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Accounting for the Employee-Employer Relationship in Antitrust Analysis

Justin McCrary and Bryan Ricchetti

In October 2016, the Obama administration called for policymakers and regulators to increase scrutiny of monopsony power in labor markets.[1] The administration released an "issue brief" from its Counsel of Economic Advisors, while, at the same time, the Department of Justice ("DOJ") and Federal Trade Commission ("FTC") released antitrust guidance for human-resource professionals.[2] The DOJ has also brought a string of criminal no-poach cases since 2016 as part of this shift in policy.[3] More recently, in an executive order issued in July 2021, President Biden expressed his administration's determination "to combat the excessive concentration of industry, the abuses of market power, and the harmful effects of monopoly and monopsony—especially as these issues arise in labor markets."[4] Then, on March 7, 2022, the Treasury Department published a report on the "state of labor market competition" that included proposals for new legislation and antitrust enforcement meant to "improve competition for American workers."[5]

This policy focus has been accompanied by an increase in antitrust litigation that centers on labor-market restraints, including non-compete clauses and no-poach clauses. This includes the criminal no-poach cases noted above, a wave of private class-action lawsuits that challenge no-poach and/or non-solicitation clauses in franchise agreements,[6] and investigations by state

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[1] Press Release, The White House, Obama Administration Announces New Steps to Spur Competition in the Labor Market and Accelerate Wage Growth (Oct. 25, 2016), https://obamawhitehouse.archives.gov/the-press-office/2016/10/25/fact-sheet-obama-administration-announces-new-steps-spur-competition.

[2] *See generally*, Council of Econ. Advisers, Labor Market Monopsony: Trends, Consequences, and Policy Responses (2016), https://obamawhitehouse.archives.gov/sites/default/files/page/files/20161025_labor_mrkt_monopsony_cea.pdf; U.S. Dep't of Justice & Fed. Trade Comm'n, Antitrust Guidance for Human Resource Professionals (2016), https://www.justice.gov/atr/file/903511/download.

[3] *See, e.g.*, Criminal Indictment, United States v. Hee, No. 2:21-cr-00098 (D. Nev. Mar. 30, 2021), https://www.justice.gov/opa/press-release/file/1381556/download; First Superseding Indictment, United States v. Jindal, No. 4:20-cr-00358 (E.D. Tex. Apr. 15, 2021), https://www.justice.gov/opa/press-release/file/1387866/download; Indictment, United States v. Davita Inc., No. 1:21-cr-00229 (D. Colo. July 14, 2021), https://www.justice.gov/opa/press-release/file/1412606/download; Indictment, United States v. Patel, No. 3:21-cr-00220 (D. Conn. Dec. 15, 2021), https://www.justice.gov/opa/press-release/file/1457091/download; Superseding Indictment, United States v. Surgical Care Affiliates, No. 3:21-CR-011-L (N. Tex. July 8, 2021), https://www.justice.gov/atr/case-document/file/1411111/download.

[4] Exec. Order No. 14,036, 86 Fed. Reg. 36987, 36988 (July 9, 2021), https://www.whitehouse.gov/briefing-room/presidential-actions/2021/07/09/executive-order-on-promoting-competition-in-the-american-economy.

[5] U.S. Dep't of the Treasury, The State of Labor Market Competition 52 (2022), https://home.treasury.gov/system/files/136/State-of-Labor-Market-Competition-2022.pdf.

[6] *See, e.g.*, Class Action Complaint, Deslandes v. McDonald's USA, LLC, No. 1:17-cv-04857 (N.D. Ill. June 28, 2017); Class Action Complaint, Butler v. Jimmy John's Franchise, LLC, No. 3:18-cv-00133 (S.D. Ill. Jan. 24, 2018); Class Action Complaint, Davidow v. H&R Block, Inc., No. 4:18-cv-01022 (W.D. Mo. Dec. 31, 2018).

attorneys general.[7] More recently, the FTC has proposed a ban on non-compete clauses,[8] which President Biden highlighted in his 2023 State of the Union address.[9]

As these points show, courts and agencies are engaging deeply in antitrust analysis of labor-market restraints. In this paper, we discuss a defining feature of that analysis—a feature that differentiates it from antitrust analysis of product-market restraints. That feature is the employee-employer relationship.

[W]e can expect that worker to evaluate the anticipated long-term value that the employment relationship will generate. Unlike many product and input markets, labor markets can and typically do generate lasting relationships.

