

## **“Reversing the Middle-Class Jobs Deficit”**

**Alan B. Krueger**  
**Chairman, Council of Economic Advisers**

**April 26, 2012**  
**Columbia University, The Center on Global Economic Governance**

### ***Remarks as Prepared for Delivery***

Thank you Jan [Svejnar] for your kind introduction.

I should start by acknowledging the personal debt I owe to Jan Svejnar. Jan taught my introductory microeconomics class when I was an impressionable freshman at Cornell. There was a rumor among the students that Jan had managed a daring escape from Czechoslovakia when he was in high school by becoming a champion skier, and then defecting at a ski match in Switzerland. Once Jan made his way to the U.S., the rumor continued, he graduated top in his class at Cornell and then earned a Ph.D. from Princeton. I later learned that that rumor was completely true. Not only is this story a testament to Jan’s talents, it also shows America at its best -- as the land of opportunity.

From Jan’s class, and from Mark Gertler who taught my intro macro class, I learned that Economics is a discipline that can help society solve its most pressing problems.

In particular, I learned from Jan and Mark that economic downturns caused by financial crises can inflict lasting harm on families and the economy if left to their own devices, and that the appropriate mix of economic policies can reduce the damage and support recovery. I also learned that employers hire workers when they think it is profitable to do so. And I learned that wages are determined by a mix of factors, including labor supply and demand, technology, education and skills, and institutional features that affect bargaining power and morale.

The topic I will discuss today has strands of both microeconomics and macroeconomics. In particular, I will address problems in the U.S. labor market and President Obama’s blueprint to fix them. My theme is that it will take a concerted national effort to reverse the problems that have been building in the job market for decades, and, although much more work needs to be done, we have made progress in the last few years.

The United States has considerable strengths that should help us to reverse the middle-class jobs deficit. No country has a more productive workforce, better colleges and universities, or more daring and innovative entrepreneurs. It is imperative for policymakers to build on these strengths to create an expanding middle class and provide more opportunity for more young people, regardless of their family backgrounds.

As President Obama has stressed, this is the defining issue of our times. We face a critical moment in which we can pursue a path that leads to a more durable economy and growing opportunities for all Americans, or we can return to the policies that caused an erosion of the

middle class and tilted an ever-increasing share of income into the hands of a fortunate few, who were allowed to play by their own rules.

### *The Three Jobs Crises*

When President Obama first walked into the Oval Office, he faced three distinct but related jobs crises.

**First**, the U.S. economy was mired in a deep recession at the end of 2008. The economy was losing over 700,000 jobs a month when President Obama took the Oath of Office in January 2009. Although the initial report of GDP growth for 2008Q4 was -3.8% -- itself the biggest contraction in over 25 years – we learned from subsequent revisions that the economy was actually shrinking at an annual rate of 8.9 percent. Job losses even exceeded what one would predict from that steep drop in GDP. So the first and most immediate jobs crisis the President faced was the massive loss of jobs due to the financial crisis and deep recession that erupted in 2008.

**Second**, even before the Great Recession began at the end of 2007, the U.S. was not creating enough jobs. The 2000s were on track for the worst decade of job growth in over 50 years, even before the steep job loss from the 2007-09 recession [Figure 1]. By contrast, in every preceding decade the U.S. achieved strong job growth of 20 percent or higher.

This slowdown in job growth was not a result of slower population growth. The 2001-07 recovery was the only completed recovery on record in which the share of the population employed at the end of the recovery in 2007 was lower than it was when the recovery began in 2001.

So the second jobs crisis is that the economy was not generating enough jobs in the years leading up to the Great Recession.

**Third**, inequality had been rising in the U.S. since the late 1970s. The rise in inequality initially reflected falling wages of less educated workers. Male high school graduates, for example, saw an 11 percent drop in their real wage from 1979 to 1989. The problem also spread to workers with post-secondary education and the middle class. The median real wage stagnated [Figure 2]. A declining share of jobs paid middle-class salaries, defined here as paying within 50 percent of the median earnings [Figure 3]. As a result, the middle class has been shrinking for some time.

Together, these three jobs crises constitute what I call “the middle-class jobs deficit.” Simply put, for over a decade the economy has not been producing enough middle-class jobs.

### *Why the Middle-Class Jobs Deficit Matters and What to Do About It*

The middle-class jobs deficit is both cyclical and structural. It is partly cyclical, and can be partly addressed by countercyclical measures because an output gap remains from the recession

that began in late 2007. And it is partly structural because the forces that caused the middle-class jobs deficit began long before the last recession and, in fact, persisted during previous recoveries.

In this year's State of the Union Address, President Obama laid out a blueprint for an economy built to last. The goal of that blueprint is to create more durable economic growth and faster job growth, and ultimately a stronger, more secure middle class.

A vibrant and expanding middle class is good for America. It is good for our political, economic, and civic institutions. It is good for our workers and businesses. It is good for our future prospects for economic growth. And it is good for our national identity. The American economy became the envy of the world because of our strong and inclusive middle class.

A major part of my job as Chairman of the President's Council of Economic Advisers is to work together with others in the Obama Administration to pursue policies to reverse the middle-class jobs deficit that started long ago.

While one should not expect problems that have been building for decades to be solved overnight, the record to date provides evidence that progress is being made, and we can now see a path toward reversing the decades' long slide in middle-class jobs for the first time in a while.

Reversing the middle-class jobs deficit requires playing both good offense and good defense. To paraphrase Casey Stengel, good defense beats good offense, and vice versa. Both are necessary.

Defense means that we as a Nation want to hold on to and promote as many existing good jobs as possible. Offense means that we want to create an environment for new companies and new industries to develop, and to provide educational and training opportunities for workers to meet the demands of a modern economy.

One can also think of this game plan in terms of time horizons. In early 2009, immediate actions were required to stop the steep job losses from the severe recession. Over the longer term, investment in research and education support economic growth and an expanding middle class.

First and foremost, reversing the middle-class jobs deficit required ending the worst recession since the Great Depression. The economy lost 5 million jobs in the year before President Obama took office, and nearly 4 million more before his policies were fully implemented. In 2008 and early 2009, the economy was in a free-fall. This chart shows that the bottom fell out of GDP at the end of 2008 as a result of the financial crisis [Figure 4].

Thanks in large part to the support for aggregate demand from the Recovery Act and a set of financial rescue measures put in place by the Treasury Department and Federal Reserve, the downward spiral was halted by the middle of 2009. This counts as playing defense. And it was defense that would make the New York Giants proud.

The President's bold actions to rescue and restructure Chrysler and General Motors and – equally importantly -- to preserve the auto supply network during the worst of the economic crisis was another component of playing defense to support middle-class jobs.

Together, these defensive actions stopped the downward spiral in the economy. Shortly after the Recovery Act took effect the economy stopped contracting and started expanding [Figure 4]. GDP has grown for 10 straight quarters, from mid 2009 until the end of last year – and we'll learn about the first quarter of this year tomorrow.

Auto sales, in particular, have rebounded strongly since the crisis. An AP article last week reported that car companies are worried that a shortage of part supplies may crimp production. Think how much worse off we would be had the President not rescued key parts suppliers.

But the damage from the Great Recession was severe, and it worsened the middle-class jobs deficit that had accumulated over the preceding decades.

Job growth turned positive about 8 months after the deep recession officially ended [Figure 5]. We have now had 25 months in a row of private sector job growth. Over this period, private businesses have added 4.1 million jobs. While there is a long way to go, this is an important start.

Sustaining the recovery is critical for reversing the middle-class jobs deficit. The next chart [Figure 6] shows that private sector job growth in the ongoing recovery is about on track with that in the early 1990s recovery, and stronger than the job growth in the last recovery.

Recent research has found that middle-class jobs are more likely to be lost during times of economic recession. This work is an important complement to Arthur Okun's classic finding that workers are more likely to climb job ladders when the economy is strong. A stronger economy provides more opportunities for workers who are barely getting by to make it into the middle class, as employers are more willing to offer job training and take a chance on workers who they might otherwise not hire when the job market is tight.

We saw this in the 1990s. The only period in the last 30 years when all segments of the income distribution grew together was in the late 1990s, when the job market was strong [Figure 7].

The lesson I take away from this history is that we should take all responsible measures to sustain and strengthen the ongoing recovery. Continuing and strengthening the recovery helps with all three jobs crises.

President Obama proposed the American Jobs Act last fall to support the recovery, and important elements have been put in place. Most importantly, we are continuing the 2 percentage point payroll tax cut for American workers. The President has also put in place measures to help responsible homeowners refinance and modify their mortgages to take advantage of historically low interest rates, and he is seeking legislation to expand these programs to more homeowners. Other elements of the President's proposal would provide funding for State and Local governments to hold on to teachers and first responders and provide greater investment in America's infrastructure.

President Obama has provided a blueprint for a more durable economy built on American manufacturing, clean and safe domestic energy, research and development, and improved skills and education for American workers. Other components of the President's economic strategy include the national export initiative and support for start-up businesses.

