

CONTRIBUTIONS OF IMMIGRANT LABOR TO THE AMERICAN ECONOMY

A DIFFERENT TAKE



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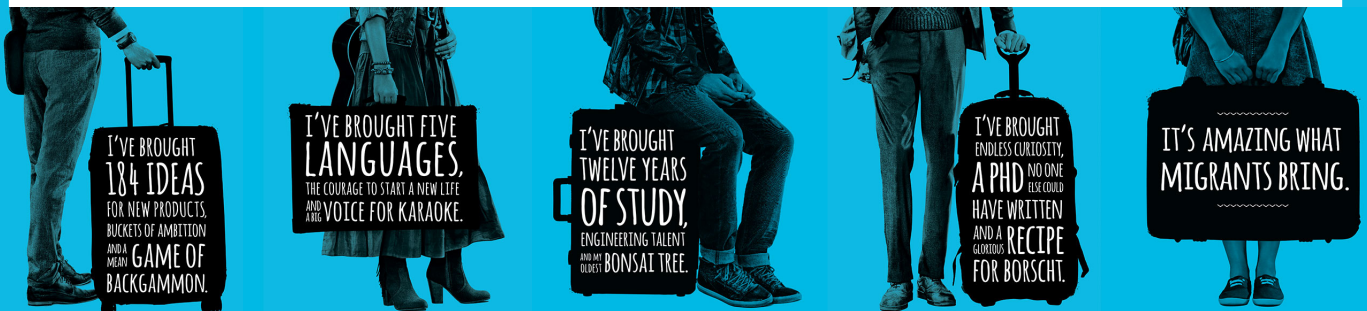


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FRAMING THE ISSUE

Immigrants contribute to the American economy as workers, consumers, business owners, entrepreneurs and investors. They account for 17% of the country's workforce, 30% of high-tech workers and 32% of scientists and engineers.¹ No one doubts that Sergey Brin or Jerry Yang, the founders of Google and Yahoo, are net contributors to the economy, although questions are sometimes raised when the discussion turns to the contribution of lower skilled immigrant labor. Here, researchers who investigate lower skilled immigrant labor disagree, some finding positive and others negative net contributions. Missing in all these discussions, however, is a fundamental fact regarding immigrant labor: they come from somewhere else.

Most research on the contributions of immigrant workers focuses on production – on what immigrant labor produces. Focusing equally on reproduction would take into consideration the costs associated with raising this labor force while still unproductive. It also entails including the costs associated with its post-productive stages (i.e., retirement). Adopting this framework enhances our understanding of the actual economic costs and benefits of immigrant labor.

The late French anthropologist Claude Meillassoux, in his seminal 1981 work "Maidens, Meal, and Money,"² emphasizes the importance of approaching issues of migration from the perspective of both the production and reproduction of labor. Simply stated, instead of merely considering the contributions that immigrant laborers make to an economy once they arrive, one must account for what their home economies have contributed to them before they emigrate. From this point of view, immigrant labor represents a transfer of resources from home to host economies.

In this paper we take a look at this process of production and reproduction of immigrant labor using educational costs as an example. We used the PI+ model developed by Regional Economic Models, Inc. (REMI) to estimate the economic impact of immigrant workers to the American economy. The point of this paper is not to offer a complete accounting of the costs and benefits of immigrant labor. Rather, it is designed to present an analytical framework that accounts for the contributions of the immigrant workforce in a holistic manner, which extends beyond the direct

¹ National Science Board, National Science Foundation, Science & Engineering Indicators, 2014 <http://www.setcvd.org/sites/default/files/setcvd/pdf/SEIND14.pdf> Note: This version of the report reflects a correction to the immigrant workforce share.

² Meillassoux, Claude; *Maidens, Meal, and Money*; Cambridge University Press, 1981

effect of immigrant labor. The United States is used as an example, although it is not a special case.

