from the answers to the long-form questionnaires, which are filled out by one in six persons residing in the US. The sample changes from census to census, making it impossible to track the same individuals over time.

<sup>29</sup> We first focus on the 1975 arrivals, and used Education Index 1 as a measure of occupational placement. We construct cohorts - in the sense implied by the pseudo-panel theory- by country, period of arrival (1970-1974; 1975-1979), and education level (unskilled, representing individuals with less than five years

usage of pseudo-panel techniques requires that the average characteristics of individuals do not differ over time (across cross-sections).

In the case of our paper, there are two potential reasons to doubt the validity of this assumption. First, migrants could move from a cell to another by acquiring more education. Thus, a high-school graduate in 1980 might obtain a Bachelor's degree by 1990. Since our samples are composed only of individuals who have obtained their degrees before coming to the US, this concern is not relevant. Second, if migrants from different countries have different return migration or mortality rates, the conditions needed for consistency of pseudo-panel estimates do not hold. That is, the average characteristics of those observed in 1980 might differ from those observed in 1990 and 2000. Attrition due to natural causes is addressed by setting upper limits on ages of migrants included in the samples. With respect to return migration, we found earlier in this section that it does not change the main results of the paper in a significant way. Therefore we assume that the potential of return migration to weaken the validity of the pseudo-panel estimators is minimal.<sup>30</sup>

A final source of potential bias might result if migrants do not answer the survey truthfully. The bias is likely to arise from tertiary educated migrants from poorer developing countries overstating their occupational placement. If similar degrees of overstatement occur both at the initial period as well as the later periods, the net effect on our results would be negligible as we will still observe overall improvement even though initial gaps will be higher. If the overstatement occurs in the initial stage, then overall improvement would be larger which would actually strengthen our results. Only if the migrants would overstate in the later stage, we would observe a bias that would weaken our results. Even though we do not suspect any evidence of such bias from the data or from the literature, it is still a possibility.

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of education, medium skilled, including immigrants with more than five years of education up to unfinished college, and highly skilled, including Bachelor's Degree as well as higher degree holders). We follow the literature to minimize measurement errors (Deaton, 1985, Verbeek and Nijman, 1992) by deleting cohorts with less than 100 individuals from the sample. Next, for each cohort and cross-section (1980, 1990 and 2000) we average the Education Index 1, as well as age, and its quadratic. We estimate the pseudo-panel model using fixed effects composed of three sets of dummy variables: for period of arrival, for education level, and for country interacted with census year. The patterns in the predicted occupational placement are similar to the ones obtained in section 3.2. The same conclusion are reached by using alternative measures of occupational placement and the 1985 arrival. Results are available from the author upon request.

<sup>30</sup> As an additional robustness check, the pseudo-panel analysis was repeated on samples excluding origin countries identified as having significant out-migration flows. Results revealed no significant changes in the assimilation patterns.

## 4. OCCUPATIONAL PLACEMENT AND COUNTRY OF ORIGIN ATTRIBUTES

### 4.1. EMPIRICAL FRAMEWORK

This stage of the analysis is an exploration of the extent to which the predicted Occupational Placement Improvements can be accounted by country-of-origin specific factors. Previous literature focusing on earnings found country attributes to be significant determinants of both the entry wages and their growth rates (Jasso and Rosenzweig, 1986, Borjas, 1987, Borjas 2000). Mattoo et al. (2008) identified two types of country specific influences on the initial levels of occupational placement. First are related to the quality of education in the home country and explain why nominally identical educational qualifications obtained in different countries are valued differently on the US labor market. The second are selection-related and determine which particular segments of the origin country skill distribution are likely to migrate to the US.

As a first step, we check whether the predicted occupational placement indicators for the two sets of hypothetical individuals, migrating in 1975 and 1985 respectively, are influenced by several quality and selection specific attributes. The functional form is presented in equation (3)

$$\begin{aligned} \text{predicted ln } OP_c = & \alpha' + \beta_1' * GDPpc_c + \beta_2' * OPEN_c + \beta_3' * ENGLISH_c \\ & + \beta_4' * DIST_c + \beta_5' * CONFLICT_c + \beta_6' * COM_c + \varepsilon'_c, c = \text{country} \end{aligned} \quad (3)$$

The regression is estimated separately by hypothetical individual and census year (t=1980, 1990, 2000) for each OP specification (prestige index, education index 1, education index 2). The dependent variables are the levels of performance in 2000 for the 1975 arrivals, and in 1990 for the 1985 arrivals. This means estimating 6 (2 years\*3 OP definitions) regressions for the 1975 arrivals, and 3 (1 years\*3 OP definitions) for the 1985 arrivals.

The explanatory indicators capture a country's condition around migration time, i.e. during the 1970s decade or its first half for the 1975 arrival, and during the 1980s, or its first half, for the 1985 arrival. GDPpc stands for log of per capita-GDP in constant 2000 prices averaged over 1970-1975, and 1980-1985 periods, respectively, and is from the Penn World Tables (Version 6.2).<sup>31</sup> GDPpc may affect migrants' performance through both quality and selectivity channels. The fact that people coming from high income countries are better off at arrival has been associated with the ease of skill transferability between US and equally developed countries.

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<sup>31</sup> Heston, Summers, Aten (2006)

The coefficient of GDPpc should have a positive impact, but selectivity effects may trigger a different outcome. OPEN is the ratio of exports plus imports to GDP, and aims at capturing the degree of openness of the economy in the origin country. This variable is also available in the Penn World Tables. The coefficient of OPEN is expected to be positive provided that a high degree of an economy's openness implies more information is available to prospective migrants. The English dummy in the model is based on CIA – The World Factbook (2002) and takes value 1 if English is the main spoken language in a country. This variable should have a qualitative effect on performance; therefore the sign of the coefficient is expected to be positive. DIST is a selectivity indicator measured as the log of distance in miles to the US<sup>32</sup>. It affects migrants' ability distribution by its influence on migration costs. A country in the proximity of the US has a higher propensity to send unskilled migrants compared to one that is further away. Therefore distance should have a positive impact on the entry level of occupational placement. The presence of military CONFLICT has a negative selection effect. In estimations for the 1975 arrival, military conflict<sup>33</sup> is evaluated for the 1970s decades, whereas estimations for the 1985 arrival use an index based on data for the 1980s. Variable COM<sup>34</sup> indicates whether a country has a communist regime in 1970, and respectively 1985.

The next step is to determine whether country attributes impact the change in occupational placement over a decade. The model in the equation is estimated six times for the 1975 arrival, and three times for the 1985 arrival. Thus, for each pair of Census years t=1980, 1990, 2000:

$$\Delta predicted \ln OP_c = \alpha'' + \theta * predicted \ln OP_{initial,c} + \beta_2'' * OPEN_c + \beta_4'' * DIST_c + \beta_5'' * CONFLICT_c + \beta_6'' * COM_c + \varepsilon_c'', c = country \quad (4)$$

GDPpc and English are not included in specification (4) because they are correlated to a large degree with the initial predicted occupational placement.

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<sup>32</sup> From Andrew Rose's datasets available at <http://faculty.haas.berkeley.edu/arose>

<sup>33</sup> Constructed using [www.prio.no](http://www.prio.no), "Armed Conflict Version 2.1" by Gledisch, Wallensteen, Eriksson, Sollenberg and Strand (2004)

<sup>34</sup> Robert Barro's "Religion Adherence Data"  
[http://www.economics.harvard.edu/faculty/barro/data\\_sets\\_barro](http://www.economics.harvard.edu/faculty/barro/data_sets_barro)

## 4.2. EMPIRICAL RESULTS

Table 6 presents the summary statistics associated with these variables. The set referring to 1980-1989 is assumed to influence the performance of the 1985 arrivals, while the set for period 1970-1979 refers to the 1975 arrivals. The results of the estimations are presented in Table 7. They are robust to alternative definitions of occupational placement, as shown by Annex tables A2 and A3. Columns 1 and 2 as well as 5 and 6 describe the estimates related to performance during the 1990s of the 1985 and 1975 arrivals. Columns 3 and 4 refer to the performance during the 1980s of the 1975 arrivals.