As we detail below, labor economists widely recognize that investments from each side of the employee-employer relationship can enhance the value of the relationship. For example, employers routinely invest in training workers because improvements in workers' skills increase their productivity, which benefits the firm. Workers, in turn, benefit from such investments in the form of higher compensation and a longer-run career path at the firm. In other words, the employee-employer relationship is one that benefits from relationship-specific investments. In that context, both parties generally lose when the relationship ends. This means that contractual restraints that protect the relationship can be economically rational for both parties and can make both parties better off. Further, from an antitrust perspective, the fact that employees and employers are in a vertical relationship has important implications for competitive analysis of such contractual restraints.

Next, we discuss how the incentives for both workers and firms to invest in a long-run relationship, and the vertical aspects of the relationship, have important implications for three antitrust topics of interest in labor markets today: non-compete clauses, no-poach agreements, and empirical analysis of labor-market power. As we explain within each topic, failing to account for the incentives and benefits that arise within long-term employee-employer relationships can lead to incomplete and incorrect economic analysis.

The Economics of Employee-Employer Relationships

When a worker makes an employment decision, we can expect that worker to evaluate the anticipated long-term value that the employment relationship will generate. Unlike many product and input markets, labor markets can and typically do generate lasting relationships.[10] According to the Bureau of Labor Statistics, in 2022, the median worker in the U.S. had a tenure of over four years with an employer.[11] Labor economists recognize that "matching the right firms to the right workers (as well as matching workers to the most appropriate jobs within the firms) creates economic value

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[7] *See, e.g.*, Press Release, Wash. State Off. of the Att'y Gen., AG Report: Ferguson's Initiative Ends No-Poach Practices Nationally at 237 Corporate Franchise Chains (July 16, 2020), https://www.atg.wa.gov/news/news-releases/ag-report-ferguson-s-initiative-ends-no-poach-practices-nationally-237-corporate; Press Release, Ill. Att'y Gen., Attorney General Madigan Announces Investigation of No-Poach Agreements at National Fast Food Franchises (July 9, 2018), https://ag.state.il.us/pressroom/2018_07/20180709.html.

[8] Press Release, Fed. Trade Comm'n, FTC Proposes Rule to Ban Noncompete Clauses, Which Hurt Workers and Harm Competition (Jan. 5, 2023), https://www.ftc.gov/news-events/news/press-releases/2023/01/ftc-proposes-rule-ban-noncompete-clauses-which-hurt-workers-harm-competition.

[9] Address Before a Joint Session of the Congress on the State of the Union, 2023 Daily Comp. Pres. Doc. 10 (Feb. 7, 2023), https://www.govinfo.gov/content/pkg/DCPD-202300096/pdf/DCPD-202300096.pdf.

[10] Edward P. Lazear & Michael Gibbs, Personnel Economics in Practice 51 (3rd ed. 2014); Gary S. Becker, Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education (3rd. ed. 1994); Daron Acemoglu & Jörn-Steffen Pischke, *Beyond Becker: Training in Imperfect Labour Markets*, 109 Econ. J. 112 (1999).

[11] Bureau of Lab. Stat., U.S. Dep't of Lab., Employee Tenure in 2022, at 1 (2022), https://www.bls.gov/news.release/pdf/tenure.pdf.

of a magnitude that few other economic processes can."[12] The value of the relationship depends on investments from both sides in training, work experience, education, and other types of skills. Some investments are firm-specific, meaning that the resulting skills are not transferable to other jobs.[13] To cite an example from Nobel Laureate Gary Becker's seminal work, the military offers some forms of training that are easily transferable to civilian occupations (*e.g.*, showing up to work on time), but specialized aspects of training (*e.g.*, how to be "fighter pilots or missile men") may be of less use outside of military occupations.[14]

The value created by a match between a worker and employer, and the relationship-specific investments that both parties make in the relationship, mean that, if the match is strong, the worker may prefer to keep an existing job rather than accept offers for other jobs with higher wages but with less attractive non-wage features. That is, there is a trade-off between job mobility and seeking higher wages, on one hand, and maximizing the value of the employment relationship with regard to all features of the job (including non-wage components), on the other. Moreover, the value of relationship-specific investments may increase with a worker's tenure.

