Determinants and persistence of immigrant ranking across occupational groups in the US

Agnieszka Postepska, Francis Vella

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Abstract

The 1940 US Census indicates that immigrants from Canada and Northern Europe were more frequently employed in more prestigious occupations than their counterparts from Asia, South America and Southern and Eastern Europe. While many Canadians and Northern Europeans found employment in white-collar jobs, most other immigrants were employed in blue-collar jobs. Using data from US Census, we study immigrants allocation to occupations across time and space and the resulting ranking of immigrant groups based on Duncan Socioeconomic Index (SEI). We find that, within metropolitan areas, there is little overlap between popular occupations across immigrants from different countries. Moreover, we find a substantial variability in popular occupations across metropolitan areas for most of the groups. Using rank ordered logit model, we find that initial occupational choices still matter for the observed ranking. We also show that, under some conditions, improving the initial SEI score of a group that is ranked last, results in changes in observed ranking.

JEL: J1, J11, J15, J24, J62

1 Introduction

The 1940 US Census indicates that immigrants from Canada and Northern Europe were more frequently employed in more prestigious occupations than their counterparts from Asia, South America and Southern and Eastern Europe. 30 percent of Canadians and 36 percent of English immigrants were employed in white collar occupations. In the same year only 18 percent of Italians, 21 percent of Polish and 11 percent of Mexicans reported employment in white collar jobs. In 2011, even though all countries shares of white collar employment increased, the growth was not even across different origins and resulted in an even bigger gap. While 70 percent of Canadians and 76 percent of English enjoyed more prestigious occupations, only 38 percent of Polish and 18 percent of Mexicans were employed in white collar jobs. Even more striking are the differences in white collar employment among unskilled individuals between some countries. Again, Canadians and English enjoy some of the highest shares, 47 and 49 percent respectively. Among immigrants from other countries significantly smaller fraction of unskilled individuals find white collar employment. 32 percent of

Italians, 19 percent of Polish, 30 percent of Filipinos and 23 percent of Vietnamese were employed in white collar jobs. Even though the initial disparity can be partially attributed to the differences in literacy rates and education attainment, it is not clear why this pattern preserves in later years, especially among unskilled individuals.

The socioeconomic standings of immigrant groups in the US have been long studied in the literature. Despite the plethora of studies looking at employment, wages and mobility of immigrants in the US (see [4] [6] among others), up to our knowledge, no comprehensive study of relative position of immigrant groups in the US exists. Most often, studies concern African American, Hispanic and Asian American workers and how they compare to White Americans (see [12],[3] or [9] among others). For example, Model [9] finds that labor market outcomes across migrants from the same origin differ across destinations. Bohon [3] shows that occupational attainment of Latino immigrants in the US is partially shaped by place of origin and destination. These papers deliver evidence that factors beyond human capital play a significant role in determining labor market outcomes of individuals and thus shaping socioeconomic environments of different immigrant groups.

In this paper, we take a closer look at relative position of different groups in the US. We study the ranking of immigrants from different countries of origin based on Duncan Socioeconomic Index (SEI). Using data from US census, this paper aims to (1) explore variation in occupational choices and the resulting ranking among various groups and (2) disentangle what are the determinants of this ranking. While for skilled occupations we expect the ranking to be determined by the specific individual skills, it is unclear what causes the ranking among lower skilled workers. Average SEI score among unskilled Canadian and Northern European immigrants is about twice as high as among unskilled immigrants from South America and fifty percent higher than between unskilled workers from Southern or Eastern Europe or some Asian countries.

We formulate the hypothesis that this ranking can be partially explained by the initial allocation to occupations. Initial allocation to occupations was determined by differences in both, group and destination characteristics. Immigrants subsequently developed occupational networks [14], [13]. Larger networks among established immigrants attracted newly arrived immigrants to locate in these occupations [10], [1], [7], which, over time and especially among low skilled workers, could lead to certain inertia in the ranking of immigrants on the socioeconomic ladder.

The economic importance of this phenomenon is non trivial as it has welfare distribution implications, possibly both for new immigrants and their children (see [5], [6]). Borjas [6] found a strong positive correlation between socioeconomic outcomes in immigrant generation and the outcomes of their children. Stagnation in socioeconomic ranking of immigrant groups consistently puts children from some countries in more disadvantaged positions than other. Similarly, children of migrants from better situated groups benefit from their advantageous environment.

We employ rank-ordered logit model to verify what are the determinants of this ranking and whether the current ordering reflect the original ranking among different groups. We follow the 13 largest immigrant groups in different metropolitan areas in the US between 1940 and 2011. Our goal is to rigorously investigate whether the current ranking of immigrant groups is solely determined by current socioeconomic characteristics or if it is also a function of groups' characteristics at entry.

The paper is organized as follows. Next section describes the data in detail and section 3 discusses allocation into occupations and occupational standings of different immigrant groups. Section 4 focuses on pairwise comparisons across countries over time and space. Section 5 presents empirical model of ranking and preliminary results. Section 6 concludes.

2 Data and key variables

We use the publicly available data from 1940-2000 US Census [1] and the 2011 5-year sample from American Community Survey (ACS) [11] [2]. We follow 13 largest immigrants groups: Canada, Mexico, Cuba, England, Italy, Germany, Poland, Russia [3], China, Korea, Philippines, Vietnam and India. To limit selection problem we only focus on men, aged 16-70. We cannot use data previous to 1940 as information about education of individuals has been available only since 1940.

We use the Duncan occupational prestige score (SEI) to measure socioeconomic standings. This score is computed based on 1950 classification of occupations and it is a weighted average of educational attainment and income level associated with every occupation. The score was derived based on the median education attainment and income for 1947 survey of men only. It can take on values between 0 and 100 and the highest value in the data is 96. We rank countries in each metropolitan area based on the average SEI score. Since we are looking at averages, we exclude all metropolitan areas, for which less then 50 individuals from the same country are present in given Census year. As we are interested in relative positions of countries, we also exclude metropolitan areas that have less than two different groups in given Census year.

Our current sample consists of 97 metropolitan areas with at least two different groups present in given year. We have a total of 263 observations. Table 1 shows the changes in composition of our sample. Until 1970, Canada, Germany, Poland, Italy and Russia were the largest groups . In 1980 immigrants from Mexico started outweighing any other group, reaching 51 percent of the sample in 2000. In recent years, European immigration shows a significant decrease and Asian immigrants are coming in larger numbers, with India and China being the two largest sending countries. Table 2 shows the distribution of number of groups per metropolitan area per year. Only very few metropolitan areas have been receiving large number of immigrants from various countries throughput the whole period. Boston, Chicago, Detroit, Los Angeles, New York, Philadelphia and San Francisco have at least 5 different groups in every time period. Other metropolitan areas are more recent in the sample as they experienced large inflows of immigrants only in 1980 or later. There are also many metropolitan areas, especially among the relatively new destinations with only or 3 large

[1] The samples we use are: 5 percent samples from 2000, 1990, 1980 and 1 percent samples from 1970, 1950 and 1940. We cannot use data for 1960 as no information about metropolitan areas is available in 1960

[2] Starting in 2010 Census Bureau is no longer using the long form questionnaire and ACS is supposed to replace the long form Census. Each yearly sample is a 1 percent sample of the population

[3] Russia includes all individuals who declare Russia or USSR as country of birth

groups.

Table 3 presents summary statistic for main variables by country of origin by year and by skills level. Individuals are defined as unskilled if they hold at most a high school degree [4]. Consider both, changes across countries, and across time within countries. Average age varies from about 32 to 58 years old. In most of the old immigrant countries there was a spike around 1950-1970 and then again slight increase in most recent years. Average age among new immigrant countries has been consistently increasing and does not vary much between countries. There are significant differences over time within countries, however, on average, immigrants from India, China, Korea and Vietnam are younger than the rest of the sample. As for marital status, the rates vary between 50 and 87 percent. While among old immigration countries fraction of married people has declined over time, opposite pattern appear among migrants from newer sending countries. Italians constitute a significant exception to this trend with highest and most stable percentages of married individuals. Interestingly, for most of the old immigrant countries, the drop in marriages is stronger among unskilled individuals. Trends in number of children only partially follow trends in marital status. Immigrants from Italy, Vietnam and the Philippines have, on average, more children than other migrants. Except for China, Korea and India, all countries experience a drop in the average number of children over time. Immigrants from China stand out in this category as number of children among Chinese immigrants has significantly increased from 0.57 in 1940 through 1.40 in 1970 and then dropped to 0.88 in 2011. Among only unskilled Chinese immigrants an even stronger trend is observed - the rate increased from 0.53 to 1.53 in 1970 and then fell to 1.04. Mexico, Korea, Vietnam, the Philippines and India also report a relatively high number of children, although Mexico experienced the biggest drop between 1940 and 2011.

The biggest differences, both across time and countries, appear along the education and occupational prestige dimensions. Even though the trends are similar among all countries, with more individuals obtaining more than a high school degree, the distribution of educational attainment differ significantly among countries. Vietnam and India are two exceptions with relatively constant rates of individuals that obtained above high school education. About 15 percent of Indians and 45 percent of Vietnamese did not complete high school. The lowest rates of above high school education are reported among Mexicans, among who 82 percent completed at most high school. Relatively high percentage of individuals with at most high school degree is also found among Italians, Polish and Cubans.

Even though the trends in education are not surprising, analyzing them together with occupational prestige scores delivers some interesting results as it shows no direct positive relationship. In 1970, about 30 percent of Canadians and 33 percent of Germans were skilled and the average SEI score was 42 among immigrants from both countries. Only 4 percent less of Cubans had more than high school degree and the average SEI score among them was 10 points lower. Similarly, in 1980, 70 percent of Koreans and 66 percent of Filipinos were skilled and the corresponding SEI scores were 45 and 37, respectively. In 2011, 58 percent of Vietnamese immigrants were skilled with an average SEI score of

[4]Since we believe that the ranking among unskilled individuals is of particular interest, most of the tables and discussion is done separately for unskilled individuals only.

41. Italy with 9 percent less skilled individuals, was enjoying a 4 points higher average SEI score.

Last but not least, consider briefly occupational prestige score. Among all individuals, the average SEI score was initially increasing between 1940 and 1980 and after that remained relatively stable. However, among unskilled individuals, it remained relatively constant across years. Moreover, in countries with an overall higher average prestige score, unskilled individuals position has improved. Also, China, the Philippines and Italy enjoyed an almost 10 points increase in the average prestige score while India and Russia a quite significant decrease of 10 and 13 points, respectively. The next two sections investigate in detail occupational profile and relative position of various immigrant groups across time and space.

3 Occupational standings of immigrants over time and space

Patel and Vella [10] find that new immigrants have a high probability of finding employment in occupations in which their countrymen have established networks. If this is the case, then allocation into occupations might still play a significant role in determining socioeconomic standings of immigrants. In this section we will explore the distribution into occupations of various immigrant groups with the emphasis on unskilled individuals.