The expenses associated with the “re-production” of labor are frequently ignored in studies measuring costs and benefits of immigrant labor. In the analysis that follows, we separate the costs and benefits of immigrant labor in two moments of the production cycle: “production” itself and the “re-production” of labor. The first accounts for the costs and benefits of labor at the production stage, and the second accounts for the reproduction of labor, which includes raising and retiring the labor force. To account for the costs of raising the labor force, we include only costs associated with education. We use education as an example to illustrate our point. Obviously, other costs are associated with raising the labor force including food, shelter, healthcare, etc.

THE SIZE AND EDUCATIONAL CHARACTERISTICS OF THE U.S. IMMIGRANT LABOR FORCE

In order to size the immigrant labor force and their productivity, we used data from the Department of Homeland Security and the U.S. Census Bureau. According to the Department of Homeland Security, Office of Immigration Statistics, 34.6% of all immigrants entering the country between 2000 and 2009 were unauthorized.³ The U.S. Census Bureau reported that a total of 7.9 million foreign-born individuals 25 years and older arrived in or after 2000.⁴ This last figure provided by the U.S. Census accounts for both legal and unauthorized immigrants. If we use the proportion of unauthorized immigrants estimated by the Department of Homeland Security (34.6%), approximately 2.7 million immigrants 25 years old and over are unauthorized and living in the United States.

Among the 7.9 million immigrants who arrived in the U.S. between 2000 and March 2009, age 25 and older, 31% had less than a high school degree, 35% had a high school diploma or some college, 21% had a bachelor’s degree, and 13% had a graduate or professional degree.⁵

³ U.S. Department of Homeland security, “Estimates of the Unauthorized immigrant Population Residing in the United States: January 2009,” http://www.dhs.gov/xlibrary/assets/statistics/publications/ois_ill_pe_2009.pdf

⁴ U.S. Census Bureau, Statistical Abstract of the United States: 2011 “Table 40. Native and Foreign-born Populations by Selected Characteristics: 2009,” <http://www.census.gov/compendia/statab/2011/tables/11s0040.pdf>

⁵ Ibid.

TABLE 1 – EDUCATIONAL ATTAINMENT

Persons 25 Years Old and Over (in thousands)	Foreign-born (arrived in or after 2000)	Percentage
Less than High School	2,503,000	31%
High School Graduate or Some College	2,43,000	35%
Bachelor's Degree	1,639,000	21%
Graduate/Professional Degree	1,025,000	13%
TOTAL	7,910,000	100%

Source: U.S. Census Bureau, *Statistical Abstract of the United States: 2011 – Table 40.*

If we assume that a foreign-born person with lower education attainment (less than high school and high school) is more likely to be an unauthorized immigrant, and we further assume that unauthorized immigrants are distributed between these two categories in the same proportion as above, we find the educational distribution described on Table 2.

TABLE 2 – EDUCATIONAL ATTAINMENT (ADJUSTED FOR UNAUTHORIZED IMMIGRANTS)

Persons 25 Years Old and Over (in thousands)	Foreign-born (arrived in or after 2000)	Percentage
Less than High School (unauthorized)	1,305,826	10.95%
Less than High School	1,197,174	20.69%
High School Graduate/Some College (unauthorized)	1,431,034	12.00%
High School Graduate/Some College	1,311,966	22.68%
Bachelor's Degree	1,639,000	20.72%
Graduate/Professional Degree	1,025,000	12.96%
TOTAL	7,910,000	100%

Source: U.S. Census Bureau, *Statistical Abstract of the United States: 2011 – Table 40.*

Utilizing median earnings reported by The National Center for Education Statistics (NCES) for each educational level adjusted for inflation,⁶ and assuming unauthorized immigrants receive a fraction of the earnings of authorized immigrants (72% of the median income of authorized immigrants, according to the Pew Hispanic Center), we calculated median earnings for both authorized and unauthorized immigrants (Table 3).⁷

⁶ NCES reports median earnings in 2008 dollars. In order to input these values into the REMI model, they were inflated to 2010 dollars using the PCE-Price Index.

