

Merger Effects on Worker Outcomes: A Review for Antitrust Enforcement

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Abstract

Empirical findings point to a robust negative relationship between local employment concentration and wages. Despite the scarcity of merger challenges on the grounds of decreased labor market competition, economic theory, case law, and amassed evidence justify the incorporation of labor markets in the scope of antitrust's scrutiny. This paper provides a comprehensive review of existing literature regarding the impact of mergers on employees and its relevance to antitrust policy. Additionally, it presents a summary of recommendations to antitrust agencies, drawing from the accumulated practice in the enforcement of product market competition.

Keywords: Antitrust, Mergers and Acquisitions, Labor Market Concentration, Monopsony, Oligopsony, Local Labor Markets

JEL Codes: G34, J42, K21, L40, M50

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1 Introduction

The notion that labor markets are perfectly competitive has little traction in theoretical and empirical research (Card, 2022). Different aspects of the job market rationalize the existence of a wedge between the revenue accrued by workers' marginal product and their wages (Manning, 2011). One source of imperfect competition rising to prominence in empirical studies is employment concentration. Similar to models of oligopoly where higher market shares lead to decreased consumer surplus, monopsony, and oligopsony frameworks establish a negative relationship between the size of employers' shares in the labor market and the welfare of workers. By acquiring or merging with one another, firms may increase not only downstream concentration, i.e., the concentration in product markets, but also upstream concentration, i.e., the concentration faced by the merged firm's suppliers, including its employees and other workers in the same market. Despite the similarity between monopoly's and monopsony's consequences to welfare, antitrust enforcement has fallen behind in ensuring competition in labor markets (Marinescu and Posner, 2020).

Research on the impact of mergers on worker outcomes dates back to the mid-1980s, when Shleifer and Summers (1987) challenged the view that excess stock returns following hostile takeovers were evidence of net social surplus gains stemming from ownership changes made possible by capital markets. According to them, increased shareholder wealth did not necessarily originate in firms being more efficiently managed, but from the retraction and renegotiation of implicit agreements with the workforce and other trading partners previously held by the departing owners and managers. A series of papers looking at hostile takeover consequences on workers ensued,¹ and later, authors focused on other types of ownership change, such as leveraged buyouts,² and foreign acquisitions,³ and studied their effects on the workers in the merging or target firms. These studies depart from the collection of merger and acquisition events but do not directly account for employment concentration, indirectly

¹Rosett (1990); Gokhale et al. (1995); Conyon et al. (2001).

²Lichtenberg and Siegel (1990).

³Conyon et al. (2002b); Huttunen (2007).

affected workers, or labor markets, which challenges their ability to inform antitrust policy. Their estimates for wage and employment effects vary in size and magnitude, but it is unclear how much was due to changes in labor market competition induced by the mergers.

Around 30 years afterward, the observation of declining labor shares in Western economies sparked a burgeoning literature looking at the relationship between employment concentration, measured in local labor markets, and employee compensation.⁴ Contrary to previous studies, the findings in the second wave of papers match the theoretical prediction of models of imperfect competition in labor markets. Workers in more concentrated labor markets face lower wages and, sometimes, lower employment levels, consistent with oligopsonistic markets (Boal and Ransom, 1997). This more robust evidence of reduced competition in concentrated labor markets invites antitrust authorities to consider the ramifications of mergers on worker outcomes.

This paper reviews the literature on merger activity and employment concentration effects on workers and provides a list of recommendations to antitrust authorities to guide their enforcement of competitive standards in labor markets. The rest of the paper is organized as follows. In Section 2, I review the first generation of papers comparing worker outcomes across merged and non-merged employers. In Sections 3 and 4, I describe the methods and findings from the second strand of papers, dedicated to the estimation of wage elasticities with respect to local employment concentration. I briefly summarize the legal basis and case law related to upstream antitrust enforcement in Section 5, and offer five recommendations to antitrust agencies in Section 6. Section 7 concludes the paper.

⁴Martins (2018); Azar et al. (2020); Rinz (2020); Marinescu et al. (2021); Azar et al. (2022); Benmelech et al. (2022); Bassanini et al. (2023); Dodini et al. (2023).

2 Literature on Direct Effects of M&A

2.1 Hostile Takeovers, Leverage Buyouts and Foreign Acquisitions

Changes in firm ownership through mergers and acquisitions have long been a subject of research. According to Nelson (1959), merger activity gains a national scale in the U.S. after the Civil War, with an unprecedented peak at the turn of the century, when 1,028 firms were acquired in 1899 alone, a number not surpassed at least until the late 1950s. The discussion around the impact of mergers on workers, however, is more recent and can be traced to the seminal work by Larry Summers and Andrei Shleifer in 1987. The 1980s had witnessed a surge in hostile takeovers, and it became a common view that increases in stock returns were evidence of the efficient and disciplinary character of these events and of capital markets in general. Shleifer and Summers (1987) challenge this view, explaining that shareholder gains were not necessarily reflective of higher net social surplus, but merely an appropriation of worker's welfare.

A firm takeover without the consent of the incumbent board of directors offers the new management an opportunity to renege on implicit agreements established between the firm and its employees – such as promises of future promotions and seniority pay raises not formally laid out in binding contracts. Previous managers are expected to uphold the informal agreements, while the new ownership can withdraw from them without any reputational damage or consideration of loyalty. The welfare of long-term trade partners, e.g., subcontractors and output distributors, can be adversely affected by the same “breach of trust” – the expression coined by the authors to represent the abrogation of long-standing informal arrangements guaranteed by the former management. Thus, researchers would have to look beyond shareholders' equity returns to measure the full impact of changes in firm ownership.

Shleifer and Summers (1987) kick-started an investigation relating hostile takeovers to employees' earnings and firm size, testing the hypothesis that stock premiums following these transactions originated in the reduction of workers' above-market earnings. One well-known

source of workers' wage premium is unionization, so it is natural that one of the earliest studies in this vein focused on collective bargaining. Indeed, Becker (1995) find that stock returns in unionized target firms were 5 percentage points higher than in non-unionized targets, but no direct evidence of wage impacts was provided, leaving the question about the source of shareholder gains open.⁵

Looking at wage contract records kept by the *Bureau of National Affairs* from 1973 to 1987, Rosett (1990) finds no significant effects on wages of unionized workers after both hostile and friendly takeovers relative to workers in non-acquired firms, contradicting the Shleifer and Summers (1987) prediction of harsher employee outcomes after hostile transactions. Given the fact that his sample only contained employees covered by collective agreements, one possible conclusion is that unionization shielded employees from the negative effects associated with takeovers.