I want to emphasize that there are complementarities among the President's policies that are critical to reversing the middle-class jobs deficit. They reinforce each other. Increasingly, economists have come to appreciate the existence of spillover effects across companies and organizations in local areas that support job growth. There is an important role for economic policy here because individual companies, workers, colleges and training providers do not take the full benefit they confer on others into account in their decision making.

In economic terms, the strategy to reverse the middle-class jobs deficit involves leveraging positive externalities to raise labor demand and productivity, and create new industries and products, while equipping American workers with the tools they need to succeed in a modern economy. The President's blueprint to create an economy that is built to last would promote synergies within local areas and among companies that would add to growth and make it less profitable for companies to pick up and move overseas. In fact, President Obama's strategy is to draw as many jobs back to America as possible.

Let me illustrate this with the manufacturing sector. Expanding middle class jobs in manufacturing, especially advanced manufacturing, is part of the President's comprehensive strategy for reversing the middle-class jobs deficit.

Manufacturing continues to provide a large number of middle-class jobs, especially for workers who have less than a 4-year college degree. This chart [Figure 8] shows that 63 percent of manufacturing workers who have an Associate's Degree or less earn within 50 percent of the median salary, while only 49 percent of similarly educated workers in other industries do so.

Manufacturing is an area where the U.S. failed to play smart defense earlier in the 2000s. It is true that manufacturing has declined as a share of the workforce for the past 50 years. But this chart shows that the total number of manufacturing jobs fluctuated between 16 and 20 million from 1965 until 2000. However, in the early 2000s manufacturing employment began to drop precipitously. In the 7 years *before* the Great Recession struck, the economy lost 3.4 million manufacturing jobs. And another 2 million were lost during the recession [Figure 9].

Something different happened to American manufacturing in the early 2000s. Research by David Autor, David Dorn and Gordon Hanson suggests that a sharp rise in imports from emerging markets, especially China, played an important role in the loss of manufacturing jobs earlier in the 2000s. Research by Nicholas Lardy and others suggests that the surge in Chinese manufacturing exports was driven by an increasingly distorted policy regime in China that artificially expanded higher value-added manufacturing industries, and put American manufacturers at an unfair disadvantage. While this surge benefited consumers who were able to buy cheap products, it came at the expense of millions of American middle-class manufacturing workers.

If these job losses were fully the result of competition on a level playing field, then it would not be appropriate to play defense. But this was not the case. In the last two years the Obama Administration has brought half a dozen cases against China in the WTO for unfair practices, and in February President Obama launched an Interagency Trade Enforcement Center to protect American companies from unfair competition.

Recognizing the intense international competition that manufacturers face, and the benefits of manufacturing for the rest of the economy, the President's corporate tax proposals would lower the tax rate for manufacturers to 25 percent, and lower it further for advanced manufacturers. Unlike businesses in nontraded sectors, manufacturers often compete with companies that locate in low-tax countries. The President has also called for a minimum tax on foreign earnings of American companies, to prevent a global race to the bottom in tax rates that would draw our manufacturers to shift production to tax havens abroad.

My White House colleague Gene Sperling recently said that manufacturing punches above its weight. Economists are increasingly finding that the multiplier effect of manufacturing is larger than in many other industries.

The Obama Administration recognizes the importance of geographic concentration for manufacturing activity, especially for advanced manufacturing and other creative industries. Manufacturing often takes place in hubs. Recent research by Michael Greenstone, Rick Hornbeck and Enrico Moretti finds significant spillovers within local industrial clusters. Investment in one plant creates benefits for others in the area. These spillover benefits are greatest in areas where firms employ related production technologies and where workers move across firms. These mechanisms generate *agglomeration externalities*, or beneficial spillovers to nearby companies. It is difficult for competitive markets to coordinate to provide the optimal number or scale of such agglomeration externalities.

This requires smart offense.

We have seen this model work before. AT&T used its monopoly power to fund Bell Labs, which became the country's idea factory. At its peak, Bell Labs employed 1,200 Ph.D.'s, including my uncle, Robert Krauss, who later was a distinguished professor of Psychology here at Columbia.

Bell Labs's secret was to bring scientists from diverse specialties together with engineers and production managers to improve existing products, and create new and better products. My uncle told me that the researchers at Bell Labs were given free rein to work on projects of their own choosing, and they did not need to raise grant money. But he added that Bell Labs carefully selected scientists who were likely to contribute ideas in areas of interest to the operational units, and once someone developed an idea that was useful there was pressure to apply it. The inventions that sprang from Bell Labs changed the world, including the transistor, solar panels, the first communication satellite, cellphone technology, and lasers.

The breakup of AT&T eventually led to the demise of Bell Labs. Although Bell Labs is gone, we can draw on the benefits of that model without relying on another monopoly.

In his 2013 Budget, President Obama proposed to build a national network of up to 15 Institutes for Manufacturing Innovation, serving as regional hubs of manufacturing excellence. These hubs will connect industry, government, colleges, and states to spur R&D efforts. These centers could lead in the development of technologies such as lightweight materials for automobiles, aircraft, ships, and trains, for example, playing a key role in our nation's continued leadership in innovation. The President has already announced a competition for the first Institute using existing funding.

To further encourage R&D the President has proposed enhancing the R&D tax credit and making it permanent.

And to support high-tech entrepreneurship he launched Startup America last year, a national campaign to improve the environment for high-growth entrepreneurs by expanding their access to capital and mentorship. As part of Startup America, the Administration has taken steps to accelerate the commercialization of development, or lab to market phase.

Recognizing the benefits of complimentary investments in a given location, the Obama Administration also expanded the New Markets Tax Credit (NMTC) to help create jobs and attract investment in targeted communities. The NMTC uses federal tax credits in partnership with private or public investment to aid in community and economic revitalization. The Administration has proposed in this year's Budget to reauthorize and expand the NMTC program and increase its allocation authority to \$5 billion. The President's Budget also proposed a new Manufacturing Communities tax credit that would provide \$2 billion in credits directly targeted to investments in communities that have suffered a major job loss event, such as a military base closing or manufacturing plant closing.

This sort of public-private partnership using the NMTC would help to create more and better manufacturing hubs in underserved communities across the Nation. It is a confluence of factors that enable businesses to thrive.

I recently visited one of Parkdale Mills's textile plants in Sanford, NC. Textiles is literally the world's oldest manufacturing industry. For decades, American textiles companies have been under intense competition from lower cost labor abroad. This factory was recently reopened. Parkdale Mills operates 30 plants in 7 states in the U.S., and does most of its production here.

The company's CEO, Anderson Warlick, told me that the company has survived by continually raising productivity. The plant floor is a matrix of buzzing computer-operated machines that take raw cotton bolls and convert them into enough cotton fabric to make 1 million tee-shirts a week.

Mr. Warlick told me that the factory spends more money on electricity than labor. This is an example of how the President's commitment to develop safe domestic energy sources, including natural gas, dovetails with his manufacturing initiative. The U.S. has among the lowest electricity costs in the world, and the remarkable fall in natural gas prices resulting from new extraction techniques has put further downward pressure on electricity prices.

When I spoke to Mr. Warlick last week he told me that one of the biggest obstacles he faced was finding enough workers with the right skills. The company often hires workers who were trained at local community colleges.

Mr. Warlick also told me something that a lot of CEO's have been telling us at the White House – that more and more manufacturing companies are considering shifting their production back to the U.S. This emerging phenomenon is known as reshoring.

Before his State of the Union Address, President Obama held a meeting with manufacturing companies who are reshoring jobs. It was energizing for me to participate in this meeting.

Many said that the model of sending production off shore was reaching diminishing returns. Labor costs are growing quickly abroad and productivity is higher in the U.S. This chart shows that unit labor costs of production have grown quickly abroad and fallen in the U.S. since 2002 [Figure 10].

None of the business people we met with complained about regulations or taxes. Instead, they said that better infrastructure and assistance with job training would help accelerate reshoring.

This brings me to the last of item in the President's blueprint. Improving education and skills training is critical for creating an economy build to last and expanding the middle class. In an increasingly high-tech, knowledge based economy, we simply cannot afford to fall behind other countries in education.

Yet that is what has happened.

Throughout much of the last century, educational attainment rose rapidly in the United States. The rate of college completion quadrupled for those born between 1915 and 1975, and the U.S. led the world in higher education. But since then the rate of college completion for subsequent cohorts has virtually stagnated.

As a result, the U.S. has the best educated 60 year olds in the world, but we are in the middle of the pack of OECD nations among 30 year olds [see Figure 11].

A related problem is that college completion has risen the least for those for whom it is most valuable—those born into families at the lower end of the income distribution.

This graph shows college completion for those born in the early 1960s as compared with those born 1979-82, by their parents' income quartile [Figure 12]. The rise in college completion between these generations was limited almost entirely to children born to families in the top half of income distribution.

The slowdown in educational attainment and widening disparities by family background are a major contributor to the middle-class jobs deficit. More highly educated workers are paid more, and research finds that those from more disadvantaged backgrounds benefit the most from higher education.



To provide greater entry into middle-class jobs, President Obama and Education Secretary Arne Duncan have pursued an agenda to improve the quality of public K-12 education and to increase access to post-secondary education, especially for those from lower income families.

