NOTE

Merger Reviews in Labor Markets: How Antitrust Merger Review Divides Labor

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Introduction

Labor markets have historically been considered irrelevant with antitrust merger reviews.[1] However, recent developments suggest that this may change.

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I would like to thank my family for their love and support. I would like to express my gratitude for everyone I met and befriended at Cornell Law School for warm memories I made in Ithaca. A special thanks to Professor George Hay for his review of this Note and Professor Eleanor Wilking for her support when I most needed it. Lastly, I would like to thank the editors of this Note for their hard work. Any remaining errors are my own.

1. Ioana Marinescu & Herbert J. Hovenkamp, *Anticompetitive Mergers in Labor Markets*, 94 Ind. L.J. 1032, 1038 (2019) (explaining why labor markets have received little attention in antitrust enforcement).

The complaint by the Department of Justice (the "DOJ") against the merger between Penguin Random House and Simon & Schuster was the harbinger of such change.[2] On October 31, 2022, the district court held for the Department of Justice (DOJ) and enjoined the merger under § 7 of the Clayton Act.[3] The case centered around the "publishing rights to anticipated top-selling books," which was deemed a relevant product market.[4] While it is possible that this case may not be properly be classified as a labor market case, the prospect of merger reviews in labor markets is still valid.[5] In early 2022, the DOJ and Federal Trade Commission (the "Agencies") solicited public input on the impact of market power in labor markets.[6] Both governmental and legislative organizations such as the Department of Treasury and Congressional Research Service published reports focusing on potential changes to merger reviews in labor markets.[7] The head and chair of the Agencies expressed interest in applying antitrust merger review in labor markets.[8] Furthermore, some scholars published papers that argue labor markets in the United States are concentrated and that antitrust laws can help solve the problem.[9]

This Note makes two major contributions. First, it introduces and evaluates previous methodologies used by the proponents of merger review in labor markets and proposes an alternative method. The previous papers analyzed labor markets with the Herfindahl–Hirschman Index (the "HHI"), but they failed to include material factors, the total hours of labor demand, and wage. After examining the errors in previous methodologies, I propose a simpler but more appropriate method of calculating the HHI in labor markets.

Second, this Note focuses on how using antitrust merger review in labor markets may treat occupations differently based on their entry barriers.

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2. *Employers Beware: Aggressive and Expansive Labor-Focused Antitrust Enforcement Will Remain the New Normal*, Gibson, Dunn & Crutcher LLP, 3 (Apr. 18, 2022), https://www.gibsondunn.com/wp-content/uploads/2022/04/employers-beware-aggressive-and-expansive-labor-focused-antitrust-enforcement-will-remain-the-new-normal-https-www-gibsondunn-com-employers-beware-aggressive-and-expansive-labor-focused-antitrust.pdf [https://perma.cc/N7M7-T6Y8].

3. Order to enter judgment in favor of the plaintiff, United States v. Bertelsmann SE & CO. KGAA et al, No. 1:21-cv-02886 (D.D.C. filed Oct. 31, 2022).

4. *Id.* at 1.

5. Note that both the plaintiff and defendant do not use the word "labor" and also that writers are not generally considered as wage workers.

6. *See Federal Trade Commission and Justice Department Seek to Strengthen Enforcement Against Illegal Mergers*, Fed. Trade Comm'n (Jan. 18, 2022), https://www.ftc.gov/news-events/news/press-releases/2022/01/federal-trade-commission-justice-department-seek-strengthen-enforcement-against-illegal-mergers [https://perma.cc/6RZJ-8E64].

7. Jay B. Sykes, *Antitrust Issues in Labor Markets*, Cong. Rsch. Serv (2022), https://crsreports.congress.gov/product/pdf/LSB/LSB10725 [https://perma.cc/8U3H-M3P3]; *The State of Labor Market Competition*, U.S. Dep't of the Treasury (2022), https://home.treasury.gov/system/files/136/State-of-Labor-Market-Competition-2022.pdf [https://perma.cc/AM89-RFBU].

8. *FTC DoJ December Workshop*, Fed. Trade Comm'n 5, 7 (2021), https://www.ftc.gov/system/files/documents/public_events/1597830/ftc-doj_day_1_december_6_2021.pdf [https://perma.cc/X4HD-Q9WF].

9. *See, e.g.*, Ioana Marinescu & Eric A. Posner, *Why Has Antitrust Law Failed Workers?*, 105 Cornell L. Rev. 1343 (2020); *see also* Eric A. Posner, How Antitrust Failed Workers (1st ed. 2021).

A relevant market is composed of a relevant product market and a relevant geographic market.[10] Occupations with high entry barriers can be more easily defined in favor of the workers with such occupations in a relevant product market. However, a relevant geographic market does not favor any particular occupation. The second part of this Note argues that antitrust merger reviews in labor markets may have disparate effects according to different levels of entry barriers.

In conclusion, this Note argues that previous methodologies used in showing market power in labor markets should be modified and that the application of § 7 of the Clayton Act may create disparate treatments based on different levels of occupational entry barriers.

I. § 7 of the Clayton Act

The Clayton Act prohibits a corporation engaged in commerce from acquiring another such corporation's assets or stocks, where the effect may be substantially to lessen competition in any line of commerce in any section of the country.[11] The legislative intent of the Clayton Act is to prevent monopolization of various markets in the United States.[12] In 1950, Congress made a significant amendment to § 7 of the Clayton Act, which is now the source of antitrust merger regulation.[13] The purpose of the amendment was to prevent incipient threats the old Clayton Act could not deter.[14] Companies could lawfully escape antitrust law by merging or acquiring control over other companies. The purview of the current Clayton Act is wide that even if a company does not formally acquire or transfer ownership of stocks, companies may be subject to review if one can wield power over the decision-making power of another company through other means.[15]

Although the scope of the merger review is comprehensive, there is one significant additional requirement to invoke the Clayton Act as opposed to the Sherman Act. The Sherman Act prohibits conducts that are "in restraint of trade or commerce among several states" whereas the Clayton Act distinctively uses

10. Brown Shoe Co. v. United States, 370 U.S. 294, 324 (1962) (noting that the area of competition must reference to a "product market" and a "geographic market").

11. *See id.*; *see also* Gulf Oil Corp. v. Copp Paving Co., 419 U.S. 186, 194 (1974).

12. United States v. E. I. du Pont Nemours & Co., 353 U.S. 586, 590 (citing a House of Representative Report that the 1950 amendment was purposed ". . . to make it clear that the bill applies to all types of mergers and acquisitions, vertical and conglomerates as well as horizontal").

13. *Id.* at 311.

14. *See* 15 U.S.C.S. § 18 (2018); *see also* United States v. E. I. Du Pont de Nemours, 353 U.S. at 586 (1957).

