

# Commentary: Polanyi's Paradox and the Shape of Employment Growth

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*Lisa M. Lynch*

David Autor has presented a comprehensive overview of the changing structure of employment in the United States over the past 30 years. His argument that technological change has played a key role in the hollowing out of middle-skilled jobs and that job polarization may explain the changing pattern of wages is thoughtful and compelling. However, how job polarization will impact the forward path of wages is less clear. Before I discuss the conclusions for monetary policy that we might draw from the debate about job polarization, I will first raise some issues with the job polarization literature and then present some alternative explanations of stagnant wages and rising wage inequality that differ from technological change.

As discussed by Mishel, Shierholz and Schmitt (2013) in a paper called "Don't Blame the Robots," job polarization in the U.S. due to technological innovation is not a new phenomenon but rather something that has always been a part of our industrialized economy. Importantly, when one examines job polarization over the last 60 years we see that it has been associated with spells of both rising *and falling* wage inequality. This suggests that other factors are likely to be in play as determinants of rising wage inequality besides technology. Second, an increasing share of rising wage inequality is happening within occupations, not just across occupations. This indicates

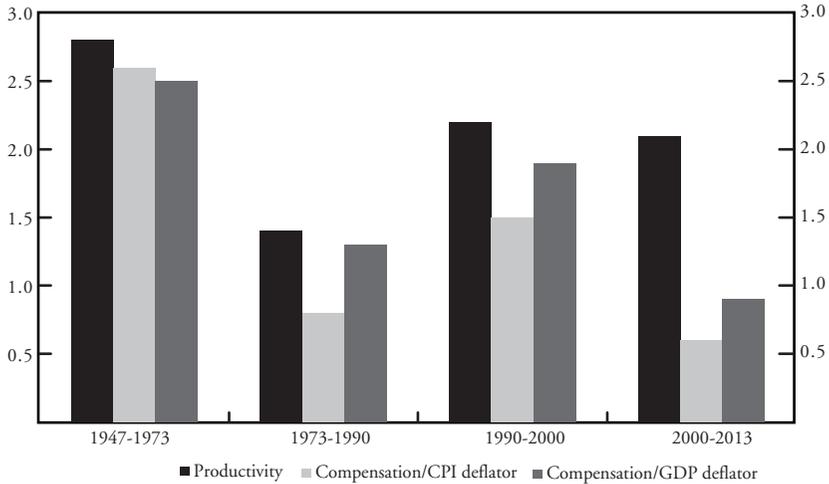
something in addition to job polarization is having an impact on wages of workers. Third, as Autor discusses in his paper, in the 2000s job polarization does not seem to be as significant a phenomenon. Again this means that we need to look for other factors to explain the stagnant median wages we have seen since 2000.

In addition, even describing the phenomenon of job polarization is challenging because it is not readily apparent how to clearly and consistently define the difference between a low-skilled, medium-skilled and high-skilled job over time. Using past wages paid for the occupation to allocate workers into different skill categories, as is sometimes done in this paper and by others, seems overly simplistic and problematic. Autor tries to address this with a chart in his paper that categorizes jobs as manual, routine, or abstract. But this is still a long way from the wide range of factors employers typically take into account when setting wages for workers of different skill levels within their firms.

My most significant concern though with the paper is that there may well be alternative or additional explanations of the determinants of the changing pattern of wages and employment that go well beyond technology. For example, my research with Sandra Black on U.S. firms in the 1990s (see Black and Lynch 1996, 2001, 2004; Black, Lynch and Krivelyova 2004; and Lynch 2012) suggests that while investments in information and communication technologies (ICT) had a significant impact on productivity and wages, an equally if not larger factor were the investments employers were making in organizational innovation. Much of this organizational innovation was complementary to investments in ICT, but not all. At the end of his paper Autor himself briefly identifies an additional explanation of wage inequality that has to do with trade and offshoring. But this is not developed and its link or complementarity with technological innovation is not discussed.

