



# The Economic Effects of Granting Legal Status and Citizenship to Undocumented Immigrants

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The movement toward comprehensive immigration reform has accelerated significantly in recent months. A bipartisan “Gang of 8” in the Senate—a group of four Democratic senators and four Republican senators—released a framework for immigration reform on January 28, and the next day President Barack Obama gave a speech launching White House efforts to push for immigration reform. Both proposals contained strong language regarding the need to provide legal status for the 11 million undocumented immigrants living in the country, as well as a road map to full citizenship.<sup>1</sup>

Some lawmakers, however, do not want to extend legal status—let alone citizenship—to the unauthorized. Others have expressed interest in stopping just short of providing full citizenship for the 11 million undocumented immigrants, instead calling for a so-called middle-ground option—to leave undocumented immigrants in a permanent subcitizen status.<sup>2</sup> To be sure, the debate over immigration reform has important legal, moral, social, and political dimensions. Providing or denying legal status or citizenship to the undocumented has implications for getting immigrants in compliance with the law, affects whether or not immigrant families can stay in their country of choice, and determines whether they have the opportunity to become full and equal members of American society.

But legal status and citizenship are also about the economic health of the nation as a whole. As our study demonstrates, legal status and a road map to citizenship for the unauthorized will bring about significant economic gains in terms of growth, earnings, tax revenues, and jobs—all of which will not occur in the absence of immigration reform or with reform that creates a permanent sub-citizen class of residents. We also show that the timing of reform matters: The sooner we provide legal status and citizenship, the greater the economic benefits are for the nation.

The logic behind these economic gains is straightforward. As discussed below, legal status and citizenship enable undocumented immigrants to produce and earn significantly more than they do when they are on the economic sidelines. The resulting productivity

and wage gains ripple through the economy because immigrants are not just workers—they are also consumers and taxpayers. They will spend their increased earnings on the purchase of food, clothing, housing, cars, and computers. That spending, in turn, will stimulate demand in the economy for more products and services, which creates jobs and expands the economy.

This paper analyzes the 10-year economic impact of immigration reform under three scenarios. The first scenario assumes that legal status and citizenship are both accorded to the undocumented in 2013. The second scenario assumes that the unauthorized are provided legal status in 2013 and are able to earn citizenship five years thereafter. The third scenario assumes that the unauthorized are granted legal status starting in 2013 but that they are not provided a means to earn citizenship—at least within the 10-year timeframe of our analysis.

Under the first scenario—in which undocumented immigrants are granted legal status and citizenship in 2013—U.S. gross domestic product, or GDP, would grow by an additional \$1.4 trillion cumulatively over the 10 years between 2013 and 2022. What's more, Americans would earn an additional \$791 billion in personal income over the same time period—and the economy would create, on average, an additional 203,000 jobs per year.<sup>3</sup> Within five years of the reform, unauthorized immigrants would be earning 25.1 percent more than they currently do and \$659 billion more from 2013 to 2022. This means that they would also be contributing significantly more in federal, state, and local taxes. Over 10 years, that additional tax revenue would sum to \$184 billion—\$116 billion to the federal government and \$68 billion to state and local governments.

Under the second scenario—in which undocumented immigrants are granted legal status in 2013 and citizenship five years thereafter—the 10-year cumulative increase in U.S. GDP would be \$1.1 trillion, and the annual increases in the incomes of Americans would sum to \$603 billion. On average over the 10 years, this immigration reform would create 159,000 jobs per year. Given the delay in acquiring citizenship relative to the first scenario, it would take 10 years instead of five for the incomes of the unauthorized to increase 25.1 percent. Over the 10-year period, they would earn \$503 billion more and pay an additional \$144 billion in taxes—\$91 billion to the federal government and \$53 billion to state and local governments.

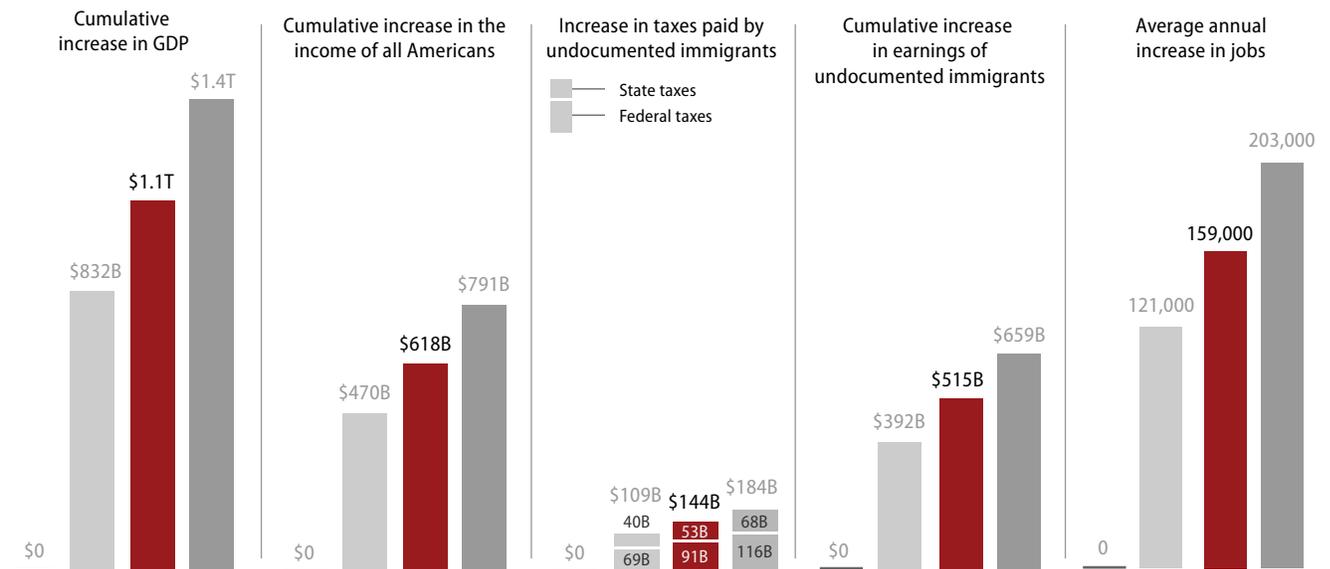
Finally, under the third scenario—in which undocumented immigrants are granted legal status starting in 2013 but are not eligible for citizenship within 10 years—the cumulative gain in U.S. GDP between 2013 and 2022 would still be a significant—but comparatively more modest—\$832 billion. The annual increases in the incomes of Americans would sum to \$470 billion over the 10-year period, and the economy would add an average of 121,000 more jobs per year. The income of the unauthorized would be 15.1 percent higher within five years. Because of their increased earnings, undocumented immigrants would pay an additional \$109 billion in taxes over the 10-year period—\$69 billion to the federal government and \$40 billion to state and local governments.