The President's innovative \$4 billion Race to the Top program incentivizes states to pursue effective, rigorous education reforms. Furthermore, the Administration is committed to fixing the No Child Left Behind Act to provide states with new flexibility in exchange for a real commitment to focusing on underserved students and setting ambitious performance targets for all students.

In order to address our country's stagnant college completion rates, President Obama has set a new goal that, by 2020, America will once again have the highest proportion of college graduates in the world. To reach this ambitious goal, the Administration has made landmark federal investments in higher education to make college more affordable. President Obama has raised the maximum Pell Grant award to \$5,635 for the 2013-14 award year—a \$905 increase over 2008—and increased the number of Pell Grant recipients by 50 percent over the same time period.

Higher education can't just be a luxury for a few, it is the clearest path to better jobs and a stronger middle class.

To give more students an opportunity to complete higher education, President Obama has expanded education tax credits, establishing the American Opportunity Tax Credit (AOTC) in 2009 to assist families with the costs of college by providing up to \$10,000 for four years of college tuition; over 9.4 million students and families benefit from the AOTC each year.

Millions of Americans, including the President and First Lady, relied on student loans to pay for college. This week President Obama called on Congress to act to prevent interest rates on federal student loans from doubling on July 1. Five years ago, Congress cut the rates on student loans in half but that law expires on July 1<sup>st</sup> and if they don't act, the average student with these loans will rack up an additional \$1,000 in debt.

One of our Nation's unsung economic strengths is our network of community colleges. This Administration has promoted partnerships between community colleges and employers to promote the dual goal of academic skills and on-the-job preparedness for the next generation of American workers. The Trade Adjustment Assistance Community College and Career Training fund will invest in community college-industry partnerships to provide more Americans with the skills they need to secure jobs. \$500 million has already been committed to developing these pathways in high-wage, high-skilled fields, including advanced manufacturing, transportation and health care, and an additional \$1.5 billion will be invested over the next three years.

In addition, the Community College to Career Fund was proposed in the President's 2013 Budget as an \$8 billion investment to partner community colleges and states with businesses to train workers in a range of high-demand sectors. Increasing company involvement in job training will provide more job security for workers, as companies are reluctant to lay off workers if they will need to pay to retrain new hires once the economy improves.

The President has made it a priority to help more Americans get back to work by connecting the unemployed with the skills training they need to find jobs in growing industries. The Bridge to Work program that the President proposed and Congress passed in February will allow up to 10 states to use Unemployment Insurance funds to create subsidized employment and training opportunities for the unemployed. The UI reforms also require the long-term unemployed to participate in job search assistance.

The President has also proposed a Universal Displaced Worker Program that would provide displaced workers with the skills and reemployment services they need to get back to work.

## **Conclusion**

Let me conclude by emphasizing a point that President Obama has made: “Prosperity [in America] has always come from a strong and growing middle class.”

The economy is recovering, but not fully recovered, from the worst recession since the Great Depression. President Obama has made clear that getting back to where we were is not enough. After decades of stress, a comprehensive strategy is necessary to reverse the middle-class jobs deficit.

In manufacturing, all of the elements of the President’s blueprint for an economy built to last come together to support middle-class jobs – innovation, American energy, skills and education, investment in R&D, and entrepreneurship. The blueprint leverages the synergies among these factors.

The President’ manufacturing agenda also reinforces his national export initiative, with a goal of doubling exports by the end of 2014 – and we’re on track despite weakness in several of our trading partners’ economies. Even a casual look at the GDP identity suggests that increased exports will have to make a greater contribution to our economic growth in the future. Manufacturing represents 60 percent of U.S. exports. Any effort to meaningfully expand exports in the near term must rely critically on manufacturing, simply because of the outsized role it has always played in exports.

But manufacturing is only one component to reversing the middle-class jobs deficit and rebalancing the economy. The U.S. must also look to expand service jobs and increase service exports, where we have a trade surplus. Policies that will leverage synergies across companies and within local areas, as well as improving education and training so the unemployed, can lead to more service jobs as well as more manufacturing jobs.

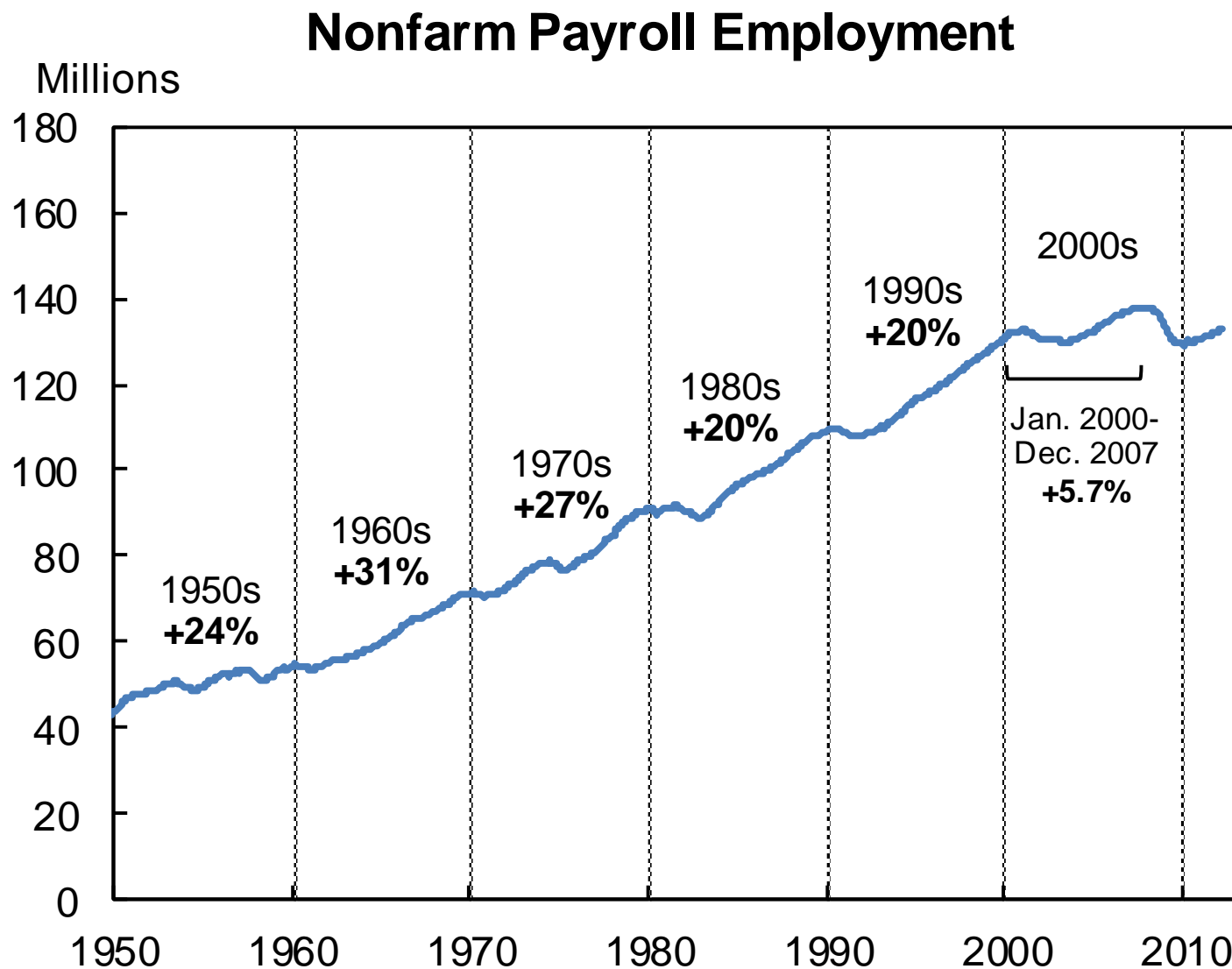
# Reversing the Middle Class Jobs Deficit

