What's (not) up with productivity growth? A quick overview

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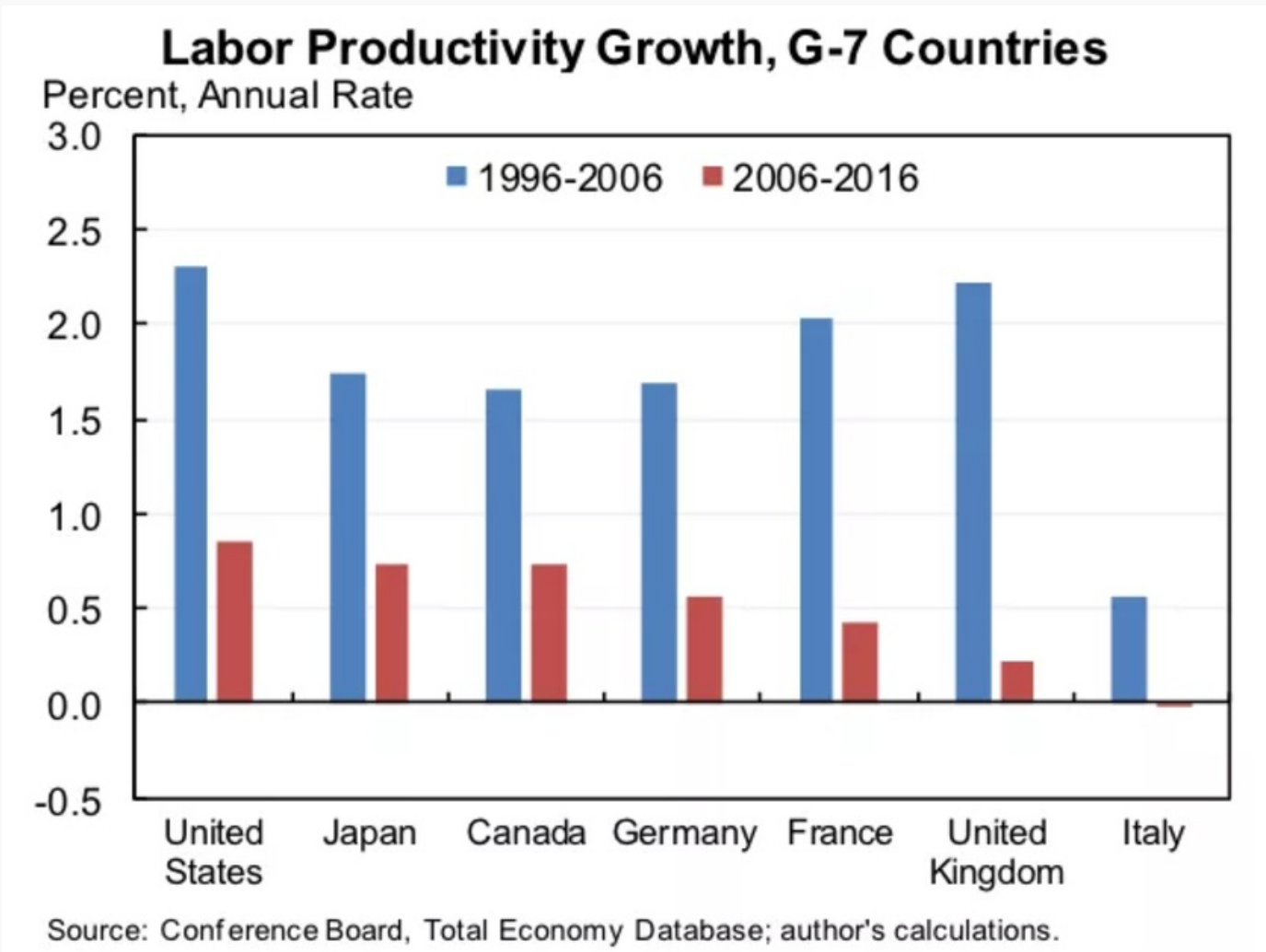
For a long while now, I've been thinking and reading about the great productivity growth slowdown, so it seemed like a good time to give the lay of the land as I see it:

–Facts of the case, 1: As measured (as you'll see, this caveat is important), since 2010, output per hour has been growing about 1% per year, half the growth rate of the long-term average. Slowdowns of similar magnitudes have occurred across most advanced economies.



Source: Furman, https://www.vox.com/the-big-idea/2017/3/21/14938698/growth-trump-economic-us-slowdown-demographics-stagnation

–Facts of the case, 2: The bulk of the slowdown is attributable to a decline in total factor productivity (TFP), or the growth in output when you take out all the measurable inputs. TFP is reasonably considered a proxy for innovation.

–The dreaded "empty hole problem:" Outside of accounting exercises that raise as many questions as they answer, economists do not understand the underlying forces that make productivity speed up and slow down. This creates the "empty hole problem:" since no one knows the answer, partisans fill the hole with their favorite candidate. E.G., here in DC "tax cuts and deregulation!" become the solution du jour.

