

Imbalance Game 2.0: A Tale of Two Productivities

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Almost nine years after the financial crisis, the global economy remains mired in low growth. Low productivity growth is certainly a key contributing factor, but our research shows that current productivity measures don't tell the whole story. In this article, we propose a fundamental change to how people should examine productivity: we believe the supply and demand sides should be viewed separately to obtain more robust insights. Taking this approach allows us to differentiate supply-side progress from demand-side malaise and shows that the economy may be more promising than commonly thought. In addition, it highlights large supply-side divergences within and across different sectors of the economy, which are not reflected in the aggregate productivity measure – potentially leading to a distorted economic picture. Viewing productivity through this new lens, we believe that:

- Nominal economic growth will remain low
- Inflation will remain subdued
- Interest rates will stay lower for longer
- Technology-driven progress and persistent supply-side divergence will create investment risks and opportunities in equity markets

In the investment world, economic growth is a big deal. We believe investment returns across asset classes can ultimately be traced back to one source: economic growth. Occasionally, asset prices can deviate from fundamentals, but over the long term, the relationship between returns and growth is very strong. That's why it is critical to have a better understanding of the low growth phenomenon and key contributing factors, such as productivity.

Accounting for Growth

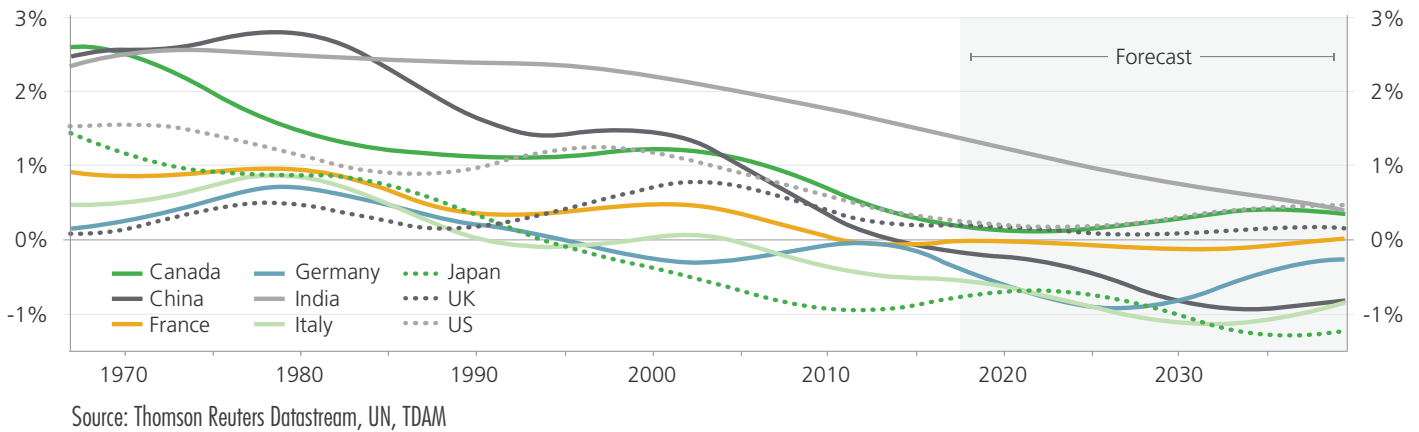
In simple terms, economic growth is the increase of output. Under the simplified growth accounting framework, output can be decomposed into three factors:

$$\text{Output} = \text{Labour Productivity*} \times \text{Number of People Working} \times \text{Average Hours Per Person}$$

*Labour productivity is a measure of efficiency: when labour is more productive, more goods and services are produced in the same (or less) time