15. United States v. Columbia Pictures Corp., 189 F. Supp. 153, 182 (S.D.N.Y. 1960) (noting that the Clayton Act "imposes no specific method of acquisition False"); Nelson v. Pacific Southwest Airlines, 399 F. Supp. 1025, 1028 (S.D. Cal. 1975) (holding that "even if [a party] never actually transferred ownership of [its stocks to another party], harm to the plaintiff and to the economic system might have resulted from a less formal arrangement under which a single corporation achieved *control of the decision making process* of [other parties]") (emphasis italicized).

the language "engaged in commerce."[16] This "engaged in commerce" language requires both companies in a merger to be in commerce with different states.[17] Courts do not so leniently accept that a business has been in commerce with other states.[18]

After showing both parties in a merger are "engaged in commerce" and are subject to the Clayton Act, a plaintiff then needs to establish a relevant market.[19] Although some Sherman Act claims may not need to show a relevant market, establishing a relevant market is a "necessary predicate" to the finding of a violation under the Clayton Act.[20] Parties are incentivized to define a relevant market in their favor – opponents of a merger will define the market in a manner that shows high market concentration or market power, whereas proponents will define the market that shows low or no market concentration or market power.[21] For example, in a hotly debated merger between Penguin Random House and Simon & Schuster, the DOJ defined two markets. First, the DOJ defined a broader relevant product market as the acquisition market for publishing rights from authors; and then, they defined a narrower market in the alternative, the acquisition market for publishing rights from anticipated top-selling book authors.[22] On the contrary, the merging publishing companies answered that "the only potentially legitimate market in this context is the market for rights in all proposed books."[23] Similarly, in *DuPont*, plaintiffs tried to narrowly draw the relevant product market as the market for cellophane as opposed to the defendant's broader market definition as flexible packaging materials.[24]

II. Monopsony in Labor Markets

The dictionary term of 'monopsony' in labor markets means "single employers in isolated places" as can be seen from the prefix 'mono-'.[25] The

16. *See* 15 U.S.C.S. § 1 (1966); *see also* 15 U.S.C.S. § 18 (1966).

17. Gulf Oil v. Copp. Paving, 419 U.S. 186, 195 (1974).

18. *Id.* at 198 (holding that the asphalt selling business cannot be 'in commerce' even though asphalt will be used to make highways that serve interstate transportation); *cf.*, Southwest Airlines Co. v. Saxon, 142 S. Ct. 1783, 1792 (2022) (occupations are 'in commerce' when they handle "goods traveling in interstate and foreign commerce, either to load them for air travel or to unload them when they arrive.").

19. *See* 15 U.S.C.S. § 18 (1966) ("line of commerce" in the statute means a relevant product market and "section of country" means a relevant geographic market); *see also* United States v. E. I. Du Pont de Nemours, 353 U.S. at 586 (1957).

20. United States v. Mar. Bancorporation, Inc., 418 U.S. 602, 618 (1974) (quoting *E. I. Du Pont*, 353 U.S. at 593; *Brown Shoe Co.*, 370 U.S. at 324).

21. Board of Regents v. National Collegiate Athlete Asso., 707 F.2d 1147, 1158 (10th Cir. 1983) (noting that market power in antitrust litigation means "the power to control prices or exclude competition").

22. Complaint at 13, 14, United States v. Bertelsmann SE & CO. KGAA et al., No. 1:21-cv-02886 (D.D.C. filed Nov. 2, 2021).

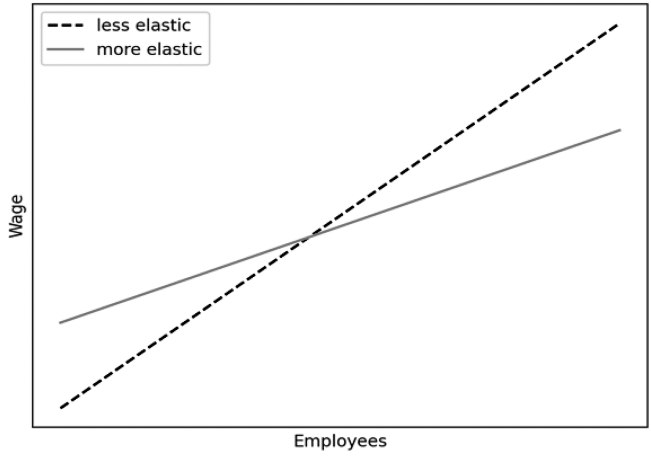
23. *Id.* at 4.

24. *E. I. Du Pont*, 353 U.S. at 377 (the market share was 75% under the plaintiff's relevant market definition as opposed to 17.9% under the defendant's definition).

25. Robert S. Smith et al., Modern Labor Economics: Theory and Public Policy 140 (14th ed. 2021).

classical theory of monopsony presumes a market with "only one buyer that uses its power to reduce the quantity purchased, thereby reducing the price that the monopsonist has to pay."[26] However, courts and scholars do not use the term so stringently. Rather, the term 'monopsony power' indicates "power on the buying side of the market."[27] In economics, it means "the assumption that the labor supply curves facing individual employers upward (and are not horizontal)" where employers have the power to maximize their profit by adjusting the employment.[28] This Note also uses the term in the like manner. For example, in *Figure 1*,[29] the supply curve that is more vertical can be said to represent a more monopsonic market than that of the other.

Figure 1



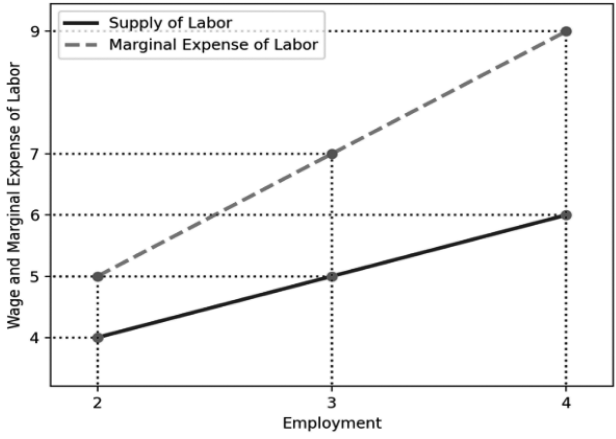
Monopsonic labor markets could be concerning because employers have the wage-setting power at the expense of employees' utility by hiring less and paying less while maximizing employer's profit. A firm's profit maximization scheme in a monopsonic labor market can be economically explained as follows. First, profit-maximizing firms hire more labor as long as the marginal revenue is greater than the marginal expense.[30] In a monopsonic market where firms face upward-sloping labor supply curves, the marginal expense of hiring labor exceeds the wage because they have to pay extra to recruit more workers.[31]

26. Roger D. Blair & Jeffrey L. Harrison, *Antitrust Policy and Monopsony*, 76 Cornell L. Rev. 297—98 (1991).
27. *Id.* at 297.
28. *See* Smith, *supra* note 25, at 140.
29. *Id.* at 139.
30. *Id.* at 140.
31. *Id.*

Labor Supply Schedule for a Hypothetical Firm Operating in a Monopsonic Market			
Offered wages (&)	Supply of Labor	Total hourly labor cost ($)	Marginal expense of labor ($)
3	1	(3 × 1) = 3	
4	2	(4 × 2) = 8	(8 – 3) = 5
5	3	(5 × 3) = 15	(15 – 8) = 7
6	4	(6 × 4) = 24	(24 – 15) = 9

Table 1 shows how the Marginal Expense of Labor increases as the firm hires more workers in an upward labor supply market. *Figure 2* illustrates the market in *Table 1*.