Columns 1, 3 and 5 use the predicted initial occupational placement as the dependent variable. The results in column 1 are parallel to the findings in Mattoo et al. (2008) according to which country attributes explain a significant part of skilled immigrants' performance level in 1990. Both qualitative and selection factors have a significant impact in shaping the entry level occupational attainment: GDP per capita is significantly positive, distance to US has the expected positive sign and is significantly different from zero, the conflict variable affects negatively the performance. The English dummy has the right sign, but is not significant. The degree of openness of the economy in the origin country and the presence of a communist regime do not seem to matter. Turning to the 1975 arrival, the explanatory power of the regressions is much reduced for the 1980s (column 3), and more so for the 1990s (column 5). However, the level of occupational placement in the year closest to the arrival, i.e. 1980, still benefits from positive and significant effect of GDPpc, as well as from positive effect of English language.

Columns 2, 4 and 6 report the results of estimations using both country specific attributes and the initial predicted level of performance to explain predicted improvement. GDP per capita and English are not included in the regressions due to their high correlation (over 40%) with the initial level of performance. The initial performance has always a negative and significant effect which is equivalent in magnitude to the  $\beta$  coefficients reported in Table 5. In addition, the signs of the estimates for most country attributes are in accord to the ones found in columns 1, 3 and 5. Nevertheless the significance levels are very low. However, for the 1985 arrival (column 3) distance to US and communism index are significant.

The strong evidence of convergence conditional on keeping human characteristics constant may be thought to be due in great part to the country-specific assimilation effect not captured by equation 1 in the coefficient of the dummy for the time spent in the US. This assimilation effect is an indication of the speed at which the country specific set of unobserved abilities and motivation, not rewarded immediately after migration, becomes valuable as more

time is spent on the US labor market. Thus, the significant impact of initial performance accompanied by low significance of country attributes in the same regressions may be interpreted, in light of the findings of conditional convergence described in section 4, as an application of the “skill transferability” mechanism (Chiswick, 1978, Duleep and Regets, 1997, Chiswick et al., 2005). For illustration, consider the case of the 1985 arrival, for which the estimations have significant explanatory power. Countries with higher GDP per capita are found to send migrants that have high initial levels of performance (as revealed by the positive and significant coefficient of GDPpc in column 1). This can be attributed to the similarity between the US and developed countries, which favors equal or quasi-similar appreciation of the skills of migrants relative to those of natives. Consequently, since migrants from countries with high GDP per capita are already valued at or close to their full potential, there is not much space left for them to improve (this result is mirrored by the negative coefficient between growth and initial performance in column 2). On the other hand, migrants from countries with lower GDP per capita may come with a specific heritage of abilities that is not immediately convertible into skills valued on the US labor market. Therefore, such individuals will not attain highly ranked occupations immediately after migration (their initial performance will be lower as suggested by the positive coefficient of GDPpc in column 1). However, over time they will experience a higher rate of growth reflecting the gradual recognition of their abilities and motivation on the US market (captured by the negative coefficient of initial performance in column 2).

Although found to be the most important determinant, initial performance does not explain the whole variation in the assimilation patterns. Individuals may start from the same point, but have different growth rates. Indeed, Figure 2 shows how a migrant born in Mexico and one born in Uruguay have roughly the same initial occupational placement in 1990, but their predicted improvements differ to a large degree. This could be associated with a qualitative difference most likely related to selection, which in turn is determined by selection-related country attributes. As a confirmation, column 2 finds distance to the US to have a negative and significant effect on growth. Intuitively, migrants coming from distant (not so distant) countries are likely to be positively (negatively) selected from the ability distribution of the origin countries. Mexico’s proximity to the US would thus explain the difference in placement improvement between Mexican migrants and those from Uruguay. Additionally, the positive and significant effect of the communism index could reflect the higher motivation for migrants that do not have the option to return to their countries of origin.

## 5. CONCLUSIONS

This paper investigates how patterns in occupational placement of skilled male immigrants on the US labor market vary over time and by country of origin when education and other human capital characteristics are accounted for. By focusing on occupational placement rather than earnings, the analysis reaps the former's benefit of better comparability across geographic regions within the US and over time.

Employing three US Census samples, 1980, 1990, and 2000, to follow the progress of cohorts who arrived during the 1970s and 1980s, our first finding is that (i) the initial occupational placements by country and (ii) their improvements within the first 10 or 20 years since arrival are highly heterogeneous. Second, immigrants from countries with lower initial occupational placement are shown to improve their performance faster than those from countries with better initial placement, thus there is convergence among migrants. However, our third main result shows that, the magnitude of the convergence factor is not large enough to ensure full catch-up to the levels of those countries which had high initial performance.

Country specific attributes have both qualitative and selection effects on the predicted initial occupational placement. However, their impact on predicted occupational placement improvement over a decade seems to be indirect, in the sense that it is channeled through the initial levels of performance which are shown to be negatively correlated with the growth rate. Once initial occupational placement is introduced in the estimation explaining the predicted improvement in occupational placement, most country specific variables change signs and lose significance.

The findings in this paper may have several policy implications. The first relates to the heterogeneity on the initial occupational performance levels across different countries. It is possible that the variance arises from the fact some migrants are unable to practice their professions due to regulatory restrictions (such as absence of mutual recognition agreements between countries) and migrants struggle to obtain necessary licenses. Then, it is economically and socially efficient to remove those barriers. Another potential constraint are language barriers which means appropriate linguistic training for new migrants can have long term positive benefits. On the other hand, if the migrants perform well because they have the nominal diploma but lack the necessary human capital and skills expected, then origin countries might need to focus on their education systems, especially if those professions are global in nature. As another practical implication, information about migrants' professional achievement abroad could benefit policy makers in origin countries by helping them allocate education resources in a more efficient

way. On this line, Mattoo et al. (2008) suggest promoting private rather than public funding for the education of potential migrants, while keeping public resources for institutions preparing students for the domestic labor market.



## 6. BIBLIOGRAPHY

Akresh, Ilana Redstone. 2006a. "Immigrant's US labor market adjustment: Disaggregating the occupational transitions." *Demography*, 44(4): 865-881.

Akresh, Ilana Redstone. 2006b. "Occupational Mobility among legal immigrants to the United States." *International Migration Review*, 40(4): 854-885.

Akresh, Ilana Redstone. 2008. "Occupational Trajectories of Legal US Immigrants: Downgrading and Recovery." *Population and Development Review*, 34(3): 435-456.

Baker, Michael and Dwayne Benjamin. 1994. "The Performance of Immigrants in the Canadian Labor Market." *Journal of Labor Economics*, 12(3): 369-405.

Baltagi, Badi H. 2001. "Econometric Analysis of Panel Data." Second Edition. John Wiley & Sons, Ltd. West Sussex England.

Barro, Robert J. 1991. "Economic Growth in a Cross-Section of Countries." *Quarterly Journal of Economics* 106: 407-433.

Barro, Robert J. 1997. "Determinants of Economic Growth: A Cross-Country Empirical Study." Cambridge, MA: MIT Press.

Ben-Porath, Yoram. 1967. "The Production of Human Capital and the Life Cycle of Earnings." *Journal of Political Economy* 75: 352-365.

Bloom, David E. and Morley Gunderson. 1991. "An Analysis of the Earnings of Canadian Immigrants." In J.M. Abowd and R.B. Freeman (eds.): *Immigration, Trade and the Labor Market*, 321-42. Chicago: University of Chicago Press.

Borjas, George. 1982. "The Earnings of Male Hispanic Immigrants in the United States." *Industrial and Labor Relations Review*, 35(3): 343-353.