⁷ According to the Pew Hispanic Center April 2009 report, "A Portrait of Unauthorized Immigrants in the U.S.," the 2007 median household income of unauthorized immigrants was \$36,000 while the median household income for U.S.-born residents was \$50,000. That is, unauthorized immigrants earn the equivalent of 72% of a native born or legal immigrant's income.

TABLE 3 - MEDIAN EARNINGS (ADJUSTED FOR UNAUTHORIZED IMMIGRANTS)

	Median Earnings
Less than High School (unauthorized)	\$18,375
Less than High School	\$25,521
High School Graduate/Some College (unauthorized)	\$26,927
High School Graduate/Some College	\$37,398
Bachelor's Degree	\$58,531
Professional Degree	\$77,411

Source: *The National Center for Education Statistics (NCES), Digest of Education Statistics.*

IMMIGRANT CONTRIBUTION AS WORKERS

In addition to helping the U.S. to keep its competitive economic edge, this influx of human capital translates into output for the economy proportional to their productivity. Here we assumed immigrant workers would produce output worth 2.3 their wages.⁸ Table 4 shows the output that immigrants contributed to the economy between 2000 and March 2009, based on this assumption. Their total contribution during this period is equal to \$718 billion, or \$71.8 billion in direct output per year.⁹

TABLE 4 – IMMIGRANT CONTRIBUTION TO OUTPUT

	Output in U.S. Dollars	Percentage
Less than High School (unauthorized)	\$54,303,547,543	8%
Less than High School	\$69,146,152,121	10%
High School Graduate/Some College (unauthorized)	\$87,207,376,984	12%
High School Graduate/Some College	\$111,043,473,728	15%
Bachelor's Degree	\$217,113,310,302	30%
Graduate/Professional Degree	\$179,574,549,752	25%
TOTAL	\$718,388,410,432	100%

Source: *U.S. Bureau of Economic Analysis, 2011; National Center for Education Statistics (NCES), 2008.*

⁸ According to the U.S. Bureau of Economic Analysis, in 2011, the seasonally adjusted Gross Domestic Product (GDP) was \$15,075.7 billion while wages and salaries totaled \$6,661.3 billion, that is, a GDP to wages and salaries ratio of 2.26.

⁹ This can be understood as a direct output loss as a result of not permitting these immigrants to enter the country.

IMMIGRANT CONTRIBUTION AS CONSUMERS

Beyond output, immigrant workers (legal or not) also contribute to the economy as consumers and taxpayers. According to the Bureau of Labor Statistics (BLS), in 2010, average annual consumer expenditure was \$48,109, while average annual income was \$62,481 – a ratio of expenditure to income of 0.77. In order to estimate immigrant expenditures, we applied this ratio to immigrants’ average median earnings for each educational level, which results in a consumer expenditure of \$24.4 billion¹⁰ among immigrants entering the country since 2000, as shown in Table 5.

TABLE 5 – IMMIGRANT CONTRIBUTION TO CONSUMER EXPENDITURES

Earnings (adjusted for unauthorized immigrants)	Median Earnings	Expenditure per Person	Total Expenditure
Less than High School (unauthorized)	\$18,374.90	\$14,148.30	\$18,475,191,667.80
Less than High School	\$25,520.70	\$19,650.40	\$23,524,934,398.30
High School Graduate/Some College (unauthorized)	\$26,926.80	\$20,733.10	\$29,669,734,313.80
High School Graduate/Some College	\$37,398.40	\$28,795.90	\$37,779,289,746.60
Bachelor’s Degree	\$58,531.50	\$45,068.00	\$73,866,417,041.10
Professional Degree	\$77,411.10	\$59,604.80	\$61,094,958,035.80
TOTAL			\$244,410,525,203.20

Source: Bureau of Labor Statistics (BLS), Table “Consumer Expenditure in 2010.”

