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The U.S. Labor Productivity Puzzle

One puzzling feature of the economic data in recent years has been a sharp slowdown in the pace of labor productivity growth. As shown in Figure 1, labor productivity in the U.S. non-farm business sector retreated from 2.8% in the post World War II years of 1948-73 to 1.5% in 1974-1994. While the growth of labor productivity then rebounded to 2.9% during the internet revolution, it subsequently moderated to 2.0% in the second half of the 2000s and to just 0.7% since 2011—marking the weakest seven-year stretch in the post-War period as observed in Figure 2. In tandem, real GDP growth has declined from an average of 3-4% in the first 60 years after World War II to just over 2% since the global financial crisis.

What makes this recent drop in labor productivity growth so puzzling is the abundant evidence of rapidly proliferating technology: smart phones, accelerating computing power, big data, artificial intelligence, genomics, brain science, etc. Why aren't the multitude of powerful innovations lifting the productivity of the average U.S. worker? **The answer to this question is of great importance for both the near-term outlook and the welfare of future generations. The performance of productivity will critically determine standards of living in the years ahead.**

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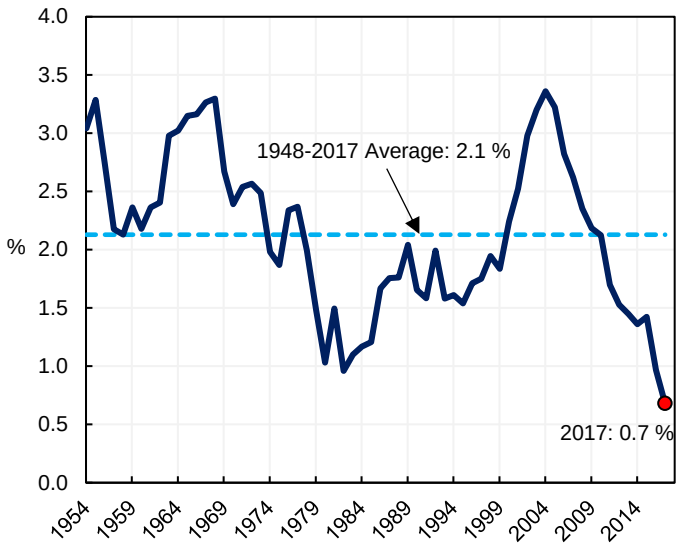
FIGURE 1: LABOR PRODUCTIVITY GROWTH

	Labor Productivity Growth (%)	GDP Growth (%)
Post-WWII: 1948-1973	2.8	4.0
Oil Shocks and Recovery: 1974-1994	1.5	2.9
Internet Revolution: 1995-2004	2.9	3.4
Financial Crisis: 2005-2010	2.0	1.2
Weakest 7-year Stretch Post WWII: 2011-2017	0.7	2.1

FIGURE 2: LABOR PRODUCTIVITY GROWTH (7-YEAR MOVING AVERAGE)



*Source: PGIM Fixed Income, Haver Analytics, Bureau of Economic Analysis, and Bureau of Labor Statistics. *Non-farm business sector.*

A number of hypotheses have been put forward to explain the puzzling slowing in U.S. labor productivity:

- First, the decline in labor productivity growth could reflect a rebalancing in the U.S. economy toward sectors, such as services, that have inherently slower productivity growth.

- Second, the slower growth could be a result of mismeasurement. This hypothesis actually takes two forms. The first is that advancing technology creates much higher levels of personal satisfaction or "utility" for its users. And this additional satisfaction goes unmeasured in GDP. Another measurement issue is that for a number of well-documented technical reasons, price indexes tend to overstate the true rate of inflation. Thus, for a given path of nominal GDP, the growth of real quantities should be higher than what is currently recorded in the GDP data.

- A third hypothesis is that these new technologies are still in the process of diffusing their way through the economy or have yet to manifest themselves in economic breakthroughs that will raise productivity growth. This calls to mind a remark from Nobel Laureate Robert Solow in 1987 that "you can see the computer age everywhere but in the productivity statistics." But by a decade later, information technology (IT) had left an indelible imprint on the national income accounts.

- A final hypothesis, which we particularly emphasize, is that the slowdown in labor productivity growth reflects corresponding softness in business investment over the past decade. This performance, coupled with the strength in employment, has contributed to a flattening in the capital-labor ratio. As a result, workers have had less capital to support them in production than would otherwise have been the case. The softness in investment may also have two other implications for productivity. First, putting new capital in place may drive changes to production processes that make firms more efficient. Second, consistent with the third hypothesis, powerful new technologies may be diffusing into the overall economy more slowly.

Our work examines the hypotheses above and finds particular support for the fourth. In contrast, the recent decline in productivity growth doesn't seem to reflect the rising share of services in the U.S. economy or increasing measurement

shortfalls. On the latter, the decline in productivity growth has been observed broadly across sectors, including in goods-producing sectors (like durables and non-durables) where measurement should be more reliable. And notably, productivity has actually fallen by much less on average in the information technology sector where much of the innovation is housed. **Our work indicates that a strengthening in business investment would go a long way toward driving a resurgence in labor productivity growth. This finding underscores our broader view that the path of business investment will ultimately determine the durability of the current business cycle.**

Finally, we note that this discussion—while focused mainly on the United Sates—has important international implications. First, as we show, this slowing in labor productivity growth has been broadly echoed in other advanced economies. Second, a slowdown in U.S. productivity likely means softer prospects for many countries in the rest of the world because weaker U.S. growth means a weaker pace of demand from a significant engine of global growth. In addition, in many industries, the United States defines the global technological frontier, so the U.S. productivity slowdown may suggest that the technological frontier is expanding more slowly than in the past.