Borjas, George. 1985. "Assimilation, Changes in Cohort Quality, and the Earnings of Immigrants." *Journal of Labor Economics* 3(4): 463-489.

Borjas, George. 1987. "Self-Selection and Earnings of Immigrants." *American Economic Review* 77(4): 531-553.

Borjas, George. 1989. "Immigrant and Emigrant Earnings: A Longitudinal Study." *Economic Inquiry* 27(1): 21-37.

Borjas, George. 1992. "National Origin and the Skills of Immigrants in the Postwar Period." In R.B. Freeman (ed.): "Immigration and the Work Force." Chicago: University of Chicago Press.

Borjas, George. 1994. "The Economics of Immigration." *Journal of Economic Literature*, 32(4): 1667-1717.

Borjas, George. 1995. "Assimilation and Changes in Cohort Quality Revisited: What Happened to Immigrant Earnings in the 1980s." *Journal of Labor Economics* 13(2): 201-245.

Borjas, George. 2000. "The Economic Progress of Immigrants." In G.J. Borjas (ed.): "Issues in the Economics of Immigration." Chicago: University of Chicago Press.

Borjas, George J. and Bernt Bratsberg 1996. "Who Leaves? The Outmigration of the Foreign-Born." *The Review of Economics and Statistics*, 78(1): 165-176.

Borjas, George J. and Marta Tienda (eds) 1985. "Hispanic in the U.S. Economy." New York: Academic Press.

Carliner, Geoffrey. 1980. "Wages, Earnings, and Hours of First, Second and Third Generation Males." *Economic Inquiry*, 18(1): 87-102.

Chiswick, Barry R. 1978. "The Effect of Americanization of the Earnings of Foreign-Born Men." *Journal of Political Economy* 86(5): 897-921.

Chiswick, Barry R. 1986. "Is the New Immigration Less Skilled Than the Old?" *Journal of Labor Economics* 4(2): 168-192.

Chiswick, Barry R., Yew Liang Lee and Paul W. Miller. 2005. "Longitudinal Analysis of Immigrant Occupational Mobility: A Test of the Immigrant Assimilation Hypothesis." *International Migration Review*, 39(2): 332-53.

Deaton, Angus. 1985. "Panel Data from Time Series of Cross-Sections." *Journal of Econometrics*, 30: 109-126.

DeFreitas, Gregory. 1980. "The Earnings of Immigrants in the American Labor Market." Ph.D. dissertation, Columbia University.

Duleep, Harriet O. and Mark C. Regets. 1994 . "The Elusive Concept of Immigrant Quality: Evidence from 1970-1990." Discussion Paper PRIP-UI-31, The Urban Institute, Washington, DC. Published in 2002 as IZA Discussion Paper No. 631.

Duleep, Harriet O. and Mark C. Regets. 1997 . "The Decline in Immigrant Entry Earnings: Less Transferable Skills or Lower Ability?" *The Quarterly Review of Economics and Finance*, 37 Special Issue: 189-208.

Duleep, Harriet O. and Mark C. Regets. 1999 . "Immigrants and Human-Capital Investment." *American Economic Review*, 89(2): 182-191.

Duleep, Harriet O. and Daniel J. Dowhan. 2002. "Insight from Longitudinal Data and the Earnings Growth of U.S. Foreign-Born Men. *Demography*, 39(3): 485-506.

Friedberg, Rachel. 1992. "The Labor Market Assimilation of Immigrants in the United States: The Role of Age at Arrival." Unpublished manuscript. Providence RI: Brown University.

Friedberg, Rachel. 2000. "You Can't Take it with You: Immigrant Assimilation and Portability of Human Capital: Evidence from Israel." *Journal of Labor Economics*, 18(2): 221-251.

Funkhouser, Edward and Stephen J. Trejo. 1995. "The Labor Market Skills of Recent Male Immigrants: Evidence from the Current Population Survey." *Industrial and Labor Relations Review*, 48(4): 792-811.

Green, David A. 1999. "Immigrant Occupational Attainment: Assimilation and Mobility over Time." *Journal of Labor Economics*, 17(1): 49-77.

Jasso, Guillermina and Mark R. Rosenzweig. 1982. "Estimating the Emigration Rates of Legal Immigrants Using Administrative and Survey Data: The 1971 Cohort of Immigrants to the United States." *Demography*, 19(3): 279-290.

Jasso, Guillermina and Mark R. Rosenzweig. 1986. "What's in a Name? Country-of-Origin Influences on the Earnings of Immigrants in the United States." In: *Research in Human Capital and Development* vol. 4, Oded Stark (ed.), Greenwich.

Jasso, Guillermina and Mark R. Rosenzweig. 1988. "How Well Do U.S. Immigrants Do? Vintage Effects, Emigration Selectivity, and Occupational Mobility." *Research in Population Economics*, 6:229-253.

Jasso, Guillermina and Mark R. Rosenzweig. 1995. "Do Immigrants Screened for Skills So Better than Family Reunification Immigrants?" *International Migration Review*, 29(1): 85-111.

Jasso, Guillermina Mark R. Rosenzweig and James P. Smith. 2000. "The Changing Skill of New Immigrants to the United States: Recent Trends and Determinants." in G. Borjas (ed.), *Issues in the Economics of Immigration*. Chicago, IL: University of Chicago Press.

Heston, Alan, Robert Summers and Bettina Aten. 2006. *Penn World Table Version 6.2*, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, September.

Hu, Wei-Yin. 2000. "Immigrant Earnings Assimilation: Estimates from Longitudinal Data." *The American Economic Review*, 90(2): 368-372.

Kim, Seik. 2009a. "Economic Assimilation of Foreign-Born Workers in the United States: An Overlapping Rotation Panel Analysis." Working Paper, University of Washington.

Kim, Seik. 2009b. "Sample Attrition in the Presence of Population Attrition." Working Paper, University of Washington.

LaLonde, Robert J. and Robert H. Topel. 1990. "The Assimilation of Immigrants in the US Labor Markets." 1990. NBER Working Paper No. 3573.

LaLonde, Robert J. and Robert H. Topel. 1997. "Economic Impact of International Migration and the Economic Performance of Migrants." In M.R. Rosenzweig and O. Stark (ed.) "Handbook of Population and Family Economics." Elsevier Science

Long, James E. 1980. "The Effect of Americanization on Earnings: Some Evidence for Women." *Journal of Political Economy*, 88(3): 620-629.

Lubotsky, Darren H. 2007. "Chutes or Ladders? A Longitudinal Analysis of Immigrant Earnings." *Journal of Political Economy*, 115(5): 820-867.

Mattoo, Aaditya, Ileana C. Neagu and Çağlar Özden. 2008. "Brain Waste? Educated Immigrants in the US Labor Market." *Journal of Development Economics*, 87(2): 255-269.

McKenzie, David. 2003. "Asymptotic theory for Heterogeneous Dynamic Pseudo-Panels." *Journal of Econometrics*, 120: 235-262.

McKenzie, David and Hillel Rapoport. 2007. "Self-Selection Patterns in Mexico-US migration: the role of migration networks." World Bank Working Paper no. 4118.

Moffitt, Robert. 1993. "Identification and Estimation of Dynamic Models with a Time Series of Repeated Cross-Sections." *Journal of Econometrics*, 59: 99-123.

Powers, Mary and William Seltzer. 1998. "Occupational Status and Mobility among Undocumented Immigrants by Gender." *International Migration Review* 32(1): 21-25.

Powers, Mary, William Seltzer and Jing Shi. 1998. "Gender Differences in the Occupational Status of Undocumented Immigrants in the United States: Experience Before and After Legalization." *International Migration Review* 32(4): 1015-1046.