IMMIGRANT CONTRIBUTION AS TAXPAYERS

Assuming that half of the unauthorized immigrants pay federal and state income tax, we can calculate their contributions utilizing 2010 federal income brackets and tax rates (see table 6). Using data on state average tax income provided by the TaxFoundation.org, and the proportion of immigrants by state provide by the U.S. Census Bureau, we also calculated unauthorized immigrants’ annual contribution

¹⁰ According to the Table “Consumer Expenditure in 2010” of the Bureau of Labor Statistics (BLS), the average annual consumer expenditure was \$48,109, while average annual income was \$62,481 – a ratio of expenditure to income of 0.77. Applying this ratio to immigrants’ average median earnings in each educational level, we estimated a yearly consumer expenditure of \$24.4 billion among immigrants entering the country since 2000.

TABLE 6 – IMMIGRANT FEDERAL INCOME TAX LIABILITY

Income Tax (adjusted for unauthorized immigrants)	Median Earnings	Tax per Person	Total Federal Income Tax
Some High School, no completion (unauthorized)	\$18,374.90	\$2,338	\$1,526,510,594
Some High School, no completion	\$25,520.70	\$3,409	\$4,081,166,166
Some College (unauthorized)	\$26,926.80	\$3,620	\$2,590,171,540
Some College	\$37,398.40	\$5,531	\$7,256,483,946
Bachelor’s Degree	\$58,531.50	\$10,814	\$17,724,146,000
Professional Degree	\$77,411.10	\$15,534	\$15,922,350,000
TOTAL			\$49,100,828,246

Source: Internal Revenue service, 2010 Tax Table.

According to the Bureau of Labor Statistics (BLS),¹¹ the annual average consumer expenditure without housing is \$31,552, while the average annual income is \$62,481. Thus, the ratio of expenditure without housing costs to income is 0.505. We also calculated total sales taxes by utilizing average sales tax rates (7.559%) provided by TaxFoundation.org, adjusted by the proportion of immigrants in each state. Total sales tax is equal to \$12.1 billion. Finally, we calculated property taxes by multiplying the number of immigrants who own a house (53.96% of all immigrants)¹² by the average property tax rate of \$1,538.42 provided by the TaxFoundation.org. Total property taxes equaled \$6.6 billion. Altogether, immigrants contribute \$73.2 billion in tax revenues over the period or \$7.3 billion annually.¹³

COSTS RELATED TO UNCOMPENSATED CARE

Of course, this does not imply that immigrant workers do not impose costs on society. Costs associated with “maintenance” of the labor force during their productive years are private costs and are therefore not included in the calculation. The only costs incurred by society are those in the form of uncompensated care. Costs related to retirement (that is, costs incurred once workers exit the labor force) are not born by the hosting country since they represent workers’ own contributions and, in the

¹¹ Bureau of Labor Statistics (BLS), “Table Consumer Expenditure in 2010.”

¹² Public Use Microdata Sample (PUMS), 2010.

¹³ Taxes were computed based on sales taxes, property taxes, and income taxes according to the Federal and State Income Taxes. www.TaxFoundation.org.

case of undocumented immigrants, those who contribute to Social Security and Medicare cannot benefit from it.¹⁴ We include these contributions as a “benefit” to the host society. Finally, it is worth noting that while the government is funding the education of second-generation immigrant children through high school, the U.S. will benefit when those children enter the workforce. In this case, we assume, however, that these children go back to their home country so that their costs are included in the calculations. That is, we assume that all the second generation are not born in the United States and will leave the country. This is clearly a very conservative assumption on the cost side and it is assumed only for the sake of simplicity.