Alan B. Krueger  
Chairman  
Council of Economic Advisers



April 26, 2012

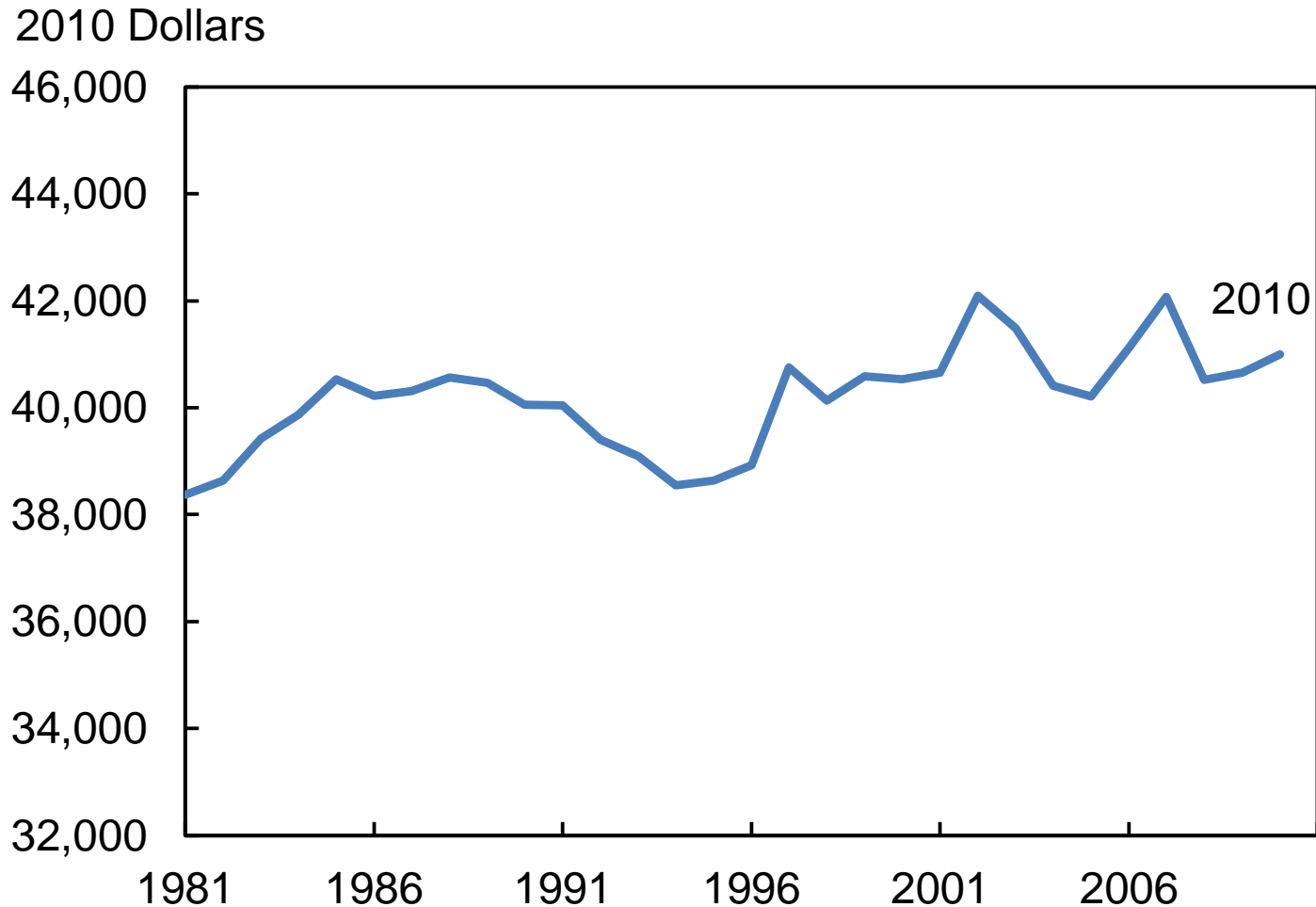
# Figure 1: The 2000s Saw Far Weaker Job Creation Than Each of the Previous Five Decades



Source: Bureau of Labor Statistics; CEA calculations.

# Figure 2: Real Earnings for the Median Year-Round Worker Stagnated

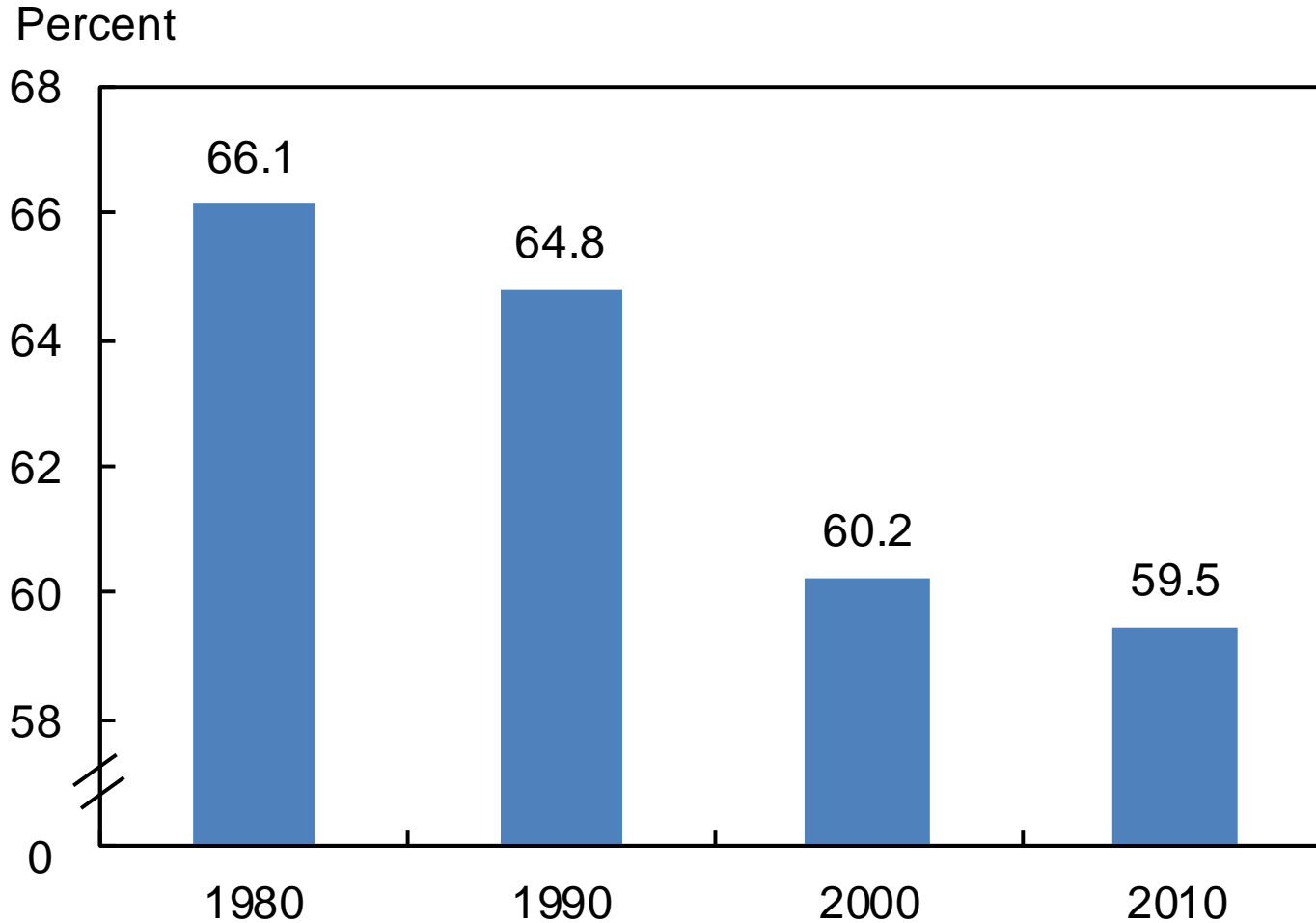
## Real Median Earnings for Full-Time Year Round Workers, 1981-2010



Note: Earnings adjusted for inflation using the Consumer Price Index for all urban consumers.  
Source: CEA calculations based on Current Population Survey March Supplement.

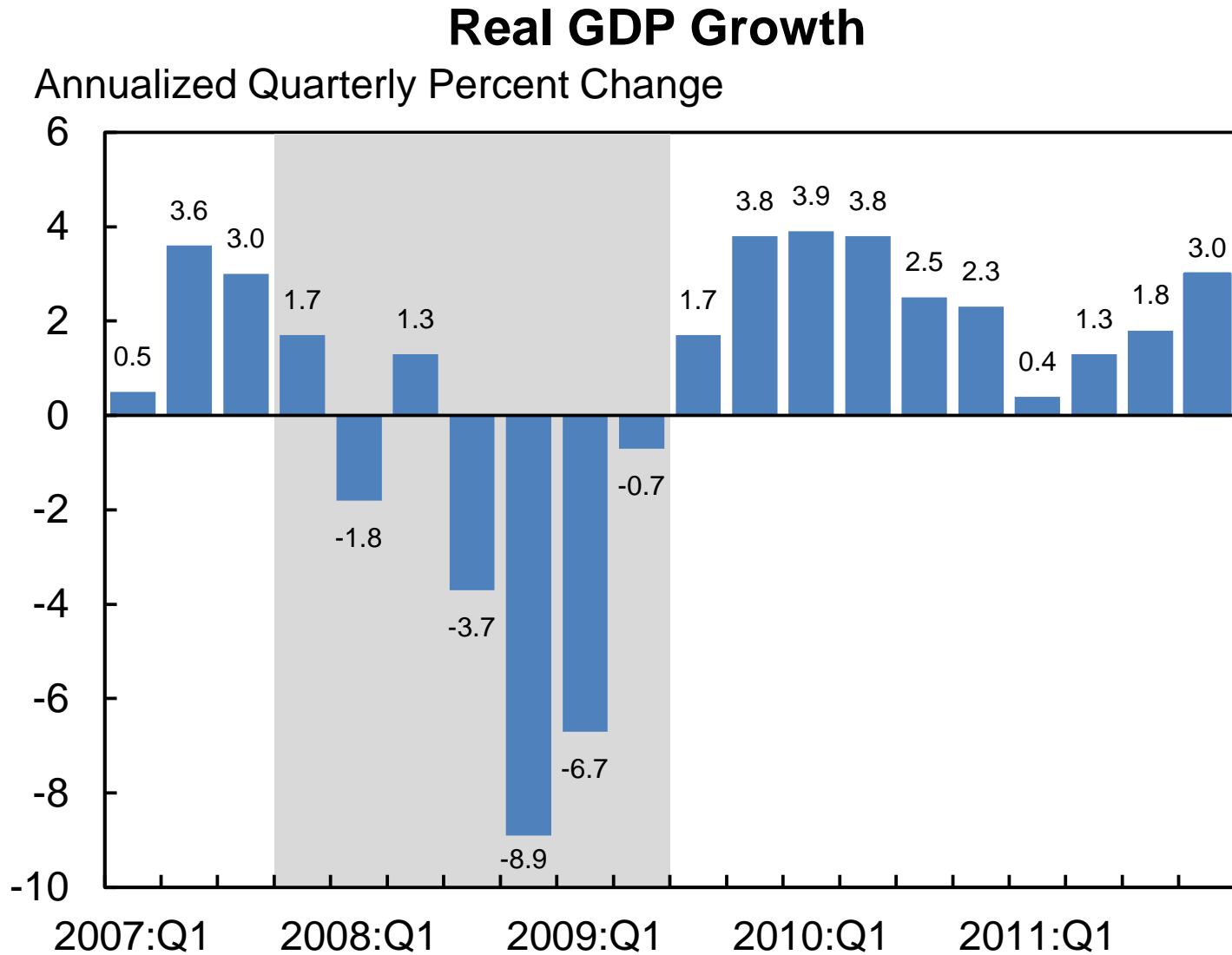
# Figure 3: The Share of Workers Earning a Middle-Class Income Has Been in Decline Over the Past Three Decades