Ruggles, Steven, Matthew Sobek, Trent Alexander, Catherine A. Fitch, Ronald Goeken, Patricia Kelly Hall, Miriam King, and Chad Ronnander. 2009. *Integrated Public Use Microdata Series: Version 4.0 [Machine-readable database]*. Minneapolis, MN: Minnesota Population Center [producer and distributor].

Schoeni, Robert. 1997. "New Evidence on the Economic Progress of Foreign-Born Men in the 1970s and 1980s." *The Journal of Human Resources* 32(4): 683-740.

Schoeni, Robert. 1998. "Labor Market Outcomes of Immigrant Women in the United States: 1970 to 1990" *International Migration Review* 32(1): 57-77.

Verbeek, M. and T. Nijman. 1992. "Can Cohort Data Be Treated as Genuine Panel Data?" *Empirical Economics*, 17: 9-23.

Warren, R. and E. Kraly. 1985. "The Elusive Exodus: Emigration from the United States." *Population Trends and Public Policy Occasional Paper no. 8*, Population Reference Bureau. Washington D.C.

Warren, Robert and Jennifer Marks Peck. 1980. "Foreign-Born Emigration from the United States: 1960-1970." *Demography* 17(1): 71-84.

## 7. TABLES AND CHARTS

**Table 1. Characteristics of the hypothetical individuals:**

	(1)	(2)
Year of arrival	1975	1985
Age at arrival	25	25
Level of education	At least college degree	At least college degree
Age as of Census 1980	30	-
Age as of Census 1990	40	30
Age as of Census 2000	50	40

**Table 2. Summary Statistics of Datasets Extracted from the US Census Samples**

	DECADE 1970-1979			DECADE 1980-1989	
	Census 1980	Census 1990	Census 2000	Census 1990	Census 2000
	(1)	(2)	(3)	(4)	(5)
<b>Individuals in the sample (unweighted)</b>	41,234	39,445	35,880	75,851	78,745
<b>Total number of people (after weighting)</b>	824,680	847,573	750,289	1,668,342	1,704,575
<b>Age interval</b>	16-40	26-50	36-60	16-50	26-60
<b>Median age</b>	30	40	49	32	41
<b>Years since arrival</b>	1970-1974			1980-1984	
six to ten	41%	40%	38%	47%	43%
	1975-1979			1985-1989	
one to five	59%	60%	62%	53%	57%
<b>By education:</b>					
None or preschool	4%	7%	8%	8%	6%
Grade 1, 2, 3, or 4	9%	9%	7%	6%	4%
Grade 5, 6, 7, or 8	25%	20%	21%	17%	19%
Grade 9	5%	5%	4%	6%	6%
Grade 10	4%	3%	2%	3%	3%
Grade 11	4%	2%	2%	3%	2%
Grade 12	19%	20%	21%	23%	24%
1 to 3 years of college	9%	13%	13%	13%	14%
4+ years of college	21%	21%	22%	21%	21%

**Table 3 Performance Indices for Selected Occupations**

Occupation	Prestige Index	Education Index 1 (Census 2000)	Education Index 2 (Census 2000)
Accountants and auditors	65.4	92.8	16.1
Bank tellers	43.3	54.8	13.7
Cashiers	29.5	31.8	12.3
Civil engineers	68.8	95.8	16.4
Clergy and religious workers	63.3	89.8	15.8
Computer software developers	60.5	95.0	16.2
Farm workers	24.5	19.6	10.0
Judges	71.5	93.3	16.2
Laundry workers	31.8	20.1	11.2
Lawyers	74.8	99.9	17.0
Mathematicians and mathematical scientists	63.5	99.4	16.6
Physicians	86.1	99.7	17.0
Police, detectives, and private investigators	59.7	84.1	15.1
Registered nurses	66.5	98.1	15.9
Secondary school teachers	66.4	99.5	16.8
Secretaries	46.1	64.0	14.1
Taxi cab drivers and chauffeurs	28.1	42.5	12.7

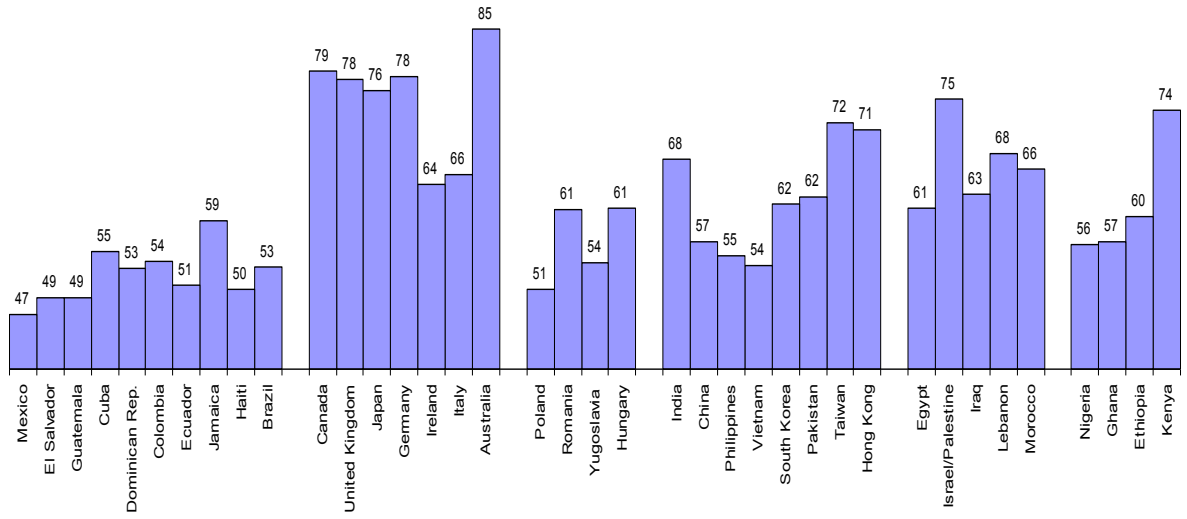
**Table 4. Estimates Based on Equation (1)**

EDUCATION INDEX 1 VARIABLES	DECADE: 1970-1979			DECADE: 1980-1989	
	CENSUS 1980	CENSUS 1990	CENSUS 2000	CENSUS 1990	CENSUS 2000
Age	0.00316 [0.00410]	0.00684 [0.00482]	-0.0069 [0.00624]	0.00884*** [0.00163]	0.00568*** [0.00207]
Age squared	0.0000214 [0.0000700]	-0.000106* [0.0000610]	0.0000401 [6.32e-05]	-0.000113*** [2.38e-05]	-9.29e-05*** [2.37e-05]
Years since arrival (dummy with value 1 for second half of the decade)	-0.0596*** [0.00573]	-0.0300*** [0.00490]	-0.0352*** [0.00502]	-0.0413*** [0.00344]	-0.0317*** [0.00332]
<b>EDUCATION DUMMIES</b>					
five to nine years of education	0.00444 [0.00705]	0.0231*** [0.00646]	0.0382*** [0.00697]	-0.000464 [0.00491]	0.0201*** [0.00531]
ten to twelve years of education	0.0566*** [0.00933]	0.0646*** [0.00874]	0.0866*** [0.00969]	0.0195*** [0.00571]	0.0606*** [0.00604]
high-school level	0.168*** [0.00974]	0.173*** [0.00836]	0.191*** [0.00860]	0.109*** [0.00564]	0.146*** [0.00576]
some college	0.451*** [0.0134]	0.419*** [0.0105]	0.430*** [0.0107]	0.317*** [0.00735]	0.380*** [0.00712]
Bachelor's Degree or higher	1.011*** [0.0123]	0.825*** [0.0101]	0.826*** [0.0103]	0.700*** [0.00740]	0.746*** [0.00702]
Constant	5.610*** [0.189]	5.654*** [0.181]	6.056*** [0.221]	5.950*** [0.0785]	6.015*** [0.0828]
Observations	41234	39445	35880	75851	78745
Country fixed effects	yes	yes	yes	yes	yes
R-squared	0.51	0.51	0.51	0.49	0.48

