

THEME 02

Digital Deflation

ECONOMICS

INFLATION

TECHNOLOGICAL
INNOVATION

Almost a decade after the financial crisis, inflation remains persistently low in most advanced economies. Despite synchronized and accelerating growth, falling unemployment and low interest rates relative to historical standards, inflation has not showed up above 2% (except in Brexit-stricken UK), the target level of central banks. Besides financial-cyclical drivers, structural drivers might hold inflation down in the near future.

Our observations

- [The U.S. economy is booming](#) and nearing [full capacity](#), but inflation remains subdued around 2%. Although the Eurozone has more persistent [output gaps](#), growth is broadly [accelerating](#) in the currency area, but [inflation](#) remains well below the ECB's target level.
- Money multipliers (the ratio of narrow money, like central bank money or physical money (M1) and broader measures of money) in the [Eurozone](#) and [U.S.](#) have been almost halved since the financial crisis. This implies that central banks' monetary policy has less effect on aggregate demand in the real economy.
- The gig economy might lead to a return of the [role of servants](#), as we have written before, who are often underpaid. For example, a quarter of all people working in the [UK's gig economy](#) earns less than the minimum wage.
- Amazon has had a [deflationary effect](#) on prices of consumer technology, because of its unique distribution model and competition-enhancing business model. Furthermore, the free business models of Google's search engine or Facebook's social media platform also drive down prices.
- The [global sharing economy](#) is estimated to grow from \$14 billion in 2014 to \$335 billion by 2025, which includes the gig economy, platform economy, access economy, and collaborative consumption.



Connecting the dots

Most advanced economies are already eight years into their cycle, but inflation still has not shown up. However, lower inflation is not a new phenomenon, as [inflation has fallen steadily](#) in most advanced economies since the 1970s. But never has inflation been so long below central banks' target rate of 2%. There are a few reasons.

First of all, the demand-side hasn't fueled inflation in recent years after the financial crisis. Using data from the World Bank and OECD, we find that [household final consumption](#), [private consumption](#), [government spending](#) and [gross fixed capital formation](#) between 2008 and 2017 are significantly lower compared to earlier decades for the U.S. and the Eurozone. Furthermore, [demographic trends](#), like ageing societies, also put downward pressure on inflation and interest rates, as we have written before. On the supply-side, globalization has [reduced transaction costs](#) and free trade have reduced costs for producers, leading to lowered consumer prices. Furthermore, outsourcing and increased shares of (semi-finished) imports in real GDP of advanced economies mean that excess demand can now more easily be distributed across global supply chains. And the integration of emerging markets into the global economy, especially China, has increased the supply of labor, hence puts downward pressure on wage growth across the world. The result is that Phillips curves, the (inverse) relationship between unemployment and inflation, [have become flatter](#), implying that monetary policy has less effect on inflation rates and expectations. However, there is another factor that puts a more

structural or secular (as opposed to cyclical or short-term) downward pressure on inflation. That is the increased penetration of digital technology into modern economies. First, the internet facilitates a global market for local supply and demand, e.g. socks on Amazon or phone holders in China, thereby increasing competition and reducing the possibility of producers setting a mark-up on their prices. Furthermore, digital technologies, like smartphones, allow consumers to leverage their own possessions in the gig economy. In this way, the marginal utility of capital goods can be increased and fewer capital goods need to be bought. In this way, sharing and access models decrease demand for specific capital goods, like cars or utensils. Furthermore, the data that is generated on these digital platforms can be used to further tailor supply to demand, hence further improve 'price discrimination' that generally reduces prices on the macro-level. More radically, the penetration and implementation of digital technologies will lead to new business models with deflationary pressure. Many digital business models have a 'zero-marginal cost' proposition, in which digital products and services can be scaled at very little cost. Creating a digital education course or establishing a music or movie platform with a critical user base requires high up-front investment, but when this infrastructure or equipment is settled, the service and products can be produced and distributed at little extra cost. When these digital or platform models expand, they can lower their prices (if they are kept from extracting monopoly rents).

Implications

- The Eurozone had a pause in its recovery during its second financial crisis in 2012, with sluggish growth until last year. This implies that the U.S. is earlier in its cycle, hence that inflation and possible signs of [exuberance](#) will first be seen in the U.S. Inflation pressures are therefore less likely to lead to interest rates hikes in the Eurozone, although the ECB might have to act if the Fed hikes more and earlier than expected.
- Globalization was the primary driver of downward pressure on inflation in the 1970s and 1980s by driving down transportation and transaction costs. In the 1990s and 2000s, it was the inclusion of emerging markets, especially China (China's share of global exports has increased from 1.4% in 1985 to 13.9% in 2015) that effected downward pressure on wages and prices. A new, third wave of deflationary pressure now comes from digital business models that leverage their economies of scale and/or (near) zero-marginal cost propositions in the global digital economy.