These immigration reform scenarios illustrate that unauthorized immigrants are currently earning far less than their potential, paying much less in taxes, and contributing significantly less to the U.S. economy than they potentially could. They also make clear that Americans stand to gain more from an immigration reform policy of legalization and citizenship than they do from one of legalization alone—or from no reform at all. Finally, the magnitude of potential economic gains depends significantly on how quickly reforms are implemented. The sooner that legal status and citizenship are granted to the unauthorized, the greater the gains will be for the U.S. economy.

## The nature and timing of immigration reform matters

- No reform: \$0 for all scenarios
- If undocumented immigrants acquire legal status in 2013 but no citizenship within 10 years
- If undocumented immigrants acquire legal status in 2013 and citizenship in five years
- If undocumented immigrants acquire legal status and citizenship in 2013

### Economic gains over 10 years:



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## Analyzing the economic effects of legal status and citizenship

Numerous studies and government data sets have shown that positive economic outcomes are highly correlated with legal status and citizenship. Large and detailed government datasets—such as the U.S. Census Bureau’s American Community Survey and Current Population Survey—have documented, for example, that U.S. citizens have average incomes that are 40 percent greater or more than the average incomes of non-citizen immigrants, both those here legally and the unauthorized.<sup>4</sup>

Within the immigrant community, economic outcomes also vary by legal status. A study done by George Borjas and Marta Tienda found that prior to 1986 Mexican immigrant men legally in the United States earned 6 percent more than unauthorized Mexican male immigrants.<sup>5</sup> Research suggests that undocumented immigrants are further “underground” today than they were in 1986—and that they experience an even wider wage gap.<sup>6</sup> Katherine Donato and Blake Sisk, for example, found that between 2003 and 2009, the average hourly wage of Mexican immigrants legally in the United States was 28.3 percent greater than it was for undocumented Mexican immigrants.<sup>7</sup>

In addition, a U.S. Department of Labor study—based on a carefully constructed and large longitudinal survey of the nearly 3 million unauthorized immigrants who were granted legal status and given a road map to citizenship under the Immigration Reform and Control Act of 1986—found that these previously undocumented immigrants experienced a 15.1 percent increase in their average inflation-adjusted wages within five years of gaining legal status.<sup>8</sup> Studies have also reported that citizenship provides an added economic boost above and beyond the gains from legalization. Manuel Pastor and Justin Scoggins, for instance, found that even when controlling for a range of factors such as educational attainment and national origin, naturalized immigrants earned 11 percent more than legal noncitizens.<sup>9</sup>

There are several reasons why legalization and citizenship both raise the incomes of immigrants and improve economic outcomes. Providing a road map to citizenship to undocumented immigrants gives them legal protections that raise their wages. It also promotes investment in the education and training of immigrants that eventually pays off in the form of higher wages and output; grants access to a broader range of higher-paying jobs; encourages labor mobility which increases the returns on the labor skills of immigrants by improving the efficiency of the labor market such that the skillsets of immigrants more closely match the jobs that they perform; and makes it more possible for immigrants to start businesses and create jobs. Each of these reasons is explained in more detail below.

## Legal protections

Legalization allows the newly authorized to invoke the numerous employment rights that they previously could not benefit from—but were in most cases entitled to—due to their constant fear of being deported.<sup>10</sup> Providing unauthorized workers with legal status increases their bargaining power relative to their employers, which in turn lowers the likelihood of worker exploitation and suppressed wages. This means that newly legal immigrants will be better equipped to contest an unlawful termination of employment, to negotiate for fair compensation or a promotion, and to file a complaint if they believe they are being mistreated or abused. Citizenship provides even greater protections than legalization. Citizens, for example, cannot be deported, while immigrants who are legal residents are still subject to deportation under certain circumstances.

## Investment in education and training

Legal status and a road map to citizenship both provide a guarantee of long-term membership in American society and cause noncitizen immigrants to invest in their English language skills and in other forms of education and training that raise their productivity. Research shows that legal status and a road map to citizenship both create the opportunity and incentive for workers to invest in their labor-market skills at a greater rate than they otherwise would: Nearly 45 percent of the wage increases experienced by newly legalized immigrants is due to upgrades in their human capital.<sup>11</sup> Similarly, a Department of Labor study of newly legalized immigrants found that they had significantly improved their English language skills and educational attainment within five years of gaining legal status and a road map to citizenship.<sup>12</sup>

## Access to better jobs

Undocumented immigrants are not legally living in the country, nor are they legally permitted to work here. Expensive federal- and state-level employer sanctions on the hiring of undocumented workers further restrict their access to fairly compensated and legal work opportunities because employers are reluctant to hire immigrants. If they do hire immigrants, they may use the threat of these sanctions to justify paying immigrants lower wages than they are due.

Legal noncitizen immigrants also suffer from restricted job access due to lack of citizenship. Many jobs—including many public-sector jobs, as well as high-paying private-sector jobs—are either available only to citizens or require security clearances that noncitizens cannot obtain. In addition, employers often prefer citizens to noncitizens—a form of discrimination that is sometimes permissible under U.S. labor laws. Even where it is unlawful to discriminate, some employers may hire citizens over noncitizens for a variety of reasons, including:

- To ensure that they are not violating the law by mistakenly hiring undocumented immigrants
- Because they may believe that citizens are better employees than noncitizens
- Because they would prefer to hire a co-national rather than a noncitizen

### Labor mobility and increasing returns

Legalization, investment in education and training, and access to better jobs leads to greater returns on the labor skills and education of undocumented immigrants. The undocumented also experience increasing returns from the improved labor-market mobility that follows legalization. Prior to legalization, unauthorized immigrants are subject to deportation if they are apprehended and, therefore—regardless of their skills—they tend to pursue employment in low-paying occupations, such as farming, child care, and cleaning services, where their legal status is less likely to be discovered. Thus, unauthorized workers do not receive the same market returns on their skills that comparable but legal workers receive.<sup>13</sup> Prior to legalization, a high school diploma does not result in a statistically significant wage premium over those without this education.<sup>14</sup> After legalization, however, “having a high school diploma or education beyond high school” results in an 11 percent wage premium.<sup>15</sup> In other words, the returns on the labor skills of the legalized improve in part because workers move to sectors where their skills and education are both valued and relevant to the work being conducted.<sup>16</sup> Hence, legalization and citizenship improve the efficiency of the labor market by ensuring that people are working in fields where their skillsets and training are being used to the fullest extent.