A CONCEPTUAL FRAMEWORK

This paper draws on the following conceptual framework, which provides some intuition for the underlying drivers of labor productivity.

A standard production function says that output (Y) is produced by combining labor (L) and capital (K):

$$Y = A \cdot K^{\alpha} \cdot L^{1-\alpha} \qquad (1)$$

"A" represents multifactor productivity and how efficiently units of capital and labor are combined into units of output. It captures process innovations, improved ways of doing business and organizing production, increased sophistication, and other intangibles that are important to production, but not readily captured in economic data. Rising multifactor productivity is the closest thing in economics to a "free lunch." In our work, the coefficient α represents capital's share of national income.

Labor productivity is simply output per worker or Y/L. This implies:

$$\textit{Labor Productivity} = (Y/L) = A \cdot (K/L)^{\alpha} \qquad (2)$$

Thus, labor productivity is determined by multifactor productivity (A) and the quantity of capital per unit of labor (K/L). Increased multifactor productivity and capital per worker mean correspondingly higher labor productivity. Importantly, higher investment might raise labor productivity through both of these channels. Specifically, additional investment directly raises the K/L ratio, but it may drive a beneficial reorganization of production and lift multifactor productivity as well.

Figures 3 and 4 show data for K/L (measured as the capital stock relative to hours worked) and multifactor productivity.[1] Notably, after steadily rising over the previous 60 years, the capital-labor ratio has flattened out recently. This is an important observation that we will examine in detail. In tandem, multifactor productivity growth softened through the financial crisis and then weakened further through the subsequent expansion, putting in the softest performance since the oil shock and other disruptions of the 1970s and early 1980s.

[1] In calculating multifactor productivity, we assume that α is 0.35, near its average historical value. But the graph looks broadly similar for values of α that are somewhat higher or lower.

FIGURE 3: CAPITAL-LABOR RATIO*

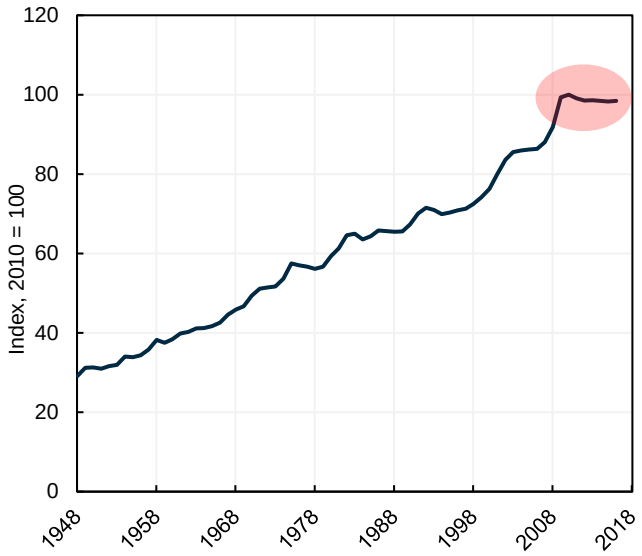
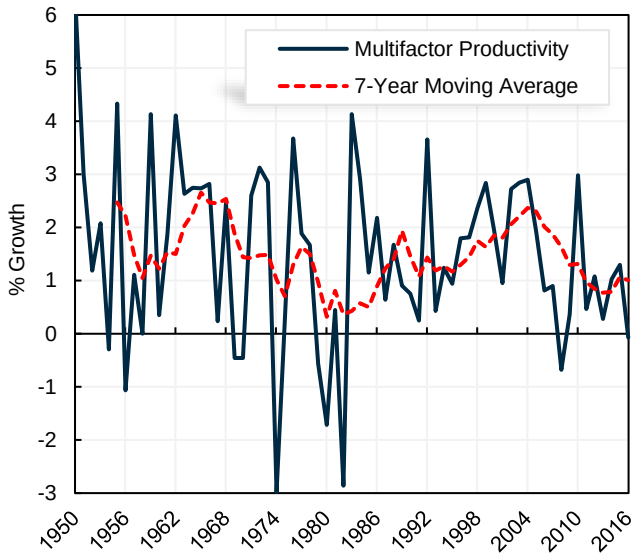


FIGURE 4: MULTIFACTOR PRODUCTIVITY**



*Source: PGIM Fixed Income, Haver Analytics, Bureau of Economic Analysis, and Bureau of Labor Statistics. *Real private non-residential capital stock and total non-farm business hours. **Assumes that α=0.35.*

Our paper focuses mainly on labor productivity (Y/L) as opposed to multifactor productivity because it's measured with greater confidence and highly correlated with wages and, hence, with economic welfare.

PRODUCTIVITY PERFORMANCE ACROSS SECTORS

We now turn to the question of whether the observed slowdown in U.S. labor productivity growth can be attributed to the rise in the services sector and the shifting sectoral mix of U.S. output more generally. Figure 5 shows data for labor productivity across 14 sectors of the U.S. economy. These data go back to the early 1980s and run through 2017.