Before looking at specific occupations though, first consider a more general characterization. Table 4 presents the percentage of immigrants from given countries that were employed in white collar jobs, unconditional and conditional on skill level. [5]. Two things are worth noticing here. First of all, while overall percentage of individuals employed in white collar occupations increased over time, the fraction of unskilled workers employed in these occupations remained relatively constant across years. Poland and Russia are the two exceptions as both countries experienced a significant drop in white collar jobs starting around 1950-1960. Second of all, more unskilled workers find employment in white collar jobs when they are coming from countries with overall higher white collar jobs employment. In other words, unskilled immigrants from countries with established networks in more prestigious occupations have a higher chance of finding employment in more prestigious occupation. This result supports the claim that occupational networks among immigrants play a significant role in overall situation of immigrant groups across the US.

Therefore, consider now popular occupations for different countries of origin. An occupation is defined to be popular if it is among top 6 occupations with largest networks. A network is defined as percentage of migrants from given country employed in an occupation in a metropolitan area in a given year. For each country in each year we select about 5-8 occupations with largest networks [6]. Table 5 list some of the popular occupations by country of origin by year and it focuses on low skilled occupations. Many occupations are listed under more

[5] The division into white and blue collar is based on occ1950 variable: white collar occupations are all occupations below 500 except for 100 and 120, the remaining are blue collar and everything above 970 is not included.

[6] Even though we select top 6 occupations, due to ties in network sizes, often, we have more than 6 distinct occupations in the set of popular occupations for given country of origin

than one country. The most common popular occupations are managers, officials and proprietors, salesmen and sales clerks, laborers and operative and kindred workers. Nevertheless, for each country, especially among unskilled individuals some characteristic occupations can be found. Carpentry is popular among unskilled Canadians and Polish immigrants. Many Mexicans and Filipinos are employed as farm workers and Chinese, Vietnamese, Koreans and Italians find jobs as cooks. Large networks of janitors and sextons can be found among Russians, Cubans and Filipinos. In 1940-1950 many immigrants from Poland and Russia were employed in mining. Later on, Polish immigrants established networks as machinists and mechanics while Russian as taxi and truck drivers. Taxi drivers and chauffeurs are also present in large numbers among immigrants coming from India. In later years, many unskilled Indians, Chinese and Koreans are often working as cashiers and Vietnamese and Italian are widely represented among barbers and beauticians.

A striking feature of table 5 is that the incidence of at least two groups building a large network in the same occupation is not uncommon. However, the above table looks at US averages and, therefore, does not account for regional specialization. Table 6 shows all metropolitan areas in our sample and lists fractions of top occupations that are popular among more than one group within a metropolitan area. There is a significant variation, both, between and within metropolitan areas. Frequencies of sharing popular occupations range from 0 to 92 percent. For example, in Boston, in 1940 46 percent of popular occupations were shared by at least two countries. In the same year in Detroit this number was at 70 percent. Also, while Boston experienced and increasing trend with the fraction of shared popular occupations at 57 percent in 2011, Detroit saw an almost 20 percent drop. On average, immigrants from at least two countries established large networks in 40 percent of popular occupations. In other words, about 60 percent of the popular occupations are unique to only one group in given metropolitan area. This is quite remarkable given that popular occupations include very broad occupations such as managers or laborers, in which many immigrants find employment.

Last consider the popularity of occupations across metropolitan areas. The question we address here is whether immigrants from one country of origin find employment in the same occupations across the US or are the popular occupations destination specific. If at least half of occupations with networks of 5 percent or more are popular in two metropolitan areas, we say that popular occupations are shared across these two metropolitan areas. Table 7 summarizes the frequencies of sharing popular occupations across metropolitan areas by skill level. The lowest incidence of shared popular occupations is reported among Polish immigrants in 1970. In only 15 percent of metropolitan areas in which they were present at that time, they established networks in the same occupations (this number was at 18 percent among unskilled workers). The highest incidence of 100 percent is found among unskilled Chinese and Cubans in 1940 and 1950 respectively, and also among unskilled Filipinos in 1940. However, these three countries were present in only few metropolitan areas at that time and as they spread across the country in later years, they located in various occupations. In general, while immigrants from Mexico show the least diversification across metropolitan areas, individuals coming from Canada, England, Germany, Poland and Russia tend to diversify the most across space since 1940. Immigrants from Asian countries locate in between with incidence of sharing popular occupation across metropolitan areas varying between 30 to almost 80 percent. Interestingly, for most countries, there seem to be more spatial diversification of popular occupations among unskilled individuals. Italy, China and India show an opposite patter though. Since overall, the incidence of sharing a popular occupation across space is in about 60 percent of cases below 50 percent, we conclude that countries reveal a significant variation across popular occupations across metropolitan areas.

4 Pairwise comparisons

In this section we take a closer look at the ranking of occupations that particular immigrant groups locate into. One of the reasons why the ranking is stable might be that immigrants have occupation specific skills. No matter where in the US they locate, they establish networks in the same occupations. Another possibility could be that immigrants from one country locate in different occupations across metropolitan areas but they always locate in more prestigious occupations then their comparison group. Table 8 presents the frequencies of every country (row country) being ranked above every other country (column country). The top panel considers all individuals, the middle panel considers unskilled workers and the bottom panel considers the differences between the two. The ranking is determined based on average occupational prestige scores. The comparisons are made by year and by metropolitan area and the table summarizes the results of all possible pairwise comparisons. First, consider the top and the middle panel. For example, in 86 percent of the metropolitan areas in which Canadians and Germans appear in large groups, Canadians are ranked above Germans. When we consider unskilled individuals only, Canada is likewise ranked over Germany in 84 percent of cases. Mexico, when compared to the other countries, is almost always ranked last. The only exception appears when it is compared with the Philippines. In this comparison in 33 percent of cases unskilled Mexicans are ranked above Filipinos. This fraction is slightly lower when all individuals are concerned but still in 25 percent of cases Mexico is ranked above the Philippines. China and Korea present an interesting pattern. China is ranked above Korea in 79 percent of cases when all individuals are concern. However, when we limit the sample to unskilled individuals only Korea ranks above China in 77 percent of the cases.

The lower panel of Table 8 summarizes how migrants with at most high school degree compare to all individuals. Positive input indicates that unskilled individuals are more often loosing to their comparison country. First of all, many of the comparisons remain unchanged, as the difference is very close to zero. However, while unskilled Indians, Chinese, Filipinos are doing significantly worse than their skilled counterparts, Vietnamese are more frequently ranked higher, especially in comparisons with Russia, China, Korea and the Philippines.

Next, we turn to popular occupations in which immigrants from each pair have established networks. We define a set of popular occupations for every immigrant group, in every metropolitan area, in every year. We consider an occupation popular in a metropolitan area if at least 5 percent of all immigrants from a given country are employed in this occupation in a given year [7].

[7] Since we do not list occupations here but count occupations that are shared between countries, we do not restrict the set of popular occupations to top 6 as before.

Table 9 considers pairwise comparisons for selected countries [8]. However, the averages at the bottom of the table are computed based on all possible cases. First column lists the pairs of countries we consider here in detail. The top country is always the more frequent winner out of the two (we will refer to a more frequent winner as country A). The empty cells in the table indicate that among unskilled workers, the more frequent winner out of A and B is B. The third column contains the number of metropolitan areas in which two given countries are present in a given year (denoted in the second column). The fourth column shows the fraction of metropolitan areas in which one country is ranked above the other in each year. Columns 5-9 summarize information about popular occupations in metropolitan areas in which more frequent winner wins. These statistics aim to answer the following three questions: (1) Do both countries share popular occupations within metropolitan areas [9]? In this case, A is ranked higher than B because more individuals from country A are employed in more prestigious out of the popular occupations in comparison to individuals from country B; (2) Do immigrants from country A and B establish networks in the same occupations across metropolitan areas [10]? In this case country A is always ranked higher than B because the typical occupations for A are more prestigious than for B; (3) In cases when immigrants from at least one of the countries are employed in occupations that are not widely popular across metropolitan areas, is it the winner or the looser that is doing something else. Columns 10-14 reverse the ordering and are looking at cases in which the less frequent winner is ranked higher in order to verify whether country B ranked higher due to scenario 1,2,or 3. Columns 15-25 repeat columns 4-14 for unskilled individuals only.

Consider the averages first. First of all, regardless of whether more or less frequent winner is ranked higher, it is less common across unskilled individuals to share popular occupations within metropolitan areas. Among all individuals, country A and B share popular occupations within metropolitan area in 23 percent of cases when more frequent winner is ranked higher and in 30 percent of cases when less frequent winner is ranked higher. Among unskilled individuals, the incidence of sharing popular occupations within metropolitan areas happens in 14 percent of cases when more frequent winner is ranked higher and in 21 percent of cases when less frequent winner is ranked higher. Moreover, it is significantly more common for unskilled individuals to share popular occupations across metropolitan areas (65 versus 28 percent in cases when A is ranked above B and 58 versus 20 percent in cases when B is ranked above A). Therefore, while there is a stronger polarization in occupations among unskilled workers across countries of origin within metropolitan areas in which given pair of countries appear together, there is a smaller variation in popular occupations across these metropolitan areas. [11] Furthermore, for all and unskilled

[8] There are 12+11+10+...+1 unique comparisons.

[9] Two countries share popular occupations in metropolitan area if more than 50 percent of occupations that are popular among individuals from country A are popular among individuals from country B

[10] Individuals from given country are considered as doing the same as elsewhere if more than 50 percent of popular occupations are popular in more than half of metropolitan areas in which immigrants from given country are present in given year.

[11] It is important to understand the distinction between these statistics and statistics presented in previous section. While previously we were considering all metropolitan areas in which give country appeared in given year, here we are only considering metropolitan areas

individuals, both countries share popular occupations more often in cases when less frequent winner is ranked higher (23 versus 30 percent and 14 versus 21 percent). For example, in 1970, in 22 percent of cases where Canada (who is the more frequent winner) is ranked above Germany, Canadians and Germans shared popular occupations. When Germans were ranked above Canadians, in 67 percent of cases the two countries shared popular occupations. In 2000, popular occupations were shared in 46 percent of cases where Vietnam was ranked above Mexico. The incidence of shared popular occupations was 18 percent higher in cases where the ordering was reversed. However, in some cases the opposite pattern is observed (see for example England and Germany or Germany and Poland).

These patterns suggests that, in some cases, the ordering might be reversed due to more individuals from country B finding employment in occupations that are popular among immigrants from country A. Indeed, in 5 percent more cases it is country B that establishes larger networks in occupations that are not popular elsewhere among immigrants from country B. For example, consider all individuals from India and China. Between 1990 and 2011, India is ranked higher in about 66 percent of cases. In metropolitan areas in which China is ranked above India, the incidence of sharing popular occupations is higher than in cases where India is ranked higher and it increased from 30 percent in 1990 to 58 percent in 2011. In a growing fraction of the cases, the reverse ordering is due to China establishing large networks in occupations that are not popular elsewhere (50 percent in 1990 versus 83 percent in 2011). These two facts combined, indicate that immigrants from China establish larger networks in more prestigious occupations in which Indians have large networks.