At the national level, but nonetheless restricted to the manufacturing sector, McGuckin and Nguyen (2001) compares the wage and employment growth of plants within the same Census region and industry sector

In a study not restricted to workers covered by unions, Gokhale et al. (1995) used surveys conducted by the Federal Reserve Bank of Cleveland in Ohio's major cities, from 1980 to 1991, in order to compute proxies of extra marginal payments and their dynamics around hostile takeover events. The proxies were three, occupational wage premiums, steepness of rewards to seniority, and concentration of employment in senior job titles, all at the employer level and within the same city-year cells. *Ex-ante*, they find that the extra marginal proxies are not significant in predicting a hostile takeover, suggesting that these transactions may not happen because of above-market worker benefits – a conclusion confirmed by Neumark and Sharpe (1996). However, *ex-post*, they find that the seniority premium wage bill is reduced by 33% after a hostile takeover, which happened not due to a fall in wages of senior employees, or by a flattening of the within-firm wage ladder, but by a reduction in

⁵Worth mentioning, Fallick and Hassett (1996) show that firms with unionized workers are more likely to be acquirers, rather than targets.

the allocation of workers in upper positions. The authors calculated a 62% decrease in the concentration of employment in senior job titles following a hostile takeover; that is, the top of the job pyramid became relatively narrower in taken-over firms. At the same time, employer-specific excess occupational wages actually grew by 14.5%, irrespective of job steps. If takeovers transferred value from the workforce to shareholders, losses seemed to be reflected in the number of senior roles within companies.

A national evaluation of the impact of hostile takeovers is found in Conyon et al. (2001), where they gather data from the *London Share Price Database* and *Financial Times* between 1983 and 1996 to identify episodes of friendly and hostile changes in ownership of quoted firms in the UK, and to estimate a first difference dynamic panel at firm-level representing firms' labor demand. Compared to non-acquired firms in the period, they find that takeovers of both types generate a similar 7.5% decrease in the average acquired firm's demand for labor. The similarity of the two types of events can also be a consequence of the sample and time period considered. In a later study, including public and private firms, and a wider time window (1967-1996), Conyon et al. (2002a) find that labor demand declines by almost twice as much in hostile takeovers compared to friendly consolidations, with estimated effects of 17% and 9%, respectively. This shows that the empirical evidence of hostile events being particularly detrimental to workers is specific to the context, even within the same country. Conyon et al. (2001) and Conyon et al. (2002a) do not estimate earnings effects despite having the necessary information; wages are actually included as independent variables in the labor demand equation that the two papers estimate.

Leveraged buyouts were another form of substitution in corporate control that became more common in the 1980s. They are particularly different from other forms of acquisition, according to Lichtenberg and Siegel (1990), because oftentimes the wealth of new managers is offered as collateral to the debt hired to purchase the new company, which makes the interests of the firm and managers more aligned with each other. Using Census records at plant level, Lichtenberg and Siegel (1990) find that buyout plants become 2.2% more

productive (measured by TFP) than plants not involved in buyouts in the period between 1972 and 1986. The *Census Longitudinal Research Database* also supplied information on the amount of production and non-production workers and their respective wage bills. Using that information, they estimate a decrease of 8.5% in non-production employment, while the size of production staff remains statistically unchanged. Non-production workers also saw a decline of 5.2% in their annual compensation, while production employees' earnings grew by 3.6% after the buyout.

The intensifying economic integration in the European Union throughout the 1990s spurred a parallel line of research focused on the impact of foreign acquisitions on domestic workers. Foreign acquisitions are expected to instill new ideas and facilitate local firms' assimilation of superior production technology, with positive benefits to workers (Huttunen, 2007). On the other hand, multinational firms can alter the wage bargaining balance, as they can credibly threaten to halt local production or shift it temporarily to other countries if faced with strikes or tighter local labor laws (Conyon et al., 2002a). In the case of the UK, Conyon et al. (2002a) confirm that foreign acquisitions are followed by larger worker productivity (14.1%), but only a third of this is accrued by workers in the form of higher wages (3.4%), while labor demand fell by 6.7%. Using administrative records from Finland, Huttunen (2007) explore the heterogeneity of wage effects of foreign acquisitions across different skill levels. Three years after the acquisition, both low and high-skilled workers experienced wage gains (2.5% and 2.3%, respectively), but the employment share of high-skilled workers decreases by 3.4% compared to non-acquired firms.

2.2 Mergers and Acquisitions in General

The size and sign of the estimates in the aforementioned studies can be attributed, to some extent, to their attention to specific types of ownership change, namely hostile takeovers, leveraged buyouts, and foreign acquisitions. In this section, I describe the findings from the investigation of direct M&A effects on worker outcomes from consolidation events in general.

In the US, Brown and Medoff (1987) is perhaps the earliest study to employ administrative records to follow workers' earnings and firms' size after merger events. They use unemployment insurance records from the state of Michigan covering a variety of industry sectors between 1978 and 1984. By means of what can be considered an early version of current event studies, they find a modest, non-significant impact on wages, while employment exhibited up to a 9.4% increase, contingent on the year of the merger. While the merger events included were not limited to any specific type, any lesson taken from these findings has to be cognizant of the geographical scope and the absence of interstate merger activity in the data used in their investigation.

Using US Census data from all states, McGuckin and Nguyen (2001) build a panel of manufacturing firms at the plant level, and estimate a coefficient of ownership change with dependent variables being the plant's wage and size growth between the years of 1987 and 1987. Plants that changed ownership experienced a 3.3% annual increase in size growth compared to non-acquired plants within the same Census region and 4-digit industry sector, independent of the original size of the acquired plant in 1977. Wages, on the other hand, grew 3.3% year faster, yearly, in acquired plants, but this effect is decreasing on plant size – it gets to zero for plants in the 90th percentile of the size distribution, and, in the top decile, where the majority of workers are employed, wage growth is comparatively slower in acquired plants.

Decreasing wage estimates on the size of the acquirer have also been found in the context of the UK economy. Conyon et al. (2004) combine data from the *London Share Price Database* and *Datastream* to build a panel of publicly listed firms going through M&A events between 1979 and 1991. Compared to firms that do not participate in M&A deals, but are of similar size, M&A participants have 0.14% higher wages. However, for acquirers with more than 12 employees, the vast majority of cases, the sign of the wage estimate is reversed. Independent of size, employment falls by 2%. Interestingly, these estimates only hold for mergers between firms in the same two-digit industry sector, i.e., the *horizontal*

M&As - perhaps indicating that layoffs are a result of workforce overlap between the merging parties.⁶

It is common that mergers are followed by divestitures carried out by the merged firm, either due to planned restructuring or remedies imposed by antitrust authorities. Not taking this phenomenon into account can lead to overestimated employment effects. Gugler and Yurtoglu (2004) not only control their labor demand estimation by divestitures but also gather data from multiple countries to study differential merger effects on employment. They implement a similar econometric approach to Conyon et al. (2002a, 2004) on a sample that includes the USA, UK, and 14 other continental Western European countries. Relative to non-acquiring firms, merged employers have an overall 2.9% lower demand after a merger. Broken down by region, the measured decline is of 12.4% in the UK, 7.9% in Western continental Europe, and null in the USA. The authors attribute this difference to more rigid labor laws in Europe, where labor adjustment is often slower and more costly than in the USA. Therefore, they conclude, insofar as mergers are a labor adjustment device, they are relatively more attractive in Europe than in the USA.