### Fostering entrepreneurship

Legal status and citizenship facilitate noncitizen-immigrant entrepreneurship by providing access to licenses, permits, insurance, and credit to start businesses and create jobs. Despite the legal obstacles to entrepreneurship that noncitizens currently face, the U.S. economy benefits significantly from immigrant innovators. Immigrants—both legal and unauthorized—are more likely to own a business and start a new business than are nonimmigrants.<sup>17</sup> Immigration reform that untethers the creative potential of immigrant entrepreneurs therefore promotes economic growth, higher incomes, and more job opportunities.

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### Comparing the undocumented to naturalized citizens

In this study, we reach similar findings on the positive earnings impacts of legalization and citizenship on immigrants. We extend the analysis to report the effect that they have on U.S. tax receipts and the overall U.S. economy. Specifically, we analyze what happens to U.S. GDP, personal income, jobs, tax revenues, and the earnings of the 11 million unauthorized immigrants under the three immigration scenarios described above.

A good place to start examining the effect of the undocumented following a road map to citizenship is to compare them to a group that has already followed a similar map: those immigrants who are currently naturalized citizens.<sup>18</sup> In doing such an analysis, we cannot simply assume that the current undocumented population would earn and contribute as much as the present class of naturalized-immigrant citizens has should they obtain the same status. The immigrants who have already become citizens are not necessarily the same in other economically relevant ways—they may, for example, differ in their educational attainment and age.

We deal with this possibility by using a regression analysis that controls for these factors to estimate the economic impact that legal status and citizenship have on the nation and its unauthorized immigrant population. As a first step, we provide an estimate of the income effect of providing citizenship to all noncitizen immigrants, including both those here legally and the unauthorized. We then disaggregate this estimate to calculate the income effect of providing legal status and citizenship to unauthorized immigrants only.

### The income effect of citizenship for all immigrants

In our analysis, we estimate that the income premium of citizenship for all immigrants—both documented and undocumented—by comparing the earnings of naturalized and noncitizen immigrant populations while statistically controlling for observable differences other than citizenship that may affect income-level differences between the two groups.<sup>19</sup> We control for education level; work experience; age; year of arrival in the United States; race/ethnicity; gender differences; country of origin; state of residency; rural versus urban residence; and marital status of naturalized and noncitizen immigrant populations to estimate the effect that citizenship has on earnings. We do so because these factors are likely to be responsible for differences in the earnings of naturalized immigrants and noncitizen immigrants—differences that would remain even if all noncitizens acquired citizenship. We know, for example, that noncitizen immigrants are younger, less educated, and less advanced in their careers than naturalized citizens—differences that would continue to affect the relative earnings of both groups after acquisition of citizenship.

We find that citizenship is associated with a statistically significant boost in the incomes of immigrants—an average of 16 percent (17.1 percent for women and 14.5 percent for men) in 2011.<sup>20</sup> Of course, there is no policy being contemplated today whereby all noncitizens would become citizens. And since our regression analysis mixes already-documented legal noncitizens with undocumented noncitizens, it does not measure the effect of a policy change aimed only at the undocumented. But it does give a good indication of the impact over time of moving people from being unauthorized to legal noncitizens to naturalized citizens—the details of which we disaggregate in the next section of this paper.

Our finding that the income effect of citizenship is positive and significant is consistent with the results of other studies. We provide more details on the findings of these other studies in the appendix.

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## The economic effect of citizenship on unauthorized immigrants: Income gains from legalization and citizenship

If we made the assumption that the income effect of legalization and citizenship combined for the unauthorized is the same as the income effect of citizenship that we estimated for the entire noncitizen immigrant population, then we would conclude that the unauthorized would experience an average increase in income of 16 percent from legalization and citizenship. This estimate, however, understates the true income effect for the unauthorized population because it aggregates the relatively smaller income gains that legal noncitizens get from citizenship alone with the relatively larger income gains that the unauthorized get from legalization and citizenship. In addition, our regression estimate further understates the income effect of citizenship for the unauthorized because the unauthorized are undercounted in the dataset.<sup>21</sup>

Citizenship for the unauthorized provides two clearly distinct but interconnected benefits that significantly impact their earnings and must be taken into account: legal standing and citizenship. We know from the largest and best study of the income effect of legalization—the 1996 U.S. Department of Labor study that analyzed the earnings of the nearly 3 million unauthorized immigrants who were granted legal status and given a road map to citizenship under the Immigration Reform and Control Act of 1986—that the average hourly wage of the newly legalized (but not yet citizen) population increased by 15.1 percent five years after legalization.<sup>22</sup>

Unfortunately, the Department of Labor study did not continue to measure the wage increases that the newly legalized population gained after they acquired citizenship. An additional income effect from citizenship would have occurred on top of the 15.1 percent income increase that followed legalization, which implies that undocumented immigrants would have gained more than a 15.1 percent increase in their earnings from acquiring both legal status and the other benefits of citizenship. For a review of studies that have shown the additional income effect of citizenship, see the appendix.

