

# **Taking Competition Policy Seriously: Macro Indicators for Regulators**

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This excerpt of a forthcoming paper is being submitted to “Shaping competition policy in the era of digitisation.”

## Summary

Recent work has linked increased concentration to poor macroeconomic outcomes. In this spirit, this excerpt describes a set of quantitative market and labor indicators that can help European and US competition regulators identify those sectors that are showing signs of impeding growth, overcharging customers, or underpaying workers. Conversely, these same indicators can be used to identify sectors that are exerting a positive influence on growth, benefiting customers, and providing jobs and higher pay to workers.

We find that in the United States, the tech/telecom/ecommerce (TTE) sector—also known as the digital economy--has outperformed the rest of the private sector on prices charged, productivity and output growth, hours worked, and real pay gains for workers.

Labor share for the US digital sector rose from 53.4% to 55.4% in the post-2007 “tech boom” period. Over the same period, gross margin in the digital economy fell from 28.4% to 27.2%, suggesting that competitiveness in the digital economy has increased.

Preliminary results suggest similar results for the digital economy in the European Union, including rising labor share and falling gross margin. Similarly, preliminary results show that real margins have fallen by 13% since 2007 in the US electronic shopping industry (NAICS 4541), while labor share in the warehousing industry (NAICS 493) has risen from 75.8% in 2007 to 83.2% in 2017, coinciding with the rapid growth of ecommerce fulfillment centers.

In the spirit of using competition policy to boost economic growth and improve outcomes for workers, competition regulators should develop new top-down indicators for systematically monitoring and identifying problematic industries. Our results suggest such indicators are show strong benefits for workers and customers in the digital sector, while flagging potential declines in competitiveness in non-digital industries

## Introduction

Recent economic research suggests concentration in many industries has increased in the United States, with the evidence mixed for Europe.<sup>1</sup> David Autor and colleagues found a “remarkably upward consistent trend in concentration” across US manufacturing, finance, retail trade, wholesale trade, utilities, transportation, and services.<sup>2</sup>

Researchers have linked a rise in concentration to economic ills such as rising prices, weak productivity growth, stagnant real wages, slower job growth, and increased inequality. The classic theory of market power, of course, links concentration to the ability to raise prices above competitive levels. In that vein, Loeckery and Eeckhoutz found a rise in average markups from 18% above marginal cost in 1980 to 67% today.<sup>3</sup>

A 2016 report from the US Council of Economic Advisors argued that “monopolists may be less rigorous in pursuing efficient cost reductions” implying that increased concentration may be one reason for weaker productivity growth in recent years.<sup>4</sup> Incumbent businesses with market power may be able to resist disruption by new technologies. Regulation can sometimes set up barriers to entry that reduce competition from small companies.

Economists have also found evidence that concentration negatively affects the labor market. Azar, Marinescu, and Steinbaum argue that an increase in employer concentration in a local region lowers regional pay levels.<sup>5</sup> Autor *et al* linked higher market concentration in an industry to a fall in the labor share. In this way, increased concentration can contribute to a growing disparity of income between workers and owners of capital.<sup>6</sup>

History tells us that entrenched incumbents with market power can block growth. Thus, competition policy has the potential to become an important macroeconomic tool for assisting key goals of boosting productivity, lifting real incomes and reducing inequality.

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<sup>1</sup> T. Valletti, G. Koltay, S. Lorincz and H. Zenger. “Concentration trends in Europe”, presentation, December 2017. [https://ecp.crai.com/wp-content/uploads/2017/12/VallettiConcentration\\_Trends\\_TV\\_CRA-002.pdf](https://ecp.crai.com/wp-content/uploads/2017/12/VallettiConcentration_Trends_TV_CRA-002.pdf)

<sup>2</sup> David Autor, David Dorn, Lawrence F. Katz, Christina Patterson, and John Van Reenen. “Concentrating on the Fall of the Labor Share,” *American Economic Review*, May 2017.

<sup>3</sup> Jan de Loeckery and Jan Eeckhoutz. “The Rise of Market Power and the Macroeconomic Implications,” 2017.

<sup>4</sup> U.S. Council of Economic Advisers, “Benefits of Competition and Indicators of Market Power,” updated May 2016.

<sup>5</sup> Jose Azar, Ioana Marinescu, and Marshall Steinbaum. “Labor Market Concentration,” NBER Working Paper No. 24147, December 2017.