## Share of Full-Time Year Round Workers With Annual Earnings Within 50 Percent of the Median



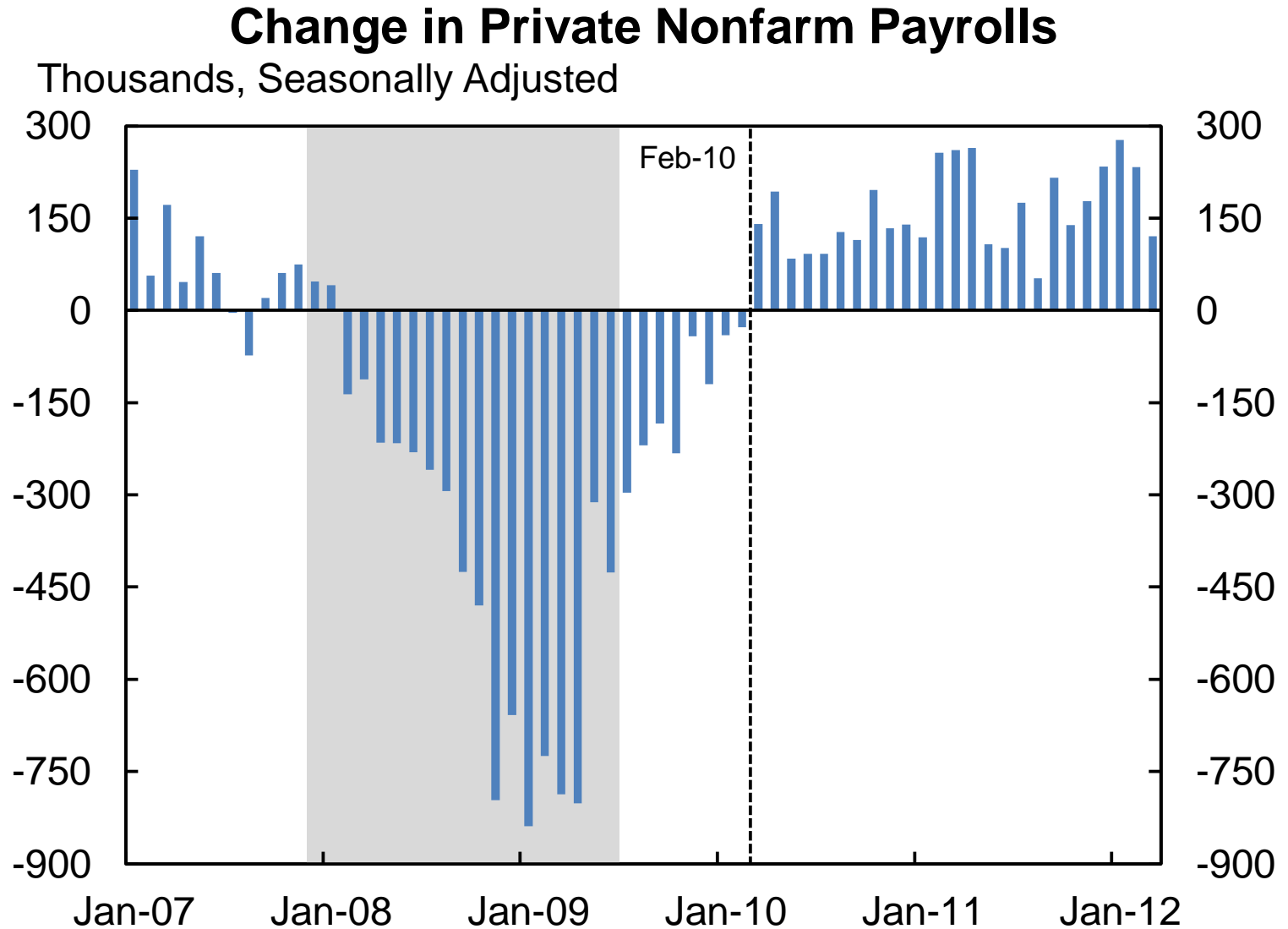
Source: CEA calculations based on Current Population Survey March Supplement.

# Figure 4: Economic Growth Turned Positive in 2009:Q3 and Has Continued for 10 Straight Quarters



Source: Bureau of Economic Analysis. Shading denotes NBER recession.

# Figure 5: Jobs Have Been Growing Since February 2010



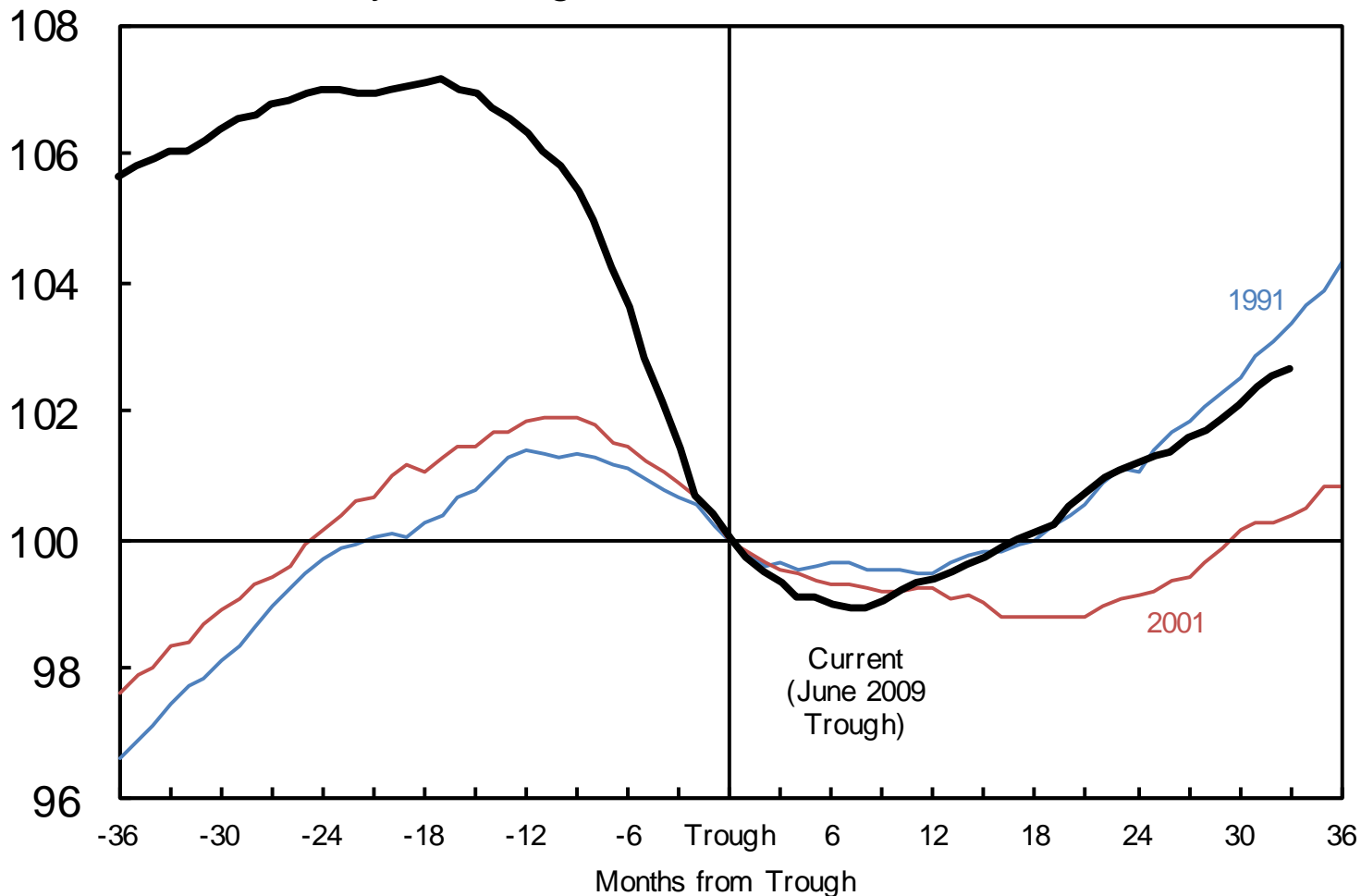
Source: Bureau of Labor Statistics. Shading denotes NBER recession.