Nonetheless, with an appropriate adjustment to account for the undercount of unauthorized immigrants, we can use our regression results, the Department of Labor’s 1996 study, and a set of reasonable assumptions to estimate the likely full income effect of citizenship for the unauthorized, taking into account both the legalization effect and the further increase in earnings due to the acquisition of citizenship. We can then illustrate the GDP, earnings, job growth, and tax-revenue implications of our estimate for three forms of immigration reform that could start in 2013.<sup>23</sup>

To estimate the effect of citizenship on the earnings of unauthorized immigrants, we decompose the income effect of citizenship that we estimated for all noncitizens—16 percent—into two components: one to estimate the percentage gain in income that the unauthorized experience as a consequence of attaining legal status and the other to estimate the percentage gain in income that they obtain from becoming naturalized citizens. We then add these components and adjust for the undercount of the unauthorized in the dataset to arrive at a likely estimate of the full income effect of citizenship for unauthorized immigrants.

For the first component, we assume that the unauthorized would gain the same 15.1 percent increase in income that unauthorized immigrants experienced from 1986 to 1992 when they obtained legal status, as measured by the Department of Labor.<sup>24</sup> This 15.1 percent increase in wages over five years was due to the immediate impact on earnings of the acquisition of legal status and the subsequent effects on earnings of the acquisition of more education, further mastery of English, access to a broader range of jobs, and other factors that legalization encouraged and made possible.<sup>25</sup>

For the second component, we hold constant the total citizenship effect—16 percent—and then calculate the effect of moving from legal status to citizenship, weighting the effect to reflect the distribution of legal and unauthorized noncitizen immigrants in our sample and the average incomes of the two groups.<sup>26</sup> Our estimate of the second component suggests that previously unauthorized and newly legalized immigrants would experience an additional 10 percent gain in income if they acquired citizenship.<sup>27</sup>

Taking into account both components, our most likely estimate of the full effect of granting legal status and citizenship to unauthorized immigrants is an income gain of 25.1 percent.<sup>28</sup> Of this boost in income, about three-fifths comes from legalization and about two-fifths is attributable to transitioning from legal status to citizenship.<sup>29</sup>

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## 10-year projections of the economic gains from immigration reform

Applying our 25.1 percent citizenship effect on the income of the undocumented, we project the economic gains from immigration reform under three scenarios. The first and most politically unlikely scenario—but one that is nonetheless useful for comparison purposes—assumes that legal status and citizenship are both conferred on the undocumented in 2013. The second scenario assumes that the unauthorized are provided legal status in 2013 and citizenship five years thereafter. The third scenario assumes that the unauthorized are granted legal status starting in 2013 but that they are not given a road map to citizenship.

Under the first scenario—both legal status and citizenship in 2013—U.S. GDP would grow by an additional \$1.4 trillion cumulatively, and the personal income of Americans

would grow an additional \$791 billion over the 10 years between 2013 and 2022.<sup>30</sup> Over the same time period, there would be an average of 203,000 more jobs per year.<sup>31,32</sup>

Unauthorized immigrants would also be better off. Within five years they would be earning 25.1 percent more annually. As a consequence, over the full 10-year period, the formerly unauthorized would earn an additional \$659 billion and pay at least \$184 billion more in federal, state, and local taxes—\$116 billion more to the federal government and \$68 billion more to state and local governments.<sup>33</sup>

Under the second scenario—legal status in 2013 followed by citizenship five years thereafter—the 10-year cumulative increase in the economy of the United States would be \$1.1 trillion, and the annual increases in the incomes of Americans would sum to \$618 billion.<sup>34</sup> Over the 10 years, this immigration reform would create an average of 159,000 jobs per year.<sup>35</sup> Given the delay in acquiring citizenship relative to the first scenario, it would take 10 years instead of five years for the incomes of the unauthorized to increase 25.1 percent. Over the 10-year period, they would earn \$515 billion more and pay an additional \$144 billion in taxes—\$91 billion to the federal government and \$53 billion to state and local governments.

Finally, under the third scenario—legal status only starting in 2013—the cumulative gain in U.S. GDP between 2013 and 2022 would be a more modest \$832 billion.<sup>36</sup> The annual increases in the incomes of residents of the United States would sum to \$470 billion over the 10 years, and the economy would have an average of 121,000 more jobs per year.<sup>37</sup> The income of the unauthorized would be 15.1 percent higher within five years. Over the 10-year period, they would earn \$392 billion more and pay an additional \$109 billion in taxes—\$69 billion to the federal government and \$40 billion to state and local governments.<sup>38</sup>

In each of the three scenarios we have almost certainly understated the amount of additional taxes that will be paid by undocumented immigrant workers because the tax estimates include only taxes from the increased earnings of the previously undocumented. While it has been widely documented that unauthorized workers are contributing billions of dollars in federal, state, and local taxes each year, the Congressional Budget Office estimates that between 30 percent and 50 percent of the undocumented population fails to declare their income.<sup>39</sup> To the extent that some of these immigrants—who are working in the underground economy—are not reporting their incomes for fear of being discovered and deported, however,

legal status and citizenship is likely to push them into the legal economy, where they will be declaring their income and paying billions of dollars in taxes in addition to the amounts that we have calculated above.<sup>40</sup> The reporting of this income, however, may increase business deductions for labor compensation, offsetting part of the tax gain. In addition, some currently unauthorized immigrants who have income taxes withheld may—upon attaining legal status—file returns and claim refunds or deductions and exemptions that will offset some of the tax revenue gained from the higher reporting of income.

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## Conclusion

The positive economic impacts on the nation and on undocumented immigrants of granting them legal status and a road map to citizenship are likely to be very large. The nation as a whole would benefit from a sizable increase in GDP and income and a modest increase in jobs. The earnings of unauthorized immigrants would rise significantly, and the taxes they would pay would increase dramatically. Given that the full benefits would phase in over a number of years, the sooner we grant legal status and provide a road map to citizenship to unauthorized immigrants, the sooner Americans will be able to reap these benefits. It is also clear that legalization and a road map to citizenship bestow greater gains on the American people and the U.S. economy than legalization alone.

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## About the authors

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## Appendix: Review of the literature on the income effect of citizenship

### Manuel Pastor and Justin Scoggins

Pastor and Scoggins found in their 2012 study that naturalized citizens in 2010 earned 11 percent more than legal noncitizens after controlling for factors other than citizenship that may be responsible for their income differences.<sup>41</sup> Pastor and Scoggins wanted to measure the effect of citizenship on legal noncitizen immigrants only and attempted to control for the influence of unauthorized immigrants by using several controls.<sup>42</sup> This is important to note because the earnings increases from citizenship for unauthorized immigrants may be higher than they are for legal noncitizen immigrants since the undocumented receive two distinct sets of benefits—the benefits of legal status and the benefits of citizenship—whereas legal immigrants gain only the benefits of citizenship.