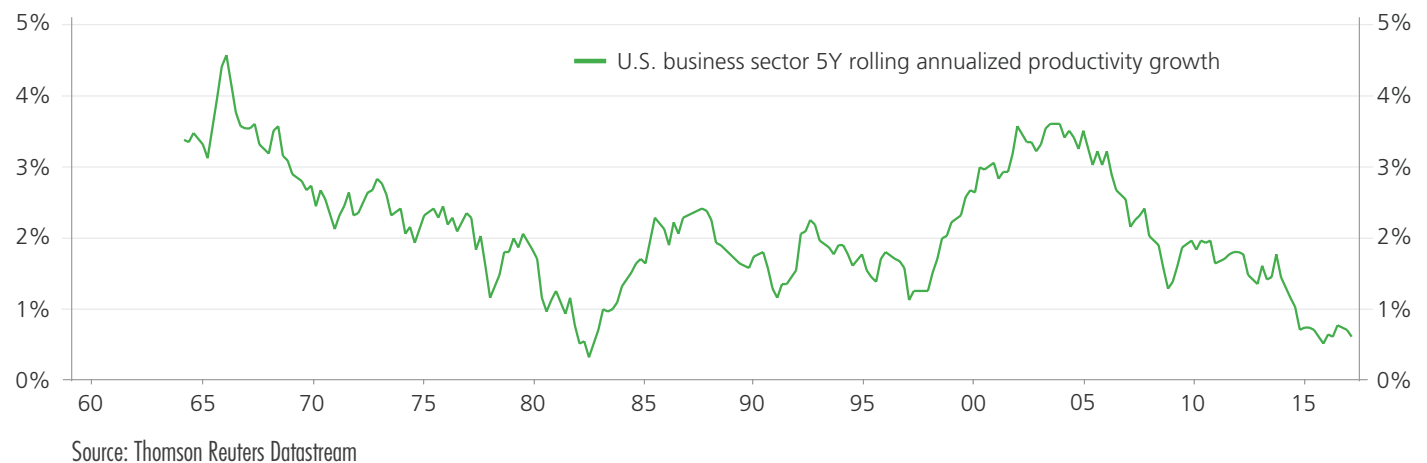
Among these factors, Average Hours Per Person is unlikely to rise meaningfully, as most people will continue to work 8 hours a day, 5 days a week. According to demographic trends, growth in the Number of People Working is likely to decelerate. For example, the United Nations (UN) projects that the working age population in the U.S. will only grow at around 0.3% per year over the next 20 years, which is approximately 1% less than the historical long-term average.

Figure 1 - World Working Age Population Growth



Without significant growth in these two factors, labour productivity growth will have to pick up the slack in order to sustain economic growth. However, recent labour productivity data does not promote optimism. As Figure 2 shows, not only has it been declining, but it also recently reached its lowest reading in the past three decades.

Figure 2 - U.S. Labour Productivity

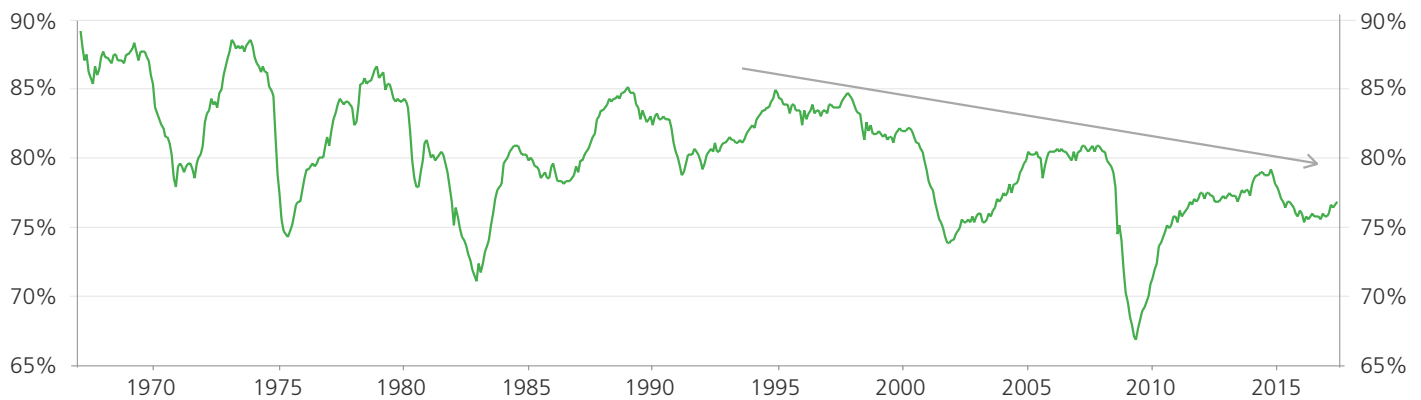


This is concerning because it's difficult to generate economic growth and investment returns without a productivity boost. However, our research indicates that current measures do not provide a holistic view of productivity. Digging deeper, we have found that embedded in the low growth/low productivity story is a tale of two productivities – demand induced and supply induced. While the current low productivity figures highlight that the economy is afflicted with demand malaise, the supply side has nonetheless shown vigour and great divergence.

