

## Digital Economy

# Research insights from Jackson Hole

The latest on digital's impact on market structures.

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The Fed's 2018 Economic Symposium in Jackson Hole focused on "[Changing Market Structures and Implications for Monetary Policy](#)." More specifically, the meeting centered on four papers that examined the evidence, causes and implications of ongoing changes to the competition mechanisms at the heart of today's modern economies. We briefly summarize those papers, academic works that analyze very large sets of micro data in order to understand the new mechanism at work. As [Fed Chairman Powell noted](#), the understanding of such structural changes is vital for policymakers, many of whom currently feel as if they are navigating by the stars – shifting stars!

The first two papers follow a common thread: the relationship between digital technologies and competition. They first present evidence that suggest an ongoing transformation on the way markets operate and then relate fragmented pieces of evidence in order to assess two opposing views in the current debate: is technology undermining competition by facilitating market-power abuse by few key players, or is technology favoring a structural change in the rules/markets under which all firms still have to fiercely compete? Both conclude with economic and policy implications of their findings.

The first paper (Van Reenen, 2018) confirms the growing concentration in sales across productive sectors of the US economy. Based on recent literature, the paper also shows sales are concentrating in leading firms with higher markups but also with significant productivity advantages. Moreover, the paper points to evidence of ongoing concentration across different countries, each with its own history of antitrust enforcement. Consequently, the paper favors the explanation that concentration is reflecting intensified competition "for the market" rather than anti-competitive mergers or collusion "in the market". But the paper also points to additional mechanisms that may also be affecting the labor market, resulting in production that is less labor intensive while being more intensive in higher skills – dynamics that can exacerbate income polarization.

A more nuanced view may be found in the second paper (Crouzet and Eberly, 2018). They show that leading firms are also more intensive in intangible capital, a trend with significant implications to the effectiveness of monetary policy. Furthermore, by decomposing US firms' revenue per worker into what is due to markup and what is due to productivity, the paper finds that while sectors such as retail are undergoing intensified competition, in others there is evidence of increasing market power.

The third paper (Corbae & Levin 2018) looks specifically into the financial sector, adding the caveat that in this sector higher/deregulated competition would be at the expense of financial stability. They conclude that an optimal policy would foster competition while at the same time enhancing good governance in all participants.

Finally the fourth paper (Cavallo, 2018) looks into changes in the pricing mechanisms used by firms. It finds that online retail competition is fostering volatile prices that are more responsive to exchange-rate and term-of-trade shocks, which in turn hinder the effectiveness of monetary policy.

Unlike previous occasions, this year's symposium did not offer major news with regard to current monetary policy - the participation of high-level central bank authorities was confined to the US, Canada, England and the General Manager of the BIS.

Policymakers at the symposium agreed that the changing nature of market structures adds to the uncertainty surrounding monetary policy normalization. To ensure that all people benefit from these dynamics, they stressed that it is imperative to better understand and explain the impact of emerging uses of digital technologies on the

future demand for skills and the nature of competition. They also used the opportunity to stress two additional points: First, the [Federal Reserve remains comfortable with their current policy course](#). Powell is not eager to accelerate the pace of interest rate normalization nor is he eager to change the size of increases. He defended gradualism as the appropriate response to navigate between the two risks that the Fed confronts (moving too fast-too slowly). Second, with regards to the rise of protectionism, Carstens stressed that recent protectionist measures not only pose additional risks for the real economy, but also for financial stability - real and financial dynamics may feed into each other and amplify the damage to the world economy – a “perfect storm”.

A more detail explanation of each of the four papers can be found in the annex that follows.

## ANNEX

### Increasing differences between firms: Market Power and the Macro-Economy, by John Van Reenen

This paper examines firm heterogeneity and concentration within productive sectors in the US and other countries, based on a survey of relevant literature and accompanying evidence. The data indicate a decades-old rising trend in firm inequality/dispersion within sectors in terms of both productivity and wages paid, while sales are increasingly concentrated in few successful firms. As a result, or in tandem with those trends, over the last two decades aggregate sectoral markups have been rising while labor shares have been falling.