In fact, a 1996 U.S. Department of Labor study suggests that the earnings gains for unauthorized immigrants from legalization alone may outstrip the earnings gains from citizenship for already-legal immigrants.<sup>43</sup> Given that the income effect that Pastor and Scoggins estimated did not attempt to measure the income effect of citizenship on all noncitizens—as well as the probability that, if used as a proxy for such an effect, their income effect would probably understate the income effect of citizenship on all noncitizen immigrants—their estimate should not be compared directly to ours. Unlike Pastor and Scoggins, we sought to measure the citizenship effect on all noncitizen immigrants.

### Heidi Shierholz

Shierholz's 2010 study measured the income effect of citizenship on all noncitizen immigrants, not just on legal noncitizens. Hence, her estimate can be compared to ours. Using data from 2006 to 2007, Shierholz found that naturalized citizens had family incomes that were about 15 percent higher than the family incomes of all noncitizen immigrants once factors aside from citizenship were taken into account.<sup>44</sup>

### Ather Akbari

In his 2008 study, Akbari, found a wage effect of citizenship for legal immigrants from developing countries—who represent the large majority of U.S. immigrants—that varied from about 9 percent to 12 percent depending on the specification he used.<sup>45</sup> Akbari explicitly attempted to control for the biasing effect of the presence of unauthorized immigrants in the dataset he used by excluding Mexican immigrants because a large number of them are unauthorized.<sup>46</sup> Because the dataset excludes most of the undocumented, Akbari's estimate of the income effect of citizenship on legal immigrants

probably understates the income effect of citizenship on all noncitizens and should not be used as a proxy for such an effect or compared to our estimate.

### Bernt Bratsberg, James Ragan, and Zafar Nasir

In a 2002 longitudinal study, Bratsberg, Ragan, and Nasir followed a sample of 332 young male legal immigrants from 1979 through 1991 and found that citizenship was associated with a wage gain of around 5.6 percent.<sup>47</sup> They measured the impact of citizenship on legal immigrants only, and their results therefore probably also understate the citizenship effect on all noncitizen immigrants.

### Barry Chiswick

This much older cross-sectional study done in 1978 using 1970 Census data found that citizenship had a 15 percent effect on the earnings of foreign-born white men.<sup>48</sup> But the effect of citizenship fell to 7 percent and lost statistical significance once he controlled for the duration of residence in the United States. Given that white men constitute less than 8 percent of noncitizen immigrants today, however, it is not clear how relevant this study is to the present circumstances. In a 1992 analysis using 1980 Census data on foreign-born men of all races, Chiswick and co-author Paul Miller reported a significant income effect of about 4 percent.<sup>49</sup>

These latter three studies probably understate the benefit of citizenship because they exclude women, for whom the citizenship effect was found to be larger than for men in both the Shierholz study—17 percent for women versus 12 percent for men—and Pastor and Scoggins study—13 percent for women and 9 percent for men— It was also larger in our estimates.<sup>50</sup>

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## Endnotes

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- 11 Francisco L. Rivera-Batiz, "Undocumented Workers in the Labor Market: An Analysis of the Earning of Legal and Illegal Mexican Immigrants in the United States," *Journal of Population Economics* 12 (1) (1999): 91–116.
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- 13 Sherrie A. Kossoudji and Deborah A. Cobb-Clark, "Coming out of the Shadows: Learning about Legal Status and Wages from the Legalized Population," *Journal of Labor Economics* 20 (3) (2002): 598–628.
- 14 *Ibid.*, p. 617.
- 15 *Ibid.*
- 16 Sherrie A. Kossoudji and Deborah A. Cobb-Clark reported that 38.8 percent of Mexican men who received legal status under the Immigration Reform and Control Act had moved on to higher-paying occupations by 1992. See: Sherrie A. Kossoudji and Deborah A. Cobb-Clark, "IRCA's Impact on the Occupational Concentration and Mobility of Newly-Legalized Mexican Men," *Journal of Population Economics* 13 (1) (2000): 81–98.
- 17 See: Robert W. Fairlie, "Immigrant Entrepreneurs and Small Business Owners, and their Access to Financial Capital," (Washington: U.S. Small Business Administration, 2012); Robert W. Fairlie, "Open for Business: How Immigrants are Driving Small Business Creation in the United States" (New York: Partnership for a New American Economy, 2012).
- 18 Of the approximately 40 million foreign-born immigrants living in the United States, 18 million are naturalized citizen immigrants and 22 million are noncitizen immigrants. Of the 22 million noncitizen immigrants, about half have legal status while the other half—approximately 11.1 million people—are unauthorized. See: U.S. Census Bureau, *2012 March Current Population Survey* (U.S. Department of Commerce, 2012); Jeffrey S. Passel and D'Vera Cohn, "Unauthorized Immigrants: 11.1 Million in 2011," Pew Hispanic Center, December 6, 2012, available at <http://www.pewhispanic.org/2012/12/06/unauthorized-immigrants-11-1-million-in-2011/>.
- 19 Specifically, we perform a regression analysis on the March 2012 Current Population Survey compiled by the U.S. Census Bureau, which estimated total personal income in the United States in 2011. We used the March Current Population Survey instead of other datasets such as the American Community Survey because the best estimates of the unauthorized population are derived from the March Current Population Survey in conjunction with other U.S. Census data. As a consequence, we have estimates of the undercount of the unauthorized in the Current Population Survey, which are needed for the analysis we do in this paper. We do not have these estimates for the American Community Survey or other datasets.
- 20 The estimated effect was statistically significant at the 1 percent level. Our model, however, may somewhat understate or overstate the effect of citizenship on income. The dataset undercounts the number of undocumented immigrants, which is likely to cause our regression analysis to understate the citizenship effect. Furthermore, regression analyses such as ours can control for observable and measurable characteristics, but they cannot control for unobservable or unmeasurable factors that may explain the effect they attempt to measure. So, for example, our model may be affected by unobservable selection bias and by unmeasurable language characteristics.  
  
