

BRIEFING PAPER

**New Estimates Confirm that Three-quarters of
a Million Pennsylvania Workers Would See Higher Pay
With a \$7.15 Per Hour Minimum Wage**

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Introduction

Pennsylvania's General Assembly is currently considering whether to increase the Commonwealth's hourly minimum wage to \$7.15 by January 2007. With wage data for 2005 now available, this Briefing Paper updates Keystone Research Center's (KRC's) estimates of the number of workers who would benefit from such an increase. KRC also compares its estimates with those released by the Pennsylvania Department of Labor and Industry (PDL&I) and the Commonwealth Foundation (CF).

Findings

- KRC estimates that 427,000 Pennsylvania workers would benefit *directly* from an increase in the state's minimum hourly wage from the current \$5.15 to \$7.15 by January 2007. This estimate is lower than KRC's previous estimate of 510,000 for two reasons: the new estimate relies on 2005 data and, in addition, it projects a small decline in the number of affected workers between 2005 and 2007.
- PDL&I projects that 423,000 workers would benefit directly from a minimum wage increase to \$7.15, very similar to the KRC estimate. The CF estimate is 25 percent lower, at 320,000.²
- All of these estimates rely on the same official government data source, the Current Population Survey (CPS).
- The differences in numbers reported result primarily from two choices.
 - The first choice involves which workers to include in the sample. CF and KRC both include a relatively small group of workers that PDL&I excludes.
 - The second choice relates to the approach each group takes to project the decline in the number of workers earning \$5.15 to \$7.14 that will take place from 2005 to January 2007. PDL&I does not project to 2007 but instead reports 2005 numbers. KRC and CF use different methods to project to 2007. For reasons explained in the Technical Appendix, CF's method leads to an underestimate of the number of affected workers. As a result, the number of directly affected workers is likely to be much closer to the KRC and PDL&I estimates of roughly 425,000 than the CF figure of 320,000.
- KRC estimates that another 327,000 workers whose wages fall between \$7.15 and \$8.14 per hour on January 1, 2007 – i.e., within a dollar of the new minimum wage – would benefit *indirectly* from a minimum wage hike to \$7.15. While the new minimum wage will not mandate raises for these workers, research shows they are likely to receive them as their employers seek to retain a higher-quality workforce than available right at the new minimum wage.

- While no other organization has estimated the number of indirectly affected workers, the fact that workers above \$7.15 would also see higher wages is not a subject of disagreement. Opponents of a minimum wage increase acknowledge that its impact will go beyond workers earning \$7.15 per hour, with businesses that pay \$8 to \$9 an hour also adjusting their pay scales.³

The bottom line is that the differences in the estimates of the impact of a minimum wage increase are modest. These differences would likely shrink further if CF were to update its estimate of directly affected workers based on full-year 2005 data and to take into account the downward bias in its methodology for projecting the numbers to 2007.

Conclusion

Pennsylvania's minimum wage debate need no longer get lost in a fog of numbers.

Hundreds of thousands of workers would benefit from an increase in the minimum hourly wage to \$7.15 – KRC estimates over three-quarters of a million counting the indirectly affected. Some would receive increases of as much as \$4,000 annually. Policymakers should, therefore, shift their focus to the larger policy question of whether giving hundreds of thousands of Pennsylvania's lowest-wage workers higher pay is a good idea.

A Technical Appendix details KRC's new estimates and compares them with those of CF and PDL&I. Drawing on our new statewide estimates, a revised Briefing Paper available on the KRC Web site (www.keystoneresearch.org) will contain new estimates of the number of workers in each county who would benefit from a minimum wage increase.

Technical Appendix

As well as updating KRC's own estimates of the impact of a higher minimum wage, this Briefing Paper seeks to clear up confusion that exists among lawmakers, members of the media, and the public because of the many different numbers that have been cited in the minimum wage debate.

