Immigration Task Force

ISSUE BRIEF:

Immigration and Wages: Decoding the Economics

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Introduction

In October 2013, the Bipartisan Policy Center (BPC) examined the macroeconomic impacts of immigration reform in a major report, "Immigration Reform: Implications for Growth, Budgets and Housing."[1] The study looked briefly at immigration's impact on wages, finding a small negative wage impact in the first ten years but a larger wage gain in the next ten years after enforcement (relative to the no-reform baseline). As a follow-up to that study, we took a closer look at immigration's wage effects and why different studies reach different conclusions. This issue brief decodes the economics of immigration and wages, drawing broad results from literature reviews and highlighting studies that illustrate key concepts.

Most economists find that immigration has a small impact on the wages of existing U.S. workers.[2] This is because immigrants who enter the United States are not just workers competing for a "slice of the same pie." Immigrants are also consumers who buy goods and services, which expands the economy and enables businesses to create more jobs. Studies that find more negative wage effects often do so under "all else equal" scenarios that assume additional workers enter the labor market, but presume that immigration does not increase the demand for goods and services. In the economy, all else is not equal, and understanding immigration's wage effects requires looking at both labor supply *and* consumer demand. Studies that make less extreme assumptions find smaller effects. These effects are particularly small in comparison with immigration's positive impacts on economic growth and the federal budget.

Whether immigration's small wage effects are positive or negative, and for which workers, remains an area of debate. Over the past decade, the academic debate has focused on immigration's relative impact on different types of workers. These studies agree that "the overall net impact on natives is small," but disagree about whether immigrants compete directly with native workers in the job market.[3] Different assumptions about the extent to which immigrants "complement" or "substitute for" U.S.-born workers lead to somewhat

different conclusions about immigration's relative wage effects. First, immigration may have modest positive wage effects on skill groups with few immigrants, and modest negative effects on skill groups with many immigrants. Second, if immigrants and U.S.-born workers tend not to be close substitutes in the labor market (i.e., if immigrants "complement" U.S.-born workers), immigration may lead to relative wage increases for most U.S.-born workers and relative wage reductions for previous immigrants.

What do economic studies say?

Wide agreement exists in economic studies that immigration's overall impact on existing workers' wages—particularly workers who were born in the United States—is small and concentrated in the short-term.[4] The broadest available review of recent research summarized 1,572 estimates from 45 studies between 1982 and 2007, including 923 estimates of effects on the United States. The analysis found that 21.6 percent of U.S. estimates showed a positive effect on U.S.-born workers' labor market outcomes, 54.6 percent showed no significant impact, and 23.8 percent showed a negative impact.[5] Possibly because the U.S. economy tends to be more flexible in adjusting to new labor than that of most other countries, studies of European and other countries tended to find fewer positive effects than studies of the United States.

In general, immigration's wage effects can be broken into two categories. First, the *overall* impact on *all* workers' wages and employment is determined by the economy's response to new workers and consumers. Second, the *relative* impact on *different types of workers* is determined by how workers compete in the labor market. Economists generally agree on the first factor (that the economy is dynamic and wage impacts are small), but disagree on the second factor.

Overall Wages in a Dynamic Economy. To understand why most studies show that immigration has small overall wage impacts, it is important to consider that immigrants simultaneously increase both the supply of labor *and* the demand for goods and services. When immigrants enter a country, state, or city, they increase the potential supply of labor. At the same time, they immediately begin consuming goods and services, expanding the market for businesses to sell their products.[6] This causes businesses to look for more labor to meet the increased demand. In this way, new workers and consumers shift the economy's supply and demand curves outward, increasing growth and the number of jobs available.[7] For this reason, immigrants do not compete for a finite number of jobs. Instead, immigration expands the economy, with new consumers increasing the overall number of jobs available at the same time as new workers enter the labor market.