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

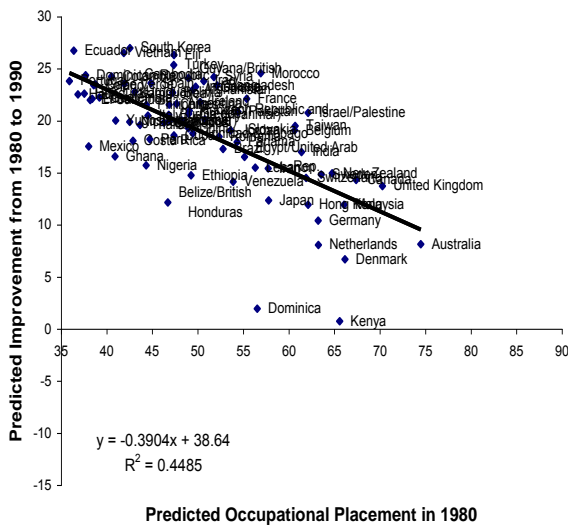
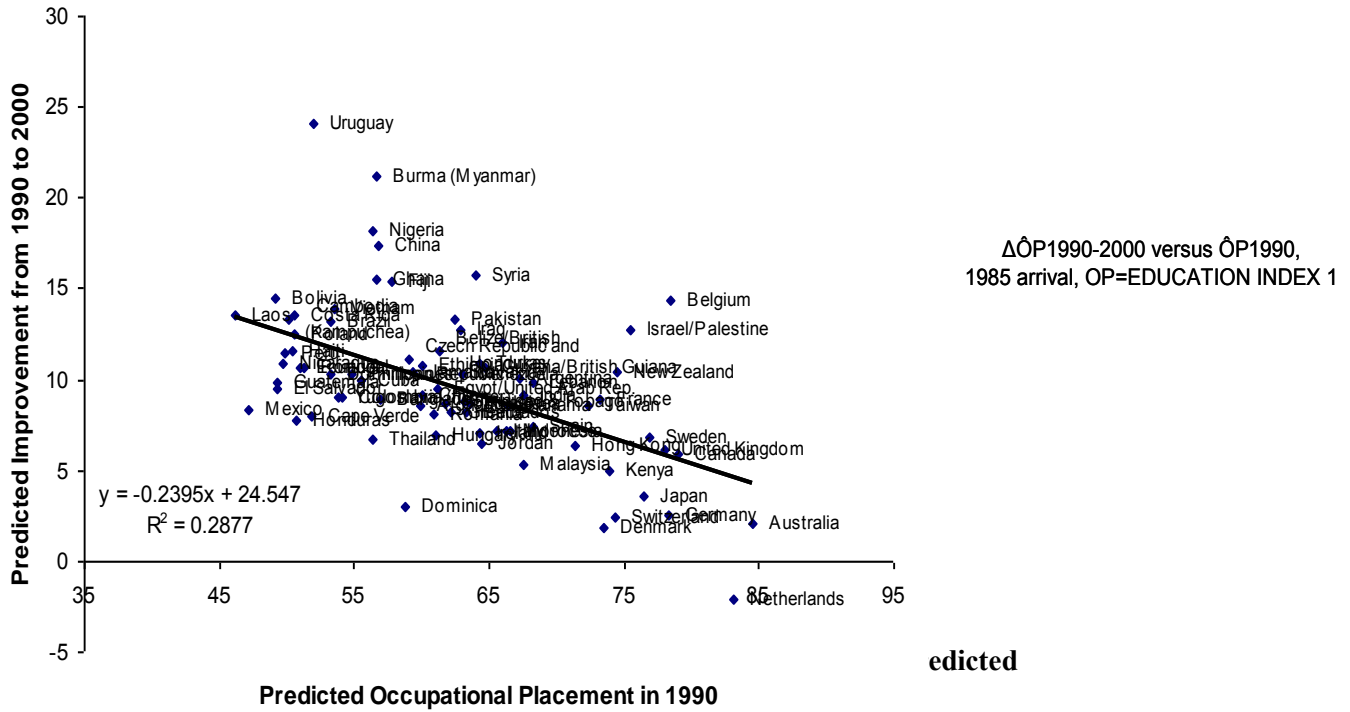
Robust standard errors in brackets

**Figure 1. Predicted Occupational Placement in 1990, 1985 arrival**

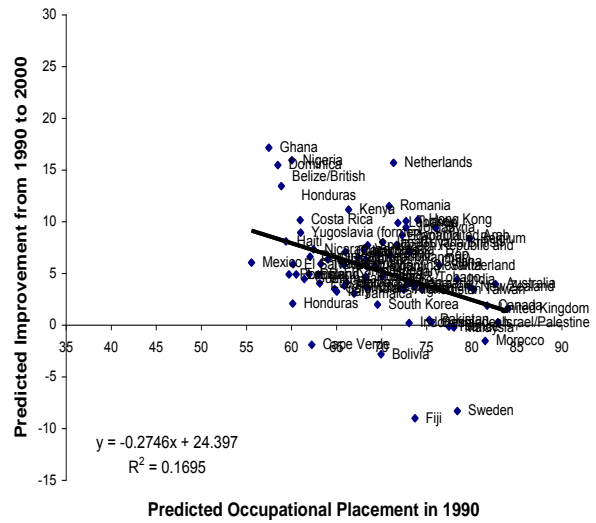




**Figure 2 Predicted Occupational Placement Improvement ( $\Delta\hat{OP}$ ) versus Predicted Occupational Placement ( $\hat{OP}$ ), 1985 arrival**

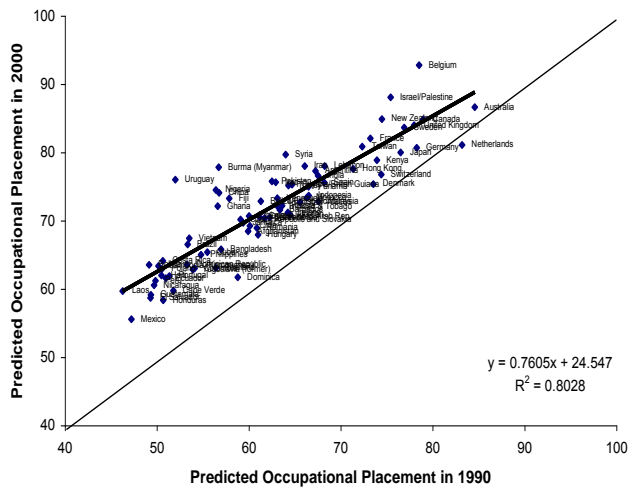


**a.  $\Delta\hat{OP}$ 1980-1990 versus  $\hat{OP}$ 1980,  
1975 arrival, OP=EDUCATION INDEX 1**

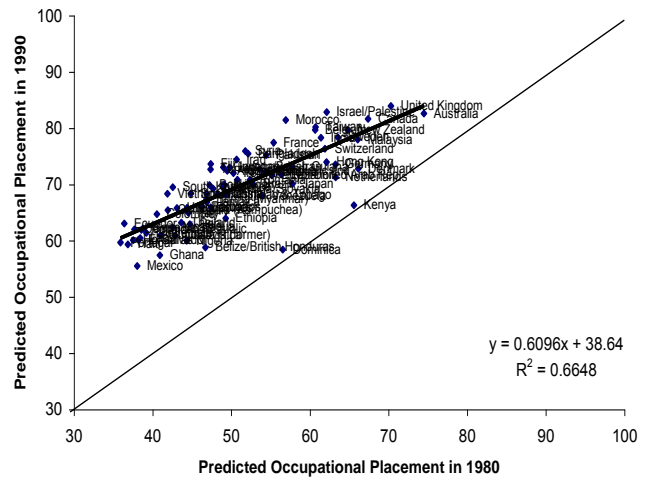


**b.  $\Delta\hat{OP}$ 1990-2000 versus  $\hat{OP}$ 1990,  
1975 arrival, OP=EDUCATION INDEX 1**

**Figure 4 Predicted Occupational Placement ( $\hat{O}P$ ) in 2000/1990 versus Predicted Occupational Placement ( $\hat{O}P$ ) in 1990/1980, 1985/1975 arrival**