Figure 2



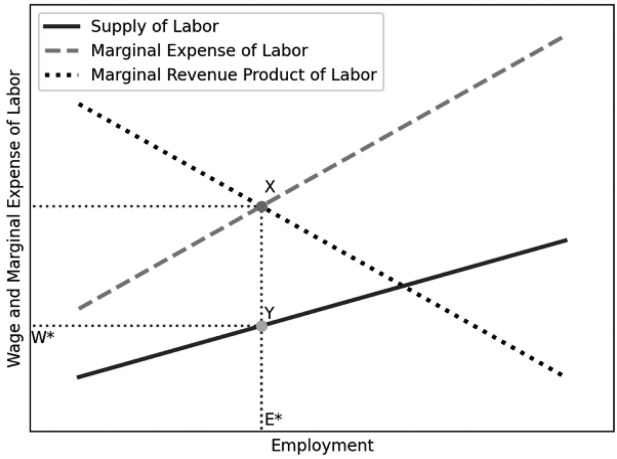
Given this market situation, a firm that tries to maximize profit will hire more labor as long as the marginal revenue product of labor (MRP_L) is the same, or higher, than the labor's marginal expense (ME_L).[32] Hence, firms in monopsonic labor markets will hire up until:

$$MRP_L > ME_L$$

As illustrated in *Figure 3*, the Marginal Revenue Product of Labor (MRP_L) intersects with the Marginal Expense of Labor (ME_L) at point X. As the employer needs to pay on the Supply of Labor curve (i.e., point Y in *Figure 3*), the employer will set the wage at W*.[33] In short, an employer in a monopsonic labor market will hire less employees and pay less wages than an employer in a competitive labor market.

32. *Id.*
33. *Id.*

Figure 3



III. Merger Reviews in Labor Markets Divide Labor

A. Mirror Image Rule in Labor Markets

When two companies merge in an output market, the Agencies analyze whether the merger will likely lead to monopolization or oligopolization of the companies' products.[34] To do so, the Agencies determine the relevant market, which is an essential step in assessing the merger's potential anticompetitive effects. Thus, merging parties are incentivized to define a relevant market that shows lower market concentration whereas plaintiffs would benefit by defining a relevant market that shows higher market concentration.

In this tug-of-war, courts define a relevant market by referring to the reasonable interchangeability or cross-elasticity.[35] While the reasonable interchangeability to a worker is the focus in labor markets, antitrust law is not concerned about competitors but about competition in markets.[36] For example, in *Brown Shoes*, the defendant shoe producer tried to minimize their post-merger market share by defining the relevant product market using factors such as "price/quality" and "age/sex."[37] However, the Court rejected the defendant's argument that it is impractical and unwarranted to further divide shoe markets into subgroups other than age and sex.[38]

When measuring market power in a monopsony claim, the equation for measuring market power reverses the relationships that create market power in

34. United States v. Aluminum Co. of Am., 148 F.2d 416, 429—30 (2d Cir. 1945) (noting that antitrust laws make "monopolizing" a crime and not the possession of monopoly due to competence).

35. Brown Shoe Co. v. United States, 370 U.S. 294, 325 (1962).

36. *Id.* at 320 (noting that "the legislative history [of the antitrust laws] illuminates congressional concern with the protection of competition, not competitors").

37. *Id.* at 326.

38. *Id.* at 328.

a seller in a monopoly claim.[39] In such a market, "the market is not the market of competing sellers but of competing buyers."[40] The reversing of factors is called a 'mirror image' rule. Under the 'mirror image' rule, a relevant market in labor markets is determined by whether alternative job opportunities are reasonably interchangeable to a worker.[41] For example, in *Weyerhaeuser*, the Court provided a test for predatory bidding by mirroring a test for predatory pricing provided in *Brooke*.[42] In *Brooke*, the Court considered whether there is a "dangerous probability . . . of defendant's recouping its investment in below-cost prices."[43] *Weyerhaeuser* reversed these factors and examined whether there is a "dangerous probability of recouping the losses incurred in bidding up input prices through the exercise of *monopsony* power" (emphasis *italicized*).[44]

Academic scholarship also supports applying the 'mirror image' rule in monopsony analysis where a single buyer faces many sellers. Blair and Harrison explained that "factors [that are considered in monopoly market analysis] are reversed in the case of monopsony."[45] Courts have affirmed this view. Referring to Areeda and also to Blair and Harrison, the *Todd* Court vacated the district court's grant of 12(b)(6) motion and remanded the case as the district court failed to "reverse all of the factors [that are relevant to buyer-side market analysis]."[46]

In short, understanding the 'mirror image' rule is critical to determining the relevant market in labor markets and analyzing mergers and anticompetitive practices. Courts and academics have emphasized that this rule also applies to monopsony analysis, highlighting its importance in preserving competition in markets.

B. Relevant Product Market in Labor Markets

In labor markets, the relevant product market is defined as reasonably interchangeable job opportunities for workers. However, unlike markets for goods, labor markets are distinct as employment contacts are entered through close communication and individual agreements. For example, when a buyer purchases a good, the seller does not care who the buyer is. The seller does not turn away buyers for the lack of certain qualities as long as they can pay. On the contrary, employment contract is entered through close communication and individualized agreement. Thus, reasonably interchangeable job opportunities ultimately rely on the mutual agreement of both employer and employee. That mutual agreement largely depends on 'job qualification.'

