

# What's Behind the Increase in Inequality?

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September 2017



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## Acknowledgements

This paper is an expanded and accessible version of an earlier CEPR Working Paper, “Domestic Outsourcing, Rent Seeking, and Increasing Inequality, which was presented as the David Gordon Memorial Lecture in January 2016. A revised version was published in the Review of Radical Political Economy (Appelbaum 2017). The paper will be presented at the conference on the Many Futures of Work: Possibilities and Perils, October 5–6, 2017 in Chicago, IL.

# Introduction

The focus of this paper is the *increase* in earnings inequality over the last 30-plus years.<sup>1</sup> Economists have well-developed theories that explain differences in wage *levels* among different categories of workers. Differences in educational attainment and skills are a major source of these differences; large organizations typically employ workers with a wide range of skills and responsibilities and pay them accordingly. As a result, the *level* of wage inequality within organizations is quite large. This paper does not challenge these results. It argues, however, that these theories are not adequate to explain a relatively recent phenomenon: the *increase* in recent decades in wage inequality among workers with similar levels of education and similar demographic characteristics who are employed in similar occupations but in different firms or establishments. These differences in wages are how most people experience inequality. Yet much of the analysis by economists has focused on developments that have enabled leading firms in the U.S. to increase their ability to extract monopoly rents.

This paper reviews a wide-ranging literature that examines the increased ability of leading firms to extract monopoly rents. It also reviews the more recent and still thin literature on the increase in inequality among workers with similar characteristics but different employers. The contribution of this paper is the identification of a mechanism that reconciles these two strains of economic research and explains how the increase in rent extraction is linked to the increasingly unequal pay of U.S. workers with similar characteristics. I draw on joint work with Rosemary Batt (2014) to identify new opportunities for rent seeking behavior, and on joint work with Annette Bernhardt, Rosemary Batt and Susan Houseman (2016, 2017) on domestic outsourcing, inter-firm contracting and the growing importance of production networks to establish a mechanism that connects the increase in rents with this new type of increase in wage inequality.

## What is Economic Rent?

It is useful to begin with the distinction between profit-seeking activities and rent-seeking activities of firms. Profit-seeking activities of firms increase the size of the economic pie, allowing both the slice of the pie going to labor — the wage share — and the slice going to “capital” — the non-wage share — to increase. Rent-seeking activities, in contrast, increase the slice *of* the pie going to

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<sup>1</sup> See also Appelbaum (2017).

individuals and firms that can capture these rents without increasing the size of the pie — that is, without any related increase in the ability of the economy to produce more goods and services. This leaves other economic actors with a smaller slice of the economic pie. Economic rent is simply a redistribution of income and wealth to firms and individuals able to capture it. Rent-seeking leads to distortions in the allocation of resources and to a weaker, less dynamic and less productive economy.

For those unfamiliar with the concept of economic rent, Kanbur and Stiglitz (2015) provide the example of an increase in land rent. They consider an increase in demand for sea-front property on the French Riviera. As demand increases, the value of these properties rises; current owners of this fixed amount of land experience an increase in rents. If they have a tenant on the property, they will be able to charge a higher rent. But even if they do not actually rent out their property they will gain from the increase in land rent. This is because their wealth<sup>2</sup> — embodied in the value of the land they own — increases. As their wealth increases, the command of these landowners over purchasing power will rise. However, as there has been no change in the ability of the economy to produce goods and services, no increase in GDP will result. The effect is purely distributional — a transfer of income, wealth and purchasing power to current owners of these sea-front properties.

## Four Sources of Increases in Monopoly Power and Rent Extraction

A shift in the economic and legal framework guiding enforcement of anti-trust policy in the early 1980s paved the way for firms to increase their ability to extract economic rent. During the Reagan administration, anti-trust enforcement declined. New guidelines issued in 1982 placed the emphasis in anti-trust enforcement on the effects of mergers on efficiency rather than on their effects on competition (Mitchell 2016, p. 11; Stoller 2016). Firms that could make the case that synergies following a merger would reduce costs were allowed to merge; the assumption was that competition would cause these lower costs to result in lower prices and an increase in consumer welfare. Increases in the concentration of economic activity and other unchecked sources of monopoly power, however, have increased the ability of lead firms to raise price and extract rents (Blonigen and Pierce 2016; Barkai 2016; Grullon, Larkin and Michaely 2015), to the detriment of consumers, workers, and other economic actors.