**a.  $\hat{O}P_{2000}$  versus  $\hat{O}P_{1990}$ ,  
1985 arrival, OP=EDUCATION INDEX 1**



**b.  $\hat{O}P_{1990}$  versus  $\hat{O}P_{1980}$ ,  
1975 arrival, OP=EDUCATION INDEX 1**

**Table 5. Results from estimating  $\beta$ -convergence models**

	1985 arrival		1975 arrival	
	1990-2000	1980-1990	1980-2000	1990-2000
	(1)	(2)	(3)	(4)
<b>EDUCATION INDEX 1</b>				
Predicted Log of OP in 1990	-0.0291*** [0.00522]			-0.0278*** [0.00726]
Predicted Log of OP in 1980		-0.0523*** [0.00442]	-0.0297*** [0.00166]	
Constant	0.202*** [0.0341]	0.359*** [0.0281]	0.205*** [0.0105]	0.189*** [0.0481]
Observations	79	80	80	80
R-squared	0.554	0.834	0.906	0.343
<b>PRESTIGE INDEX</b>				
Predicted Log of OP in 1990	-0.0290*** [0.00377]			-0.0183** [0.00706]
Predicted Log of OP in 1980		-0.0341*** [0.00566]	-0.0177*** [0.00210]	
Constant	0.188*** [0.0236]	0.218*** [0.0353]	0.114*** [0.0132]	0.118*** [0.0447]
Observations	79	80	80	80
R-squared	0.562	0.419	0.546	0.178
<b>EDUCATION INDEX 2</b>				
Predicted Log of OP in 1990	-0.0234*** [0.00492]			-0.0198*** [0.00677]
Predicted Log of OP in 1980		-0.0382*** [0.00469]	-0.0214*** [0.00172]	
Constant	0.0660*** [0.0133]	0.107*** [0.0125]	0.0603*** [0.00457]	0.0552*** [0.0184]
Observations	79	80	80	80
R-squared	0.414	0.647	0.773	0.213

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 6 Summary Statistics**

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
<b>1980-1989</b>					
<b>Log of GDP per capita</b>	71	8.52	0.95	6.05	10.09
<b>Openness Index</b>	71	50.91	31.11	7.53	142.98
<b>Log of Distance to the US</b>	71	8.45	0.55	6.98	9.15
<b>English</b>	71	0.41	0.50	0.00	1.00
<b>Military conflict</b>	71	0.38	0.49	0.00	1.00
<b>Communism index</b>	71	0.14	0.35	0.00	1.00
<b>1970-1979</b>					
<b>Log of GDP per capita</b>	72	8.34	0.93	6.20	10.01
<b>Openness Index</b>	72	51.10	36.09	7.16	189.99
<b>Log of Distance to the US</b>	72	8.43	0.56	6.98	9.15
<b>English</b>	72	0.42	0.50	0.00	1.00
<b>Military conflict</b>	72	0.40	0.49	0.00	1.00
<b>Communism index</b>	72	0.07	0.26	0.00	1.00

Table 7 OLS Estimations based on country specific variables

EDUCATION INDEX 1	1985 arrival		1975 arrival			
	1990-2000		1980-1990		1990-2000	
	predicted (lnOP <sub>1990</sub> )	(1/10) Δpredicted (lnOP <sub>1990-2000</sub> )	predicted (lnOP <sub>1980</sub> )	(1/10) Δpredicted (lnOP <sub>1980-1990</sub> )	predicted (lnOP <sub>1990</sub> )	(1/10) Δpredicted (lnOP <sub>1990-2000</sub> )
(1)	(2)	(3)	(4)	(5)	(6)	
Log of GDP per capita	<b>0.112***</b> [0.0205]		<b>0.0999**</b> [0.0500]		0.0369 [0.0227]	
Openness Index	-0.00006 [0.000650]	0.00001 [1.69e-05]	-0.00019 [0.00124]	-0.00002 [2.38e-05]	-0.00015 [0.000684]	0.00001 [2.61e-05]
Log of Distance to the US	<b>0.142***</b> [0.0463]	<b>0.00258***</b> [0.000895]	0.0923 [0.0623]	0.00272 [0.00198]	<b>0.0913**</b> [0.0443]	0.000705 [0.00113]
English	0.0566 [0.0446]		<b>0.123*</b> [0.0731]		0.0393 [0.0422]	
Military conflict	<b>-0.0977**</b> [0.0464]	-0.000152 [0.00129]	-0.00147 [0.127]	-0.00133 [0.00214]	-0.0358 [0.0508]	0.000404 [0.00163]
Communism index	-0.0399 [0.0733]	<b>0.00458*</b> [0.00242]	0.0406 [0.152]	-0.00267 [0.00238]	-0.0353 [0.0697]	0.00166 [0.00207]
Predicted Log of OP in 1990		<b>-0.0285***</b> [0.00419]				<b>-0.0280***</b> [0.00938]
Predicted Log of OP in 1980				<b>-0.0519***</b> [0.00460]		
Constant	4.291*** [0.454]	0.175*** [0.0226]	4.583*** [0.672]	0.335*** [0.0279]	5.494*** [0.431]	0.184*** [0.0563]
Observations	71	71	72	72	72	72
R-squared	0.637	0.695	0.282	0.844	0.221	0.377

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Robust standard errors in brackets

## 8. ANNEX

Table A1 Estimates Based on Equation (1)

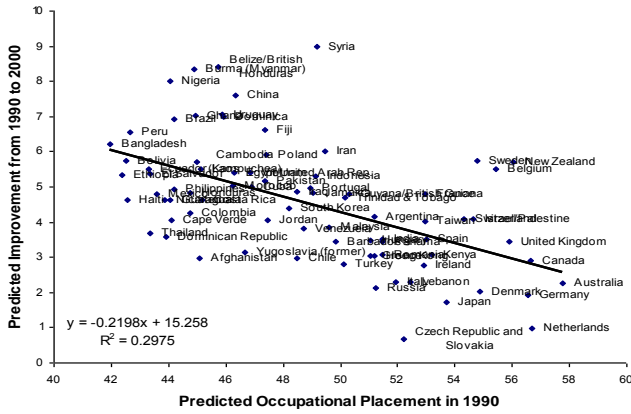
a. PRESTIGE INDEX	DECADE: 1970-1979			DECADE: 1980-1989	
	CENSUS 1980	CENSUS 1990	CENSUS 2000	CENSUS 1990	CENSUS 2000
Age	0.0170*** [0.00230]	0.00514 [0.00320]	-0.0109** [0.00436]	0.0127*** [0.00113]	0.00411*** [0.00142]
Age squared	-0.000218*** [0.0000386]	-0.0000787* [0.0000405]	7.94e-05* [4.43e-05]	-0.000172*** [1.64e-05]	-7.58e-05*** [1.64e-05]
Years since arrival (dummy with value 1 for second half of the decade)	-0.0415*** [0.00299]	-0.0260*** [0.00328]	-0.0254*** [0.00357]	-0.0331*** [0.00231]	-0.0204*** [0.00229]
<b>EDUCATION DUMMIES</b>					
five to nine years of education	0.0285*** [0.00420]	0.0282*** [0.00438]	0.0311*** [0.00486]	0.00750** [0.00357]	0.0142*** [0.00368]
ten to twelve years of education	0.0593*** [0.00515]	0.0492*** [0.00565]	0.0555*** [0.00640]	0.0173*** [0.00397]	0.0388*** [0.00407]
high-school level	0.0978*** [0.00513]	0.0854*** [0.00526]	0.0914*** [0.00571]	0.0508*** [0.00378]	0.0639*** [0.00384]
some college	0.194*** [0.00657]	0.202*** [0.00638]	0.209*** [0.00703]	0.146*** [0.00461]	0.179*** [0.00461]
Bachelor's Degree or higher	0.453*** [0.00636]	0.476*** [0.00679]	0.515*** [0.00734]	0.389*** [0.00492]	0.447*** [0.00484]
Constant	5.636*** [0.0815]	5.683*** [0.129]	6.304*** [0.134]	5.809*** [0.0526]	5.987*** [0.0917]
Observations	41234	39445	35880	75851	78745
Country fixed effects	yes	yes	yes	yes	yes
R-squared	0.41	0.40	0.40	0.37	0.36