From Nordic countries, it is worth mentioning the findings of Lehto and Böckerman (2008), for the case of Finland, and Siegel and Simons (2010), for Sweden. In a sample that includes the manufacturing and construction sectors, Lehto and Böckerman (2008) employ a difference-in-differences procedure on matched establishments by propensity score. Merged establishments decrease in size by up to 13% depending on the matching procedure. A close employment estimate, negative 12%, is found in Sweden, obtained by Siegel and Simons (2010) from a worker-level event study. For Swedish workers, the comparison of wages before and after the M&A event suggests a decrease of 0.5%, despite negative pre-trends in plant productivity being reversed *post*-M&A.

Beyond wages and employment, at least one example in the literature shows that sig-

⁶In a similar exercise, but this time including private firms in the sample, Conyon et al. (2002a) estimate decreases in employment of 19% in horizontally merged firms, larger than the 8% decrease from vertical consolidations.

nificant changes in workers' effort can follow a merger. From detailed financial reports of hospitals in California, Currie et al. (2005) measure changes in employment, wages, and effort of registered nurses after a hospital is acquired by one of the six biggest hospital chains in the state. Due to a strict segmentation of California's territory into health service areas, hospital acquisitions drastically reduce the number of employers available to registered nurses in specific markets. Surprisingly, however, the authors do not find significant changes in earnings and employment of registered nurses when their employer switches into a chain, but the number of patients allocated to them is 0.75 higher if compared to out-of-chain hospitals, that is, nurses tend to earn the same hourly rate, work similarly long, but more intensely after the acquisition.

2.3 Antitrust Lessons from M&A Literature

The presentation of the M&A literature in the previous sections shows that a single consistent lesson in terms of worker welfare following merger activity cannot be drawn. There are both positive and negative estimates for wage and employment trajectories following mergers and acquisitions. Moreover, from a competition policy point of view, it is not clear that the negative or positive wage and employment changes following mergers and acquisitions in the aforementioned papers have happened *because* of their impact on *labor market competition*.

Mergers are the result of merging entities' voluntary decisions (perhaps except for target firms in hostile takeovers), and no particular empirical approach can address all endogeneity concerns – whether it is the Arellano-Bond type instrumental variables in (Conyon et al., 2001, 2002a, 2004; Gugler and Yurtoglu, 2004), Heckman correction (McGuckin and Nguyen, 2001), or pooled OLS with unit fixed effects (Brown and Medoff, 1987; Conyon et al., 2002b; Currie et al., 2005; Siegel and Simons, 2010). Unobserved relevant drivers of M&As and worker's outcomes, such as foreign competition, dwindling demand for the firm's product, proprietary production technology, and changes in product market concentration, may render non-acquired employers as inaccurate counterfactuals to firms taking part in the M&A event,

which is the case for the majority of studies in the M&A literature, as can be seen in Table 1.

In terms of causality frameworks more commonly found in current applied economics research, Huttunen (2007) and Lehto and Böckerman (2008) set themselves apart by employing a matching procedure before the estimation of a difference-in-differences between merged and non-merged firms. From an antitrust perspective, however, it is not possible to affirm that their negative findings are a result of a merger-induced lack of labor market competition. This is because the contributing establishments for the control pool are not necessarily just those that could be alternative employers to the workers impacted by the mergers. Thus, while these studies might consistently estimate the differences between worker outcomes in merged *versus* non-merged firms, they are not necessarily doing so *within* any given labor market, which challenges the interpretation of their results from a competition perspective.

In the next section, I describe the findings from the literature that estimates the relationship between wages, employment, and a measure that is associated, on theoretical grounds, with the competition in clearly defined labor markets, the employment concentration.

3 Employment Concentration and Worker Outcomes

Throughout the early 2000s, both the US and other OECD countries experienced a decline in the labor share of their GDP Autor et al. (2020). This phenomenon has ignited a debate surrounding its causes. Although no consensus has been reached, many researchers suggest that the trend is largely due to a concentration of sales and profits within a smaller number of firms (Autor et al., 2020; Kehrig and Vincent, 2021; Grossman and Oberfield, 2021). While these firms in more monopolistic sectors reap greater profit margins, Grullon et al. (2019) find that their Total Factor Productivity (TFP) is not correspondingly increasing. This led to the conclusion that the increase in profitability is largely attributed to growth in market power – a hypothesis further confirmed by De Loecker et al. (2020) through their direct

measurements of firms' price markups.

Another strand of papers investigates the relationship between industry concentration and workers' earnings (see Table 2), motivated by the conjecture that the fall in the labor share could be explained, at least in part, by a shift in the balance of power between workers and employers. The idea is that if fewer firms concentrate economic activity in the product market, workers will have fewer, and larger, employers to negotiate within the labor market. This could potentially weaken the bargaining power of workers, and as a result, suppress their wages.

Notwithstanding its macroeconomic implications, this set of papers is relevant for antitrust policy for two reasons. First, the simple fact that when firms merge, they may not only pose a threat to the market's competitiveness for their products, but they effectively reduce the number of alternative employers to their workers, increasing the concentration in labor markets. Secondly, concentration in labor markets itself is akin to increased product market power in terms of reduced competition, as can be shown in models of oligopsony à la Cournot (Boal and Ransom, 1997; Azar et al., 2019).

Similar to models of oligopoly where firms independently and simultaneously choose the quantity of output to produce, in the oligopsony model, employers choose how many units of labor to hire. In the case of oligopoly, firms internalize a downward market demand curve; in the case of oligopsony, employers face an upward-sloping labor supply curve. Compared to the competitive benchmark, oligopsonistic labor markets have lower equilibrium quantities of labor and, consequently, lower equilibrium wage levels. Because the number of employers is inversely related to the wage markdown, it is possible to derive a negative relationship between the equilibrium level of wages, employment, and the concentration measured by employment Herfindahl-Hirschman Index (HHI) in an oligopsonistic labor market.⁷

⁷A derivation of the relationship between employment HHI and wages can be found in Section 2.1 of Arnold (2022).