Given this discussion, a more multifaceted explanation for growing wage dispersion, job polarization and stagnant median wages is needed. Not only are there likely to be numerous other explanations besides technological innovation for rising wage inequality, but the

**Chart 1**  
**Annualized Percent Changes in Productivity and Real Compensation Nonfarm Business Sector**



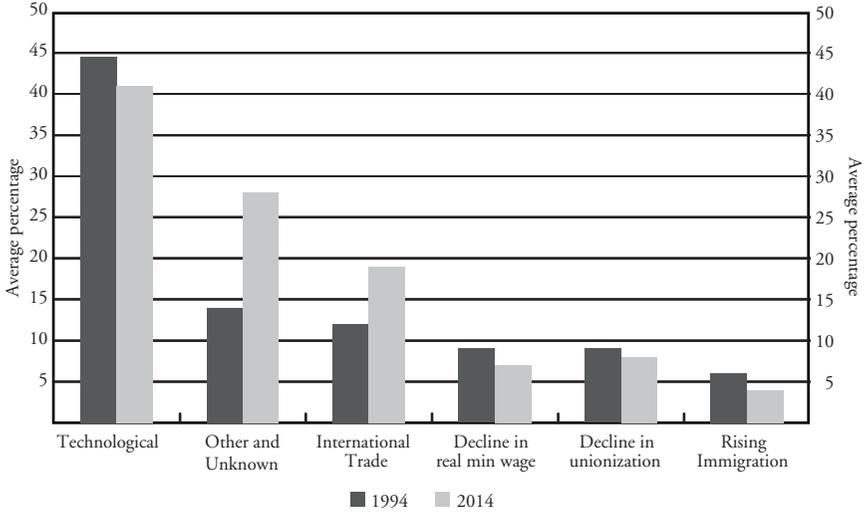
Source: Bureau of Labor Statistics, <http://www.bls.gov/lpc/> accessed Sept. 5, 2014.

relative importance of these different explanations may well have changed over time as well.

When I look at the changes that have occurred in the labor market in the U.S. over the last 30-35 years, what strikes me as the biggest change is not so much job polarization but rather the changing relationship between real wages and productivity. As shown in Chart 1, from the end of the Second World War through the early 1970s, real wages and labor productivity grew hand in hand. However, in the 1970s, something changed, and compensation, when deflated by the consumer price index, began to grow more slowly compared to increases in productivity. Since 2000, this gap has widened sharply even if we deflate compensation by the GDP deflator or if we restrict ourselves to comparing productivity with trends in real wages of college graduates. The decline in labor’s share of income in the U.S. since 2000 has persisted throughout the Great Recession and has yet to recover to its historical norm of around 65 percent.

So why aren’t we growing together as in the past? This is not a new question for a Federal Reserve Bank symposium. In 1994, not only did the Jackson Hole symposium focus on labor market issues, the

**Chart 2**  
**Expert Poll on Causes of Higher Wage Inequality in the U.S.**  
**(Percentage Explained by Each Cause)**

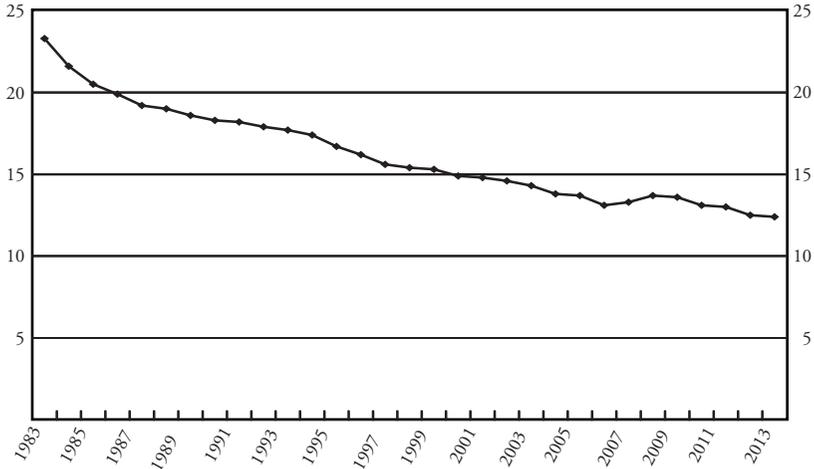


Sources: 1994 data, Alan Krueger expert poll of economists presenting at the Federal Reserve Bank of New York colloquium on "U.S. Wage trends in the 1980s," November 1994, reprinted in the Council of Economic Advisers Economic Report of the President, 1997 p. 175. 2014 data come from Lisa Lynch expert poll of economists presenting at the Federal Reserve Bank of Kansas City economic symposium "Re-evaluating Labor Market Dynamics" at Jackson Hole, Wyo., August 2014.