A Tale of Two Productivities

In plain English, productivity means efficiency, i.e. producing more products and higher quality products in as little time as possible. Most statistical agencies calculate labour productivity by dividing total output by total number of hours worked. But this calculation has a flaw: total output is driven by demand. In a world where the gap between supply and demand is modest and central banks can adjust policy to smooth out the gap, this calculation is fine. However, we are living in a world where high debt levels and income inequality are restraining demand and central banks have limited abilities to stimulate it, leading to supply far outstripping demand in most areas (Figure 3). In such an economy, the conventional labour productivity measure increasingly reflects the demand-side bottleneck rather than the supply-side progress.

Figure 3 - U.S. Capacity Utilization



Source: Thomson Reuters Datastream

To obtain a more complete view of productivity, we believe that it should be evaluated using both demand-induced and supply-induced measures. Demand-induced measures reflect how well economic gains are distributed in the economy and create demand, while supply-induced measures reflect innovation, technological progress and efficiency gains.

Demand-induced productivity

In the U.S., demand-induced productivity growth is low across all sectors. In the household sector, consumer spending is being weighed down by income inequality and high debt levels. In the corporate sector, investment remains low due to weak consumer demand, overcapacity and political/policy uncertainty. And on the government side, demand is weak due to high debt, declining government spending and political gridlock. This universally weak demand is reflected in low productivity growth.

Supply-induced productivity

In contrast, evidence suggests that productivity growth on the supply side has been robust, particularly where technology and innovation abound. One prime example is Amazon. By the end of 2016, it had deployed over 45,000 robots within its fulfillment centres and reduced the average human intervention per order down to 1 minute; the rest of the process is handled by robots and automated systems. Through technological innovation, Amazon has reduced its cycle time from 60 minutes to about 15 minutes and increased its space utilization by 50% – both clear productivity improvements, yet these types of improvements are not fully accounted for in traditional productivity calculations.

Amazon is not an isolated example. There are many other instances of productivity-enhancing innovations, including the widespread adoption of smart phones, the use of robotics in manufacturing processes and the emergence of autonomous cars. Looking into the future, with increasing computational power and continued progress in artificial intelligence, technology is likely to further push its boundary into the service sector, creating an even larger productivity boost.

What's weighing on productivity?

Why has productivity growth been so low in the last five years? This is a hotly debated topic in the field of economics. There are many theories, but none of them is able to give a convincing answer to this question. Our observations on supply- versus demand-induced productivity create a new angle and help us better reconcile the reality in many cases.

For example, the low hanging fruit theory assumes that productivity is low because there haven't been many major technological advances since the creation of the internet. This runs counter to the fact that we have stepped into the application stage and are ready to reap more benefits from internet. Through our new framework, we argue that productivity is being depressed by demand-side dynamics, but there have been significant technological advances that are driving productivity on the supply side.

Another theory is that productivity growth insufficiently captures the quality improvement of products. This theory has some elements of truth, but it cannot explain why the current productivity calculation is more wrong than in the past when the same methodology is applied.

Our answer is that the demand-based productivity calculation was less distorted in the past, when income inequality was less extreme and people could still borrow to consume. With that demand already pulled forward and exhausted, the distortion on productivity is increasingly clear as we move forward.

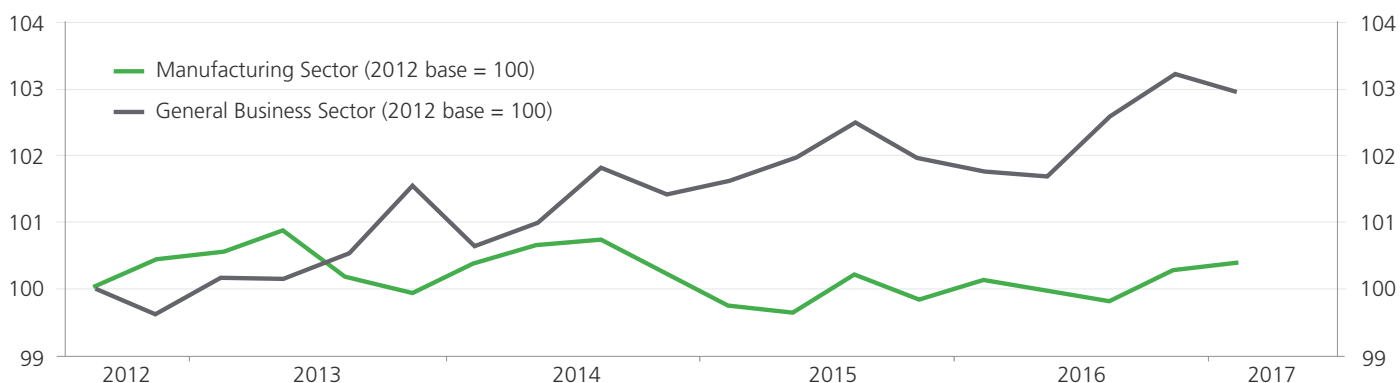
A theory that we have explored in the past is that quantitative easing (QE) programs depressed productivity. But that view is incomplete, as QE contains both good and bad elements. To be fair, QE programs did put many people back to work and boosted demand. However, as the recovery process moved along, QE's long-term side effect was to increase wealth inequality and, therefore, restrain demand-induced productivity. On the supply side, QE was not particularly helpful in resolving structural labour market issues and it allowed inefficient corporations to survive longer, both of which have dragged down supply-induced productivity.

