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Low-wage Workers Are Older and Better Educated than Ever

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Relative to any of the most common benchmarks – the cost of living, the wages of the average worker, or average productivity levels – the current federal minimum wage of $7.25 per hour is well below its historical value.[1] These usual reference points, however, understate the true erosion in the minimum wage in recent decades because the average low-wage worker today is both older and much better educated than the average low-wage worker was in the past.

All else equal, older and better-educated workers earn more than younger and less-educated workers. More education – a completed high school degree, an associate's degree from a two-year college, a bachelor's degree from a four-year college, or an advanced degree – all add to a worker's skills. An extra year of work also increases skills through a combination of on-the-job training and accumulated work experience. The labor market consistently rewards these education- and experience-related skills with higher pay, but the federal minimum wage has not recognized these improvements in the skill level of low-wage workers.

Even if there had been no change in the cost of living over the last 30 years, we would have expected the earnings of low-wage workers to rise simply because low-wage workers today, on average, are older and much better educated than they were in 1979, when wage inequality began to rise sharply in the United States.

Table 1 below summarizes the characteristics of low-wage workers by age and education, where low wages are defined as earning $10.00 per hour or less in 2011 dollars. Between 1979 and 2011, the average age of low-wage workers increased 2.6 years, from 32.3 to 34.9. The rise in the average age reflects a big drop in the share of low-wage workers who are teenagers – from over one-in-four (26.0 percent) in 1979 to less than one-in-eight (12.0 percent) in 2011. Over the same period, the representation of workers in the 25-to-34 and 35-to-64 age ranges both increased sharply. In 1979, workers 25-to-64 made up almost half (about 48 percent) of low-wage workers; by 2011, they were just over 60 percent. (See **Figure 1**.)

Meanwhile, the educational attainment of low-wage workers has also soared. The share of low-wage workers with less than a high school

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degree fell by half, from roughly 40 percent in 1979 to roughly 20 percent in 2011. At the same time, the share of low-wage workers with a high school degree increased, from 35.4 to 37.0 percent, and the share with some college education (but not a four-year degree) rose dramatically, from about one-in-five (19.5 percent) in 1979 to one-in-three (33.3 percent) in 2011. By 2011, almost one-tenth (9.9 percent) of low-wage workers had a four-year college degree or more, up from 5.7 percent in 1979. (See **Figure 2**.)

TABLE 1
Characteristics of Low-wage Workers, 1979 and 2011
(percent of low-wage workforce)

	1979	2011
(a) Age		
16-19	26.0	12.0
20-24	21.1	23.7
25-34	17.5	22.1
35-64	30.8	38.1
65	4.6	4.2
Average Age (years)	*32.3*	*34.9*
(b) Education		
Less Than High School	39.5	19.8
High School	35.4	37.0
Some college	19.5	33.3
College+	5.7	9.9
(c) Gender		
Female	64.8	55.0
Male	35.2	45.0
(d) Race/Ethnicity		
White	77.5	56.9
Black	13.4	14.3
Latino	6.7	23.2
Other	2.4	5.6
Asian	n.a.	4.5

Source: Authors' analysis of CPS ORG. Low-wage workers defined as earning less than or equal to $10.00 per hour in constant 2011 dollars, using CPI-R-US.
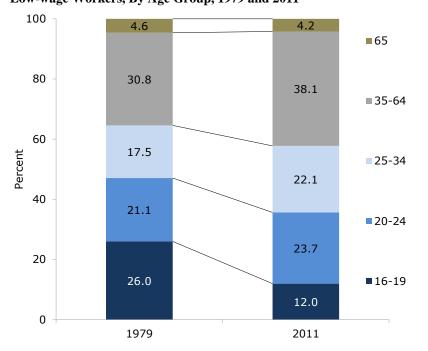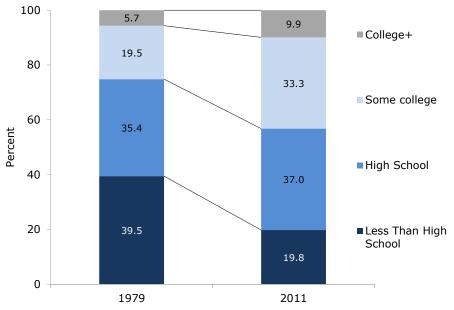
FIGURE 1
Low-wage Workers, By Age Group, 1979 and 2011

