

The Effect of Immigrants on the Wages of Workers in the United States

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Despite America's immigrant heritage, immigration policy is one of the most controversial and emotional issues in American politics. Recent immigration attempts by Haitians and Chinese received wide media attention and rekindled the debate over American immigration policy.

One of the most complicated areas in this contentious subject is the economics of immigration. A number of issues arise, including the effect of immigrants on the wages of United States citizens. This article reviews the economic research and concludes that the effect of immigrants on the wages of native-born, or naturalized, U.S. citizens may be positive or negative, depending on the immigrants' individual characteristics. However, in the three studies presented, the magnitude of this effect is so small as to be irrelevant to policy.

Traditionally, the American public viewed immigrants as a necessary source of labor for jobs that natives found undesirable. Immigrants were viewed as hard workers, striving to learn English and assimilate into the American culture. During the 19th and early 20th centuries, the developing industrial economy of the United States provided numerous jobs for both natives and immigrants. These jobs did not require the ability to speak English or a high level of education or skill.

However, as the economy began shifting from manufacturing to service in the latter half of this century, job requirements began shifting as well. The ability to speak English increased in importance, as did education and skill levels.

In addition to the changes in job requirements, public opinion and political rhetoric have recently shifted away from viewing the United States as a haven for immigrants toward further restricting immigration on the theory that the United States has absorbed all the immigrants that can possibly be accommodated in this country (Sontag,

1992). George F. Will (1993) has noted two additional differences between immigration at the beginning and at the end of this century. First, Will believes that today, arriving immigrants join a welfare culture in this country, which lessens immigrants' desire to strive for excellence. Second, Will believes that the time-honored American ideal of immigrant assimilation has eroded.

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Such ideas, whether true or not, typify the current anti-immigrant mood in the United States. Set off against this impassioned policy debate is a set of statistics indicating that immigrants may not have a detrimental effect on the wages of U.S. workers. According to U.S. government data, real family incomes of workers in the bottom fifth of the population increased from the 1930s until the 1970s and then fell through much of the 1980s. Dunn (1992) suggests that undocumented immigration may be a large factor, among several, for this decline. The recessionary economy of the early 1990s reinforced the belief that immigrants lower the wages of U.S. workers. However, the evidence provided by economists in the 1980s demonstrates that these assumptions are unfounded. Alternative explanations, such as the changing nature of the U.S. and global economies, must be used to explain this trend of decreasing wages for low-income workers.

Studies, using a variety of analytical techniques, have been performed over the last two decades by a variety of economists. Barry Chiswick (1978) concluded, after controlling for socio-economic characteristics, that immigrants' wages are 3% higher than the wages of native-born workers. Kristin Butcher (1991) found that black immigrants receive higher wages than their native-born counterparts. Although these studies indicate that immigrants have higher wages than native-born workers, they do not address the question of whether immigrants affect the wages of the native-born either positively or negatively. The studies described below address that question directly.

The three studies considered here examine whether immigrants substitute for or complement native-born workers.¹ Each study is based on a series of mathematical relationships and assumptions. The mathematics examine the relationship between wages and the ethnic and socio-economic characteristics of the workers. Due to the complexity of the mathematics, the authors of the studies described limited their analyses to three worker types.

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The studies, by Baldwin Grossman, Borjas, and Rivera-Batiz and Sechzer, were selected for use here for their innovative approaches and their broad acceptance in the field of economics. Even though these studies use data derived over the last three decades, their results are considered authoritative by labor economists.² In the first study, Jean Baldwin Grossman (1982) examined whether immigrants are substitutes for natives. Using the *1970 Census, County and City Data Bank and the National Origin and Language Subject Report* for 19 Standard Metropolitan Statistical Areas (SMSAs), she estimated a series of share equations (relationships between the proportion of a group's total income to that of society's total income and a set of explanatory variables).³ Specifically, she examined the substitutability and complementarity among native-born workers, immigrants and the children of immigrants.⁴ Her results are presented in Table I.

Table I - Baldwin Grossman's Results

Table of Regression Coefficients

		Coefficients			
		Constant	N	SG	FN
Equation	Sn	0.17	0.12	-0.09	-0.02
	Ss	0.23	-0.09	0.01	-0.01
	Sf	0.11	-0.02	-0.01	0.04

Table of Hicks Partial Elasticities of Complementarity

		Increased Numbers of Group		
		N	Sg	FN
Wage of Group	N	-0.95	-1.17	-0.50
	SG	-1.17	-0.52	-0.69
	FN	-0.50	-0.69	-4.73

Baldwin Grossman found that both immigrants and their children (second-generation) are substitutes for native-born workers.⁵ A 1% increase in the population due to immigration reduced native-born workers' wages by 0.5%, second-generation workers' wages by 1.17%, and reduced the wages of other immigrants by 4.73%. Baldwin Grossman also found that second-generation individuals affected the wages of native-born workers more than did immigrants. The study showed that immigrants decreased wages for second-generation workers as well. These last two findings are probably due to the greater assimilation of second-generation workers than their parents. The second-generation workers grew up in the same environment as their native-born counterparts and, therefore, share a common background and culture. Since second-generation workers' parents are immigrants, they may be unaware or unable to take advantage of the same opportunities presented to native-born individuals. However, even though immigrants are substitutes for natives, Baldwin Grossman found their effect on wages was small.

