

# **EXHIBIT 5**

**IN THE UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF ILLINOIS  
EASTERN DIVISION**

LEINANI DESLANDES, on behalf of herself )  
and all others similarly situated, )

Plaintiff, )

v. )

McDONALD’S USA, LLC, a Delaware limited )  
liability company, McDONALD’S )  
CORPORATION, a Delaware corporation; and )  
DOES 1 through 10, inclusive, )

Defendants. )

Case No. 17-cv-04857

Judge Jorge L. Alonso  
Magistrate Judge M. David Weisman

STEPHANIE TURNER, on behalf of herself )  
and all others similarly situated, )

Plaintiff, )

v. )

McDONALD’S USA, LLC, a Delaware limited )  
liability company, McDONALD’S )  
CORPORATION, a Delaware corporation, )

Defendants. )

Case No. 19-cv-05524

**Expert Witness Report of Hal Singer**

January 15, 2021

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### INTRODUCTION AND ASSIGNMENT

1. Plaintiffs Stephanie Turner, Leinani Deslandes, and a proposed class of similarly situated workers allege that Defendants McDonald's USA, LLC and McDonald's Corporation (collectively, "Defendants" or "McDonald's") entered into an agreement with their franchisees ("Franchisees," sometimes also referred to as "Owner-Operators" or "O/O's"), pursuant to which McDonald's and its Franchisees agreed not to recruit or hire each other's employees (the "Challenged Conduct" or "No-Hire Agreement").<sup>1</sup> Less than ten percent of McDonald's restaurants are owned and operated by the McDonald's corporation ("McOpCos"); the remaining McDonald's restaurants are separately owned and operated by Franchisees.<sup>2</sup> I understand that Plaintiffs seek to certify a class of workers ("Class" or "Class Members") consisting of "[a]ll persons who were employed at a McDonald's-branded restaurant in the United States from June 28, 2013 to July 12, 2018."<sup>3</sup>

2. The No-Hire Agreement is evidenced in the standard McDonald's franchise contract, which governs all Franchisees' ownership and operation of McDonald's-branded restaurants ("Franchise Agreement"). Paragraph 14 of the Franchise Agreement prohibited Franchisees from

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1. *Stephanie Turner v. McDonald's USA et. al.*, Case No. 1:19-cv-05524 (N.D. ILL.), Class Action Complaint (August 15, 2019) [hereafter Turner Complaint]; *Leinani Deslandes v. McDonald's USA et. al.*, Case No. 1:17-cv-04857 (N.D. ILL.), Amended Class Action Complaint (September 18, 2017) [hereafter Deslandes Complaint].

2. The McOpCos have represented a small and decreasing share of McDonald's restaurants, declining from 11 percent in 2011 to just five percent by 2019. *See, e.g.,* <https://www.qsrmagazine.com/content/qsr50-2020-top-50-chart> (showing 13,154 franchised McDonald's and 692 McOpCos as of 2019). *See also* MCDAT00113567 at MCDAT00113576 ( [REDACTED] ).

3. The operative complaints identify a substantially similar class, albeit without the timeframe limitation: "[a]ll persons in the United States who are current or former employees and/or managers at all McDonald's restaurants whether operated by McDonald's itself or by a McDonald's Franchisee." Turner Complaint ¶116; *see also* Deslandes Complaint ¶117.



March 2017 announcement.<sup>8</sup> In July 2018, pursuant to a settlement between Defendants and the Washington State Attorney General (“AG Settlement”),<sup>9</sup> McDonald’s entered into an Assurance of Discontinuance (“AOD”).<sup>10</sup> In the AOD, McDonald’s agreed that it would “no longer include paragraph 14 or similar provisions in any of its future franchise agreements nationwide,”<sup>11</sup> and that it would “continue not to enforce paragraph 14 in any of its existing franchise agreements

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8. See MCDAT00389925 (

[REDACTED]).  
[REDACTED]. See MCDAT00348544 at MCDAT00348549 ( [REDACTED]). Moreover, [REDACTED]. See Part II.B below. See also MCDAT00376796 ( [REDACTED]). See also *id.* at [REDACTED]. See also MCDAT00376797 ( [REDACTED]).

