U.S. Leadership in Intellectual Property Products Investment

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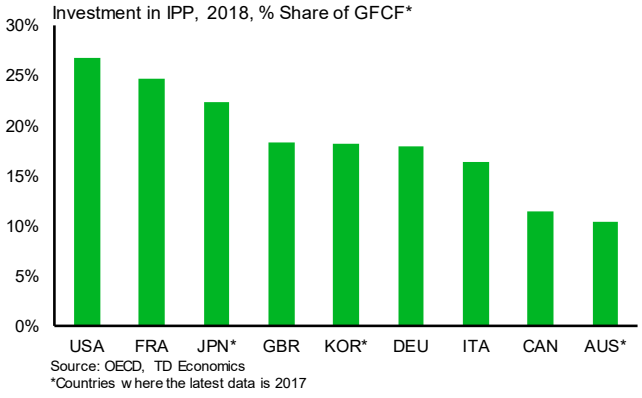
Highlights

- The U.S. has long been a leader in investment in intellectual property products (IPP), which continues to show resilience even as the rest of business investment hits a pothole in 2019.
- Drilling down into the industry mix reveals that a few key sectors punch above their weight on IPP investment, including manufacturers of computer and electronic products, chemicals and the information sector.
- The U.S. tech sector seems to play key role in its IPP global leadership position. Although related categories account for only 5% of value added in the private sector, they account for 25% of all IPP spending in recent years.
- Since the Tax Cuts and Jobs Act was passed in late 2017, economic growth and business investment have been faster than had been forecast immediately prior to the tax cuts, and IPP investment has been the main driver for the outperformance. However, it is difficult to fully attribute the acceleration to the tax cuts, which likely reinforced an existing trend toward more investment in intangibles.

Business investment in the U.S. has been completely uninspiring despite significant corporate tax cuts taking effect in 2018. Any goodwill on that front has faced a strong headwind from slower global growth and greater uncertainty within the business climate. However, there is one area that has defied the odds. The U.S. has long been a leader among its G7 peers when it comes to investment in intellectual property products (IPP), while Canada stands out as a laggard (Chart 1). Since the U.S. corporate tax cuts came into effect, U.S. IPP investment has seen the most growth in real terms. However, tax initiatives may have acted more as a support to an existing trend, rather than as the catalyst for stronger growth. Spending on IPP has been growing as a share of the economy long before tax reform came into effect (Chart 2).

As economic activity increasingly shifts towards services and an expanding digital economy, investment in these knowledge-based intangibles have become increasingly important to the outlook. In fact, roughly five years ago, the World Economic Forum added "innovation capability" as a new measure that goes into determining a country's competitiveness ranking. The U.S. ranking has risen from sixth place in 2013 to second in the latest ranking. The U.S. continues to press hard in this area, evidence by the recent Japan-U.S. trade agreement and an ongoing hot-button issue within China negotiations.

Chart 1: U.S. Leads in IPP Investment

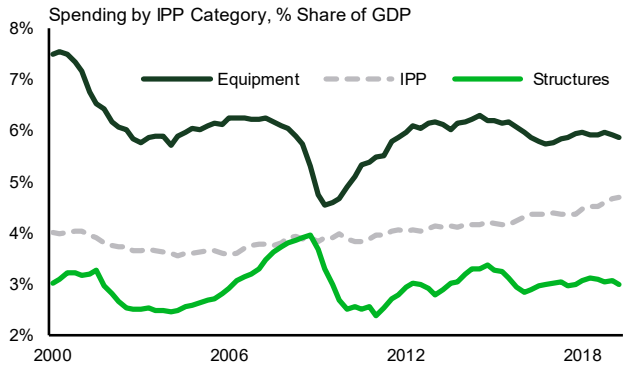


Source: OECD, TD Economics
*Countries where the latest data is 2017

What are intellectual property products?

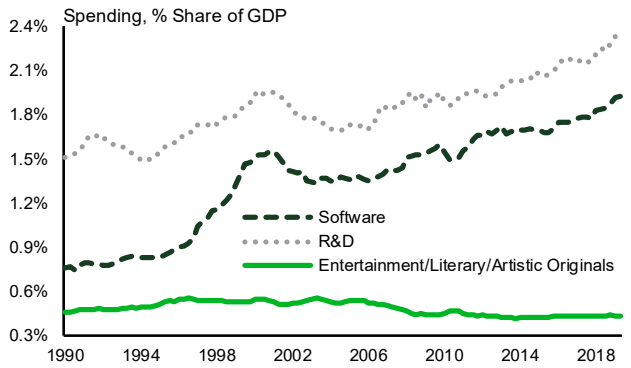
Like its peers, the U.S. Bureau of Economic Analysis (BEA) defines investment as fixed assets used to produce goods and services for at least a year. This could include buildings, software or even a TV show. Intellectual property products are basically intangible assets and include software, research and development (R&D), mineral exploration and entertainment literary and artistic originals.