George Borjas (1983) used the 1976 Survey of Income and Education, which includes native-born and immigrant males ages 18 to 64 who reported positive earnings in 1975, to examine the effects on wages of increased numbers of white, black and Hispanic workers. Borjas estimated coefficients for a series of share equations to examine the substitutability of these groups while controlling for a number of personal characteristics, including whether an individual was an immigrant and, if so, how long ago this individual immigrated.⁶ Other personal characteristics include education, work experience, veteran status, whether the individual resided in

an SMSA; whether the individual was married, divorced, or separated; and whether the individual's work ability was limited for health reasons.

Table II - Borjas Model

Unconstrained Regression Coefficients

	Black Wage	Hispanic Wage	White Wage
Education	-0.2716 (-9.12)	0.1810 (1.74)	0.3822 (14.76)
Experience	-0.1643 (7.86)	0.1373 (7.07)	-0.1924 (10.09)
Experience Squared	-0.0024 (-5.80)	-0.0020 (-5.17)	-0.0029 (-7.48)
Veteran	-0.0208 (-0.13)	0.2606 (1.56)	0.1544 (1.13)
Standard Metropolitan Statistical Area	0.6682 (3.93)	0.2362 (1.53)	0.6792 (4.84)
Married	0.3047 (1.50)	0.4003 (2.04)	0.5411 (2.94)
Separated	-0.1288 (-0.49)	0.6916 (2.25)	0.3831 (1.28)
Health	-0.4600 (1.92)	0.3332 (1.29)	-0.2118 (-1.00)
Immigration		-1.0470 (3.94)	
Years Since Migration		0.0596 (4.63)	
(Ph/Pb) ^{.5}	0.0240 (0.15)		
(Pw/Pb) ^{.5}	0.0074 (0.15)		
(Pb/Ph) ^{.5}		0.1462 (1.74)	
(Pw/Ph) ^{.5}		0.0431 (1.73)	
(Pb/Pw) ^{.5}			1.1716 (3.23)
(Ph/Pw) ^{.5}			0.0258 (0.06)
Constant	-0.2079 (-0.55)	1.0363 (1.74)	-1.9118 (-4.22)
R-Squared	0.075	0.139	0.206
Observations	3890	3089	3844

(t-statistics in parenthesis)

Table II shows the results from Borjas' unconstrained regression analysis. These results indicate that black workers were the only group whose wages decreased as a result of increased education, being a veteran and being

divorced or separated. Borjas also found that black workers' wages increased at statistically insignificant levels as the proportion of blacks in the work force decreased. Hispanics were the only group whose wages increased despite health limitations on their ability to work. Then Borjas specifically examined Hispanic immigrant workers. After all other effects were held constant, Borjas found that Hispanic immigrant workers received \$1.04 per hour less than all other groups. However, after 18 years of assimilation experience, the wages of Hispanic immigrants reached parity with those of native Hispanic workers.

Of particular interest in Table II are the coefficients for the relative proportions of each group (π_i/π_j). In every case the coefficients are positive, indicating that the immigrant groups were complements, not substitutes. In other words, immigrants in the work force increased the wages of white, black and Hispanic Americans.

Table III - Borjas Model

Table of Regression Coefficients

		Coefficients		
		Whites	Blacks	Hispanics
Equation	Sw	5.7226	0.0083	0.0497
	Sb	0.0083	4.8281	0.1099
	Sh	0.0497	0.1099	4.3587

Table of Partial Elasticities of Complementarity

		Increased Numbers of Group		
		Whites	Blacks	Hispanics
Wage of Group	Whites	-0.0010	0.026	0.0234
	Blacks	0.0026	-0.0742	0.1579
	Hispanics	0.0234	0.1579	-0.6346

Table III shows Borjas' elasticity findings. These results support the belief that whites, blacks, and Hispanics all complement each other. An increase in the supply of workers from one group increased the wages of workers in the other two groups while decreasing the wages of workers in that same group.