9. See, e.g., “AG Ferguson announces fast-food chains will end restrictions on low-wage workers nationwide,” Washington State Attorney General Press Release (July 12, 2018) [hereafter AG Settlement Press Release], available at: <https://www.atg.wa.gov/news/news-releases/ag-ferguson-announces-fast-food-chains-will-end-restrictions-low-wage-workers>.

10. *In Re Franchise No Poaching Provisions*, McDonald’s USA LLC Assurance of Discontinuance, State of Washington Superior Court, Case No. 18-2-17229-2SEA (July 12, 2018) [hereafter AOD]. See also Turner Complaint ¶11.

11. AOD ¶3.1.1. See also *id.* ¶3.1.6 (“All of McDonald's USA, LLC's new franchise agreements that have been signed since March 2017 have not included paragraph 14. Going forward, McDonald’s USA, LLC will continue this practice for all franchise operators nationwide, including for (a) new franchise operators signing franchise agreements for the first time, (b) existing franchise operators whose franchise agreements have expired and/or are otherwise subject to renewal, rebuild or relocation, and (c) franchise operators who are acquiring a McDonald’s Operating Companies restaurant business or another franchise operator’s restaurant business[.]”).

nationwide.”<sup>12</sup> Although the July 2018 AG Settlement was publicized in a press release posted on the Internet,<sup>13</sup> and received some media coverage,<sup>14</sup> the March 2017 announcement was not similarly publicized, nor was it disseminated by McDonald’s to Class Members.<sup>15</sup>

4. I have been asked by counsel for Plaintiffs to determine whether common methods and evidence can be used to demonstrate that the Challenged Conduct: (1) suppressed wages generally for Class Members below levels that would have prevailed in the absence of the Challenged Conduct (“Anticompetitive Effects”); and (2) whether any such generalized wage suppression can be shown to have affected all or almost all Class Members (“Common Impact”). I have also been asked to determine whether common methods and evidence can be used to calculate the aggregate amount of under-compensation attributable to the Challenged Conduct across the proposed class (“Aggregate Damages”). Finally, I have also been asked to review and assess potential procompetitive justifications of the Challenged Conduct (“Efficiencies”), and to determine whether any of the claimed Efficiencies would need to be resolved with individualized inquiry.

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12. *Id.* ¶3.1.2. McDonald’s also agreed to notify Franchisees in Washington State of the AOD, and to begin amending franchise agreements in Washington State to remove Paragraph 14. *Id.* ¶¶3.1.3-4.

13. AG Settlement Press Release, *supra*.

14. See, e.g., Anthony Noto, *McDonald’s and other fast-food chains end no-poach rules in contracts*, NEW YORK BUSINESS JOURNAL, July 2018, available at: <https://bit.ly/2KrbjCv>; see also Jackie Wattles, *7 fast food chains agree to end ‘no-poach’ rules*, CNN, July 12, 2018, available at: <https://money.cnn.com/2018/07/12/news/companies/no-poach-fast-food-industry-wages-attorneys-general/index.html>

15. A *New York Times* article from September 2017 (*i.e.*, after the filing of the Deslandes lawsuit) mentions the end of the No-Hire Agreement in passing, but does not provide any indication that Class Members were notified of it. See Rachel Abrams, *Why Aren’t Paychecks Growing? A Burger-Joint Clause Offers a Clue*, NEW YORK TIMES, Sept. 17, 2017, available at <https://www.nytimes.com/2017/09/27/business/pay-growth-fast-food-hiring.html> (“Some of fast-food’s biggest names, including Burger King, Carl’s Jr., Pizza Hut and, until recently, McDonald’s, prohibited franchisees from hiring workers away from one another, preventing, for example, one Pizza Hut from hiring employees from another.”).



5. As explained below, I conclude that common methods and evidence demonstrate Anticompetitive Effects and Common Impact to the Class, with approximately 99 percent of Class Members suffering antitrust injury, including 99 percent of crew-level employees (“Crew”), and 98 percent of managerial employees (“Managers”). I also conclude that common methods and evidence demonstrate Aggregate Damages attributable to the No-Hire Agreement totaling approximately \$ [REDACTED], or about 5.9 percent<sup>16</sup> of the \$ [REDACTED] in total Class Member compensation over the (five-year) relevant period.<sup>17</sup> Of this, approximately \$ [REDACTED] derives from underpayments to Crew, and approximately \$ [REDACTED] derives from underpayments to Managers. I also conclude that the Efficiencies likely to be claimed by McDonald’s are unavailing and, in any case, would be assessed via evidence and methods common to the Class.