Overall, we believe productivity growth appears low because it disproportionately captures the demand-side malaise versus the supply-side progress and it would be better explained by separating the supply and demand dynamics.

The Great Divergence

While productivity growth has been strong on the supply side, this strength has not been universal. Indeed, we are witnessing another major trend — significant productivity divergence within and across different sectors of the economy. From an inter-sector perspective, manufacturing sector productivity has historically grown much faster than service sector productivity. However, since 2012 this has reversed, with the manufacturing sector recording almost zero productivity growth while service sector productivity continues to move higher, although at somewhat moderate pace (Figure 4).

Figure 4 - Manufacturing vs General Business Sector Productivity (2012 – Present)

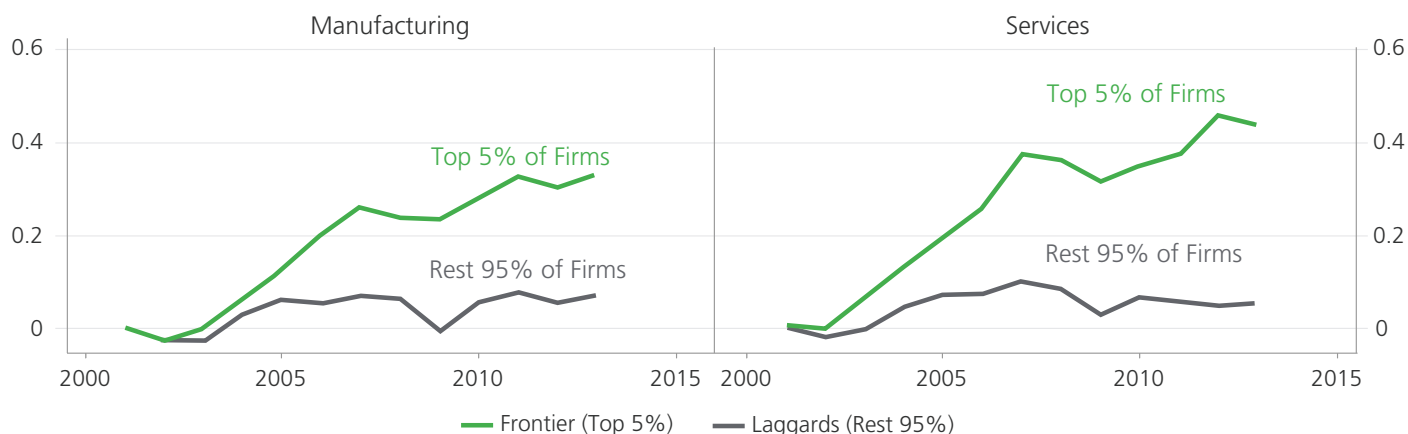


Source: Thomson Reuters Datastream

From an intra-sector perspective, the divergence is also meaningful. According to an Organisation for Economic Co-operation and Development (OECD) study, the divergence in productivity between the top 5% of firms and the remaining 95% within the same sector has been increasing (Figure 5). Over the last 15 years, the top 5% of firms in the manufacturing sector accumulated a 30% productivity lead. In the service sector, the cumulative productivity gap during the same period was more than 40%.

Figure 5 - A Widening Labour Productivity Gap Between Global Frontier and Other Firms

Labour productivity: value added per worker (2001 – 2013)



Notes: the global frontier is measured by the average of log labour productivity for the top 5% of companies with the highest productivity levels within each 2-digit industry. Laggards capture the average log productivity of all the other firms. Unweighted averages across 2-digit industries are shown for manufacturing and services, normalized to 0 in the starting year: for instance, the frontier in manufacturing has a value of about 0.3 in the final year, which corresponds to approximately 30% higher in productivity in 2013 compared to 2001. Services refer to non-financial business sector services.