However, among unskilled individuals, in about 10 percent of cases where country B is ranked above country A (47 percent among all workers) both, A and B, have sets of popular occupations distinct to other metropolitan areas. This suggest that the ordering is reversed not only due to more immigrants from country B finding employment in occupations that are not common among their counterparts elsewhere (and are more prestigious than occupation that are popular among county A), but also because immigrants from country A locate in new, relatively less prestigious occupations. Another possibility is that that both A and B locate in the same popular occupations and the ranking is a result of distribution into the occupations. If the latter is true, than we should observe a higher fraction of shared occupations. However, data delivers somewhat mixed results. Consider for instance all individuals from China and Korea. In 1980, in all of the metropolitan areas where Korea was ranked above China, both Korea and China had large networks in occupations that were not popular elsewhere. In none of the metropolitan areas did China and Korea share popular occupations. In 2011, in only 22 percent of metropolitan areas in which Korea was ranked above China, both of the countries were found with distinct set of popular occupations. In 56 percent of cases, both countries shared popular occupations.

To summarize, return to the three questions that we formulated in the beginning of this section. First of all, there is little evidence supporting the first scenario. In relatively small percent of cases the two countries share popular occupations within a metropolitan area, especially among unskilled individuals.

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in which countries A and B appear together.

Therefore, we cannot conclude that the stability of ranking is due to differences in distributions into occupations.

We do find some evidence that among metropolitan areas in which given pair of countries appears, countries often establish networks in the same occupations across metropolitan areas. However, there is still some variation in popular occupations within countries across metropolitan areas. Therefore, we cannot unambiguously conclude that stability of ranking results from the fact that in metropolitan areas in which A and B appear together, A is ranked higher than B because popular occupations among A are more prestigious that typical occupation for country B (and popular occupations do not vary across metropolitan areas). Moreover, we do not observe significant decrease in shared popular occupations across metropolitan areas in instances when ranking is reversed. This suggest that at least one of the two countries show some variation in popular occupations across metropolitan areas.

As far as third scenario is concerned, there is only a weak evidence that in metropolitan areas in which less frequent winner is ranked higher, it is due to the less frequent winner finding employment in distinct popular occupations to popular occupations elsewhere. This section highlighted the link between occupational networks and immigrant ranking among pairs of countries. The next section of the paper more rigorously investigates the determinants of ranking among more groups.

5 An empirical model of ranking of immigrant groups

We now turn to an empirical model of immigrant ranking. We employ rank ordered logit model developed in Beggs, Cardell, and Hausman (1981) [2]. In each metropolitan area, in each year, we rank immigrant groups based on the average occupational prestige score (SEI). Assume that all groups are observed in all metropolitan areas at all times (t=1,...,T). For clarity of presentation and because time does not play a role in this estimation, we skip the time subscript. The dependent variable is the observed ranking of j=1,2,...,J groups in metropolitan area m in given year, which we denote $R_m = (r_1, ..., r_j)$. Let $\Pi(R_m)$ denote the probability of observing a ranking R_m in a metropolitan area m. Then,

$$\Pi(R_m) = pr[U_{r_1} > U_{r_2} > ... > U_{r_J}]$$

where U_{r_j} denotes the valuation of country j. In other words, country j is ranked higher than country $j+1$ if $U_j > U_{j+1}$. Valuation of a country j in a metropolitan area m is defined using random utility model as $U_{mj} = V_{mj} + \epsilon_{mj}$, where V_{mj} is parameterized as $X_{mj}\beta$, and ϵ_{mj} is assumed to follow logistic distribution.

The assumption that the error term follows extreme values distribution is crucial here. The independence of irrelevant alternatives assumption implies that conditional distribution of U_1 given the ordering $U_1 > U_2 > ... > U_J$ is independent of the ranking. This implies that ranking between any two alternatives does not depend on the other elements in the choice set. Therefore, we can rewrite the probability of a particular ranking $\Pi(R)$ as

$$
\begin{aligned}
\Pi(R) &= pr(U_1 > U_2 > .... > U_J) \\
&= pr(U_1 > U_2 > ... > U_J)pr(U_2 > ... > U_J) \\
&= \frac{\exp(V_1)}{\sum_{j=1}^{J}\exp(V_j)}\prod_{k=2}^{J}[\frac{\exp(V_k)}{\sum_{k=j}^{J}\exp(V_k)}] \\
&= \prod_{j=1}^{J}[\frac{\exp(V_j)}{\sum_{k=j}^{J}\exp(V_k)}]
\end{aligned}
$$

Plugging in the assumed form of V_{mj}, the probability of observing a ranking $R = (r_1, ..., r_J)$ in a metropolitan area m can be expressed as

$$
\begin{aligned}
\Pi(R_m) &= pr[U_{r_1} > U_{r_2} > ... > U_{r_J}] \\
&= \prod_{j=1}^{J-1}[\frac{\exp(X_{mr_j}\beta)}{\sum_{k=j}^{J}\exp(X_{mr_k}\beta)}]
\end{aligned}
$$

Define the unit of observation as metropolitan area m in year t and denote it as i. Then, the log likelihood function for N independent observations is

$$
Ł(\beta) = \sum_{i=1}^{N}\log\Pi(R_i) = \sum_{i=1}^{N}\sum_{j=1}^{J-1}X_{ir_j}\beta - \sum_{i=1}^{N}\sum_{j=1}^{J-1}[\log\sum_{k=j}^{J}\exp(X_{ir_k}\beta)] \tag{1}
$$

Equation 1 states our empirical model of immigrant ranking and it is estimated using maximum likelihood. Due to data limitation, in this version of the paper, we split the sample into sub samples that consist of at most four countries. We select the countries to the groups in a way that results in the most number of observations and include all countries considered in this paper. We estimate the model separately for each sub sample. The rank ordered logit model does not require the same number of choices across units of observations [2]. However, in cases when less alternatives are ordered, it assumes that the unordered alternatives are less preferred. Clearly, this assumption does not hold in our application. There are 17160 ways in which we can choose 4 groups out of 13. Since it is not feasible to discuss all of them, we focus on seven selected groups of countries [12]. Within each group, we rank the countries according to the average occupational prestige score SEI. Country with the highest average SEI score in a metropolitan area in a year receives rank 1, country with the second highest SEI score receives rank 2 and so on.

Ideally, we would like to control for a variety of both country and metropolitan area characteristic. However, the rank ordered logit model does not allow metropolitan area specific variables. We can only include alternative specific variables. The set of explanatory variables, X, contains average age, fraction of married individuals, number of children and fraction of skilled individuals. To account for initial conditions, we also include averages of the variables when

[12] The effective number of quadruples we could estimate the model over is much smaller since some variability in the ranking is required for the model to converge. Also, some combination of countries result in insufficient number of observations

we first observe immigrants from given country in given metropolitan are, so initial average age, marital status, number of children, fraction of skilled individuals and average prestige score [13]. We also include a set of dummy variables indicating the year in which given country is first observed in a metropolitan area.

Table 10 presents the results for rank ordered logistic estimation for five groups of 4 countries and 2 groups of 3 countries. The groups of four countries that we consider are: (1) England, India, China, Korea; (2) Canada, England, Germany, Italy; (3) China, India, Korea, Vietnam; (4)the Philippines, Italy, Poland, Russia and (5) China, Vietnam, Korea, the Philippines. Since we could not match Cuba and Mexico with any other set of three countries, we include two groups with only three countries. The last two groups consist of: (6) Mexico, China and the Philippines and (7) Cuba, Italy and Poland. First, notice that the number of observations vary significantly by groups[14]. Group 6 results in the highest number of observations of 71 and groups 4 and 5 with the lowest number of 30 and 31, respectively.

Interpretation of the estimated parameters is not straightforward in this model. The estimated coefficients are only informative about the sign of the effect that certain characteristic has on countries valuation within metropolitan areas. They do not tell us much about probabilities of particular ranking. Only three of all of the explanatory variables show consistent pattern across most of the regressions. Countries with higher fraction of individuals with above high school degree and higher initial average occupational prestige score have higher valuation. On the other hand, initial skills seem to decrease a country valuation. Even though this result is counter intuitive, a close examination of the data explains this pattern. Table 11 shows the initial fraction of skilled individuals by country and the corresponding rankings in selected groups that we consider. Since different groups were coming at different times, for each group, we take a snapshot of metropolitan areas that receive large groups starting in year denoted in the second column. Often, and especially among Asian immigrants, high educational credentials of immigrants at entry are not reflected in the ranking. Consider for example India in group 1. Regardless of the position in ranking, on average, 84 percent of individuals had above high school degree at entry. Koreans report similar pattern with initial shares of skilled individuals varying between 67 and 70 percent, regardless of ranking. Similarly, the fraction of skilled Filipinos in metropolitan areas where the Philippines is ranked second (so above Mexico and below China) is 16 percent higher than in metropolitan areas where Filipinos are ranked first. Also, among immigrants from England, both in group 1 and 2, there is a negative correlation between the rank and fraction of skilled individuals.

Next, consider the bottom of table 10. The model assumes that valuation is the same across of metropolitan areas, so that the coefficients, $\beta's$, are constant across all metropolitan areas. Natural test of this assumption is to estimate the model with interactions between metropolitan area dummy variables and characteristics of countries. However, this results in a large set of variables that is not feasible given the number of observations. Therefore, instead, we consider metropolitan area's characteristics and test whether estimated coefficients differ

[13]Due to the fact that information about educational attainment is available since 1940, we can only go back to that year in computing initial conditions

[14]Observation is defined as a metropolitan area in a given year.

across these dimensions. The second to last row of table 10 presents the outcome of the Wald test that the slopes on interaction terms are jointly 0. In other words, the null hypothesis states that the $\beta's$ are the same across metropolitan areas. We consider two characteristics that we believe might influence ranking between different groups: the number of groups in a metropolitan area in a given year and the percentage of migrants in the labor force. It has been shown that status of a group can differ depending on the ethnic composition of the metropolitan are (see [8],[9],[3],[12]). However, we do not find evidence that either of the characteristics considered matters for the ranking. [15]

Proceeding under the assumption that valuation is constant across metropolitan areas, we now turn to the responses of the ranking to changes in group's characteristics. Table12 shows how the ranking responds to changes in initial allocation to occupations of the group that is ranked last. In each metropolitan area we increase the average occupational prestige score of the country that is ranked last by 10 and 25 percent. For convenience, we will further refer to the countries that receive the boost in initial SEI score as treated and to the remaining countries as untreated. The first column lists the countries in the group considered. The second column lists possible ranks at which changes can occur. Columns (3)-(7) show responses induced by a 10 percent increase in initial occupational prestige score and columns (8)-(13) responses induced by a 25 percent increase. Columns (3)-(5) and (8)-(11) show percentages of cases in which the country ranked last does not change position or goes up by +1, +2 or +3 positions in ranking. Columns (6),(7),(12) and (13) focus on corresponding changes in ranking among untreated countries and show percentages of countries ranked first, second or third that did not change position or dropped by -1. [16]. As we are only changing initial SEI score for countries that are ranked last, all entries in the treated countries correspond to rank 4. On the other hand, untreated countries cannot be ranked last and therefore entries for untreated countries occur at ranks 1-3 or 1-2 for groups 1-5 and 6-7, respectively.