FIGURE 5: LABOR PRODUCTIVITY GROWTH

	Labor Productivity Growth (%)				Share in GDP (%)		
	1981-1994	1995-2004	2005-2010	2011-2017	1987	2017	Change
Mining	4.9	0.0	0.7	4.0	2.9	2.5	-0.4
Construction	0.4	-1.2	-1.8	**-1.2**	9.5	4.5	-5.0
Durable Goods	3.5	7.8	5.7	0.6	5.9	7.8	1.9
Non-Durable Goods	3.5	3.7	2.2	**-1.0**	8.7	5.7	-3.0
Wholesale Trade	4.3	5.2	0.6	1.2	4.3	7.0	2.7
Retail Trade	2.2	4.0	0.3	1.5	5.7	7.1	1.4
Transportation and Warehousing	1.8	0.9	1.5	**-1.7**	3.6	3.2	-0.4
Utilities	0.6	2.2	0.2	**0.0**	4.2	1.9	-2.3
Information Technology	2.3	4.2	6.5	3.8	3.9	6.6	2.7
Finance/Real Estate	0.5	2.3	2.8	0.2	21.8	22.6	0.8
Professional Business Services	0.7	1.2	1.0	0.2	10.4	14.7	4.3
Education and Health Services	-1.8	-0.5	0.1	**0.0**	10.7	9.6	-1.1
Leisure and Hospitality	0.3	1.3	-0.7	**-0.4**	4.8	4.4	-0.4
Other Services	0.0	-0.1	-1.7	**-0.1**	3.6	2.4	-1.2

Source: PGIM Fixed Income, Haver Analytics, Bureau of Economic Analysis, and Bureau of Labor Statistics.

Clearly, there is meaningful variability in sectoral productivity performance—both over time and across sectors. Even so, the marked weakness of productivity in the most recent period is evident. Fully seven of these 14 sectors saw productivity stagnate or contract. The decline from the pre-crisis period was sizable in durable and non-durable goods production, which reversed from solid rates of expansion into anemic or contracting performances. Wholesale trade also registered a sizable slowdown. The IT sector was a notable bright spot, with productivity continuing to grow at nearly a 4% pace. Productivity growth in the mining sector was even a bit faster than in IT, reflecting the transformative impact of the shale revolution.

The last two columns of the table show how the shares of these sectors in non-farm business sector GDP have shifted over the past thirty years. Sectors losing mass include the construction sector (-5.0%), non-durable goods (-3.0%), and utilities (-2.3%). In contrast, gainers include professional and business services (+4.3%), wholesale trade (+2.7%), information technology (+2.7%), and durable goods (+1.9%). **Notably, while professional and business services was the largest gainer, other services-producing sectors, such as leisure and hospitality, education and health services, and other services all lost mass. As such, the overall gain for the services sectors was limited.**

Figure 6 assesses the extent to which shifting sectoral shares can account for the decline in U.S. labor productivity growth. The various sectors are aggregated using fixed 1987 and 2017 weights.[2] **If the 1987 sectoral share were still intact, the path of U.S. productivity growth would have been a few tenths of a percentage point *lower* than the baseline.** This reflects the larger weights on relatively low-productivity growth sectors, such as construction and utilities. Consistent with this finding, the path of productivity growth with fixed 2017 weights is well above the path with 1987 weights, reflecting the higher shares of information technology, durable goods, and wholesale trade. **As such, these data soundly reject the hypothesis that the decline in productivity growth since the financial crisis is somehow**

[2] *The path for aggregate real labor productivity growth obtained from the sectoral BEA data in Figure 5 is somewhat below the path for aggregate non-farm productivity published by the BLS (shown in Figure 1). This reflects two factors. First, the BEA includes in its data certain public institutions which, by assumption, have zero productivity growth. Second, the BEA's sectoral deflator indicates a slightly higher rate of inflation on average.*

linked to a shift in sectoral weights toward services. Rather, these data point to a broader decline in productivity growth across a wide range of goods-producing and services-producing sectors.[3]

FIGURE 6: LABOR PRODUCTIVITY GROWTH—AGGREGATING ACROSS SECTORS* (%)

	1981-1994	1995-2004	2005-2010	2011-2017
With Published BEA Weights	1.3	2.4	1.8	0.4
With Fixed 1987 Weights	1.3	2.1	1.4	0.2
With Fixed 2017 Weights	1.4	2.5	1.8	0.4

