



Policy Note

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A DECADE OF FLAT WAGES?

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Workers' wages are the most important component of household money income. Representing about 83 percent of total household income, they are the driving force behind changes in income growth and inequality. Consequently, changes in wages play an important role in determining trends in income inequality, household spending, and the overall welfare of households.

In the last 20 years, while nominal wages have shown a consistent and upward trend (Figure 1), real wages have progressed much more slowly. As noted in Mishel et al. (2012), after a long period (beginning in 1973) of stagnant real wages, in the late 1990s low unemployment rates, increases in the minimum wage, and improvements in labor productivity contributed to a boost in wages, which translated into 12.4 percent cumulative growth in real wages from the late '90s until 2002.

Partially resulting from a weak economic recovery after the 2001 recession, real wages then stagnated despite continued growth in labor productivity. In fact, with the exception of a blip in 2009, real wages have shown practically no improvement (1 percent growth) since 2002.¹ This period between 2002 and 2013 has become known as the decade of flat wages (see, for example, Mishel and Shierholz 2013).

However, over the same period of time (2002–13), there were significant changes in the composition of the labor market. In particular, the labor force is aging and becoming more educated.² In addition, partially because of some dramatic financial setbacks during the 2001 and 2008 recessions, workers are delaying retirement (Goda et al. 2011). Increases in age, experience, and education (which are all positively correlated with wages) could in fact be propping up observed real

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wages—meaning that wages of workers with a specific age and education profile may have actually declined over the decade. This is exactly what we uncover in this policy note: what appears to have been a decade of flat real wages was actually a decade of declining real wages within age/education worker profiles.

Starting in 1994, we calculate counterfactual average real wages, holding the education and age structures fixed to those observed in 1994.³ These counterfactual wages are constructed by weighting average wages for each year in each age/education (and/or industry/occupation) category by the distribution of those characteristics observed in 1994.⁴ This will tell us how much of the aggregated real wage growth between 1994 and 2013 can be accounted for by structural (e.g., education and age/experience) changes in the labor market.

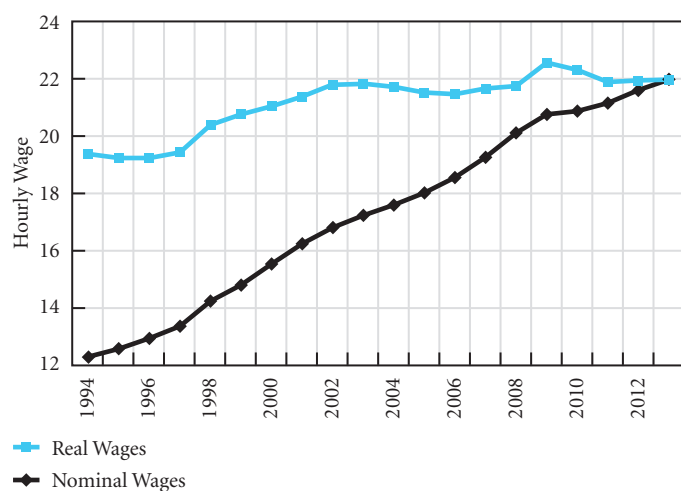
Figure 2 plots the observed real wage (from Figure 1) along with some counterfactuals, which hold education, age, and the industry/occupation composition fixed at 1994 levels. Figure 2 reveals that not only did real wages fail to grow after 2002, they actually slowly declined to levels not seen since 1998. Between 2002 and 2013, the counterfactual average real wage fell by 6.1 percent. In other words, roughly 12 percent out of the 13.2 percent growth in real wages between 1994 and 2013 can be attributed to changes in the demographics of the labor force.

We also see in Figure 2 that changes in the composition of industries and occupations contributed to the observed trends: the labor market has been slowly shifting toward higher-wage occupations and industries. Holding only occupation and industry at their 1994 levels would have resulted in slower real wage growth, but industry and occupation changes were not the driving force behind the counterfactual real wage declines seen in Figure 2; that honor goes to changes in age/experience and education. In what follows, we will keep only age and education characteristics fixed.

