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The 30-Year Decline in Labor's Share of National Income: Why?



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The 30-Year Decline in Labor's Share of National Income: Why?

- 1. The Nature of the Problem**
- 2. *Seven* Explanations of Labor's Declining Share**
- 3. *Ten* Reasons why Recent Trends May Reverse**

One of the most baffling developments in contemporary economics is the decline in the share of GDP going to labor as opposed to capital — that is, to those who do the work in producing the pie, as opposed to those who own the capital stock required to produce it. This trend holds for most developed economies, and it began back around 1980 following several decades during which the share going to labor was constant. What explains this decline in the labor/capital share? Is it temporary? Can it be remedied? Finally, why does it matter? We shall address these four questions.

If this issue does not matter to investors, then what does? It translates into the end of the American Dream here in the US and elsewhere as well. It spurs the belief that “the system” is rigged in favor of business and against the average person. This belief, when combined with flat or falling living standards for the bulk of the population, spells social unrest and political turmoil. What is worse, this development will occur at the same time the demographic crisis hits. Rising pension and medical costs for an aging population will make the loss of labor income far more painful than it otherwise would be, thus exacerbating the potential political crisis and investor uncertainty ahead.

Part 1 sets forth the problem at hand, and provides data to substantiate the magnitude of the problem as well as its worldwide scope. Part 2 offers *seven possible explanations* for the declining labor/profit share. Part 3 suggests *ten reforms* whereby the decline of labor's share could be reversed.

This is a challenging topic involving economic growth theory, political developments, and the impact of scientific advances such as the rising role of robots. No one has yet come up with a simple *economic* model that explains why labor's share is falling and capital's share is therefore rising. It has proven very difficult to do so. Nonetheless, researchers have offered a number of partial explanations of the problem, and we will review these.

1. The Problem

Two caveats are in order up front. *First*, we are not focusing on those many explanations for why America's middle and lower classes are being hollowed out, and why average real wages have stagnated or fallen. Rather, we are focusing on the decline in the *share* of total national income (remember that GDP = National Income) that goes to labor — as well as the corresponding rise in the share going to capital.¹

Second, a distinction must be made between three different cases. **(i)** Suppose that the labor share is slowly falling even though national income (GDP) is rising rapidly — say because of strong workforce and productivity growth. Then even though the share going to labor may be falling, workers can enjoy a rising standard of living regardless. For the overall *size* of the GDP pie is growing faster than the rate of the decline in labor's share of the pie. **(ii)** On the other hand, suppose that GDP growth is very lackluster — as is now the case throughout the West. If this is true, then a decline in labor's share of national income will almost certainly give rise to falling living standards. Regrettably, it is this second scenario which is playing out — not the first.

(iii) Now consider a third scenario in which wages and living standards both fall even if the share of total income going to labor does *not* fall. How could this happen? In most textbooks, it is assumed that the so-called “production function” of the economy (whereby inputs are transformed into outputs) has a certain mathematical form known as Cobb-Douglas, wherein total output is the product of total productivity, labor and capital (subject to elasticity coefficients). Suppose the economy really is Cobb-Douglas — even if there is growing doubt about this. Suppose also that, as in the textbooks, labor markets are competitive so that wages can fall as well as rise depending upon the supply/demand balance in the labor market. Suppose finally that there is some shock like the rise of outsourcing of production to China.

¹ Specifically, Gross National Income equals GDP plus foreign income receipts minus income payments to the rest of the world.

What happens? Wages will fall. But this decline will be offset by a rise in the number of jobs demanded by the labor market in the new equilibrium. *The math is such that the overall share of national income going to labor remains the same as before.* Of course in the real world, wages are downward-sticky (they do not fall in nominal terms), and the economy is not strictly Cobb-Douglas. As a result, this third case is at best an approximation to reality.

The Data on Labor's Share

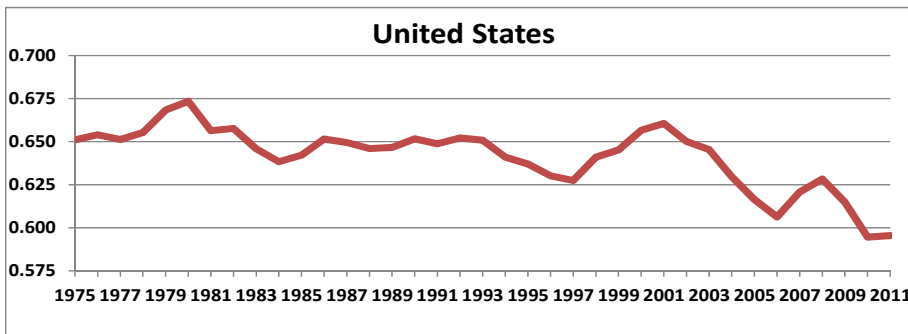
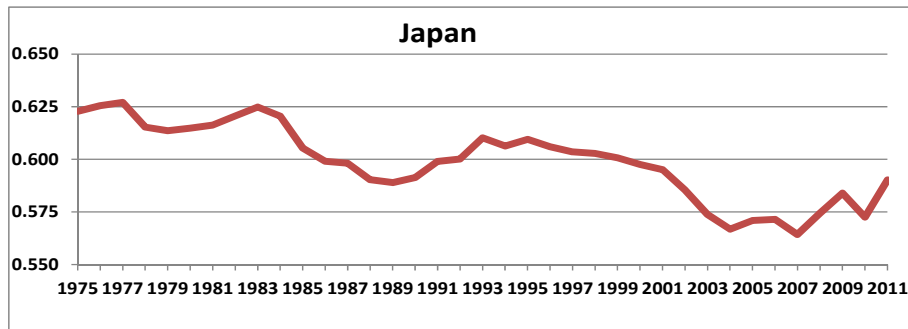
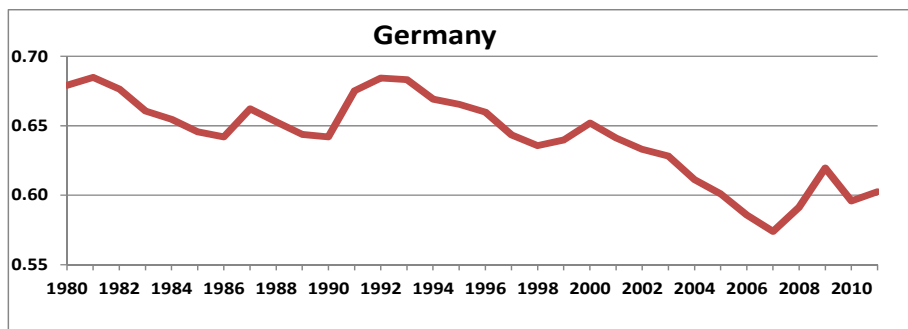
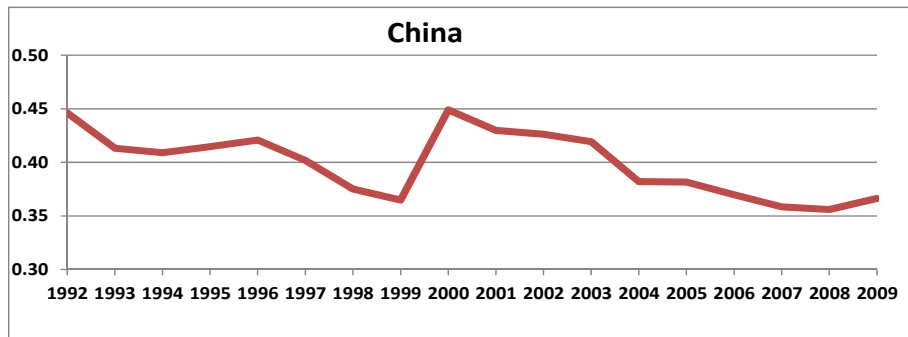
Prior to 1980 – A Constant Labor/Capital Share: Interestingly, this third scenario with a Cobb-Douglas production function cannot be dismissed out of hand because during the forty year period before 1980, *the share of output going to labor was quite constant at 65%.* Since only a Cobb-Douglas function implies a constant share, many economists came to believe that the economy really was Cobb-Douglas. This boosted confidence in the belief that labor's share would remain constant in the future.