Such trends have naturally triggered concerns about decreasing competition and the accompanying loss of efficiencies, yet the paper highlights an alternative explanation: concentration, rising aggregate markups and lower labor shares may be a product of intensified competition “for the market” rather than anti-competitive mergers or collusion “in the market”. In other words, rather than lax-antitrust enforcement, the aforementioned trends may well be the product of a change in the nature of competition due to globalization and new technologies: a winner-take-all dynamic that gives rise to superstars.

Evidence to support a change rather than a decrease in competition include the fact that trends in concentration and mark-ups seem similar across countries – regardless of each country’s antitrust enforcement trends. Secondly, concentration has been higher in those sectors with rising productivity and innovation, rather than within sectors with increasingly stifled markets. In fact, over the last decades sectoral productivity has grown in large part due to “compositional effects” where production has reallocated/concentrated to firms that were already more productive.

Yet if new technologies are deemed so scalable (such as software), why is diffusion across firms not higher, thus lowering rather than raising concentration? Aside from network effects, the paper points to the fact that lower ICT costs plays in favor of large companies that can develop proprietary software for operational processes such as logistics, inventory control, and market analysis. Moreover, there is evidence that productivity (TFP) differences are correlated to “organizational<sup>o</sup> and managerial good practices”, practices that are harder to imitate and diffuse across firms.

Whether the aforementioned trends are symptoms of falling or morphing competition has a large impact not only on antitrust regulation, but monetary policy as well: competition rules, bargaining power, and growth are major building blocks behind key variables such as the NAIRU, the “Phillips curve” and potential GDP.

## Understanding weak capital investment: the role of market concentration and intangibles by Nicolas Crouzet and Janice Eberly.

Focusing on the evolution of intangible capital, Crouzet and Eberly arrive to a more nuanced conclusion: acknowledging that concentration might be linked to either lower competition or more productivity, they find evidence of both channels in the US economy: with concentration in sectors such as healthcare exhibiting lower competition, and concentration in sectors such as retail exhibiting stronger productivity gains. They also find that intangible capital is significantly more important in today's leading firms that concentrate sales, yet there is still little understanding on what exactly would turn intangibles into a force for good (productivity) or a force for evil (abuse of market power). Consequently, there is still little guidance on its inclusion in competition and economic policy. That said, the implications to monetary policy can be huge: intangible capital is characterized by both higher depreciation rates – which could render investment less responsive to interest rates – an lower collateral value – which could hinder the effectiveness of some very important transmission channels of monetary policy.

## More Amazon Effects: Online Competition and Pricing Behaviors by Alberto Cavallo

Using micro data from the BPP (Billion Prices Project) for multi-channel retailers, the author finds evidence of a secular increase in the frequency of price changes over the last 10 years, and also evidence of an increasing prevalence of “uniform price” setting by firms across locations - although less significant in the category of foods and beverages. These findings are robust to differences in offline/online intensity - although faster for online intensives. The analysis is conducted by comparing prices of goods sold by both Walmart and Amazon. Regression results showed that online pricing is more sensitive to “nationwide” shocks, with larger short-term pass-throughs for both gas price and exchange-rate fluctuations -the latter only seen in the case of import prices -e.g. prices “at the dock”.

Yuriy Gorodnichenko argued that online competition has encouraged a secular downward trend in retail prices, potentially explaining the Phillips curve puzzle -i.e., the undershooting in the inflation policy targets and the muted reaction of prices to booming labour markets. He also argued that a higher frequency of price changes might imply that targeting overall inflation would destabilize rather than stabilize the economy. This is the main argument for using “core” price stabilization, yet the basket of core goods might be significantly shrinking. Finally, he argued that monetary policy should put a higher weight on volatility of output as more flexible prices lead to smaller market distortions, and it should adapt its targets, operations and tools to the evolving nature of retail price setting.

## Competition, Stability, and Efficiency in Financial Markets by Dean Corbae & Ross Levin

This paper finds that in the banking sector there is trade-off between competition and stability. Based on a theoretical model, they conclude that policymakers should welcome the increase in competition fostered by new technologies, yet they should use tools to reduce greater instability by enhancing governance for all participant - e.g., regulation through a compensation wedge that reduces manager's myopia and/or by raising base capital requirements that increase owners' exposure to higher risk-taking. They also argue that tightening leverage rules is more effective in reducing credit when banks have better governance. Moreover, increased competition in the banking sector enhances monetary policy transmission - as banks with large profit margins might easily cushion lending from any contractive monetary policy.

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