<sup>6</sup> David Autor, David Dorn, Lawrence F. Katz, Christina Patterson, and John Van Reenen. “Concentrating on the Fall of the Labor Share,” *American Economic Review*, May 2017.

### Guidelines for Competition Policy

But competition policy should be a surgeon's scalpel rather than a stick of dynamite or a bulldozer. Which industries or companies should competition regulators focus on first? Most supporters of aggressive competition policy leap to the conclusion that regulators should focus on the most successful and innovative companies in the global economy--household names such as Google, Facebook, Apple, and Amazon.

However, in a 2017 paper, Carl Shapiro warns "the coherence and integrity of antitrust require that successful firms not be attacked simply because they obtain dominant positions."<sup>7</sup> It's important to adopt an evidence-based approach to competition policy.

Quantitative market and labor indicators can help competition regulators identify those sectors that are showing signs of impeding growth, overcharging customers, or underpaying workers. Conversely, these same indicators can be used to identify sectors that are boosting growth, benefiting customers, and providing jobs and higher wages.

"Competition policy indicators" encompass four price and output measures and three labor market measures. These are **real value-added; productivity, prices charged; gross margin; hours worked, real annual pay per worker; and labor share**. In all cases we look at change since 2007, the last business cycle peak. All other things being equal, the powerful tools of competition policy should focus on those industries that are performing poorly on these macroeconomic measures.

### The US Tech/Telecom/Ecommerce Sector

These indicators are estimated for key sectors of the economy, starting with the tech/telecom/ecommerce sector (TTE for short). This analysis includes the development of a national income account description of the ecommerce industry.<sup>8</sup>

Table 1 shows that the TTE sector has outperformed the rest of the US private sector on all seven macroeconomic indicators, including labor share and gross margin. Labor share is a measure of how much of the income of an industry is going to workers. For the purposes of this excerpt, we define the labor share as compensation divided by value-added.

Gross margin is a measure of the profitability of an industry per unit of sales. In the business literature, gross margin is a company's total sales revenue minus its cost of goods sold, divided by total sales revenue, expressed as a percentage.<sup>9</sup> For the purposes of this

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<sup>7</sup> Carl Shapiro, "Antitrust in a Time of Populism," October 2017

<sup>8</sup> Michael Mandel. "How Ecommerce Creates Jobs and Reduces Income Inequality," Progressive Policy Institute, September 2017.

<sup>9</sup> <https://www.investopedia.com/terms/g/grossmargin.asp>

research, gross margin is defined as an industry's total gross output, minus the cost of intermediate inputs and labor compensation, divided by total gross output.<sup>10</sup>

Labor share has risen in the TTE sector, while falling in the rest of the private sector. Gross margin has fallen in the TTE sector, while rising in the rest of the private sector.

**Thus, the evidence suggests that competition problems in the US economy are more likely to be found outside the TTE sector.** Deep price drops, real output increases, and declines in gross margin suggest that TTE companies are not behaving as if they have market power versus customers. Above-average labor hour increases, real pay gains, and rising labor share suggest that TTE workers are sharing digital productivity gains.

#### The BEA Digital Economy

Similar results are found using data developed by the US Bureau of Economic Analysis (BEA) in a March 2018 working paper called "Defining and Measuring the Digital Economy," intended to lay the foundation for a digital economy satellite account.<sup>11</sup>

Using their data, labor share for the US digital sector rose from 53.4% to 55.4% in the post-2007 "tech boom" period. Over the same period, gross margin in the digital economy fell from 28.4% to 27.2% (Figures 1 and 2). From the perspective of competition policy, these results suggest that benefits of productivity growth in the digital sector since 2007 are being shared with workers and customers, consistent with strong competition. To establish context, since the last business cycle peak in 2007, US private sector labor share has fallen by 0.8 percentage points, and private sector gross margin has risen by 1.9 percentage points.<sup>12</sup> These indicators argue for focusing competition policy on non-digital industries.

#### Example: Ecommerce

The same approach can be used to examine macro indicators for ecommerce. This is particularly pertinent given European Competition Commissioner Margrethe Vestager's announcement of her desire to look into Amazon's use of merchant data.<sup>13</sup>

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<sup>10</sup> The numerator includes profit-type income, such as profits, rents, and interest. It also includes taxes on production and imports that are chargeable to business expenses, such as state and local sales and property taxes, and other state, local, and federal excise taxes.