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39. Todd v. Exxon Corp., 275 F.3d 191, 202 (2d Cir. 2001).
40. *Id.*
41. Todd v. Exxon Corp., 275 F.3d 191, 202 (2d Cir. 2001) (holding that "the question is not the interchangeability of . . . lawyers with engineers" but the interchangeability of a job opportunity in an industry with opportunities in another industry, from a worker's perspective).
42. Weyerhaeuser Co. v. Ross-Simmons Hardwood Lbr. Co., 549 U.S. 312, 325—326 (2007) (mirroring the predatory-pricing test in Brooke Group v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 226 (1993)).
43. *Brooke*, 509 U.S. at 224.
44. *Weyerhaeuser*, 549 U.S. at 325.
45. Blair & Harrison, *supra* note 26, at 324.
46. *Id.*

In *Todd*, the appellate court vacated the district court's grant of 12(b)(6) motion for employers and noted that the relevant market definition was plausible enough to dismiss the motion and that the case warrants a further proceeding.[47] In the subsequent case; however, the district court once again held that the relevant market was incorrectly defined.[48] The court noted that Ms. Todd, the plaintiff, had a job placement agency "send [her] resume . . . to *any* company that was interested in [her financial software program] skills (emphasis *italicized*)."[49] As evinced by the plaintiff's own behavior, the court held that individual's qualifications and experience determine a relevant product market.[50]

1. Interchangeability Depends on Job Qualification Before Employment

Previous studies have largely ignored job qualification factors and defined a job market based on the North American Industry Classification System (NAICS).[51] NAICS is a classification system that groups establishments into industries based on the similarity of their production processes.[52] In 2022, U.S. NAICS consisted of 20 sectors and 1,012 industries.[53] An establishment, in NAICS United States "is generally a single physical location where business is conducted or where services or industrial operations are performed (for example, a factory, mill, store, hotel, movie theater, mine, farm, airline terminal, sales office, warehouse, or central administrative office)."[54] For example, companies in the "Dog and Cat Food Manufacturing" industry are classified with NAICS 311111, while companies in the "Other Animal Food Manufacturing" industry are classified as NAICS 311119.[55] Any person—whether that be a lawyer, accountant, or else——who is working in a dog and cat food manufacturing business is classified under NAICS 311111.

It is easily noticeable that defining a reasonably interchangeable occupation group by using NAICS inevitably produces errors. Also, workers are classified under NAICS codes only after they are employed, thus the codes do not show the kinds of occupations a worker considers interchangeable when they are looking for a job. The NAICS can only serve as a post-employment classification while the antitrust analysis of a relevant job market has focus on pre-employment interchangeability. As professor Epstein has pointed out,

47. *Todd*, 275 F.3d at 214, 215.

48. In re Comp. of Managerial, 2008 U.S. Dist. LEXIS 63633, at 26—29 (D.N.J. Aug. 19, 2008) (holding that "the relevant markets for the individual plaintiffs are not necessarily limited to the oil and petrochemical industry and in fact vary based upon the individual's qualifications and experience.")

49. *Id.*

50. *Id.*

51. Ioana Marinescu & Eric A. Posner, *Why Has Antitrust Law Failed Workers?*, 105 Cornell L. Rev. 1343, 1360 (2020).

52. Off. Of Mgmt. & Budget, Exec. Off. of the President, North American Industry Classification System United States, 2022 at 14 (2022), https://www.census.gov/naics/reference_files_tools/2022_NAICS_Manual.pdf [https://perma.cc/6D3A-VW2P].

53. *Id.*

54. *Id.* at 18.

55. *Id.* at 31.

"hospital entry clerks can work in banks or . . . wherever accounts have to be managed."[56]

Among various pre-employment factors, such as, age and gender, this Note focuses only on one of them: occupational entry-barriers.[57] By focusing on entry-barriers, the different treatment which different occupations are subject to under antitrust merger review is better demonstrated. Courts have briefly recognized that occupations with different levels of entry barriers may subject to different antitrust analysis.[58]

2. Job Interchangeability Favors Occupations With High Entry Barriers

Job interchangeability in labor markets does not mean whether an employee can be easily replaced by someone else within the industry. It means whether a position can be replaced by someone outside of the industry. For example, if a salesman position can be replaced by a store manager, those two occupations are thought to be interchangeable. On the contrary, if a podiatrist position in a hospital cannot be replaced by a healthcare assistant, then those two occupations are not interchangeable.

As observed earlier, interchangeability of occupations is not determined by the NAICS classification, but rather, determined by job requirements. Job requirements are different among types and seniority of occupations. For example, a manager position will require years of work-experience in the industry. Another example is the education level which is one of the most common and calculable job requirements.

Table 2's data from the U.S. Bureau of Labor Statistics, shows that the range of education level varies widely among occupations.[59] For example, various types of doctors, such as, cardiologists, dermatologists, physicians, and neurologists all have doctorates.[60] On the contrary, other jobs such as foresters, marketing managers, and food processing workers, do not require such high levels of education.[61]

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56. Richard A. Epstein, *Antitrust Overreach in Labor Markets: A Response to Eric Posner*, 15 N.Y.U. J.L. & Liberty 407, 420 (2022).

57. Courts have similarly held that the correct definition of relevant product market definition in labor market is not occupational classification but job qualification. *See In re Comp. of Managerial* at 26—29 (holding that "the evidence . . . demonstrates the relevant labor markets . . . are not necessarily limited to the oil and petrochemical industry and in fact vary based upon the individual's qualifications and experience").

58. *See* Deslandes v. McDonald's USA, LLC, No. 17 C 4857, 2022 U.S. Dist. LEXIS 113524, at 7 (N.D. Ill. June 28, 2022) (noting that the scope of market definition for a low-skill labor employer and a high-skill labor employer is different).

59. *Table of Educational Attainment for Workers for 25 Years and Older by Detailed Occupatio*n, U.S. Bureau of Labor Statistics, https://www.bls.gov/emp/tables/educational-attainment.htm [https://perma.cc/JU5X-4VBF] (last visited Nov. 7, 2022).

60. *Id.*

61. *Id.*

Table 2

Table of Educational Attainment for Workers for 25 Years and Older by Detailed Occupation							
2021 National Employment Matrix title	Less than high school diploma	High school diploma or equivalent	Some college, no degree	Associate's degree	Bachelor's degree	Master's degree	Doctoral or professional degree
Anesthesiologists	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Cardiologists	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Dermatologists	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Emergency, Family, or General Internal medicine physicians	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Foresters	0.0	0.0	0.0	0.0	76.22	18.7	5.1
Marketing managers	0.7	3.8	9.3	5.0	55.8	23.5	2.0
Food processing workers, all other	25.4	43.5	20.6	5.0	4.8	0.5	0.2

Thus, labor markets for workers in occupations that require high degrees or licenses can be more narrowly defined. On the contrary, labor markets for workers in occupations that do not require high degrees or licenses will face difficulty in narrowly defining the relevant product market. In short, occupations with high-entry barriers will benefit more from antirust merger reviews in labor markets.