Post 1980 – A Falling Labor Share: But it did not remain constant. Since the early 1980s, labor's share of national income has dropped to 60% from the previously constant level of 65%. This reality gives rise to a heated argument as to whether the nature of the production function has changed. The worry is that, if it is not Cobb-Douglas, there is no theoretical reason why labor's share of income might not *continue* to drop. A widely held view is that the nature of today's information technology revolution has transformed the production function in such a way as to reduce labor's share. Now consider the data.

The data on the global decline in labor's share shown in Figures 1 and 2 below are taken from an important June 2013 article, "The Global Decline of the Labor Share" by two University of Chicago economists.² We will be citing this article throughout this essay. We were granted permission to reproduce these data by the authors, but they are not yet available for others to do so.

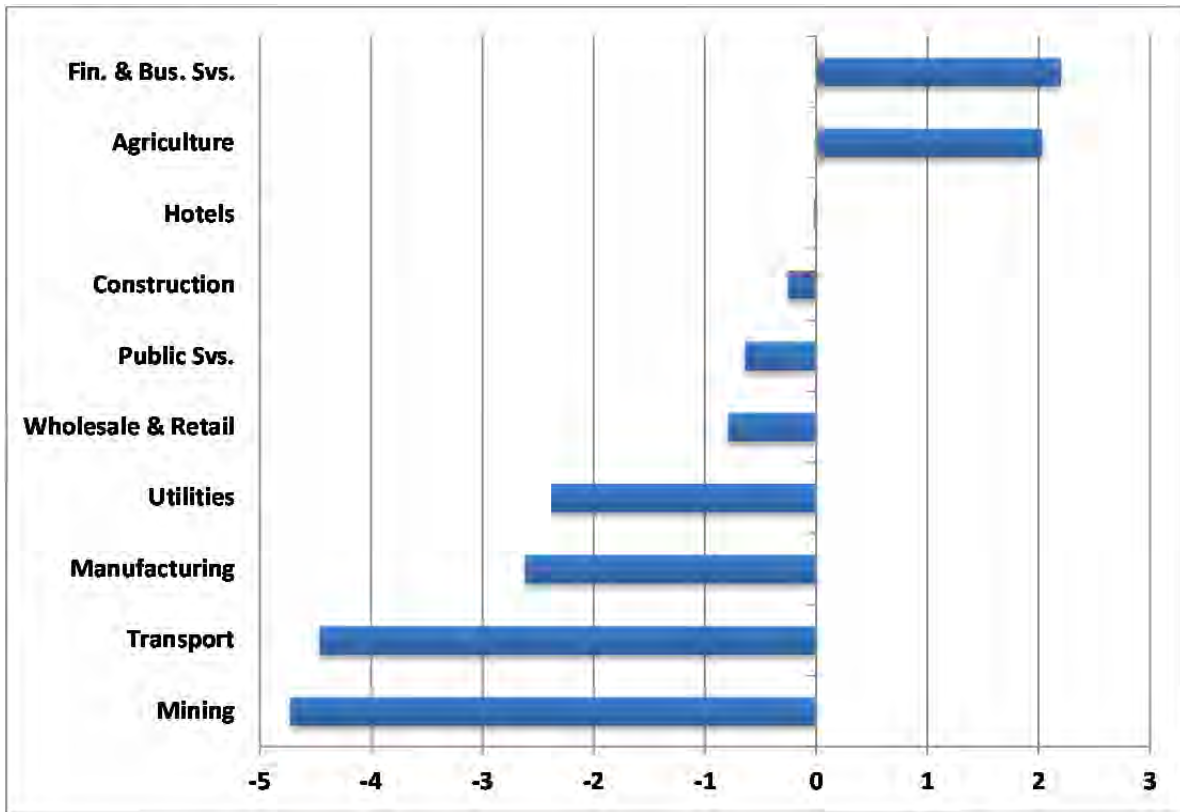
² See "The Global Decline of the Labor Share" by Loukas Karabarbounis and Brent Neiman, National Bureau of Economic Research, Working Paper 19136, June, 2013.

FIGURE 1: Decline in Labor's Share of National Income



Sources: Loukas Karabarbounis and Brent Neiman, "The Global Decline of the Labor Share," University of Chicago, 2013

FIGURE 2: Reduction in Labor's Share in 8 out of 10 Industries



Sources: Loukas Karabarbounis and Brent Neiman, "The Global Decline of the Labor Share," University of Chicago, 2013

Figure 1 shows the decline in labor's share in the world's four largest economies. Figure 2 reveals that labor's share dropped in eight out of ten major industrial sectors while it increased in only two. More specifically, Figure 1 shows an average 5% reduction in labor's share over the past 30 years in four very different economies. Elsewhere in their paper, the Chicago authors show that similar declines have occurred in a much wider group of nations. The parallelism they establish suggests that something very fundamental has been taking place within what might be called the "global production function."

As for the formal definition of "labor's share," the authors introduce two ways of measuring this. These are discussed in a footnote. Intuitively, labor's share is the total compensation of

labor across all three sectors of GDP divided by GDP. GDP itself is simply the value of output of all three economic sectors: households, businesses, and government.³

2. Probable Causes of Labor's Decline in the Share of Output

Once again, in discussing the decline in labor's share of national income, keep in mind that we are not focusing on the familiar issue of why wages (and living standards) have been stagnant, but on the broader issue of why the labor/capital *share* has decreased. This can result from **(i)** developments causing an unusually low growth of wages in aggregate, **(ii)** developments causing an unusually high growth of business profits in aggregate, or **(iii)** both of these. What follows are *seven* different explanations of what these developments were, and how they decreased labor's share.