Table 1: Summary of the M&A Literature

| Study | Type of M&A | Country | Data Source | Period | Data Remark | Control group | Method | Estimates | |
|--------------------------------------|---------------------|-------------------------|-------------------------------|---------|---------------------------|--------------------------------|---|--|--|
| | | | | | | | | Wages | Employment |
| Brown and Medoff (1987) | Any | USA (MI) | MESC | 1978-84 | Unemployment Insurance | Non-acquired firms | Pooled OLS, Ind. FE | Null | Up to 9.4% |
| Rosett (1990) | Hostile | USA | BNA/CBNC WSJ | 1973-87 | Collective wage contracts | Non-acquired firms | Cross-section OLS, Ind. and Year FEs | Null | - |
| Lichtenberg and Siegel (1990) | Leveraged Buyouts | USA | Census LRD Morgan Stanley | 1972-86 | Manufacturing only | Nonbuyout plants | Simultaneous Lagged Equations | 3.6% (production), -5.2% (non-production) | Null (prod.), -8.5% (non-prod.) |
| Gokhale et al. (1995) | Hostile | USA (OH) | CSS (FRBC) WSJ | 1980-91 | Extramarginal payments | Non-acquired firms | First-difference OLS | 14.5% ^(a) | -62% ^(b) |
| McGuckin and Nguyen (2001) | Any | USA | Census LRD | 1977-87 | Manufacturing only | Non-acquired plants | Cross section, Probit IV, Ind. and Region FEs | 3% ^(c) | 3.3% ^(d) |
| Conyon et al. (2001) | Hostile | UK | LSPD FT | 1983-96 | Public firms | Non-acquired firms | First-difference dynamic panel w/ lagged Ivs | - | -7.50% |
| Conyon et al. (2002a) | Any | UK | LSPD Cambridge DTI | 1967-96 | Public and Private firms | Non-M&A Firms | Dynamic Panel, Lagged IVs, Ind.-Year FEs | - | -19%(horizontal), -8%(vertical) |
| Conyon et al. (2002b) | Foreign Acquisition | UK | OneSource | 1989-94 | Private and Quoted firms | Non-acquired firms | TWFE Year and Firm FEs | 3.4% (foreign), -2.1% (domestic) | -6.7% (for.), 0% (dom.) |
| Conyon et al. (2004) | Any | UK | LSPD Datastream | 1979-91 | Public firms | Non-M&A Firms | Dynamic Panel, Lagged IVs, Year FEs | 0.14% (horizontal) ^(e) | -2% (horizontal) |
| Gugler and Yurtoglu (2004) | Any | USA, UK, West. Euro. | Thompson/Reuters Compustat | 1987-98 | Public and Private firms | Non-acquiring firms | Dynamic Panel, Lagged IVs, Firm and Year Fes | - | 0% (USA), -12.4% (UK), -10% (Eur.) |
| Currie et al. (2005) | Any | USA (CA) | CADD/OSHPD | 1989-99 | Financial reports | Out-of-chain hospitals | Pooled OLS w/ Hosp. FEs | Increase in effort | Null |
| Huttunen (2007) | Foreign Acquisition | Finland | PESA/LDPM | 1988-01 | Manufacturing only | Non-acquired plants | DiD w/ propensity score matching at plant-level | 2.5% (low ed.) 2.3% (high ed.) | -3.4% in high ed. emp. share |
| Lehto and Böckerman (2008) | Any | Finland | BRSF Talouselämä | 1989-03 | All sectors | Matched non-M&A establishments | DiD w/ Propensity score matching estab.-level | - | -13% |
| Siegel and Simons (2010) | Any | Sweden | Statistikmyndigheten | 1985-98 | Manufacturing only | Workers in non-M&A plants | Panel at worker-level w/ Year FEs | -0.5% | -12% |

Note: This table summarizes the data, methodology, and estimates of some of the most cited papers looking into worker outcomes following mergers and acquisitions.

^(a) Increase in employer-specific excess occupational wages. ^(b) It represents the change in employer-specific concentration of workers in senior job titles, and not a decrease in the firm size as a whole. ^(c) Excess yearly wage growth for average-sized acquired firms. Above the 90th size percentile, wages in acquired plants start growing less than in their non-acquired counterparts. ^(d) Excess yearly size growth in acquired plants regardless of size. ^(e) Similar to McGuckin, the wage effect decreases in the size acquirers. For acquirers larger than 12, in most cases, the effect becomes negative.

Indeed, as can be seen in Table 2, there is widespread evidence of negative elasticities between local labor wages and local labor market concentration. An increase of 10% in employment HHI correlates with decreasing wages from 0.14% up to 1.27%, depending on the context. The estimates for employment effects are more scarce, but in at least one instance, a decrease of 3.2% is found – the case of new hires in French labor markets (Marinescu et al., 2021). As mergers may significantly alter the employment concentration in local labor markets, these studies are informative to researchers and policymakers interested in the labor side effects of firm consolidation. Next, I discuss the different approaches found in the concentration literature in order to delineate labor markets and, most importantly, how authors attempt to correct the endogeneity between observed labor outcomes and local employment concentration.

The Definition of Labor Markets - The literature described in Section 2 sheds light on M&A’s impact on merged firms, but the assessment of its competition effects requires first the delimitation of labor markets, a task carried out in the employment concentration literature. Column *Labor Market Definition* in Table 2 shows that most papers use commuting zones as one of the elements in constructing labor market cells.⁸ The idea is that jobs predominantly require a physical presence in the workplace, which indicates that the job market is geographically bound. It has been shown that the distance to a prospective employer is a significant discouraging factor in job applications (Manning and Petrongolo, 2017; Marinescu and Rathelot, 2018). In the case of the US, commuting zones were defined to explicitly locate labor markets.⁹

The other component used to define local labor markets are codes that designate economic activity, either occupation,¹⁰ industry sector codes,¹¹ or skill cluster.¹² Authors then

⁸Except for Martins (2018), who uses Portuguese administrative divisions, the *Distritos*.

⁹<https://www.ers.usda.gov/data-products/commuting-zones-and-labor-market-areas/> (accessed on June 22, 2023).

¹⁰As is the case in Martins (2018); Azar et al. (2020); Marinescu et al. (2021); Azar et al. (2022); Bassanini et al. (2023).

¹¹As in Rinz (2020); Benmelech et al. (2022)

¹²The only example of this approach so far, to the best of my knowledge, is Dodini et al. (2023).

define the group of potential employers among which workers might transition using the intersection of commuting zone and economic activity, and it is within these cells that the concentration index, the HHI, is computed. The evaluation of which framing of economic activity – occupation, industry, or skill cluster – is more adequate to depict labor markets is beyond the scope of this paper. Nonetheless, negative elasticities between HHI and wages are pervasive across the different approaches used in the concentration literature.

In the case of the US economy, information on occupations is unavailable in the administrative matched employer-employee data (the LEHD), and other establishment-level datasets (such as the CMF, ASM, and LBD). For this reason, studies using the US Census records are limited to industry sector-based labor markets. The IV estimates in Rinz (2020) show a decrease of 0.5% in wage rates associated with an increase of 10% in the HHI of markets defined by commuting zone and 4-digit NAICS codes. Using the same local labor market definition, although restricted to manufacturing plants, Benmelech et al. (2022) estimate the same change in HHI to have a very similar effect, from -0.6% to -0.3%. Benmelech and colleagues also point to substantial heterogeneity in wage effects. The negative estimate is attenuated by the degree of unionization in the labor market. In their preferred specification, they also show that a one standard deviation decrease in local HHI increases the plant productivity elasticity of wages by 8.5%; that is, wages are less responsive to plant productivity in more concentrated labor markets, consistent with the theory prediction about wage markdowns in oligopsony models.