Federal Reserve Bank of New York also organized a conference that brought together labor, macro and international trade economists to discuss the growing wage-productivity gap and rising wage inequality of the 1980s. Taking advantage of this gathering of experts in New York, Alan Krueger, who was then chief economist at the U.S. Department of Labor, conducted a poll of the presenters asking them to allocate the share of widening inequality they thought was due to a range of factors. I have replicated this completely unscientific poll with our conference presenters (excluding central bank officials) and the data from these two expert polls are presented in Chart 2.<sup>1</sup>

As shown in Chart 2, the share of the increase in wage inequality that the experts at these two conferences allocated to technology is similar and high. But note, both in 1994 and 20 years later, technology was not viewed as the only explanation of rising wage inequality and in both occasions it accounted for somewhat less than half the change. Some of the other factors cited included declining unionization, declining value of the real minimum wage and rising

**Chart 3**  
**Union Coverage of all Wage and Salary Workers**  
**in the U.S., 1983-2013**



Source: Bureau of Labor Statistics, Current Population Survey.

immigration. Across these two polls these three factors were viewed as explaining anywhere from a fifth to a quarter of the rise in wage inequality since the early 1970s.

What happened to these three factors over the past 30 years? As shown in Chart 3, in 1983 almost one in four workers was covered by a collective bargaining agreement. Today it is just 12.4 percent. This decline in unionization has surely impacted the ability of workers to share in the gains in productivity and profitability of the last 20 years. Bruce Western and Jake Rosenfeld (2011) argue that between 20-33 percent of the increase in wage inequality in the U.S. over the period 1973-2007 could be attributed to this decline in union coverage. They discuss how this decline in coverage impacts not only union workers but also nonunion wages.

The 1979 value (\$2.90) of the minimum wage in today’s dollars was \$9.50. In spite of rising inflation, there were no increases in the minimum wage throughout the 1980s. As a result, real wages for the lowest paid workers dropped throughout the 1980s contributing to widening inequality. Autor, Manning and Smith (2010) estimate that between 1979-88, 35-45 percent of the growth in inequality, as

measured by the differential between the log of the 50th and 10th percentiles of the wage distribution, was due to the decline in the real value of the minimum wage. Increases in the minimum wages in the 1990s helped reverse this decline but between 1997 and 2007 there were no increases in the minimum wage in spite of rising inflation. At \$7.25, the current national minimum wage is well below its inflation adjusted value in the late 1970s and therefore likely to be a contributory factor in widening inequality.

For all the political debate about immigration, the polling data of economists in 1994 and 2014 show a consensus that immigration plays a very small role in explaining wage inequality. In his Ely Lecture at the January 2009 meetings of the American Economic Association, David Card (2009) concluded that between 1980 and 2000 immigration accounted for just 5 percent of the increase in wage inequality over that period. This is very similar to the weight our experts gave to this factor.

Now let me turn to factors that appear to be viewed quite differently today by our experts compared to 20 years ago. The first is the role of international trade and offshoring/outourcing in explaining rising inequality and, potentially, of the growing gap between wages and productivity.<sup>2</sup> In 1994, the experts polled concluded that about 12 percent of rising inequality was due to international trade and offshoring, while today our experts gave trade and offshoring a weight of almost 20 percent. In a recently published paper, Oldenski (2014), using the tasks framework of Acemoglu and Autor (2010), shows that during the 2000s, the intensity with which occupations use nonroutine tasks determines which workers gain or lose with international trade. She shows that wages for workers in middle-skill/routine jobs fall, while wages for those working in nonroutine or high communication at the bottom or top of the skills ladder increase. The wage polarization of the 2000s then appears to be driven by offshoring rather than just technology. Moreover, Elsby, Hobejin and Şahin (2013) find that the decrease in the labor share is greater in sectors that are exposed to import competition and thus conclude that offshoring is a leading potential determinant of this decline.

The second difference in our 2014 poll compared to the 1994 poll is that our experts for this conference allocate a larger share of rising inequality to the categories “other and unknown reasons.” Unfortunately, in the 1994 poll these two categories were merged. But, as I recall from the discussion then, most of the 15 percent share due to “other or unknown” was attributed to factors such as deregulation, organizational innovation and changing employer norms. Relatively little was attributed to “unknown” factors. In our 2014 poll, our experts on average allocated 17 percent to other factors and 11 percent to unknown reasons. It is good to see that our professional hubris seems to have declined a bit over time, at least with respect to our ability to explain the complexities of wage determination.

In terms of what might be included in the category “other factors,” let me suggest that besides changes in organizational innovation, deregulation and the relative supply of educated workers, a new phenomenon has unfolded in the workplace over the last 20-25 years that has changed the nature of wage determination in the United States. This phenomenon has been detailed at length in David Weil’s (2014) new book, *The Fissured Workplace*. Weil contends that over the past two decades there has been an increase in the use of temporary hires, subcontracting and third-party managers that challenges the regulation of working conditions and of the setting of wages within a firm. As a result, in addition to job polarization, as detailed by David Autor, we have seen an increase in job “precarity” or precariousness over the last 20 years—i.e., contingent workers with little employment protection.