C. Relevant Geographic Market in Labor Markets

While high entry barrier occupations may lead to a narrow product market due to limited interchangeability, a geographic market does not work in favor of either high or low entry barrier occupations in labor markets. Geographic markets refer to the area in which labor market competition takes place.[62] In contrast to product markets, geographic markets are not defined by the characteristics of the product or service being sold, but by the location of the competition.[63] Geographic markets can be defined at the local, regional, or national level, depending on the scope of the relevant competition.[64]

62. Heerwagen v. Clear Channel Commc'ns, 435 F.3d 219, 227 (2d Cir. 2006) ("courts generally measure a market's geographic scope, the "area of effective competition," by determining the areas in which the seller operates and where consumers can turn, as a practical matter, for supply of the relevant product.").

63. *Id.*

64. Brown Shoe Co. v. United States, 370 U.S. 294, 337, 82 S. Ct. 1502, 1530, 8 L. Ed. 2d 510 (1962) ("the geographic market in some instances may encompass the entire Nation, under other circumstances it may be as small as a single metropolitan area.").

1. Geographic Market is Broader Than Commuting Zone

Previous studies on merger reviews in labor markets have restricted the relevant geographic market to commuting zones. For example, Marinescu computed the HHI based on vacancy shares in commuting zones.[65] José Azar also based his research using a commuting zone as a relevant geographic market.[66] Benmelech used either county or commuting zone for his research.[67]

However, a relevant geographic market for labor "must address where workers could practically go to work, not on where they actually go."[68] Courts have recognized that "the correct relevant geographic market should be *broadened* to include 'the extent to which customers will *travel* in order to *avoid* doing business [at a particular store] (emphasis *italicized*).'"[69] This principle is also explained in Hovenkamp's leading antitrust treaties as follows:[70]

> A court would often be mistaken to conclude that a seller's "trade area," or the area from which it currently draws its customers, constitutes a relevant geographic market. In fact, the "trade area" and the "relevant market" are precisely reverse concepts . . . "trade area" considers the extent to which customers will travel in order to do business [with defendants]. "Relevant market" considers the extent to which customers will travel in order to *avoid* doing business [with defendants].

Applying the mirror image rule, the right scope for labor market analysis is not a commuting zone but the extent to which workers will 'relocate' in order to avoid doing business at a particular company. One might criticize that the term 'travel' in product market analysis should not be interpreted as 'relocate' in labor markets. However, that is not the commercial reality of a job search.

In determining a relevant geographic market, courts should refer to commercial realities.[71] Considering how today's job search is mostly done through the internet and as the search scope has broadened, it is easily understandable that today's commercial realities strengthen that a relevant geographic market should be broadly defined.

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65. Ioana Marinescu & Herbert J. Hovenkamp, *Anticompetitive Mergers in Labor Markets*, 94 Ind. L.J. 1032, 1051 (2019) ("Having computed the HHI for the labor market based on vacancy shares in *the commuting zone*, six-digit SOC and quarter, one can use the thresholds from the Horizontal Merger Guidelines to make a prima facie case against a merger that significantly increases labor market concentration.").

66. José Azar, Ioana Marinescu & Marshall I. Steinbaum, *Labor market concentration*, 57 J. Hum. Res. S168, S174 (2022).

67. Efraim Benmelech et al., *Strong Employers and Weak Employees: How Does Employer Concentration Affect Wages?*, 57 J. Hum. Res., S206—07 (2022).

68. Fed. Trade Comm'n v. Tenet Health Care Corp., 186 F.3d 1045, 1052 (8th Cir. 1999).

69. Bathke v. Casey's Gen. Stores, 64 F.3d 340, 346 (8th Cir. 1995); *see also* J & S Oil, Inc. v. Irving Oil Corp., 63 F. Supp. 2d 62, 68 (D. Me. 1999) (holding that the geographic market for retail gasoline depends on how far individuals are willing and able to travel to purchase the product).

70. Herbert Hovenkamp, Federal Antitrust Policy: The Law of Competition and Its Practice 114 (1st ed. 1994).

71. Brown Shoe Co. v. United States, 370 U.S. 294, 336—37 (1962) ("The geographic market selected must . . . correspond to the commercial realities").

2. *Geographic Market Does not favor Particular Occupations*

Just like in defining a relevant product market, parties have strong incentives to define a relevant geographic market in their favor.[72] When possible, plaintiffs will try to draw the line on a map that shows high market concentration, market share and power of the defendant company. Defendants will do the opposite. Some courts mistakenly held that overbroad geographic market definition only works to understate market power in the relevant market. For example, in *Jien*, the court said that "alleging an overbroad market does not create deficiencies analogous to . . . [alleging] narrow markets."[73] The court thus sided with the plaintiff who defined the geographic market for their food processing labor as national, reasoning that such overbroad market definition actually works against the plaintiff.[74] This approach is incorrect because plaintiffs can still have an unwarranted benefit by an overbroad geographic market definition. For example, in *It's My Party*, the plaintiff was motivated to define the geographic market as national, rather than regional, because by doing so the market share of the defendant would be higher.[75] The court noted that the plaintiff's broad definition of the geographic market as such is "blind to the basic economics [of the relevant product market]."[76]

A simple hypothetical also attests to how defining a geographic market narrowly does not necessarily help increase the market power of merging companies. Suppose an employee in state A is working at a food processing company C in a state and that the only reasonable interchangeable jobs for that employee are positions in food processing. State A is the hub of food processing and ten different companies, including C, each hire 100 employees at the same pay schedule. However, company C is the only company that operates any other processing factories outside of state A. In this example, a narrowly defined geographic market shows that C's market share in state A is only ten percent. However, as the geographic scope becomes broader, the market share of company C would increase. Thus, the scope of a relevant geographic market is subject to a case by case analysis to ensure impartial adjudication.

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72. Moore Corp. v. Wallace Comput. Servs., 907 F. Supp. 1545, 1575 (D. Del. 1995) ("Determination of the relevant product market quite often is the major battleground in Section 7 litigation.").

73. Jien v. Perdue Farms, Inc., No. 1:19-CV-2521-SAG, 2022 U.S. Dist. LEXIS 128686, at 36 (D. Md. July 19, 2022).

74. *Id.* at 37 (holding that plaintiffs' geographical market definition is making it *harder* for plaintiff to prove their case, because the level of market power necessary to control wages across the entire country is much greater); *see also In re* Mushroom Direct Purchaser Antitrust Litig., No. 06-0620, 2015 U.S. Dist. LEXIS 120892, at 81 (E.D. Pa. July 29, 2015) (holding that a large geographic market definition would only understate market power in the relevant market).