For the estimation of concentration effects on US occupational labor markets, Azar et al. (2020) and Azar et al. (2022) use job vacancy posts from online platforms. In the earlier work, Azar et al. combine posts from Burning Glass Technologies into pairs of commuting zone and 6-digit occupation codes, and find a significant decrease of 0.43% in advertised wages following a 10% increase in HHI. In their second study, they use the same labor market definition, but this time the effect is estimated at -1.27%, obtained from wages posted on CareerBuilder.com.

Using administrative French records, Marinescu et al. (2021) investigate the impact of concentration on the wages and employment of new hires in labor markets defined by commuting zone and 4-digit occupation code. Similar to previous estimates in the industry sector US markets, they estimate a decrease of 0.5% in wages of new hires, at the same time that their number fall by 3.2% - both estimates associated with a 10% increase in HHI. The simultaneous negative effects on both wages and employment of new hires are consistent with oligopsony model of competition in labor markets. In line with Benmelech et al. (2022), Marinescu et al. also find that unionization rate is an attenuator of the negative impact of concentration. For French incumbent workers, Bassanini et al. (2023) estimate a negative wage effect of 0.19%.

Both occupational and industry definitions of labor markets will form an inaccurate depiction of potential employers if worker mobility is not sufficiently contained within the reported classification codes. If workers often transfer across occupation and industry sector codes, then using such codes overestimates employment concentration. From Norwegian linked employer-employee data, Dodini et al. (2023) group workers into task-based skill clusters, which they show to attain, combined with commuting zones, lower HHI scores if compared to occupational and industry sector labor markets. Even with the new measure, they still find negative wage coefficients for concentration. They estimate that a one standard deviation increase in skill cluster HHI is associated with a 2.25% lower reemployment wage for previously dismissed workers. On the other hand, concentration has no significant impact on labor force exits.

Dealing with Endogeneity. Once labor markets are defined and the employment concentration is computed, the longitudinal nature of the datasets allows for the estimation of panel specifications where current market wages are regressed on the current level of market concentration. The models often contain time and unit-level fixed effects – e.g., market in Rinz (2020), worker in Marinescu et al. (2021), plant in Benmelech et al. (2022)) – plus a term for the market-level concentration. Depending on the level of detail in their data, studies may

also include other controls such as unionization rate (Marinescu et al., 2021; Benmelech et al., 2022), plant productivity (Benmelech et al., 2022), and worker demographics (Marinescu et al., 2021; Dodini et al., 2023).

Unobserved contemporaneous shocks, however, can alter the current level of wages and concentration simultaneously, even in perfectly competitive labor markets. If a new firm enters the labor market, for instance, demand for workers increases at the same time that employment concentration declines, as pointed out by Rose (2019). Conversely, lower demand for a product can force less efficient firms to close, which would result in lower wages and higher HHI levels in a competitive labor market.

Inspired by leave-one-out instruments used in the industrial organization literature (Nevo, 2001), authors instrument local concentration based on employment in other commuting zones under the same occupation or industry sector. In most cases, the first stage consists of regressing local labor market concentration on the inverse of the absolute number of employers in other markets (Martins, 2018; Marinescu et al., 2021; Bassanini et al., 2023) - Rinz (2020) uses the employment-weighted average of the HHIs in all other commuting zones. The logic behind this approach is that the first stage teases out changes in local concentration not related to national trends in the HHI of that occupation or industry sector. It is often the case that OLS estimates of the concentration coefficient are positive – higher concentration is correlated with higher wages – but the second stage estimates reveal the expected negative sign from the oligopsony model.

It is important to clearly state what the exclusion restriction of leave-one-out instruments means in the context of employment concentration. It requires that local market wages are only affected by concentration in other geographical regions through the local HHI. That is, there can be no direct relationship between the inverse number of employers, or weighted average of external HHI, and local wages. This can be problematic if local wages are set to keep employees from moving to a more attractive labor market. For example, hotels in Saint-Tropez might have to pay their managers enough to keep them from working

in Cannes’s hotels.¹³ More so, the assumption of no reverse causality requires that the concentration of hotels in Cannes cannot be caused by wages in Saint-Tropez. Because of the strenuous assumptions in leave-one-out instruments, these results must be carefully interpreted (Angrist, 2014).

Other sources of exogenous change explored in the literature are mergers and acquisition activity and mass layoffs. Due to the endogeneity of employers’ entry and exit in labor markets defined by commuting zone and industry sector pairs, Benmelech et al. (2022) use an indicator for within-market M&A episodes in the first stage of their estimation. This way, the change in the predicted local HHI used for the second stage is merger-induced and does not contain the portion driven by the entry and exit of other establishments. Alternatively, in markets formed by commuting zones and skill clusters, Dodini et al. (2023) explore establishment closures and mass layoffs as shifters to the local labor demand curve. Because of the relationship between local concentration and wage-elasticity of the labor supply curve in oligopsony models (Azar et al., 2019), the estimated sharper wage decline following downward exogenous shifts in more concentrated markets’ demand curves is viewed by the authors as an indication of anticompetitive behavior in Norwegian labor markets. The ability to estimate labor market-wide effects of changes in local employment concentration comes with the cost of the assumptions needed to circumvent the endogeneity between wages, employment, and concentration. As an ensemble, these studies point to the robustness of the qualitative conclusion across various contexts and empirical approaches. The negative impact of HHI coefficients on worker outcomes found in this literature is consistent with the prediction of oligopsony models. To the extent that a merger might substantially alter labor market concentration, antitrust policymakers and researchers alike cannot ignore these results.

¹³Cannes and Saint-Tropez belong to two different commuting zones, as indicated by the *Bases de Zones d’Emploi* file - <https://www.insee.fr/fr/information/4652957> (accessed on June 23, 2023).

4 Employment Concentration as a Mediator of M&A Effects

The merger effects from the studies reviewed in Section 2 are, in their majority, identified by the difference between merged and non-merged firms or establishments. Without the explicit delimitation of labor markets, it is unclear how much of their estimates are driven by merger-induced changes in the competition for labor. The research mentioned in Section 3 departs from clearly defined labor markets to compute local employment concentration and estimate the effects of concentration on wages and employment within the labor market. Although based on a theory of anticompetitive behavior in labor markets, the findings from the concentration literature do not offer evidence of the direct effects of mergers on worker outcomes within labor markets.

Two other papers by Prager and Schmitt (2021) and Arnold (2022) look at the impact of mergers on local HHI and wages. The main lesson from their investigation is that mergers with minor changes in local concentration do not significantly affect wages. As Card (2022) puts it, "... these designs provide the best available evidence that employer consolidations that raise HHI have significant negative effects on wages, at least for workers who are highly attached to the affected industry."