The outcome in the predicted rankings varies across groups. In two out of the 7 groups, even the 25 percent increase does not cause any changes in the current ordering of the countries. Additional 2 groups do not show any response to a 10 percent increase in initial occupational prestige score. The biggest response to the increase in initial SEI score is reported in group 1. In 47 percent of cases 10 percent increase in initial SEI score pushed the country ranked last up in the ranking. 25 percent boost resulted in 60 percent improvement rate in position in ranking of the country that is ranked last. Relatively high response is also found in group 5. In 16 percent of cases the 10 percent boost in initial SEI score of a country that was ranked last, improved its position. 25 percent increase led to improvements in rankings in 31 percent of cases. Although rather rare, for some groups, even the 10 percent boost resulted in 2 points improvement in ranking. Group 3 shows relatively small response to 10 percent boost. In only 3 percent of cases the country ranked last moved up in the ranking. 25 percent increase led to a 13 percent response rate.

While countries that are ranked last improve their positions, other countries

[15] However, we cannot conclude that valuation of countries is invariant to were these countries are being compared. Model with metropolitan areas dummy variable is necessary to verify that.

[16] Theoretically, 2 and 3 points decreases in ranking can occur. However, no country dropped by more than 1 spot in ranking so we only include 0 and -1.

naturally drop in ranking. However, even though some countries jump up in ranking by 2 or 3 points, at most 1 point drops in the ranking are observed. Of course, countries that are ranked second to last are most prone to loosing their positions, however, countries higher in ranking are also affected by the increase in the initial occupational score of the country ranked last.

To understand the differences in response between groups, a closer look at each group and dependencies between countries is helpful. Table 13 presents more detailed information about four of the groups, two for which the response is relatively high (group 1 and 3), and two groups for which only 25 percent increase in initial SEI induced changes in ranking (group 3 and 6). First four columns show the incidence of a given country being ranked first, second, third, and fourth, if applicable. The next two columns present the averages of initial occupational prestige score if a country is ranked last and the average initial SEI score among countries that are ranked second to last. The last two columns summarize the fraction of times that a country responds to the 10 percent boost in initial SEI score, when a given country is the one that is ranked last and receives the increase, and when it is not.

Among countries in group 1, Korea is ranked last in 62 percent of cases. Increasing Korea's initial SEI score pushes it up in the ranking in 34 percent of cases when it is rank last. On the other hand, in cases when Korea is not ranked last (so either England or China take the last position), in 20 percent of cases it drops in ranking in response to 10 percent increase in initial SEI score of the last group. In this group, India's position is most stable. In only 10 percent of cases it responds to the boost to the lowest ranked country. It is not surprising since India is ranked first or second in 80 percent of cases. The ranking is the least responsive when China is ranked last. Only in 8 percent of cases, the 10 percent increase in China's initial SEI score improves its position. On the other hand, England improves its position in response to 10 percent increase in its SEI score in 62 percent of cases when it is ranked last. The relatively high response rate for Korea and England can be explained with the fact that the average initial occupational score, if they are ranked last, is close to the average initial SEI score of countries that are ranked second to last. For China, this distance is much larger and that is why a much bigger boost is needed for China to improve its position. Similarly, among group 2, where Italy is ranked last in 92 percent of times, the distance between its average initial SEI score and the average among countries ranked third is rather large. The 10 percent boost triggers no response among Italians. Only Germany, who is ranked last in 10 percent of cases and enjoys a much higher initial average occupational prestige score than Italy, improves its position in ranking in 40 percent of times. Among groups 3 and 6, the distance in terms of initial occupational prestige score between the countries that are ranked last and second to last is significant and therefore even the 25 percent boost initial in the SEI score results in no changes in ranking.

6 Conclusions

This paper documents the allocation into occupations of 13 largest immigrant groups into the US and the resulting ranking in terms of occupational prestige score between 1940 and 2011. We first document the variation in occupational choices across metropolitan areas and various immigrant groups . We find that within metropolitan areas, there is little overlap between popular occupations across immigrants from different countries. Furthermore, we find a substantial variability in popular occupations across metropolitan areas for most of the groups.

Using rank ordered logit model, we find, that after conditioning on average skills level of each group, initial occupational choices still matter for the observed ranking. Clearly, the occupational profiles of the different groups have evolved over the 70 years that we cover. However, we find that occupational choices made by first immigrants resulted in a hierarchy that is often preserved in today's ordering. We also show that improving the initial SEI score of a group that is ranked last might result in a different ranking that we observe today.

However, the magnitude of our results depend on the composition of the group. We are only able to consider at most four countries at a time. This imposes significant constraints for explaining the ranking between all groups. Therefore, further work focuses on extending the data set to allow us to look at ordering of all groups that are present in an metropolitan area.

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Appendix

Table 1: Sample composition by year 1940-2011

	1940	1950	1970	1980	1990	2000	2011
Canada	0.109	0.114	0.147	0.078	0.038	0.026	0.030
Mexico	0.018	0.038	0.133	0.325	0.428	0.514	0.465
Cuba		0.005	0.107	0.105	0.075	0.044	0.039
England	0.068	0.046	0.051	0.033	0.023	0.015	0.013
Italy	0.300	0.326	0.198	0.096	0.042	0.018	0.012
Germany	0.146	0.120	0.123	0.080	0.052	0.032	0.033
Poland	0.165	0.168	0.098	0.042	0.022	0.017	0.015
Russia	0.188	0.163	0.065	0.024	0.014	0.029	0.031
China	0.008	0.012	0.043	0.067	0.081	0.072	0.088
Korea				0.024	0.041	0.034	0.035
Philippines		0.007	0.030	0.067	0.082	0.065	0.072
Vietnam				0.018	0.043	0.051	0.053
India			0.006	0.039	0.059	0.082	0.113

Table 2: Number of different groups per metropolitan area per year 1940-2011

	1940	1950	1970	1980	1990	2000	2011
Albany-Schenectady-Troy, NY				3	2	3	2
Ann Arbor, MI						3	3
Atlanta, GA				4	9	11	12
Atlantic City, NJ						3	2
Austin, TX					4	7	9
Bakersfield, CA					2	3	3
Baltimore, MD	3			6	8	11	11
Boston, MA	5	5	7	9	13	13	12
Buffalo-Niagara Falls, NY	4	4	4	4	4	4	5
Charlotte-Gastonia-Rock Hill, SC						4	7
Chicago-Gary-Lake, IL	7	7	11	13	13	13	13
Cincinnati OH/KY/IN					2	4	5
Cleveland, OH	4	4	5	7	4	8	9
Colorado Springs, CO						2	3
Columbia, SC						2	2
Columbus, OH					2	5	5
Dallas-Fort Worth, TX				8	9	10	11
Fort Worth-Arlington, TX					5	7	9
Dayton-Springfield, OH						2	3
Denver-Boulder-Longmont, CO				4	6	10	10
Detroit, MI	6	6	6	10	9	12	12
El Paso, TX				2	2	2	2
Fort Lauderdale-Hollywood-Pompano Beach, FL				6	7	11	11
Fort Myers-Cape Coral, FL						2	4
Fresno, CA						3	3
Grand Rapids, MI						2	3
Greensboro-Winston Salem-High Point, NC						3	4
Hartford-Bristol-Middleton-New Britain, CT	2	2	3	3	4	6	5
Honolulu, HI				5	5	5	6
Houston-Brazoria, TX				9	10	10	11
Indianapolis, IN						3	4
Jacksonville, FL						5	9
Kansas City, MO-KS				2	2	4	5
Kileen-Temple, TX						2	2
Las Vegas, NV				2	6	9	12
Los Angeles-Long Beach, CA	6	8	10	13	13	13	13
Anaheim-Santa Ana-Garden Grove, CA			3	11	10	11	12
Louisville, KY/IN						3	4
Memphis, TN/AR/MS						3	4
Miami-Hialeah, FL			4	7	7	10	9
Milwaukee, WI	2	2		2	2	3	3
Minneapolis-St. Paul, MN				4	5	8	10
Modesto, CA						2	2
Monmouth-Ocean, NJ					7	7	9
Naples, FL						2	2
Nashville, TN						3	6
New Orleans, LA				2	2	4	4
New York-Northeastern NJ	7	8	10	13	13	13	13
Nassau Co, NY			5	9	11	12	11
Bergen-Passaic, NJ			3	3	11	12	10
Jersey City, NJ			2	5	6	7	6
Middlesex-Somerset-Hunterdon, NJ					11	12	12
Newark, NJ			5	10	11	12	12
Norfolk-VA Beach-Newport News, VA					2	5	9
Oklahoma City, OK					2	3	4
Orlando, FL				2	7	9	9
Philadelphia, PA/NJ	5	5	6	11	12	12	13
Phoenix, AZ				4	8	11	12
Pittsburgh-Beaver Valley, PA	4	3		3	3	4	5
Portland-Vancouver, OR				4	6	10	10
Providence-Fall River-Pawtucket, MA/RI	3	2	2	2		3	4
Raleigh-Durham, NC						5	9
Reno, NV						2	2
Richmond-Petersburg, VA						4	6
Riverside-San Bernardino,CA			2	3	10	10	10
Rochester, NY			3	3	4	5	6
Sacramento, CA				5	9	10	10
St. Louis, MO-IL	2			2	2	5	8
Salinas-Sea Side-Monterey, CA				3	2	2	2
Salt Lake City-Ogden, UT				3	2	6	7
San Antonio, TX				2	2	4	8
San Diego, CA			3	8	10	11	11
San Francisco-Oakland-Vallejo, CA	6	7	8	13	11	11	11
Oakland, CA					10	11	10
Vallejo-Fairfield-Napa, CA				2	2	3	3
San Jose, CA			2	10	10	10	10
Santa Barbara-Santa Maria-Lompoc, CA				2	3	2	2
Sarasota, FL						2	5
Seattle-Everett, WA			2	7	9	10	10
Springfield-Holyoke-Chicopee, MA	2	2		3		3	2
Stamford, CT						3	4
Stockton, CA			2	2	4	4	5
Syracuse, NY						2	4
Tacoma, WA				2	4	7	7
Tampa-St. Petersburg-Clearwater, FL			2	4	7	11	12
Trenton, NJ						2	4
Tucson, AZ					2	3	7
Ventura-Oxnard-Simi Valley, CA				3	5	7	7
Visalia-Tulare-Porterville, CA						2	2
Washington, DC/MD/VA			2	11	13	13	13
West Palm Beach-Boca Raton-Delray Beach, FL				2	5	6	9
Wichita, KS						2	2
Wilmington, DE/NJ/MD						2	3
Worcester, MA	2					2	2
Yolo, CA						2	2
Yuba City, CA					2	2	2