Chart 2: Investment in Intangibles Increasingly Important



Source: Bureau of Economic Analysis, TD Economics

Chart 3: R&D Leads, But Software Also Growing Rapidly



Source: Bureau of Economic Analysis, TD Economics

Spending on R&D has long been the biggest area of IPP in the U.S., although software has been gaining ground (Chart 3). Since the full-expensing portion of the Tax Cuts and Jobs Act (TCJA) took effect in the fourth quarter of 2017, spending on software has grown 19% in real terms, four times the pace of growth in the overall economy, while spending on R&D has grown 12.4% in real terms. Both categories have seen spending accelerate.

As described in more detail in the text box on page 4, aspects of the TCJA did make investing in R&D a bit more attractive for many companies. But, it is difficult to fully attribute the acceleration in R&D spending pre-and post-tax cut. Spending on software and entertainment literary and artistic originals has also accelerated. Software would have benefited from the temporary 100% expensing provision of the tax changes. However, so did a few other types of equipment where spending growth has decelerated since the tax cuts. It is likely that the acceleration in software spending is at least in part related to the increased adoption of cloud computing solutions in recent years.

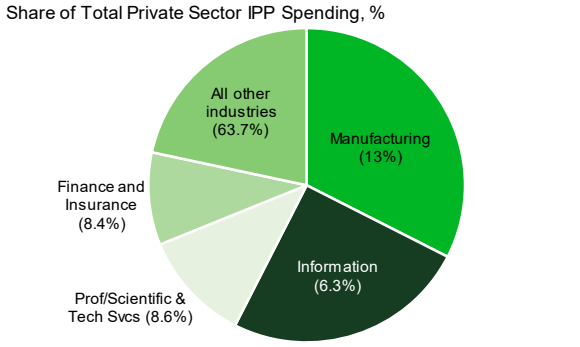
As a rough way to see how growth and investment fared in the wake of the tax cuts, we compare forecasts for growth and investment immediately prior to them being finalized (September 2017 forecasts), to how they fared over the next several quarters. Growth did indeed outperform expectations in 2018 and 2019, and business investment also did better than expected. Of the three main components of business investment, IPP has seen the greatest outperformance versus forecasts back in September 2017. Whereas equipment spending did slightly worse in 2018, even though one would have expected to see a boost from the tax cuts. On the whole, it is difficult to tell how much of IPP's outperformance over the past couple of years is due to the tax cut, and how much is due to the economy's increasing shift towards intangible activities. But, at the very least we can say that the tax cuts would have reinforced an emerging trend, by offering a tailwind.

Specific Sectors Lead on Intangibles

Within the U.S., we can dig deeper into identifying the sectors that dominate intangible investment. Not surprisingly, two stand out. The manufacturing and information sectors account for one-third and one-quarter of private sector spending on IPP, respectively (Chart 4). This is far greater than their weight in economic output (shown in brackets in the chart). All sectors broken out in the chart punch above their weight in terms of spending on IPP. But, it's worth noting that all U.S. sectors have seen decent growth in spending on intangibles in recent years. Data is only available on an annual basis and ends in 2017, so it is difficult to say much about trends since the TCJA.

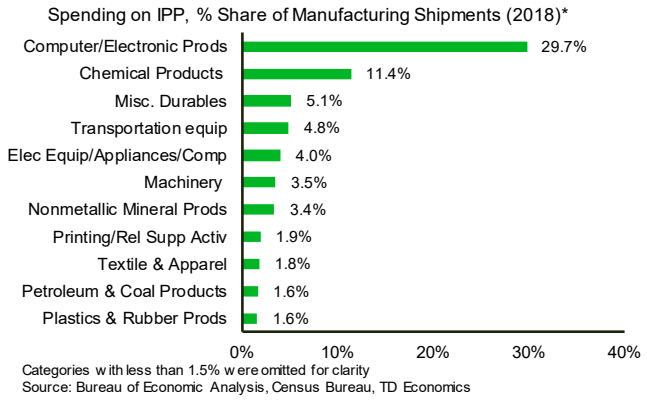
The manufacturing sector is obviously quite broad. Drilling down shows that only a few industries within it account