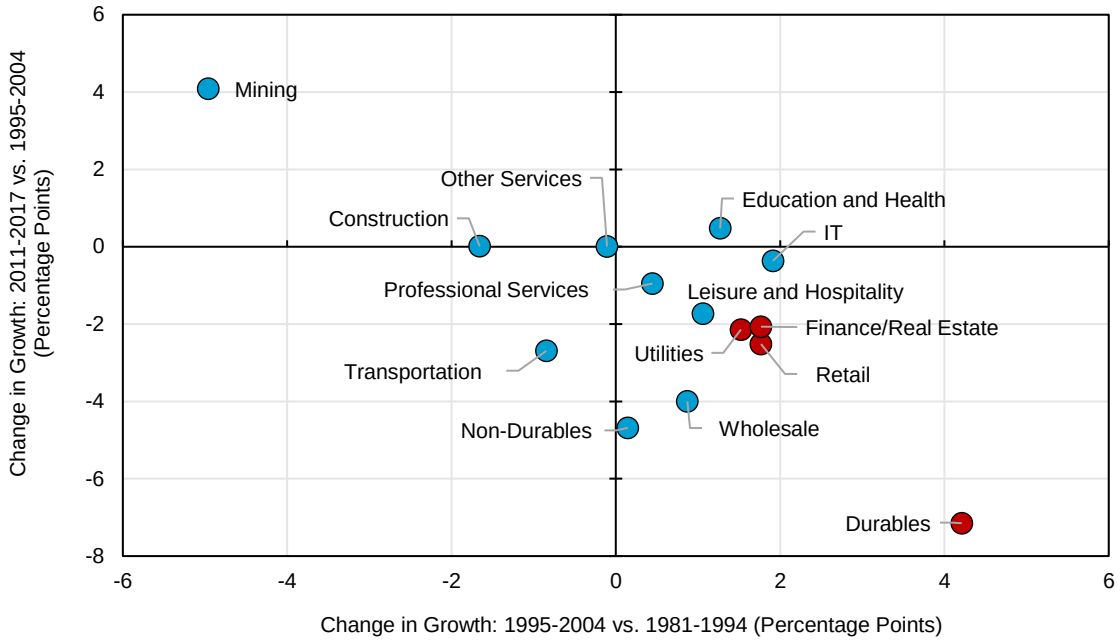
*Source: PGIM Fixed Income, Haver Analytics, Bureau of Economic Analysis, and Bureau of Labor Statistics. *Non-farm business sector.*

Figure 7 takes a complementary look at sectoral productivity performance. **The key point is those sectors where productivity accelerated most markedly during the internet revolution have seen the largest decelerations in the years since the financial crisis.[4]** The durable goods sector is a particularly notable example of this, with a 4¼% acceleration during the internet revolution followed by a hefty 7¼% slowing in recent years. The story is directionally similar for retail trade, utilities, and finance and real estate (sectors indicated in red). In contrast, mining productivity has picked up significantly in recent years after contracting sharply during the decade before the financial crisis. Productivity growth in many of the services sectors (other services, education and health services, and professional business services) changed little during the two periods, while information technology bucked the trend—picking up during the internet revolution and roughly maintaining that faster pace after the financial crisis. A key question going forward is whether the negative relationship shown in the chart persists in reverse, i.e., will sectors that have seen productivity decelerate in recent years snap into stronger performing sectors going forward?

[3] In principle, another possibility is that the shift toward lower-productivity growth services occurred within each of these sectors. While our framework cannot rule this out categorically, it is unlikely that such a shift occurred so quickly as to account for the sharp downturn in the data in recent years.

[4] Consistent with the spirit of the academic work on productivity, we will generally compare the performance of labor productivity during the internet revolution (1995-2004) to the performance since the financial crisis ended (2011-17). We also report data for 2005-10, the period that includes the financial crisis, but we will not focus on that period. Labor productivity held up quite well through the crisis, but the underlying dynamic was unsustainable. Firms rapidly laid off workers but sought to maintain high levels of output by aggressively pushing their remaining employees. The weaker performance of labor productivity since 2011 could reflect, at least in part, payback for the crisis period.

FIGURE 7: LABOR PRODUCTIVITY



Source: PGIM Fixed Income, Haver Analytics, Bureau of Economic Analysis, and Bureau of Labor Statistics.

DOES THE RECENT SLOWDOWN IN PRODUCTIVITY REFLECT MEASUREMENT PROBLEMS?

We now turn to mismeasurement as a potential explanation for the broad-based decline in productivity growth observed in the data. It is useful to consider two potential types of such mismeasurement. The first is technical, and the second is broad and philosophical. We discuss each of these concerns in turn.

Observers who press the technical case for mismeasurement of GDP typically concede that the national income accounts adequately capture nominal GDP (i.e., the value of market-based transactions across the economy). They argue, however, that the data overestimate inflation and thus underestimate the economy's real growth rate. The upward biases in price indexes are well documented and reflect a range of factors, including difficulties in ascertaining ongoing quality improvements (especially for services) and the fact that newly introduced goods, which often see rapid declines in their price following their initial debut, are typically not included in the price indexes. As such, these disinflationary forces tend to go uncaptured in the data.[5]

A problem with this story is that such disinflationary forces cannot explain the acceleration in productivity during the internet revolution of the late 1990s and early 2000s, nor does this story explain why this problem may have worsened since the financial crisis. Specifically, the internet revolution was a period of very rapid innovation and development. Many new goods and services were introduced, yet measured productivity accelerated nonetheless. The broad economic contours of that period were not masked by measurement problems. What is qualitatively different about innovation in the current period that has made it more difficult to accurately measure productivity growth? **There no doubt are biases in the national income accounts, but to account for the deterioration in productivity growth in recent years, they must have become markedly worse than in the years before the financial crisis.**