<sup>11</sup> Kevin Barefoot, Dave Curtis, William Jolliff, Jessica R. Nicholson, Robert Omohundro. "Defining and Measuring the Digital Economy," Bureau of Economic Analysis, March 2018. [https://www.bea.gov/digital-economy/\\_pdf/defining-and-measuring-the-digital-economy.pdf](https://www.bea.gov/digital-economy/_pdf/defining-and-measuring-the-digital-economy.pdf)

<sup>12</sup> This data is prior to the July 2018 benchmark revision, for private industries only.

<sup>13</sup> <https://uk.reuters.com/article/uk-eu-amazon-com-antitrust/amazons-use-of-merchant-data-under-eu-microscope-idUKKCN1LZ1V4>

Ecommerce in the US is captured in two industries: electronic shopping (NAICS 4541) and warehousing and storage (NAICS 493). The website portion of ecommerce is captured by NAICS 4541, while ecommerce fulfillment centers are mostly assigned to NAICS 493.

The BLS tracks margins for different retail industries, where margin is defined as prices received by retailers less their acquisition price of goods.<sup>14</sup> Real margins in the electronic shopping industry (NAICS 4541) have fallen by 13% since 2007, implying increased competitiveness (Figure 3). Meanwhile real margins in the general merchandise industry, including department stores and big box retailers, have fallen by only 6%.

Labor share in warehousing rose from 75.8% in 2007 to 83.2% in 2017, coinciding with the rapid growth of ecommerce fulfillment centers (figure 4). The BEA data also suggest that gross margin has fallen in the warehousing industry (Figure 5). This result may indicate increased competition in the market for warehousing (ecommerce fulfillment) services.

#### European Union: Digital Economy Labor Share and Gross Margin

This section presents similar calculations for the EU, based on Eurostat data. This preliminary analysis focuses on the information and communications sector, which includes telecom and most major tech platforms.<sup>15</sup>

Figure 6 shows that labor share in the EU information and communication sector has risen sharply since 2007, much like it has in the US. Meanwhile labor share in the EU economy as a whole has been flat, suggesting that the digital economy is benefiting workers.

Table 2 shows that gross margin for the information and communication sector has been trending down for Germany, France, and the EU as a whole. In the period 2007-2016, gross margin for the information and communication sector fell for 26 out of 28 EU countries. Note that Valletti *et al* state that there has been a profitability decrease in ITC.<sup>16</sup>

#### Conclusion

In the spirit of using competition policy to boost economic growth and improve outcomes for workers, competition regulators should develop new top-down indicators for systematically monitoring and identifying problematic industries. Our results suggest such indicators are more likely to flag increases in market power in non-digital industries.

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<sup>14</sup> "Wholesale and Retail Producer Price Indexes: Margin Prices", Bureau of Labor Statistics, August 2012. <https://www.bls.gov/opub/btn/volume-1/wholesale-and-retail-producer-price-indexes-margin-prices.htm>

<sup>15</sup> Future research will include tech hardware and ecommerce fulfillment centers.

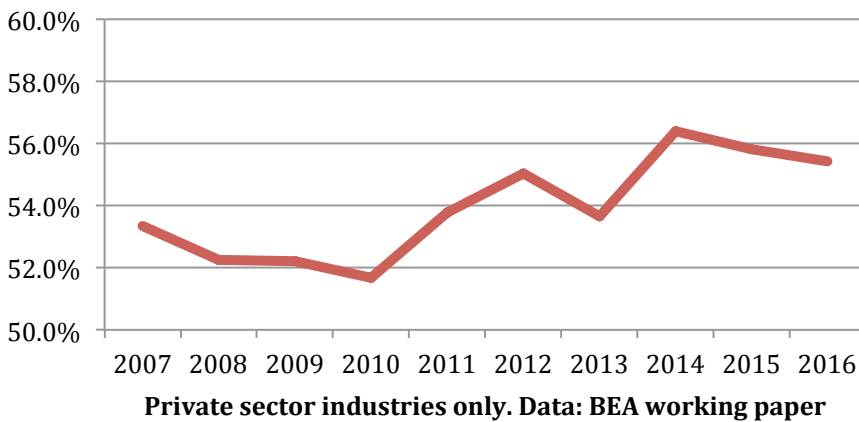
<sup>16</sup> T. Valletti, G. Koltay, S. Lorincz & H. Zenger (2017), "Concentration trends in Europe", presentation, December 2017.