Prager and Schmitt group hospital mergers into quartiles according to how much change in local HHI they induce. Only events in the top quartile significantly impact wages, -4.0% for administrative staff and -6.8% for nursing and pharmacy professionals. Earnings of blue-collar workers remain unchanged across the whole distribution of mergers, possibly due to a broader range of employers in this category.

Similarly, Arnold (2022) finds that only mergers in the top ventile of the change in HHI distribution induce wage declines of 3.3% in affected labor markets. Arnold's negative estimate adds to the existing literature in three ways. First, he uses job-to-job flows to weigh all other employers within the same commuting zone, regardless of industry sector, to

form a flow-probability-adjusted version of the HHI. Second, the estimation of market-level wage elasticities with respect to concentration excludes the merging firms, thus reducing confoundedness with changes in productivity or management unobserved in administrative records. Third, the estimate is robust to the inclusion of tradable industry sectors only, making it unlikely that the wage declines are a consequence of merger-induced competition changes in output markets. On the employment margin, Prager and Schmitt (2021) find no evidence of labor quantity reduction after the mergers, and Arnold (2022) does not present estimates for market-wide size effects.¹⁴ Prager and Schmitt use this fact to conclude that oligopsony may not be the underlying mechanism for the wage declines, since the model requires suppression of labor quantity to attain lower equilibrium wages. Both papers offer robust evidence that employment concentration is an informative predictor of M&A effects on worker outcomes.

5 Basis for Antitrust Intervention in Labor Markets

Do mergers that lessen competition in labor markets configure actionable harm? Traditionally, antitrust regulation has been associated with the busting of monopolies, cartels, and collusion among sellers, with the primary objective of curbing anticompetitive practices that reduce consumer welfare (Naidu et al., 2018). In other words, antitrust norms are generally perceived as a method to protect *buyers* from non-competitive behavior by sellers. Contrarily, the service workers provide is *sold* to firms. At first glance, it might seem that workers, by their quality as sellers in a labor relationship, are out of the reach of antitrust protection. However, this notion is contradicted by case law, and the argument can be made that the current normative framework *requires* antitrust agencies to safeguard workers' interests in the face of mergers posing the risk of monopsony power.

¹⁴Arnold does find negative size effects for merged establishments, but, given that dismissed workers can be re-employed in the same industry and commuting zone, it is not possible to conclude that the size of the market as a whole decreases.

Table 2: Summary of the Concentration Literature

| Study | Country | Data Source | Period | Data Remark | Type of Labor Market | Labor Market Definition | Endogeneity Correction | Estimates ^(a) | |
|-------------------------|----------|---|------------------|--|----------------------|--------------------------------------|------------------------|---|------------|
| | | | | | | | | Wage | Employment |
| Martins (2018) | Portugal | Quadros de Pessoal (MTSS) | 1991-2013 | Matched employer-employee | Occupational | Districts and 6-digit occ. code | Leave-one-out IV | -0.14% (Employees) -0.13% (New Hires) | - |
| Rinz (2020) | USA | LDB/Census, ACS, W-2/IRS | 1976-2015 | Establishment-level, and Worker-level | Industry Sector | Commuting Zone and 4-digit NAICS | Leave-one-out IV | -0.5% (LBD) -1.1%(W-2s) | - |
| Azar et al. (2020) | USA | Burning Glass Technologies (BGT), OES/BLS | 2016(I)-2016(IV) | Job vacancies | Occupational | Commuting Zone and 6-digit SOC | - | -0.43% (BGT) ^(b) -0.49%(OES) ^(c) | - |
| Marinescu et al. (2021) | France | DADS/INSEE, SUSE/DGI | 2011(I)-2015(IV) | Matched employer-employee New hires | Occupational | Commuting Zone and 4-digit occ. code | Leave-one-out IV | -0.5% | -3.2% |
| Azar et al. (2022) | USA | CareerBuilder.com | 2010(I)-2013(IV) | Job vacancies | Occupational | Commuting Zone and 6-digit SOC | Leave-one-out IV | -1.27% | - |
| Benmelech et al. (2022) | USA | CMF, ASM, LBD (Census) | 1978-2016 | Plant-level | Industry Sector | Commuting Zone and 4-digit NAICS | M&A Events | From -0.3% to -0.6% | - |
| Bassanini et al. (2023) | France | DADS (INSEE), SUSE (DGI) | 2010-2017 | Plant-level | Occupational | Commuting Zone and 4-digit occ. | Leave-one-out IV | -0.29% (new hires) -0.19% (incumbents) | - |
| Dodini et al. (2023) | Norway | Statistisk Sentralbyrå | 2003-2017 | Matched employer-employee | Skill | Commuting Zone and Skill Cluster | Mass layoffs | -2.25% ^(d) | Null |

Note: This table describes studies estimating the effects of local labor market concentration on workers' earnings and employment. Because of the endogeneity between local concentration and worker outcomes, I also report how authors aim to correct it. ^(a) The reported estimates represent the associated changes in wages and employment from a 10% increase in local labor market concentration measured by the HHI, except for Dodini et al. (2023), in the last row. ^(b) These are OLS estimates with no endogeneity correction. ^(c) These are OLS estimates with no endogeneity correction. ^(d) Measure of change in wages associated with an increase of 1,000 points in local labor market HHI, or one standard deviation in their context.

Legal Basis and Case Law - There is consensus that labor markets are within reach of antitrust action under the U.S. legal framework. In the case of mergers and acquisitions, Section 7 of the Clayton Act does not differentiate the type of market it can be applied, and, if courts agree that a merger induces a considerable decline in competition, it can be applied to block the transaction (Marinescu and Hovenkamp, 2019; Shapiro, 2019).¹⁵

Despite the relative scarcity of labor market considerations in merger analysis by courts (Marinescu and Posner, 2020), case law is abundant with DOJ challenges based on the risk of increased *buying power* among trading partners in various industries, such as agricultural and health sectors (Hemphill and Rose, 2018) - e.g., the merger of chicken processors pose competition harm in the market for purchase from chicken growers, or the merger between two health insurance providers may decrease the rates paid to physicians in a given area. As Hemphill and Rose (2018) argue, these cases' economic reasoning can be readily applied to merger challenges involving labor services.

Although this paper focuses on M&A activity, the literature also provides evidence of harmful conduct in labor markets unrelated to M&A activity. Marinescu and Hovenkamp (2019) and Shapiro (2019) mention the notable case of a no-poaching agreement among Adobe, Intel, Pixar, Google, Apple, and Intuit, where the firms decided not to cold call each other's tech engineers in an attempt to recruit them; the firms later settled in a class action brought by the DOJ.¹⁶ No-poach agreements between employers are not restricted to highly specialized professionals. As shown by Krueger and Ashenfelter (2022), no-poaching clauses are pervasive in franchise contracts, covering jobs at the low end of the earnings distribution, such as food and tax preparers. The low-wage and high-turnover nature of these jobs weakens the appeal of arguments using job-specific training and investment costs to justify using such

¹⁵From the 15 U.S. Code §18: "No person engaged in commerce or in any activity affecting commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no person subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another person engaged also in commerce or in any activity affecting commerce, where in any line of commerce or any activity affecting commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition or to tend to create a monopoly."