A. Decline in the Relative Price of Investment Goods

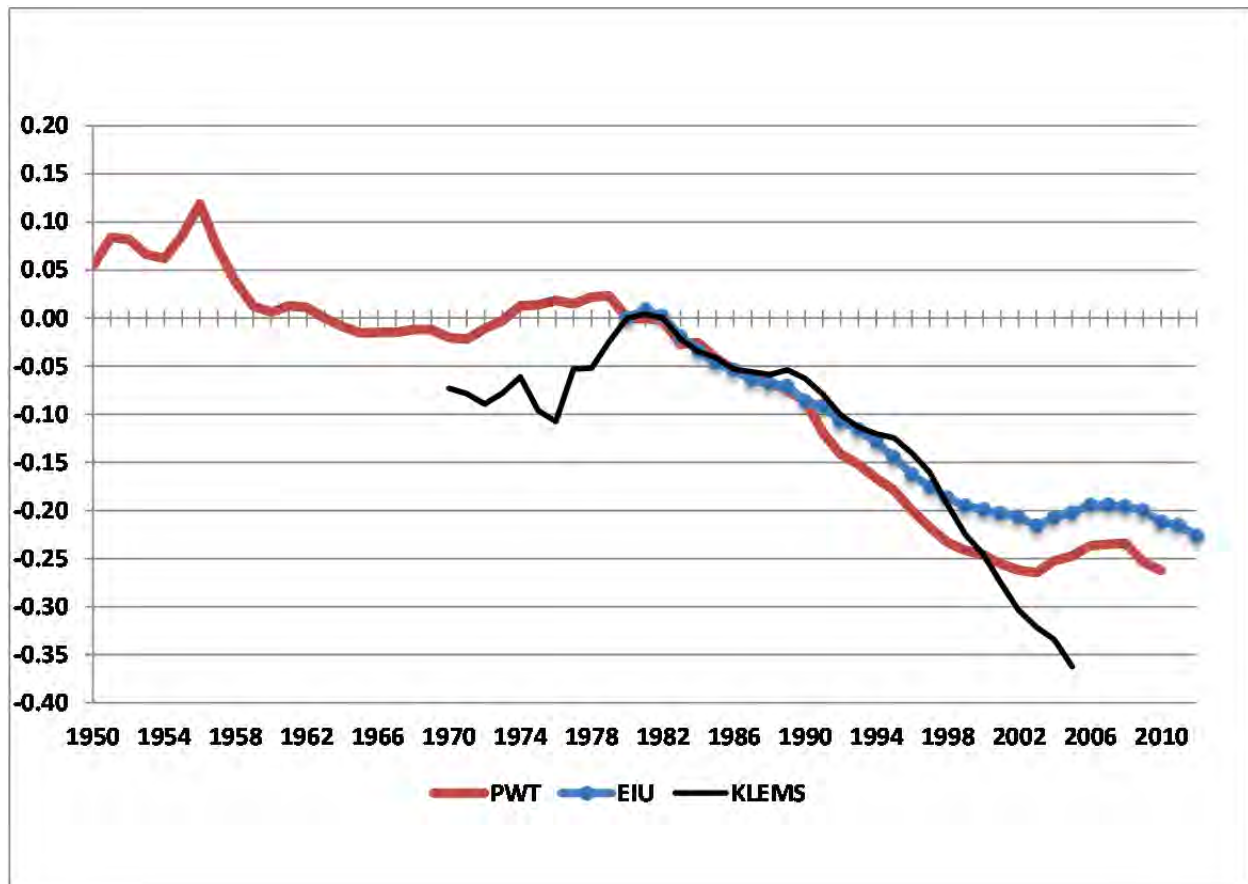
The most important finding in the new NBER study cited just above is an econometric demonstration that fully *half* of the decline of labor's share is attributable to a widespread decline in the price of investment goods relative to the price of labor. This is a remarkable finding — one well-grounded both statistically and theoretically. What is the intuitive logic at work here?

The causality runs as follows: To the extent that producers confront a labor/capital tradeoff ("Do I hire more workers, or automate?"), they will substitute capital for labor during periods when the *relative* price of investment goods falls — and vice versa. The rate at which such substitution occurs is known as the *elasticity of substitution* between capital and labor. The NBER study authors measure this elasticity **S** to be 1.3 across a large sample. In their framework, any value of **S** lying significantly *above* 1.0 will cause labor's share of output to *decline* — just as it has.⁴

³ At a deeper level, the authors (equivalently) express nominal GDP as the sum of sectoral gross value added (final output less intermediate output) and taxes net of subsidies on products. The aggregate labor share equals total compensation of labor across all three principal economic sectors, divided by GDP as stated above. But this share can be re-expressed as \mathbf{WxN}/\mathbf{Y} where **W** equals the average wage and **N** equals total hours worked, and **Y** is GDP.

⁴ The Cobb-Douglas production function we have spoken of is simply a constant elasticity of substitution function when the value of **S** is 1.0. As stated above, in this special case, labor's share of income will always be *constant*.

**FIGURE 3: Decline in Index Price of Investment Goods
– Three Different Groupings of Countries–**



Legend: The three lines represent three different data sets for three different groupings of nations analyzed in the Chicago study.

Sources: Loukas Karabarbounis and Brent Neiman, "The Global Decline of the Labor Share," University of Chicago, 2013

As Figure 3 shows, there has been a remarkable decline in the relative price of investment goods. The numerical magnitude of the price decline seen here, along with the 1.3 elasticity coefficient the authors estimated, jointly imply *half* of the 5% decline in labor's share. The next six developments we discuss most likely account for the *remaining* 2.5% decline. Regrettably, we cannot point to any model that has assessed the relative weight of each of these six other

developments, as no such model has yet been developed. But taken together, it would be surprising if they did not explain the other half in full.

B. Impact of the Rise of the Chinese Economy

Is it a coincidence that the timing of the decline of labor's share coincided with the ascendancy of the Chinese economic empire? Most observers would agree that this was no coincidence. As Wal-Mart *et al.* began to outsource "good jobs" to China, and to buy cheap Chinese imports, profits increased due to ever cheaper unit labor and manufacturing costs during the period 1980–2010. It was of course the Western worker who took it on the chin. Employment opportunities diminished, wages stagnated, and labor's share declined — at the same time as Western corporations' profits soared. Note here how a *single* development — the rise of China — explains not only a decline in labor's share, but also soaring corporate profits. It is this *duality* between income shares that is important in this second development.

Is this explanation correct? Can a portion of the decline in labor's share be placed upon the rise of China? The answer is "Yes," but a qualified yes. For a distinction must be made between the impact of the rise of China under two different scenarios. Under the first of these scenarios, China would not be to blame. Under the second, it is.