Some of this confusion may result from the politics surrounding the issue. For example, opponents of a higher minimum wage sometimes inject into the discussion very low numbers that may leave lay audiences thinking the minimum wage is not very important. One example is the Commonwealth Foundation (CF) statement that “less than 1 percent of all American workers earned the minimum wage” in 2004 (see “Minimum Wage Facts,” online at www.commonwealthfoundation.org). While factually accurate, citing the number of workers who earn exactly the current minimum wage says nothing about the impact of an increase in the minimum wage of \$1 or \$2. The National Federation of Independent Business (NFIB) and Chamber of Business and Industry are also fond of citing the small number of workers who earn at or below the current minimum wage of \$5.15. When the NFIB and Chamber do this, they do not always share with their audience that large numbers of workers earn in the wage ranges above \$5.15 that would be affected by a minimum wage increase to \$7.15.

Even if some confusion is deliberately created, however, when it comes to the simplest estimate of the effect of a minimum wage increase to \$7.15 – i.e., the number of workers earning \$5.15 to \$7.14 – there is less incompatibility between published estimates than widely believed. The remainder of this Technical Appendix looks in detail at the estimates made by the Keystone Research Center (KRC), CF, and the Rendell Administration.

KRC's Methodology

The primary source for all of the published estimates of the number of workers affected by a minimum wage increase is the Current Population Survey (CPS), a monthly household survey conducted by the Census Bureau and analyzed regularly by the Bureau of Labor Statistics (BLS). The CPS is the main source relied on by economists to evaluate wage trends at the national and state levels.

In previous estimates of the number of workers at the state and county level who would benefit from a minimum wage increase, KRC used the 2004 CPS, at that time the most recent full year of CPS data available.⁴ With the 2004 CPS, we estimated the number of Pennsylvania workers who would benefit directly from a minimum wage increase as the sum of two groups.

1. The number of workers reporting hourly earnings between \$5.15 and \$7.14 – 453,000.⁵
2. The number of workers reporting weekly earnings whose “imputed” hourly earnings (weekly earnings divided by usual hours worked) were between \$5.15 and \$7.14 – 57,000.⁶

Thus a total of 510,000 workers – 453,000 plus 57,000 – were estimated to benefit directly.

We also calculated from the 2004 CPS the number of workers earning \$7.15 to \$8.14 – 350,000. Even though employers paying in this range are not legally required to give their workers a raise, research shows these employers likely would give their workers a “ripple effect” increase to keep them above the new minimum wage.⁷ This increase helps these employers attract and retain quality workers. That a ripple effect exists and that workers above \$7.15 would enjoy some increase have been acknowledged by

opponents of a higher minimum wage. According to *The Patriot-News*, “opponents [of a minimum wage increase] say the proposed hike wouldn’t simply raise wages for...workers who...make less than \$7.15. It could also force businesses that pay \$8 to \$9 an hour to adjust their pay scales.”⁸

To sum up, KRC previously estimated the total number of workers directly and indirectly affected by a minimum wage hike to \$7.15 as 510,000 plus 350,000 -- 860,000 workers in all.

The new estimates in this paper of the number of workers who would benefit from a minimum wage increase differ from our previous ones for two reasons.

1. To the extent possible, we rely on data for 2005.
 - BLS recently released the 2005 number of Pennsylvania workers reporting hourly earnings between \$7.15 and \$8.14 – 423,000, down from 453,000 in 2004.
 - The number of workers reporting weekly earnings but whose imputed hourly earnings are \$5.15 to \$7.14 is not yet available. Earlier years’ data, however, reveal that the size of this group compared to that of workers directly reporting hourly earnings of \$5.15 to \$7.14 is stable over time: the group with imputed earnings from \$5.15 to \$7.14 is a little over 12 percent of the group reporting hourly earnings in this range. We used this fact to estimate the imputed hourly group in 2005 as 52,000, down from 57,000 in 2004.
 - We continue to use 2004 data as the initial data source for the number of workers earning \$7.15 to \$8.14. (BLS has not yet published data for this wage range for 2005.)
2. Since the increase to \$7.15 would only go into effect on January 1, 2007, we estimate how much change there will be in the size of our directly and indirectly affected groups by then. This change results from two factors.
 - a. Nominal wage changes. To the extent that employers adjust wages for inflation, or give workers increases over and above inflation, more workers will move above our \$7.14 and \$8.14 thresholds, reducing the number of beneficiaries from a minimum wage increase.
 - b. Changes in total employment. If total employment increases, the number of workers earning \$5.15 to \$8.14 can also be expected to increase.