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2 The wealth of landowners — embodied in the value of the land they own — is the capitalized value of these rents.

Four developments in particular have played a role in the increased ability of firms to extract economic rents. They are an increase in market concentration, an expansion of patent and copyright protections, widespread adoption of the financial model of the firm by nonfinancial corporations, and the growth of platform-based companies.

## Increased Market Concentration

A major source of rising monopoly rents, and one that has received increased scrutiny recently, is increased market concentration. As markets come to be dominated by just a few firms or organizations, these enterprises can use their market power both to raise prices and to undermine or exclude smaller competitors. The result is an increase in the rents captured by these dominant players. A 2015 analysis by President Obama's Council of Economic Advisors (CEA) found large, sometimes dramatic, increases in market concentration in many sectors of the U.S. economy (Furman 2016). Further evidence of the increase in market concentration and its effects on prices comes from a recent study by Grullon, Larkin and Michaely (2015). The study found an increase in market concentration in over 90 percent of U.S. industries since 2000 as the number of publicly-traded companies declined dramatically. The result has been an increase in profitability, higher stock market returns, and more merger and acquisition (M&A) opportunities for surviving firms. The authors found that the return on assets has significantly increased over the past 20 years, mainly driven by the ability of firms to raise profit margins. These increased profit margins are not driven by improvements in operational efficiency. Their findings suggest that market power — the ability to raise prices and profit margins — is becoming an increasingly important source of rent extraction.

A recent study by researchers at the Federal Reserve uses new empirical techniques to examine the increase in M&A activity in manufacturing and to disentangle its effects on efficiency and prices. Using plant-level data for the entire US manufacturing sector over the 1997 to 2007 period, Blonigen and Pierce (2016) find that the difference between the costs to produce goods and the prices charged for these goods increased by a significant amount for acquired plants relative to those not acquired. This was not the result, however, of greater efficiency and a reduction in production costs. The researchers found no meaningful effect of M&A on productivity. They also found no evidence that an acquiring firm reallocated resources within the firm to more efficient plants or shut down less efficient plants or that non-manufacturing activities became more efficient. These results, they conclude, strongly suggest that the effect of industry consolidation is not greater efficiency and lower prices but an increase in the power of firms to raise prices and increase profit margins.

Further evidence for the increase in profit margins for the nonfinancial corporate sector, not just manufacturing, comes from Barkai (2016). In contrast to most analyses, in which the share of output that does not go to labor is automatically attributed to profit, Barkai follows economic theory and separates the share of income not captured by labor into a capital share and a profit share. Using Census data on payrolls, sales, and concentration for the nonfinancial corporate sector, he finds that both the labor and capital shares of sales have fallen since the early 1980s while the mark-up of prices over operating costs has increased. As a result, the pure profit share (monopoly rents) has increased dramatically. Higher mark-ups are explained by increases in industry concentration, not by improvements in productivity. This is an inefficient outcome that reduces employment.

## Expansion of Patent and Copyright Protections

Patents and copyrights give their holders a temporary monopoly. Freed from competition, these monopolies are able to charge higher prices. These temporary monopolies have long served as a mechanism for financing innovation and research or for financing creative endeavors. But patent and copyright monopolies also provide incentives for a wide range of rent-seeking behaviors. Extending the period of the monopoly and expanding the scope of patent and copyright protections enables the holders of these government created monopolies to charge higher prices and collect rents far in excess of what is required to provide incentives for innovation and creativity (Baker 2016). As Katari and Baker (2015) observe, changes in laws and court rulings since 1980 allow life forms, business methods and software to be patented. Apple, which has already patented the sliding function to unlock a phone and the concept of a phone with round edges, applied in March 2016 for a patent for a paper bag (Carpenter 2016). The scope of copyright protection has also been extended, as Katari and Baker (2015) report, and now applies to a wide range of digital reproductions. In addition, the length of copyright protections has increased from 55 to 95 years. As with the increased rent on sea-front properties on the French Riviera, the value of these rents are generally capitalized into the value of financial assets — the share prices of publicly traded technology firms or pharmaceutical companies, for example — enriching shareholders in these companies and company executives whose pay includes stock options.