75. It's My Party, Inc. v. Live Nation, Inc., 811 F.3d 676, 682 (4th Cir. 2016) ("By defining the market as national, [the plaintiff] could more easily construe [defendant]'s nationwide network of promoters and venues as evidence of market power.").

76. *Id.*

IV. Calculating the Correct HHI in Labor Markets

A. The Herfindahl–Hirschman Index

The Herfindahl–Hirschman Index (the "HHI") is one of the most widely used indexes to measure market concentration.[77] The HHI is calculated by squaring the market shares of all firms and summing the squares as below.[78]

$$HHI = \sum_{i=1}^{n} (Market\ Share_i)^2$$

Theoretically, the HHI can be as small as zero and as big as 10,000.[79] For example, if there are one thousand firms with each 0.1 market share, then the square of each firm's market share would be 0.01, and the sum of all firms merely 1. If a market is monopolized by one firm with 100% market share, then the HHI would be the square of 100, which is 10,000.[80] The Agencies examine both the post-merger HHI and the increase in the HHI resulting from a merger.[81] The Agencies do not use the HHI to rigidly screen merger cases but use it as a reference to see whether a merger deserves more attention and scrutiny.[82] As the difference between pre-merger and post-merger HHI is bigger and as the post-merger HHI is higher (i.e., closer to 10,000), the merger will likely receive stricter scrutiny.[83]

B. Previous Studies

The HHI's simplicity has led to its widespread use in measuring market. Some scholars advocate for using the HHI in examining labor markets "because of the symmetry of product market and labor market concentration."[84] Marinescu claimed that "the HHI for a labor market is calculated in the same way as the HHI for a product market."[85] Likewise, Prager stated that the "HHI is defined as the sum of squared total [Full-Time Equivalent employee] shares among hospitals in the market, combining the shares of hospitals under the same ownership."[86] Benmelech similarly calculated the HHI by using the employment

77. *See Horizontal Merger Guidelines*, U.S. Dep't of Just. & Fed. Trade Comm'n § 5.3 at 18 (Aug. 19, 2010), https://www.justice.gov/sites/default/files/atr/legacy/2010/08/19/hmg-2010.pdf [https://perma.cc/YSK2-LF8F] [hereinafter *Guidelines*].

78. *See* Stephen A. Rhoades, *The Herfindahl-Hirschman Index*, 79 Fed. Res. Bull. 188 (1993).

79. *Id.* at 189.

80. *Id.*

81. *Guidelines*, *supra* note 77, at 18—194.

82. *Id.* at 19.

83. *Id.*

84. *See* Posner, *supra* note 9, at 69 ("Because of the symmetry of product market and labor market concentration, the government should use the same standard to evaluate the effects of mergers on labor markets . . .").

85. Ioana Marinescu & Eric A. Posner, *Why has antitrust law failed workers?*, 105 Cornell L. Rev. 1343, 1352 (2020).

86. Elena Prager & Matt Schmitt, *Employer consolidation and wages: Evidence from hospitals*, 111 Am. Econ. Rev. 397, 405 (2021).

share in a specific geographic area and industry.[87] Marinescu and Posner measured labor market concentration by "look[ing] at the number of vacancies in a particular labor market, and calculat[ing] the HHI based on each firm's share of those vacancies. A market where four firms post 25% of jobs each is highly concentrated with an HHI of 2,500."[88] More recently, Azar concluded that labor markets in the United States are highly concentrated by referring to high HHIs that are "calculated based on the share of vacancies of all the firms that post vacancies in [a labor] market."[89] These HHI figures invite antitrust law to employ similar formula for merger reviews in labor markets.[90]

However, the use of the HHI in these papers are flawed due to two primary oversights: (1) market share and market power in labor markets should be calculated based on the total hours of labor demand, not just on vacancies or the number of employees and; (2) wages (i.e., the price of labor) should be considered in determining market share and market power in labor markets. By incorporating these two factors, a more accurate calculation of labor market share can be obtained – by calculating the sum of wages in a relevant market. In short, a more accurate HHI for labor markets can be calculated by factoring in both total hours of labor demand and wages.

C. The Total Hours of Labor Demand

This section evaluates the shortcomings of using the HHI based on job vacancies and the number of employees, as proposed by the previous studies above. In the end, this Note concludes that the right factor to consider is the total hours of labor demand. Using job vacancy data is inappropriate in assessing market power because it underestimates the actual demand for labor and overestimates the market power of uncompetitive firms while ignoring occupational characteristics.

First, the job vacancy data is only a proxy to the actual job market. Relying on the vacancy information grossly underestimates the total hours of labor demand. Let's assume that there are two employers in a market. Company A and B each has a hundred employees. Suddenly, an employee in company A quits and two in B quit. Although company A and B had the same market share in terms the number of employees, focusing on the number of vacancies produces a flawed outcome that B's market share is twice bigger than that of A.

The job vacancy data is not only inappropriate to compare different employers, but it is also inappropriate to reflect the total hours of labor demand of a single company because it only considers the marginal demand for labor. Neglecting the employees that are already employed is equivalent to a product market analysis where only products not yet sold are calculated and the ones

87. Efraim Benmelech et al., *Strong Employers and Weak Employees: How Does Employer Concentration Affect Wages?*, 57 J. Hum. Resour. S200, S207 (2022).

88. *See* Marinescu, *supra* note 85, at 1356.

89. José Azar, Ioana Marinescu & Marshall I. Steinbaum, *Labor market concentration*, 57 J. Hum. Res. S167, S174 (2022).

90. Marinescu, *supra* note 1, at 1051 ("Having computed the HHI for the labor market based on vacancy shares in the commuting zone, six-digit SOC and quarter, one can use the thresholds from the Horizontal Merger Guidelines to make a prima facie case against a merger that significantly increases labor market concentration.").

sold are excluded from the analysis. For example, when calculating the market share of law firms, it should factor in the entire revenues incurred in a certain period of time. Excluding the cases that are already paid would produce grossly distorted numbers. Likewise, Company A's job vacancy of one position does not mean that the company's labor demand is just the labor of one person. It simply means that its remaining labor demand is already being supplied by employees. For example, let's say that a firm currently has one hundred associates with 2,000 billable hours and that the firm is hiring one additional associate. Then, the firm's demand for associate labor is 202,000 hours per year, not just 2,000 hours of marginal demand.

Second, vacancy data overestimates uncompetitive companies and ignores occupational characteristics. Back to the company A and B hypothesis. Let's assume two companies A and B provide jobs that are equal in every aspect except for job desirability. Company B with less job desirability and a higher job separation rate will show more job vacancies. Superior desirability of Company A will lead to showing less vacancies than B. In this case, the Proponent's methodology of using vacancy data will say that B has higher market share and power.