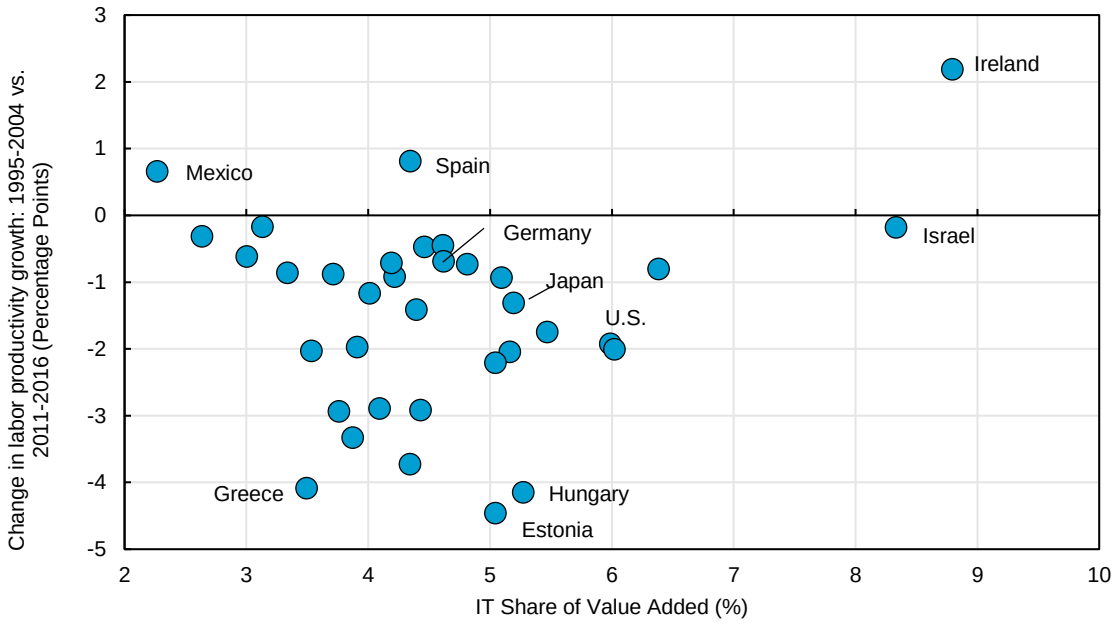
[5] *See, for example, Michael J. Boskin, et al., "Toward a More Accurate Measure of the Cost of Living: Final Report to the Senate Finance Committee from the Advisory Commission to Study the Consumer Price Index," 1998.*

Moreover, such measurement problems, if uncorrected, imply an ever-widening gap between "true" GDP and the levels that are reported by economic statisticians. Suppose that labor productivity growth over the past decade has actually been 1% a year faster than captured in the GDP data. This would mean the true level of GDP today is roughly 10%, or nearly $2 trillion, larger than currently reported. This widening gap should eventually become apparent to compilers of economic data, thus allowing statistical remedies to be introduced.

To assess the possibility of mismeasurement, benchmark studies by Fernald, et al. (2016, 2017) look specifically at GDP measurement in the IT sector.[6] They focus on this sector because it is a part of the economy with rapid innovation and where measurement challenges are acute. Their work provides little evidence that the mismeasurement of IT has worsened over time or that mismeasurement accounts for a meaningful share of the slowdown in labor productivity. They find that the NIPA deflators do, in fact, overstate inflation for computers and communication equipment (a subset of IT goods). However, domestic production of these goods has declined during the past 15 years, with imports posting a corresponding rise. As a result, adjustments to the NIPA deflator raise productivity growth before the financial crisis by *more* than in recent years.

As a final point, Figure 8 plots the share of the OECD countries' IT sectors against the observed deceleration in productivity. If mismeasurement of IT goods was a chief explanation for the slowdown in productivity, then those countries with larger IT sectors should, all else being equal, see larger declines in labor productivity growth. Clearly that is not the case. Most of these countries have seen a decline in labor productivity, but the performance is largely independent of the IT shares. For example, Israel has a very large IT share and has seen essentially no change in productivity. Countries such as Hungary and Estonia have IT sectors in the middle of the pack, yet they have recorded large drops in productivity growth. Styverson (2017) similarly finds that the decline in productivity growth across OECD countries is not related to the share of households with broadband access.[7]

FIGURE 8: LABOR PRODUCTIVITY AND IT



[6] *John G. Fernald, et al., "Does the United States Have a Productivity Slowdown or a Measurement Problem?", Brookings Papers on Economic Activity, Spring 2016; also, "Does Growing Mismeasurement Explain Disappointing Growth?", FRBSF Economic Letter, February 13, 2017.*

[7] *Chad Styverson, "Challenges to Mismeasurement Explanations for the U.S. Productivity Slowdown," Journal of Economic Perspectives, Spring 2017.*

Source: PGIM Fixed Income, Haver Analytics, and OECD.

These findings do not question that GDP may be mismeasured. But rather, they suggest the narrative that mismeasurement represents a principal explanation for the recent decline in productivity growth is not compelling.

A second argument for mismeasurement, which is deeply conceptual, is that there are huge elements of economic welfare that GDP fails to capture. For example, as a result of smart phones and social media, our leisure time may be more productive and satisfying. We also have more rapid access to information. And with the use of GPS, even those who are navigationally challenged are less likely to waste time getting lost. Because these welfare improvements generally occur in off-market activities, their potentially sizable value is missed in the GDP accounts.

It is indeed plausible that our off-market utility is rising more rapidly than in the past. This is a well-known shortcoming of GDP, but to date, no one has devised an improved, manageable concept. Even so, these concerns are not unique to the current episode. The polio vaccine also greatly raised social welfare, but it affected GDP only through the cost of the serum, the wages of those administering the drug, and a reduction in sick-leave taken by workers—which hardly capture the vaccine's impact on social welfare. Similarly, GDP accounted for the advent of television through its advertising revenues and the market value of televisions sold, which probably captured only a small fraction of the welfare enhancement from having this new medium of entertainment in homes.