Ensuring that both the worker and the firm have the incentive to engage in relationship-specific investments, however, can require careful calibration. While both the worker and firm can benefit from investments in workers' skills, those investments require the firm to pay upfront costs (typically monetary outlay) and the worker to do the same (typically effort). The firm and worker might hesitate to absorb these costs if either perceives a significant risk that the other party will terminate the relationship now or in the future. Economists widely recognize these types of incentive misalignments; indeed, a large sub-field of labor economics analyzes these problems.[15]

These economics highlight an important issue for the antitrust analysis of labor markets: the employer-employee relationship has many parallels with a vertical supplier relationship. As with any supplier relationship, the worker supplies skills, expertise, and time to the firm, and the firm and worker must agree to the terms of their relationship, which can include both monetary compensation and other elements. Importantly, contract provisions between employees and employers (*i.e.*, vertical restraints) that incentivize investments in the relationship that benefit both parties can help solve the incentive misalignment issues detailed above, unlock economic value, and strengthen labor-market competition.[16]

The Economics of Employee-Employer Relationships Can Be Critical to Antitrust Analysis in Labor Markets

In this section, we apply the economic framework outlined above to three antitrust topics of current interest for policymakers and regulatory agencies: (1) the use of non-compete clauses and their effects on labor market competition; (2) the conditions under which no-poach clauses can

[12] Edward P. Lazear & Paul Oyer, *Personnel Economics*, *in* The Handbook of Organizational Economics 479, 492 (Robert Gibbons & John Roberts eds., 2012). The quality of a match can depend on a firm's comparative advantage in offering a compensation package (wages, benefits, flexibility, enjoyable work, etc.) that the worker values. *Id.* at 499.

[13] Becker, *supra* note 10.

[14] Becker, *supra* note 10.

[15] *See, e.g.*, Becker, *supra* note 10; William Chan, *External Recruitment versus Internal Promotion*, 14 J. Lab. Econ. 555, 556–57 (1996); George Akerlof, *Labor Contracts as Partial Gift Exchange*, 97 Q.J. Econ. 543 (1982).

[16] It is widely recognized by economists that the use of vertical restraints in supplier relationships, more generally, has the possibility to generate procompetitive benefits and strengthen competition. *See, e.g.*, Dennis W. Carlton & Jeffrey M. Perloff, Modern Industrial Organization (4th ed. 2005) (providing a chapter on "Vertical Integration and Vertical Restraints").

have procompetitive rationales; and (3) a general concern expressed by some recently that labor markets are becoming more concentrated and diverging from a competitive paradigm such that monopsony power is more common.

In particular, we highlight several specific ways in which employers and employees alike would benefit if antitrust analysis and antitrust-enforcement efforts account for the incentives of both employees and employers to invest in the employment relationship to maximize the relationship's economic value.

Antitrust Scrutiny of Non-Competes. As noted above, in January 2023, the FTC announced a proposal for a new rule to ban non-compete clauses because, in the FTC's view, these clauses constitute an "unfair method of competition." The DOJ has also expressed concerns recently about the potential effects of non-competes on labor-market competition. For example, in February 2022, the DOJ issued a Statement of Interest regarding a non-compete lawsuit involving Pickert Medical Group in Nevada. In that statement, the DOJ opined that the "principles of federal antitrust law" may be useful in analyzing non-compete clauses, and then laid out conditions under which non-competes can lead to antitrust harm.[17]

These antitrust concerns focus on "horizontal concerns" in two possible dimensions.[18]

First, by preventing workers from seeking employment at competing employers, non-competes can restrict labor-market mobility. If a firm with a large enough share of a relevant labor market uses non-competes to restrict mobility, the firm's conduct could potentially create anticompetitive effects in that market.

Second, if employees subject to non-competes are potential competitors in the product market to their employers, non-competes could potentially harm competition in the product market. This was the focus of the DOJ's concerns in the *Pickert* matter. There, Pickert Medical Group had non-compete clauses with its anesthesiologists, who together represented two thirds of all anesthesiologists in the local market. The DOJ argued that the non-competes restricted competition in the downstream market for anesthesiology services by eliminating as potential competitors to Pickert the vast majority of providers of those services. In short, the DOJ viewed the non-competes as agreements between horizontal competitors in the product market.[19]

Although these types of horizontal agreements may raise legitimate competition concerns, a complete analysis of the potential competitive effects of non-compete clauses (in either a labor market or a product market) must also analyze the *vertical* aspects of non-competes. In particular, non-compete clauses are generally part of a specific vertical supplier relationship between the worker and the firm. As detailed above, this type of contract clause can help align incentives and strengthen investments in the relationship. Indeed, the DOJ recognized these economic principles in its Statement of Interest in the Pickert case, stating that:

Although these types of horizontal agreements may raise legitimate competition concerns, a complete analysis of the potential competitive effects of non-compete clauses (in either a labor market or a product market) must also analyze the vertical aspects of non-competes.