In addition, vacancy data ignores occupational characteristics. Certain occupations, such as, educational services, show a lower job separation rate while occupations in leisure industry show a much higher separation rate.[91] Although a narrow definition of a relevant product market could prevent data distortion caused by combining multiple occupations, the distortion will inevitably remain if a relevant product market combines multiple occupations.

Just as job vacancy data is only a proxy for the total hours of labor demand, so too is the number of employees. While using the number of employees to establish market share and power may be appropriate in some cases, it is not ideal, as it avoids the more straightforward method of estimating the total hours of labor demand. Prager's HHI is defined as "the sum of total FTE employment shares among hospitals in the market . . . [The] primary measure of hospital size is the hospital's number of full-time equivalent employees (FTEs)."[92] The raw data includes employment as total employee-hours worked.[93] The authors converted the data into FTEs by "assuming a 40-hour work week."[94] In essence, if a company demands forty hours of labor, then the FTE converts that forty hours of labor demand into one FTE. This additional step is unnecessary and further complicates the HHI calculation.

D. Wages

Courts do not examine the reasonableness of a price.[95] But still, a price is an important barometer in determining a product's competence and

91. *Job Openings and Labor Turnover*, Bur. of Lab. Stat. 3 (September 2022), https://www.bls.gov/news.release/pdf/jolts.pdf [https://perma.cc/UD8X-222M].

92. *See* Prager & Schmitt, *supra* note 86, at 404, 405.

93. *Id.*

94. *Id.*

95. United States v. Socony-Vacuum Oil Co., 310 U.S. 150, 221 (1940) (recognizing a reasonable price today could be unreasonable tomorrow).

customer preference. Incorporating the wage factor into the labor market HHI is appropriate because the antitrust 'mirror image' rule mandates that the monopsony analysis be the mirror image of monopoly analysis.

To calculate the HHI, market share information is required.[96] In most contexts, the market share of a product market is based on a company's "actual or projected revenues in the relevant market" because "revenues [are] the best measure of attractiveness to customers."[97] In labor markets, wages are the best measure of attractiveness to workers. The Agencies also acknowledge that revenues "reflect the real-world ability of firms to surmount all of the obstacles necessary to offer products on terms and conditions that are attractive to customers."[98] In labor markets, wages reflect the real-world ability of firms to surmount all of the obstacles necessary to offer positions on terms and conditions that are attractive to workers. In short, according to the 'mirror image' rule, it is only right that the price of labor should be factored in the HHI.

Other than the mirror image rule, wages should be considered in finding labor market power because the price information provides a more accurate analysis. In labor markets, wages are an endogenous factor to labor market power. The fact that a company has the power to pay its employees more than the competitors is evidence of market power. Let's revisit the company A and B hypothesis. Both companies have exactly the same conditions in every factor such as the number of employees, market share and power, commuting time, work environment, etc. The only difference is that company A provides higher wages than B. In this case, all the workers will favor working at A rather than B. The preference of workers as shown here can only be correctly considered when the wages factor is included in a labor market analysis.

E. Proposed HHI Calculation for Labor Markets

This Note examined why the previous methodologies using the HHI in labor markets were incorrect. They were incorrect because they did not consider the total hours of labor demand and wages. I propose that the HHI calculation for labor markets simply use the sum of labor expenses in the relevant market as its market share base. Doing so complies with the 'mirror image' rule that courts have long observed and also more effectively reflects market power. The proposed HHI in labor markets is as follows:

$$HHI = \sum_{i=1}^{n} (Labor\ Market\ Share_i)^2$$

where

$$Labor\ Market\ Share_i = \frac{Company_i\text{'s Labor Expense in a Relevant Market}}{Entire\ Market\text{'s Labor Expense in a Relevant Market}}$$

For example, consider companies A and B filing for a merger. Although both companies employ various types of occupations, only a specific

96. *See* Rhoades, *supra* note 78.
97. *See Guidelines*, *supra* note 77, at 17.
98. *Id.*

occupational group could be subject to potential monopsony post-merger. Therefore, only the labor cost for that occupational group will be considered when calculating the HHI. In the relevant market, there are other companies, C and D. Over a specific time period, A, B, C, and D respectively spent one, two, three, and four million dollars on anesthesiologist salaries. Their market shares are respectively, ten, twenty, thirty, and forty percent. The pre-merger HHI of the market is 3,000.[99] The post-merger HHI is 3,400.[100] This method of referring to labor costs is simple, but yet it is more complete as the labor cost already reflects both labor hours and wage levels of the business entities.

The following hypothesis, illustrated in *Table 3*, shows the superiority of the proposed method over those taken by previous studies. Suppose a closed market that consists of Company A and B. Both companies require 120 hours of labor per week. Company A currently employs two employees who each work 60 hours per week and earn $15 per hour, amounting to a labor cost of $1,800 per week for the company. The current employees are also content with the higher pay for longer work hours, however, the company is trying to expand the business and is trying to hire two new workers which created a vacancy. On the other hand, company currently B hires three employees who each work 40 hours per week and earn $10 per hour, amounting to a labor cost of $1,200 per week for the company. Company B does not have a vacancy for any positions.

Table 3

	Company A	**Company B**	**Company A market share (%)**	**Company B market share (%)**
Vacancy	2	0	100	0
Total Hours of Labor Demand	120	120	50	50
Full-time equivalent employees (FTE)	2.5	2.5	50	50
Number of Employees	2	3	40	60
Wages	$15/h	$10/h	-	-
Total Labor Expense	$1800	$1200	60	40

Under Marinescu's approach, which relies on job vacancy data, Company A has one-hundred percent of the market share. However, this vacancy is created to expand the business and is not indicative of Company A's current power in the labor market. Also, the vacancy data does not explain the difference in wages, number of employees, and the total hours of labor demand that are already supplied by the current employees. The Full-time equivalent employees approach by Frager, which divides the total hours of labor demand

99. $(10)^2 + (20)^2 + (30)^2 + (40)^2 = 3{,}000$.
100. $(10 + 20)^2 + (30)^2 + (40)^2 = 3{,}400$.

by forty, also does not incorporate the difference in wages and by so doing fails to consider the fact that Company A is a bigger player in the labor market. These methodologies do not adequately consider the 'commercial realities' of the market.[101]

In contrast, the Total Labor Expense approach encompasses both total hours of labor demand and wages as it is the product of the two factors. It correctly spots the more significant player in the labor market. If antitrust merger reviews in labor markets aim to address concerns about a company leveraging its market power to suppress wages, then those with more potential to impact the market should be subject to attention. The proposed method, which is the 'mirror image' rule of output markets, successfully directs the attention to Company A whereas previous studies' methodologies fall short in this regard.

