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## Productivity and Migration: New Insights From the 19th Century

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**The Age of Mass Migration (1850-1913) was one of the largest migration episodes in history. Unlike today, during this era the US maintained an open border. This column suggests that, unhindered by entry restrictions, Europeans migrants to the US during this period were more likely to be workers with lower-productivity and poorer economic prospects.**

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Over the past decade, more than 10 million new immigrants have settled in the US. Does the US attract the “best” and “brightest” workers from the rest of the world or does it serve as

the destination for the world’s “tired, poor, huddled masses” as declared in the poem by Emma Lazarus posted on the Statue of Liberty? The selectivity of migration, on the basis of labour productivity, has implications both for the workforce of the US and for the sending countries.

Some scholars argue that migrants are always likely to be positively selected because the same high ability and motivation that are rewarded in the labour market are also required to move successfully across national borders (e.g. Chiswick 1999 and 2000). An alternative hypothesis suggests that migrant selection will depend on the relative market value of skill in the US

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and various countries of origin. According to this hypothesis, we would expect positive self-selection from sending countries that provide lower returns to skill than are available in the US – for example, the social welfare states of Western Europe, which have relatively equal distributions of income. But many economies in the developing world offer high returns to skills, in part because skills are in short supply. In this case migrants are expected to be negatively selected from the sending population. This model of self-selection originated with Roy (1951) and was first explicitly applied to migration by Borjas (1987, 1991, and 1994).

The empirical relevance of the Roy model for the modern flow of migration has recently been called into question. First, the Roy model ignores the fact that immigration policy tends to favour higher-skilled individuals. For example, the US offers around 100,000 H-1B visas a year to foreign-born workers with specialised training. Likewise, Canada allocates many of its slots on the basis of a point system that prioritizes labour-

market skills. Furthermore, if migration costs are sufficiently high and access to credit is limited, the low-skilled may not be able to finance a move even if relocation could eventually prove lucrative. Along these lines, new evidence shows that migrants from many sending countries, even countries like Mexico that have a highly unequal distribution of income, are positively (or at least not negatively) selected from their sending populations (Feliciano 2005, Hanson and Chiquiar 2006). In sum, migrant selection in the contemporary period is the outcome of a combination of migrant self-selection and the immigration policies of destination countries.

In our new research, we turn to history to examine the nature of migrant selection in a period with virtually no migration restrictions (Abramitzky et al. 2010). Specifically, during the Age of Mass Migration (1850-1913), the US maintained a nearly open border.<sup>1</sup> We find that, under that system, European migrants were negatively selected from the sending population. We

speculate that contemporary immigration quotas may, indirectly, be responsible for this change in migrant selection over time.

By limiting the number of legal entrants, developed economies impose bureaucratic costs in the form of legal fees or payments to human smugglers. For example, the cost of an immigration lawyer to facilitate legal entry to the US is around \$10,000. Hanson (2006) estimates that, in order to evade border control, the cost of migrating illegally from Mexico to the US is around \$2000 in today's dollars, or 35% of the annual earnings of a low-skilled Mexican worker. By this measure, migration costs are around twice as high today as they were in the late 19th century. These heightened costs may effectively price out the poor.

Our study is based on a unique dataset of Norwegians who migrated to the US during the Age of Mass Migration and their siblings who remained in Norway. Norway had one of the highest out-migration rates from Europe, with over a

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<sup>1</sup> While migration from China and Japan was prohibited at various points during this period, migration from the rest of the world was unrestricted. Before entering the country, migrants were tested at Ellis Island or other entry points for communicable diseases. Healthy migrants were allowed to immediately enter, while infected migrants were required to spend some time in quarantine.

quarter of its population (around 600,000 individuals) eventually migrating to the US. Moreover, Norway has completely digitised two censuses from the period (1865 and 1900), allowing us to follow large samples of migrants and non-migrants over time in Norway and to the US. We are able to match approximately 10% of all Norwegian-born men in 1900 US Census to their birth family in Norway in 1865

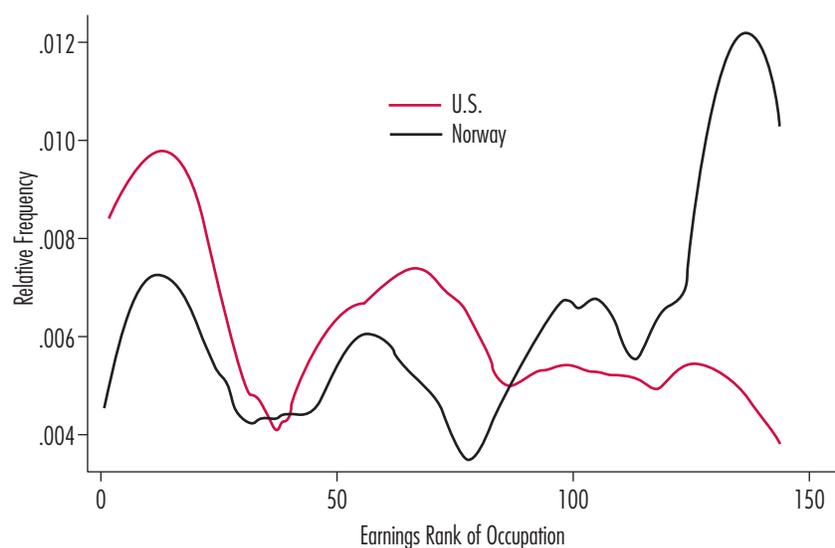
by first name, last name, and age. We can then follow the economic outcomes experienced by both migrants' brothers and a comparison sample of other men within the Norwegian labour market in 1900.