Since both these factors have been operating over the past several years, we assume that their effect between now and January of 2007 will be the same as it was over the period 2001 to 2005. From 2001 to 2005, the number of workers earning between \$5.15 and \$7.14 declined 6.6 percent per year. We assume it will do the same in 2006 and that it will decline a further 3.3 percent by January 2007, bringing our total for the number of directly affected workers to 427,000 by January 1, 2007.

For workers earning \$7.15 to \$8.14, the annual rate of change from 2001 to 2004 (recall that we do not have data for this group for 2005) was -2.6 percent. Applying this percentage to 2005 and 2006 and applying -1.3 percent for the half year to January 1, 2007, the number of workers earning \$7.15 to \$8.15 is estimated to be 327,000 on January 1, 2007.⁹

Table 1. KRC's Previous and Revised Estimates Compared					
	(a) Workers reporting hourly earnings of \$5.15 to \$7.14	(b) Workers with imputed hourly earnings of \$5.15 to \$7.14*	(c) Total number of workers who would benefit directly from a minimum wage increase (a + b)	(d) Number of workers earning \$7.15 to \$8.14 who would benefit indirectly from a minimum wage increase	(e) Total number of workers who would benefit directly and indirectly (c + d)
Prior KRC estimate (2004 data)	453,000	57,000	510,000	350,000	860,000
Updated KRC estimate	382,000	45,000	427,000	327,000	754,000
*Calculated as weekly earnings divided by usual weekly hours.					

Table 1 summarizes KRC's prior and updated estimates.

KRC's and Other Estimates Compared

Tables 2 and 3 compare KRC's methods and numbers with those of the Commonwealth Foundation, developed by economist David McPherson, and the Pennsylvania Department of Labor and Industry.¹⁰

In the range of \$5.15 to \$7.14, there are two primary reasons that CF, PDL&I, and KRC generate different estimates of the number of workers (Table 2).

1. Workers who report a weekly not an hourly wage are included in the CF and KRC sample but not in the PDL&I one. (Both CF and KRC impute the hourly wage for this group by dividing weekly wages by usual weekly hours.) In the KRC sample, the group with imputed hourly wages is only 12 percent of the much larger group of workers who report an hourly wage. Therefore, its inclusion or exclusion makes only a relatively small difference in estimates.
2. Second, the three groups use different methodologies to project changes in the number of workers in the \$5.15 to \$7.14 range from the time of data collection (2004 or 2005) to January 1, 2007. PDL&I does not, in fact, project these changes, relying instead on 2005 numbers. CF and KRC use different methods to project how much the numbers will change by January 1, 2007.

A further minor difference between these estimates exists in the time period of the data used. CF uses a sample from the second half of 2004 and the first half of 2005. KRC and PDL&I rely partly or completely on 2005 data.

Above the wage range ending at \$7.14, there is another difference between these groups' estimates: only KRC estimates the number of indirectly affected workers who will earn \$7.15 to \$8.14 on January 1, 2007.

Table 2. A Comparison of Three Methodologies for Estimating the Number of Workers Who Would Benefit from a Minimum Wage Increase			
	Keystone Research Center Updated	PA Department of Labor and Industry	Commonwealth Foundation
Date of CPS data used	<ul style="list-style-type: none"> • 2005 for workers earning \$5.15 to \$7.14 • 2004 for workers earning \$7.15 to \$8.14 	2005	7/2004 to 6/2005
Does data used include workers with hourly earnings imputed from weekly earnings?	Yes	No	Yes
Is the change estimated in the number of workers earning \$5.15 to \$7.14 between the time of data collection and January 1, 2007?	Yes – applies annual average changes between 2001 and 2004/05 to project data to 1/2007. (Method takes into account both wage inflation and increases in the size of the labor force.)	No	Yes – assumes annual wage inflation of 2.5 percent. (Method does not consider impact of employment growth.)
Does the organization estimate the number of workers above the new minimum wage who receive a ripple effect bump up in wages?	Yes – number estimated as those in the range \$7.15 to \$8.14	No	No

Table 3, with the actual numbers, shows that the KRC and PDL&I estimates for directly affected workers are similar. The similar final number results because the differences in methodology between the two estimates offset one another.