6. The opinions expressed in this report reflect my review of evidence, data, testimony and other relevant materials to date. I reserve the right to supplement or amend my opinions should new materials or information become available.

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16. This 5.9 percent effect is below estimates from other antitrust class actions involving suppression of class member compensation. *See, e.g., In re: High-Tech Employee Antitrust Litig.*, 5:11-cv-02509-LHK (N.D. Cal July 11, 2014), Dkt. 967-1 at 20 (average suppression of 9.3%); *Nitsch v. DreamWorks Animation SKG Inc.*, 14-cv-04062-LHK (N.D. Cal. Feb. 10, 2016), Dkt. 215-6 at 85 (average suppression of 17.3%); *Seaman v. Duke University, et al.*, 15-cv-462 (M.D.N.C. Mar. 6, 2019), Dkt. 315-3 at 37 (average suppression of 6.3%).

17. That Class Member compensation totaled \$ [REDACTED] over approximately five years is unsurprising given that McDonald’s is one of the largest employers in the United States. *See, e.g.,* Alexander E.M. Hess, “The 10 largest employers in America” *USA Today* (August 22, 2013) (listing McDonald’s as the third-largest employer behind Wal-Mart and Yum! Brands).

### QUALIFICATIONS

7. I am a managing director at Econ One, a senior fellow at the George Washington Institute of Public Policy, and an adjunct professor at the McDonough School of Business at Georgetown University, where I teach advanced pricing to MBA candidates.

8. I am an applied microeconomist with an emphasis on industrial organization and regulation. In an academic capacity, I have published several books and book chapters, spanning a range of industries and topics, and my articles have appeared in dozens of legal and economic journals. My competition-related articles have appeared in multiple American Bar Association (ABA) Antitrust Section journals, and I have been a panelist at several ABA Antitrust events. In a consulting capacity, I have been nominated for antitrust practitioner of the year among economists by the American Antitrust Institute (AAI) for my work in *Tennis Channel v. Comcast*, and the AAI named me as co-Honoree in the same category in 2018 for my work *In Re Lidoderm Antitrust Litigation*.

9. I have testified as an economic expert in state and federal courts, as well as before regulatory agencies. I also have testified before Congress on the interplay between antitrust and sector-specific regulation. With respect to labor issues, I have served as an expert for classes of workers in three antitrust matters that I may disclose at this time: in *Arizona Travel Nurses*,<sup>18</sup> where

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18. I have also served as expert for plaintiffs in other classes that have been certified based in part on my proof of common impact, including most recently *In Re Lidoderm Antitrust Litigation*. The district court accepted my methodology for proving antitrust impact in *Johnson v. Arizona Hospital & Healthcare Ass'n*, No. CV 07-1292-PHX-SRB, 2009 WL 5031334 (D. Ariz. 2009) at \*8, 11. The same “two-step” methodology utilized in *Johnson* was accepted by the court in *In re High-Tech Employee Antitrust Litigation*, 985 F.Supp.2d 1167, at 1206 (N.D. Cal. 2013) *Order Granting Plaintiffs’ Supplemental Motion For Class Certification* (“Plaintiffs noted that Dr. Leamer’s approach followed a roadmap widely accepted in antitrust class actions that uses evidence of general price effects plus evidence of a price structure to conclude that common evidence is capable of showing widespread harm to the class.”). *See also, e.g., Johnson*, 2009 WL 5031334 at

the court relied on my proof of impact in certifying the class; in *Cung Le et. al. v. Zuffa*,<sup>19</sup> in which the court also relied on my proof of impact in certifying the bout class; and in *Donald Conrad et. al v. Jimmy John's*,<sup>20</sup> which involves No-Poach clauses similar to the instant case, with a class-certification decision currently pending. Courts have relied on my work in certifying seven classes in antitrust matters.<sup>21</sup>

## I. BACKGROUND

10. In this section, I review the extensive economic literature documenting and measuring the exercise of monopsony power in labor markets, including in markets for low-skilled labor. By now, these findings are so well established in the economics profession that a recent article in *The Economist* magazine explained to its lay audience that “[m]ore sophisticated theorising about labour markets recognises that they are not perfectly competitive,” and that “[o]ver the past 20 years

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\*8, 11 (finding predominance where conduct was alleged to suppress bill rates for nurses generally and evidence was presented that bill rates were correlated with nurse pay rates).