While these conceptual concerns are legitimate, they are not about the mismeasurement of GDP *per se*, but rather they represent a fundamental limitation in what GDP seeks to measure. Moreover, these concerns are not in any way unique to the current episode.

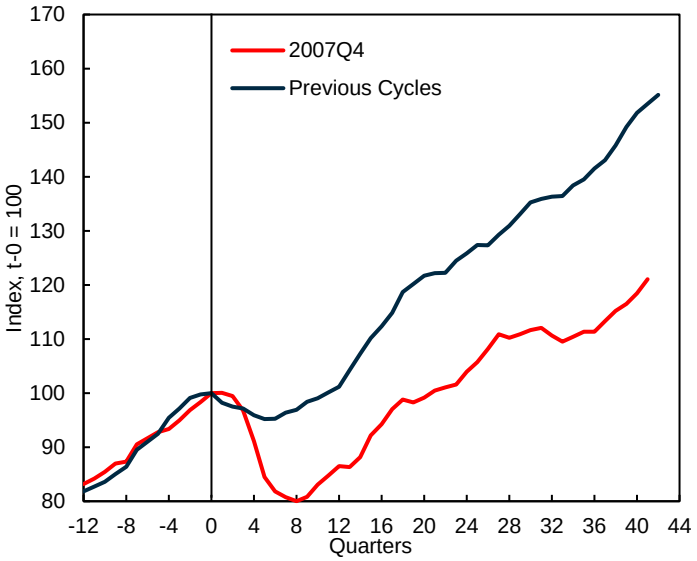
CAN INVESTMENT EXPLAIN THE SLOWDOWN IN PRODUCTIVITY?

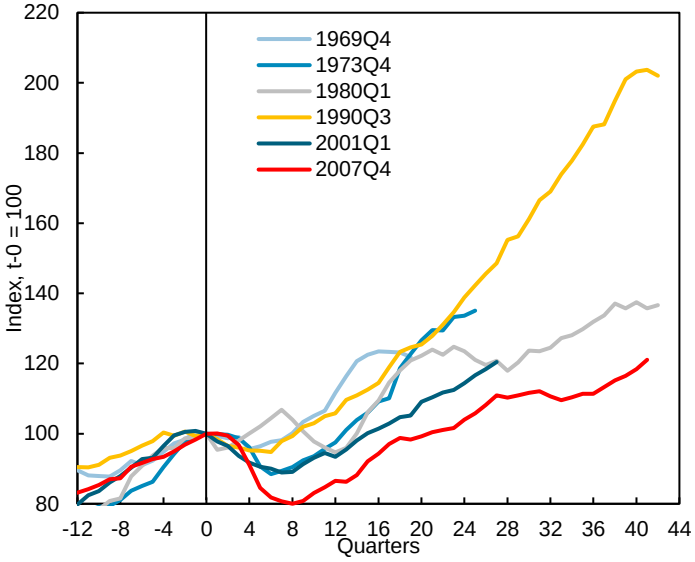
Clearly the slowing in U.S. labor productivity growth in the years after the financial crisis has been broad based across sectors and has not been isolated in any one part of the economy. These features of the decline undermine arguments that focus on one sector of the economy as the source of weakness or point to difficulties in measuring the output of certain kinds of goods as being the primary culprit. Rather, the generalized nature of the decline signals that broader macroeconomic developments are in play.

With this in mind, we return to the remarkable flattening of the capital-labor ratio shown in Figure 3. After many years of steady upward growth, capital per worker has stagnated in the years following the financial crisis. Firms have aggressively hired workers, and the unemployment rate has fallen sharply. Yet, as shown in Figures 9 and 10, business investment through this cycle has significantly lagged other cycles. In contrast, the trajectory of investment during the 1990s was particularly steep, and the cycle similarly long-lived. This favorable performance no doubt helped support the flowering of productivity during the internet revolution. After 40 quarters, investment during that cycle had risen 100 % relative to its pre-crisis peak, while in the current cycle investment is up only 20 %. Taken together, the strength in hiring and the relatively soft rebound in investment from the depths of the financial crisis have both contributed to the flattening out in the capital-labor ratio.[8]

[8] *In addition, the national income accounts indicate that the rate of capital depreciation has stepped up in recent years, and this also has contributed to the flattening of the capital-labor ratio.*

FIGURE 9 AND FIGURE 10: U.S. PRIVATE NON-RESIDENTIAL INVESTMENT VS. PREVIOUS CYCLES*





*Source: Haver Analytics and PGIM Fixed Income. *t=0 is the peak of each business cycle.*

To pursue this issue further, Figure 11 graphs the growth rate of the capital-labor ratio (K/L) against the growth rate of labor productivity (Y/L) for each of our 14 sectors across the same four periods as in Figure 5.[9] What we see is that the red dots (the most recent period) are disproportionately in the lower-left portion of the graph**. In other words, the disappointing recent performance of labor productivity has been associated with weak expansion in the capital-labor ratio. More generally, the data point to a positive relationship between the capital-labor ratio and productivity.** These results are consistent with the framework outlined in equation (2).