- KRC's inclusion of workers with imputed hourly earnings increases its estimate relative to PDL&I's.
- KRC's projection of the reduction from 2005 to January 1, 2007 in the number of workers earning \$5.15 to \$7.14 lowers its estimate relative to PDL&I's.

Table 3 also shows that the CF number is much lower than either the KRC or PDL&I number. This difference is the result of CF's projection methodology, which assumes 2.5 percent wage inflation from 2004/05 until January 1, 2007. There are two flaws with this methodology.

- First, CF does not take account of job growth that will increase the number of affected workers.

- Second, the CF method is plagued by the tendency of respondents to household surveys to report their wages in whole numbers (e.g., \$6, \$7, \$8 and so on). As a result of this tendency, some 124,000 Pennsylvania workers are estimated to earn almost exactly \$7 in CF's original data (for the period 7/2004 to 6/2005). Inflating a \$7 wage by 2.5 percent for each of two years brings these workers to \$7.35 per hour by January 1, 2007, moving them out of the McPherson/CF directly affected range.¹¹ In practice, however, these workers may actually earn anywhere from approximately \$6.75 to \$7.25 to start with, and some of them will still earn less than \$7.15 by 2007. KRC's alternative method of projecting the number of workers in the \$5.15 to \$7.14 range avoids difficulties due to spikes in the wage data at whole numbers.

While the flaws in McPherson's method lead him to overestimate the decline in directly affected workers over time, he deserves credit for explicitly modeling the change in the number of such workers between the time when his data was collected and January 1, 2007. KRC's original estimate (of the number of directly affected workers) was too high because it did not model this change. The new KRC estimate, which models this change in a way this is likely to prove more accurate than McPherson's, is between the original KRC 510,000 and the CF 320,000, although slightly closer to the former.

Table 3. Estimates of Workers Affected by a Minimum Wage Increase to \$7.15 Per Hour

	Keystone Research Center	PA Department of Labor and Industry	Commonwealth Foundation
Workers reporting hourly earnings between \$5.15 and \$7.14	382,000	423,000	Not Reported*
Workers with imputed hourly earnings between \$5.15 and \$7.14	45,000		Not Reported*
Total estimated directly affected	427,000	423,000	320,000*
Workers hourly earnings (reported plus imputed) from \$7.15 to \$8.14	327,000		
Total affected	754,000	NA	NA
*McPherson/CF does not report separately the number of workers with reported and imputed hourly earnings between \$5.14 and \$7.14. KRC's replication of McPherson's methodology finds that there are 279,000 workers with reported hourly earnings from \$5.15 to \$7.14 and another 42,000 with imputed hourly earnings in this range. This split indicates that the difference between CF's results and those of the other two groups is driven almost entirely by a lower estimate in the number of workers reporting hourly earnings between \$5.15 and \$7.14 who are projected to still earn less than \$7.15 by 2007.			

Endnotes

¹ Stephen Herzenberg, KRC Executive Director, holds a Ph.D. in economics from the Massachusetts Institute of Technology. Mark Price, KRC Labor Economist, holds a Ph. D. in economics from the University of Utah.