# Figure 6: Job Growth in the Current Recovery is Closely Tracking the Early 1990s Recovery

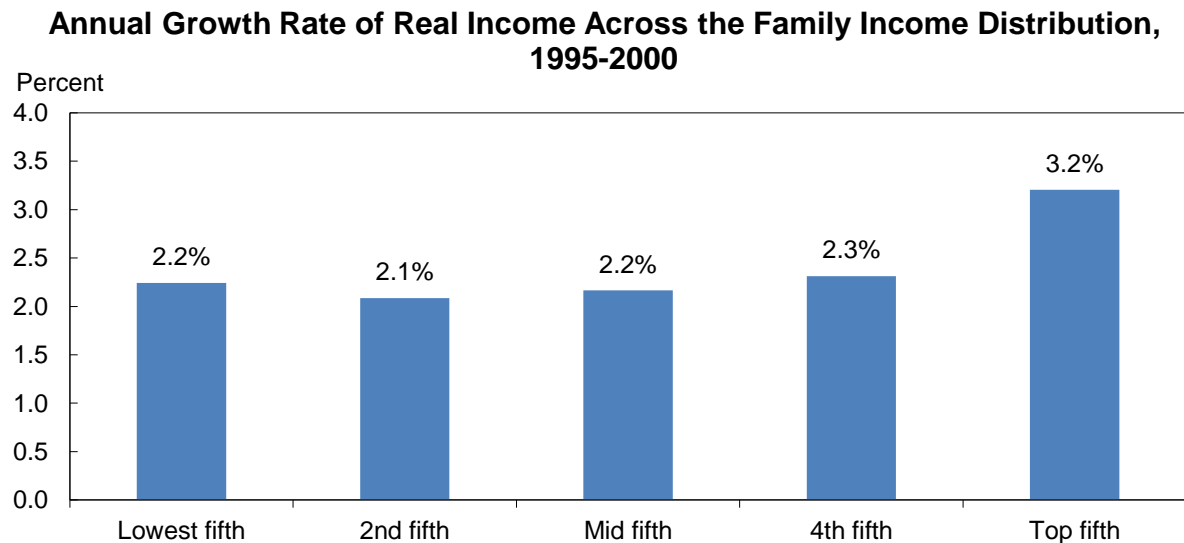
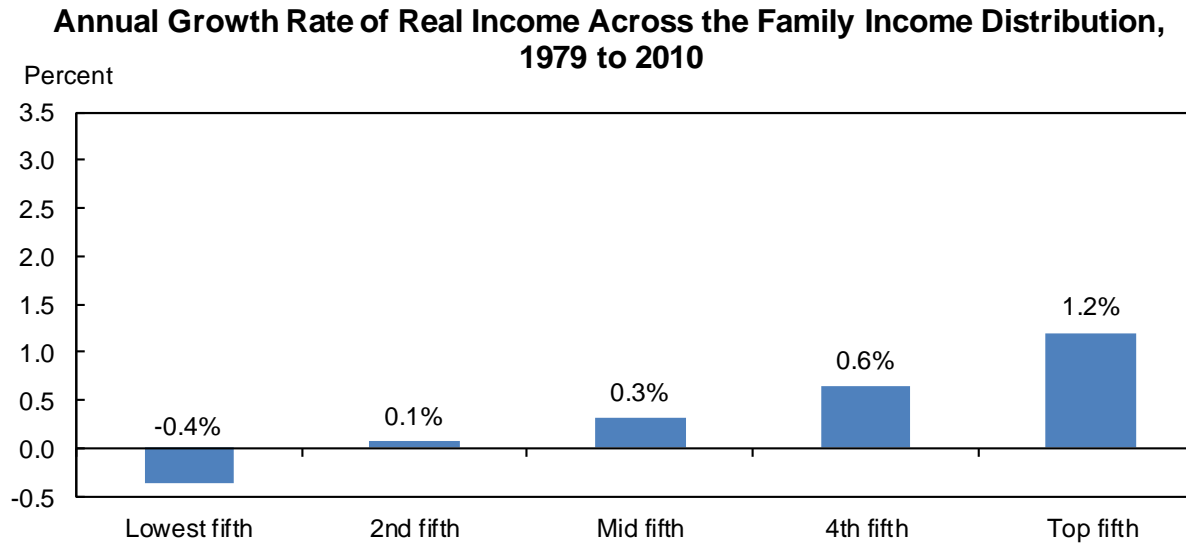
## Private Payroll Employment During Recoveries

NBER-Defined Cycle Trough = 100



Source: Bureau of Labor Statistics; CEA calculations.

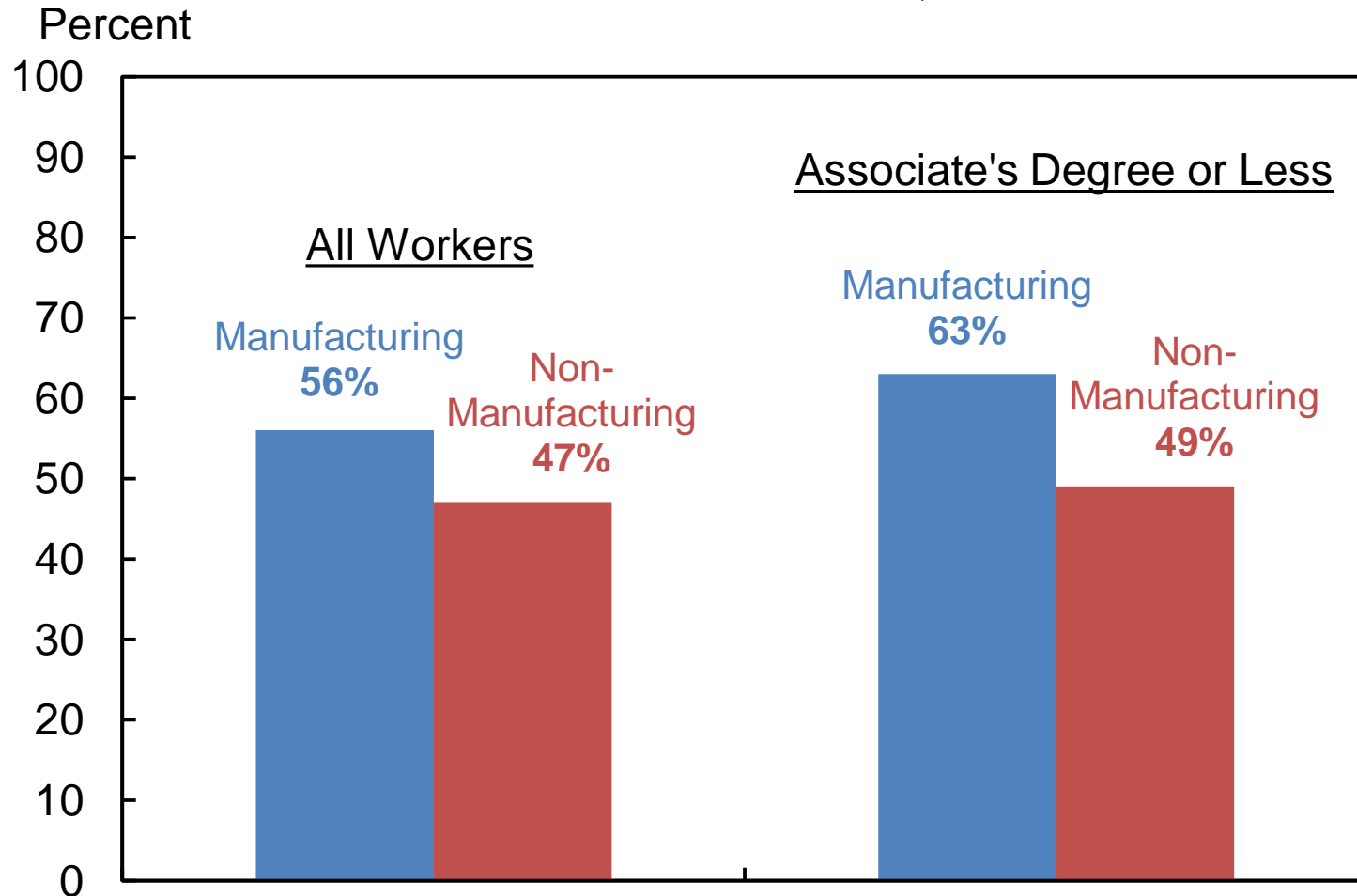
# Figure 7: Strong Economic Growth in the 1990s Helped Lift Incomes for All Quintiles



Source: Census Bureau; CEA calculations.