Scenario 1 – Textbook Competition: The fundamental theorem of international free trade is usually misunderstood. To begin with, what is called "free" trade is actually "free and fair" trade. In this instance, nations play by the same rule book, one which stipulates no currency manipulation, no capital account rigging, no intellectual property theft, no rigged markets, etc. In such an environment, the more free trade, *the better-off everyone will be as long as suitable side-payments are made to losers.*

The problem with free trade is that opening up markets to low-cost developing-nation competitors will certainly create losers, e.g., furniture makers in North Carolina who cannot compete. But if this is so, then how then can "everyone" gain from fair free trade? The answer is that the "social surplus" resulting from free trade is large enough that the winners in any nation can subsidize the losers via side-payments such that everyone still comes out ahead. In reality, most governments fail to make the required internal transfers, so free trade does create losers. But this does not change the substance of this fundamental free-trade result originally proposed by Ricardo. Moreover, as a corollary, the overall share going to labor in each country

need *not* decrease due to increased foreign competition *assuming it is fair*. Proving this is complicated, and a strategy for doing so is found in a footnote below.⁵

Scenario 2 – Unfair Competition: The non-textbook link between increased foreign trade and a declining share of labor income at home stems from the reality that China did not trade in a free and fair manner. Rather, it was exceptionally aggressive in violating a host of World Trade Organization mandates. As is now commonly acknowledged, China manipulated (suppressed) the value of its yuan to an extent never witnessed before. In this regard, the current value of the yuan/dollar is about *half* of its value in 1990. Yet free trade theory suggests that, given the magnitude of China’s ascension, its currency should have *tripled* between 1990 and 2013. Aside from currency manipulation that hugely favored Chinese exports over imports, there was the intellectual property theft for which China is so well known. Additionally, the nation’s capital account was never opened up as it was supposed to have been.

As I argued in Chapter 5 of my 2012 book *American Gridlock*, what was surprising was that the OECD nations that were most damaged by Chinese policies did virtually nothing to push back. Such threats as they made were empty. For example, China was allowed to join the World Trade Organization over a decade ago without ever implementing promised reforms. It was allowed to do so with complete impunity. Given that the West possessed far greater economic and military power than China did at that time, its failure to protect its own interests was extraordinary. More specifically, the failure of the US and other governments to protect the jobs and related interests of their own citizens was inexcusable.

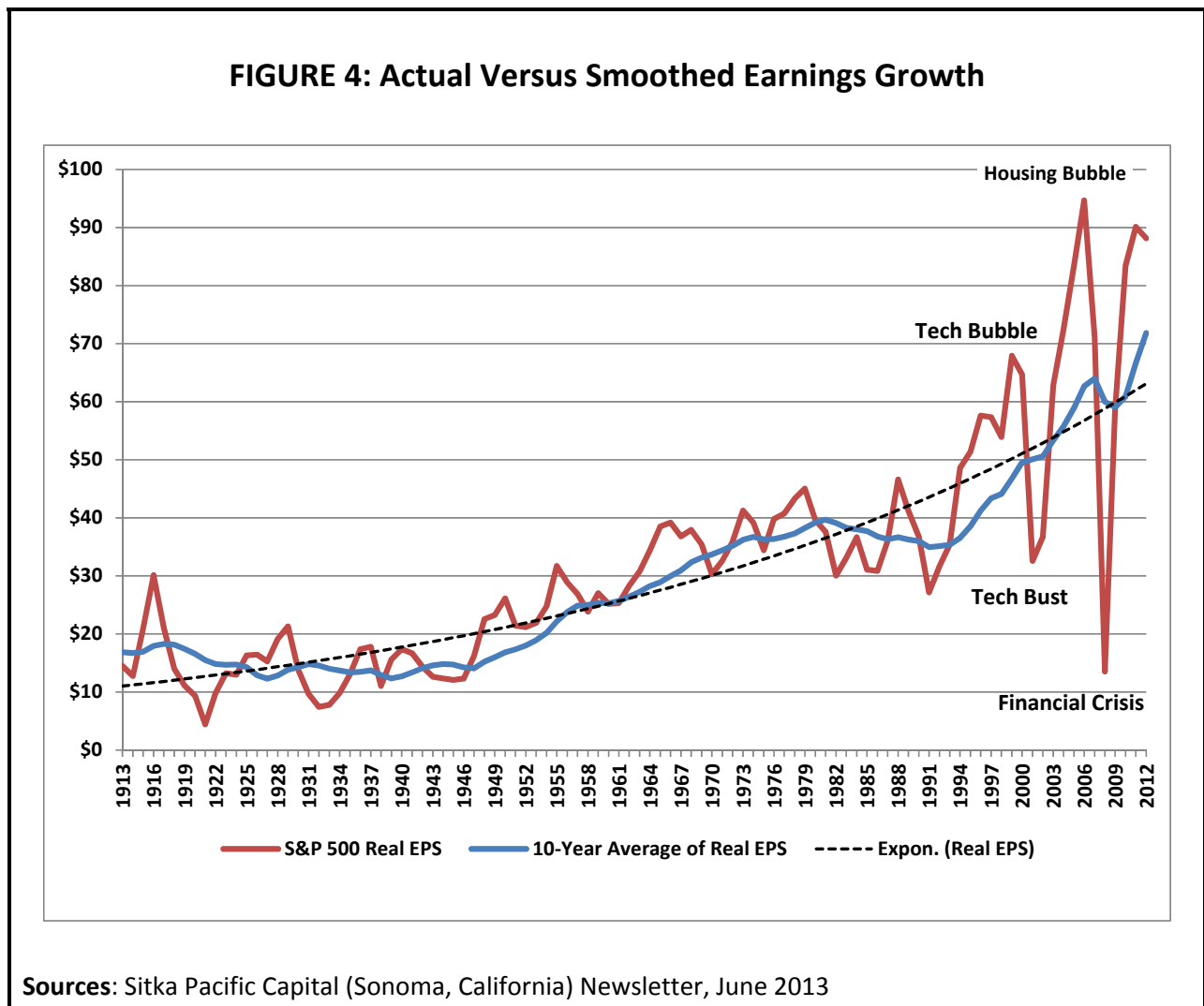
What did this biased form of increased trade imply for labor’s share in developed nations? It meant windfall profits for corporations that could outsource to China and exploit *artificially* low labor costs — due not merely to low wages within China (legitimate), but also to the ridiculously low value of the yuan (illegitimate). Had the yuan risen three-fold rather than fallen in half as it did over two decades, how much *net* outsourcing of product and jobs would there have been? The answer is there would have been only a fraction of the outsourcing that actually occurred. Add in the impact on the US labor force of rigged product markets and intellectual property theft, and you end up with far *fewer jobs* and *lower wages* than would otherwise have been the case with fair trade. Since one computes changes in labor’s share by

⁵ The proof lies in establishing a set of equilibrium conditions whereby factor prices and currencies adjust in such a way as to neutralize any pain from increased fair trade, while increasing growth. For example, as a nation like China grows rapidly, its currency should rise rapidly causing its exports to decline, its imports to rise, and its mix of exports and investment and consumption to change. The rise of China should thus end up helping its trading partners as much as they benefit China. A general equilibrium model with trade is required to prove all this, not those partial equilibrium models that are usually utilized and that are misleading.

multiplying the rate of increase in the number of jobs times the rate of wage growth, then labor's share ended up less than it otherwise would have been. The flip-side of this was a rising share of national income going to capital at the expense of labor.