## Financialization of Nonfinancial Firms

The shift over the last 30 years from a managerial model of the firm to a financial model of the firm has altered the nature of value creation by nonfinancial corporations.<sup>3</sup> In the managerial model,

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3 This section draws on Batt and Appelbaum (2013) and Appelbaum and Batt (2014). See also Batt (2017).

workers and the process are central to the creation, extraction, and distribution of value. The main aim of companies is to make a profit by producing goods and services that customers desire to buy. Company executives make strategic and investment decisions with a goal of increasing production, revenue, and market share. To accomplish this, managers need a productive workforce that cooperates in meeting company goals. Managers can achieve this goal by sharing productivity gains with workers; the result is increases in wages that track productivity gains. The company's retained earnings are typically invested in worker skills, technology, and research and development. This enables the company to increase productivity and profitability, reduce consumer prices, and expand market share. Most students of the labor market — economists, management and industrial relations scholars — still hold this view of the firm.

Companies that adopt the financial model of the firm take a different approach to value creation, extraction, allocation, and distribution. The widespread acceptance of principal-agent theory (Jensen and Metzger 1976), in which managers — the agents — are charged with single-mindedly serving the interests of the principals — the firm's shareholders — by maximizing shareholder returns has altered the logic of value creation.<sup>4</sup> Financial actors (private equity buyout firms, activist hedge fund investors, franchisors) with claims on the value created or extracted by firms now dictate business strategy and decision making in many nonfinancial corporations. Whole Foods Market recently sold itself to Amazon as its least bad option after hedge fund Jana Partners took a stake in the grocer and tried to dictate a business strategy that management believed was disastrous. Jana made about \$400 million in a matter of months on its \$706 million stake in Whole Foods (Ramakumar 2017). Private equity firms that take over Main Street companies via leveraged buyouts are the most extreme version of the financial model of the firm (Froud and Williams 2007; Appelbaum and Batt 2014; Gospel, Howard, Pendleton and Vitols 2014).

Major corporations increasingly engage in a range of financial activities such as share buybacks whose purpose is to enrich shareholders and that have little to do with actually producing of goods and services. As workers and the production process becomes less central to the firm's financial success, investing in employees' skills or paying higher wages to ensure their cooperation becomes less important to the firms' financial success. Cost containment via work intensification, subcontracting, and a range of low-wage alternative work arrangements becomes more attractive as a means of increasing profit margins. Labor contracts — explicit and implicit — lose their moral and ethical content. Like any other contract, they can be — and have been — broken (Appelbaum, Batt and Clark 2013). Management's focus is on financial activities that generate revenue that can be distributed to shareholders.

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<sup>4</sup> Greta Krippner (2011) provides measures of this shift from production to financial activities in nonfinancial firms.

This creates numerous opportunities for rent extraction that raises shareholder incomes without commensurate increases in the firm's capacity to produce goods and services. These include selling off company assets; making excessive use of debt; increasing the use of junk bonds, derivatives and other financial products; making strategic use of debt defaults and bankruptcy; increasing dividend payouts; engaging in share buybacks to manipulate share price and enrich shareholders; and aggressively using tax arbitrage to raise after-tax profits. Share buybacks and dividend payouts are advantageous to shareholders and to corporate executives; they have come to replace productivity-enhancing investments in equipment and workers as the main use of company earnings (Lazonick 2014).

## Platform Monopolies

In 2004, there were three major players in the search engine market: Google with a 35 percent share, Yahoo with 32 percent, and MSN with 16 percent. Today, Alphabet (parent company of Google) has a market share of 87 percent in the U.S. Similarly, Amazon's net sales revenue increased from \$6.9 billion in 2004 to about \$136 billion in 2016, while Facebook and its subsidiaries (Instagram, WhatsApp, and Messenger) have a 75 percent share of the U.S. mobile social networks market. In the third quarter of 2016 Google, Facebook, and their subsidiaries captured 90 percent of all digital ad revenue. Net profit margins at these companies are huge because they are major providers of news and creative content on the web, but make very little of it. The result has been a major reallocation of economic value from content creators to the owners of monopoly platforms (Taplin 2016, 2017). Retail is a sector, not a product market, so (with the exception of online and print books) Amazon's dominance of online retailing hasn't (yet?) translated into dominant positions in other lines of merchandise. But the company increasingly controls the infrastructure of online commerce including warehousing and logistics in addition to its network of suppliers and customers, and is able to use this to disadvantage competitors. Many of Amazon's competitors are also its customers, giving it insight into their product markets and the opportunity to duplicate their products and undersell them, as happened for example with Pillow Pets (Kahn 2017).