² We restrict our analysis to the three estimates for which methodologies are spelled out in published documents. John Baer reports another estimate than adds up to 320,000 (like the CF estimate) but does not cite a specific source: “Those opposed to an increase... noted the U.S. Labor Department says there are 89,000 Pennsylvanians making the minimum wage or less and 231,000 making between \$5.15 an hour and \$7.15 an hour...for a total of 320,000.” (John Baer, “At Year’s End,” *Philadelphia Daily News*, December 29, 2005). BLS data for 2004 do show that 89,000 workers reported hourly earnings of \$5.15 or below but they also show 426,000 workers in the \$5.16 to \$7.14 range, not 231,000. Baer’s source may have mistakenly assumed that the CF estimate includes workers earning below \$5.15, which it does not, and then subtracted the 89,000 from 320,000. In any event, there is no published basis for the combination of numbers in the Baer quote.

³ Charles Thompson, “WAGE: Rendell, Democrats seek boost to \$7.15 an hour,” *The Patriot-News*, January 20, 2006, p. A-9.

⁴ Stephen Herzenberg, Mark Price, and Howard Wial, *The State of Working Pennsylvania* (Harrisburg: Keystone Research Center, 2005), online at www.stateofworkingpa.org and www.keystoneresearch.org.

⁵ For industries with large numbers of tipped workers, CF and KRC substitute for a reported hourly wage an imputed hourly wage which equals reported weekly earnings divided by average weekly hours. This is necessary because directly reported hourly pay does not include tips, whereas weekly earnings does include tips.

⁶ All three of the estimates exclude workers earning less than \$5.15 (94,000 in 2004, including workers with imputed hourly wages in this range). Some workers, however, may report earning \$5 because it is a round number even though they are subject to the minimum wage and would receive an increase. The exclusion of this group makes all of the estimates more conservative.

⁷ In a review of the literature, Jeannette Wicks-Lim finds that estimates of the upper limit of the ripple effect range from 25 cents to \$3 above the new minimum wage level. See Jeannette Wicks-Lim, *Mandated Wage Floors and the Wage Structure: Analyzing the Ripple Effects of Minimum and Prevailing Wage Laws*, Ph.D. dissertation, University of Massachusetts-Amherst, 2005.

⁸Thompson, “WAGE: Rendell, Democrats seek boost to \$7.15 an hour.”

⁹ In the period we consider, the annual percent change in workers earning \$7.15 to \$8.14 is highly volatile, climbing 2.5 percent in 2002, falling 18.8 percent the next year, and climbing 8.5 percent in 2004. The volatility in this figure makes the estimate of the number of workers in the \$7.15 to \$8.14 by January 2007 less precise than our new estimate for the number of directly affected workers.

¹⁰ The CF estimate is contained in David A. McPherson, *The Effects of the Proposed Pennsylvania Minimum Wage Increase* (Harrisburg: Employment Policies Institute and Commonwealth Foundation), online at www.commonwealthfoundation.org/. The PDL&I estimate is online at

<http://www.governor.state.pa.us/governor/cwp/view.asp?Q=444965&A=3>. For the 2005 BLS data that both KRC and PDL&I rely on, see also www.governor.state.pa.us/governor/lib/governor/BLS_423K_in_2005.pdf.

¹¹ At the bottom end of the wage range, McPherson excludes all workers earning below \$5.15 in his original (7/2004 to 6/2005) data (see Endnote 3). This exclusion may compound the problems caused by wage data that cluster on whole wage numbers when McPherson projects wage numbers to 2007. That is, while the large number of workers reporting \$7 wages in 2004/2005 all moves out of the directly affected wage range by 2007, the smaller spike at \$5 does not enter the wage range. Once again, the KRC alternative methodology does not suffer from this problem because it extrapolates changes in the \$5.15 to \$7.14 group from previous years.

The Keystone Research Center

The Keystone Research Center (KRC) was founded in 1996 to broaden public discussion on strategies to achieve a more prosperous and equitable Pennsylvania economy. Since its creation, KRC has become a leading source of independent analysis of Pennsylvania's economy and public policy.

The Keystone Research Center is located at 412 North Third Street, Harrisburg, Pennsylvania, 17101. Most of KRC's original research is available from the KRC Web site at www.keystoneresearch.org. The Keystone Research Center welcomes questions or other inquiries about its work at 717-255-7181, or toll free at 888-618-2055.