# COMMENT: THE ELUSIVE SEARCH FOR NEGATIVE WAGE IMPACTS OF IMMIGRATION

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## 1. Introduction

Labor demand curves slope down.[1] From this statement it is a short leap to the Malthusian proposition that an increase in the supply of workers reduces wages. So short is the leap, in fact, that the title of George Borjas's (2003) paper "The Labor Demand Curve is Downward Sloping: Reexamining the Impact of Immigration on the Labor Market" seems to imply that as a theoretical matter, immigration *has* to lower the wages of natives. In a well-functioning economy, however, increases in population do not necessarily cause falling wages. The effect depends on the supply of capital, on the characteristics of the added workers, and on the structure of technology. In fact, the papers by Ottaviano and Peri (OP) and Manacorda, Manning and Wadsworth (MMW) in this symposium argue that the impacts of immigration on native workers in the United States and the UK have been very small.

How can these papers arrive at such different conclusions than Borjas (2003), who claimed that US immigration between 1980 and 2000 had lowered average native wages by about 3% and the wages of the least-educated natives by 9%? There are three crucial differences in the assumptions used by the different authors. First, Borjas (2003) holds capital fixed. In contrast OP and MMW assume that in the longer run capital adjusts to keep the capital–labor ratio on its long-run path (or equivalently, that capital is perfectly elastically supplied). As was illustrated in an earlier version of OP (e.g. Ottaviano and Peri 2008, Table 8) and acknowledged by Borjas and Katz (2007, Table 1.11) this matters a lot. If immigration increases aggregate labor supply by 10% (as it did in the United States between 1980 and 2000) and capital is fixed, average wages would be expected to fall by about 3%. If capital can adjust, however, the effect on average wages is approximately zero. Importantly, OP (Figure 2) show that the trend in the US capital–labor ratio was similar in the 1980–2000 period as in earlier decades. This and other evidence, including the remarkable inflows of capital

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1. An elegant proof was offered by Samuelson (1947, p. 72).

to the United States in the past decade, suggest that the assumption of fixed capital for analyzing the long-run effects of ongoing immigration inflows is unreasonable.[2]

A second major difference is that Borjas (2003), and the closely related paper by Borjas and Katz (2007), assume there are *four* distinct education groups in the labor market (dropouts, high school graduates, people with some college, and college graduates) whereas OP and MMW follow a long tradition in labor economics (e.g. Freeman 1976; Katz and Murphy 1992) and assume there are only *two*: high-school equivalents and college equivalents. The delineation of high school dropouts as a separate skill group has extremely important implications for the potential effect of immigration on low-skilled natives in the United States. This is because US immigrants have about the same fraction of high school equivalents as the native population (63% versus 59%), but a much higher fraction of dropouts (31% versus 11%). In a four-education-group model the relatively high fraction of immigrant dropouts distorts the overall share of dropouts in the economy and lowers their wage relative to other groups. In a two-group model, however, what matters is the share of high school equivalent labor, which has been largely unaffected by immigration. As I discuss in what follows, there is considerable evidence to suggest that the two-group model is a much better description of the labor market, leading to the immediate conclusion that immigration has not had much affect on relative wages in the United States.

A third key difference is that Borjas (2003) assumes that immigrant and native workers with the same education are perfect substitutes, whereas OP and MMW assume they are imperfect substitutes. Even a modest degree of imperfect substitutability makes a significant difference in the implied impacts of immigration on native wages. Again, my reading of the evidence assembled by OP, MMW, and other is that the extreme assumption of perfect substitutability is untenable. Once imperfect substitution is taken into account, the appropriate calculations suggest most native groups have actually *gained* from immigrant inflows.

## 2. The Appropriate Specification of Education-Related Skill Groupings

Most of the existing literature on education-related wage gaps assumes that workers can be partitioned into only two groups: high school equivalents and college equivalents. In contrast, Borjas (2003) assumes that high school dropouts and high school graduates are separate skill groups, with the same degree of substitutability as between high school graduates and college graduates. If true, this implies that there should be a systematic negative relation between the relative wage of dropouts versus high school graduates and their relative supply.

My reading is that in the post-1960 period, at least, dropouts wages have been a virtually constant fraction of high school graduate wages, with no correlation between the dropout/graduate wage gap and the relative supply of the two groups. For example,

2. As noted by Backus, Henriksen, and Storesletten (2008), the United States is a major importer of capital, with inflows of about 7% of GDP per year in the 2000s.