In terms of unobservable selection bias, it is possible that legal immigrants who naturalize have unobservable characteristics that enable them to earn more—or less—than legal immigrants who do not naturalize. If there is a selection bias, our model will overstate—or understate—the income gains that citizenship is likely to provide to noncitizens.  
  
In terms of unmeasurable language characteristics, our dataset does not contain specific information on the English language ability of immigrants and, therefore, our model does not directly control for English language ability. If the English language ability of naturalized citizens is greater than that of noncitizen immigrants—which is likely to be the case—then failing to control for language ability will cause our model to overstate the true impact of citizenship on income. Several variables that we do control for, however—such as year of arrival in the United States and country of origin—are strongly correlated with English language ability. Thus, the effect of English language ability on earnings is, at least partly, accounted for in our regression.

We tested for the effect on our results of omitting an English language control by running our regression model—with the exception of the urban/rural dummy variable because the data were not available—on the 2011 American Community Survey dataset, which contains information on the language ability of immigrants. We ran our specification twice—once with and once without a language control. The difference in the income effect between the two models was less than 5 percent. This implies that our estimated income effect of citizenship on all noncitizens may have been about 15.2 percent had a language control been included, instead of the 16 percent we measured in the absence of a language control.

21 Careful analyses suggest that the March Current Population Survey datasets undercount the number of unauthorized immigrants by an estimated 10 percent to 15 percent. Jeffrey Passel, “Unauthorized Migrants in the United States: Estimates, Methods, and Characteristics,” OECD Social, Employment and Migration Working Paper 57 (OECD Publishing, 2007), available at <http://dx.doi.org/10.1787/110780068151>. The 16 percent citizenship effect that we measured for all noncitizens thus disproportionately reflects the income effect of granting citizenship to legal noncitizens. This means that our regression estimate understates the full income effect of granting citizenship to all noncitizens—both documented and undocumented alike—living in the United States. The full income effect should include the boost in income derived from acquiring legal status for all unauthorized noncitizens and the further increase in income for all noncitizens from becoming naturalized citizens. By the same logic, the citizenship effect that we measured overstates the income gain that legal noncitizen immigrants would obtain from acquiring citizenship to the extent that our measure incorporates some of the benefit from acquiring legal status that accrues only to the unauthorized.

22 Given that undocumented immigrants are further “underground” today than they were in 1986—and that the gap in earnings between legal and unauthorized immigrants is estimated to be larger today than it was in 1986—it is possible that unauthorized immigrants would gain even more than a 15.1 percent wage boost today from legalization. See: Donato and Sisk, “Shifts in the employment outcomes among Mexican migrants to the United States, 1976–2009”; Hall, Greenman, and Farkas, “Legal Status and Wage Disparities for Mexican Immigrants”; Donato and Massey, “Effect of the Immigration Reform and Control Act on the Wages of Mexican Migrants”; Massey and Gelatt, “What happened to the wages of Mexican immigrants? Trends and interpretations.”

It is also interesting to note that this real wage increase occurred even though the economy went through a recession and the overall wage picture for U.S. workers was grim over this period. The inflation-adjusted average hourly wage of production and nonsupervisory workers from 1987 to 1992 declined by 3.7 percent. Research also indicates that the Immigration Reform and Control Act’s legalization program did not cause the wages of native workers to decline. Thus, the real wage decline between 1986/87 and 1992 is not the result of the undocumented population receiving legal status. See: Elaine Sorensen and Frank D. Bean, “The Immigration Reform and Control Act and the Wages of Mexican Origin Workers: Evidence from Current Population Surveys,” *Social Science Quarterly* 75 (1) (1994): 1–17; Deborah A. Cobb-Clark, Clinton R. Shiells, and B. Lindsay Lowell, “Immigration Reform: The Effects of Employer Sanctions and Legalization on Wages,” *Journal of Labor Economics* 13 (3) (1995): 472–498.

23 Immigration reform could grant legal status and citizenship simultaneously. It would more likely, however, grant legal status and then require a waiting period—such as five years—before citizenship could be acquired. Hence, it is not possible to know how much time would have to elapse before the full benefits of citizenship would be obtained. The 1996 Department of Labor study, however, measured the benefits of legalization five years after legalization, and the 2002 study authored by Bratsberg and others—as well as the 2012 Pastor and Scoggins study—suggests that the bulk of the benefits of citizenship take effect within a few years of acquiring citizenship. Pastor and Scoggins, for example, estimate that roughly 64 percent of the income gains due to the acquisition of citizenship occur within the first two years of naturalization. Hence, for the purpose of

this analysis, we assume that the income benefits of legalization and citizenship both occur over the first five years of the newly acquired status and that they are frontloaded, such that 32 percent of the income effect occurs in each of the first two years and 12 percent occurs in each of the next three years.

24 As we noted earlier, this may understate the gain from legalization that the unauthorized would receive today because they are more “underground” now: The wage gap between them and legal noncitizens is wider today than it was before the passage of the Immigration Reform and Control Act. In their 2010 study based on data from 2003 to 2004, Laura Hill, Magnus Lofstrom, and Joseph M. Hayes reported that the earnings of unauthorized immigrants were 18.7 percent to 20.5 percent higher after they acquired legal permanent residency. A direct comparison to the gains reported in the 1996 Department of Labor study cannot be made because the study undertaken by Hill and others examined the difference in the earnings of the unauthorized from their first U.S. job to their earnings 4 to 13 months after they acquired legal status. The Department of Labor study examined gains from just before the acquisition of legal status to five years after the acquisition of legal status. See: Laura E. Hill, Magnus Lofstrom, and Joseph M. Hayes, “Immigrant Legalization: Assessing the Labor Market Effects” (San Francisco: Public Policy Institute of California, 2010).

In their 2010 study, Manuel Pastor, Justin Scoggins, Jennifer Tran, and Rhonda Ortiz estimated that the immediate effect of authorization would be a 9.5 percent increase in the wages of unauthorized Latino immigrants who were full-time workers in California in 2009. They further projected that the earnings of the formerly unauthorized workers could increase over time—by nearly five times the immediate gain—as the newly authorized increased their levels of educational attainment and improved their English fluency. See: Manuel Pastor and others, “The Economic Benefits of Immigrant Authorization in California” (Los Angeles: USC Center for the Study of Immigrant Integration, 2010).