FIGURE 2
Low-wage Workers, By Education, 1979 and 2011

Given these increases in age and education, even if the cost of living had not changed at all between 1979 and 2011, we would have expected workers at the bottom to be earning more in 2011 than in 1979. **Figure 3** shows the results of an analysis that estimates where the minimum wage would have been if it had kept pace with the increases in the age and educational levels of the low-wage workforce.
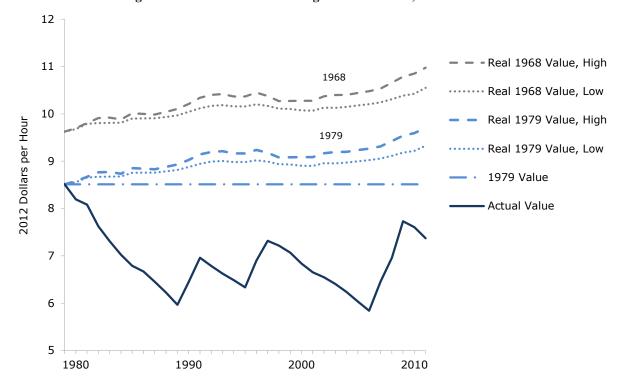
FIGURE 3
Value of Minimum Wage If It Followed Increases in Age and Education, 1979-2011

The figure shows six lines. The straight horizontal line is set at $8.51 per hour, which is the inflation-adjusted value of the minimum wage in 1979, expressed in today's dollars.[2] The jagged line below the straight line shows the actual inflation-adjusted value of the minimum wage in each year since 1979. The most striking feature of the actual value of the minimum wage is that, over the entire period since 1979, the inflation-adjusted value of the minimum wage was below its 1979 value. Even after the most recent increase, in 2009, the federal minimum was 9.2 percent below its 1979 value (and even more below the federal minimum's historic high level, in 1968).

The two lines immediately above the horizontal line, by contrast, show the value of the minimum wage assuming that the minimum wage had kept pace with its inflation-adjusted 1979 value *and* increased to reflect the rise in age and educational attainment of the low-wage workforce. The two lines translate the increases in age and education into dollar amounts based on the relationship between wages, age, and education at two different points in time. (See the **Data Appendix** for more details.) The "low" estimate values the rise in age and education using the extra earnings associated with increases in age and education in 1979. The "high" estimate values the rise in age and education using the associated extra earnings in 2011. The higher estimates for 2011 reflect a widely observed increase over the last three decades in the financial "returns" to education and experience.[3]

In both the low and high cases, the extra earnings rise slowly, reflecting the gradual aging and educational upgrading from one year to the next. Over three decades, however, the improvements in potential work experience and educational attainment imply large increases in the expected wages of low-wage workers. By 2011, the increase in earnings for low-wage workers was about 9 percent in

the conservative case (using the labor-market experience of 1979) and 14 percent using the higher estimate (based on the most recent labor-market data).

The top two lines in the figure show the results of a similar exercise using the inflation-adjusted value of the 1968 minimum wage, the year the federal minimum reached its historic peak.[4] Unfortunately, the data necessary to adjust the minimum wage for age and education increases between 1968 and 1979 are not available. Nevertheless, we can analyze what would have happened if the minimum wage had its 1968 inflation-adjusted value in 1979, and from that point on followed the same projected path implied by the actual increases in age and education. These calculations suggest that the federal minimum in 2012 would be in the range of $10.55 to $10.97.

The low-wage workforce is older and much better educated today than it was three decades ago. As we consider where to set the minimum wage going forward, it is not enough to calculate what level would preserve the purchasing power of this federal wage floor. We should also factor in reasonable rewards for the improvements in the educational attainment and work experience of low-wage workers. Doing so would imply a minimum wage that is at least 9 to 14 percent higher than the inflation-adjusted value in 1979 or even higher relative to 1968. Using 1979 as a reference point, our calculations suggest a minimum wage in the range of at least $9.33 to $9.70 dollars per hour. While we cannot fully adjust for increases in age and education over the full period since 1968, applying a roughly similar methodology to the real value of the minimum wage in that year implies a 2012 minimum wage of at least $10.55 to $10.97 per hour.