> "Where employees and employers are not actual or potential competitors, a post-employment non-compete agreement likely qualifies as a vertical restraint. The employee has agreed not to provide his or her labor as an input to certain direct competitors of the employer, who are not parties to the agreement.

[17] Statement of Interest of the United States at 1, 12, Beck v. Pickert Medical Group, No. CV21-02092 (D. Nev. Feb. 25, 2022) [hereinafter Statement of Interest on Pickert Case], https://www.justice.gov/atr/case-document/file/1477091/download.

[18] We note that non-compete clauses also raise other legal questions beyond antitrust. The focus of our analysis in this paper is on the antitrust implications of non-competes.

[19] Statement of Interest on Pickert Case, *supra* note 17, at 6.

In this context, the non-compete agreement is between parties 'at different levels of distribution' and governs matters over which they do not compete."[20]

The economic logic of how non-competes can generate procompetitive investments in employee-employer relationships is straightforward. Consider a firm interested in hiring a worker where the firm knows that the worker and the firm will need to make significant joint investments in the worker to make the relationship valuable—like training specific skills, sharing specialized knowledge, or sharing trade secrets or confidential business information. If the investments are costly to the firm and worker, then making the investments carries risk. Either the worker or firm can end the relationship at any time. As with any investment, the firm and worker will only make the investment if the expected returns outweigh the cost. Non-compete clauses can be a mechanism that helps incentivize the investments, which benefit both workers and employees. Again, the DOJ recognized these principles in the Statement of Interest in the Pickert matter.[21]

Of course, the existence of these principles does not mean that all non-competes achieve procompetitive benefits. If non-competes exist where there are not training benefits to be had, where the non-competes are overly broad relative to the incentive problem that they seek to resolve, or where the employer controls a large enough share of a relevant labor market to potentially exercise market power, any possible downward effect of non-competes on compensation might outweigh the potential benefits from training. Conversely, to the extent that non-competes are relatively narrow, apply to a subset of outside options, and have potential to encourage more training, the effects on compensation would be expected to be small or zero.

Academic research has sought to quantify the effects of non-competes by leveraging the fact that different states have different rules regarding them. This research is broadly consistent with two possibly competing effects of non-competes. On the one hand, non-competes might enhance efficiency. For example, a recent paper finds that firms that are more dependent on human capital spend more on physical capital investments in regions where non-competes are enforced.[22] That is, when there is complementarity between human capital and physical capital, enforceability of non-competes can support investment. Similarly, a 2019 paper found that firms spend more on firm-specific training in states with stronger enforceability of non-compete clauses.[23] On the other hand, these papers also find some evidence in some locations of lower wages where non-competes

[20] Statement of Interest on Pickert Case, *supra* note 17, at 7 n.7. We note that, even where employees and employers are potential horizontal competitors (as the DOJ argued in *Pickert*), there is still a vertical aspect to the employee-employer relationship that should be accounted for when assessing the competitive effects of a non-compete clause.

[21] Statement of Interest on Pickert Case, *supra* note 17, at 9 (discussing the need to "protect the employer's incentives to invest in their employees").

[22] *See* Jessica S. Jeffers, The Impact of Restricting Labor Mobility on Corporate Investment and Entrepreneurship 39 (April 2023) (unpublished manuscript), https://sites.google.com/view/jessicajeffers/research.

[23] *See* Evan Starr, *Consider This: Training, Wages, and the Enforceability of Covenants Not to Compete*, 72 Indus. & Lab. Rels. Rev. 783, 783 (2019).

are present.[24] These considerations underscore that non-competes have potential procompetitive benefits as well as potential anticompetitive effects.[25]

In summary, from an economic perspective, non-competes should generally be viewed as vertical restraints that have potential procompetitive effects in certain circumstances. As a result, outright bans of non-competes risk being an overcorrection.[26] More targeted regulations of non-competes that seek to limit their use in specific circumstances where anticompetitive effects are more likely would allow for the continued use of pro-competitive non-competes. For example, a federal ban on non-competes is more blunt than the current approach of allowing states to pursue different policy approaches. Further, from an antitrust-litigation perspective, the potential for non-competes to have procompetitive benefits raises the importance of economic analysis of (1) the business model and business rationale for the non-competes and (2) the size of the firm and the structure and nature of competition in the relevant labor market.

