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Article

Trends in factor shares: Facts and implications

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systematically benefit firstborns and help explain their generally better outcomes.

**Conclusion**

In the past two decades, with the increased accessiblity of administrative datasets on large swaths of the population, economists and other researchers have been better able to identify the role of birth order in the outcomes of children. There is strong evidence of substantial differences by birth order across a range of outcomes. While I have described several of my own papers on the topic, a number of other researchers have also taken advantage of newly available datasets in Florida and Denmark to examine the role of birth order on other important outcomes, specifically juvenile delinquency and later criminal behavior. Consistent with the work discussed here, later-born children experience higher rates of delinquency and criminal behavior; this is at least partly attributable to time investments of parents.

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Loukas Karabarbounis and Brent Neiman

Trends in Factor Shares: Facts and Implications

The distribution of national income between capital and labor and the determinants of that split are important for many reasons. The evolution of factor shares over time affects income inequality across households. Changes in factor shares inform economists’ assumptions about aggregate production technologies and their understanding of the state of product and labor markets. The behavior of factor shares influences conclusions about the implications of progress in computing, robotics, and information technologies, the response and incidence of changes in tax policies, and the dynamics of markets and competition.

For many decades, the assumed stability of factor shares—one of the “stylized facts” about growth codified by Nicholas Kaldor in 1961—meant that the macroeconomics literature paid little attention to trends in the functional distribution of income. Measurement challenges and the absence of long time series for more than a small set of countries likely also played a role in dampening economists’ interest in the evolution of factor shares over time.²

Leodas Karabarbounis is an associate professor of economics at the University of Minnesota. He is also a research consultant at the Federal Reserve Bank of Minneapolis and a research associate in the NBER’s Economic Fluctuations and Growth Program and International Finance and Macroeconomics Program. He serves as a member of the board of editors of the American Economic Review and as an associate editor of the Journal of Monetary Economics. Prior to joining the University of Minnesota, he was an associate professor of economics at the University of Chicago’s Booth School of Business. He has served as a senior research economist at the Federal Reserve Bank of Minneapolis.

Karabarbiounis’s research interests are in macroeconomics, labor economics, and international finance. His latest research focuses on topics such as the global decline in labor’s share of income, productivity and capital flows in southern Europe, cyclicality and dispersion in labor market outcomes, and the effects of unemployment insurance policy on macroeconomic outcomes. He is a recipient of the 2016 Sloan Research Fellowship, awarded by the Alfred P. Sloan Foundation. He received his Ph.D. in Economics from Harvard University and an undergraduate degree from the Athens University of Economics and Business.

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Loukas Karabarbounis and Brent Neiman

The Global Decline of the Labor Share

Our work builds on a dataset that we collected from national income and product accounts for many countries and industries. We demonstrate that, at the global level, the labor share has been declining since the early 1980s. The decline has been broad-based. As shown in Figure 1, it occurred in seven of the eight largest economies of the world. It occurred in all Scandinavian countries, where labor unions have traditionally been strong. It occurred in emerging markets such as China, India, and Mexico that have opened up to international trade and received outsourcing from developed countries such as the United States.

Where available, we use the labor share of income in the corporate sector as our preferred measure of the labor share, as it excludes many unincorporated enterprises and sole proprietors whose income is difficult to split between labor and capital. Further, our measure is not influenced by the government sector, which lacks market

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Average Change in Labor Share, 1975–2012
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Each bar represents one country. Sample includes all countries with a trend of data for at least 15 years of data.


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Loukas Karabarbounis and Brent Neiman

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Brent Neiman is a research associate at the NBER’s International Finance and Macroeconomics and International Trade and Investment programs. He is a professor of economics at the University of Chicago’s Booth School of Business and served as an associate editor of the American Economic Review, the Quarterly Journal of Economics, and the Journal of International Economics.

Neiman conducts research on international macroeconomics, finance, and trade. He has previously served on the White House Council of Economic Advisers as a staff economist for international finance and has worked at the Federal Reserve Bank of Chicago, McKinsey & Company, and the McKinsey Global Institute.

Neiman earned a bachelor’s degree in physics from Harvard University in 1998 and an MPhil in economics from Oxford University, where he studied as a Thouron fellow, and a Ph.D. in economics from Harvard University in 2008. He joined the Chicago Booth faculty in 2008.

Outside the classroom, Neiman is an enthusiastic golfer and was a bench warmer on the 1998 Ivy League Champion golf team as an undergraduate. He also enjoys travel and is always up for a good run.

The labor share declines occurred in most U.S. states and, globally, in most industries, including manufacturing, wholesale, and retail. Some have suggested that the share of compensation in domestic product net of depreciation, rather than in gross domestic product, is more informative about inequality between workers and capitalists. In fact, while some exceptions exist, most notably the United States, most countries experienced similar trend declines in their labor shares regardless of whether the share is measured as a fraction of net or gross domestic product.

Possible Explanations

The labor share decline likely has multiple drivers. A key benefit of our focus on the global decline is that it restricts the set of explanations to those that operate on a global scale. Country-specific changes in policies, for instance, might be important for specific countries but are unlikely to account for much of the overall trend that the world has experienced.

Global trends in the value-added shares of various industries, referred to as structural change, contribute to the decline in the labor share if industries with lower labor share levels have grown relative to industries with higher labor levels. Most of the labor share decline — and most of the cross-country variation in the labor share decline — is due to within-industry declines.