Table 3: Summary statistics by country of origin by year 1940-2011

		All individuals					Unskilled individuals			
		Age	Children	Married	Skilled	SEI	Age	Children	Married	SEI
Canada	1940	43.24	1.23	0.71	0.11	33.10	43.55	1.25	0.71	31.11
	1950	44.53	1.66	0.84	0.06	37.18	44.50	1.73	0.84	35.28
	1970	46.82	1.05	0.78	0.30	41.77	48.87	1.02	0.80	34.89
	1980	44.58	0.75	0.69	0.49	46.35	47.04	0.73	0.72	35.73
	1990	43.37	0.67	0.65	0.65	50.31	45.10	0.60	0.64	36.25
	2000	42.20	0.69	0.60	0.76	54.58	42.77	0.63	0.55	35.44
	2011	44.87	0.75	0.65	0.82	57.84	46.22	0.56	0.58	38.83
Mexico	1940	39.25	2.39	0.68	0.05	16.72	39.27	2.33	0.68	15.52
	1950	44.37	2.84	0.80	0.01	19.87	44.39	2.92	0.79	18.82
	1970	38.04	1.66	0.66	0.09	21.55	38.48	1.68	0.66	19.72
	1980	32.95	1.46	0.60	0.12	22.10	33.21	1.51	0.60	19.65
	1990	32.63	1.23	0.49	0.13	21.90	32.66	1.26	0.49	19.48
	2000	34.05	1.20	0.50	0.13	22.52	33.84	1.21	0.49	20.26
	2011	38.66	1.31	0.56	0.18	23.80	38.49	1.33	0.56	20.57
Cuba	1950	36.19	1.01	0.72	0.04	25.93	36.68	1.06	0.75	25.41
	1970	40.84	1.12	0.76	0.26	32.87	41.52	1.14	0.76	26.60
	1980	42.10	0.94	0.69	0.38	37.32	44.03	0.96	0.72	29.02
	1990	44.78	0.84	0.67	0.39	37.98	46.37	0.80	0.66	28.45
	2000	45.20	0.81	0.62	0.43	37.56	45.56	0.74	0.59	27.47
	2011	47.24	0.75	0.61	0.48	38.14	46.44	0.70	0.57	27.59
England	1940	46.41	0.99	0.76	0.12	35.78	47.13	1.03	0.77	32.82
	1950	49.21	1.27	0.85	0.06	40.51	49.78	1.28	0.86	38.43
	1970	46.35	0.79	0.75	0.38	47.63	49.82	0.78	0.79	39.53
	1980	40.75	0.75	0.66	0.60	50.66	42.33	0.70	0.66	38.09
	1990	40.47	0.66	0.62	0.71	52.73	39.69	0.58	0.58	37.91
	2000	42.16	0.71	0.61	0.78	55.08	41.26	0.64	0.55	37.30
	2011	45.71	0.76	0.67	0.80	56.40	45.15	0.67	0.61	39.57
Italy	1940	46.36	2.26	0.80	0.03	24.20	46.51	2.31	0.80	23.30
	1950	51.07	1.99	0.85	0.01	27.19	51.18	1.99	0.85	27.05
	1970	48.14	1.20	0.82	0.11	28.53	49.25	1.21	0.84	25.64
	1980	44.88	1.35	0.82	0.20	32.63	46.44	1.41	0.84	27.69
	1990	47.51	1.27	0.81	0.29	36.66	49.37	1.34	0.84	29.53
	2000	49.64	1.07	0.78	0.38	39.70	51.79	1.10	0.82	29.60
	2011	51.92	0.87	0.75	0.49	44.94	54.35	0.87	0.79	33.38
Germany	1940	45.88	0.88	0.75	0.09	32.32	46.18	0.92	0.76	30.03
	1950	48.61	1.11	0.83	0.04	37.17	48.93	1.14	0.83	36.46
	1970	46.89	0.78	0.76	0.33	41.93	49.44	0.74	0.79	34.08
	1980	39.90	0.78	0.66	0.52	45.13	40.38	0.77	0.66	34.22
	1990	41.00	0.72	0.64	0.65	47.58	40.36	0.60	0.58	32.92
	2000	40.97	0.70	0.59	0.71	50.01	38.73	0.59	0.48	33.20
	2011	43.50	0.67	0.59	0.76	51.71	40.41	0.50	0.44	33.68
Poland	1940	47.98	1.95	0.79	0.04	26.96	48.22	2.00	0.79	25.52
	1950	52.44	1.54	0.83	0.02	30.83	52.66	1.57	0.83	29.92
	1970	52.73	1.01	0.84	0.21	38.38	53.41	1.01	0.84	32.43
	1980	50.87	0.81	0.77	0.29	37.97	52.09	0.81	0.79	30.33
	1990	45.91	0.74	0.65	0.41	36.68	47.35	0.73	0.64	28.63
	2000	41.66	0.83	0.63	0.46	34.28	41.81	0.87	0.62	26.08
	2011	43.86	0.82	0.68	0.55	37.01	45.17	0.87	0.70	26.87
Russia	1940	47.57	1.45	0.82	0.09	40.65	48.07	1.49	0.82	38.13
	1950	52.59	1.24	0.86	0.04	42.60	52.59	1.25	0.86	42.12
	1970	58.49	0.63	0.84	0.27	43.62	59.11	0.65	0.84	36.16
	1980	48.07	0.76	0.75	0.48	42.40	50.75	0.74	0.76	30.27
	1990	42.92	0.88	0.72	0.62	45.56	43.75	0.85	0.69	31.46
	2000	39.47	0.90	0.65	0.71	45.59	36.51	1.01	0.58	30.45
	2011	41.54	0.89	0.66	0.76	46.49	38.59	1.06	0.60	28.32
China	1940	40.66	0.57	0.17	0.05	26.45	40.77	0.53	0.15	25.26
	1950	42.14	0.84	0.40	0.02	30.44	42.32	0.85	0.39	29.77
	1970	43.45	1.40	0.69	0.38	37.18	47.47	1.54	0.71	25.49
	1980	39.88	1.16	0.69	0.56	44.57	43.70	1.41	0.72	26.85
	1990	40.72	1.07	0.68	0.63	47.99	42.69	1.23	0.67	27.94
	2000	41.43	0.92	0.68	0.69	51.44	43.53	1.11	0.68	28.04
	2011	44.21	0.88	0.70	0.72	53.80	46.78	1.04	0.70	27.03
Korea	1980	36.81	1.39	0.73	0.70	44.91	35.52	1.30	0.62	29.58
	1990	38.40	1.13	0.68	0.67	47.49	37.01	0.98	0.58	34.51
	2000	40.96	0.97	0.68	0.75	50.86	41.69	0.95	0.63	36.05
	2011	44.03	0.93	0.72	0.83	54.93	46.92	0.84	0.67	37.39
Philippines	1950	43.71	1.09	0.53	0.02	18.94	43.65	1.07	0.52	17.15
	1970	42.42	1.15	0.60	0.47	34.20	48.71	1.16	0.58	20.03
	1980	38.09	1.30	0.67	0.66	36.62	40.09	1.19	0.60	19.73
	1990	38.89	1.13	0.61	0.71	39.93	37.02	0.91	0.48	24.81
	2000	41.52	1.03	0.62	0.75	41.72	39.12	0.87	0.48	26.66
	2011	44.85	0.97	0.64	0.80	43.11	42.97	0.81	0.50	27.53
Vietnam	1980	31.85	1.23	0.47	0.57	36.39	31.70	1.40	0.44	26.11
	1990	33.62	0.99	0.46	0.54	38.42	33.11	1.06	0.43	26.72
	2000	38.17	1.03	0.55	0.54	38.83	39.17	1.18	0.56	26.43
	2011	44.08	1.12	0.67	0.58	41.40	46.28	1.23	0.68	26.92
India	1970	32.21	0.65	0.58	0.84	68.12	33.87	0.71	0.52	46.26
	1980	35.50	1.08	0.71	0.84	60.11	35.78	1.16	0.61	34.07
	1990	37.86	1.04	0.65	0.78	54.91	35.49	0.88	0.47	32.14
	2000	38.62	0.94	0.66	0.80	55.88	38.34	1.03	0.52	32.05
	2011	41.38	1.03	0.75	0.85	58.75	42.69	1.20	0.64	33.13

Table 4: Percentage of individuals employed in white collar occupations 1940-2011

	All individuals							Unskilled individuals						
	1940	1950	1970	1980	1990	2000	2011	1940	1950	1970	1980	1990	2000	2011
Canada	0.30	0.35	0.45	0.54	0.65	0.73	0.79	0.25	0.33	0.31	0.34	0.40	0.41	0.47
Mexico	0.11	0.14	0.12	0.13	0.14	0.16	0.18	0.09	0.14	0.09	0.09	0.10	0.12	0.12
Cuba		0.22	0.34	0.44	0.44	0.44	0.44		0.22	0.21	0.28	0.27	0.26	0.25
England	0.36	0.42	0.57	0.63	0.69	0.74	0.76	0.30	0.39	0.43	0.41	0.42	0.45	0.49
Italy	0.18	0.20	0.22	0.28	0.37	0.44	0.53	0.16	0.20	0.16	0.19	0.23	0.26	0.32
Germany	0.27	0.34	0.43	0.52	0.57	0.63	0.67	0.23	0.33	0.28	0.31	0.31	0.35	0.36
Poland	0.21	0.26	0.41	0.37	0.34	0.34	0.38	0.19	0.25	0.31	0.24	0.19	0.17	0.19
Russia	0.49	0.51	0.53	0.47	0.55	0.58	0.59	0.45	0.50	0.42	0.26	0.30	0.33	0.29
China	0.27	0.30	0.42	0.55	0.62	0.68	0.71	0.25	0.29	0.23	0.24	0.28	0.29	0.27
Korea				0.57	0.66	0.70	0.75				0.30	0.45	0.44	0.47
Philippines		0.09	0.29	0.45	0.52	0.56	0.58		0.09	0.10	0.17	0.26	0.30	0.30
Vietnam				0.41	0.45	0.46	0.48				0.21	0.25	0.24	0.23
India			0.87	0.78	0.75	0.78	0.83			0.70	0.40	0.42	0.43	0.44