We find robust evidence of negative selection among Norwegian migrants to the US in the late nineteenth century. That is, men with poorer economic prospects in Europe were more

likely to move to the US. We provide three sets of results to support this conclusion:

1. Migrants were more likely than non-migrants to hold low-paying jobs: Figure 1 displays the distributions of occupations for Norwegian migrants to the US and men who remained in Norway in the year 1900. We arrayed occupations from the lowest- to the highest-paid job according to the average US earnings. From brief inspection, it is clear that migrants were much more likely to hold low-paying jobs – for example, day labourers or servants. This pattern is consistent with negative selection; if migrants were drawn from the bottom of the skill distribution, we would expect to find them concentrated in low-skilled jobs. However, the occupational distributions in Figure 1 could arise if, instead, migrants were positively selected but took jobs beneath their true skill level because they lacked English skills or knowledge of the US labour market. Given this possibility, we cannot determine the true selection of the migrant flow

**Figure 1**  
**Comparing the occupational distributions of Norwegian-born men in the US and Norway in 1900**



Note: This figure presents the relative frequency of 189 occupations, collapsed into 144 distinct earnings levels, for Norwegian-born migrants to the US and men remaining in Norway in 1900. All occupations are assigned the mean earnings in the US. We report these distributions for men born in urban areas who are not owner-occupier farmers. Abramitzky, Boustan and Eriksson (2010) contains comparable distributions for men born in rural areas.

by studying the distribution of occupations alone.

2. The estimated return to migration when comparing brothers who moved and brothers who stayed was larger than when comparing migrants to the full population. In other words, the difference between migrants' earnings at the destination and non-migrants' earnings at the origin reflects both a return to the migration activity and a difference between the quality of migrants and non-migrants (i.e. selection).

One thought experiment that could isolate the nature of migrant selection would be to clone a sample of men and send one member of each pair to the US while leaving one member in Norway. By definition, then, migrants in the cloned sample are not positively or negatively selected, and their return to migration would thus be the true return in the absence of selection. We could then compare the return to migration earned by migrants in the cloned sample (true return) with the actual return to migration for Norwegian

migrants to the US. If we find that the return to migration is larger in the cloned sample than in the actual population, then we could conclude that the actual migrants have attributes that reduce their earnings (that is, they are negatively selected from the sending population).

Lacking the ability (or desire) to clone migrants, we use a second-best approach of comparing two brothers from the same household, one of whom migrates to the US while the other remains in Norway. While brothers are not clones, they do share the same family background and therefore allow us to eliminate selection in migration across families with different income levels. We find that the return to migration is larger among sets of brothers than in the full sample of migrants and stayers. By the logic outlined above, this pattern suggests that, on the whole, migrants are negatively selected from the sending population – in other words that the actual return to migration is depressed by the fact that migrants tend to be less skilled than the typical Norwegian.

3. Of course, comparing two brothers is not the same as comparing clones. Brothers differ in their ability, motivation and willingness to take risks, making even the comparison of brothers subject to self selection. But given Norway's system of inheritance, with older sons inheriting the entire family estate, the younger brothers in land-owning families were more likely than their eldest sibling to migrate to the US. When we treat birth order as a "quasi-random" reason why some migrated and others did not, we estimate a higher return to migration than when using the full population.

Following a similar logic as the previous approach, we compare the return to migration measure that is less susceptible to self selection (using migration due to birth order) with the naïve return to migration measure (using the population as a whole). We find that the earnings gap associated with these birth order migrants is again larger than the earnings gap we find when comparing all migrants to all those who stay

in Norway. This comparison confirms our earlier conclusion (step 2) that migrants were negatively selected from the Norwegian population.

The negative selection of migrants leaving Norway for the US in the late 19th century suggests that the pattern of migrant selection may have changed substantially over time. In addition, we suggest that this change is due, in part, to shifts in US immigration policy, which became more restrictive following World War I. A more definitive answer will require studying the nature of migrant selection from other European sending countries. Furthermore, we would like to know how these migrants and their children performed in the US labour markets. These questions are the subject of our current research.

## References

Abramitzky, Ran, Leah Platt Boustan and Katherine Eriksson (2010), *Europe's Tired, Poor,*

*Huddled Masses: Self-Selection and Economic Outcomes in the Age of Mass Migration* ", NBER Working Paper 15684, January.

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

Borjas, George (1991), *"Immigration and Self-Selection"*, in Immigration, Trade and the Labour Market, John M. Abowd, and Richard B. Freeman (eds), Chicago: University of Chicago Press.

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

Chiquiar, Daniel and Gordon Hanson (2005), *"International Migration, Self-Selection, and the Distribution of Wages: Evidence from Mexico and the US"*, Journal of Political Economy, 113:239-281.

Chiswick Barry (1999), *"Are Immigrants Favorably Self-Selected?"* American Economic Review 89:181-185.

Chiswick Barry (2000), *"Are Immigrants Favorably*

*Self-Selected? An Economic Analysis"*, in Migration Theory: Talking Across Disciplines, Caroline Brettell, and James Frank Hollifield (eds), New York: Routledge.

Feliciano, Cynthia (2005), *"Educational Selectivity in US Immigration: How Do Immigrants Compare to Those Left Behind?"* Demography, 42:131-152.

Ferrie, Joseph (1996), *"A New Sample of Males Linked from the Public Use Micro Sample of the 1850 U.S. Federal Census of Population to the 1860 U.S. Federal Census Manuscript Schedules"*, Historical Methods, 29:141-156.

Hanson, Gordon (2006), *"Illegal Migration from Mexico to the US"*, Journal of Economic Literature, 44:869-924.

Roy, AD (1951), *"Some Thoughts on the Distribution of Earnings"*, Oxford Economic Papers, 3:135-146.