FIGURE 11: GROWTH OF LABOR PRODUCTIVITY AND K/L

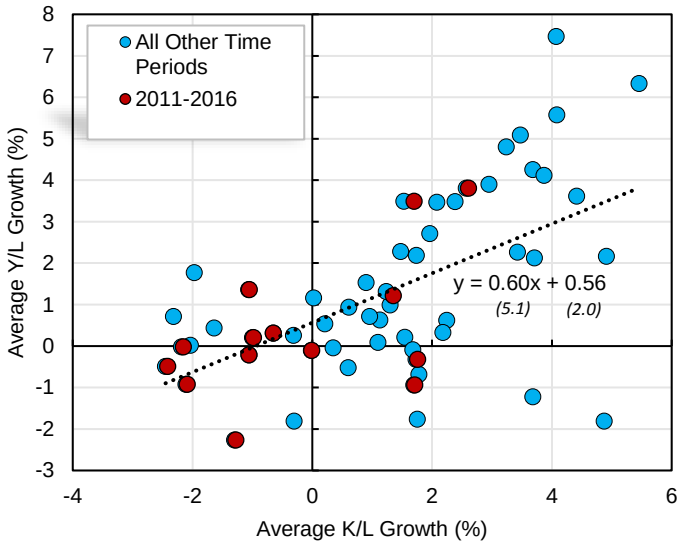
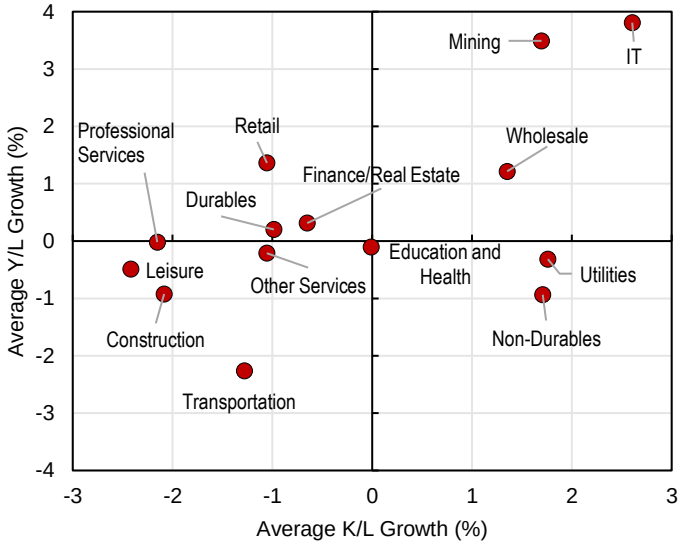


FIGURE 12: GROWTH OF LABOR PRODUCTIVITY AND K/L ACROSS SECTORS: 2011-2016



[9] *The disaggregated data for sectoral capital stocks are only available through 2016.*

Source: PGIM Fixed Income, Haver Analytics, Bureau of Economic Analysis, and Bureau of Labor Statistics.

Figure 12 focuses only on the most recent period and highlights some diversity across sectors. Information technology and mining have been notable outperformers in recent years. As is well recognized, the IT sector has continued to evolve rapidly. Mining is a much more traditional activity, but it has been transformed by unconventional techniques for oil drilling, which have revolutionized the U.S. petroleum industry. However, almost all other industries have seen low—or negative—productivity growth rates in recent years. In tandem, the growth of the capital-labor ratio in more than half of these sectors has been zero or negative. Only information technology saw capital-labor growth in excess of 2%.

These data point to a marked and broad-based reduction in the growth of capital-labor ratios and to a contemporaneous decline in labor productivity growth. Consistent with this observation, the regression results in Figure 11 indicate that a 1 percentage point drop in the annual growth rate of the capital labor ratio tends to be associated with a hefty (and statistically significant) drop of nearly two-thirds of a percentage point in annual labor productivity growth across these sectors. **This suggests that the observed 2½ percentage point retreat in the growth of the aggregate capital-labor ratio since the financial crisis has translated into a decline in aggregate labor productivity growth of 1½ percentage points, which would account for more than half of the observed slowdown.**

Our conjecture is that this relationship works through two channels. First, as highlighted in equation (2), a rise in the capital-labor ratio should directly boost labor productivity by giving workers more capital to support their production. Second, a rising capital-labor ratio may also incentivize firms to reorganize their business processes to fully glean the benefits of the newly installed capital. This should result in higher multifactor productivity growth as well.[10]

Figure 13 further emphasizes this point. Notably, all fourteen sectors saw the growth rate of their capital-labor ratio in 2011-16 fall below the average growth rate from 1981-2004. Durables goods, for example, swung from average annual growth of 3% in previous decades to an average contraction of 1%. And the performance of labor productivity, as seen in Figure 14, broadly echoes this finding. Only three sectors (mining, information technology, and education and health services) bucked the trend and saw productivity growth in the latest period outpace that in previous decades. In the case of education and health services, this reflected an otherwise unimpressive rise in productivity growth from -1% a year to about zero in the recent period.