Francisco Rivera-Batiz and Selig Sechzer (1991) used another approach to determine the effects of immigration on the wages of natives. Their data on males ages 16 to 64 was taken from the 1980 Census. Unlike the previous two studies, this one included both rural and urban areas. The Rivera-Batiz-Sechzer model examined the relationship between an individual's wages and his level of skill, experience and education. This information was then used to

calculate the elasticities of complementarity (see Table IV), which in turn were used to determine the effect of various immigrant groups on various native-born groups.

Table IV - Rivera-Batiz Sechzer Model

Table of Regression Coefficients

		Coefficients		
Equation	Su	0.0325	-0.0538	0.0213
	Se	-0.0538	0.1510	-0.0972
	Sx	0.213	-0.0972	0.0759

Table of Allan Partial Elasticities of Complementarity

		Wages of Group		
		U	E	X
Increased Numbers of Group	U	-1.0366	1.0118	0.0247
	E	0.5799	-1.5642	0.9843
	X	0.0167	1.1577	1.1744

For example, Rivera-Batiz and Sechzer found that if the U.S. population were to increase by 1% due to the immigration of educated, unskilled workers with no experience, the wages of U.S. unskilled workers with no education and no experience would increase by 0.58%, and the wages of experienced, unskilled workers with no education would increase by 0.98%.

Appendix 1 shows a detailed analysis of how various immigrant groups affected the wages of various native-born worker groups. Rivera-Batiz and Sechzer found that a 1% increase in the U.S. population due to the immigration of Latin Americans reduced the wages of white native-born workers by 0.03% and native-born blacks by 0.06%. Nevertheless, following the same level of Latin American immigration, wages of native-born Vietnamese increased by 0.02% and professional and technical workers of all ethnicities increased by 0.003%.

The results of these studies support several generalizations about the effects of different immigrant groups on domestic wages. Asian immigrants tended to raise the wage levels of most native-born groups, except for native-born workers of Asian descent. On the other hand, European immigrants tended to depress the wages of all native-born groups, except those of Asian descent. Appendix 1 and Appendix 2 show that an immigrant's effect on wages depends in part on his and the native's skill levels, education, and experience. The closer the immigrant's profile matches that of the native group with which he is compared, the more likely he will be a substitute for native labor. Thus, similar individuals competing for similar types of work will have a greater effect on wages than different kinds of people competing for different types of work. On the other hand, an immigrant whose education level is higher than that of native groups will increase the wages for natives.

Perhaps more important than the effects mentioned above is the magnitude of these effects. In all cases, the impact of immigrants on the wages of native-born workers is negligible. A 1% increase in the U.S. population resulting from immigration from Latin America (approximately 2,000 people) will lower the hourly wage of the average U.S. worker by 0.03% — a mere fraction of a cent. Even the largest negative effect on wages, Mexican immigrants on Mexican-Americans, is small — less than 1%.

Each of the models presented used different techniques and arrived at different conclusions regarding the effect of immigrants on the wages of native-born or naturalized workers in the United States.⁷ A point, of greater importance to the policy-maker, however, is that the size of this effect is small in all three cases. Each of these studies indicates that controlling immigration to protect American workers' wages is a weak argument at best. The debate over immigration policy should not be focused on whether immigrants affect the wages of U.S. workers but rather on other political concerns. ★