19. *Cung Le, et al v. Zuffa, LLC, d/b/a Ultimate Fighting Championship and UFC*, Case No. 2:15-cv-01045, U.S. District Court, District of Nevada.

20. *Donald Conrad, et al v. Jimmy John's Franchise, LLC*, Case No. 3:18-cv-00133-NJR-RJD, U.S. District Court, Southern District of Illinois.

21. See Kevin Draper, *Fighters Win Key Ruling in Case That Could Upend U.F.C.'s Business*, NEW YORK TIMES, December 10, 2020 (“A federal judge said on Thursday that he would make an important procedural ruling in favor of a group of mixed martial artists who are suing the Ultimate Fighting Championship, accusing it of abusing monopoly power to suppress fighter pay. The lawsuit, which will be granted class action status, could eventually cost the U.F.C. billions of dollars, fundamentally alter the world of mixed martial arts and establish new antitrust case law.”). As of the time of this report, the court has not issued the written opinion. See also *Meijer, Inc. v. Abbott Laboratories*, No. C 07-5985 CW, 2008 WL 4065839 (N.D. Cal. Aug. 27, 2008) (Order Granting Plaintiffs’ Motion for Class Certification); *Natchitoches Parish Hosp. Serv. Dist. v. Tyco Intl., Ltd.*, 262 F.R.D. 58 (D. Mass. 2008) (granting motion to certify class); *In re Delta/AirTran Baggage Fee Antitrust Litig.*, 317 F.R.D. 665 (N.D. Ga. 2016) (same); *Johnson v. Arizona Hosp. and Healthcare Assoc.* No. CV 07-1292-PHX-SRB, 2009 WL 5031334 (D. Ariz. July 14, 2009) (granting in part motion for class certification); *Southeast Missouri Hospital and St. Francis Medical Center v. C.R. Bard*, No. 1:07cv0031 TCM, 2008 WL 4372741 (E.D. Mo. Sept. 22, 2008) (granting in part and denying in part motion for class certification); and *In re Lidoderm Antitrust Litig.*, No. 12-md-02521, 2017 WL 679367 (N.D. Cal. Feb. 21, 2017) (Order Granting Motions for Class Certifications and Denying Daubert Motions).

a growing body of research has shown that a key consideration [in labor markets] is the power enjoyed by employers.”<sup>22</sup> I also explain the economic rationale for no-poaching agreements generally, and how they facilitate the exercise of brand-specific monopsony power by restricting labor mobility.

#### A. Monopsony Power in Labor Markets

11. A firm or a group of firms has *selling* power or monopoly power if it possesses “the power to control prices or exclude competition.”<sup>23</sup> The exercise of monopoly power may impose economic costs on society by restricting output, raising price, reducing quality or consumer choice, or inhibiting innovation relative to the levels that would have prevailed under competition.<sup>24</sup>

12. Monopsony power or *buying* power<sup>25</sup> is the mirror image of monopoly power; a firm possesses monopsony power if it wields market power over factors of production such as labor.<sup>26</sup> The exercise of monopsony power in the labor market harms competition by suppressing wages and employment below competitive levels.<sup>27</sup> The harm to competition from monopsony is directly analogous to the harm from monopoly.<sup>28</sup>

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22. *What harm do minimum wages do?*, THE ECONOMIST, Aug. 15, 2020.

23. *United States v. E. I. du Pont de Nemours & Co.* (“*Cellophane*”), 351 U.S. 377, 391 (1956).

24. *Id.* See DENNIS CARLTON & JEFFREY PERLOFF, MODERN INDUSTRIAL ORGANIZATION 88-98 (Pearson 2005 4th ed.) [hereafter MODERN IO]. See also Thomas Krattenmaker, Robert Lande & Steven Salop, *Monopoly Power and Market Power in Antitrust Law* 76 GEORGETOWN LAW JOURNAL 241-269 (1987); Timothy Brennan, *Bundled Rebates as Exclusion Rather Than Predation* 4(2) JOURNAL OF COMPETITION LAW AND ECONOMICS 335-374 (2008). As is common practice in economics, I use the terms “market power” and “monopoly power” interchangeably. See MODERN IO at 93.

