

2007

# How Low-skilled Immigration is Changing US Prices and Labor Markets: 3 Essays - Dissertation Summary

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# How Low-Skilled Immigration is Changing U.S. Prices and Labor Markets: Three Essays

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This dissertation consists of three essays on the effects of low-skilled immigration on U.S. prices and labor markets. The first essay uses confidential data from the Consumer Price Index to estimate the causal effect of low-skilled immigration on the prices of nontraded goods. The second essay is motivated by the first essay's finding that low-skilled immigration reduces the prices of services such as housekeeping and babysitting, and explores whether American women have substituted their own time invested in the production of household goods with the purchase of the now cheaper household services, and if, as a consequence, they have increased their labor supply. The third essay formalizes and empirically explores how immigrants' lack of English skills determines immigration's impact on the U.S. labor market.

## Introduction

The 1965 Immigration Act substantially altered the national origin mix of immigrants in favor of developing countries. Since then, the share of low-skilled immigrants in the labor force has more than doubled, and concerns about the potential effects that this might have on native welfare have made immigration rank among the top issues facing America today. Careful studies of the benefits and costs from immigration (not only economic, of course) are needed to inform decisions about immigration policy and to provide a base for the immigration debate.

Most research by economists on the impact of low-skilled immigration on the U.S. economy has focused on wage levels, and in particular, on the wages of natives competing directly with immigrants (Altonji and Card 1991; Borjas 1996, 2003; Card 1990, 2001; Ottaviano and Peri 2006). Only recently have labor economists looked at other potentially important impacts of immigration, such as technology adoption and rental prices (Lewis 2005; Saiz 2003, 2006). This dissertation contributes to the academic literature and to the policy debate by studying two unexplored but potentially important dimensions in which low-skilled immigrants affect the average level of native welfare and its distribution: their effect on prices of nontraded goods and on natives' time use. It also provides an alternative explanation as to why the literature has repeatedly found that immigration has little impact on the wages of low-skilled natives: because of immigrants' lack of English skills, low-skilled natives and low-skilled immigrants are far from perfect substitutes.

The empirical strategy used by all three essays is to exploit the large variation across cities and through time in the relative size of the low-skilled immigrant population to identify the impact of immigration on prices of nontraded goods, time use, and wages. The use of cross-city variation allows for the identification of the full effects of immigration as long as natives do not respond to the impact of immigration on a local market by moving their labor or capital to other cities. Most studies that have looked at this issue find no displacement effects due to immigration, and the results of this thesis also support this finding (see Card 2001; Card and DiNardo 2000; Card and Lewis 2005; Federman, Harrington, and Krynski 2005; and Saiz 2006).<sup>1</sup>

To ameliorate the bias that arises from endogenous location choices of immigrants, I use as an instrument for the recent distribution of the immigrant population across U.S. cities the historical distribution of Mexicans, Cubans, and Italians—major sources of low-skilled immigrants to the United States. The instrument exploits the tendency of immigrants to settle in a city with a large enclave of immigrants from the same country. A likely explanation for this tendency is that immigrant networks facilitate the job search process of new immigrants and their assimilation to the new culture (Munshi 2003).

The main data sources for this dissertation are the 1980, 1990, and 2000 Public Use Microdata Samples (PUMS) of the Decennial Census, which I use to measure the concentration of low-skilled immigrants among cities, industries, and occupations.

Below, I describe in more detail each of the essays that comprise the dissertation.

## Essay 1

### The Effect of Low-Skilled Immigration on U.S. Prices: Evidence from Consumer Price Index Data

The net effect of immigration on natives' purchasing power depends not only on wage but also on price effects. If immigration bids down the price of low-skilled labor, the price of unskilled-intensive goods and services will be reduced, thereby raising the welfare of consumers of these goods. To the extent that groups of the population consume different baskets of goods, changes in prices of nontraded goods resulting from an increase in immigration might have distributional consequences potentially different from those implied by wage effects.

This essay uses confidential microdata from the Consumer Price Index (CPI) to estimate the causal effect of low-skilled immigration on prices. Then, using a unified conceptual framework, the essay combines wage and price effects with consumption patterns of native skill groups to determine the

net benefits and distributional impacts that low-skilled immigration has had on the native economy.

As initial evidence of the impact of low-skilled immigration on prices, I present reduced-form price equations for nontraded services in which the regressor of interest is the share of immigrant high school dropouts in the labor force. The price data, obtained through a confidentiality agreement with the Bureau of Labor Statistics (BLS), is made of price indexes at the city level for all components of the CPI. The instrumental variable estimates suggest that low-skilled immigration lowers the prices of immigrant-intensive services such as gardening, housekeeping, babysitting, and dry cleaning. At current immigration levels, a 10 percent increase in the proportion of low-skilled immigrants in the labor force reduces prices of immigrant-intensive services by 1.3 percent.