Chart 4: A Few Sectors Punch Above Their Weight



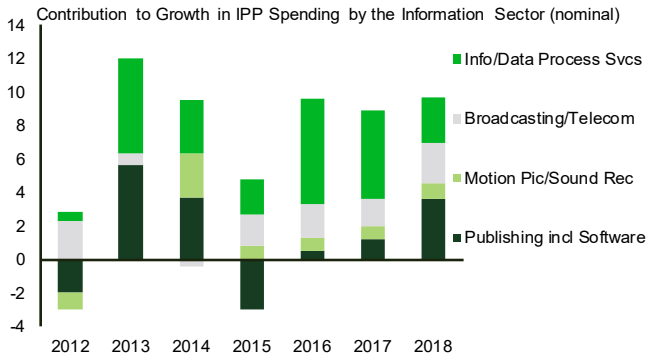
Percentages in brackets correspond to the industry share of private sector value added
Source: Bureau of Economic Analysis, TD Economics

Chart 5: Leading Manufacturing Sectors Big Spenders on IPP



Categories with less than 1.5% were omitted for clarity
Source: Bureau of Economic Analysis, Census Bureau, TD Economics

Chart 6: Tech Sector Big Contributor to IPP Growth



Source: Bureau of Economic Analysis, TD Economics

for most of the spending on intangibles. Of those, 61% was undertaken by manufacturers of computer and electronic products (32%) and chemicals (29%), which includes the pharmaceutical sector. Other big spenders include miscellaneous durables manufacturing (which is a broad catch-all that includes items like medical equipment and supplies, to toys, jewelry and sporting goods) (Chart 5).

As one would expect, the information sector is the other heavy-hitter on IPP investment, even though its economic weight is less than half the size of manufacturing. This sector is also quite broad and includes four main industries:

- publishing (including software)
- motion picture and sound recording
- broadcasting and telecommunications
- data processing, internet publishing, hosting and related services industries

This fourth category has been the most rapidly growing industry within the information sector and, not surprisingly, has made the largest contribution to growth in IPP spending over the past five years (Chart 6). But, as is generally the case across the U.S., all industries saw healthy growth in IPP spending in 2018 despite dominance within a particular area.

When you zoom out and look at which industries are leaders in spending on IPP, industries that could be classified as belonging to the "tech sector" stand out as a recurring theme . There is no strict definition of the "tech" sector when it comes to economic data, but we grouped together industries from both goods and services sectors that could broadly be characterized as the tech sector. This group includes: the computers and electronics manufacturing, data processing, internet publishing, hosting and related services and publishing (which strictly speaking is more than just software, so it is an approximation). Together, these "tech" industries account for roughly 25% of nominal private sector IPP spending. However, they only account for 5% of private sector value added output. Looking at it in growth terms, these "tech" sectors have contributed about 30% of the growth in IPP (in nominal terms) over the last three years. The U.S.'s leading tech sector is contributing to the outperformance in intangible investment.

The Bottom Line

It is well established that investment is key to productivity growth, which in turn is becoming increasingly important as an aging population causes a parallel slowdown in the labor force. In other words, the rotation to investment and productivity becomes a larger driver of sustaining economic growth (see our Perspective on the issue). Moreover, as the economy becomes increasingly knowledge-based that investment is increasingly intangible, i.e. "clicks over bricks". The U.S. has long been a leader on IPP spending relative to its G7 peers, helped in part by the knowledge-based sectors outlined above. Encouragingly, investment in intellectual property products has held up better than other categories in the recent weak spot in business investment. However, it is a bit early days to draw many conclusions about the role of the Tax Cuts and Jobs Act, although it could be a contributing factor to acceleration in spending on R&D.

Box 1: Treatment of R&D Spending by The Tax Cuts and Jobs Act

- Research and Development spending has had a tax credit in the US since 1981. It is officially called the Research and Experimentation (R&E) credit.
- The modification of the corporate tax rate increased the value of the R&E tax credit that corporate and non-corporate taxpayers may claim when electing to claim a reduced credit. Consider the example in the table below where the taxpayer's net R&D credit is increased because the amount of credit it "adds back" is less.
- In addition, due other amendments, including the elimination of the Alternative Minimum Tax (it also amended Sec. 38(c)(6) to treat a corporation as having zero tentative minimum tax), this removed a hurdle to claiming the credit.
- Noncorporate taxpayers also have additional ability to use the credit due to changes around the AMT.

Corporate Tax Rates	35% rate	21% rate
R&D credit	$ 100,000	$ 100,000
Addback (or reduction under section 280C(c)(3)	-$ 35,000	-$ 21,000
Net credit	$ 65,000	$ 79,000

Source: KPMG. What's News in Tax, March 12, 2018. "Tax Reform: and the Winner Is.... R&D".