Platform industries are characterized by winner-take-all competition: once the upfront investments have been made, it costs almost nothing to serve additional customers or users. People, meanwhile, tend to gravitate toward the networks with the largest number of customers or users. The more people use a platform, the more useful it becomes — known as the network effect — and the more likely it is to become the dominant firm in its industry. Shares in Blue Apron, online maker of meal-kits delivered direct to consumers, tumbled when Amazon filed a trademark for a rival service.

Investors anticipated that Blue Apron would not be able to compete with Amazon's scale and scope (Balakrishnan 2017).

The winners in these industries do not necessarily exercise market power by raising consumer prices. Instead, they may squeeze suppliers — whether of merchandise or content — and capture profit and rents created elsewhere in the economy. They may use their dominant position to stifle competition by acquiring would-be competitors as when Google acquired YouTube. Or, if a rival company rebuffs attempts to acquire it, the platform company may imitate its product on its own, much larger network, causing its valuation to plummet as happened to Snap Inc. In another example, Amazon used predatory pricing to force Quidsi, parent company of Diapers.com, which sold its products through Amazon's web platform, to finally agree to be acquired. When its initial offer was rejected, Amazon cut its prices on baby products by 30 percent and used its price monitoring software to counter every Quidsi move (Khan 2017, p. 769).

These platform monopolies may differ from traditional monopolies in that they do not affect consumer welfare by raising consumer prices. But they are nevertheless able to exercise monopoly power and reduce competition in the markets in which they operate, reducing consumer choice and disadvantaging consumers. They may use their dominant position to bankrupt or buyout smaller rivals (with potentially negative effects on innovation), to squeeze the profit margins of their suppliers and downstream firms that provide services such as warehousing or logistics, and to lock consumers into their platform via arrangements like Amazon Prime. The end result is a greater concentration of wealth in the hands of the founders and owners of the platform monopolies.

## Summing Up

The link between the growth and persistence of economic rents on the one hand and rising inequality of income and wealth on the other is due to the nature of rent-seeking behavior. Rent-seeking activities do not increase the size of the economic pie, but simply redistribute income and wealth to rent seekers. This enriches economic actors that can capture the rents and leads to rising inequality in income and wealth.

## Rising Wage Inequality

A second stream of research in economics focuses on the *increase* in wage inequality over recent decades. These studies are not concerned with the well-established determinants of the *level* of wage inequality. Differences in education and other individual characteristics are known to be a major source of differences in the level of wages of workers within organizations. But these variables do not explain very much of the increase in inequality between organizations. Recent studies that examine the increase in wage inequality over the last three decades attribute its rise to increasing differences in pay among workers who have similar levels of education, experience, occupation and demographic characteristics but are employed in different organizations.

### Rising Variance of Firm or Establishment Earnings, Rising Inequality of Wages

Recent empirical work confirms earlier conjectures by economists that the rise in wage inequality can be explained to a large extent by an increase in wage inequality among similar workers in the same occupation employed in different establishments or firms (Furman and Orszag 2015; Handwerker 2015). Careful empirical work by Richard Freeman and his colleagues (Freeman 2016; Barth, Byson, Davis and Freeman 2016) finds an increase in earnings inequality among establishments between 1977 and 2009 that translates into an increase in wage inequality among similar workers with different employers. In the various analyses they carry out, they find that the increase in inequality among similar workers employed in different establishments accounts for two-thirds to nearly four-fifths of the overall increase in earnings inequality. This between-establishment increase in inequality, the researchers note, cannot be explained by traditional factors such as industry, firm size, labor productivity, or capital per worker. It also cannot be explained by the sorting of workers into establishments that employ high-skill workers and those that employ low-skill workers. It is true that such sorting would lead to an increase in wage inequality between establishments, but this type of sorting would not increase overall wage inequality. Hence, this type of sorting cannot explain the increase in wage inequality in recent decades (Freeman 2016).