[10] *The fact that this coefficient is somewhat larger than what is typically estimated as capital's share of income further suggests that this second, less direct channel, may be in play.*

FIGURE 13: CAPITAL-LABOR RATIO GROWTH

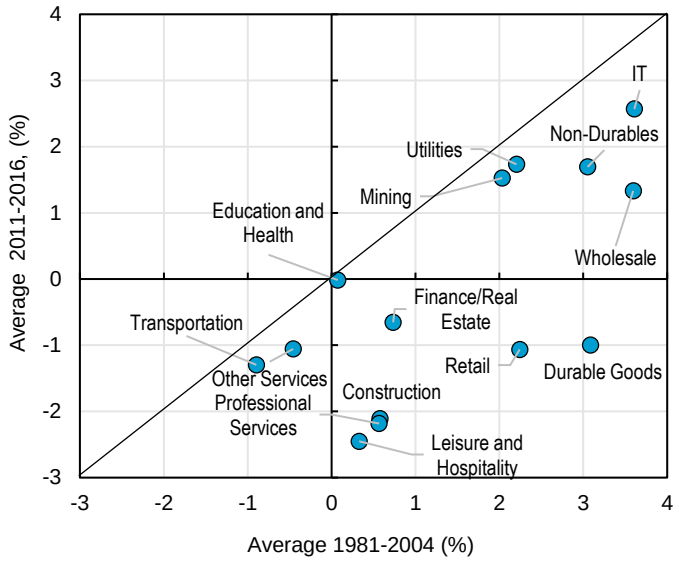
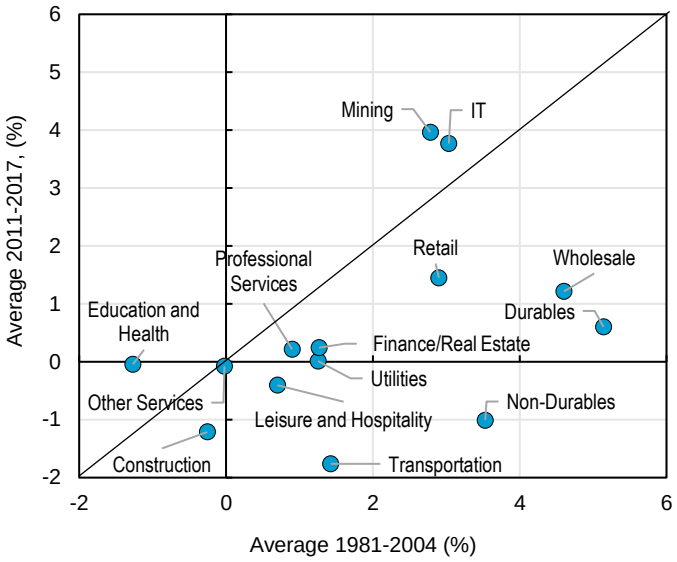


FIGURE 14: LABOR PRODUCTIVITY GROWTH



Source: PGIM Fixed Income, Haver Analytics, Bureau of Economic Analysis, and Bureau of Labor Statistics.

This evidence suggests that the declining growth rate of the capital-labor ratio accounts for a large share of the recent drop in U.S. labor productivity growth. But given the complexity of this issue, several complementary factors have likely also contributed. First, long-lived headwinds from the financial crisis may have been in play, making firms less enthusiastic about expanding plant and equipment and perhaps reducing productivity through other channels as well. A related point is that many firms have prioritized using free cash flow for share buybacks and to increase dividends rather than to invest in capacity. Part of this likely reflects an understandable increase in risk aversion since the crisis, but it raises questions as to whether existing corporate governance structures may inordinately emphasize short-term returns over longer-term performance.

The trajectory of regulatory policies has perhaps been another factor. In the years after the financial crisis, the United States tightened its oversight of financial institutions and markets, and pursued a variety of other regulatory initiatives, including measures governing the environment, the safety and pay of workers, and public health. Without commenting on the overall desirability of these measures, such initiatives may have restrained the capacity of businesses to expand and, hence, taken a bite out of investment and productivity. The Trump Administration is now rolling back or softening many of these measures. Finally, the slowdown in productivity growth may reflect the imprint of the increasingly globalized economy.

CONCLUDING THOUGHTS

In this essay, we have documented the recent decline in U.S. labor productivity growth, and have examined a number of possible explanations. Of these, a flattening in the capital-labor ratio seems the most powerful. This evidence highlights the softness of investment through the current business cycle as a possible causal factor. This firmly underscores our view that a strengthening of investment could go a long way towards rekindling labor productivity and raising standards of living.

Although we lack a clear narrative as to why capital investment has remained lackluster through this cycle, there are reasons to pencil in a strengthening going forward. First, as the labor market tightens, firms may naturally adjust toward somewhat less hiring and more investment. Second, firms are now enjoying the benefits of the U.S. Administration's corporate tax cuts. This, along with an already favorable earnings trajectory, should further ease liquidity constraints on any firms inclined to increase their investment. Third, efforts to soften the tone of financial sector regulation could also support the flow of fresh bank lending. None of these channels may ultimately prove efficacious, but at least there is a plausible case to be made.

As we examine these issues, we also recognize the possibility that we may have misdiagnosed the underlying causal story. Perhaps a slowing in innovation has resulted in fewer investable projects. And this, in turn, explains the drop in labor productivity growth. This story, however, is hard to square with the current excitement about new technologies. Although part of this excitement will no doubt prove to be more hype than reality, we expect that at least some of these technologies will actually prove as powerful as their advocates assert. This observation also provides us some confidence that productivity growth will eventually rebound—both in the United States and elsewhere.

Suffice it to say that, especially over long horizons, no macroeconomic or financial variable is more important than productivity. Nothing will be more influential in determining our long-term standard of living, our ability to meet rising fiscal obligations as the population ages, and the attractiveness of assets and prospective returns available to investors. A world with strong productivity growth differs fundamentally from the alternative. For this reason, the question of whether labor productivity growth recovers is of paramount importance, both for us today and for future generations.

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Source(s) of data (unless otherwise noted): PGIM Fixed Income as of July 2018

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