# Figure 8: The Manufacturing Sector Provides a Path to the Middle Class, Especially for Workers with an Associate's Degree or Less

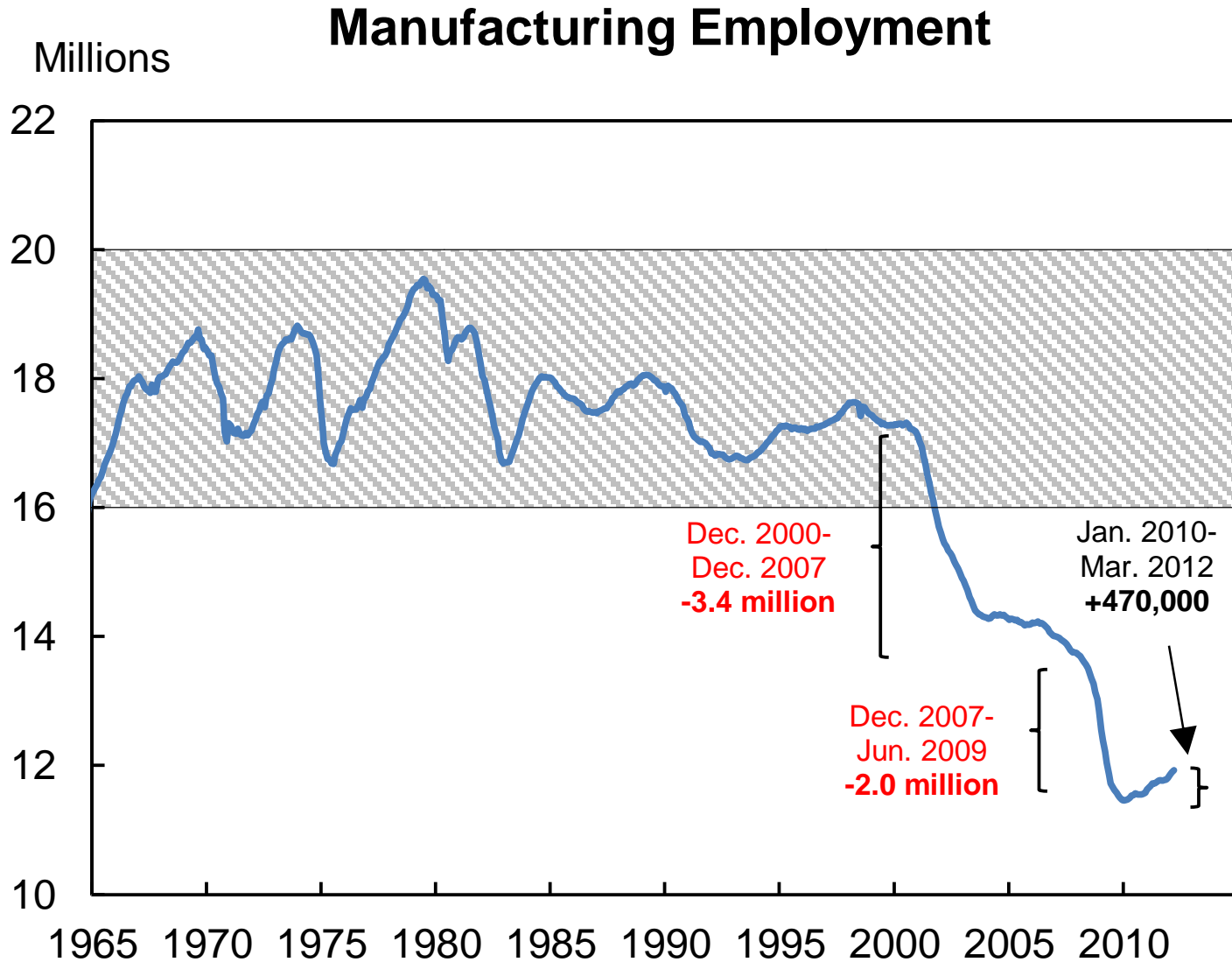
## Percent of Workers With Annual Earnings Within 50 Percent of the Median, 2010



Note: The median annual earnings is based on full-time year-round workers.

Source: CEA calculations based on Current Population Survey 2011 Annual Social and Economic Supplement.

# Figure 9: Manufacturing Employment Fell Beneath Its Normal Bounds Early in the 2000s

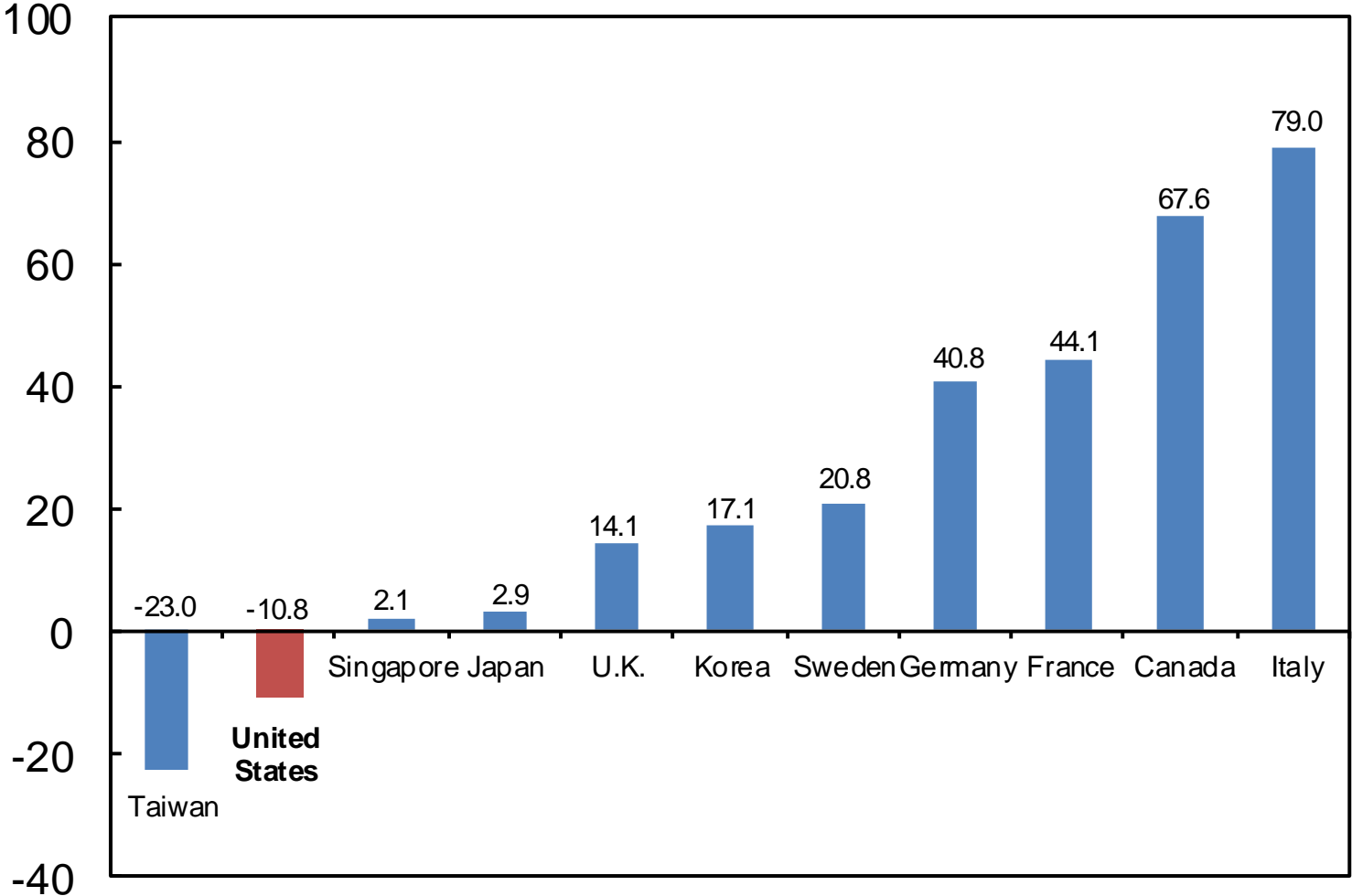


Source: Bureau of Labor Statistics, CEA calculations.