Of course, the level of wage inequality *within* firms — due to differences in pay of workers with greater or lesser skills, education and responsibility — is much larger than the level of wage inequality *between* firms. But it is inequality between firms that has been increasing, and these differences in worker characteristics do not explain the *increase* in between-establishment wage inequality. This increase, Freeman (2016, p. 13) argues, is due to “characteristics of employers that standard data sets do not measure.” Employing organizations, he argues, “matter massively in the upward trend in inequality [of worker earnings].”

Song, Price, Guvenen, Bloom and von Wachter (2015) reach a similar conclusion. They find that the increase over the three decades from 1971 to 2013 in earnings inequality is mainly due to the rising variance of earnings between firms. Their study found that this — rather than an increase in earnings inequality within firms — explains about three-quarters of the overall rise in earnings inequality.

However, with respect to within-firm earnings inequality, they found that wages of the top 1 percent of earners rose relative to other employees. They also found a greater increase in within-firm inequality in the largest firms. They did not find support for the sorting hypothesis as the increased variance of earnings between firms was not due to differences in the types of workers employed by firms. As in the Barth et al study, the bulk of the increase in wage inequality is among similar workers employed by different firms.

## **What Explains this Rise in Between-Organization Wage Inequality?**

What is behind the increasingly unequal pay of workers with similar characteristics employed in different establishments? Freeman (2016) attributes it to the luck of the draw — you get hired by Myspace while your clone is hired by Facebook. You both take essentially the same job with the same pay but with different companies that at the time you are hired appear equally poised for success. “Ten years later, Clone is in the catbird’s seat in the job market ...You struggle” (Freeman 2016, p. 6).

While pairs of companies with dramatically different success rates can be identified, the Myspace vs. Facebook phenomenon, in my view, cannot explain the widespread and growing divergence in pay for similar workers across the economy over the past 30-plus years. Thus, while these studies carefully document the increase in wage inequality among similar workers with different employers, neither of them provides an intellectually satisfying discussion of why this occurred. They also do not address how rising wage inequality relates to the increase in monopoly and rent extraction. To make the connection and to understand the timing of the rise in wage inequality, I draw on recent work with colleagues on domestic outsourcing, inter-firm contracting, and production networks.

My thesis, developed in the next section, is that the structure of firms has undergone a major evolution in the past three decades, as vertically integrated companies have focused on core competencies and outsourced many of the tasks previously performed in-house or by subsidiaries. I argue that it is the increasing importance of production networks and differences in the ability of

firms in a network to capture the jointly-produced profit and rents that is behind the rising inequality in earnings among firms and establishments. This, in turn, as the studies by Song et al. (2015) and Barth et al. (2016) demonstrate, is the major source of differences across organizations in the pay of workers with similar skills and characteristics.

## Domestic Outsourcing and Production Networks<sup>5</sup>

For much of the 20<sup>th</sup> century, a significant part of economic activity took place in vertically integrated corporations that owned the divisions or subsidiaries in which raw materials were processed; components were fabricated; manufactured products were assembled; and consumer goods and services were produced, marketed, warehoused and shipped. A wide range of ancillary (e.g., cafeteria, security, or housekeeping) or specialized (e.g., human resource management or IT) activities were carried out in-house. In these firms, hierarchical forms of organization replaced the market as the primary form of coordinating production. Economists explain this development in terms of transactions costs (Coase 1937; Williamson 1975; Williamson 1985). Large, vertically integrated corporation emerged early in the 20<sup>th</sup> century to minimize firms' transactions costs. In particular, it was economically efficient for firms to employ workers and carry out production activities in-house when the costs of bureaucratic monitoring and control of employees were less than the costs of specifying, monitoring, and enforcing contracts with independent vendors, contractors, and supplier firms. In large, hierarchical firms managers are able to exercise authority over workers and achieve their cooperation in production activities; workers gain the economic security of regular employment and wages as well as opportunities for advancement in the firm's internal labor market (Doeringer and Piore 1971; Marglin 1978; Jacoby 1985).