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Antitrust Scrutiny of No-Poach Clauses. The economic incentives in employee-employer relationships can also be important when analyzing no-poach cases. Prominent recent examples include the wave of no-poach cases involving business-format franchises.[27]

A defining feature of business-format franchises is the standardization and consistency of products and services. Consumers frequent popular fast food—or quick-service restaurants—like Burger King, Pizza Hut, Subway, and others because they value the consistency of the quality of the product across locations. This business model, however, creates a need for investment and training in workers in order to ensure consistency of brand standards and production processes across the locations within the franchise. Indeed, franchisors help ensure such consistency of brand standards and production processes through contractual rules in franchise agreements with each individual franchisee.

Labor market restraints *within* a franchise brand are thus part of the broader vertical relationship between a franchisor and franchisee, and they can incentivize individual franchisees to invest in employees by assuring franchisees that other franchisees will not usurp those investments by poaching the worker after the training investment has occurred. In the absence of restrictions on labor mobility, a franchisee would have the economic incentive to hire a worker after the worker had already been trained by another franchisee, *i.e.*, to "free ride" on the investment of the other franchisee. Labor-mobility restrictions that increase the franchisee's incentive to train employees can, in turn, benefit employees by increasing their skills and can create incentives for employee promotion within a franchisee's store. Those same restrictions can also strengthen the brand overall, which can strengthen interbrand competition in the product market.

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[24] *See* Starr, *supra* note 23 ("[A]n increase from non-enforcement of noncompetes to mean enforceability is associated with a 4% decrease in hourly wages.").

[25] The differing regulatory regimes in California and Washington have also been cited in the debate over the effect of non-competes. Ron Gilson argued in a 1999 paper that Silicon Valley flourished compared to other technology labor markets precisely because of California's long-standing view that non-competes are unenforceable. *See* Ron Gilson, *The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants Not to Compete*, 74 N.Y.U. L. Rev. 575 (1999). However, until 2019, Washington State had the opposite regime, enforcing non-competes, and also developed as one of the strongest technology labor markets in the country. These differing state regimes with similar success in technology labor markets are broadly consistent with the idea that the competitive effects of non-competes will differ across market circumstances.

[26] *See* Robert W. Gomulkiewicz, *Leaky Covenants-Not-to-Compete as the Legal Structure for Innovation*, 49 U.C. Davis L. Rev. 251, 252 (2015). Gomulkiewicz argues that Washington's approach—whereby non-competes are present, but rarely enforced, and only then if deemed reasonable by the trier of fact—is superior to California's "blunt instrument" ban.

[27] *See* cases cited *supra* note 6.

Importantly, the fact that these restraints are *intrabrand* ensures that franchisors and franchisees are not insulated from broader labor-market pressure imposed by other brands and other potential employers. For example, a within-franchise no-poach or non-solicitation agreement for, say, one fast food chain does not prevent workers at that chain from working in any other chain of restaurants, nor does it prevent those workers from moving to any other service job (retail stores, gig economy, Amazon warehouses, and so on). That is, the narrow scope of the clause backstops against concerns of wage suppression. In short, a single brand is unlikely to be a properly defined labor market, thereby limiting the risk of an exercise of market power by a single franchise.

This economic logic can also apply to no-poach cases brought as criminal cases. For example, in the recent *Patel* matter, the challenged no-poach clauses were clauses between Pratt & Whitney (a large aerospace engineering firm) and a set of outsourcing firms that Pratt & Whitney used to identify relevant talent for its projects.[28] Defendants argued that the challenged conduct was fundamentally vertical in nature because Pratt & Whitney was a customer of the outsourcing firms, who provided it with a service.[29]