Table 5: Selected popular occupations by country of origin by year 1940-2011

		1940	1950	1970	1980	1990	2000	2011
Canada	Truck and tractor drivers	x				x	x	x
	Foremen	x	x	x	x	x		
	Carpenters	x	x	x	x	x	x	x
	Laborers	x	x	x		x	x	x
	Salesmen and sales clerks	x		x	x	x	x	x
	Managers, officials, and proprietors	x	x	x	x	x	x	x
	Clerical and kindred workers		x	x	x	x	x	
	Mechanics and repairmen		x					
	Operative and kindred workers	x	x	x	x	x	x	x
Mexico	Electricians	x						
	Managers, officials, and proprietors	x	x		x		x	x
	Truck and tractor drivers					x	x	
	Cooks, except private household				x	x	x	x
	Farm laborers, wage workers	x	x	x	x	x	x	x
	Operative and kindred workers	x	x	x	x	x	x	x
	Laborers	x	x	x	x	x	x	x
Cuba	Clerical and kindred workers		x	x	x		x	
	Barbers, beauticians, and manicurists		x					
	Janitors and sextons			x	x	x	x	x
	Cooks, except private household		x	x			x	x
	Waiters and waitresses		x					
	Service workers, except private hhold		x	x				
	Mechanics and repairmen					x	x	x
	Operative and kindred workers	x	x	x	x	x	x	x
England	Foremen	x	x		x			
	Machinists	x		x				
	Clerical and kindred workers	x	x	x	x	x		x
	Salesmen and sales clerks	x	x	x	x	x	x	x
	Truck and tractor drivers				x	x	x	x
	Laborers	x	x	x	x	x	x	x
	Managers, officials, and proprietors	x	x	x	x	x	x	x
	Operative and kindred workers	x	x	x	x	x		x
Italy	Salesmen and sales clerks	x	x	x				
	Tailors and tailoresses	x	x					
	Barbers, beauticians, and manicurists	x	x	x	x	x	x	x
	Managers, officials, and proprietors	x	x	x	x	x	x	x
	Mine operatives and laborers	x	x					
	Operative and kindred workers	x	x	x	x	x	x	x
	Laborers	x	x	x	x	x	x	x
Germany	Cooks, except private household				x	x	x	x
	Mine operatives and laborers	x						
	Tool makers, and die makers and setters	x						
	Salesmen and sales clerks	x	x	x	x	x	x	
	Machinists	x	x	x				
	Laborers	x	x	x	x	x	x	x
	Managers, officials, and proprietors	x	x	x	x	x	x	x
	Operative and kindred workers	x	x	x	x	x	x	x
Poland	Farmers (owners and tenants)	x						
	Salesmen and sales clerks	x	x	x	x			
	Machinists	x		x	x	x	x	x
	Managers, officials, and proprietors	x	x	x	x	x	x	x
	Laborers	x	x	x	x	x	x	x
	Operative and kindred workers	x	x	x	x	x	x	x
	Carpenters			x	x	x	x	x
	Mine operatives and laborers	x	x					

		1940	1950	1970	1980	1990	2000	2011
Russia	Truck and tractor drivers						x	x
	Taxicab drivers and chauffeurs					x	x	x
	Attendants, recreation and amusement							
	Mine operatives and laborers	x	x					
	Tailors and tailoresses	x						
	Laborers	x	x	x	x	x	x	x
	Salesmen and sales clerks	x	x	x	x	x	x	x
	Operative and kindred workers	x	x	x	x	x	x	x
	Managers, officials, and proprietors	x	x	x	x	x	x	x
China	Operative and kindred workers			x	x	x	x	x
	Clerical and kindred workers				x	x	x	x
	Salesmen and sales clerks	x	x	x				
	Laborers			x		x	x	x
	Cooks, except private household	x	x	x	x	x	x	x
	Managers, officials, and proprietors	x	x	x	x	x	x	x
	Waiters and waitresses	x	x	x	x	x	x	x
	Cashiers				x		x	x
	Laundry and dry cleaning Operatives	x	x	x				
Korea	Laborers				x	x		x
	Taxicab drivers and chauffeurs					x		
	Cooks, except private household				x	x	x	x
	Cashiers					x	x	x
	Salesmen and sales clerks					x	x	x
	Janitors and sextons				x	x		
	Operative and kindred workers					x	x	x
	Managers, officials, and proprietors				x	x	x	x
Phil	Farmers (owners and tenants)	x						
	Waiters and waitresses	x	x					
	Cooks, except private household	x	x	x	x	x	x	x
	Laborers	x	x		x	x	x	x
	Service workers, except private hhold	x	x	x	x	x		
	Janitors and sextons			x	x	x	x	x
	Farm laborers, wage workers	x	x	x	x	x	x	x
Vietnam	Cashiers					x		
	Taxicab drivers and chauffeurs					x		
	Managers, officials, and proprietors					x	x	x
	Janitors and sextons					x		x
	Service workers, except private hhold				x	x		
	Laborers				x	x	x	x
	Fishermen and oystermen					x	x	
	Cooks, except private household				x	x	x	x
	Barbers, beauticians, and manicurists					x	x	x
	Operative and kindred workers							
India	Cooks, except private household					x	x	x
	Salesmen and sales clerks					x	x	x
	Laborers				x	x	x	x
	Clerical and kindred workers				x	x	x	x
	Taxicab drivers and chauffeurs						x	x
	Managers, officials, and proprietors				x	x	x	x
	Cashiers					x	x	x

Table 6: Percentage of times that at least two countries share popular occupations within metropolitan area by year 1940-2011

	1940	1950	1970	1980	1990	2000	2011
Albany-Schenectady-Troy, NY				0.40	0.27	0.31	0.33
Ann Arbor, MI						0.50	0.71
Atlanta, GA				0.35	0.65	0.50	0.55
Atlantic City, NJ						0.42	0.11
Austin, TX					0.54	0.50	0.59
Bakersfield, CA					0.43	0.56	0.50
Baltimore, MD	0.44			0.36	0.34	0.44	0.59
Boston, MA	0.45	0.46	0.45	0.63	0.53	0.57	0.57
Buffalo-Niagara Falls, NY	0.31	0.38	0.50	0.64	0.54	0.44	0.40
Charlotte-Gastonia-Rock Hill, SC						0.25	0.59
Chicago-Gary-Lake, IL	0.50	0.44	0.45	0.58	0.43	0.45	0.50
Cincinnati OH/KY/IN					0.14	0.73	0.64
Cleveland, OH	0.50	0.31	0.41	0.48	0.20	0.43	0.55
Colorado Springs, CO						0.38	0.38
Columbia, SC						0.10	0.00
Columbus, OH					0.20	0.47	0.35
Dallas-Fort Worth, TX				0.39	0.46	0.65	0.55
Fort Worth-Arlington, TX					0.37	0.43	0.52
Dayton-Springfield, OH						0.17	0.21
Denver-Boulder-Longmont, CO				0.58	0.58	0.67	0.47
Detroit, MI	0.70	0.50	0.73	0.52	0.63	0.50	0.52
El Paso, TX				0.25	0.25	0.20	0.25
Fort Lauderdale-Hollywood-Pompano Beach, FL				0.73	0.39	0.41	0.48
Fort Myers-Cape Coral, FL						0.11	0.43
Fresno, CA						0.50	0.29
Grand Rapids, MI						0.10	0.20
Greensboro-Winston Salem-High Point, NC						0.27	0.31
Hartford-Bristol-Middleton-New Britain, CT	0.38	0.27	0.44	0.30	0.22	0.25	0.44
Honolulu, HI				0.57	0.62	0.33	0.56
Houston-Brazoria, TX				0.46	0.57	0.44	0.46
Indianapolis, IN						0.31	0.46
Jacksonville, FL						0.45	0.46
Kansas City, MO-KS				0.00	0.57	0.50	0.41
Kileen-Temple, TX						0.22	0.18
Las Vegas, NV				0.33	0.57	0.55	0.50
Los Angeles-Long Beach, CA	0.60	0.44	0.55	0.47	0.92	0.69	0.57
Anaheim-Santa Ana-Garden Grove, CA			0.15	0.46	0.59	0.45	0.36
Louisville, KY/IN						0.50	0.43
Melbourne-Titusville-Cocoa-Palm Bay, FL					0.43		0.27
Memphis, TN/AR/MS						0.18	0.18
Miami-Hialeah, FL			0.35	0.39	0.33	0.48	0.46
Milwaukee, WI	0.27	0.43		0.10	0.22	0.24	0.36
Minneapolis-St. Paul, MN				0.26	0.64	0.61	0.57
Modesto, CA						0.43	0.57
Monmouth-Ocean, NJ					0.55	0.30	0.57
Naples, FL						0.10	0.25
Nashville, TN						0.23	0.42
New Haven-Meriden, CT			0.56				0.09
New Orleans, LA				0.18	0.56	0.35	0.31
New York-Northeastern NJ	0.50	0.47	0.52	0.56	0.55	0.64	0.59
Nassau Co, NY			0.44	0.52	0.57	0.62	0.61
Bergen-Passaic, NJ			0.26	0.50	0.52	0.54	0.55
Jersey City, NJ			0.22	0.36	0.53	0.69	0.69
Middlesex-Somerset-Hunterdon, NJ					0.41	0.50	0.59
Newark, NJ			0.50	0.55	0.56	0.50	0.50
Norfolk-VA Beach-Newport News, VA					0.30	0.50	0.56
Oklahoma City, OK					0.25	0.23	0.38
Orlando, FL				0.33	0.38	0.43	0.45
Philadelphia, PA/NJ	0.57	0.41	0.47	0.50	0.59	0.55	0.55
Phoenix, AZ				0.54	0.43	0.57	0.68
Pittsburgh-Beaver Valley, PA	0.50	0.71		0.27	0.33	0.50	0.43
Portland-Vancouver, OR				0.35	0.41	0.54	0.52
Providence-Fall River-Pawtucket, MA/RI	0.42	0.33	0.25	0.30		0.21	0.33
Raleigh-Durham, NC						0.50	0.31
Richmond-Petersburg, VA						0.22	0.39
Riverside-San Bernardino,CA			0.25	0.38	0.48	0.60	0.46
Rochester, NY			0.45	0.40	0.38	0.32	0.67
Sacramento, CA				0.35	0.45	0.48	0.31
St. Louis, MO-IL	0.33			0.18	0.20	0.29	0.36
Salinas-Sea Side-Monterey, CA				0.45	0.20	0.21	0.10
Salt Lake City-Ogden, UT				0.30	0.20	0.41	0.63
San Antonio, TX				0.22	0.25	0.44	0.47
San Diego, CA			0.24	0.32	0.57	0.52	0.46
San Francisco-Oakland-Vallejo, CA	0.44	0.56	0.53	0.48	0.52	0.57	0.52
Oakland, CA					0.60	0.75	0.59
Vallejo-Fairfield-Napa, CA				0.22	0.25	0.17	0.18
San Jose, CA			0.08	0.48	0.53	0.69	0.60
Santa Barbara-Santa Maria-Lompoc, CA				0.25	0.31	0.18	0.19
Sarasota, FL						0.11	0.45
Seattle-Everett, WA			0.18	0.58	0.67	0.67	0.53
Springfield-Holyoke-Chicopee, MA	0.25	0.38		0.55		0.60	0.29
Stamford, CT						0.33	0.26
Stockton, CA			0.40	0.38	0.60	0.50	0.47
Syracuse, NY						0.22	0.47
Tacoma, WA				0.57	0.35	0.69	0.50
Tampa-St. Petersburg-Clearwater, FL			0.27	0.70	0.43	0.46	0.48
Trenton, NJ						0.38	0.44
Tucson, AZ					0.25	0.29	0.32
Ventura-Oxnard-Simi Valley, CA				0.22	0.55	0.36	0.32
Visalia-Tulare-Porterville, CA						0.30	0.25
Washington, DC/MD/VA			0.38	0.52	0.42	0.52	0.57
West Palm Beach-Boca Raton-Delray Beach, FL				0.11	0.45	0.40	0.26
Wichita, KS						0.25	0.25
Wilmington, DE/NJ/MD						0.00	0.42
Worcester, MA	0.27					0.27	0.20
Yuba City, CA					0.22	0.43	0.43