The reduced-form estimates show that there is a causal effect of low-skilled immigration on the prices of low-skilled-intensive services, but they do not illuminate how that effect occurs. In the second part of the essay, I construct a simple, small open-economy model with a nontraded sector where low-skilled immigration lowers the relative price of nontraded goods and services by decreasing the wages of low-skilled immigrants and low-skilled natives. I use the model's implications to empirically estimate the magnitude of the effect of a low-skilled immigration shock on wages and prices. I find that, at current U.S. immigration levels, a 10 percent increase in the share of low-skilled immigrants in the labor force reduces the wages of other low-skilled immigrants by 8.0 percent and of low-skilled natives by 0.6 percent. That an immigration shock affects the wages of other low-skilled immigrants the most and the wages of low-skilled natives the least suggests an alternative explanation as to why the literature has failed to find a large and significant effect of low-skilled immigrants on the wages of low-skilled natives: low-skilled natives and low-skilled immigrants are far from being perfect substitutes (I estimate an elasticity of substitution of 1.32). Because the literature on the own-wage effects of low-skilled immigrants is scant, I provide several consistency checks on my estimates.<sup>2</sup> In particular, I show that low-skilled immigration has a much larger negative effect on the wages of native Hispanics with low English proficiency than on the wages of other low-skilled native groups.

The focus on local conditions limits the set of goods and services whose prices can be analyzed to those considered nontradeable at the city level. Consistent with the theoretical framework, in which U.S. cities are considered small open economies, I find that the local concentration of low-skilled immigrants has little impact on the prices of traded goods.

The final section of the essay combines data on consumption patterns from the Consumer Expenditure Survey (CEX) with the price-and-wage effects obtained from the structural model to estimate how natives' purchasing power was changed by the immigration wave of the 1990s. I find

that price effects were larger for high-skilled natives than for low-skilled natives, because they devoted a larger share of their budget to nontraded goods, and within nontraded goods they consumed relatively more immigrant-intensive services. Overall, I find that the low-skilled immigration of the 1990s increased the purchasing power of high-skilled workers by an average of 0.65 percent and decreased the purchasing power of native high school dropouts by an average of 2.66 percent. I conclude that, through lower prices of nontraded goods, low-skilled immigration brings positive net benefits to the U.S. economy as a whole, but generates a redistribution of wealth.

Due to the focus on city-level outcomes, this essay looks only at prices of nontraded goods and services. Low-skilled immigration is also likely to have effects on the prices of traded goods, but these will occur at an aggregate, national level. A theoretical and empirical exploration of this issue is an area of future research.

## *Essay 2*

### **Cheap Maids and Nannies: How Low-Skilled Immigration Is Changing the Time Use of American Women (with José Tessedá)**

The results from Essay 1 suggest that low-skilled immigration might affect natives' time use by reducing the prices of services that are close substitutes for home production. Natives will tend to substitute their own time invested in the production of household goods with the purchase of low-cost household services. The freed time constitutes an important channel through which low-skilled immigrants unambiguously increase native welfare. Furthermore, a simple model of time use suggests that changes in the prices of household services should affect differently the various skill groups of the population and thus have effects not only on the average level of welfare, but also on its distribution. In particular, given that high-skilled women have the highest opportunity costs of working at home production, a decrease in the price of housekeeping services will have the largest impact on the labor supply of this group.

This essay uses time-use surveys and cross-city variation in low-skilled immigrant concentration to study how low-skilled immigration has changed the time use of American women.

As a first step in our empirical analysis, we use data from the CEX to test whether natives have changed their consumption of market-provided household services as a consequence of low-skilled immigration. In order to study consumption of these services, we use CEX data on expenditures to construct a dummy variable that takes a value of 1 if positive expenditures in housekeeping and gardening services are reported. We find that the immigration flow of

the 1990s increased the probability that a household reported a purchase of housekeeping services by a city-average of 1.4 percentage points (the baseline probability was 8 percent).

Having confirmed that natives are buying more household services as a result of immigration, we turn to test whether this has translated into a decrease in the time used by natives in household production. Using data from the 1993 National Human Activity Pattern Survey and from the recently released 2003–2004 American Time Use Survey conducted by the BLS, we find that the immigration wave of the 1990s reduced the time American women spend daily on household chores by a city-average of 20 minutes (not including child care). The result, combined with the first essay's estimate of the price effects of immigration, suggests a price elasticity of demand for household services of 3.

The effect on time spent on child care is also sizeable for women with children younger than five. Our results suggest that low-skilled immigration caused mothers to spend 42 minutes less a day providing child care if a weekday, but (probably to compensate) 45 minutes more on weekend days. We didn't find a significant effect on child care for any other group of women.

Finally, we study how American women are spending the extra time they have after reducing their household work. We find that women have significantly increased their supply of market work (measured as hours worked), both at the intensive and extensive margins. The larger magnitude of the change in market work hours vs. the magnitude in the change in household work suggests that the effect seems to be happening mostly at the extensive margin. We find that as a result of the low-skilled immigration wave of the 1990s, women are 5 percentage points more likely to report working in the market.