¹⁶DOJ Press Release 10-1076: <https://www.justice.gov/opa/pr/justice-department-requires-six-high-tech-companies-stop-entering-anticompetitive-employee>.

clauses economically. Collusion among employers to restrict wages and worker mobility fall under practices forbidden by the Sherman Act (Naidu et al., 2018; Shapiro, 2019; Marinescu and Hovenkamp, 2019).

Consumer and Trade Partner Welfare Doctrines - In their widely cited “Mergers that Harm Sellers” paper, Professors Scott Hemphill and Nancy Rose argue, on the grounds of the existing legal framework and the numerous precedents in case law, that antitrust protection is not restricted to consumers only. In their view, courts’ admittance of upstream harm caused by the concentration of buyers gave rise to a broader doctrine of antitrust reach, where consumers’ and trading partners’ welfare, in general, are included. Independent of the doctrine, however, monopsony, or oligopsony, does carry negative implications for the welfare of consumers under certain circumstances.

In a monopoly, an increase in output is accommodated by a decrease in the price per unit, given the negative slope of the demand curve, which causes the revenue raised on the preceding units to fall. This is represented by a marginal revenue curve that is decreasing on output and lies below the demand curve. Similarly, given the positive slope of the labor supply curve, when hiring a marginal unit of labor, the monopsonist faces an increase in the wage bill of the previously employed units. That is, the monopsonist’s marginal cost of hiring is increasing on employment and lies above the labor supply curve. For this reason, argue Naidu et al. (2018), the monopsonist’s overall marginal cost of production can be higher than that of an employer in a competitive labor market, where the marginal cost of hiring is flat and equal to the prevailing wage rate. Coupled with pricing power in output markets, monopsony harms consumer welfare.

6 Recommendations to Antitrust Agents and Policymakers

In this section, I offer suggestions for antitrust policy to address the potential harm in labor market competition stemming from mergers and acquisitions. My intention is not to provide a guideline list that covers all possible contingencies in merger analysis, but to develop principles based on the economic nature and empirical evidence of monopsony power in labor markets. The similarity between monopoly and monopsony is often reminded by scholars who study the subject, and not surprisingly, the recommendations are partly inspired by the existing apparatus of buyer protection.¹⁷

Recommendation I – Reject Lower Labor Costs From Monopsony Power as Merger Efficiencies

When challenged, the merging parties will often attempt to provide evidence that the merger creates efficiencies that offset the potential anticompetitive inclination to raise output prices. They have to prove that production efficiencies will be significant enough such that, on balance, the product price will fall regardless of the increase in market power. In addition, the proclaimed efficiencies must be merger-specific, i.e., unattainable in the absence of the merger (Naidu et al., 2018). Thus, if a firm consolidation yields wage-setting power in labor markets, challenged parties may use the lower labor costs as an efficiency gain from the merger, which can be passed along in the form of lower prices and larger quantities available to their consumers. There are at least two compelling reasons to doubt the validity of this claim. First, from case law, the antitrust doctrine does not allow the welfare gains in one market to offset the losses of another (Hemphill and Rose, 2018; Naidu et al., 2018). Second, while it is true that the total wage bill of a monopsonist is lower than that of an employer in a

¹⁷There is a burgeoning literature on the topic of labor markets from the point of view of Law and Economics, and this section is based on some of the most prominent of these recent studies (Hemphill and Rose, 2018; Naidu et al., 2018; Shapiro, 2019; Marinescu and Hovenkamp, 2019; Marinescu and Posner, 2020).

competitive labor market, the relevant variable for determining the profit-maximizing output is the *marginal* cost, which, all else equal, is higher for the monopsonist producer, from the logic presented before. Therefore, the justification for consumer welfare enhancement from lower labor costs is economically faulty. The most probable scenario, as pointed out by economic theory, and the empirical evidence of increased market concentration in product markets (Grullon et al., 2019), is one where merging parties with increased buying power in labor markets will restrict production and increase output prices even further, worsening the welfare of consumers and workers alike.

Recommendation II – Focus the Labor Market Analysis to Mergers with None to Narrow Product Overlap

Antitrust enforcement resources are scarce, and universally adding labor market scrutiny to all merger challenges may lead agencies to act upon fewer cases overall. In the words of Prof. Nancy Rose, “[this] tradeoff is not an obvious improvement for consumers, workers, or our overall society.”¹⁸ Mergers between competitors in sufficiently concentrated product markets already trigger analysis by the FTC, according to its Horizontal Merger Guidelines. Measured by the safeguard of workers’ interests, the highest return of labor scrutiny might be in merger cases that would, under the *status quo*, “fly under the radar” given their lack of overlap in the product market, but where the merging entities source professionals from a common pool nonetheless. Empirically, Table 2 shows that negative elasticities between occupational markets concentration and wages were obtained both in the context of vacancy posts (Azar et al., 2020, 2022) and on-the-job records (Marinescu et al., 2021; Bassanini et al., 2023). Concomitantly, collusion among seemingly unrelated employers in anti-poaching agreements points to the irrelevance of product concentration in labor market competition, at least for some occupations. In Section 5, the case involving tech firms included Intuit and Pixar, a tax-software company and an animation studio. As highlighted in Marinescu and

¹⁸See Rose (2019).

Hovenkamp (2019), the voluntary association of the participating firms indicates that they could profit from the agreement, that the workforce under the arrangement constituted a relevant labor market, and, third, that a merger between them would be anticompetitive in that labor market.