25. U.S. Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines* (2010) §1; §12 [hereafter *Merger Guidelines*].

26. See, e.g., MODERN IO at 107-110.

27. *Id.*

28. *Id.* See also *Merger Guidelines* §1 (“Enhancement of market power by buyers, sometimes called “monopsony power,” has adverse effects comparable to enhancement of market power by sellers. The Agencies employ an analogous framework to analyze mergers between rival purchasers

13. Labor economists and antitrust scholars have recognized the exercise of monopsony power in U.S. labor markets as a significant challenge for antitrust enforcement. According to Professors Ioana Marinescu and Eric Posner:

The United States has a labor monopsony problem. A labor monopsony exists when lack of competition in the labor market enables employers to suppress the wages of their workers. Labor monopsony harms the economy: the low wages force workers out of the workforce, suppressing economic growth. Labor monopsony harms workers, whose wages and employment opportunities are reduced. Because monopsonists can artificially restrict labor mobility, monopsony can block entry into markets, and harm companies who need to hire workers. The labor monopsony problem urgently calls for a solution.<sup>29</sup>

14. Economists define the marginal revenue product (“MRP”) of labor as the increase in revenue generated by an additional unit of labor, holding other factors constant. In competitive labor markets, additional workers are hired up to the point when a worker’s MRP is equal to the wage rate. In monopsony labor markets, by contrast, wages are set *below* the MRP. This means that there is a

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that may enhance their market power as buyers.”). *See also* DOJ Competitive Impact Statement at 5-6, *Lucasfilm*, 2010 WL 2636850 (No. 10-cv-02220), ECF No. 2 (“Antitrust analysis of downstream customer-related restraints applies equally to upstream monopsony restraints on employment opportunities.”). *See also* *Vogel v. Am. Soc’y of Appraisers*, 744 F.2d 598, 601 (7th Cir. 1984) (stating that monopoly and monopsony are “symmetrical distortions of competition.”) (quoted in *Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co.*, 549 U.S. 312, 322 (2007)).

29. Ioana Marinescu & Eric Posner, A Proposal to Enhance Antitrust Protection Against Labor Market Monopsony 2 (Roosevelt Institute Working Paper, 2018). *See also* Kevin Caves & Hal Singer, *When the Econometrician Shrugged: Identifying and Plugging Gaps in the Consumer-Welfare Standard*, 26 GEO. MASON L. REV 395, 410-411 (2019) [hereinafter Caves & Singer (2019)] (“As any standard economics textbook can attest, the economic harm resulting from the exercise of monopsony power is directly analogous to that resulting from monopoly power. Yet while the latter has been the core focus of antitrust practitioners since the inception of the Sherman Act, the former has generally attracted scant attention from public or private antitrust enforcement, despite the fact that a worker who receives a subcompetitive wage is likely harmed just as much, if not more, than a consumer paying a supracompetitive price....The United States economy has been expanding for nearly a decade, yet wage growth has been sluggish—particularly for less-skilled workers—while labor force participation has remained stubbornly low. Since the 1970s, real wages for the average worker have increased by only about 3%; the bottom 20% have seen their real wages decline over this same period...economists and antitrust practitioners have increasingly linked such trends to the exercise of monopsony power by employers.”).

gap between the amount that a worker is paid and the amount of revenue she generates for her employer. The more monopsony power that an employer has, the larger is the gap, and the more compensation is suppressed below the competitive level.

**1. A Low Elasticity of Labor Supply Implies Less Worker Mobility and Greater Wage Suppression**

15. A firm’s ability to suppress wages below competitive levels depends on worker mobility—specifically, workers’ ability to switch to a competing employer if and when an employer attempts to suppress their compensation. In economics, this form of worker mobility is sometimes described as the slope of the “labor supply curve,” or the “labor supply elasticity.” As illustrated in Appendix Figure, a firm that lacks monopsony power in the labor market faces a *horizontal* (or “perfectly elastic”) supply curve for labor. An employer in this scenario faces a perfectly competitive labor market, takes the market wage as given, and can hire as much labor as it requires at the market wage.<sup>30</sup> In other words, the price of labor remains constant irrespective of the quantity demanded (purchased) by the employer. In contrast, as illustrated in Appendix Figure C2, a firm with monopsony power faces an *upward-sloping* labor supply curve, meaning that it can push wages down below the competitive level. The extent to which an employer can push down wages before competition limits its ability to do so is dictated by its labor market power. Labor market power can be quantified using the elasticity of labor supply faced by an individual firm (sometimes referred to as the “residual labor supply elasticity”).<sup>31</sup> The elasticity of labor supply measures the

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30. See, e.g., MICHAEL KATZ & HARVEY ROSEN, MICROECONOMICS 264-265 (Irwin McGraw-Hill 3rd ed. 1998).