25 We do not disaggregate these multiple factors. Economist Francisco Rivera-Batiz, however, estimated in 1999 that legal status alone was responsible for a wage increase of 8.4 percent for male beneficiaries of the Immigration Reform and Control Act by 1992. He estimated a 13 percent for female beneficiaries by 1992. Similarly, economists Catalina Amuedo-Dorante, Cynthia Bansak, and Stephen Raphael estimated in 2007 that legalization alone resulted in real hourly wage increases of 9.3 percent for male beneficiaries of the Immigration Reform and Control Act and 2.1 percent for female beneficiaries by 1992. Likewise, Kossoudji and Cobb-Clark estimated in 2002 that authorization alone had raised the wages of male beneficiaries of the Immigration Reform and Control Act 6 percent by 1992. See: Rivera-Batiz, “Undocumented Workers in the Labor Market”; Catalina Amuedo-Dorantes, Cynthia Bansak, and Stephen Raphael, “Gender Differences in the Labor Market: Impact of IRCA,” *American Economic Review* 97 (2) (2007): 412–416; Sherrie A. Kossoudji and Deborah A. Cobb-Clark, “Coming out of the Shadows.”

26 We assume that there are 8 million unauthorized immigrants in the labor force. See: Passel and Cohn, “Unauthorized Immigrant Population: National and State Trends, 2010.” For the distribution of legal and unauthorized noncitizen immigrants in our sample we assume a 10 percent undercount of the unauthorized. See: Passel, “Unauthorized Migrants in the United States: Estimates, Methods, and Characteristics.” For the average incomes of the two groups, we assume that legal noncitizens earn 28.3 percent more than unauthorized immigrants. See: Donato and Sisk, “Shifts in the employment outcomes among Mexican migrants to the United States, 1976–2009.” We subsequently adjust the total citizenship effect on the unauthorized to reflect the undercount of unauthorized immigrants. Failure to do so would cause us to understate the likely economic effect of providing legal status and citizenship to the undocumented.

27 We assume that the 10 percent income effect of moving from legal status to citizenship is the same for the newly legalized but previously unauthorized immigrants as it is for all legal noncitizens. Our estimate of the 10 percent income effect of citizenship on legal immigrants is about the same as the 11 percent estimated by Pastor and Scoggins and the 9 percent to 12 percent calculated by Akbari. See: Ather H. Akbari, “Immigrant Naturalization and its Impacts on

Immigrant Labour Market Performance and Treasury.” In Pieter Bevelander and Don J. DeVoretz, eds, *The Economics of Citizenship* (Malmö, Sweden: Malmö University, 2008).

- 28 Varying the undercount of the unauthorized from 10 percent to 15 percent and the wage differential from 6 percent—per Borjas and Tienda, 1993—to 28.3 percent causes the total effect of citizenship on the incomes of the unauthorized to vary from 24.4 percent to 25.6 percent.
- 29 We assume that all of the unauthorized immigrants who gain legal status eventually become citizens. To the extent that some of the newly authorized immigrants do not acquire citizenship, the economic benefits would be smaller.
- 30 These gains in total personal income and GDP were calculated in the following way. First, we calculated the boost in the total personal income of the unauthorized that would result from a 25.1 percent increase in their income in 2011, as derived from the March 2012 Current Population Survey. Following the convention that economists generally use, we assumed that this initial income gain resulted entirely from the higher productivity of the unauthorized. Then, holding constant the 2011 relationship between total personal income and GDP, we calculated an initial increase in GDP in 2011. Next, we assumed that part of the initial income gain would be spent, thereby inducing a boost in total spending and economic activity that would ripple through the economy and further increase GDP, earnings, jobs, and tax revenues. We assumed a modest induced-spending or multiplier effect of 1.2, which is consistent with the multipliers that CBO and Moody’s Analytics estimated for two programs in 2011 aimed at workers with relatively low incomes that are similar to the incomes of the unauthorized: the earned income tax credit and the making work pay tax credit. After applying the multiplier, we calculated the percentage change in GDP in 2011 and applied it to projections of GDP from 2013 to 2022. These projections are based on the economic forecast of: Congressional Budget Office, “Baseline Economic Forecast—February 2013 Baseline Projections” (2013). Finally, we assumed that the income benefits of legalization and citizenship both occur over the first five years of the newly acquired status and are frontloaded, such that 32 percent occur in each of the first two years and 12 percent occur in each of the next three years.
- Our 10-year cumulative GDP-growth estimate is consistent with—but should not be compared to—the findings of Raúl Hinojosa-Ojeda, who concluded that comprehensive immigration reform would add 1.5 trillion to GDP over 10 years. The Hinojosa-Ojeda study has a different scope of analysis. It considers the economic impact of providing legalization and a road map to citizenship for the undocumented population while also accounting for future immigration flows. See: Raúl Hinojosa-Ojeda, “Raising the Floor for American Workers” (Washington: Center for American Progress and Immigration Policy Center, 2010), available at <http://www.americanprogress.org/issues/immigration/report/2010/01/07/7187/raising-the-floor-for-american-workers/>.
- 31 As noted in the previous endnote, we assumed that the initial output, or GDP, gain derived entirely from the higher productivity of the previously unauthorized due to a multiplicity of interrelated factors: With legalization and citizenship there will be a better match between worker’s skills and the jobs they perform, which will enhance the efficiency of the labor market. It will also lead to an increase in the education and training—the human capital—of the new citizens, making them more productive, and it will allow a facilitation of entrepreneurship that will lead to new business startups. Since the initial GDP gain is a function of the higher productivity of the existing workforce, the initial GDP increase cannot cause a gain in jobs. The induced increase in GDP that occurs when part of the earnings boost of the unauthorized is spent, however, requires additional workers and thus creates new jobs. This induced increase in GDP was the difference between the initial productivity-caused increase in GDP and the final increase in GDP, which included the induced-spending, or multiplier, effect. We then calculated the jobs gain by assuming one new job would be created for each \$115,000 increase in output, or GDP. The job impact estimation methods used here can be found in: Josh L. Bivens, “Method memo on estimating the jobs impact of various policy changes” (Washington: Economic Policy Institute, 2011), available at <http://www.epi.org/publication/methodology-estimating-jobs-impact/>.