From an economic perspective, this case raises two interesting considerations. First, the outsourcing firms are in a vertical relationship with the hiring firm. Second, the outsourcing firms' business model depends on the specific relationships that they have with their workers. The firm invests in those relationships by finding jobs that fit the workers' skills, and the workers increase their chances of finding job matches by maintaining and improving their skills. Given these investments, it can be risky for outsourcing firms to embed their best workers with another firm (in this case, Pratt & Whitney) that also employs workers with similar skills. Within this context, clauses between the outsourcing firm and its client that limit solicitation or poaching efforts are possibly ancillary to the broader vertical relationship, and can play the procompetitive role of ensuring that outsourcing firms are willing to supply their workers to firms like Pratt & Whitney in the first place. This approach helps expand labor-market opportunities for workers at the outsourcing firms. It is notable, that on April 28, 2023, U.S. District Court Judge Victor A. Bolden acquitted the defendants in the *Patel* matter (under Criminal Procedure Rule 29) citing, in part, to the plaintiffs' burden to establish the alleged agreement was in fact "naked [and] non-ancillary."[30]

In summary, as with non-compete clauses, any analysis of a no-poach clause must assess the broader economic context of the alleged agreement and the incentives of the employer-employee relationships at issue. In particular, when a no-poach clause is part of a vertical relationship (or of a broader collaboration), it can help align incentives for firms to invest in worker's skills and/or expand employment opportunities between firms. Recent rulings, including *Patel*, have recognized these complexities.

Antitrust Analysis of Market Concentration, Market Power, and Labor-Supply Elasticity Estimates. The existence of valuable relationship-specific investments between employers

[28] Indictment, United States v. Patel, No. 3:21-cr-00220 (D. Conn. Dec. 15, 2021), https://www.justice.gov/opa/press-release/file/1457091/download; Consolidated Class Action Complaint, Borozny v. Ratheon Technologies, No. 3:21-cv-1657 (D. Conn. May 9, 2022).

[29] Memorandum of Law in Support of Defendants' Joint Motion to Dismiss the Indictment at 2–3, United States v. Patel, No. 3:21-cr-00220 (D. Conn. June 29, 2022), https://fingfx.thomsonreuters.com/gfx/legaldocs/byvrjaddzve/patel-dismiss-2022-06-29.pdf.

[30] United States v. Patel, No. 3:21-cr-00220, 2023 WL 3143911, at *5 (D. Conn. Apr. 28, 2023) ("In reply, Defendants argue that the Government has not met its burden to prove the charged market allocation agreement existed because the evidence 'does not permit a reasonable juror to find that the alleged agreement amounted to a naked, non-ancillary restraint.' . . . Defendants also argue that 'even if the [G]overnment had presented evidence sufficient for the jury to find that Defendants entered into a market allocation agreement . . . , it still would not be entitled to present its case to the jury on a *per se* theory of liability without proving that the alleged agreement was in fact a naked, non-ancillary one.' The Court agrees.") (internal citations omitted).

and employees can also pose a methodological challenge for empirical assessments of market power and market definition in labor markets—in particular, for empirical analyses of the elasticity of labor supply, which often play a central role in economic analyses of monopsony power.

We begin with the definition of labor-supply elasticity and why it is important to monopsony analysis. The labor-supply elasticity for a firm measures how responsive its workers are to outside job opportunities when compensation changes. If a large number of workers would leave a firm when the firm lowers pay, the labor-supply elasticity is considered elastic. But if very few workers would leave the firm when the firm lowers pay, economists would say the labor supply is inelastic. This type of inelasticity is often viewed as evidence of potential monopsony power.

[R]ather than focusing on job-switching in response to changes in only salary or wages, analyses should focus on job switching in response to changes in the overall value of the relationship . . .

A fundamental challenge in trying to measure labor-supply elasticities is properly measuring the overall value to workers of their relationship with their employers. In many situations, data on wages and monetary compensation are available, while data on valuable non-wage factors do not exist (and might be difficult or impossible to measure).[31] As a result, many empirical estimates of labor-supply elasticities rely only on workers' propensity to change jobs in response to changes in *the monetary components of compensation*.

For this reason, such estimates should be used with caution when evaluating labor-market definition and market power. Whenever possible, rather than focusing on job-switching in response to changes in only salary or wages, analyses should focus on job switching in response to changes in the *overall value* of the relationship (including all forms of compensation and non-pecuniary benefits specific to the relationship).