We also find that high-skilled women are the most sensitive to the prices of household services; women with a college degree or higher are relatively more responsive to immigration flows, both in terms of reporting positive household services expenditures and in their labor supply. If low-skilled immigration is driving very high-skilled women to the labor market, it might be contributing to a decrease in wage inequality through a general equilibrium effect on wages.<sup>3</sup>

### *Essay 3*

## **Language Skills and the Effect of Low-Skilled Immigration on the U.S. Labor Market**

Most of the leading papers in the literature on the effects of low-skilled immigration on wages have assumed perfect substitutability between immigrants and natives of similar education and experience levels. Recently, however, studies such as Ottaviano and Peri (2006) and the first essay of

this dissertation have suggested that low-skilled immigrants and natives are far from perfect substitutes. What explains the less than perfect substitution? The first essay's finding of a big and negative effect of low-skilled immigration only on the wages of natives of Hispanic origin and low English proficiency, as well as the large share of low-skilled immigrants that do not speak English, suggest that immigrants' lack of English skills might be one of the main causes behind the low substitutability between natives and immigrants of similar education levels.<sup>4</sup> The degree of substitutability between immigrants and natives has direct implications for the magnitude and direction of the effects that immigrant shocks should have on average native wages. For example, under perfect substitution, the standard result in cross-city studies of no significant effect of immigration on natives' wages presents a puzzle. On the other hand, if the average low-skilled native and a low-skilled immigrant are far from perfect substitutes, a large and positive immigration shock should have, if any, only a small negative effect on the wage of the average native.

This essay formalizes and empirically explores how immigrants' lack of English skills determines immigration's impact on the U.S. labor market. I start by developing a very simple model based on Autor, Katz, and Krueger (2003) in which low-skilled native workers can perform both "manual" and "language" tasks, immigrants perform manual tasks only, and the two tasks are q-complements. Manual tasks might include, for example, bricklaying, fruit picking, dishwashing and operating textile machines. Language tasks, on the other hand, require people to communicate with others, for example, as in taking an order in a restaurant, answering phone calls, and selling merchandise. I show that an immigration inflow will reduce the relative returns to manual skills and will make some natives shift from manual to language occupations. Manual occupations will expand compared to language occupations.

I follow the empirical strategy of the first two essays to test the predictions of the model. Specifically, I exploit intercity variation in low-skilled immigrant concentration and variation in language skills required by occupation. To measure the level (importance) of language skills, I use information from the Occupational Information Network (O\*NET).

In line with the predictions of the model, I find that 1) within a city, occupations that require fewer language skills have a higher ratio of low-skilled immigrants to low-skilled natives, and 2) after an immigration shock, there is a disproportionate reduction in the wages of natives that work in manual occupations. I am not able, however, to distinguish between changes in the returns to skills and selection (the theory predicts that after an immigration shock, the most skilled natives are the ones that move from physical- to language-intensive occupations).

Unlike cross-city studies that find a very small wage effect of low-skilled immigrants on the average low-skilled

native, my results suggest that there is a significant and large wage effect (even using cross-city variation), but only on some groups of low-skilled natives: those who work in physically intensive occupations and could be considered perfect substitutes for low-skilled immigrants. Low-skilled natives who work in low-skilled language intensive occupations, on the other hand, see almost no decrease in their wages as a result of an immigration shock. The main results of this paper imply that low-skilled immigrants increase wage inequality, not between average low-skilled natives and high-skilled natives, but within native high-school dropouts. Immigrants are having a pervasive effect on the wages of the least skilled people among the natives with low education.

How low-skilled immigrants impact the labor market has important consequences for native welfare beyond those experienced by competing low-skilled natives. Changes in the occupational distribution generated by immigrants' lack of language skills affect relative prices of goods and services, for example. As shown in the first two essays, the fact that immigrants work disproportionately in physically intensive services such as housekeeping and gardening, which are close substitutes to household production, have reduced the prices of these services, and consequently have also changed the time use of American women. Also, because high-skilled natives consume disproportionately the services provided by immigrants, they are benefiting the most from the price changes.

### Notes

1. The exception is Borjas, Freeman, and Katz (1996), who find a correlation of negative 1 between native net migration and immigration by state.
2. Card (1990) and Borjas (2003) are the only two studies that estimate the effect of low-skilled immigration on the wages of other immigrants; the former finds no significant negative effect of an immigration shock on the labor outcomes of earlier immigrants, and the latter a sizeable, but not statistically significant, negative effect.
3. Kremer and Watts (2006) construct a simple model that illustrates the economic impact of foreign private household workers on natives. Their calibration exercise suggests that the admission of 7 percent of the labor force as foreign private household workers could potentially increase welfare among natives by as much as a 2 percent increase in GDP. Moreover, this type of immigration could increase the ratio of low-skilled native wages to high-skilled native wages by around 3–9 percent.
4. Census data for 2000 show that more than 80 percent of the low-skilled immigrants that arrive each year to the United States speak very little English, and that even after 10 years in the country, 60 percent still report not speaking English or not speaking it well.

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