Conclusion

This Note observed how a relevant market definition divides labor markets based on different occupational entry barriers. Occupations with different levels of entry barriers are differently affected. In defining a relevant product market, courts consider reasonable job interchangeability to workers. This interchangeability eventually refers to the mutually agreed upon interchangeability of occupations set by both employers and employees. This is because employment results from close communication and mutual agreement. Occupations with high entry-barriers, such as doctors, are not reasonably interchangeable with other occupations. Thus, workers with high occupational entry-barriers can define the interchangeable labor market more narrowly to their own benefit. Conversely, workers with low occupational entry-barriers would find it more challenging to define the interchangeable labor market in their favor. In defining a relevant geographic market, occupations with different levels of entry barriers do not receive disparate treatments. This is because a relevant geographic market is larger than a commuting zone, encompassing the extent of potential relocation, and also because a smaller geographic market does not unilaterally lead to higher market concentration of a relevant product market.

This Note began by introducing how applying antitrust merger reviews in labor markets are gaining more attention and support. A part of that support comes from scholars that view antitrust merger reviews are proper in labor markets. They use the Herfindahl-Hirschman Index to show that labor markets in the United States are concentrated. However, their methodology does not squarely portray the ones that are used in monopoly analysis even though doing so is correct under the mirror image rule. They omitted important factors such as the total hours of labor demand and wage. Instead of considering the total hours of labor demand, some of the scholars used job vacancies to show concentration in labor markets. Job vacancy fails to show the true labor demand. Similarly, failing to factor in wages in the HHI calculation also

101. Brown Shoe Co. v. United States, 370 U.S. 294, 336—37 (1962).

distorts the labor market since wages reflect worker preferences and employers' abilities to pay for labor. Similar to how the HHI on monopoly claims factors in revenues, the HHI for monopsonic labor market analysis should also factor in labor expenses which already reflects the total hours of labor demand and wages. The proposed method of calculating the labor cost accounts for the total hours of labor demand and wages, more accurately reflecting labor market realities.

Figure 1. DoJ compl., p.5

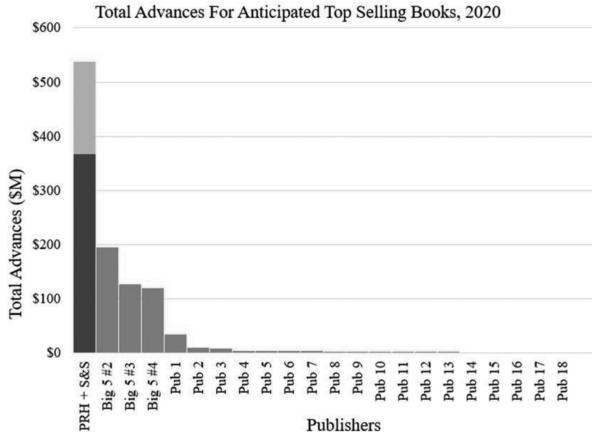

Figure 2. Def.' answer to the DoJ compl., p.2.

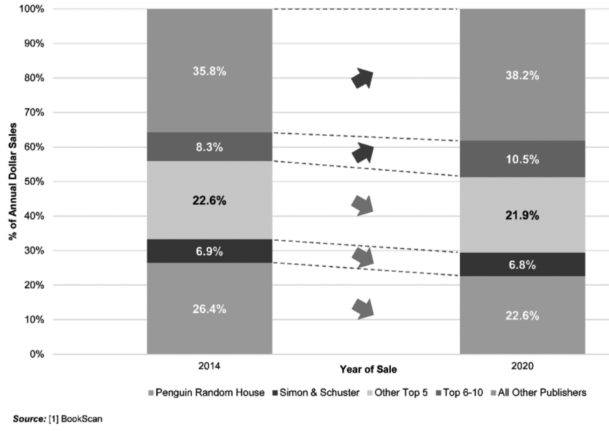

Figure 3.

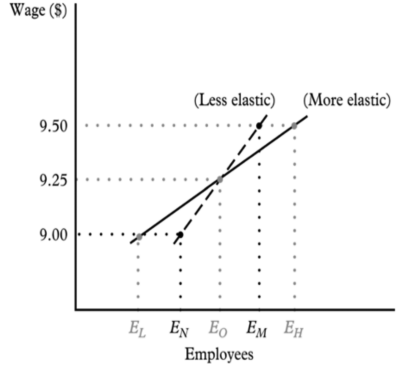

Figure 4.

Labor Supply Schedule for a Hypothetical Firm Operating in a Monopsonic Market			
Offered wage (&)	Supply of Labor	Total hourly labor cost ($)	Marginal expense of labor ($)
8	10	(8 × 10) = 80	
9	11	(9 × 11) = 99	(99 – 80) = 19
10	12	(10 × 12) = 120	(120 – 99) = 21
11	13	(11 × 13) = 143	(143 – 120) = 23

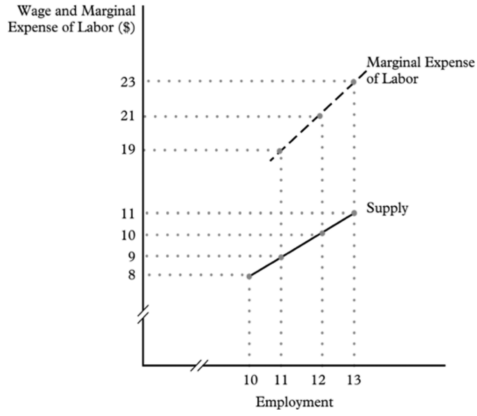

Figure 5.

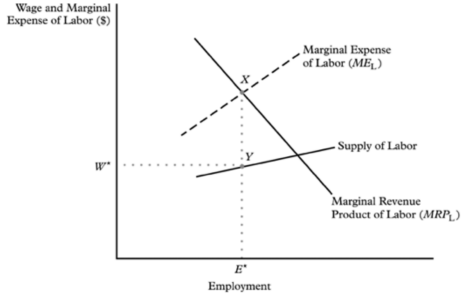

Figure 6.

2021 National Employment Matrix title	Less than high school diploma	High school diploma or equivalent	Some college, no degree	Associate's degree	Bachelor's degree	Master's degree	Doctoral or professional degree
Anesthesiologists	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Cardiologists	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Dermatologists	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Emergency, Family, or General Internal medicine physicians	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Foresters	0.0	0.0	0.0	0.0	76.22	18.7	5.1
Marketing managers	0.7	3.8	9.3	5.0	55.8	23.5	2.0
Food processing workers, all other	25.4	43.5	20.6	5.0	4.8	0.5	0.2

$$HHI = \sum_{i=1}^{n} (Market\ Share_i)^2$$