Apart from defense, the national debt, and the justice system, most government spending is concentrated in just four programs: Social Security, Medicare, Medicaid, and Education.¹⁵ Legal immigrant workers contribute the same as native workers throughout their time in the workforce to Social Security. Therefore, the benefits they receive in Social Security and Medicare should not be a strain on society. As for the unauthorized immigrants, if they had not achieved legal status by retirement, they would not be eligible to collect Social Security or Medicare benefits even if they had paid into these programs through payroll taxes. In other words, Social Security and Medicare costs related to the immigrant labor force are cost neutral to the host country’s society, and Social Security and Medicare contributions by undocumented immigrants are net contributions which, in the case in point, represents \$0.9 billion.

As noted above, the costs related to uncompensated care are the only real costs incurred by the host country and are estimated at \$12.6 billion. According to a study by Hadley et al. (2008) for the Kaiser Commission on Medicaid and the Uninsured, the uncompensated care costs are estimated at \$57.4 billion with non-citizens accounting for 22% of the uninsured population.

¹⁴ Payroll tax information is derived from the Department of Health and Human Services and Social Security Administration. Social Security tax rate is 12.4% and Medicare tax rate is 2.9%.

¹⁵ According to the Congressional Budget Office, Programs such as Temporary Assistance for Needy Families (TANF), Food Stamps, Supplement Security Income (SSI), and unemployment benefits represent less than 8% of total expenditure on individual benefits. See www.cbo.gov, Budget and Economic Outlook: Fiscal Years 2011 to 2021. Historical Budget Data, Table E-9.

COSTS RELATED TO EDUCATION OF SECOND-GENERATION IMMIGRANTS

Education costs for second-generation immigrants, under the assumption mentioned before, represent \$41.5 billion. The cost above is based on the Pew Hispanic Center estimate of the number of students enrolled in grades K-12 (48.8 million), and the share of students with at least one undocumented parent (6.8%), in combination with National Center for Education Statistics data on the average elementary and secondary education fee per student (\$12,643).¹⁶

COSTS AND BENEFITS – A BALANCE

When all elements above are considered, the total annual contribution of immigrant workers to the American economy is equal to \$80 billion. That is, \$71.8 billion in total output plus \$7.3 billion in taxes and \$0.9 billion in contributions to Social Security and Medicare made by undocumented immigrants. The annual costs imposed on society of \$54.3 billion includes uncompensated care (\$12.8 billion) and education costs for the second generation (\$41.5 billion). The indirect contribution out of immigrants expenditures (\$24.4 billion), was calculated using the REMI PI+ model and corresponds to \$28.9 billion in output, \$17.2 billion in wages and salaries and \$4.3 billion in taxes. The net total direct and indirect contributions of immigrant labor represent \$76.1 billion - \$100.7 billion in output, \$17.2 billion in indirect wages and salaries, \$11.6 billion in federal and state taxes and, \$54.3 billion in costs. Based on their consumption expenditure (\$24.4 billion), immigrants also created 403,172 indirect and induced jobs.

Now, let's turn to the main focus of this paper, the fact that immigrant labor comes from somewhere else. Home country contributions to raising these workers are most easily seen in education. The majority of immigrants arrive in the U.S. as adults, which implies that the costs to "produce" the immigrant labor force are born outside the economy of the hosting country. Education costs are borne by the

¹⁶ The Pew Hispanic Center estimated that 48,238,962 students enrolled in K-12 grades with 6.8% of them having at least one undocumented parent (2208). On the other hand, the National Center for Education Statistics suggests that the average elementary and secondary education fee is \$12,643 per student (school year 2008 – 2009). Therefore, the second-generation educational costs are \$41,472,193,366 (2010 dollars). National Center for Education Statistics <http://pewhispanic.org/files/reports/107.pdf> and <http://nces.ed.gov/programs/coe/tables/table-sft-1.asp>.

workers themselves or their families and in cases where education is a public good, by their home country's taxpayers.