Table 7: Percentage of times that immigrants from a given country share popular occupations across metropolitan areas in given year 1940-2011

	All individuals							Unskilled individuals						
	1940	1950	1970	1980	1990	2000	2011	1940	1950	1970	1980	1990	2000	
Canada	0.636	0.6	0.454	0.435	0.315	0.513	0.52	0.428	0.5	0.304	0.457	0.32	0.25	0.25
Mexico	0.5	0.667	0.875	0.642	0.745	0.734	0.84	0.333	0.5	0.8	0.307	0.760	0.666	0.83
Cuba		1	0.571	0.391	0.523	0.48	0.54		1	0.5	0.35	0.647	0.571	0.43
England	0.555	0.5	0.4	0.2	0.233	0.333	0.33	0.333	0.444	0.333	0.25	0.083	0.142	0.25
Italy	0.312	0.4	0.647	0.571	0.592	0.5	0.35	0.272	0.277	0.55	0.593	0.518	0.4	0.60
Germany	0.545	0.444	0.5	0.390	0.464	0.402	0.32	0.25	0.333	0.5	0.297	0.368	0.25	0.47
Poland	0.384	0.416	0.153	0.5	0.533	0.647	0.47	0.277	0.312	0.187	0.526	0.357	0.5	0.42
Other USSR/Russia	0.5	0.625	0.3	0.454	0.416	0.433	0.50	0.461	0.454	0.444	0.363	0.333	0.437	0.43
China	1	0.5	0.6	0.5	0.470	0.428	0.38	1	0.5	0.75	0.5	0.667	0.704	0.63
Korea				0.545	0.72	0.483	0.54				0.4	0.556	0.5	0.47
Philippines		0.5	0.714	0.380	0.594	0.461	0.61	1	0.666	0.5	0.357	0.666	0.375	0.56
Vietnam				0.4	0.666	0.48	0.53				0.3	0.576	0.527	0.49
India			0.5	0.7	0.5	0.573	0.57				0.333	0.471	0.785	0.67

Table 8: Percentage of times that country A is ranked above country B

All	Can	Mex	Cuba	Eng	It	Ger	Pol	Rus	Ch	Kor	Phil	Viet	Ind
Canada		1.00	0.98	0.53	0.98	0.86	0.90	0.66	0.64	0.84	0.86	1.00	0.19
Mexico	0.00		0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.25	0.02	0.00
Cuba	0.02	0.98		0.03	0.46	0.06	0.37	0.03	0.10	0.18	0.18	0.73	0.01
England	0.47	1.00	0.97		0.99	0.87	0.91	0.61	0.66	0.79	0.85	1.00	0.16
Italy	0.02	0.99	0.54	0.01		0.07	0.34	0.09	0.05	0.09	0.37	0.73	0.01
Germany	0.14	1.00	0.94	0.13	0.93		0.86	0.47	0.49	0.55	0.80	0.96	0.04
Poland	0.10	1.00	0.63	0.09	0.66	0.14		0.18	0.40	0.17	0.35	0.71	0.05
Russia	0.34	1.00	0.97	0.39	0.91	0.53	0.82		0.54	0.26	0.55	0.92	0.06
China	0.36	1.00	0.90	0.34	0.95	0.51	0.60	0.46		0.79	0.81	0.96	0.20
Korea	0.16	1.00	0.82	0.21	0.91	0.45	0.83	0.74	0.21		0.87	1.00	0.08
Philippines	0.14	0.75	0.82	0.15	0.63	0.20	0.65	0.45	0.19	0.13		0.78	0.02
Vietnam	0.00	0.98	0.27	0.00	0.27	0.04	0.29	0.08	0.04	0.00	0.22		0.01
India	0.81	1.00	0.99	0.84	0.99	0.96	0.95	0.94	0.80	0.92	0.98	0.99	

Unskilled	Can	Mex	Cuba	Eng	It	Ger	Pol	Rus	Ch	Kor	Phil	Viet	Ind
Canada		1.00	1.00	0.47	0.90	0.84	0.91	0.65	0.98	0.84	1.00	0.97	0.83
Mexico	0.00		0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.39	0.02	0.00
Cuba	0.00	0.96		0.00	0.24	0.01	0.33	0.05	0.32	0.13	0.46	0.70	0.08
England	0.53	1.00	1.00		0.99	0.80	0.98	0.72	0.98	0.87	1.00	1.00	0.88
Italy	0.10	1.00	0.76	0.01		0.11	0.57	0.25	0.59	0.22	0.89	0.87	0.18
Germany	0.16	1.00	0.99	0.20	0.89		0.86	0.55	0.91	0.49	0.96	0.96	0.65
Poland	0.09	1.00	0.67	0.02	0.43	0.14		0.38	0.68	0.13	0.56	0.79	0.14
Russia	0.35	1.00	0.95	0.28	0.75	0.45	0.62		0.85	0.20	0.78	0.77	0.27
China	0.02	0.99	0.68	0.02	0.41	0.09	0.32	0.15		0.23	0.76	0.64	0.23
Korea	0.16	1.00	0.88	0.13	0.78	0.51	0.88	0.80	0.77		0.89	0.90	0.59
Phil	0.00	0.61	0.54	0.00	0.11	0.04	0.44	0.22	0.24	0.11		0.59	0.10
Vietnam	0.03	0.98	0.30	0.00	0.13	0.04	0.21	0.23	0.36	0.10	0.41		0.03
India	0.17	1.00	0.92	0.12	0.82	0.35	0.86	0.73	0.77	0.41	0.90	0.97	

All-Unskilled	Can	Mex	Cuba	Eng	It	Ger	Pol	Rus	Ch	Kor	Phil	Viet	Ind
Canada		0.00	-0.02	0.06	0.08	0.02	-0.01	0.00	-0.34	0.00	-0.14	0.03	-0.64
Mexico	0.00		-0.02	0.00	0.01	0.00	0.00	0.00	-0.01	0.00	-0.14	0.00	0.00
Cuba	0.02	0.02		0.03	0.22	0.05	0.05	-0.02	-0.22	0.06	-0.29	0.04	-0.07
England	-0.06	0.00	-0.03		0.01	0.07	-0.07	-0.12	-0.32	-0.08	-0.15	0.00	-0.72
Italy	-0.08	-0.01	-0.22	-0.01		-0.04	-0.22	-0.15	-0.54	-0.13	-0.52	-0.15	-0.17
Germany	-0.02	0.00	-0.05	-0.07	0.04		0.00	-0.08	-0.42	0.06	-0.17	0.00	-0.60
Poland	0.01	0.00	-0.05	0.07	0.22	0.00		-0.20	-0.29	0.05	-0.21	-0.08	-0.08
Russia	0.00	0.00	0.02	0.12	0.15	0.08	0.20		-0.31	0.06	-0.22	0.15	-0.21
China	0.34	0.01	0.22	0.32	0.54	0.42	0.29	0.31		0.55	0.05	0.32	-0.03
Korea	0.00	0.00	-0.06	0.08	0.13	-0.06	-0.05	-0.06	-0.55		-0.02	0.10	-0.52
Phil	0.14	0.14	0.29	0.15	0.52	0.17	0.21	0.22	-0.05	0.02		0.19	-0.08
Vietnam	-0.03	0.00	-0.04	0.00	0.15	0.00	0.08	-0.15	-0.32	-0.10	-0.19		-0.03
India	0.64	0.00	0.07	0.72	0.17	0.60	0.08	0.21	0.03	0.52	0.08	0.03	

Table 9: Pairwise comparisons between countries and occupational networks 1940-2011