This rationale for large, vertically integrated firms began to unravel in the last third of the 20<sup>th</sup> century. Numerous advances in technology dramatically reduced the costs of monitoring business-to-business contracts and the performance of suppliers. These included the development of small batch manufacturing, lean production, information and communication technologies, modularization of components, and standardization of business processes. At the same time, deregulation in many domestic industries and the expansion of trade agreements put downward pressure on prices and increased pressure on U.S. businesses to reduce costs. Increased

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5 This section draws heavily on Bernhardt, Batt, Houseman, and Appelbaum (2016) and on Batt and Appelbaum (2017).

opportunities for offshoring production as a result of both technological advances and investment protections in trade agreements undermined the ability of unions to negotiate wage increases or employment security for their members, and led to a steady decline in union density in the years since the 1970s.

In the 1970s and 1980s there were numerous technological innovations affecting production, transportation, and monitoring activities that began to undermine the rationale for the vertically integrated firm. Managerial expertise and hierarchical organization had been essential for internal coordination of large scale, mass production processes (Helper and Sako 2010). But the development of new flexible, small batch manufacturing technologies (Piore and Sabel 1984) undermined this rationale for the vertically integrated firm. Japanese lean production with its complex web of lead and supplier firms — proved able to deliver higher levels of innovation, lower time-to-market for new products, and fewer defects than traditional mass production (Jaikumar 1986; MacDuffie 1995). Advances in information and communication technologies lowered the cost of information processing and the coordination of production across organizational boundaries, reducing the advantages of keeping production in-house. Modularization and standardization of design features reduced the possibilities for contractor opportunism (Helper, MacDuffie, and Sabel 2000). Codification of business functions and customer-facing transactions led to the widespread use of business process outsourcing (Deblaere and Osborne 2010). In sum, these technologies have improved the ability of lead firms to monitor and enforce contracts with external vendors and suppliers. Thus, rapidly improving information and communication technologies allow these firms to achieve the advantages of vertical integration without assuming the risks of actual ownership of assets, the inflexibility of bureaucratic decision making, or the managerial responsibilities and legal liabilities implicit in the employment relationship (Cappelli 2016).

Product market deregulation beginning in the 1970s and continuing into the 1990s — railroads and trucking, passenger airlines, telecommunications, electricity, ocean transportation — as well as trade agreements put pressure on firms to reduce costs. Financial deregulation, the rising influence of institutional investors, and the emergence of new financial actors that focused on maximizing shareholder value increased the pressure on firms to sell off assets and reduce headcount (Appelbaum and Batt 2014).<sup>6</sup> More powerful firms — the core of the old, vertically integrated firms

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6 Firms turned to financial engineering to increase shareholder returns. Publicly traded corporations used retained earnings to increase dividend payments and to buy back shares in order to increase share price, rather than investing in R&D, technology and worker skills. Hedge funds and other activist investors took large positions in publicly traded companies and used their influence to cause these companies to take steps that would increase share price — at least in the short run. In some cases this meant divesting units (e.g., Red Lobster restaurants), and in others it led to mergers followed by restructuring into multiple companies (e.g., Dow-DuPont). Private equity (PE) firms sponsor investment funds that use leveraged buyouts to acquire companies for the PE fund's portfolio that they plan to re-sell in a five-year window. In the meantime, the PE firms maximize returns to the limited

— responded by focusing on their “core competencies” and outsourcing both peripheral tasks and specialized functions to subcontractors (Prahalad and Hamel 1990; Lepak and Snell 1999; Kogut and Zander 1992).

The shift from the managerial to the financial model of the firm also increased the likelihood that firms more generally would make greater use of domestic outsourcing and inter-firm contracting. Unlike the managerial model in which capital assets are viewed as relatively fixed resources and retained earnings are used to expand company assets and market share, in the financial model the corporation’s assets are viewed by top management as Lego pieces, to be bought and sold with the goal of increasing shareholder returns. Decisions about business strategy and investment are made by economic actors whose only claims on the firm are financial and whose purpose is unlocking value that can be returned to shareholders. The result, Weil argues (2014, p. 15, 100), is a deterioration in wages and working conditions for workers employed by subcontractors in outsourced operations.