Differences by Sex and Race

Figure 3 depicts the experience of the decade of declining wages by sex and by race. In panel A we see that the decade of observed stagnant real wages was, on average, harder on men than on women. Between 1994 and 2001, men and women experienced similar growth in real wages of roughly 10 percent and 11 percent, respectively. Starting in 2002, however, growth in men’s real wages flattened out, and ended up 3 percent lower by 2013. Women’s wages, on the other hand, continued their climb, albeit at a slower rate, ending 5 percent higher in 2013 than in 2002. This asymmetry in real wage growth contributed

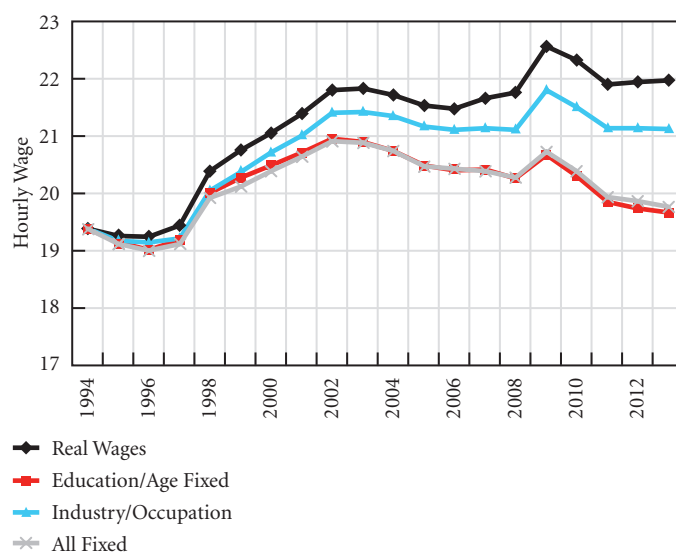
Figure 1 Trends in Real and Nominal Wages



Note: Real wages are reflected in 2013 dollars.

Source: US Bureau of Labor Statistics, Current Population Survey, Outgoing Rotation Groups

Figure 2 Real Wages vs. Fixed Real Wages



Note: Real wages are reflected in 2013 dollars.

Source: US Bureau of Labor Statistics, Current Population Survey, Outgoing Rotation Groups

to the shrinking of the unadjusted gender wage gap by over 10 percentage points between 1994 and 2013.