C. Sky-High Earnings Growth

Forgetting for the moment the evils of the global labor market that caused labor's share of income to decline, let us look at those dual developments that caused capital's share to rise to an unprecedented level, an ancillary effect of which was to further depress labor's share. [Never forget that the two shares must add to unity.] Two questions arise: First, to what extent has there in fact been an explosion in earnings in recent years? Second, if it took place, why did it do so?



Most investors know how market earnings growth has outperformed both historical norms and market expectations in recent years — especially here in the US. Given the level of distress on Main Street during recent years, it is remarkable that earnings have performed as well as they have. Figure 4 does a very good job of putting both long-term and short-term earnings growth into historical perspective, with the sample period being 1913 (the year the Fed began to operate) to 2013. This graph is taken from a very interesting essay we have just read on the subject of earnings growth and stock market valuations. This essay appeared as the June 2013 newsletter of Sitka Pacific Capital Management of Sonoma California.⁶

Three observations jump out from these data. *First*, the growth of US real earnings during the past few years really has been remarkable. *Second*, and much less well known, real earnings growth has become extremely volatile since around 1980.⁷ *Third*, long-run real earnings growth mean reverts to a rate of about 1.5% over the long run, just as, according to economic theory, the values of most all fundamental economic variables should and do mean revert.

As for why earnings growth has been as robust as it has been, there are three possible explanations. *First*, there is what the Sitka authors refer to as the “gift” of monetary policy — both extremely low short-term interest rates, and sustained QE. This is as much of a boon to corporations seeking to refinance balance sheets and hoping for a low “rental fee” for capital investment as it is a bust for retirees seeking decent yields. They write (page 3):

Just as with the previous housing boom/bust and the tech boom/bust, both of which temporarily boosted current earnings far above the long-term growth trend, the Fed’s current ongoing monetary expansion is enabling another boost in earnings well above its long-term growth trend.

Second, the high earnings of recent years reflected the explosion of earnings in the financial sector of the economy. Because of the myriad (and confusing) ways in which the “financial sector” is described in the literature, it is difficult to get a handle on how much of a role the financial sector boom played in driving market earnings up. But it is generally agreed that earnings growth in the financial sector will henceforth be significantly slower than in the past.

⁶ I am grateful to my old friend Alfred Roelli of Pictet et Cie. in Geneva for drawing this essay to my attention. And I am grateful to the authors for permission to publish this graph which is not for reproduction.

⁷ The authors do not explain this explosion of volatility. We have explained this as evidence of an increase in endogenous risk within the market — a phenomenon largely driven by the rise in leverage made possible by the utilization of derivatives, as well as by increasing Pricing Model Uncertainty.

Third, the US government's failure to enforce free and fair trade with emerging market nations has also helped boost profits on the part of those who wish to and can outsource, as argued above.

This rising share of national income going to profits (capital) tautologically implies a lower share for labor.

D. Loss of Labor's Bargaining Power with Management

The standard story is that the rise of labor unions in the first half of the twentieth century played an important role in giving workers the "fair shake they deserve." But things then changed, and by the mid-1970s, the power of labor unions began to shrink at an accelerating rate. Today, the share of unionized private sector workers is the lowest in seventy years. This decline has been accepted by society at large, as had been the earlier rise in union power.⁸

The standard story certainly seems to make sense, but it is problematic. While no one can dispute the rise and subsequent decline of the power of unions, what can be disputed is that unions were required for workers *as a whole* to receive a fair shake from employers. This latter claim can be refuted by recalling that, for an economy to achieve its maximal growth rate in output and in worker living standards, all markets *including the labor market* must be "perfectly competitive." Regrettably, the rise of unions was anti-competitive, just as was the earlier rise of industrial cartels. Yet while cartels were made illegal by the Sherman Anti-Trust Law, unions never were.

What does this textbook point about perfect competition (or the lack thereof) have to do with the share of national income going to labor? The answer is: "Everything." Economic theory instructs us that the more a labor force is unionized, the smaller the total share of national income that goes to labor. To be sure, the "we lucky few" *within* powerful unions benefit a lot; *but the overall loss of those who are not unionized is even greater.* Additionally, the greater the lack of perfect competition, the more slowly the economic pie grows. Thus on a net basis, labor

⁸ Many felt that unions had become too powerful, and that their members were reaping benefits for the few that the many could not claim. The reason for the loss of union power primarily lay in the ability of corporations to outsource production and to threaten workers' jobs if they did not agree to "givebacks" of many types. The deregulatory agenda of the Reagan administration played a complementary role.

loses from unionization. The analysis needed to prove this is difficult and is discussed in a technical footnote for the interested reader.⁹

But wait — doesn't all this imply that during the past three decades when union power declined, labor's share of national income should have *risen*, whereas it has declined? What has been going on? *First*, the decline in private sector union power was offset by the rise of state and federal civil service unionization. *Second*, the other six developments reviewed in this essay that have driven labor's share downward offset the benefit that should have accrued to labor from less unionized, more competitive labor markets. The behavior of China was arguably the most important of these. *Third*, labor's power had already declined significantly before the 1983–2010 period we are analyzing.

E. Impact of New Technology on Labor's Share

Going back to the time of the Luddites and even before, most workers resisted the advent of new labor-saving technologies — for the obvious reason that these would cost them their jobs and drive up unemployment. But appearances are deceiving, and one of the fundamental paradoxes of the economics of labor is that “the more we fire, the more we hire.” In the author's memo on this matter to Messrs. Rubin and Clinton in 1996 (which long-standing clients may recall), we demonstrated that between 1970 and 1995 the US fired some 29 million workers in the private sector — many times more *per capita* than in any other OECD nation. Yet the *net gain* in jobs was just shy of 50 million — a net gain nearly *ten times greater* (relative to workforce size) than in any other OECD nation. The nation that fired the most *really did* hire the most. Firing typists gave rise to nearly three times as many new jobs in word processing and related technologies, for example.

⁹ The main result needed here is a demonstration that the less perfectly competitive the labor market is, then the smaller the size of the economic pie will be, and hence the size of labor's share of it. To show this, we must turn to one of great theoretical results in the history of economics, namely the 1975 “correspondence theorem” of Nobel laureate Robert Aumann. What Aumann discovered was that a truly competitive textbook market economy is formally equivalent to a bargaining game in which *no player or coalition has any bargaining power at all* — with “power” properly measured game-theoretically. He then showed that *only* this kind of an economy/game devoid of all forms of bargaining power leads to a Pareto optimum in which the biggest pie possible gets baked. Making certain other assumptions, we end up with the result that labor *as a whole* will fare better in a perfectly competitive economy than in a non-competitive one. [The term “correspondence theorem” comes from Aumann's proof that, as bargaining power goes to zero, then in the “non-atomic” limit of no bargaining power, the set of Arrow-Debreu competitive equilibria are in one-to-one correspondence with the set of all NTU-values of the associated Nash-Harsanyi bargaining/bartering game.]