Recommendation III – Use Current HHI Thresholds as Upper Bounds in Labor Markets

The empirical literature in Section 3 shows that employment concentration matters in labor markets. The negative wage elasticities are obtained from various worker subpopulations, be it applicants in the case of job vacancy posts (Azar et al., 2020, 2022), newly hired workers (Marinescu et al., 2021; Bassanini et al., 2023), or those already employed (Martins, 2018; Rinz, 2020; Benmelech et al., 2022). When mergers are directly accounted for, their impact on concentration is a predictor of the ultimate wage effect, whether labor markets are defined by occupation (Prager and Schmitt, 2021), or industry sectors (Arnold, 2022).¹⁹

The FTC’s Horizontal Merger Guidelines offer a scale of concentration measured by HHI to classify markets as *Unconcentrated* (HHI below 1,500), *Moderately Concentrated* (HHI between 1,500 and 2,500), and *Highly Concentrated* (HHI above 2,500). The thresholds have been widely used for product markets scrutiny, but there are reasons to suspect their ample-ness if promptly transferred to labor markets (Naidu et al., 2018; Marinescu and Hovenkamp, 2019). Monopsony is thought to be the mirrored version of monopoly, and the similarity may lead to the conclusion that competition in labor markets is similar to that of product markets. Naidu et al. (2018) raise the point that labor markets are more predisposed to monopsony than product markets are to monopoly, for the following reasons: (i) while the purchase of products only requires the consumer’s willingness and ability to acquire that

¹⁹Early indications of the importance of concentration can also be found in the literature covered in Section 2. Despite concentration not being an object of interest in their investigation, McGuckin and Nguyen (2001) and Conyon et al. (2004) estimate merger wage effects that are decreasing on the acquirer’s size. All else equal, the larger an employer is, the more concentrated will be its labor market, and, according to their estimates, lower expected wages ensue.

particular good, a labor contract requires both seller and buyer to agree – labor markets are *double-sided*, in the matching literature terminology; (ii) in the current globalized and connected economy, goods are quickly shipped, transferred, and commerce is less local than it used to be – contrarily, labor services require a physical presence in the workplace, restricting the available options to prospective workers and employers within geographical bounds; (iii) product characteristics are more easily comparable, and the purchase choice is often non-consequential, while non-wage benefits and work amenities make jobs challenging to compare, especially given long-term career consequences. Labor markets are thus likely *thinner* than product markets in general, which calls for lower thresholds to trigger antitrust scrutiny.

Recommendation IV – Drop Labor Quantity Requirements In Wage-Setting Evaluation

Lower competition among buyers does not always simultaneously result in lower prices and quantity. Hemphill and Rose (2018) distinguish buyer power between cases of *classical monopsony*, where changes in both the quantity and price margins occur, and cases of *increased bargaining leverage*, where there is no decline in the amount purchased but the price per unit falls. In the increased bargaining leverage situation, buyers appropriate surplus from sellers by decreasing the outside value of the transaction, forcing sellers to negotiate in unfavorable terms. In the case of labor markets, a merger between two employers may not necessarily result in fewer jobs, but lower wage rates overall, since the merger precludes workers from each merging entity to seek the other as an outside option. This is consistent with empirical evidence related to hospital mergers and their negative wage impact on the nursing staff – Prager and Schmitt (2021) does not find evidence of employment decrease even among the mergers inducing wage decreases, similar to Currie et al. (2005) who finds negative effort-adjusted wages for registered nurses despite no increase in separations. According to Hemphill and Rose (2018), the absence of employment effects should not excuse the merger

and prevent antitrust from protecting workers' welfare, because a reduction in competition is what entailed employers' increased leverage in the wage negotiation. Thus, if antitrust agencies and courts require proof of reduced quantity as a necessary condition to rule buyer power, they will risk approving anticompetitive mergers, especially if the workers involved are employed in sectors with inelastic demand, such as health-related activities.

Recommendation V – Apply The Hypothetical Monopsonist Test to Relevant Labor Markets

Authors have suggested that the FTC can include in its guidelines a monopsony version of the *Hypothetical Monopolist Test* to determine the relevant labor market (Naidu et al., 2018; Marinescu and Hovenkamp, 2019; Azar et al., 2020). The idea is to use supplemental measures of wage markdowns and labor supply elasticities to compute an equivalent expression for evaluating product markets. The test aims to find the smallest labor market on which a hypothetical monoposonist would find it profitable to impose a small, significant non-transitory wage decrease (SSNDW). More precisely, the test considers the critical labor supply elasticity with respect to wage w , $\varepsilon_{L,w}$, given by

$$\varepsilon_{L,w} = \frac{1}{\mu + \frac{\Delta w}{w}}$$

where μ is the wage markdown, and $\Delta w/w$ represents the SSNDW.²⁰ In monopolized product markets, the benchmark for price increase is 5%. Naidu et al. (2018) and Marinescu and Hovenkamp (2019) suggest that the same amount can be used for the SSNDW. Measures of the wage markdown μ will vary according to the case under analysis. Still, the average for the U.S. manufacturing sector is 0.538; that is, workers keep 65 cents of the marginal dollar revenue (Yeh et al., 2022).²¹ With $\mu = 0.538$ and a hypothetical decrease in wages of 5%, the critical labor supply elasticity is equal to 1.7, approximately. That is, a hypothetical

²⁰A derivation of the critical elasticity formula can be found in Section 3.4 of (Azar et al., 2020).

²¹Explicitly, $\mu = \frac{1-0.65}{0.65} \approx 0.538$.

monopsonist would find it profitable to decrease wages by 5% in a market with labor supply elasticity less than or equal to 1.7. Suppose the elasticity is estimated to be higher than 1.7 for the suggested market under analysis. In that case, the market is too narrow, and the next closest employer, occupation, or industry sector should be added before proceeding to another iteration of the elasticity estimation. Unless the merging parties are part of labor markets with a proven markdown above 53.8%, labor supply elasticities below 1.7 indicate the market's relevance.

7 Conclusion

The empirical study of merger activity's effects on workers has two strands. The first one stemmed from the surge in corporate control changes operated via capital markets in the early 1980s. The focus of economic research at the time was on the rupture of informal arrangements between management and other employees, and why the renegeing of these implicit contracts could cause higher equity returns following hostile takeovers. Later, when globalization allowed the flow of capital across national borders, the attention switched to the effect on domestic workers in companies subject to foreign acquisition. The results of this literature vary in magnitude and sign, and their informative value to antitrust is limited due to the challenge of attributing their findings to changes in the competition for labor services.

A second literature originates in the late 2010s, when attention was brought to the rise of "superstar" firms and the possibility that their dominance could explain the downward trend in the labor share of national income observed on both sides of the North Atlantic. The debate around the causes of the fall in the labor share is still open, but it instigated a proliferation of studies dedicated to employment concentration. Authors leveraged the availability of data that allows direct measurement of concentration in clearly defined labor markets. The findings point to a negative relationship between concentration and worker

outcomes in different segments of the labor force (applicants, new hires, and incumbents), across choices of labor market design (whether by occupation or industry sector), and in several countries.

Unlike the earlier merger literature, the estimates in the second wave of papers have straight parallels in models of imperfectly competitive labor markets. As mergers mechanically increase the concentration faced by workers of the merging parties, and other workers in the same labor market, the associated lessening of competition suggested by the empirical literature calls for antitrust intervention.

Antitrust’s legal basis and case law in the United States are compatible with intervention in mergers that threaten competition in the labor market, whether under a narrow interpretation of the consumer welfare doctrine or a broader one that includes merging firms’ trading partners in general. Given the similarity between monopoly and monopsony, the accumulated experience and devices from antitrust enforcement in product markets require little adaptation in the context of labor markets, except for some consideration of intrinsic aspects of labor relationships.

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