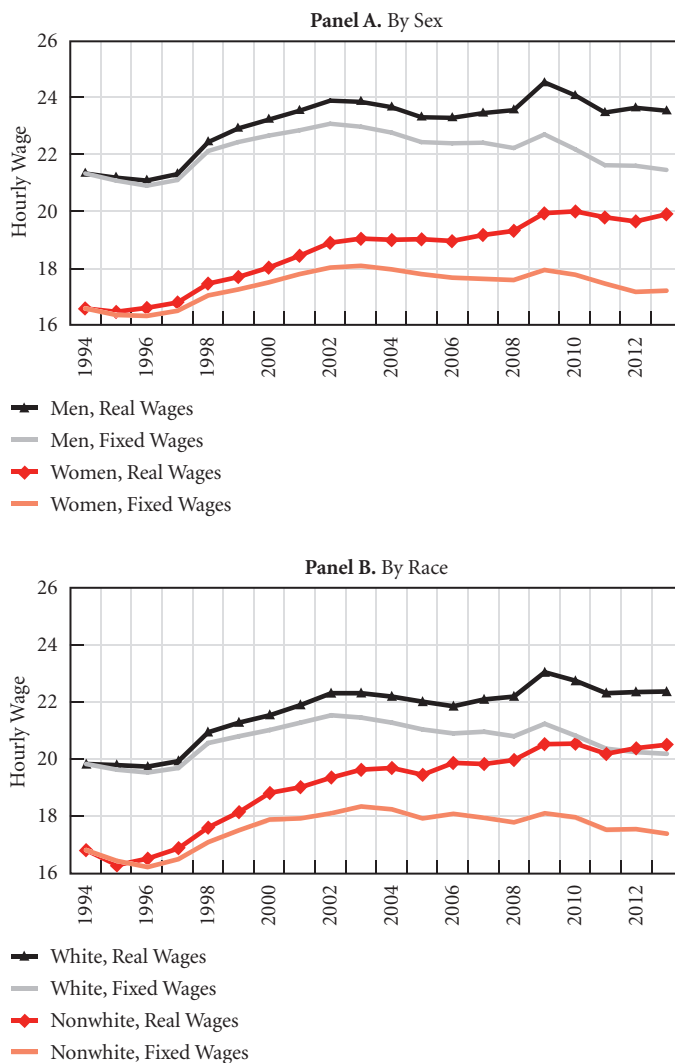
Comparing trends in the fixed real wage growth, however, tells a different story. While fixed wages still exhibit growth from 1994 to 2002 for both men (8.2 percent) and women (8.7 percent), after 2002, fixed wages for both men and women fall—by 7 percent for men and 4.5 percent for women. This is consistent with greater advances in women’s educational attainment over this period compared to men.⁵ Golding et al. (2006) document that women have matched or surpassed men’s higher educational achievements. Even though the fixed real wage declined for both men and women over the period, the unadjusted wage gap (in fixed wages) closed by four percentage points, pointing to a small improvement in gender wage inequality. This is consistent with the finding by Blau and Kahn (2007) of slower convergence of the male/female wage structures during the 1990s and 2000s.

Panel B of Figure 3 presents information on wage trends by race, comparing wages of white versus nonwhite workers. Real wage trends for white and nonwhite workers show similar patterns to those observed for men and women. The main difference is that while women exhibit a period of real wage stagnation after the 2001 recession, wages among nonwhite workers continued to grow, albeit more slowly. This continued growth in nonwhite wages, on average, contributed to a decline in the observed real wage gap between white and nonwhite workers of nearly nine percentage points between 1994 and 2013. Looking at the fixed real wage trends, we see the effects of greater advances in educational attainment over the period among nonwhite workers compared to white workers, on average. Taking that structural change into account means that the wage gap between white and nonwhite workers has actually only declined by about two percentage points since 1994. While not shown here, nonwhite workers have benefited more than other groups from the changes in the industry/occupation composition in the market, as their counterfactual average wages are slightly lower when controlling for changes in industry and occupation.

Differences by Education

Given the important role greater educational attainment has played in masking the decline in real wages over the last decade, Figure 4 presents the cumulative wage growth by education level: panel A shows observed wage growth for each educational

Figure 3 Real vs. Fixed Real Wages, by Sex and by Race



Note: Real wages are reflected in 2013 dollars.

Source: US Bureau of Labor Statistics, Current Population Survey, Outgoing Rotation Groups

group, while panel B shows this wage growth with the age structure of each educational group held fixed. Workers at all education levels experienced significant wage growth between 1994 and 2002, in both observed real wages (panel A) and fixed real wages (panel B). Across the different education levels, workers with a college degree, followed by those with a graduate school education, had the largest cumulative wage growth over this period, and were relatively less susceptible to the wage declines that followed the weak economic recovery after the Great Recession, particularly in 2012 and 2013.

The effect of declining real wages within educational classifications is seen across all education groups in panel A—workers at all education levels earned a lower real wage in 2013 than in 2002. Panel B disentangles the role of aging/experience from that of education. Experience appears to have had little effect on wage growth among the least educated (less than high school) and the most educated (graduate school). Controlling for the age structure (experience gains over time) reduces wage growth among the college educated to that experienced by workers with a graduate degree, and reduces the wage growth of those with a high school education or some college to the wage growth of those with less than a high school education.