Appendix 1 - Matrix of Intergroup Elasticities of Complementarity

		Increased Number of Group									
Wage of Group		Native Group	Lat. American	Asian	European	U.S.S.R.	1940-70	1970-80	Mexican	C. American	Caribbean
White		-0.0317	0.0152	-0.0176	-0.0113	-0.0485	-0.0117	-0.0513	-0.0105	-0.0464	
Black		-0.0603	0.0285	-0.0335	-0.0211	-0.0912	-0.0223	-0.0973	-0.0201	-0.0872	
All Native born		-0.0403	0.0157	-0.0216	-0.0111	-0.0534	-0.0159	-0.0624	-0.0143	-0.0513	
Mexican		-0.0656	0.0232	-0.0345	-0.0160	-0.0816	-0.0266	-0.0997	-0.0238	-0.0785	
Puerto Rican		-0.0638	0.0238	-0.0339	-0.0166	-0.0821	-0.0255	-0.0980	-0.0229	-0.0790	
Cuban		-0.0238	0.0152	-0.0141	-0.0118	-0.0447	-0.0076	-0.0414	-0.0069	-0.0426	
Other Hispanic		-0.0247	0.0058	-0.0123	-0.0034	-0.0242	-0.0109	-0.0352	-0.0097	-0.0235	
Japanese		-0.0244	0.0136	-0.0140	-0.0104	-0.0415	-0.0084	-0.0410	-0.0076	-0.0396	
Chinese		0.0031	-0.0032	0.0021	0.0026	0.0085	0.0006	0.0063	0.0006	0.0080	
Filipino		-0.0191	0.0082	-0.0104	-0.0060	-0.0271	-0.0073	-0.0302	-0.0066	-0.0260	
Korean		-0.0122	0.0049	-0.0066	-0.0035	-0.0165	-0.0048	-0.0190	-0.0043	-0.0158	
Indian		0.0961	-0.0521	0.0549	0.0395	0.1600	0.0336	0.1601	0.0303	0.1529	
Vietnamese		0.0195	-0.0200	0.0134	0.0164	0.0535	0.0040	0.0398	0.0037	0.0506	
Other Asian		0.0153	-0.0120	0.0096	0.0096	0.0338	0.0042	0.0283	0.0038	0.0321	
Professional and Technical		0.0030	0.0000	0.0013	-0.0002	0.0014	0.0015	0.0037	0.0013	0.0015	
Service and Farmworkers		-0.0390	0.0180	-0.0215	-0.0133	-0.0580	-0.0146	-0.0625	-0.0131	-0.0555	
Craftsmen and Operators		-0.0599	0.0275	-0.0331	-0.0202	-0.0888	-0.0224	-0.0959	-0.0201	-0.0850	
Pure Unskilled		-0.3475	-0.0124	-0.1506	0.0358	-0.1296	-0.1813	-0.4231	-0.1613	-0.1341	
Pure Education		0.5123	-0.1937	0.2727	0.1359	0.6656	0.2041	0.7883	0.1830	0.6398	
Pure Experience		-0.3683	0.2362	-0.2193	-0.1840	-0.6955	-0.1178	-0.6420	-0.1065	-0.6621	

Appendix 2 - Skill Inventory of Immigrant and Native-Born Target Groups

Immigrant Groups	Average Years of Education	Average Years of Experience	Native Groups	Average Years of Education	Average Years of Experience
Latin American	10.95	14.69	White	15.15	16.50
Asian	16.55	11.92	Black	13.67	17.54
European	14.17	15.64	All Native born	13.82	15.23
U.S.S.R.	17.18	17.87	Mexican	11.78	14.44
Central American	14.03	14.07	Puerto Rican	12.12	14.91
Mexican	9.65	17.03	Cuban	16.64	17.97
Caribbean	14.28	21.42	Other Hispanic	13.97	13.66
1970-80	13.71	13.93	Japanese	16.03	17.04
Before 1970	14.35	21.90	Chinese	16.32	14.19
			Filipino	15.48	15.97
			Korean	15.80	15.18
			Indian	19.30	8.67
			Vietnamese	14.78	10.35
			Other Asian	16.05	17.97
			Professional and Technical	17.24	15.55
			Service and Farmworkers	14.61	16.48
			Craftsmen and Operators	13.51	17.16
			U.S. Average	15.00	16.48

Notes

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¹ Two groups are considered complements if, as one group increases in number, the wage (or income) of the other group increases. The groups are substitutes if the wages (or income) of one group decreases when the numbers of another group increases.

² Equally comprehensive data from the 1990 U.S. Census is not yet available for analysis at this time.

³ Baldwin Grossman estimates the coefficients for the following equation:

$$S_i = \alpha_i + \gamma_{in} \ln(N) + \gamma_{is} \ln(SG) + \gamma_{if} \ln(FN) \quad i = n, s, f$$

where S_i is the share of group i 's income and N , SG and FN are the number of natives, second-generation and first-generation workers, respectively.

⁴ Baldwin Grossman used the Hicks elasticity of complementarity (C_{ij}) — the proportional change in the relative wage of one group (i) given a proportional change in another group (j) — in her analysis (Hammermesh, 1986). Two groups are said to be substitutes if $C_{ij} < 0$ and are complements if $C_{ij} > 0$.

⁵ For this study, Baldwin Grossman considered the children of immigrants a separate group (second-generation), even though they are native to the United States. Consequently, natives were defined as being at least third-generation residents of the United States.

⁶ The equations Borjas estimates are:

$$r_i = x_i \alpha_i + \gamma_{ij} (p_j/p_i)^{1/2} + \gamma_{ik} (p_k/p_i)^{1/2}$$

where i, j, k are whites, blacks, and Hispanics, r is the wage rate, x is a set of personal characteristics, and p is the proportion of that group in the working age population.

⁷ Boyer (1993) showed that applying the different analytical techniques described here to the same data set yields conflicting results regarding the substitutability and complementarity of native-born and immigrant workers. He confirmed, in all cases, that the effect of immigrants on the wages of native-born workers was negligible.

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