Despite automation, the utilization of robots, the PC, and the ascendancy of the internet and information technologies during this twenty-five year period, the US unemployment rate fell to an arrestingly low 3.8% by the late 1990s. All this would seem to confirm what economic theory predicts: new technologies do not cause a long-run rise in unemployment. Yes, old jobs are lost, but more than enough new jobs are created to absorb those seeking employment. In short, the Luddites were wrong.

Or were they? There is a growing belief that in certain environments, technological advances may well reduce the growth of employment, and/or drive down wages as human beings become less productive than machines. Please refer back to development **2.A** above, namely the impact on labor's share of income as a result of the fall in the relative price of investment goods. The two Chicago economists cited demonstrate in an empirically rigorous manner that this decline in the price of capital stock "explains" *half* of the 5% reduction in labor's share of national income over the past three decades.

But what they do not do is prove how technological advances — information technology in particular — *caused* this decline in the price of capital goods which in turn led to the 2.5% decline in labor's share of the pie that they estimate. They and others speculate that "this time," there may be something special in the nature of recent technological innovations that proves the Luddites right. That is, despite two centuries of empirical evidence to the contrary, technological advances could be pushing labor's share down, either by pushing down average wages, by reducing the overall demand for labor, or both.¹⁰

We find this view quite confusing. What is needed, for starters, is an explicit causal model of the exact manner in which today's "new" technologies might be changing the nation's production function — and the means by which this change causes a continuing drop in labor's share of national income. For example, we would like to know what technologies increase-versus-decrease the elasticity of substitution of capital for labor — and how. In the event that the rate of substitution drops from 1.3 today to below 1.0, then labor's share of the pie should increase. Which "new technologies" could cause this? Or which could cause the elasticity to rise to 1.5?

We have been unable to find any research paper that convincingly addresses these issues, and thus explains why the Luddites might be right this time around. Yet there is one paper that

¹⁰ The less "sticky" wages are on the downside, then the more the reduction in labor's share will come from lower wages rather than from a reduced demand for workers, and vice versa.

addresses these issues at a very abstract level. Charles Jones of Stanford University gives a very deep argument as to why the global production function is mean-reverting Cobb-Douglas in form. See “The Shape of Production Functions and the Direction of Technical Change,” *Quarterly Journal of Economics*, May 2005. We discuss this paper further on.

What is currently fashionable is the suggestion that the increased utilization of ever more intelligent robots may well drive many of us out of work. But will it? For the moment, we view this issue as unresolved. Moreover, Professor Jones’ argument suggests that today’s fashionable “wisdom” may well be wrong.

F. Satan’s Revenge: The “Skills Gap” and the State of K-12 Education

If you were to hire Satan and ask him to do whatever is necessary to diminish the prospects of labor in the long run, what might his strategy be? He might well say: “First, if you pay me well, I will accelerate technological change so that the demand for skilled labor will increase rapidly, and the demand for unskilled labor will decrease. Second, if you pay me even more, I shall generate *negative productivity growth* in the K-12 educational system — evidenced by ever-falling test scores. This will guarantee that students become less numerate and less literate over time, thereby diminishing their prospects.”

Does this resonate with what is going on? It should, for some fifty years ago we did hire Satan and both of his strategies have been implemented. The two University of Chicago economists cite this as one reason for the decline in labor’s share of national income, but they do not treat it in any depth. Most observers agree that these developments have diminished labor’s prospects, and that they have been doing so at an accelerating rate.

While government cannot be blamed for the increased demand for skilled labor — which is part of today’s problem, it is largely responsible for what has happened to K-12 education — a scandal that has indeed diminished prospects for our children.¹¹ The current situation in the US could be remedied. For example, the US could well take a leaf from Germany where educational standards and global rankings have not deteriorated as they have in the US. One very important difference in the two educational systems is that, while some 42% percent of German 16 year-olds have commercial apprenticeships and thus learn useful skills while in high school, the corresponding figure is 0.025% in the US.

¹¹ The data on the Chicago Illinois school system say it all: teachers’ wages average \$110,000 per year, and very poor performance is the rule. A textbook case of negative educational productivity at work — and for 50 years!

G. Impact of Adverse Government Incentives on the Labor Market

In our May 2013 *PROFILE Dead Cat Bounce*, we proposed “incentive structure reform” as a third foundational macroeconomic policy variable that should be utilized along with fiscal and monetary policy. The reasons why are utterly fundamental, and were best set forth in the pioneering theory of “optimal mechanism design” by the late Nobel laureate Leonid Hurwicz. In this seventh and final explanation of what could be diminishing labor’s share of national income, we briefly discuss incentive effects.

Type of Taxation: To begin with, it is well known both in theory and practice that there are “good” versus “bad” ways to raise revenues through taxation. The worst form of tax is a tax on labor income; it creates adverse incentive effects that discourage hiring and that shrink the economic pie. During the past thirty years, the ever-rising burden of Social Security and Medicare taxes upon wages represented the greatest tax hike on labor in history. It is easy to demonstrate how ever-increasing taxation of this kind hurts labor’s share of national income. In the economics literature, this is referred to as “dead weight loss” taxation.

The best form of taxation — one implying no dead weight loss — is the value-added tax, of which the sales tax is one form. In the US, where taxation on labor has increased, there has been no effort to substitute a federal consumption tax for ever-higher payroll taxes. The impact of increasing dead weight loss on labor’s share of income could take two forms. *First*, it can cause both reduced wages and reduced employment. *Second*, it can operate indirectly by reducing GDP growth — a consequence of increasing dead weight loss. In this second case, while labor’s share might not change, labor’s living standards will increase ever more slowly since GDP (which equals national income) is growing more slowly.

Growth of Part-Time Jobs and Implications of ObamaCare: One of the most disturbing trends starting around the year 2000 has been the surge in part-time employment at the expense of full-time employment. The statistics are very disturbing. Between 2000 and 2013, the number of part-time jobs has increased by 3 million, whereas the number of full-time jobs has decreased by a very similar amount. Of particular interest was that, during the Great Recession of 2008–2010, the number of full-time jobs plummeted, whereas the number of part-time jobs kept increasing rapidly.

Two principal explanations have been offered as to why this occurred. *First*, with globalization, outsourcing, and the loss of labor’s bargaining power, the labor market has become increasingly flexible. This in turn permits management to hire and fire more readily, and to hire

part-time workers at will. *Second*, the incentives to hire part-timers have increased. For by doing so, management can avoid paying certain benefits.