31. See, e.g., Suresh Naidu, Eric Posner & Glen Weyl, *Antitrust Remedies for Labor Market Power*, 132 HARV. L. REV. 536-601, 557 (2018) [hereafter Weyl et. al. (2018)] (“Residual labor supply elasticity is a simple measure of a firm’s labor market power. If workers do not quit even if the firm lowers wages significantly (elasticity is low), then the firm enjoys significant market power over the workers. This is the number that antitrust policy focuses on. If the residual labor supply

responsiveness of the quantity of labor supplied to changes in the price of labor. All else equal, a lower elasticity of supply implies a greater exercise of monopsony power—that is, a greater gap between a worker’s wage and her MRP.<sup>32</sup> Firms can suppress wages below (or further below) competitive levels by engaging in conduct, including no-poach or non-compete agreements generally, that has the effect of limiting worker mobility and thus dampening their residual labor supply elasticity.

**2. An Extensive Economic Literature Provides Widespread Evidence of Low Labor Supply Elasticities and Substantial Wage-Setting Power in Labor Markets**

16. An extensive economic literature has documented widespread evidence of wage-setting power in labor markets. As Professor Alan Manning observes in the *Handbook of Labor Economics*, “it has been increasingly recognized that many aspects of labor markets are best analyzed from the perspective that there is some degree of imperfect competition.”<sup>33</sup> Professor Manning reviews a range of studies estimating the labor supply elasticity; the empirical estimates generally imply substantial monopsony power.<sup>34</sup> Similarly, in the *Journal of Labor Economics*, Professor Ashenfelter and his co-authors review empirical studies documenting low labor supply

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elasticity that a firm faces is high, then the labor market from which a firm draws its workers is competitive, and the firm cannot ‘exploit’ workers.”).

32. There is a direct parallel between a monopolist—a *seller* with market power—and a monopsonist—a *buyer* with market power. Just as the monopolist’s optimal markup over marginal cost varies inversely with the elasticity of consumer *demand*, the monopsonist’s optimal markdown below MRP is inversely related to the elasticity of labor *supply*. The solution to the monopolist’s problem of what price to charge is given by  $(p-c)/p = 1/E_D$ , where  $p$  is the price,  $c$  is the marginal cost, and  $E_D$  is the elasticity of consumer demand. By symmetry, the solution to the monopsonist’s problem of what wage to pay is  $(MRP-w)/w = 1/E_S$ , where  $w$  is the wage, MRP is the worker’s marginal revenue product, and  $E_S$  is the elasticity of labor supply. *See, e.g.*, ROGER BLAIR, SPORTS ECONOMICS 354 (Cambridge University Press 2012).

33. Alan Manning, *Imperfect Competition in the Labor Market*, 4 HANDBOOK OF LABOR ECONOMICS 973-1041, 974 (2011) [hereafter, Manning (2011)].

34. *Id.* at 1002-1013.

elasticities, concluding that “[t]he remarkable common feature of all the studies reported here is the high ‘monopsony power’ implied by the firm-level estimates of labor supply.”<sup>35</sup>

**3. The Economic Literature Demonstrates That Monopsony Power Is Common In Low-Wage Labor Markets**

17. The economic literature documenting monopsony power in low-wage labor markets was also summarized in a 2018 *Harvard Law Review* article by the economist Glen Weyl and his co-authors.<sup>36</sup> The authors explain that “[e]vidence that labor markets, particularly low-wage labor markets, are monopsonistic has been accumulating over the past two decades.”<sup>37</sup> The authors review a range of economic studies of monopsony.<sup>38</sup> Their overall finding is that the ability of individual firms to suppress wages below competitive levels appears to be “surprisingly common throughout the economy,”<sup>39</sup> including in low-skill labor markets:

Overall, the recent evidence suggests that low labor elasticities, ranging from 1 to 5 (and possibly even lower), are surprisingly common throughout the economy. Even the residual supply of low-skill labor is relatively inelastic, in the range of 1 to 3, despite the earlier conventional wisdom that inelastic labor markets were caused by the time and cost of obtaining education and specialized training, which low-skill workers, by definition, lack.<sup>40</sup>