**Table 1: How the US Tech/Telecom/Ecommerce Sector Performed, 2007-2017**

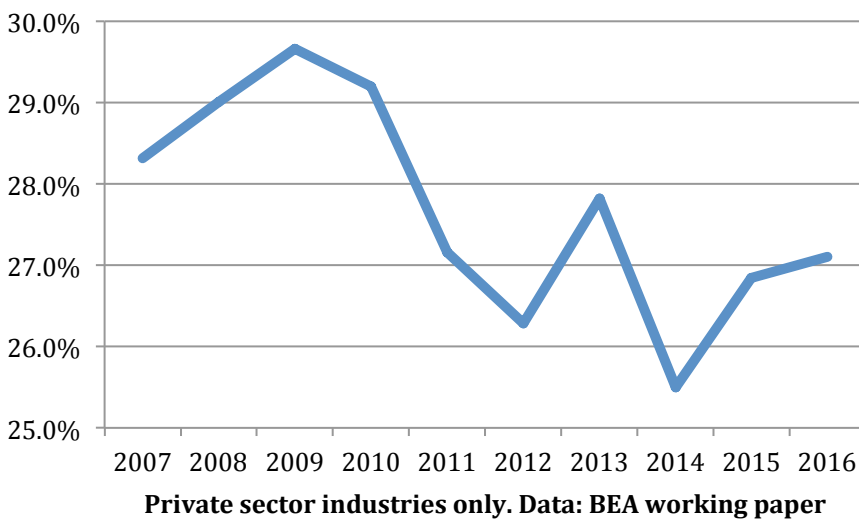
	Tech/telecom/ecommerce sector	Rest of private sector
<b>Growth and price measures</b>		
Real value-added (percentage change)	53.2%	11.0%
Productivity (Percentage change)	39.5%	4.0%
Price (Percentage change)	-7.4%	20.6%
Gross margin (Change in percentage points)*	-0.8	1.6
<b>Labor Measures</b>		
Hours worked (percentage change)	16.9%	6.9%
Real annual pay per worker (percentage change)	16.1%	4.1%
Labor share (change in percentage points)*	2.3	-0.8

Data: Bureau of Economic Analysis, Bureau of Labor Statistics, Progressive Policy Institute

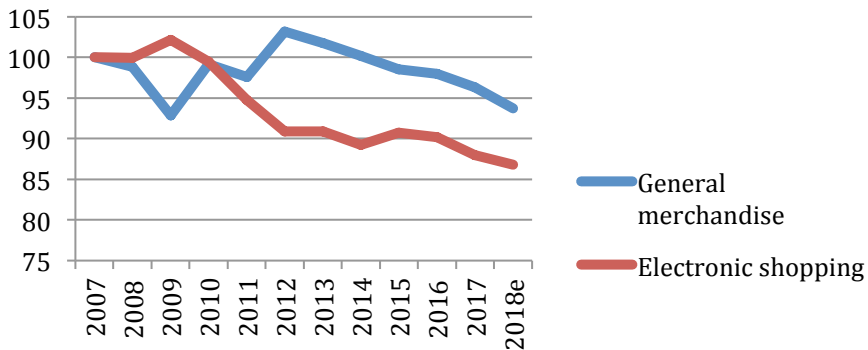
**Figure 1: U.S. Digital Economy--  
Rising Labor Share**



**Figure 2: U.S. Digital Economy--  
Falling Gross Margin**

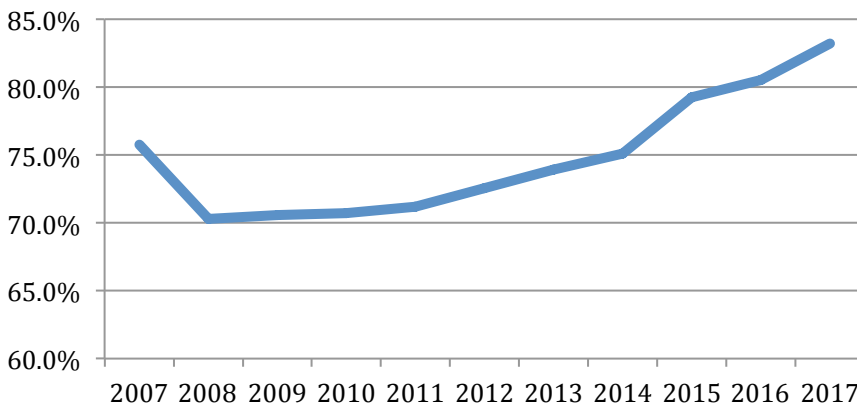


**Figure 3: Real Margins Plunge  
for U.S. Electronic Shopping  
Industry (2007 =100)**



Real margins are calculated by deflating the producer price index for respective retail industry by consumer price index Data: BLS Chart: PPI