# Figure 10: Domestic U.S. Manufacturers Are Increasingly Competitive

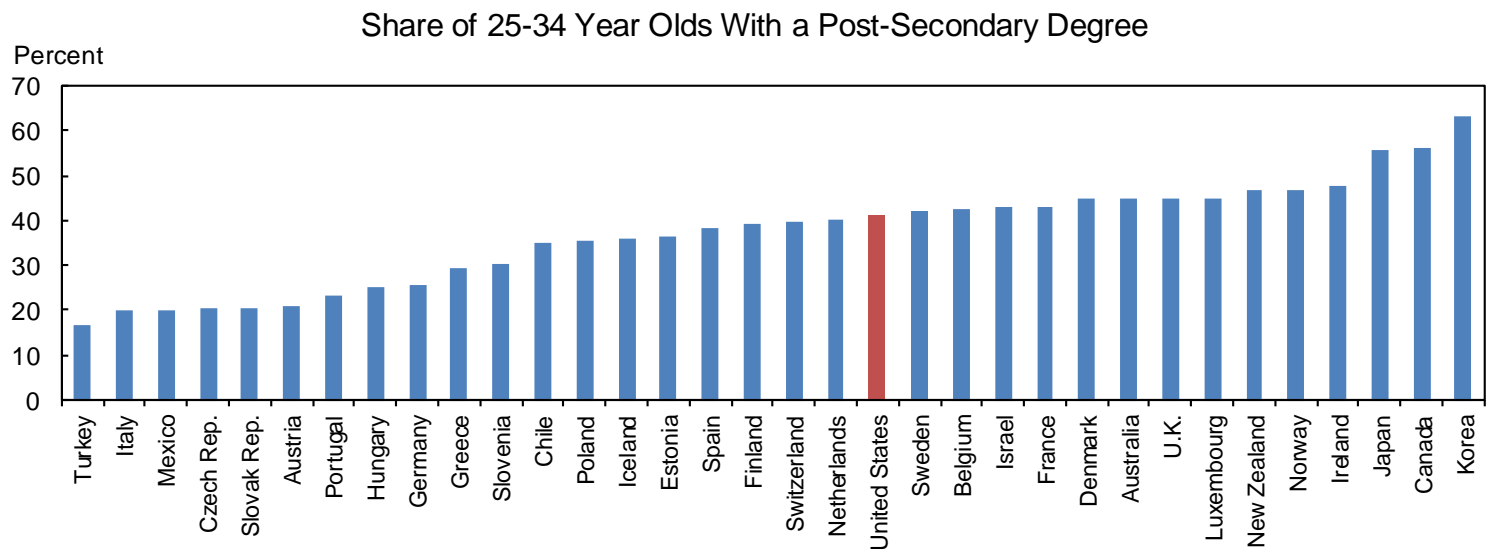
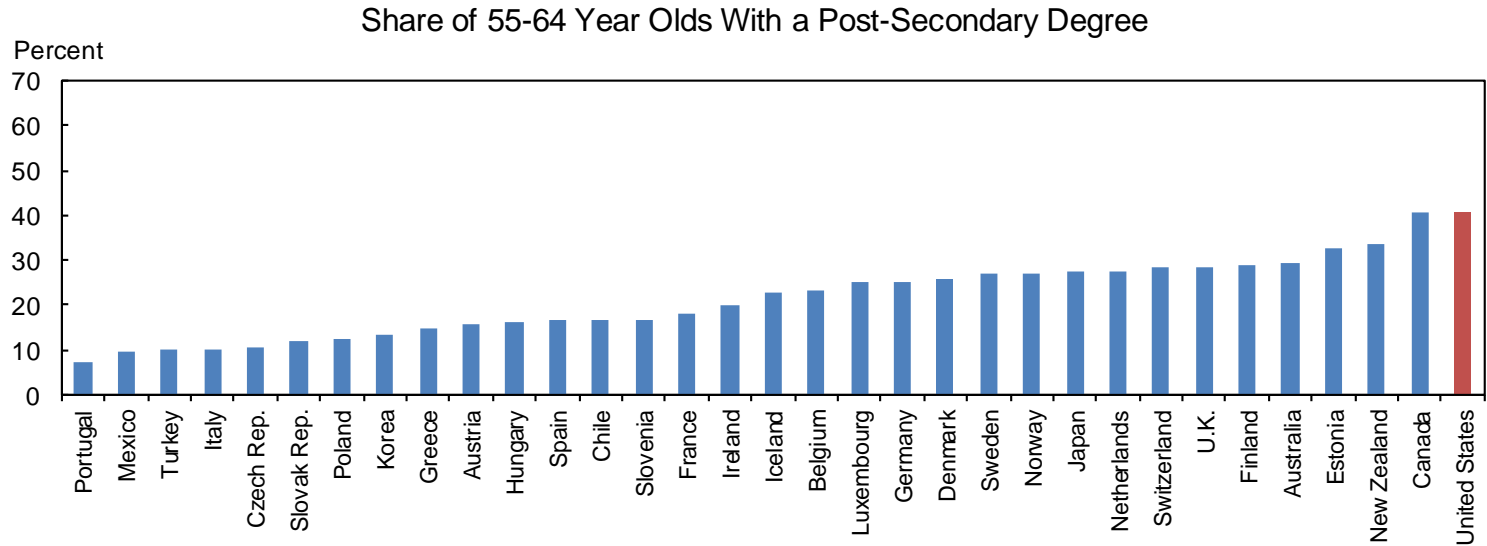
## Change in Manufacturing Unit Labor Costs, 2002-2010

Percent



Source: Bureau of Labor Statistics, International Labor Comparisons; CEA Calculations.

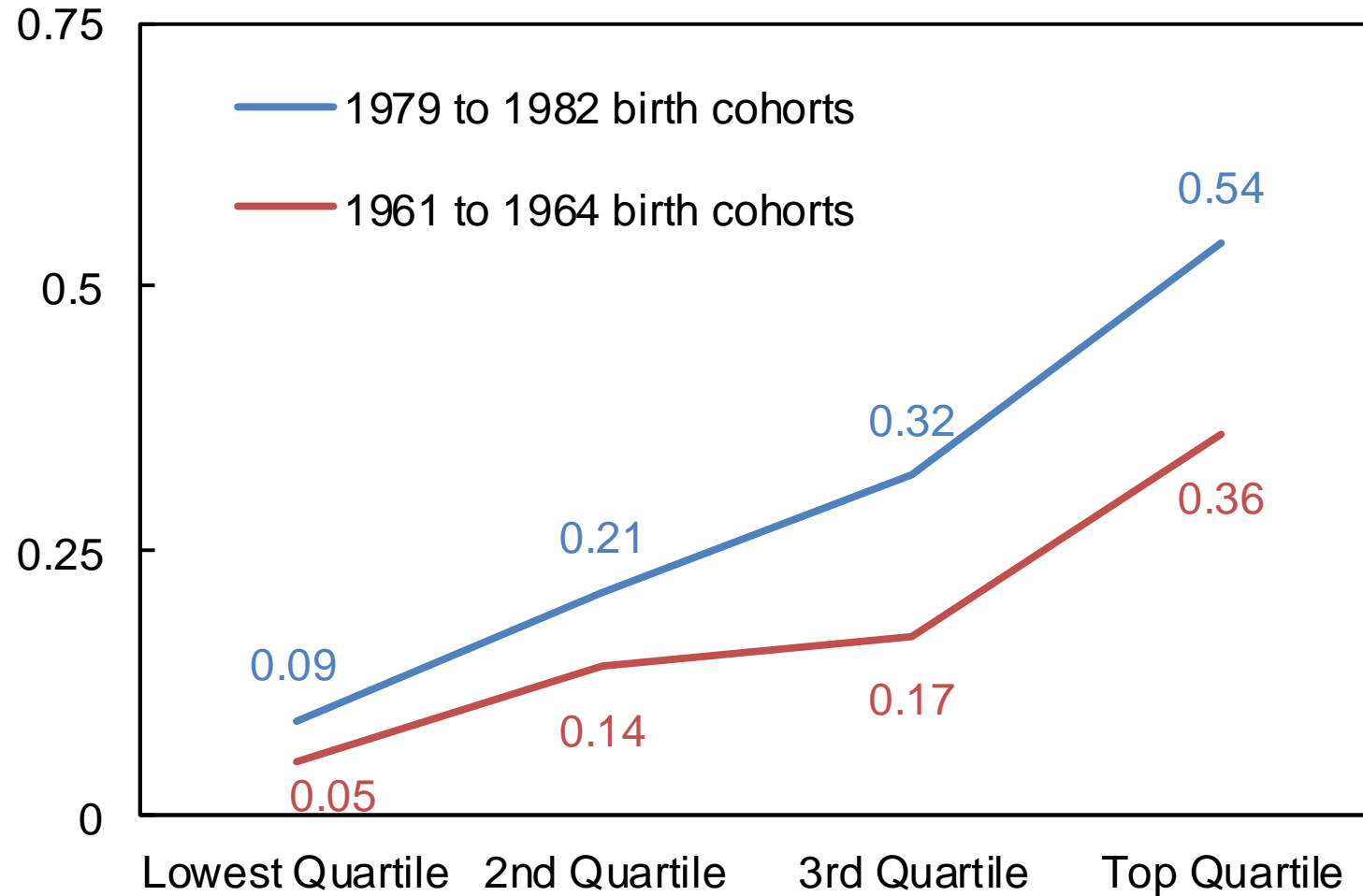
# Figure 11: Share of Population with a Post-Secondary Degree in 2009 by Birth Cohort



Source: Organization for Economic Cooperation and Development, *Education at a Glance 2011*.

# Figure 12: College Completion Rate by Income Quartile

## Fraction of Students Completing a Bachelor's Degree, by Income Quartile and Birth Year



Source: Bailey and Dynarski (2011) based on National Longitudinal Survey of Youth, 1979 and 1997. College completion is measured by age 25.