This part-time work situation is worsening. In a July 23 *Wall Street Journal* Op-Ed piece, the publisher Mortimer Zuckerman wrote:

“The jobless nature of the US economic recovery is particularly unsettling. In June 2013, the government’s Household Survey reported that since the start of the year, the number of people with jobs increased by 753,000 — but there are jobs and then there are *jobs*. No fewer than 557,000 of these were only part-time. The June survey reported that, in June, full-time jobs declined by 240,000 while part time jobs soared 360,000 and have now reached an all-time high of 28,059,000 — three million more part-time positions than when the recession began at the end of 2007. The survey includes part-time workers who want full-time work but can’t get it, as well as those who want to work but have stopped looking altogether. That puts the real US unemployment rate for June at 14.3%, up from 13.8% in May.”

ObamaCare is making this situation even worse. Via the adverse incentive of requiring employers (of more than 50 people) to provide health insurance for employees working more than 29 hours a week, businesses have a new incentive to substitute part-time workers for full-timers. The administration’s redefinition of a proper job as working more than 29 hours a week (instead of the traditional 40 hours per week) simply intensifies an employment trend that began around 2000.

The economist Charles Gave points out in a different direction how the substitution of part-time jobs for full-time jobs has lowered median income — implying a decreased share of national income going to workers. He also argues that recent ultra-easy monetary policy further depressed labor’s share. For Bernanke’s policy of *negative real interest rates* has encouraged a significant substitution of capital for labor.¹²

Other Regulatory Factors: Small businesses create the bulk of new jobs in the US economy, as is well recognized. The Obama administration continues to make itself Enemy Number One of small business, and does so unabashedly. The turmoil caused by the ever-more-opaque provisions of ObamaCare offers one example. Another is the new IRS policy of targeting a large number of small businesses for an alleged underpayment of taxes. To instill enough fear in

¹² The Gave analysis was cited in a very good overview of this topic by John Mauldin in his recent July 27 “Thoughts from the Frontline.” His essay is entitled “A Lost Generation” and is a very good read.

business proprietors to make sure they will not hire new workers, the IRS has sent out to taxpayers mass mailings of accusatory “notices.” Overall, it is not surprising that the US has slipped during the past six years from first to sixth in the Davos “competitiveness” rankings.

This completes our overview of the seven possible reasons for the empirically observed reduction in labor’s share on national income. If the Chicago authors are correct that Development A above explains half of the 5% decline in labor’s share, then Developments B – G may well explain the other half. The surprise to us is that the total decline has only been 5%. For by reading the above discussion, one might suppose there had been a much greater decline in labor’s share than witnessed to date.

What might the future hold?

3. Can the Trend of a Declining Labor Share be Reversed? Yes. Ten Reasons Why

In assessing whether labor’s share could climb back up, a distinction must be made between whether voters can politically *compel* a reversal of recent trends, versus whether today’s trend towards a low share for labor will reverse *on its own* because of intrinsic mean-reverting properties of economic systems. We now conclude with a brief review of ten reasons for optimism as to the future of labor’s share.

1. Worker Activism: There was an interesting article on labor in a recent issue of the *New York Times*. This discussed how underpaid workers are beginning to fight back — even against large corporations such as Wal-Mart. Utilizing the internet, one-day strikes are called that catch management off guard, and create serious problems in distribution and in customer service. A particular source of worker anger is that, while they find their own wages frozen at \$8 or \$12 per hour year after year, they see 17% increases in the pay of executives in the same companies. Worker rage will only increase as out-of-pocket medical expenses and taxes continue to rise, often in “stealth” manner. Suppose citizens elect a president and two houses of Congress with a mandate first to raise taxes significantly on all businesses, second to impose wealth (net worth) taxes on wealthy people, and third to redistribute income via a much more progressive set of income tax rates. Recall the past policies of Harold Wilson in the UK and of François Mitterrand in France in this regard. *Doing so would almost certainly reverse the trend described in this essay in that the after-tax share of income going to labor would rise, and profits would fall.* We could revert to a 65/35 after-tax labor share of income.

But would this be a hollow victory? Would business not reply by investing less here at home due to reduced profitability, and more overseas? It might, given its goal to maximize profits, and given its ability to stash foreign profits offshore and untaxed. One way or another, business would fight back and respond such that the growth rate of the overall economic pie would shrink.

Given these realities, workers' standards of living could well fall despite their larger share of the post-tax pie. Then again, they could rise. Regardless, anger is building and a significant political backlash could occur were the Democrats to gain control of the White House, the Senate, and the House.

2. Autonomous Reversals in the Labor Share Trend: Are there deeper forces at work whereby today's trend towards a lower labor share could be reversed *without* worker activism? At an empirical if not theoretical level, we have already seen a 20th century cycle whereby labor's share increased to 65% between 1915 and 1940, then stabilized between 1945 and 1980, then declined to 60% since. Could we soon witness an *increase* in labor's share? The answer is that we *could* — but with what probability? In the best of all possible worlds, the seven developments detailed above could be reversed. For example, the relative price of investment goods *could start increasing*, reversing today's rapid rate of substitution of ever-cheaper capital for labor. But there are other reasons for optimism.

3. Higher Interest Rates: Another development that could cause this to happen would be for the yield curve to revert back upwards. An end to today's era of ultra-easy monetary policy could make labor more attractive than capital, reversing what has happened during the past decade.

4. Loss of Emerging Market Export Prowess: In a different direction, stronger currencies and rising wages in emerging markets are already making the outsourcing of production and jobs less attractive. In this vein, manufacturing is already “on-shoring” here in the US. Furthermore, as emerging economies mature, they increasingly demand the kinds of services that advanced economies offer, in particular, tourism, advanced medical care, and educational tuition. This will strengthen demand for *our* products and services, accelerating our economic growth and thus the demand for our labor.

5. Substantive Educational Reform: In the area of education, we could copy Germany, and begin taking seriously students' needs for apprenticed skills transcending mere numeracy and literacy. We could also draw upon the growing body of evidence from experiments in charter

schools and in Catholic schools whereby much higher performance could be obtained in public schools *without spending more money* on overpaid teachers' union employees, and on bureaucracy. The incentive structure within teachers' unions is counter-productive in the extreme, and should be completely revised.

6. Rationalized Tax Policies: Myriad tax policies and related regulations could be rationalized, with value-added taxation substituted for labor income taxation, and with new incentives motivating small business to hire rather than fire employees.

7. Corporate Profit Mean-Reversion: Corporate profits could begin to mean-revert, as we believe they are starting to do right now, ending up growing at a real (mean) rate of 1.5%. Remember that, if the share of national income going to capital falls for *whatever* reason, then other things being equal, the share going to labor will rise proportionately since the two shares must always add up to 1. The tendency of earnings growth to mean-revert is very well understood, both theoretically and in the data of the past century. [Recall our discussion in Section 1 above.] Given the extreme upward deviation of profit growth in the past few years (in part a gift from the Fed), this could end up a real boon to labor.