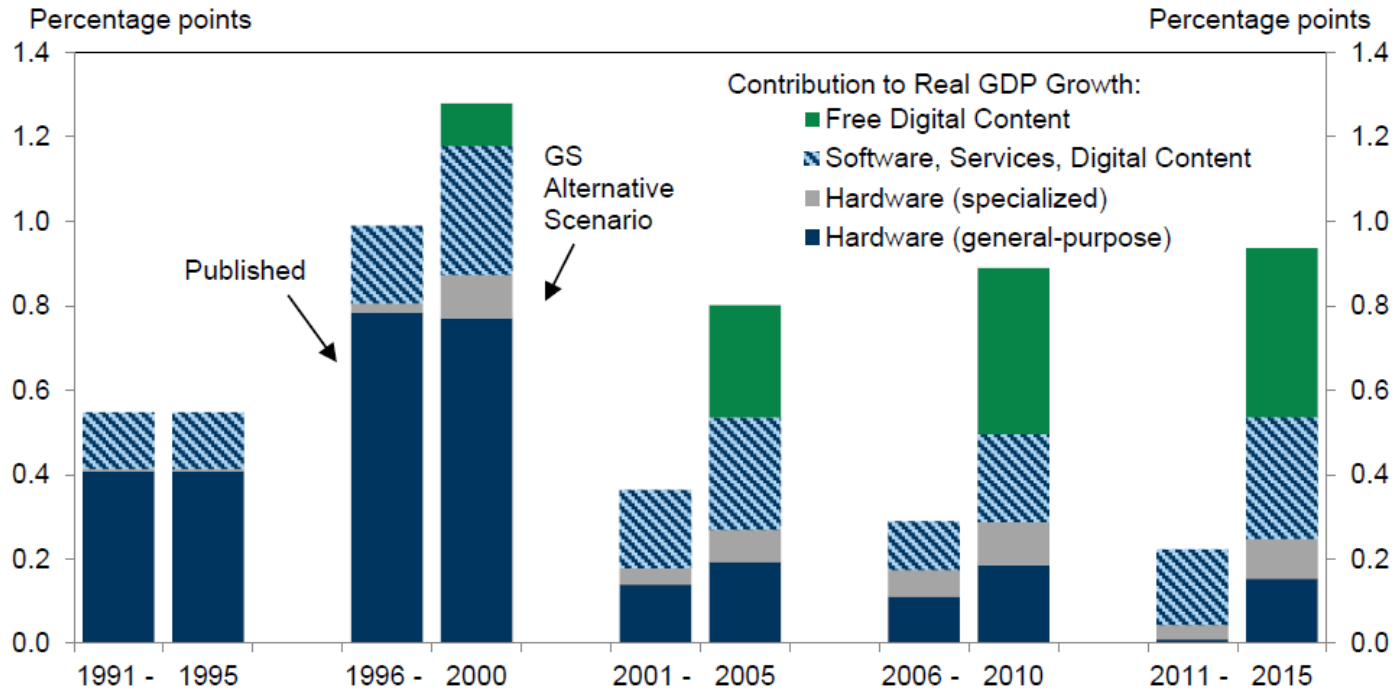
–Optimists and (sort of) pessimists: When it comes to how lasting our plodding productivity growth rates will be, commentators fit roughly into pessimistic and optimistic camps. The pessimists are the larger group and, at least in my judgement, have better evidence. Their focus is on the slowdown in TFP, and for all the talk about it, no one really knows what drives innovation cycles. In that sense, "who knows?" is a subgroup among the pessimists

wherein I place myself. The real pessimist caucus is chaired by the productivity expert Robert Gordon, who argues that the big-ticket productivity movers—e.g., electricity diffusion, air conditioning, indoor plumbing, air travel—are long behind us. Candy Crush is a fun, free diversion, but it ain't a big efficiency play.

–What about mismeasurement? The optimists largely depend on mismeasurement and they bring some evidence to the table. Since we're talking about growth rates, showing evidence of mismeasurement alone is not proof of anything. It must be shown that mismeasurement is getting worse, i.e., that we're *increasingly* leaving out value added in our measures of real output. Some mismeasurement claims stem from the observation that sectors wherein it is harder for national accountants to pick up true declines in quality-adjusted prices—health care, software, the "app" economy—are the very sectors that are growing as a share of value added, meaning even constant mismeasurement in those sectors could lead to downward bias in measured output and thus productivity.

The biggest mismeasurement advocates are the typically hard-nosed economics team at Goldman Sachs. The figure below shows their portentous adjustments to output from significantly goosing the quality adjustments to IT hardware, software, and "free digital content." Based on this work, they conclude that both GDP and productivity growth are understated by 1/4-1/2 percentage points, which is big in this biz.

Exhibit 1: Measurement Errors Account for Part of the Productivity Slowdown



Source: Department of Commerce, Goldman Sachs Global Investment Research

Source: GS Research

However, I don't find all their adjustments fully convincing. Careful research points out that we're doing a better job than we used to measuring hardware and software, thus the productivity slowdown may be *under*stated (in the US, we're also producing less IT hardware). Other work finds that, yes, our price indices are missing tech improvements, such that TFP in that sector has hardly slowed at all. But this just implies that TFP outside of tech has decelerated even faster than we thought. Then there's research showing that productivity is falling across many countries, and its decline is uncorrelated with their production of IT.

Also, a bunch of what's allegedly being increasingly mismeasured – e.g., the value of software – are intermediate goods, meaning you've got to show the links in the chain such that final demand is increasingly biased down.

Wherein I fill the empty hole: Here are three explanations that make sense to me. First, some of the most interesting research in this space shows an historically unique divergence between the productivity growth of so-

called “frontier” and “laggard” firms. Why has the latter failed to adopt the technologies of the former, and why hasn’t that failure led to their demise? This may be an important market failure.

Second, though the productivity slowdown predates the Great Recession, “secular stagnation” has been upon the land for quite a while now, and thus it might be a mistake to reject the hypothesis that weak demand is a factor. I can think of a simple, intuitive model wherein strong demand boosts unit labor costs, squeezing unit profits, such that maintaining profit margins means finding ways to produce more efficiently (this is the “full employment productivity multiplier” about which I’ve theorized). Third, the most accurate forecasts of productivity growth over the next few years require the use of very long—as in 40 years—autoregressive lags, so perhaps we will eventually mean-revert back to healthier productivity growth rates.

That last point is in the spirit of the most honest answer: who knows?