This broad economic impact has been confirmed by many recent macroeconomic studies. Evaluations by the Congressional Budget Office (CBO), Social Security Administration (SSA), BPC, and others show that an increase in immigration would boost economic growth and that decreasing it would do the opposite.[8] A broad consensus exists that immigration causes economic growth, even among organizations that support restricting immigration.[9]

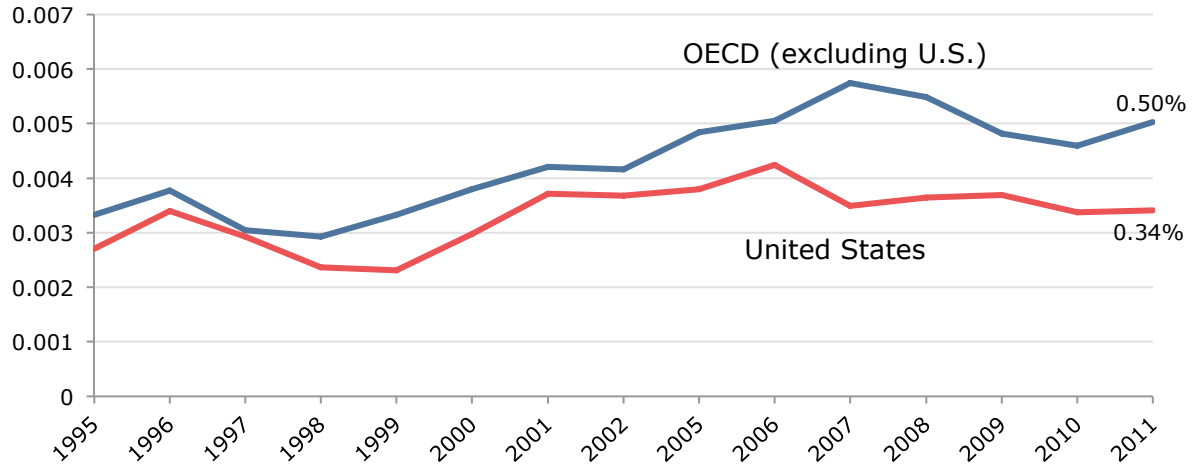
Immigration's impact on overall wages depends on how the economy "adjusts" to new workers and consumers. Widely accepted models of economic growth describe a production function with three inputs: labor (workers), capital (machines, factories, vehicles,

technology, etc.), and total factor productivity (output per unit of labor and capital, which is thought to be closely related to technology).[10] When immigrants enter the economy, the presence of additional workers and consumers triggers two key effects. First, immigrant consumers increase the total amount of goods and services businesses can sell, creating incentives for businesses to hire more labor and invest in more capital. Second, new workers increase the amount of labor available in the economy. If businesses quickly adjust—expanding production to meet new demand by hiring new workers and making new capital investments—the economy will easily absorb the new workers, and impacts on existing workers' wages and jobs will be minimized. On the other hand, if businesses adjust slowly, the "shock" of new labor could reduce some workers' wages and job prospects in the short term until businesses boost production and make capital investments.

It can be convenient to think of immigration as a "shock," or a sudden influx of workers and consumers. However, the aggregate economy is constantly adjusting to increases in the number of workers and consumers. If businesses anticipate growth in the worker and consumer population, they may "adjust" their hiring and capital investments relatively seamlessly. The finding that immigration has small effects on workers' wages and employment suggests that this may be the case. Over the past 20 years, the rate of U.S. population growth followed a fairly steady downward trend, with immigration making up about one-third of total population growth.[11] In fact, compared with the size of its population, immigration to the United States has recently been lower than the average OECD country (Figure 1).