Contracting out for goods and services via business-to-business transactions is not new of course. But the scale and scope of this activity has been transformed in recent decades as large, hierarchical firms began to lose their organizational advantage and changes in the mix of firms’ “make or buy” decisions altered the structure of the U.S. economy in fundamental ways. This change has been variously described as the vertical disintegration of the firm, the changing boundaries of the firm, or the growth of networked production. More powerful firms in these networks capture the rents discussed earlier in this paper. They are able to set the terms and conditions in inter-firm contracts and can create a highly competitive bidding process among smaller contractor firms that need to win such contracts (Helper and Krueger 2016). The result is downward pressure on profit margins in these contractor firms and, in turn, on wages.

Recent empirical studies provide some evidence that workers in outsourced operations suffer substantial pay and benefit penalties compared to workers in similar jobs that were not outsourced. This occurs when, for example, jobs in logistics, cleaning, security, and food services functions are outsourced (Goldschmidt and Schmieder 2015; Dube and Kaplan 2010). Batt and her colleagues examine the impact of outsourcing on call center jobs and find systematic differences between union, non-union in-house, and outsourced operations (Batt, Holman, and Holtgrewe 2009; Batt, Doellgast, and Kwon 2006; Batt and Nohara 2009). The emergence of professional staffing firms that supply accountants on a temporary basis, supply lawyers to do routine document acquisition

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partners (LPs) in their funds (shareholders of the acquired companies) by requiring portfolio companies to issue junk bonds to pay dividends, selling off real estate and other assets and distributing these funds to the LPs, and charging monitoring fees to portfolio companies.

and verification, or supply doctors to hospitals in specialties such as trauma, neonatal intensive care, anesthesiology and imaging suggest that this is a phenomenon that is not restricted to less skilled jobs.

The increasing importance of networked production complicates the labor process — i.e., the organization of work and labor-management relations in a production process — as these are no longer confined to a single firm. In a production network, the labor process is fragmented and engages workers employed in different organizations, each of which occupies a more or less powerful position relative to other firms in the network. In this new labor market segmentation between lead firms and contractor firms, the labor of workers in production networks is combined and their work coordinated via contracting relationships among more and less powerful employers — who are better or less able to capture the profit and monopoly rents accruing to the network. The position of a worker's employer in the production network directly affects the worker's pay and working conditions.<sup>7</sup> Thus, workers' wages depend not only on their own productivity characteristics, but on the relative power of their employer vis-à-vis other organizations in the network.

The inherent conflicts of interest between labor and capital within firms over the distribution of the value created in the labor process — mediated in an earlier period by union negotiations over wages — have not disappeared. However, they now exist alongside new opportunities for inter-firm cooperation in production as well as new forms of capital-capital conflict among producers over the distribution of profit and rents created by the network (Marchington, Grimshaw, Rubery, and Willmott 2005; Rubery 2007) as well as between producer and financial interests. This, as Rubery recognized, can “complexify” the capital-labor relationship governing the organization of work and the division of value added in the production process between wages and profits.

While collaboration among firms producing complementary inputs is essential for production, asymmetric power relations among these firms push in the opposite direction as firms jockey for position and economic rewards. Rent seeking, as Nancy Folbre argues, is about conflict over distribution with results largely determined by differences in bargaining power (Folbre 2016, p. 28). Power relations among firms determines the distribution among these firms of value created by network participants — with the more powerful able to exercise control over the prices of the goods and services they produce and to command economic rents.

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<sup>7</sup> Labor organizing to bargain over wages and working conditions is especially difficult in these circumstances. The workers themselves are separated by where in the supply chain or production network their jobs fall as well as by geographic distance. *They have no organic relationships with each other that promote solidarity — common lunchrooms, common managers, common access to opportunities, common problems and irritants — and generally do not recognize their common interests, much less join together to defend them.*

Some researchers argue that inter-firm differences in worker pay among seemingly similar workers reflect differences in productivity of workers and the firms that employ them. Thus, for example, Card, Rute Cardoso, and Kline (2016a) summarize their research findings (2016b) on the effect of firms' pay setting practices on the gender pay gap in terms of inter-firm differences in productivity. They say of the firms in their study that employ women, "these employers tend to exhibit below average productivity, which suggests that they have less latitude to pay above market wages (2016a, p. 2)."

