



February 6th 2015

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Online Technical Appendix: *Falling Short: The Impact of Raising the Minimum Wage in Pennsylvania to \$8.75 vs. \$10.10*

Minimum Wage Proposals

In this Policy Watch we estimated the number of workers affected, their demographics and the economic impact of an increase in steps of the Pennsylvania state minimum wage. Specifically we modeled the impact of:

- an increase in the state minimum wage to \$8.70 in July 2015 and to \$10.10 in July 2016
- and alternatively an increase for workers age 19 and older to \$7.75 in July 2015, to \$8.25 in July 2016 and finally to \$8.75 in July 2017

Data Source

We estimate the number and demographics of workers impacted by these two minimum wage increases using Pennsylvania data from the 2014 Outgoing Rotation Group public use microdata of the [Current Population Survey](#).

Population and Wage Growth Assumptions

Minimum wage increases which are phased in overtime necessitate adjustments to our 2014 sample which account for growth in the working age population as well "natural" or

inflation-driven growth in hourly wages. Our estimates assumed annual working age population growth of 0.24%, the annualized projected population growth rate from 2000 to 2020 [estimated](#) by the PennState Harrisburg PA State Data Center. We also grew the 2014 hourly wages of all workers by 0.5%² leading up to first step and 2.09%³ annual wage growth in the second and third steps. The difference reflects our judgment that wage growth will be stronger in 2016 and 2017.

Total Affected Workers

For each proposal we report the total number of workers affected, i.e. the sum of directly- and indirectly-affected workers. Directly-affected workers will see their wages rise as the new minimum wage rate will exceed their current hourly pay. Indirectly-affected workers have a wage rate just above the new minimum wage (specifically, we identify indirectly-affected workers as having wages between the new minimum wage and the new minimum wage plus the dollar amount of the increase in the previous year's minimum wage). They will receive a raise as employer pay scales are adjusted upward to reflect the new minimum wage – often called the “spillover” or ripple effect.

GDP and job stimulus figures

For each proposal we estimate the impact of a minimum wage increase on output and employment utilizing a national model to estimate the GDP impact of workers' increased earnings in periods of depressed consumption and labor market slack. Thus the total state stimulus may be lower than this amount because workers in each state will not necessarily spend all of their increased earnings

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² PA average annual wage growth of bottom 20% of wage earners in 2009-2013, according to CPS ORG

³ PA average annual wage growth of bottom 20% of wage earners from 2002-2006, according to CPS ORG

in-state and macroeconomic conditions may not be conducive to any significant spending effect. However, we can assume that most of the increased earnings will be spent in-state, and thus most of whatever jobs are created will be in-state. Our estimates of the jobs created assume full-time employment requires \$133,000 in additional GDP.

For an increase in the state minimum wage to \$8.75 we estimate an increase in full-time employment of 700 jobs and to \$10.10 an increase in full-time employment of 6,000 jobs. The increased economic activity from an increase in the minimum wage adds not just jobs but also hours for people who already have jobs (work hours for people with jobs also dropped in the downturn). Full-time employment takes that into account, by essentially taking the number of total hours added (including both hours from new jobs and more hours for people who already have jobs) and dividing by 40, to get full-time-equivalent jobs added. Job impact estimation methods can be found in:

- Hall, Doug and Cooper, David. 2012. [How raising the federal minimum wage would help working families and give the economy a boost](#). Washington, D.C.: Economic Policy Institute.
- Bivens, Josh L. 2011. [Method memo on estimating the jobs impact of various policy changes](#). Washington, D.C.: Economic Policy Institute.