According to the National Center for Education Statistics, the cost of education for each educational level varies between public and private (non-profit and for-profit) educational institutions, with average costs and duration of schooling as illustrated on Table 7.¹⁷

TABLE 7 – EDUCATIONAL COST AND DURATION OF SCHOOLING BY EDUCATIONAL LEVELS

Education Level (by degree)	Educational Cost (year)	Years in School	Total Education Cost
Elementary and Secondary Education	\$12,643	7	\$88,501
College (average public and private)	\$28,315	4	\$113,260
Master's Degree	\$34,600	2	\$69,200
Doctoral Degree	\$39,700	5	\$198,500

Source: National Center for Education Statistics (NCES), *Digest of Education Statistics*.

Table 8 shows total costs associated with education, assuming that only 30% of the 2,743,000 immigrants with an educational level of “high school graduate or some college” have “some college.”¹⁸ According to the National Center for Education Statistics, there is 4.3 Master's degrees per PhD.¹⁹ By multiplying average costs, immigrant population, and years in each educational level, we arrived at total educational costs equivalent to a “subsidy” of \$1.5 trillion.

TABLE 8 – TOTAL EDUCATIONAL COSTS

Educational	Foreign-born (arrived in or after 2000)	Educational Costs for Each Educational Level (in USD)	Total Educational Costs (in USD)
Less than High School	2,503,000	\$88,501	\$221,518,003,000
High School Graduate or Some College	2,743,000	\$181,348	\$497,437,728,580
Bachelor's Degree	1,639,000	\$277,619	\$455,018,196,600
Graduate/Professional Degree	1,025,000	\$370,067	\$379,319,334,347
TOTAL	7,910,000		\$1,553,293,262,527

Source: U.S. Census Bureau, *Statistical Abstract of the United States: 2011*, National Center for Education Statistics (NCES), *Digest of Education Statistics*.

¹⁷ Data from the National Center for Education Statistics presents expenditures for each educational level. See <http://nces.ed.gov/programs/coe/table-sft-1.asp>, <http://nces.ed.gov/programs/coe/tables/table-pxp-1.asp>, <http://nces.ed.gov/programs/coe/tables/table-gsn-1.asp>.

¹⁸ Data from the National Center for Education Statistics presents expenditures for each educational level. See <http://nces.ed.gov/programs/coe/table-sft-1.asp>, <http://nces.ed.gov/programs/coe/tables/table-pxp-1.asp>, <http://nces.ed.gov/programs/coe/tables/table-gsn-1.asp>.

¹⁹ See <http://nces.ed.gov/programs/coe/tables/table-dcd-1.asp>.

CONCLUSION

To conclude, if our discussion about the benefits and costs of immigrant labor would take into account that immigrant labor is not just labor, but labor that comes from somewhere else, we would have to account not only for their net direct and indirect contribution of \$75.2 billion, but also for the massive subsidy of \$1.5 trillion embodied in the immigrant labor force and incurred by sending economies – the cost of producing this labor force before they emigrate.²⁰

²⁰ If we use the estimates of the number of recent immigrants (less than ten years) contained in the report entitled “Massachusetts Immigrants by the Numbers - Demographic Characteristics and Economic Footprint” commissioned by the Immigrant Learning Center, there are 218,418 recent immigrants over age 25 living in Massachusetts. Of that population, 56,352 (25.8%) have high school degrees, 7,645 (3.5%) have Associate degrees, 42,810 (19.6%) have BA degrees, 34,728 (15.9%) have Master’s or professional degrees and 10,702 (4.9%) have PhDs. Taking the average public cost in Massachusetts for each of these educational degrees, these immigrants “bring” with them \$31 billion in educational investment. In “Immigrant labor and the American economy: Friends or Foes?” Alvaro Lima, Director of Research, Boston Redevelopment Authority and Nicholas S. Petschek, a dual Masters candidate at UEP and the Fletcher School of Tufts University, Unpublished.

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