Source: Andrews, D., C. Criscuolo and P. Gal (2016), "The Best versus the Rest: The Global Productivity Slowdown, Divergence across Firms and the Role of Public Policy", OECD Productivity Working Papers, No. 5, OECD Publishing, Paris. <http://dx.doi.org/10.1787/63629cc9-en>. Reprinted with permission.

Even at the subsector level, the same pattern holds true. For example, in the retail space the productivity divergence between non-store retailers (e.g. Amazon) and general merchandise stores (e.g. Walmart) has been increasing. Compared to 10 years ago, non-store retailers' productivity is now 40% higher than that of conventional retailers.

All of this divergence is changing the structure and dynamics of the economy, and its importance is magnified when overall growth slows, because divergence determines who gets a bigger piece of the pie. What used to be a secondary concern has now become one of the key drivers of the economy.

Productivity Trend Implications

As we elaborated above, once we separate the supply- and demand-side dynamics, we can see that:

1. The current productivity measure reflects demand-side malaise, but underestimates technology-driven bright spots on the supply side.
2. The aggregate number also masks huge divergences in productivity.

But by now you're probably wondering: so what? What are the implications of these productivity trends? There are a number of ramifications for the economy, for policy makers and for investors. Broadly, we expect that the demand-side malaise will lead to a continuation of the low economic growth environment. It is also likely to moderate inflation; after all, with supply still greater than demand in many areas, there is little to spur prices higher.

This creates an interesting situation for central banks. Their impact on demand and inflation is getting increasingly asymmetric. As monetary policy mainly works through interest rate and other market channels, it disproportionately benefits capital owners and is less able to address the issues of income inequality and stagnating wage growth that we believe are rising as a result of labour skills mismatches. This uneven spread of gains prevents the effective creation of demand, causing inflation to remain stubbornly low. Additionally, the income distribution issue is outside central banks' control, which suggests they have limited ability to increase inflation. But on the other hand, they do have the power to create deflationary pressure. If they remove stimulus faster than expected, demand can disappear quickly, resulting in an even bigger supply/demand gap — and the potential for deflation.

Given this asymmetry, the first type of policy error central banks could make is tightening too quickly. While some have begun to slowly normalize their policies, they will need to proceed with caution. The second type of policy error would be tightening too slowly, which could happen if they use the wrong target in the policy decision-making process. If central banks maintain substantial monetary stimulus while they wait for inflation to reach the targeted level, which is unlikely to happen given such weak demand dynamics, there will be consequences for credit growth and financial stability. Moving forward, we believe that central banks will have to revolutionize their policy frameworks to reflect this asymmetry and to set an inflation target that balances growth and financial stability.

For investors, slow economic growth, cautious central banks and an absence of high inflation are likely to moderate bond yields. In addition, technological advances may create structural disinflation (slowing inflation). Overall, although bond yields are close to their historical bottom, bond prices may not be as precarious as they appear at first glance, and we expect yields to remain low for a considerable time.



In terms of equities, we are seeing increasing differences between the productivity and performance of top companies (such as those included in the S&P 500 index) and the business sector in general. Even within the S&P 500, there is a big divergence between the top 5% and other 95% of firms. The recent outperformance of the “FANG” stocks (Facebook, Amazon, Netflix and Google) against the broader S&P 500 is a perfect example. Technological advancements are likely to continue increasing the divergence of investment returns at both the sector and company level. In this environment, active managers will have opportunities to add value if they can identify companies that are able to deviate from the general economy and create sustainable growth. In contrast, passive investors may face increasing risks as they are not able to select individual companies and may be exposed to companies that are lagging in productivity and competitiveness.

So where do we think opportunities may lie in a world where supply generally outstrips demand?

In our view, there are at least two areas:

1. Those with a rare supply bottleneck and relatively inelastic demand, such as we saw in the housing and health care sectors over the last several years.
2. Those that are embracing technology, as they have the ability to win market share from other parts of the economy even when the broad economy is stagnant, as we witnessed with the technology sector’s outperformance earlier in 2017.

In our previous framework, [The Imbalance Game](#), we pointed out that several grave structural issues were hindering economic growth. In [The Imbalance Game 2.0](#), we have advanced the framework and generated new insights. This expanded framework helps us better explain and invest in the current world. As the world keeps evolving, we will keep probing and adapting so that we can continue to serve our clients well.



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