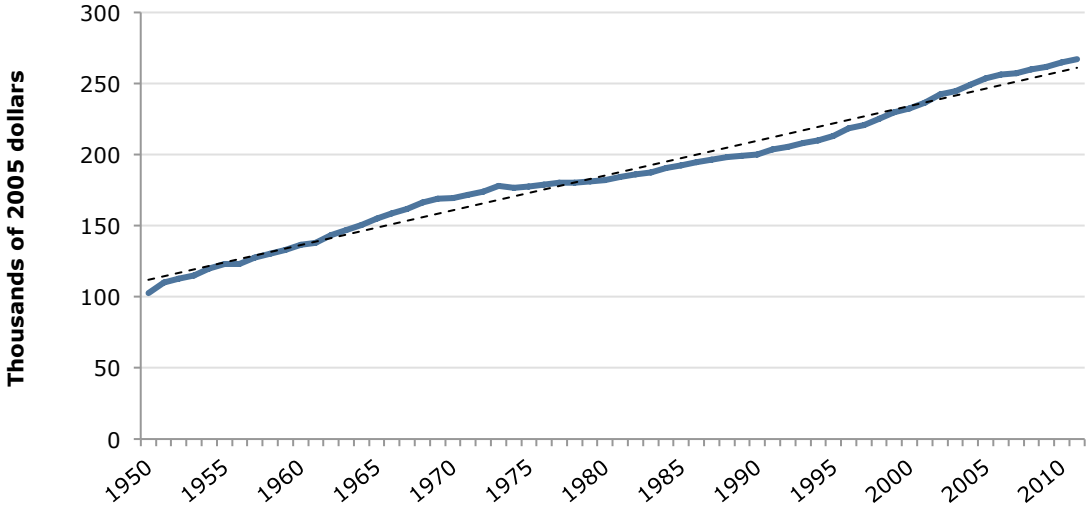
Broader labor market data for the United States support the idea of smooth adjustment to increases in the worker and consumer population in the U.S. economy. Over time, the amount of capital per labor force participant has increased steadily, clustering around the long-term trend (Figure 2).[12] This suggests that over time, businesses have made steady capital investments in response to predictable additions of new workers and consumers. Ruist and Bigsten (2010) argue that migration follows predictable patterns that businesses can plan for: "We do not see [capital adjustment] as short-term or long-term responses to a shock, but as a rather smooth and largely predictable process of adjustment to the labor re-allocation."[13] Considering other factors that impact the business cycle—from commodity price shocks to financial markets to international politics—steady population growth may be among the easiest growth determinants for businesses to anticipate.

Figure 1. Immigration as a percent of population, United States versus other OECD countries.



Source: Calculated from OECD statistics.[14]

Figure 2. Capital stock per labor force participant, 1950–2011.



Source: Calculated from Federal Reserve Economic Data and Bureau of Labor Statistics.[15]

If the economy adjusts relatively smoothly to increases in the number of workers and consumers, why do some studies find negative impacts? The most widely cited studies that find a negative impact look solely at immigration's impact on the labor market, holding consumer demand static. The most prominent example may be an influential paper by George Borjas (2003). Borjas estimated that immigration reduced the average U.S.-born worker's wages by 3.2 percent between 1980 and 2000. This estimate was based on a one-sided look at immigration's wage effects: it increased the labor supply, but made the "all else equal" assumption that consumer demand would remain static. This approach always finds negative effects because it includes the main way immigrants could reduce wages, but excludes the main way immigrants could increase them.[16] Borjas cautioned that his study ignored many important economic dynamics, writing that:

> I suspect that we can learn a great deal more about the labor market impact of immigration by documenting the many adjustments that take place, by workers and firms, both inside and outside the labor market … For instance, my analysis ignored the long-run capital adjustments induced by immigration, the role played by capital-skill complementarities, and the possibility that high-skill immigration (e.g., scientists and high-tech workers) is an important engine for endogenous technological change.[17]

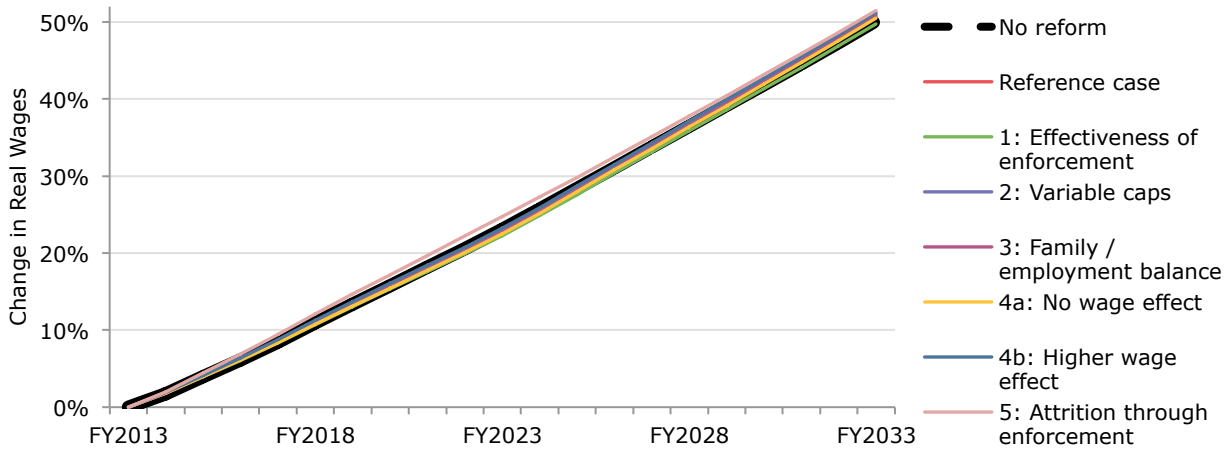
Subsequent studies based on the methodology Borjas introduced have made estimates using one or both of two extremes: (1) the original "all else equal" assumption and (2) assuming that the economy adjusts perfectly (instantly) to new workers and consumers. By design, the first approach always finds negative overall effects, and the second approach always finds no overall effect.[*] It can be helpful to think of the first scenario as the extreme end of the possible short-run effect (before any adjustment takes place) and the second scenario as the long-run effect (after all adjustments take place). However, too strictly applying a "short-run, long-run" framework to immigration would ignore the fact that immigrants increase the supply of labor and the demand for goods and services *at the same time*. If businesses adjust efficiently, the extreme end of the "all else equal" scenario may never occur at all. This may be why studies that do not require an explicit assumption about capital's adjustment to labor still find small wage effects due to immigration.[18]