For example, imagine a firm that pursues a "lifestyle firm" strategy with respect to its labor market. The firm might provide high value to its workers on a variety of non-wage dimensions of work, such as shorter and more predictable hours, work-life balance, valued amenities in the office (lunch, coffee, or nice offices), along with generous vacation packages, training, and mentoring. However, to make the array of non-wage amenities economical and profitable for the firm, it offers a slightly less-lucrative compensation package than competing non-lifestyle firms. One could readily imagine a lifestyle firm that would be unlikely to lose workers in response to real, or even nominal, wage reductions because its workers value the non-wage dimensions of the job so highly. An empirical analysis of this firm that does not properly measure and account for the overall value of the employee-employer relationship might incorrectly conclude that this firm faces an inelastic labor supply. In fact, from the perspective of overall value to workers, the firm might actually be facing a highly elastic labor supply–if the firm significantly reduced cherished non-wage dimensions of compensation, it might well see a wave of departures.

In short, when wage and non-wage compensation are bundled in a compensation package, as is particularly common for workers with high skills, observed worker responses to changes in wage compensation may understate actual responsiveness because those responses and changes are only part of the picture.

Even setting aside non-wage elements of compensation, firms often employ complex compensation schemes with regard to the monetary aspects of compensation to resolve incentive problems. For example, firms frequently design compensation programs with large increases in pay at senior levels. Part of the increase represents the higher productivity of senior employees. However, part of it may also be designed to incentivize junior employees to invest in a career in the firm so

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[31] For example, Chetty et al. (2011) find that adjustment costs and hours constraints can lead microeconometric methods to systematically underestimate labor supply elasticity. *See* Raj Chetty et al., *Adjustment Costs, Firm Responses, and Micro vs. Macro Labor Supply Elasticities: Evidence from Danish Tax Records*, 126 Q.J. Econ. 749, 749 (2011).

they can achieve the higher payoff in the long-run.[32] These payment schemes can mitigate incentive problems within the firm, such as providing motivation for worker effort when such effort may only be partially observable to the firm. When such payment schemes are in place, wages may not be a reliable measure of the "market value" of a worker at that point in time.[33] These realities can run the risk of making empirical analysis of labor-supply elasticities incomplete.

In academic work that has analyzed worker mobility in the context of market-power concerns, data that tracks non-pecuniary forms of pay (and/or all forms of compensation) is often not available. In litigation, or in the context of a possible merger, a wealth of proprietary data and documentary evidence are more likely to be available. That kind of enriched evidentiary basis can allow for a more robust and nuanced assessment of market definition and market power that accounts for the importance of non-wage factors—and the overall value of the employee-employer relationship—in labor-market competition.

Conclusion

An increased focus on labor-market antitrust issues in recent years has unearthed complex questions about how labor-market competition differs from product-markets competition, the role that labor-market restraints play in aligning incentives within the employee-employer relationship, and how to measure the many dimensions of economic value in the employer-employee relationship.

As we detail in this paper, courts and policymakers would benefit from using the vertical nature of employee-employer relationships as a key analytical lens for labor-market antitrust analysis. The existence of vertical relationships does not imply that labor markets are immune to anticompetitive effects of labor-market restraints. Rather, it implies that restraints that might otherwise appear to be horizontal in nature, and that might raise competition concerns in product markets, may have more nuanced economic motivations and effects within the employee-employer relationship.

These points also complicate empirical analyses in labor markets. Unlike analyses frequently used in product markets to analyze market power, the "price" that workers receive for their labor supply is rarely a single number that captures all relevant dimensions of compensation. Rather, the price that a worker receives for labor is the *overall* economic value that the employer gives the worker across all dimensions. Firms take very different strategies in how they design compensation and compete for workers. Analysis of labor-market competition issues, and the application of econometric methods to labor-market data, would be wise to account for these differences. ●

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[32] *See* Edward P. Lazear, *Why Is There Mandatory Retirement?*, 87 J. POL. ECON. 1261, 1264 (1979). The same logic applies to compensation based not on seniority, but on rank within an organization--even if rank fails to align fully with skill. *See* Edward P. Lazear & Sherwin Rosen, *Rank-Order Tournaments as Optimum Labor Contracts*, 89 J. POL. ECON. 841, 841 (1981).

[33] Another example pertains to career considerations. Lawyers might consider clerking prior to joining a law firm, despite the much lower compensation, reasoning that it is an investment in their career. These kinds of lifecycle considerations mean that even when the labor market is competitive, a worker's wage at a point in time is not necessarily equal to the marginal revenue product of labor, *i.e.*, the wage is not the "market value" for that worker's labor supply.