Bottom Line

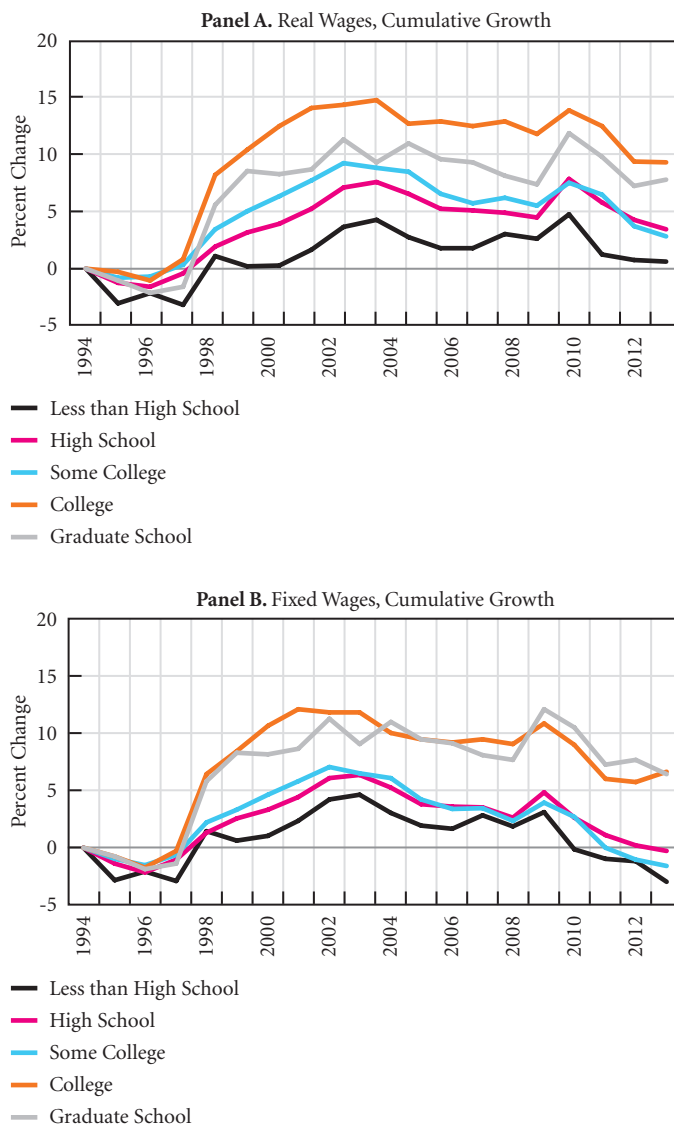
The stagnation of real wages is not a recent event. Evidence provided by Mishel et al. (2012) indicates that growth in real wages and labor productivity started diverging in the early 1970s. In spite of strong productivity growth, real wages remained flat. This disconnect between productivity growth and real wage growth has been tied to a shift in national income away from labor toward capital, and to increases in wage inequality (Mishel et al. 2012).

This policy note has illustrated that what appears to have been a decade of flat real wage growth was, in actuality, a decade of *declining* real wages. The aging and educating of the workforce propped up wages through gains in experience and enhancement of human capital. Within age and education groups, real wages at year-end 2013 were at levels last seen in 1998—5 percent lower than their peak in 2002.

What is the source of this decade of declining wages? While it is difficult to disentangle whether the decline is a cause or an effect, we observe that GDP growth declined over the same period of this analysis (1994 through 2013, abstracting from recessionary periods). The slower growth in output means smaller growth in returns to distribute to labor (and capital), which might have translated into even greater declines in real wages. In turn, declining real wages means consumers have less to spend in order to fuel growth.

So far, increases in educational attainment and experience among workers have propped up average real wages, overall. Going forward, as baby boomers retire, the average experience in the labor force will decline, pulling average wages down. However, as the growth in labor supply slows, this should put

Figure 4 Real Wage by Education Level



Note: Real wages are reflected in 2013 dollars.