Models with more moderate assumptions about how the economy adjusts, such as the CBO and BPC studies, better illustrate the economy's response to new immigrant workers and consumers. The CBO and BPC also estimated wage effects over time, shedding light on how the economy adjusts to immigration.[19] Both CBO and BPC modeled immigration reform scenarios based on the Senate's June 2013 immigration bill, each estimating that reform would increase the size of the labor force by about 5 percent over FY2014–2033. After the first ten years, the studies found that real average wages would be 0.1 percent (CBO) and 0.2 percent (BPC) lower than the baseline (i.e., slightly slower growth than what is projected to occur without immigration reform). By year 20, both studies estimated that real average wages would be 0.5 percent higher than the baseline (i.e., slightly faster growth).

In the CBO and BPC studies, the small size of the changes is more significant than their positive or negative direction. Among the seven total immigration reform scenarios BPC tested, none caused wages to deviate substantially from the economy's long-term path (Figure 3). The overall effects cited above suggest that for an average worker making about $46,000 per year, real wages would grow about $5 to $9 per year slower over the first ten years, and grow about $30 faster per year in years 11-20.[20] By comparison, the studies estimate deficit reduction of about $80 to $110 per worker per year in the first ten years and more than five times that in years 11-20.[21] In short, because the economy is dynamic, immigration appears to have a small impact on overall wages, especially compared with its effects on the overall economy.

[*] Here, the distinction between overall and relative effects is important. As described below, studies that make either assumption about economic adjustment can still illustrate the relative effects on different types of workers.

Figure 3. Real wage forecasts under immigration reform scenarios.



Source: Bipartisan Policy Center.[22]

Relative Wages and Labor Market Adjustment. Regardless of the impact on overall wages in the economy, the *relative impact* on *different types of workers* depends on how workers with different skills and characteristics compete in the labor market. Economists have long noted that in order to gain a better understanding of these effects, it is essential to examine "the many adjustments that take place, by workers and firms, both inside and outside the labor market."[23] Two recent strands of research examine these effects. First, since 2003, a series of studies has examined how different types of workers compete with one another. Second, since 2009, economists have gained a better understanding of the types of labor market adjustments that workers make in response to the entrance of new workers.

The first group of studies has been cited prominently in public debates over immigration policy. These researchers agree that "the overall net impact on natives is small," but disagree about how immigration impacts different groups of workers.[24] The studies are based on the principle that workers with similar skills and experience are close "substitutes" for one another and are therefore likely to compete for the same jobs and lower one another's wages. Under this theory, when a lot of competition exists for a job, workers may be willing to accept lower wages, and employers may know that they can offer lower wages and still fill the job. Workers who fill very different roles in the labor market and cannot easily substitute for one another are said to "complement" each other. In the immigration context, two types of complement/substitute relationships are especially important: (1) between immigrants and U.S.-born workers, and (2) between workers of different skill levels.[25]

Economists disagree about these complement/substitute relationships, which has led to disagreement about how immigration affects different types of workers. Table 1 illustrates how this disagreement impacts study results in prominently-cited authors' recent work. When researchers treat immigrants and U.S.-born workers as imperfect substitutes—in other words, when researchers emphasize their different skills and characteristics—they find that immigration boosts the overall wages of U.S.-born workers and reduces the wages

of previous immigrants. Conversely, when researchers treat immigrants and U.S.-born workers as the same, they find identical effects on the wages of both types of workers.