Like most studies of labor productivity, however, this study actually estimates labor *revenue* productivity — i.e., the researchers use revenue as a proxy for output. This creates a problem for interpreting their results: when power relations among firms in a network play a role in determining how much revenue each firm receives, it is impossible to determine whether, or to what extent, higher labor revenue productivity is due to greater productive efficiency of that firms' workers or is due instead to the greater ability that strong firms have to lay claim to rents and to jointly produced profits relative to weaker firms (see also Blonigen and Pierce 2016, p. 6.) Thus, it is not possible to conclude that the rise in inequality is primarily about high productivity firms leaving the rest behind. In the case of firms in a production network, it may be about the ability of the lead firm to set prices for its products as well as conditions in its contracts with other firms in the network that enable it to capture a disproportionate share of the profit and rents accruing to the network, to the disadvantage of weaker firms in the network and their employees.<sup>8</sup>

Networks may rely on arms-length contracting among firms mediated by market prices or on relations of trust and reputation (Sako 1992; Adler 2001; Helper and Kreuger 2016). In the latter case, the commitment to maintain the relationship may lead stronger primary and contractor firms to share mutually produced economic value with weaker organizations in the network. Power asymmetries, however, tend to undercut incentives for cooperation and lead to pressure on profit margins at weaker firms. Weaker firms face a powerful rationale to reduce labor costs — both by squeezing their own employees and by externalizing labor inputs via alternative work arrangements such as independent contractors or temp workers, thus exacerbating older forms of labor market segmentation (Gordon, Reich and Edwards 1982). National institutions that regulate economic activity and establish the norms for firm behavior in capital markets, labor markets, and product

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8 Franchising provides an easy-to-understand example. The franchisor controls the brand and sets prices that consumers pay. In the hotel industry, this may involve a number of different hotel chains at different price points. The franchisee pays an annual fee to the franchisor, plus fees for a variety of services (e.g., advertising, IT software and services), plus a percentage of gross revenue. As a result, the franchisor captures the rents associated with the brand as well as part of the profit generated by the franchisee. Many franchisees operate on thin margins that leave little room for paying workers fairly in relation to their contribution to production. Moreover, profits that increase because of increased sales must be shared with the franchisor. Profits that increase because the franchisee has driven down costs remain with the franchisee — providing a further incentive for franchisees to pay low wages.

markets — e.g., environmental regulations, product safety requirements, occupational safety and health regulations, anti-trust policies, training institutions, unemployment and other forms of social insurance — place limits on the exercise of power by stronger firms (Grimshaw, Willmott and Rubery 2005). Negative outcomes for workers in weaker firms, however, are generally limited only by social and political movements, by labor and employment laws, or by the strength of unions.

## Conclusion

Economists have documented the increase over the last three decades in opportunities for rent extraction, along with rising rewards for rent-seeking behavior. This is an obvious source of rising inequality. Another strand of research on inequality notes that much of the increase takes the form of rising inequality in earnings among firms and among workers with similar characteristics but with different employers. This paper has sought to reconcile these two streams of research by situating the analysis in the context of the rise of shareholder value maximization, the focus on core competencies, the increase in outsourcing, the vertical disintegration of the firm, and the rise of production networks that go far beyond linear supply chains and now encompass a variety of forms of inter-firm contracting relationships (Appelbaum 2017). The increase in domestic outsourcing and the resulting fragmentation of production among firms in a production network has been a game changer for how labor markets function and how wages are determined.

Dominant firms in a network exercise market power and capture economic rents. Unions or internal equity norms may enable workers employed by these firms to share in the rents. Workers with similar skills and productivity characteristics employed elsewhere in the network lack access to these firm-specific rents and earn less. More powerful lead firms share the rents they extract with their own workers in order to secure their cooperation in producing goods and services while the weakest firms find themselves facing a powerful rationale for cutting wages and externalizing labor via non-standard work arrangements. Neither high paid nor low paid workers in such production networks, as Nancy Folbre (2016) observed, is receiving its “just deserts.” Workers’ pay is determined not only by their own contributions to production, but by their employers’ ability to capture rents.

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