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(23)
			All individuals											Unskilled individuals										
				Cases when A>B					Cases when A<B						Cases when A>B					Cases when A<B				
CoutryA/ CountryB			Freq A>B	a*	b	c	d	e	a	b	c	d	e	Freq B>A	a	b	c	d	e	a	b	c	d	e
Canada/ England	1940	8	0.63	0.80	0.80	0.00	0.20	0.00	0.33	1.00	0.00	0.00	0.00											
	1950	5	0.60	0.67	0.67	0.00	0.33	0.00	0.50	0.50	0.00	0.00	0.50											
	1970	10	0.20	0.50	0.50	0.50	0.00	0.00	0.75	0.50	0.50	0.00	0.00											
	1980	24	0.38	0.44	0.00	1.00	0.00	0.00	0.47	0.00	1.00	0.00	0.00											
	1990	27	0.44	0.50	0.00	1.00	0.00	0.00	0.60	0.00	1.00	0.00	0.00											
	2000	33	0.67	0.73	0.00	0.32	0.68	0.00	0.82	0.00	0.27	0.00	0.73											
	2011	39	0.77	0.77	0.63	0.37	0.00	0.00	0.67	0.67	0.33	0.00	0.00											
Germany	1940	6	0.83	0.20	0.80	0.00	0.20	0.00	1.00	0.00	0.00	0.00	1.00	0.78	0.14	0.71	0.00	0.29	0.00	0.50	0.50	0.00	0.00	0.50
	1950	7	1.00	0.71	0.86	0.14	0.00	0.00						1.00	0.43	0.86	0.14	0.00	0.00					
	1970	12	0.75	0.22	0.89	0.11	0.00	0.00	0.67	1.00	0.00	0.00	0.00	0.91	0.30	0.80	0.00	0.20	0.00	0.00	1.00	0.00	0.00	0.00
	1980	31	0.77	0.46	0.00	0.42	0.00	0.58	0.43	0.00	0.57	0.43	0.00	0.81	0.24	0.00	0.43	0.57	0.00	0.40	0.00	0.60	0.00	0.40
	1990	36	0.89	0.50	0.00	1.00	0.00	0.00	0.50	0.00	1.00	0.00	0.00	0.81	0.18	0.00	0.12	0.88	0.00	0.00	0.00	0.00	0.00	1.00
	2000	43	0.88	0.58	0.00	0.42	0.58	0.00	0.80	0.00	0.60	0.00	0.40	0.76	0.15	0.62	0.00	0.38	0.00	0.25	0.50	0.00	0.00	0.50
	2011	56	0.91	0.49	0.00	0.39	0.61	0.00	0.80	0.00	0.60	0.00	0.40	0.85	0.27	0.73	0.00	0.00	0.27	0.00	1.00	0.00	0.00	0.00
England/ Germany	1940	6	0.83	0.40	0.00	0.20	0.80	0.00	0.00	0.00	0.00	0.00	1.00	0.70	0.43	0.71	0.29	0.00	0.00	0.33	0.67	0.33	0.00	0.00
	1950	5	1.00	0.40	0.60	0.00	0.00	0.40						0.57	0.25	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
	1970	8	1.00	0.38	0.75	0.25	0.00	0.00						1.00	0.57	0.57	0.43	0.00	0.00					
	1980	24	0.88	0.57	0.00	1.00	0.00	0.00	0.67	0.00	1.00	0.00	0.00	0.81	0.31	0.38	0.38	0.23	0.00	0.00	0.67	0.33	0.00	0.00
	1990	30	0.80	0.50	0.00	1.00	0.00	0.00	0.33	0.00	1.00	0.00	0.00	0.83	0.10	0.00	0.50	0.00	0.50	0.50	0.00	0.50	0.50	0.00
	2000	33	0.88	0.72	0.00	1.00	0.00	0.00	0.25	0.00	1.00	0.00	0.00	0.79	0.18	0.18	0.36	0.18	0.27	0.33	0.33	0.00	0.00	0.67
	2011	38	0.71	0.59	0.00	0.33	0.67	0.00	0.55	0.00	0.55	0.00	0.45	0.88	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Germany/ Poland	1940	8	1.00	0.63	1.00	0.00	0.00	0.00						0.91	0.50	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
	1950	8	0.88	0.43	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.90	0.33	0.56	0.00	0.00	0.44	0.00	0.00	1.00	0.00	0.00
	1970	11	0.64	0.57	0.71	0.29	0.00	0.00	0.25	0.50	0.50	0.00	0.00	0.64	0.43	0.00	0.57	0.00	0.43	0.25	0.00	0.25	0.75	0.00
	1980	14	0.79	0.64	0.00	0.55	0.45	0.00	0.67	0.00	0.67	0.00	0.33	0.86	0.33	0.42	0.08	0.42	0.08	0.00	0.50	0.50	0.00	0.00
	1990	13	0.92	0.25	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.91	0.20	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
	2000	14	0.86	0.08	0.00	0.58	0.00	0.42	0.00	0.00	1.00	0.00	0.00	1.00	0.14	0.29	0.00	0.00	0.71					
	2011	14	0.93	0.15	0.00	0.23	0.00	0.77	0.00	0.00	1.00	0.00	0.00	0.80	0.25	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
China/ Korea	1980	10	0.80	0.00	0.00	0.63	0.00	0.38	0.00	0.00	1.00	0.00	0.00											
	1990	24	0.79	0.00	0.00	0.37	0.63	0.00	0.00	0.00	0.40	0.00	0.60											
	2000	30	0.80	0.42	0.00	0.33	0.67	0.00	0.33	0.00	0.17	0.00	0.83											
	2011	36	0.75	0.37	0.00	0.33	0.67	0.00	0.56	0.00	0.22	0.00	0.78											
Vietnam/ Mexico	1980	9	1.00	0.22	0.00	1.00	0.00	0.00						1.00	0.25	0.00	1.00	0.00	0.00					
	1990	24	0.96	0.00	0.65	0.04	0.00	0.30	0.00	1.00	0.00	0.00	0.00	1.00	0.20	1.00	0.00	0.00	0.00					
	2000	46	1.00	0.02	0.50	0.02	0.00	0.48						0.95	0.15	0.58	0.05	0.00	0.38	0.00	1.00	0.00	0.00	0.00
	2011	52	0.98	0.04	0.78	0.00	0.00	0.22	0.00	0.00	0.00	1.00	0.00	0.98	0.16	0.80	0.00	0.00	0.20	0.00	1.00	0.00	0.00	0.00
India/ China	1970	2	1.00	0.00	1.00	0.00	0.00	0.00						0.83	0.20	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
	1980	15	1.00	0.20	0.00	0.60	0.40	0.00						0.50	0.33	0.67	0.00	0.33	0.00	0.17	0.33	0.00	0.00	0.67
	1990	30	0.67	0.15	0.00	0.30	0.00	0.70	0.30	0.00	0.50	0.50	0.00	0.85	0.41	0.82	0.00	0.18	0.00	0.33	1.00	0.00	0.00	0.00
	2000	46	0.67	0.52	0.00	0.13	0.00	0.87	0.60	0.00	0.40	0.60	0.00	0.88	0.14	0.00	0.05	0.95	0.00	0.00	0.00	0.33	0.00	0.67
	2011	69	0.65	0.47	0.00	0.11	0.00	0.89	0.58	0.00	0.17	0.83	0.00	1.00	0.00	0.80	0.00	0.20	0.00					
Average				0.23	0.28	0.33	0.14	0.26	0.30	0.20	0.47	0.18	0.15		0.14	0.65	0.08	0.10	0.17	0.21	0.58	0.10	0.18	0.13

*Percentage of cases such that:
(a) A>B and A and B share popular occupations within metropolitan area
(b) A>B and A and B are both doing the same as elsewhere
(c) A>B and both A and B are both doing something different than elsewhere
(d) A>B and winner does something different
(e) A>B and loser does something different

Table 10: Determinnats of immigrant ranking - rank ordered logit results

	Group 1	Group2	Group3	Group4	Group5	Group6	Group7
Age	0.11	-0.007	.246	-.609 ***	-.1547	-.0625	-0.357***
	(0.089)	(.085)	(.187)	(.1592)	(.1152)	(0.241)	(0.110)
Married	-4.286	-8.097 *	-5.894	3.979	-25.71***	-32.071**	-7.168
	(4.098)	(4.350)	(6.874)	(7.855)	(6.621)	(14.54)	(5.987)
Number of children	-1.225	-0.055	-4.326	-2.99	5.31*	2.078	-0.269
	(1.432)	(1.291)	(3.237)	(2.490	(2.79)	(4.964)	(1.830)
Skilled	-24.29 ***	-27.24***	-40.83***	-31.49***	-24.429***	-15.343*	-19.159***
	(4.27)	(4.521)	(10.066)	(6.580)	(6.016)	(8.417)	(5.466)
Initial age	-0.255***	0.019	-.5344***	.016	.271*	-0.225	0.082
	(.079)	(0.077)	(.200)	(.1509)	(.168)	(0.566)	(0.106)
Initial married	4.602	-1.815	3.684	-15.271*	-5.357	13.85	0.379
	(2.897)	(3.744)	(5.177)	(8.19)	(5.933)	(21.098)	(8.493)
Initial number of children	0.218	-0.767	2.29	.507	-.797	-3.923	1.811
	(0.969)	(0.856)	(1.926)	(1.559)	(1.84)	(3.642)	(1.610)
Initial SEI	-0.186***	-0.194***	-.275***	.0071	-.24***	-0.527*	-0.028
	(0.047)	(0.060)	(.088)	(.065)	(.084)	(0.317)	(0.09)
Initial skilled	8.238***	7.36*	16.701***	12.1097***	19.33***	26.065	6.262
	(2.677)	(3.982)	(5.572)	(4.77)	(5.619)	(15.31)	(7.037)
Arrival year dummies	yes	yes	yes	yes	yes	yes	yes
Observations	208	244	188	124	120	213	99
Groups	52	64	44	31	30	71	33
H_0: valuation of countries vary by:							
Number of groups in mea	not rejected	not rejected	not rejected	not rejected	not rejected	x	x
Fraction of migrants in the labor force	not rejected	rejected	x	not rejected	not rejected	not rejected	x
Countries	England	Canada	China	Philippines	China	Mexico	Cuba
	India	England	India	Italy	Korea	China	Poland
	China	Germany	Korea	Poland	Vietnam	Philippines	Italy
	Korea	Italy	Vietnam	Russia	Philippines		

Standard errors in brackets. * significant at 10%, ** significant at 5%, *** significant at 1%

Table 11: Fraction of skilled individuals at entry by country and the corresponding ranking in selected groups by arrival years

	Arrival year	1	2	3	4
GROUP 1					
England	1990	0.32	0.47	0.50	0.56
China	1990	0.74	0.71	0.60	0.27
Korea	1990	0.67	0.73	0.70	0.68
India	1990	0.85	0.84	0.85	
GROUP 2					
Canada	1980	0.28	0.29	0.18	
England	1980	0.28	0.30	0.33	
Italy	1980			0.46	0.12
Germany	1980	0.44	0.28	0.23	0.59
GROUP 3					
China	1980	0.73	0.68	0.34	
Korea	1980	0.70	0.70	0.68	
Vietnam	1980			0.40	0.54
India	1980	0.83	0.85		
GROUP 6					
Mexico	1970			0.13	
China	1970	0.64	0.17		
Philippines	1970	0.50	0.66		
GROUP 7					
Cuba	1970	0.32	0.32	0.30	
Italy	1970	0.16	0.12	0.11	
Poland	1970	0.24	0.19	0.17	

Table 12: Ranking responses to changes in initial allocation to occupations of the group that is ranked last

		Increase initial SEI of last ranked country by 10 %					Increase initial SEI of last ranked country by 25 %					
Group	Rank	Effect on the country ranked last			Effect on other countries		Effect on the country ranked last				Effect on other countries	
		0	1	2	-1	0	0	1	2	3	-1	0
England	1				0.08	0.92					0.21	0.79
India	2				0.12	0.88					0.27	0.73
China	3				0.21	0.79					0.42	0.58
Korea	4	0.63	0.33	0.04			0.40	0.35	0.19	0.06		
Canada	1				0	1					0.02	0.98
England	2				0.02	0.98					0.07	0.93
Germany	3				0.02	0.98					0.08	0.92
Italy	4	0.97	0.03				0.87	0.10	0.03			
China	1										0	1
India	2										0	1
Korea	3										0.07	0.94
Vietnam	4						0.94	0.06				
China					0	1					0.02	0.98
Korea	1				0.04	0.96					0.08	0.92
Vietnam	2				0.12	0.88					0.27	0.73
Philippines	3	0.86	0.12	0.02			0.69	0.27	0.02	0.02		
Mexico	1										0	1
China	2										0.06	0.94
Philippines	3						0.94	0.06				

Table 13: Ranking responses to 10% increases in initial occupational prestige score in detail for selected groups

	Percentage of times country is ranked				Av. initial SEI if ranked last	Av. initial SEI among 2^{nd} to last	Percentage of changes if	
	1	2	3	4			treated	not treated
Group 1								
England	0.23	0.19	0.42	0.15	49.11	46.86	0.63	0.14
China	0.29	0.29	0.19	0.23	34.49		0.08	0.18
Korea	0.06	0.14	0.19	0.62	45.99		0.34	0.20
India	0.42	0.39	0.20	0				0.10
Group 2								
Canada	0.48	0.36	0.16	0		37.55		0.02
England	0.41	0.43	0.16	0				0
Italy	0.02	0	0.07	0.92	28.54		0	0.20
Germany	0.10	0.21	0.61	0.09	46.29		0.40	0
Group 3								
China	0.28	0.45	0.23	0.04	26.43	43.08		
Korea	0.13	0.15	0.72	0				
Vietnam	0	0	0.04	0.96	35.98			
India	0.60	0.40	0	0				
Group6								
Mexico	0	0	1		21.26	39.55		
China	0.90	0.10	0					
Philippines	0.10	0.90	0					