Source: US Bureau of Labor Statistics, Current Population Survey, Outgoing Rotation Groups

upward pressure on wages. As for productivity, to the extent that changes in technology can boost workers' productivity and increase demand for highly skilled workers, this may translate into higher wages—although the significant productivity growth seen since 1973 has not produced commensurate increases in real wages.

Despite the sluggish evolution of real wages, the results presented here show that wage gaps (gender and racial gaps) have been steadily shrinking since 2002. On the one hand, most

of the narrowing of these wage gaps can be explained by a more rapid accumulation of human capital (higher education levels) among women and nonwhite workers. On the other hand, even after taking those changes into account, gender and racial wage gaps have shown a steady, albeit small, decline since 2002. In other words, women and nonwhite workers, respectively, have experienced slower wage declines compared to their male and white counterparts.

The ongoing changes in the age and education structure of the workforce suggest two implications going forward. First, while a more experienced and better educated (i.e., older and wiser) worker will have a positive impact on the quality and productivity of the workforce, failing to take into account the evolution of these factors provides a distorted perception of the trends in workers' compensation. In this sense, when describing the evolution of well-being in the population, an official index for a "fixed" wage trend might be more appropriate for policy-makers. Second, it remains to be seen for how long these structural changes will be able to hide the declining trends across the population, especially if the returns from increasing productivity are not translated into better wages. Moreover, based on the current trends, it will be important to create policies to facilitate the absorption of the increasing number of college graduates into the labor market, as well as secure a minimum level of quality of life (wages) for workers with less than a college degree.

Notes

1. The blip in real wages observed in 2009 is explained by very low inflation in the same period.
2. Evidence that college attendance even accelerated during the Great Recession can be found in Hotchkiss, Pitts, and Rios-Avila (2014).
3. Nineteen-ninety-four is chosen as the initial year to maintain consistency over time in the definition of variables such as education. Fortunately, this allows us to capture the latest period of real wage recovery experienced by the labor market (the late 1990s).
4. This strategy is in essence similar to the semiparametric analysis used in DiNardo, Fortin, and Lemieux (1996), where they analyze the effect of institutional and market changes on wage distributions.
5. Age structure changes were similar for men and women in the labor market across the sample years. In additional

results, not shown here, controlling for changes in the occupation and industry structure (in addition to education and age) had little effect on the counterfactual real wages for both men and women.

References

- Blau, F. D., and L. M. Kahn. 2007. "The Gender Pay Gap: Have Women Gone as Far as They Can?" *Academy of Management Perspectives* 21(1): 7–23.
- DiNardo, J., N. M. Fortin, and T. Lemieux. 1996. "Labor Market Institutions and Distribution of Wages, 1973–1992: A Semiparametric Approach." *Econometrica* 64(5): 1001–44.
- Goda, G. S., J. B. Shoven, and S. N. Slavov. 2011. "What Explains Changes in Retirement Plans during the Great Recession?" *American Economic Review* 101(3): 29–34.
- Goldin, C., L. F. Katz, and I. Kuziemko. 2006. "The Homecoming of American College Women: The Reversal of the College Gender Gap." *Journal of Economic Perspectives* 20(4): 133–56.
- Hotchkiss, J., M. Pitts, and F. Rios-Avila. 2014. "A Search for Evidence of Skill Mismatch in the Aftermath of the Great Recession." *Applied Economic Letters* 21(9): 587–92.
- Mishel, L., and H. Shierholz. 2013. "A Decade of Flat Wages." Briefing Paper No. 365. Washington, D.C.: Economic Policy Institute.
- Mishel, L., J. Bivens, E. Gould, and H. Shierholz. 2012. *The State of Working America*, 12th ed. An Economic Policy Institute Book. Ithaca: Cornell University Press.