[epi.org/publication/methodology-estimating-jobs-impact/](http://www.epi.org/publication/methodology-estimating-jobs-impact/); Doug Hall and David Cooper, “How raising the federal minimum wage would help working families and give the economy a boost” (Washington: Economic Policy Institute, 2012), available at <http://www.epi.org/publication/ib341-raising-federal-minimum-wage/>.

If it is the case that some of the initial income gains are due to a redistribution of income to unauthorized immigrant employees, then the true impacts on jobs and GDP are likely to be larger than those we have estimated, as the unauthorized are likely to have relatively high marginal propensities to consume. In addition, our estimate of the additional jobs in the economy may understate the growth in officially documented jobs because some of the undocumented immigrant workers may move from the informal, underground, and undocumented economy to the formal and documented employment sector, where they will be officially counted in government surveys of employment.

- 32 The annual jobs increase averages 203,000 jobs, but it ranges from a low of 56,000 jobs in 2013 to a high of 287,000 jobs in 2022.
- 33 These gains in tax revenue are likely to be partially offset by additional government expenditures on services that the newly authorized immigrants might become eligible to receive, such as Medicare, Medicaid, supplemental nutrition assistance, unemployment insurance, and Social Security. Research indicates, however, that the additional taxes paid by newly legalized residents are greater than the additional government expenditures they cause by participating in social programs. In other words, even when accounting for increased government expenditures, legalization yields a net increase in tax revenue. CBO’s cost estimate of the Comprehensive Immigration Reform Act of 2007 estimated that the ratio of increases in revenue to increases in direct spending would be more than 2-to-1 over the first 10 years: \$48 billion in tax revenues versus \$22.7 billion in additional expenditures. See: Congressional Budget Office, “Cost Estimate: Senate Amendment 1150 to S. 1348, the Comprehensive Immigration Reform Act of 2007, As amended by the Senate through May 24, 2007” (2007), available at [http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/81xx/doc8179/sa1150\\_june4.pdf](http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/81xx/doc8179/sa1150_june4.pdf).
- 34 In this second scenario, we phase in the 15.1 percent income effect of legalization over the first five years and the additional 10 percent income effect of citizenship over the last five years. For both income effects, we frontload them, such that 32 percent occur in each of the first two years and 12 percent occur in each of the next three years.
- 35 The annual jobs increase averages 159,000 jobs, but it ranges from a low of 34,000 jobs in 2013 to a high of 283,000 jobs in 2022.
- 36 In this third scenario, we phase in the 15.1 percent income effect of legalization over the first five years and frontload it, such that 32 percent occurs in each of the first two years and 12 percent occurs in each of the next three years.
- 37 The annual jobs increase averages 121,000 jobs, but it ranges from a low of 34,000 jobs in 2013 to 169,000 jobs in 2022.
- 38 We may have overstated the gains from scenario three: legalization alone. The 15.1 percent wage increase measured by the Department of Labor in its 1996 study of the newly legalized but not yet citizen population was not simply a consequence of legalization: It was also a consequence of the guarantee of a road map to citizenship. Without a road map to citizenship, the recently legalized may have invested differently—it is reasonable to assume less—in their human capital. This may lead to a smaller than 15.1 percent wage increase from legalization alone.
- 39 See, for example: “Unauthorized Immigrants Pay Taxes Too,” Immigration Policy Center, April 18, 2011, available at <http://www.immigrationpolicy.org/just-facts/unauthorized-immigrants-pay-taxes-too>. Congressional Budget Office, *The Impact of Unauthorized Immigrants on the Budgets of State and Local Governments* (U.S. Department of Labor, 2007).
- 40 Congressional Budget Office, “Cost Estimate: Senate Amendment 1150 to S. 1348.”

- 41 Pastor and Scoggins, "Citizen Gain: The Economic Benefits of Naturalization for Immigrants and the Economy." When they control for industry/occupation, their model finds a citizenship effect of 8 percent. This specification does not allow their model to capture any income effects of citizenship that may result from job mobility. It is not clear to us that this control should be used because one of the key ways citizenship leads to higher earnings is by enabling immigrants to get jobs in industries and occupations that were previously closed to them. (For a theoretical discussion of this point, see: Bernt Bratsberg, James F. Ragan, and Zafar M. Nasir, "The Effect of Naturalization on Wage Growth: A Panel Study of Young Male Immigrants," *Journal of Labor Economics* 20 (3) (2002): 568–597.) Indeed, Sherrie Kossoudji and Deborah Cobb-Clark reported that 38.8 percent of Mexican men who received legal status under the Immigration Reform and Control Act had moved on to higher-paying occupations by 1992. See: Kossoudji and Cobb-Clark, "IRCA's Impact on the Occupational Concentration and Mobility of Newly-Legalized Mexican Men."
- 42 As Pastor and Scoggins acknowledge, however, it is unclear that the citizenship effect they identify is strictly restricted to legal immigrants.
- 43 U.S. Department of Labor, *Characteristics and Labor Market Behavior of the Legalized Population Five Years Following Legalization*.
- 44 Heidi Shierholz, "The Effects of Citizenship on Family Income and Poverty" (Washington: Economic Policy Institute, 2010).
- 45 Akbari, "Immigrant Naturalization and its Impacts on Immigrant Labour Market Performance and Treasury."
- 46 This control does not, however, exclude all the unauthorized from nations other than Mexico in the data set.
- 47 Bratsberg, Ragan, and Nasir, "The Effect of Naturalization on Wage Growth: A Panel Study of Young Male Immigrants."
- 48 Barry R. Chiswick, "The Effect of Americanization on the Earnings of Foreign-born Men," *Journal of Political Economy* 86 (5) (1978): 897–921.
- 49 Barry R. Chiswick and Paul W. Miller, "Language in the Labor Market: The Immigrant Experience in Canada and the United States," In Barry Chiswick, ed., *Immigration, Language and Ethnic Issues: Canada and the United States* (Washington: American Enterprise Institute, 1992).
- 50 Akbari found a slightly larger income effect of citizenship on men than on women: 11 percent to 12 percent for men versus 9 percent to 10 percent for women among immigrants from developing countries. See: Akbari, "Immigrant Naturalization and its Impacts on Immigrant Labour Market Performance and Treasury."