With regard to substitution between skill groups, treating high school graduates as similar to workers who did not graduate high school results in small positive wage increases for U.S.-born workers in both groups. By contrast, treating these workers as two distinct classes increases the wages of U.S.-born high school graduates (where immigrants are less represented), but decreases the wages of U.S.-born workers who did not complete high school (where immigrants are more represented).

Table 1. Assumptions and results of key relative wage studies.

		Substitution between…		Impact on U.S.-born workers				
Study and time period	Economic adjustment	Immigrants & U.S.-born	HS grads & dropouts	Overall	Less than HS	HS grad	Some college	College or more^
Ottaviano & Peri (2012), 1990-2006	Perfect	Imperfect	Low	+0.6%	-1.5%	+1.3%	+1.8%	-0.2%
	Perfect	Imperfect	Close	+0.6%	+1.3%	+0.6%	+1.0%	+0.2%
Borjas (2013), 1990-2010	Perfect	Perfect	Low	0.0%	-3.1%	+0.4%	+0.9%	-0.4%
	None	Perfect	Low	-3.2%	-6.2%	-2.7%	-2.3%	-3.5%

^ For the Borjas results, the "college or more" category is a weighted average of the reported effect on college graduates and advanced degree earners. This adjustment was made for the sake of comparability.
Note: These are results of the authors' preferred assumptions. Each study also tested the other's preferred substitution assumptions and found results more similar to those of their counterpart.

The second important line of research concerns how existing workers in the labor market respond to the entrance of new workers. Since 2009, several studies of the United States and Europe have documented that in response to immigration, native-born workers tend to move to more complex jobs.[26] Studies using the complex U.S. Applied General Equilibrium (USAGE) model, originally developed for the U.S. International Trade Commission, illustrate how this effect plays out in the economy. In 2009, Dixon and Rimmer found that:

> Additional low-skilled immigration would not increase the unemployment rates of low-skilled U.S. workers. While our modeling suggests that there would be reductions in the number of jobs for U.S. workers in low-skilled occupations, this does not mean that unemployment rates for these U.S. workers would rise. With increases in low-skilled immigration, the U.S. economy would expand, creating more jobs in higher-skilled areas. Over time, some workers now in low-paying jobs would move up the occupational ladder, actually reducing the wage pressure on low-skilled U.S. workers who remain in low-skilled jobs.[27]

The USAGE model also illustrates that when less-educated immigrants are removed from the economy, the inverse of this effect may occur. For example, a 2012 USDA study found that removing unauthorized immigrants would cause the economy to shrink, in turn causing some U.S.-born workers to lose high-paying jobs.[28] As predicted by supporters of "attrition through enforcement" approaches, the loss of less-skilled labor would increase wages significantly in some lower-paying occupations (by 3.9 to 9.9 percent), inducing U.S.-born workers to fill some of those jobs. However, the resulting economic contraction and occupational downgrade by U.S.-born workers outweigh this effect. Overall, the study

found that removing unauthorized immigrants from the economy would *decrease* overall average real wages by 0.3 to 0.6 percent.

A few important takeaways emerge from these studies. First, the models show that if any groups see negative wage effects from immigration, it is likely to be the least-educated workers, and especially the least-educated immigrant workers. Reviews confirm that this is also the consensus of the broader literature.[29] Second, the results show that flexible, adaptive economies and labor markets are best-equipped to mitigate disproportionate negative impacts on any one group of workers. Studies and models suggest that in the United States and Europe, these labor market adjustments encourage native-born workers to upgrade their skills.[30]

The USAGE model's insights may be the most significant takeaway. The model and related research show that in a growing economy, existing workers have the opportunity to move up the ladder and take better jobs.[31] Importantly, the USAGE model also illustrates how these factors would play out in a shrinking economy. When less-skilled workers are removed from the economy, wages would indeed rise in less-skilled occupations, inducing U.S.-born workers to fill those jobs. However, this would occur in the context of an economic contraction (i.e., a shrinking economy, the hallmark of recessions). These models suggest that the dynamics of a shrinking economy could *reduce* overall average wages.