Another possible force contributing to the decline in the labor share is the substitution away from labor and toward capital in production. There was a decline in the price of investment relative to consumption that accelerated globally around the same time that the global labor share began its decline. A key hypothesis that we put forth is that the decline in the relative price of investment, often attributed to advances in information technology, automation, and the computer age, caused a decline in the cost of capital and induced firms to produce with greater capital intensity. If the elasticity of substitution between capital and labor is the percentage change in the capital-labor ratio in response to a percentage change in the relative cost of labor and capital is greater than one, the lowering of the cost of capital results in a decline in the labor share.

Most prior estimates of the elasticity of substitution between capital and labor are based on time series or cross-section data within a country in factor shares and factor prices. These estimates generally imply an elasticity of substitution below one. By contrast, our estimates of this elasticity are identified from cross-country and cross-industry variation in trends in labor shares and investment price declines. We find that countries and industries with larger declines in investment prices experienced larger declines in their labor shares, which leads to our estimate of an elasticity of substitution equal to 1.25. Taken together with the observed decline in the relative price of investment, our estimates imply that this form of technological change accounts for roughly half of the decline in the global labor share.

This elasticity, and the implied relationship between capital and the labor share, applies at the industry or country level and is therefore inclusive of changes in economic activity across firms within industries or across firms and industries within countries. Our hypothesis that progress with IT-related technologies contributed to the decline in the labor share is, therefore, not inconsistent with the possibility that most firms experience stable or even rising labor shares, while low labor share firms gained in market share.

We also demonstrate how the inclusion of multiple types of capital with heterogeneous depreciation rates complicates the relationship between labor shares and the user cost of capital. Further, while a single elasticity exists, different industries may exhibit different trends in the labor share trends in the user cost of capital when all capital can be bundled into a single type, this will not be the case for general labor functions that are a different nesting of capital types and labor, such as those posited in the literature on capital-skill complementarity. Understanding of these relationships as well as the work will begin to further explore these issues.

If technology explains half of the global labor share decline, what might explain the other half? We use investment flows data to separate residual payments into payments to capital and economic profits, and find that the capital share did not rise as it should if capital-labor substitution entirely accounted for the decline in the labor share. Rather, we note that increases in markups and the share of economic profits also played an important role in the labor share decline.

Other Implications

Beyond the conclusions about technology and product market structure that emerge, why else does the labor share decline matter? The evolution of the labor share is a useful summary statistic for consumption or welfare-based inequality between a representative worker and capitalist. Some analyses focus on the labor share in gross domestic product, retained earnings or corporate profits. Yet, these measures best approximate inequality in the user cost of capital. Further, while a rise in labor share indicates that labor input has become relatively more valuable, a fall in labor share indicates that labor is becoming relatively less valuable.

The evolution of the labor share may also be informative for the design of macroeconomic, fiscal, and financial policies. A consensus remains elusive on the exact role of factors such as technology, product market competition, global capital flows data to separate residual payments into payments to capital and economic profits, and find that the capital share did not rise as it should if capital-labor substitution entirely accounted for the decline in the labor share. Rather, we note that increases in markups and the share of economic profits also played an important role in the labor share decline.

Next Steps

The stability of the labor share of income is a key assumption built into most modern macroeconomic models, but recent evidence shows downward trends in the labor share in the majority of countries and industries. Such trends are informative for the design of macroeconomic models, for evaluating changes in corporate financial practices, for assessing inequality, and for designing monetary and fiscal policies. A consensus remains elusive on the exact role of factors such as technology, product market competition, global capital flows data to separate residual payments into payments to capital and economic profits, and find that the capital share did not rise as it should if capital-labor substitution entirely accounted for the decline in the labor share. Rather, we note that increases in markups and the share of economic profits also played an important role in the labor share decline.

We also uncover a closely related trend influencing the financing of global investment.1 Whereas in 1980 household saving funded most global investment, today corporate saving accounts for nearly two-thirds of every invested dollar. We measure corporate saving as undistributed corporate profits, which together with household and government saving equal national saving. We use a combination of aggregate and firm-level data to demonstrate that the decline in the global labor share resulted in an increase in accounting profits. Since dividends did not keep pace with profits, corporate saving increased.

The increase in corporate saving was also pervasive at the global level and observed in all ten of the largest economies. Further, given that global corporate investment has been relatively stable as a share of GDP since 1980, the corporate sector evolved from a net borrower to a net lender to the rest of the economy. The improvement in the net lending position of the corporate sector fell into various margins of adjustment, including reductions in accounting profits, and equity buybacks.

Figure 2

Source: L. Karabarbounis and B. Neiman, NBER Working Paper No. 19136

Figure 3

The Components of Corporate Gross Value Added

Percentage of gross value added

Gross saving

Payments to capital

Corporate Gross Value Added

Compensation to labor

Source: L. Karabarbounis and B. Neiman, NBER Working Paper No. 19136

1 Some notable exceptions include O. Blanchard, “The Medium Run,” in Monetary Economics, ed. O. Blanchard and F. Giavazzi, “Macroeconomic Effects of Regulation and Deregulation in Goods

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Richard Thaler Awarded Nobel for Research on Behavioral Economics

Richard Thaler of the University of Chicago’s Booth School of Business, an NBER research associate for more than 25 years, was awarded the 2017 Nobel Prize in Economic Sciences for his research in behavioral economics. The award was announced in October, and Thaler delivered his prize lecture, “From Cashews to Nudges: The Evolution of Behavioral Economics,” on December 8 in Stockholm.


In addition, six current or past members of the NBER Board of Directors have received the Nobel Prize: George Akerlof, 2001; Robert Solow, 1987; and the late: William Vickrey, 1996; Douglas North, 1993; James Tobin, 1981; and Paul Samuelson, 1970.