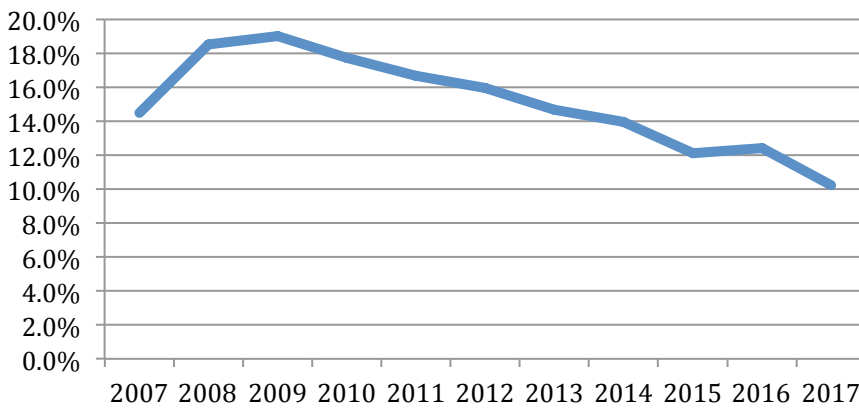
**Figure 4: U.S. Ecommerce Boom  
Drives up Labor Share in  
Warehousing and Storage  
Industry**



Data: BEA Chart PPI

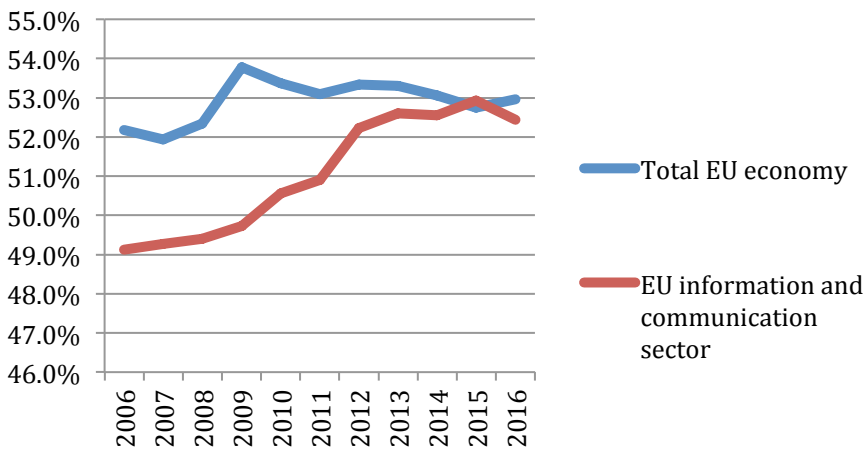


**Figure 5: U.S. Ecommerce Boom  
Drives Down Gross Margin in  
Warehousing and Storage  
Industry**



Data: BEA Chart : PPI

**Figure 6: Labor Share Rises in  
EU Digital Economy**



Data: Eurostat Chart: PPI

**Table 2: Digital Economy in Germany and France Shows Signs of Becoming More Competitive**

	<b>Gross margin*</b>		
<u>Germany</u>			
	<b>2007</b>	<b>2016</b>	<b>Change 2007-2016</b>
<b>Total German economy</b>	22.9%	22.0%	-0.9%
<b>German information and communication sector</b>	27.0%	24.5%	-2.5%
<u>France</u>			
	<b>2007</b>	<b>2016</b>	<b>Change 2007-2016</b>
<b>Total French economy</b>	22.1%	21.5%	-0.6%
<b>French information and communication sector</b>	26.5%	22.7%	-3.8%
<u>EU**</u>			
	<b>2007</b>	<b>2016</b>	<b>Change 2007-2016</b>
<b>Total EU Economy</b>	22.9%	23.2%	0.3%
<b>EU information and communication sector</b>	26.2%	23.8%	-2.5%

\*Output minus intermediate consumption and labor compensation, as a share of output

\*\*EU output calculated by summing individual countries. Swedish 2016 information and communication output estimated.

Data: Eurostat Table: PPI