Conclusion

Reviews of the economic literature reveal a consensus that immigration has small effects on existing U.S. workers' wages. Although immigration's wage effects are small, economists do not agree about precisely how immigration impacts different classes of workers. Depending on how different types of workers compete in the labor market—most significantly, whether immigrants and U.S.-born workers tend to "complement" or "substitute" for one another—these small short-term effects may be positive or negative.

Despite the ambiguity surrounding relative wage effects, several key conclusions emerge from the literature. First, economists agree that immigration's overall wage effects are small. This is because immigrants do not just compete with existing workers for jobs—as consumers, they buy goods and services, enabling businesses to create jobs that expand the economy for everyone. Second, though economists have not agreed on how immigration impacts different types of workers, the workers most likely to experience negative effects appear to be previous immigrants and less-educated individuals. Third, newer research suggests that individuals who are adversely affected may mitigate those effects by upgrading their skills and moving to a better job. Finally, because the economy shrinks when workers and consumers are removed, it is possible that removing less-educated workers from the economy would cause overall wages to fall (even as wages in certain low-paying occupations rise).

In sum, research generally finds small wage effects from immigration, but has not conclusively determined which types of workers experience small positive or small negative effects. Compared with the clear positive implications for economic growth and the federal budget, it appears that immigration's small wage effects may not be its most significant impact on the economy.

Endnotes

[1] Bipartisan Policy Center (2013), "Immigration Reform: Implications for Growth, Budgets, and Housing," available at http://bipartisanpolicy.org/library/report/immigration-reform-implications-growth-budgets-and-housing.

[2] See, for example: Brian Duncan & Stephen J. Trejo (2011), "Low-Skilled Immigrants and the U.S. Labor Market," Institute for the Study of Labor, Discussion Paper No. 5964, available at http://ftp.iza.org/dp5964.pdf. Rachel M. Friedberg & Jennifer Hunt (1995), "The Impact of Immigrants on Host Country Wages, Employment and Growth," *Journal of Economic Perspectives* 9.2, available at http://ideas.repec.org/a/aea/jecper/v9y1995i2p23-44.html. Simonetta Longhi, Peter Nijkamp, & Jacques Poot (2011), "The Economic Impact of Immigration on the Labor Market of Host Countries - Meta-Analytic Evidence," Tinbergen Institute Discussion Paper No. 11-103/3, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1898577. Giovanni Peri (2014), "Do immigrant workers depress the wages of native workers?" Institute for the Study of Labor, available at http://wol.iza.org/articles/do-immigrant-workers-depress-the-wages-of-native-workers.pdf. James P. Smith & Barry Edmonston (1997), *The New Americans*, The National Academies Press, available at http://www.nap.edu/openbook.php?record_id=5779.

[3] See endnote 2 and the discussion in the next section. Quote: George Borjas (2013), "Immigration and the American Worker," Center for Immigration Studies, available at http://cis.org/immigration-and-the-american-worker-review-academic-literature.

[4] See endnote 2.

[5] Simonetta Longhi, Peter Nijkamp, & Jacques Poot (2008), "Meta-Analysis of Empirical Evidence on the Labour Market Impacts of Immigration," Institute for the Study of Labor, Discussion Paper No. 3418, available at http://ideas.repec.org/p/wai/pscdps/dp-67.html.

[6] See, for example: Ekrame Boubtane & Jean-Christophe Dumont (2013), "Immigration and economic growth in the OECD countries 1986-2006," Centre d'Economie de la Sorbanne, University of Paris, available at http://ideas.repec.org/p/mse/cesdoc/13013.html. Orn B. Bodvarsson, Joshua J. Lewer, & Hendrick F. Van den Berg (2007), "Measuring Immigration's Effects on Labor Demand: A Reexamination of the Mariel Boatlift." Institute for the Study of Labor Discussion Paper No. 2919, available at http://ideas.repec.org/p/iza/izadps/dp2919.html. Longhi, Nijkamp, & Poot (2011), op.cit.