b. EDUCATION INDEX 2	DECADE: 1970-1979			DECADE: 1980-1989	
	CENSUS 1980	CENSUS 1990	CENSUS 2000	CENSUS 1990	CENSUS 2000
Age	0.00140* [0.000723]	0.00141 [0.00105]	-0.00202 [0.00147]	0.00236*** [0.000351]	0.00163*** [0.000479]
Age squared	-0.00000958 [0.0000125]	-0.0000216 [0.0000134]	1.31E-05 [1.49e-05]	-3.20e-05*** [5.17e-06]	-2.61e-05*** [5.52e-06]
Years since arrival (dummy with value 1 for second half of the decade)	-0.0107*** [0.00103]	-0.00742*** [0.00109]	-0.00919*** [0.00119]	-0.00912*** [0.000749]	-0.00682*** [0.000776]
<b>EDUCATION DUMMIES</b>					
five to nine years of education	0.00856*** [0.00116]	0.00895*** [0.00138]	0.0134*** [0.00163]	0.00168 [0.00104]	0.00811*** [0.00124]
ten to twelve years of education	0.0190*** [0.00151]	0.0191*** [0.00178]	0.0252*** [0.00218]	0.00848*** [0.00116]	0.0188*** [0.00136]
high-school level	0.0364*** [0.00160]	0.0403*** [0.00171]	0.0474*** [0.00193]	0.0262*** [0.00115]	0.0369*** [0.00130]
some college	0.0844*** [0.00229]	0.0917*** [0.00218]	0.101*** [0.00244]	0.0689*** [0.00152]	0.0888*** [0.00161]
Bachelor's Degree or higher	0.204*** [0.00229]	0.201*** [0.00229]	0.215*** [0.00250]	0.167*** [0.00166]	0.192*** [0.00169]
Constant	2.489*** [0.0350]	2.473*** [0.0489]	2.586*** [0.0526]	2.549*** [0.0178]	2.556*** [0.0224]
Observations	41234	39445	35880	75851	78745
Country fixed effects	yes	yes	yes	yes	yes
R-squared	0.546	0.538	0.53	0.52	0.51

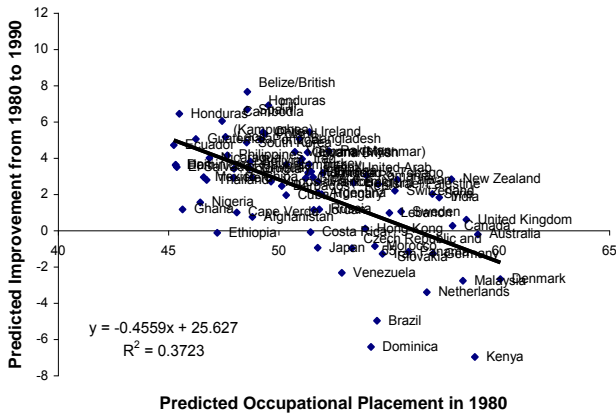
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Robust standard errors in brackets

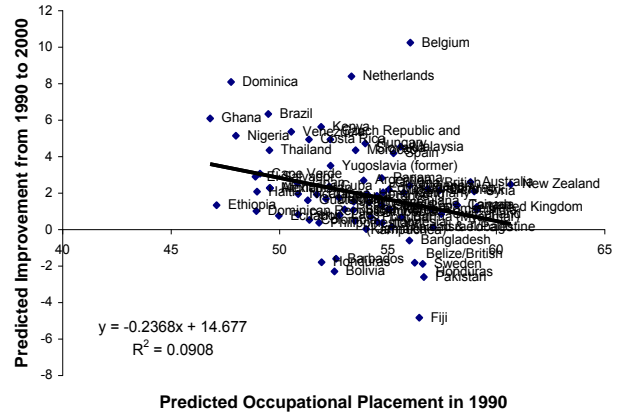
**Figure A1 Predicted Occupational Placement Improvement ( $\Delta\hat{OP}$ ) versus Predicted Occupational Placement ( $\hat{OP}$ ), PRESTIGE INDEX**



**a.  $\Delta\hat{OP}$ 1990-2000 versus  $\hat{OP}$ 1990, 1985 arrival, OP=PRESTIGE INDEX**

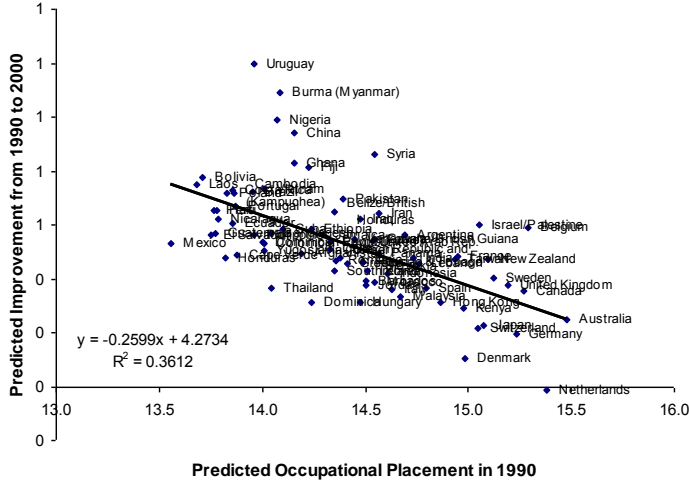


**b.  $\Delta\hat{OP}$ 1980-1990 versus  $\hat{OP}$ 1980, 1975 arrival, OP=PRESTIGE INDEX**

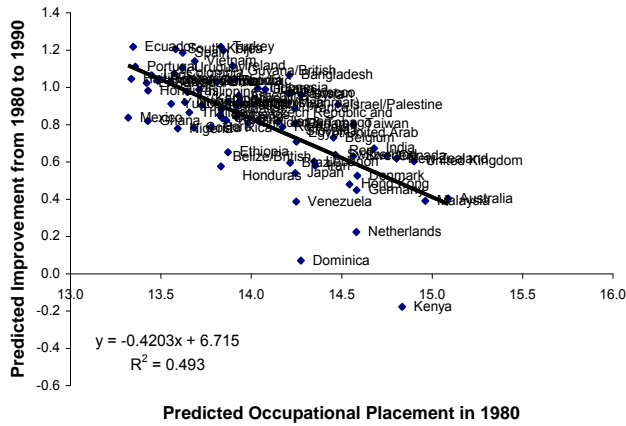


**c.  $\Delta\hat{OP}$ 1990-2000 versus  $\hat{OP}$ 1990, 1975 arrival, OP=PRESTIGE INDEX**

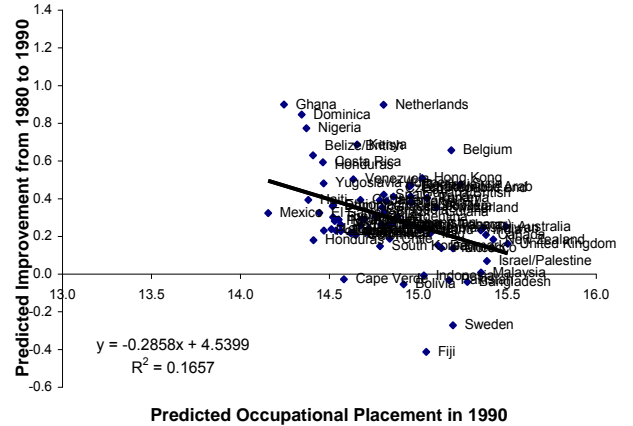
**Figure A2 Predicted Occupational Placement Improvement ( $\Delta\hat{OP}$ ) versus Predicted Occupational Placement ( $\hat{OP}$ ), EDUCATION INDEX 2**