Goldin and Katz (2008, Chapter 8) present a time series analysis of the determinants of the high school graduate wage premium from 1914 to 2005, allowing the elasticity of substitution between high school graduates and dropouts to vary over time. In a model with a simple linear trend interaction they find that the inverse elasticity steadily trended downward over the twentieth century, reaching zero by 1985. Confirming the lack of correlation in recent decades, OP (Figure 8) show that the relative supply of dropouts versus high school graduates in the US labor market has followed a sharp U-shape from 1960 to 2010 while the relative wage ratio has been essentially constant.[3]

Additional evidence comes from cross-city correlations between the dropout/high school graduate wage ratio and the relative supply of dropouts versus high school graduates. As noted in Card and Lewis (2007) and Card (2009) the relative supply of dropouts varies widely across US cities, driven by differences in the presence of immigrants from Mexico and Latin America. Yet the wage of native male dropouts relative to native male high school graduates is very similar across cities, and is uncorrelated with the relative supply of dropouts, or with the relative fraction of Mexican immigrants, or with historical factors that predict the presence of Mexican immigrants in cities today (like having a Spanish city name, or having had a greater fraction of Mexican immigrants in 1960).

Finally, careful consideration of the estimates presented in Borjas's (2003) original study also calls into question the empirical validity of the four-group. Using data on trends in the wage gaps between the four groups over time, Borjas (2003) obtained two estimates of the inverse elasticity of substitution across the groups: 0.74 (with a standard error = 0.65) and 0.76 (with standard error = 0.58). Neither is significantly different from zero at anything close to conventional levels. Confidence intervals around his estimates of the effects of immigration on native workers in the four groups would easily allow the possibility that relative demand curves for different education groups are flat rather than downward-sloping.[4]

## 3. Substitutability Between Immigrants and Natives

The main conceptual innovation in the papers by OP and MMW is the allowance for imperfect substitutability between immigrants and natives with the same age and (measured) education. Both papers present exhaustive sets of alternative specifications that confirm there is a systematic negative correlation between the relative supply of

3. The average log wage differential between native male dropouts and native male high school graduates was –17.5% in 1980, –22.9% in 1990, –25.4% in 2000, and –26.6% in 2005/2006. Nearly all of the change over time can be attributed to changing age and racial composition of the two groups: as discussed in Card (2005), the gap adjusted for differences in experience and ethnicity is nearly constant over the 1980–2000 period.

4. Since Borjas's (2003) paper was written before 2000 Census data were available, he used a much smaller sample drawn from the 1998–2001 Current Population Surveys. In a replication of Borjas (2003) using complete 2000 Census data, Raphael and Ronconi (2008) obtain an estimate for the inverse elasticity of substitution across the four groups that is close to zero, further confirming the poor empirical performance of the four-group model.

immigrants versus natives in a particular age/education cell, and the relative wage of immigrants versus natives in that cell. As with the degree of substitutability between dropouts and high school graduates, confirmatory evidence is available from cross-city comparisons (e.g. Card 2009), which reveal estimates of the inverse elasticity of substitution between immigrants and natives that are not too different from the estimates presented by OP based on aggregate time series data.

Another interesting strand of evidence on the degree of imperfect substitutability is provided by Peri and Sparber (2009), who use data from the 1960–2000 Censuses to examine how the presence of a higher fraction of low-educated immigrants in a state affects the occupational choices of low-educated natives. Peri and Sparber (2009) observe that a major difference between immigrants and natives is English-language skill, and show that as more immigrants enter a local labor market, natives shift to occupations where communication skills are relatively more valuable and leave those where only pure *manual* skills are required. Such adaptive behavior generates imperfect substitution endogenously, and mitigates an important fraction of negative wage competition between natives and immigrants.

The lack of language skills has also been found to be an important factor in explaining differences between more highly educated immigrants and natives in Canada. Ferrar, Green, and Riddell (2006) use data from a survey that includes a test of literacy skills to show that about one-half of the wage gap between immigrants and natives with a university-level education is attributable to the lower literacy skills of immigrants. Immigrants who lack literacy skills cannot compete for the full range of jobs available to similarly-educated natives, leading to a *skills downgrading* phenomenon (Dustmann, Frattini, and Preston 2008) and potentially contributing to the imperfect substitutability between immigrants and natives.

## 4. Where Do We Stand in the Elusive Search?

To many non-economists it seems obvious that a rise in population leads to lower wages. Standard economic models break the Malthusian link through capital accumulation and suggest that the main effect of immigration will be on relative wages, and even then only if immigrants alter the distribution of the labor force across different skill groups. The two papers by OP and MMW provide valuable new evidence on the ways that skill groups are defined, and on the quantitative magnitude of the effect of immigration on native wages in the United States and the U.K. Importantly, these papers show that there is *no conflict* between the conclusions drawn from studies of economy-wide trends in wages and quantities of labor, and the conclusions from *local area* studies that compare wages and employment rates in different cities, states, or regions. In both cases, the effects of immigration on the relative wage structure of native workers are quite small.

Contrary to the impression conveyed by the title of Borjas (2003), the absence of a strong effect of immigrant inflows is fully consistent with a properly specified model of the demand side of the labor market. This is not to say that some particular groups

of workers haven't been affected by competition from immigrants. But the state of the evidence suggests that the overall impacts on native wages are small—far smaller than the effects of other factors like new technology, institutional changes, and recessionary macro conditions that have cumulatively led to several decades of slow wage growth for most US workers.

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