[7] See, for example: Longhi, Nijkamp, & Poot (2008 and 2011), op.cit. Pia M. Orrenius & Madeline Zavodny (2012), "The Economics of U.S. Immigration Policy," *Journal of Policy Analysis and Management* 31.4, available at http://onlinelibrary.wiley.com/doi/10.1002/pam.21653/abstract. Also see endnotes 6, 8, and 9.

[8] Bipartisan Policy Center (2013), "Immigration Reform: Implications for Growth, Budgets, and Housing," op.cit. Congressional Budget Office (2013), "The Economic Impact of S.744," available at http://www.cbo.gov/sites/default/files/cbofiles/attachments/44346-Immigration.pdf.

[9] See for example: Roy Beck (1996), *The Case Against Immigration*, New York: W.W. Norton, page 29, available at https://www.numbersusa.com/PDFs/The%20Case%20Against%20Immigration%20--%20Roy%20Beck.pdf ("Adding workers usually does increase the nation's overall economic output, but not by enough to improve the circumstances of the average worker"). Borjas (2013), "Immigration and the American Worker," op.cit. ("immigration makes the U.S. economy (GDP) significantly larger, with almost all of this increase in GDP accruing to the immigrants themselves"). Steven Camarota (2013), "The Fiscal and Economic Impact of Immigration on the United States," Testimony before the Joint Economic Committee, U.S. Senate, May 8 2013, available at http://www.jec.senate.gov/public//index.cfm?a=Files.Serve&File_id=31c693c2-73cc-4e08-953f-b080292fc850 ("First, immigration makes the U.S. economy (GDP) larger"). Chris Chmielenski (2013), "Pres. Obama Spotlights Income Inequality While Pushing for More Foreign-Worker Competition," NumbersUSA, available at https://www.numbersusa.com/content/nusablog/cchmielenski/december-9-2013/pres-obama-spotlights-income-inequality-while-pushing-more-for ("acknowledges that immigration grows the economy, but also provides evidence that reform really only helps the immigrant community"). Eric Ruark (2013), "Out of the Shadows," Federation for American Immigration Reform, available at http://www.fairus.org/DocServer/research-pub/JobsReport_7-3-13.pdf ("Of course, immigration has helped grow the U.S. economy, however, that growth has almost exclusively benefitted immigrants").

[10] Robert M. Solow (1957), "Technical Change and the Aggregate Production Function," *The Review of Economics and Statistics* 39.3, available at http://faculty.georgetown.edu/mh5/class/econ489/Solow-Growth-Accounting.pdf.

[11] Calculated from U.S. Census Bureau and DHS Office of Immigration Statistics. See U.S. Census Bureau (n.d.), "Intercensal Estimates," available at http://www.census.gov/popest/data/intercensal/index.html, and Office of Immigration Statistics (2013), *Yearbook of Immigration Statistics 2012*, Table 1, available at http://www.dhs.gov/yearbook-immigration-statistics-2012-legal-permanent-residents.

[12] For more discussion in the immigration context, please see Gianmarco I.P. Ottaviano & Goivanni Peri (2012), "Rethinking the Effect of Immigration on Wages," *Journal of the European Economic Association* 10.1, available at http://onlinelibrary.wiley.com/doi/10.1111/j.1542-4774.2011.01052.x/abstract.

[13] Joakim Ruist & Arne Bigsten (2013), "Wage Effects of Labor Migration with International Capital Mobility," *The World Economy* 36.1, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2202630.

[14] Calculated from OECD International Migration Database, available at http://stats.oecd.org/Index.aspx?DataSetCode=MIG. Number of countries by year: 24 (1995), 23 (1996), 25 (1997), 30 (1998, 2000-2002), 29 (1999), 32 (2005-2006), 33 (2007-2009, 2011), 34 (2010).

[15] Federal Reserve Economic Data (FRED) (2014), "Capital Stock at Constant National Prices for the United States," accessed May 24, 2014, available at http://research.stlouisfed.org/fred2/. Bureau of Labor Statistics (BLS) (2014), "Labor Force Statistics from the Current Population Survey," Series LNS11000000, available at http://www.bls.gov/cps/.

[16] See preceding discussion. Also see Borjas (2013), "The analytics of the wage effect of immigration," *IZA Journal of Migration* 2.22, available at http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.168.879.