One example of this is Amazon’s Mechanical Turk. This is global crowd-sourced micro-tasking platform introduced by Amazon in 2005. Named after an 18th century machine that could beat humans at chess, in reality the original Mechanical Turk was a scam with a chess grandmaster masquerading as a machine. Today’s Amazon Mechanical Turk is a labor market where hundreds of thousands of jobs (otherwise known as “human intelligence tasks” or HITs) are posted by employers (Requesters) and workers (Turkers) decide if they want to take on the work. Employers pay but only if they determine that

the work is of high enough quality. If they choose not to pay they can still keep the work done.

In 2010, Panos Ipeirotis (2010) from NYU did a survey on the demographics of who works on Amazon's Mechanical Turk. He found that most workers were from the U.S., followed by India. In his survey he also found that U.S. "Turkers" were more likely to have had some college education or more, be women, and be in part-time employment or unemployed working from home. When one examines the wages posted for the "HITs," it appears that many jobs have wages that would end up being below minimum wage. "Turkers" appear to have little recourse if a dispute arises with their employer (or "Requester") in terms of the quality of work or payment. As technology transforms the labor market it would be helpful to be able to track this and other forms of contingent work in a systematic way for the workforce as a whole. Yet the last time the Bureau of Labor Statistics conducted a Contingent and Alternative Employment Arrangements Survey was 2005.

Weil (2014) discusses that as the distance between employers and their employees increased, the gains in profitability are shared among a smaller number of core workers rather than being more widely distributed. Add to his analysis the threat of international competition, declining real minimum wage, decreased unionization, and the deepest recession since the Great Depression, and one can understand why workers are feeling more vulnerable and less likely to successfully negotiate for wage increases associated with their rising productivity.

So what to do? Even though I see wage inequality as a more multifaceted phenomenon than David Autor's paper suggests, I do completely agree that human capital investment needs to be at the heart of any long-term strategy for producing skills that are complementary to technology, trade, or organizational innovations. Yet at a time when the returns to education are so high, we have laid off K-12 school teachers and class size is growing in many school districts. In addition, we cannot expect our future workforce to be best in class when the financial support for public higher education is decreased.

Fixing access to schooling only solves part of our human capital deficit though. We also need to find a way to raise the skills of those already in the labor market. But who provides this training? My work on employer-provided training in the U.S. (see Lynch 1992, 1994 and Lynch and Black 1998) showed that workers with less education or who were working in small firms were much less likely to receive employer-provided training. With the rise of subcontracting, workers that may have received company-provided training in the past in a large vertically integrated firm are less likely to receive this in a firm that specializes in specific occupations—say custodial or maintenance service. This gives rise to a market failure in the provision of worker training and a role for government to fill this gap.

For all the cynicism about government training programs we know that training can work. But it must be connected with employer needs and bring workers' skills in reading, writing, math and problem-solving up to a standard where they can read basic manuals, write a short note, and add, subtract, multiply and divide. Recent work on the skills gaps in the manufacturing sector by Paul Osterman and Andrew Weaver (2014) argues that these skills are something that someone with a good high school education or some college should have. The problem, they conclude, is that too many workers are missing these skills. The good news is that this is not an insurmountable skills hurdle, but resources need to be spent to address this gap.

In conclusion, what does this all mean for monetary policy? First, in terms of wage inflation the ability of workers to be able to bargain individually or collectively for higher wages has eroded significantly over the past 30 years. I would argue that this has worsened because of technological innovation and a wide range of other factors as well. Therefore, using past relationships between output growth, unemployment and wage growth to forecast future wage growth will not fit the data as well. As a result, fears of inflationary pressures coming from the labor market may be exaggerated for the near term.

Second, in terms of unemployment, workers have clearly been displaced by changes in technology, offshoring and outsourcing. However, this does not mean that these workers will never find

employment again. Rather we need to re-commit to a more active labor market policy such as training to support these workers as well as policies such as the earned income tax credit and an increased minimum wage to make work pay.

**Endnotes**

<sup>1</sup>The question asked in the 2014 poll was, “What percentage of rising wage inequality in the U.S. between 1973-present do you think is due to each of the following factors? (select a number between 0 to 100 for each category)”

<sup>2</sup>Obviously offshoring and outsourcing may have become easier also because of advances in information and communication technology. Similarly, offshoring and technological changes may affect unionization. In other terms, the various explanations for an increase in inequality are not independent one from the other.

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