8. Technological Optimism – David Autor's Recent Analysis: There is no real consensus on the future impact on labor of new technologies, especially robotics. As we already discussed, blithe assertions that today's information technologies are impacting the nation's production function so as to reduce labor's share need to be substantiated at a much deeper level than they have been. The Luddites have been wrong for 300 years, and if they are now to be proven *right*, we need a theory as to how and why this is the case.

Whereas most commentators on this issue are quite negative (recall our discussion above), David Autor, Professor of Economics at MIT, is more optimistic. While he does not present any formal model, he has a theory well-grounded in data which makes good sense. His argument is that, while today's new technologies have the adverse impact of increasing inequality between upper- and lower-income groups, they do not in and of themselves decrease labor's aggregate share of income labor, and they will not generate higher levels of unemployment. His argument was set forth in an August 25 article in the *New York Times*, and in a forthcoming book, and sheds important new light on the prospects for labor. We shall quote the *Times* article extensively. Briefly:

(i) The precipitous collapse in the price of computing and of information search will cause a significant reduction in demand for workers who do “routine tasks” that can better be done by computers (even robots). These tasks include organizing, retrieving, and manipulating data; and executing exactly defined physical movements in production processes. “These skills are most pervasive in middle-skill jobs like bookkeeping, clerical work, and repetitive production and quality-assurance jobs.” Note that most of these jobs are *middle-class jobs* paying midlevel wages and salaries. This development will (has) result(ed) in significantly decreased demand for workers who provide such skills, especially “professionals” who never thought of themselves as replaceable.

(ii) Conversely, computerization will boost the demand for workers who perform “non-routine jobs” that complement the automated activities. Very interestingly, these jobs lie at both ends of the occupational skills distribution. At the top end, “there are ‘abstract tasks’ that require problem-solving, intuition, persuasiveness, leadership, and creativity. These tasks are typical of professional, managerial, technical, and creative occupations like law, medicine, science, engineering, advertising, and design.” Skills in such occupations are highly complementary to the new technologies of computers and automation. Computers benefit them just as they augment the range of skills of computers’ applicability.

At the other end of the jobs spectrum lie manual jobs that require “situational adaptability, visual and linguistic recognition, and good inter-personal interaction. Preparing a meal, driving a truck through city traffic, providing security, and cleaning a hotel room are tasks that computers find very difficult to do.” While these tasks do not require what we think of as “high-level (expensive) skills,” they do require innate abilities such as dexterity, sightedness, and language recognition. These workers *cannot* be replaced by robots, even if the skills required are low and there are many workers who qualify.

(iii) To sum up, computerization is creating a *polarization*, with job growth both at the upper and lower end of the jobs distribution contrasting with a hollowing-out in the middle. This is, of course, what we have been witnessing. But what it does not do is decrease labor’s *aggregate* share of national income, or drive up unemployment. If this analysis is correct, then the Luddites will once again prove wrong and machines will not destroy jobs in a net sense.

9. Demography: Some economists believe that the ongoing retirement of baby-boomers during the next three decades will create a labor shortage. If true, this could help restore labor’s bargaining power with management, and reverse its declining share of national income. Offsetting this demographic argument is the likelihood that baby-boomers will postpone

retirement much longer than ever before. First, they will need labor income. Second, their “health expectancy” is rising *permitting* them to work longer.

10. Deeper Political Philosophical Reasons Why Labor’s Share May Mean-Revert: In past reports, we have discussed the recent discovery at Stanford University of a new type of random process, namely “stable” processes as opposed to “stationary” processes of the kind assumed in virtually all of theoretical economics until now. This concept makes it possible to understand and identify mean-reverting properties of dynamical systems (such as economies) that on the surface appear statistically intractable, but which deeper down are not. In such “stable” systems, long-term mean values to which variables revert do indeed exist, but the periodicity and amplitude (e.g., the timing) of deviations from their means are *non-knowable from the data*.¹³

It is our belief that the labor/capital share variable may well possess this property of long-run stability, even if today’s deviations from the mean suggest otherwise. This is true both empirically and theoretically. At an empirical level, mean-reversion of the labor/capital share is suggested by data going back 150 years.¹⁴ At a theoretical level that would explain *why* mean reversion should hold true in the long run, there is the powerful argument of Charles Jones at Stanford University that we cited above.

Jones develops a highly original model of the “innovative process” underlying technological change. Provided that certain conditions hold true governing the dispersion of innovative ideas, he then shows formally that the resulting production function of the economy must be Cobb-Douglas in form. Recall that a Cobb-Douglas production function is the only function that implies a *constant* labor/capital share. The author quite literally axiomatizes the nature of an abstract production function from first principles. This is a very impressive effort, and more such research is needed.

¹³ As we have emphasized in past essays, “stable” stochastic processes of this kind have only recently been introduced, and represent a significant advance over “stationary” processes in which the amplitude and periodicity of deviations from the “turnpike” are assumed to be knowable from the data. The real-world seems to be stable, but non-stationary.

¹⁴ See Table 1 of “Wages and Labor Income in History: A Survey,” Leandro Prados de la Escosura and Joan Roses, Working Paper 03-10, Economic History Series 06, Universidad Carlos III de Madrid. The nations covered include the UK, US, Netherlands, Germany, Japan, and France going back to 1856.

A Formal Integration of Economics and Politics

At an even deeper level, it becomes obvious that economics *per se* does not offer an answer to the fate of the labor/capital share. *This is because of the oft-overlooked point that what really matters to workers is the after-tax share going to workers and capital.* In the real world, unlike in the textbook, political and economic forces jointly determine the effective share going to labor and capital. The role of politics is to “correct” pure market allocations of income via appropriate redistributions from capital to labor, or vice versa as circumstances warrant. To state this differently, one role of the political system is to reverse that (after-tax) share going to labor if and when this share falls in a politically problematic manner, as it has now.

Might there be a formal model that could examine the joint co-determination of economic output and tax burdens — an integrated political/economic model describing how these issues are resolved in the real world? This is what is ultimately needed to address the topic of this paper in a satisfactory way. Economists alone will not solve the riddle as to why labor’s share has fallen, or what to do about it. The good news is that there does exist one paper that provides a full integration of the economic and tax issues involved, if at an abstract level. This paper is entitled “Power and taxes” published in *Econometrica*, 1977, by the theoretical economists Robert Aumann (Nobel laureate) and Mordecai Kurz. The authors’ logic offers guidance as to how to remedy labor’s share moving forward.¹⁵

This concludes our sketch of some ten developments that could help to restore labor’s share of national income to about 65%. We regret the piecemeal nature of our results, but at this stage of development, no fully integrated account of the labor/capital share is possible.

¹⁵ Many economic models have incorporated political variables, but usually as *exogenous* constraints. The Aumann-Kurz paper went much deeper and showed how tax rates at any particular time represent a bargaining equilibrium between economic agents. In their model, power relations emerge *endogenously* from the game theoretical properties of the economic system being analyzed, in particular the rational threat strategies of the parties involved. The author views this paper as *the* breakthrough paper in the field loosely known as “political economy,” a field first identified in Aristotle’s *Politics*.