[17] Borjas (2003), "The Labor Demand Curve *Is* Downward Sloping: Reexamining the Impact of Immigration o the Labor Market," *Quarterly Journal of Economics* 118.4, available at http://qje.oxfordjournals.org/content/118/4/1335.abstract.

[18] Before Borjas (2003), the dominant method of assessing immigration's wage effects was the "area" approach, which attempt to isolate immigration's wage effects by exploiting differences between locations (or sometimes occupations and industries). These approaches require fewer assumptions about how the economy works; for this case, because "area" approaches look at what actually happened in the labor market, they do not require an explicit assumption about whether or how quickly the economy adjusts. However, these approaches also require researchers to control for more factors. Borjas (2003) proposed his national-level method in response to perceived weaknesses in "area" approaches. For more discussion of different approaches and their results, see: Francine D. Blau & Lawrence M. Kahn (2013), "Immigration and the Distribution of Incomes," CESifo Working Paper No. 4561, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2382520##; Longhi, Nijkamp, & Poot (2010), "Joint impacts of immigration on wages and employment: review and meta-analysis," *Journal of Geographical Systems* 12.4, available at http://link.springer.com/article/10.1007%2Fs10109-010-0111-y.

[19] Bipartisan Policy Center (2013) and Congressional Budget Office (2013), op.cit.

[20] Calculated using wage effect sizes from CBO and BPC studies, plus wage information from the Bureau of Labor Statistics (BLS). See BLS (2014), "May 2013 National Occupational Employment and Wage Estimates for the United States," accessed May 25, 2014, available at http://www.bls.gov/oes/current/oes_nat.htm#00-0000. For example, in the CBO study, real wages would be about 0.1 percent lower than the baseline after the first 10 years, or $46. This equals $4.60 per year.

[21] Calculated using wage effect sizes and fiscal impact from CBP and BPC studies, as well as estimated labor force sizes from unpublished BPC tables. BPC estimated that an average of 164.8 million people would be in the labor force in the first 10 years, and 181.7 million in the second years. CBO estimated similar labor force effects.

[22] Bipartisan Policy Center (2013), op.cit., unpublished tables.

[23] Borjas (2003), "The Labor Demand Curve *Is* Downward Sloping," op.cit.

[24] Borjas (2013), "Immigration and the American Worker," op.cit.

[25] George Borjas, Gordon Hanson, & Jeffrey Grogger (2012), "Comment: On Estimating Elasticities of Substitution," *Journal of the European Economic Association* 10.1, available at http://onlinelibrary.wiley.com/doi/10.1111/j.1542-4774.2011.01055.x/abstract. David Card (2012), "Comment: The Elusive Search for Negative Wage Impacts of Immigration," *Journal of the European Economic Association* 10.1, available at http://ideas.repec.org/a/bla/jeurec/v10y2012i1p211-215.html.

[26] Francesco D'Amuri & Giovanni Peri (2014), "Immigration, Jobs, and Employment Protection: Evidence from Europe Before and During the Great Recession," *Journal of the European Economic Association* 12.1, available at http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1542-4774/earlyview. Mette Foged & Giovanni Peri (2013), "Immigrants and Native Workers: New Analysis Using Longitudinal Employer-Employee Data," NBER Working Paper No. 19315, available at http://www.nber.org/papers/w19315. Giovanni Peri & Chad Sparber (2009), "Task specialization, immigration, and wages," *American Economic Journal: Applied Economics* 1(3), available at http://www.aeaweb.org/articles.php?doi=10.1257/app.1.3.135.

[27] Peter B. Dixon & Maureen T. Rimmer (2009). "Restriction or Legalization?: Measuring The Economic Benefits of Immigration Reform," Cato Trade Policy Analysis, available at http://www.cato.org/pubs/tpa/tpa-040.pdf.

[28] Steve Zahniser et al (2012), "The Potential Impact of Changes in Immigration Policy on U.S. Agriculture and the Market for Hired Farm Labor," United States Department of Agriculture Economic Research Service, available at http://www.ers.usda.gov/publications/err-economic-research-report/err135.aspx#.U4T7tPldWSo.

[29] See endnote 4.

[30] See endnotes 26-28.

[31] Ibid.