Even this calculation is conservative because we have not factored in the rise in average labor productivity since 1979 (or the even larger increases since 1968). Between the end of World War II and 1968, the federal minimum wage tracked productivity growth closely.[5] Since 1968, the gap between the federal minimum and productivity has grown substantially and almost continuously. If we expect low-wage workers to benefit from overall economic growth, the minimum wage should, in some way, reflect growth in average worker productivity. If so, the minimum wage would be substantially higher than implied by the calculations here.

Data Appendix

All data are from the CEPR extract of the Current Population Survey's Outgoing Rotation Group, available at http://www.ceprdata.org/. Constant 2011 dollars calculated using the CPI-U-RS, http://www.bls.gov/cpi/cpiursai1978_2010.pdf. All programs and log files available on request.

The **Appendix Table** shows the basic results used to produce the figures in the text. The first two columns compare the distribution of the workforce by age and education in 1979 and 2011. The third column shows the difference and illustrates the substantial "upgrading" in the education and age of the 2011 workforce relative to 1979.

The fourth column in the table shows the log-point increase in average earnings (for the entire workforce, not just those earning less than $10.00 per hour) associated with each education category (relative to less than a high school degree) and age range (relative to 16-to-19 year olds). The figure for "High School," for example, indicates that, all else equal, having a high school degree raises a person's wages by about 12 percent (0.122 log points), relative to an otherwise identical person who has not completed high school. The figures for the age groups have a similar interpretation, all relative to a 16-to-19 year-old worker.

We apply these estimated wage effects to the actual changes in the low-wage workforce's characteristics for each year between 1979 and 2011 and produce an estimate of how much we would have expected wages to increase, all else constant, in response to the educational and age upgrading.

We also perform the same exercise using the estimated financial returns to age and education in 2011 (see column five).

APPENDIX TABLE

Estimated Increase in Wages, Based on Increases in Education and Age, 1979-2011

Characteristics	Share of low-wage workers			Estimated "returns" to characteristics		
	1979	2011	Change	1979	2011	Change
Less than High School	0.395	0.198	-0.197	–	–	–
High School	0.354	0.370	0.017	0.122	0.206	0.084
Some College	0.195	0.333	0.138	0.192	0.312	0.120
College+	0.057	0.099	0.042	0.401	0.729	0.328
16-19	0.260	0.120	-0.140	–	–	–
20-24	0.211	0.237	0.026	0.080	0.071	-0.008
25-34	0.175	0.221	0.047	0.283	0.320	0.037
35-64	0.308	0.381	0.073	0.400	0.540	0.140
65+	0.046	0.042	-0.005	0.067	0.403	0.336

Implied increases in low-wage workers wages, if wages reflected increases in age and education:

At 1979 returns ("low")	9.4
At 2011 returns ("high")	14.0

Source: CEPR Analysis of CPS ORG. Returns to characteristics in columns four and five are based on a standard wage equation for all workers, separately for 1979 and 2011. Remainder of analysis refers to only low-wage workers.

1 See Schmitt, John. 2012. "The Minimum Wage is Too Damn Low." Washington, DC: Center for Economic and Policy Research (http://www.cepr.net/documents/publications/min-wage1-2012-03.pdf) and Schmitt, John and Marie-Eve Augier. 2012. "Affording Health Care and Education on the Minimum Wage." Washington, DC: Center for Economic and Policy Research (http://www.cepr.net/documents/publications/min-wage2-2012-03.pdf) for two recent reviews of the historical value of the minimum wage.

2 In constant 2012 dollars, using the CPI-U-RS, and the Congressional Budget Office's projections for inflation for the full year 2012.

3 See, for example, Goldin, Claudia and Lawrence Katz. 2010. *The Race Between Education and Technology.* Cambridge, MA: Harvard University Press.

4 See endnote 1.

5 Ibid, Figure 2.