**a.  $\Delta\hat{OP}$ 1990-2000 versus  $\hat{OP}$ 1990, 1985 arrival, OP=EDUCATION INDEX 2**



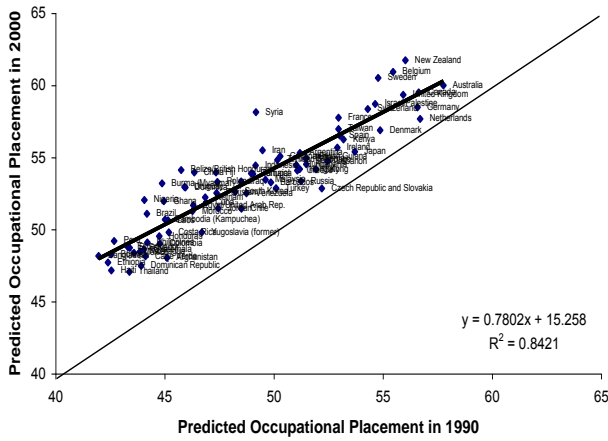
**b.  $\Delta\hat{OP}$ 1980-1990 versus  $\hat{OP}$ 1980, 1975 arrival, OP=EDUCATION INDEX 2**



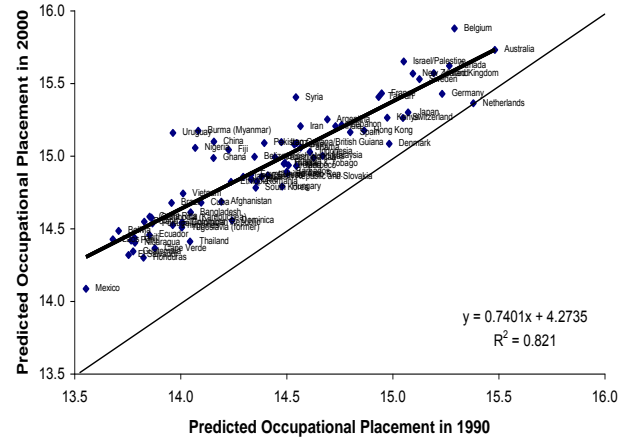
**c.  $\Delta\hat{OP}$ 1990-2000 versus  $\hat{OP}$ 1990, 1975 arrival, OP=EDUCATION INDEX 2**



**Figure A3 Predicted Occupational Placement ( $\hat{OP}$ ) in 2000 versus Predicted Occupational Placement ( $\hat{OP}$ ) in 1990, 1985 arrival**



**a.  $\hat{OP}_{2000}$  versus  $\hat{OP}_{1990}$ ,  
1985 arrival, PRESTIGE INDEX**



**b.  $\hat{OP}_{2000}$  versus  $\hat{OP}_{1990}$ ,  
1985 arrival, OP=EDUCATION INDEX 2**

Table A2 OLS Estimations based on country specific variables

PRESTIGE INDEX	1985 arrival		1975 arrival			
	1990-2000		1980-1990		1990-2000	
	predicted (lnOP <sub>1990</sub> )	(1/10) Δpredicted (lnOP <sub>1990-2000</sub> )	predicted (lnOP <sub>1980</sub> )	(1/10) Δpredicted (lnOP <sub>1980-1990</sub> )	predicted (lnOP <sub>1990</sub> )	(1/10) Δpredicted (lnOP <sub>1990-2000</sub> )
	(1)	(2)	(3)	(4)	(5)	(6)
Log of GDP per capita	0.0681*** [0.0130]		0.0344 [0.0212]		0.0126 [0.0147]	
Openness Index	-0.00018 [0.000431]	0.00002 [1.05e-05]	-0.00017 [0.000643]	-0.00002 [2.19e-05]	-0.00028 [0.000500]	0.00001 [1.42e-05]
Log of Distance to the US	0.0610*** [0.0218]	0.000740* [0.000406]	0.023 [0.0256]	0.000924 [0.000834]	0.0395* [0.0233]	0.000242 [0.000525]
English	0.0399 [0.0247]		0.0559* [0.0325]		0.0318 [0.0260]	
Military conflict	-0.0692** [0.0285]	-0.000638 [0.000782]	0.00504 [0.0525]	0.00039 [0.00136]	-0.0212 [0.0353]	-0.00113 [0.000891]
Communism index	0.0218 [0.0304]	0.00243** [0.00117]	0.0241 [0.0489]	0.0000863 [0.00174]	-0.0174 [0.0449]	-0.0000822 [0.000838]
Predicted Log of OP in 1990		-0.0279*** [0.00378]				-0.0188** [0.00864]
Predicted Log of OP in 1980				-0.0339*** [0.00503]		
Constant	5.101*** [0.221]	0.175*** [0.0216]	5.747*** [0.301]	0.209*** [0.0304]	5.866*** [0.226]	0.119** [0.0522]
Observations	71	71	72	72	72	72
R-squared	0.649	0.672	0.203	0.463	0.153	0.217

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Robust standard errors in brackets

Table A3 OLS Estimations based on country specific variables

EDUCATION INDEX 2	1985 arrival		1975 arrival			
	1990-2000		1980-1990		1990-2000	
	predicted (lnOP <sub>1990</sub> )	(1/10) Δpredicted (lnOP <sub>1990-2000</sub> )	predicted (lnOP <sub>1980</sub> )	(1/10) Δpredicted (lnOP <sub>1980-1990</sub> )	predicted (lnOP <sub>1990</sub> )	(1/10) Δpredicted (lnOP <sub>1990-2000</sub> )
	(1)	(2)	(3)	(4)	(5)	(6)
Log of GDP per capita	<b>0.0249***</b> [0.00496]		0.0151 [0.00974]		0.00577 [0.00571]	
Openness Index	-0.00003 [0.000155]	0.00000 [4.02e-06]	-0.00006 [0.000256]	-0.00001 [5.85e-06]	-0.00007 [0.000175]	0.00001 [6.23e-06]
Log of Distance to the US	<b>0.0303***</b> [0.0111]	<b>0.000468**</b> [0.000206]	0.0144 [0.0118]	0.000449 [0.000394]	<b>0.0185*</b> [0.0105]	0.0000983 [0.000251]
English	0.0132 [0.0105]		0.0233 [0.0144]		0.00911 [0.0107]	
Military conflict	<b>-0.0239**</b> [0.0111]	-0.0000189 [0.000333]	0.000991 [0.0248]	-0.000136 [0.000450]	-0.00811 [0.0135]	-0.000082 [0.000389]
Communism index	-0.00533 [0.0164]	<b>0.00124**</b> [0.000618]	0.00645 [0.0260]	-0.000495 [0.000491]	-0.0112 [0.0169]	0.000246 [0.000427]
Predicted Log of OP in 1990		<b>-0.0216***</b> [0.00439]				<b>-0.0197**</b> [0.00913]
Predicted Log of OP in 1980				<b>-0.0383***</b> [0.00478]		
Constant	2.204*** [0.110]	0.0572*** [0.0105]	2.389*** [0.132]	0.103*** [0.0121]	2.502*** [0.102]	0.0541** [0.0236]
Observations	71	71	72	72	72	72
R-squared	0.617	0.579	0.216	0.669	0.167	0.248

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Robust standard errors in brackets