That McDonald’s-branded restaurant owners also face a low elasticity of labor supply would be consistent with this literature. The finding of low *residual* labor supply elasticities is significant, because it measures the labor market power enjoyed by individual firms, as opposed to that of a hypothetical monopsonist in a given labor market. (If an individual McDonald’s restaurant can

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35. Orley Ashenfelter, Henry Farber & Michael Ransom, *Labor Market Monopsony*, 28(2) JOURNAL OF LABOR ECONOMICS 203-210, 209 (2010) (“The articles in this issue provide remarkable evidence that labor markets are far from competitive.”).

36. Weyl et al. (2018).

37. *Id.* at 560.

38. *Id.* at 560-564.

39. *Id.* at 564.

40. *Id.*



exercise monopsony power, a hypothetical monopsonist over all McDonald's labor could exercise even more).<sup>41</sup> If an employer faces a residual labor supply elasticity equal to one, that employer would maximize its profit by paying workers just half of the revenue they contribute to the firm (that, is, 50 percent of their MRP). With a residual labor supply elasticity of three, workers would still be compensated at only 75 percent of their MRP.<sup>42</sup> In papers studying labor-market competition,<sup>43</sup> economists have controlled for various factors using wage regressions, including time trends,<sup>44</sup> county unemployment rate,<sup>45</sup> and occupation fixed effects.<sup>46</sup> I employ some of those same control variables in my wage regression below.

18. The earliest study on point is a well-known 1994 paper by the economists David Card and Alan Krueger.<sup>47</sup> Professors Card and Krueger tested the hypothesis that an increase in the minimum wage would reduce employment among fast-food workers, which hinges on the

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41. *Id.* at 557.

42. The monopsony wage can be written  $w = \text{MRP}/(1 + 1/E_S)$ , where  $w$  is the wage, MRP is the worker's marginal revenue product, and  $E_S$  is the elasticity of labor supply. *See, e.g.*, ROGER BLAIR, *SPORTS ECONOMICS* 354 (Cambridge University Press 2012).

43. *See, e.g.*, José Azar, Ioana Marinescu & Marshall I. Steinbaum, *Labor Market Concentration* (Nat'l Bureau of Econ. Rsch., Working Paper No. w24147, 2017) [hereafter Azar et al. (2017)]; José Azar, Emiliano Huet-Vaughn, Ioana Marinescu, Bledi Taska & Till Von Wachter, *Minimum Wage Employment Effects and Labor Market Concentration* 20 (Nat'l Bureau of Econ. Rsch., Working Paper No. 26101, July 5, 2019) [hereafter Azar et al. (2019a)]; Efraim Benmelech, Nittai Bergman & Hyunseob Kim, *Strong Employers and Weak Employees: How Does Employer Concentration Affect Wages?* 1 (January 31, 2019) (unpublished manuscript) [hereafter Benmelech et al. (2019)]; Kevin Rinz, *Labor Market Concentration, Earnings Inequality, and Earnings Mobility* 28 (US Census Bureau Center for Economic Studies, Working Paper 10, 2018) [hereafter Rinz (2018)].

44. Azar et al. 2019a.

45. *Id.*

46. Pedro S. Martins, *Making their own weather? Estimating employer labour-market power and its wage effects* 1-15 (Queen Mary University of London School of Business and Management: Centre for Globalisation Research, Working Paper 95, 2018).

47. David Card & Alan B. Krueger, *Minimum Wages and Employment: A Case Study of the Fast Food Industry in New Jersey and Pennsylvania*, 84 AM. ECON. REV. 772-793 (1994) [hereafter, Card & Kreuger (1994)].

assumption that these workers are already paid a competitive wage. They found “no evidence that the rise in New Jersey’s minimum wage reduced employment at fast-food restaurants in the state,”<sup>48</sup> indicating that fast food workers actually “were paid less than their marginal [revenue] product and hence the employer could absorb the higher wage rate.”<sup>49</sup> The ability to compensate fast-food employees below their marginal revenue product is the essence of monopsony power. Economists have reproduced this finding by applying increasingly sophisticated econometric methods to more recent and comprehensive data sets.<sup>50</sup> That increases in the minimum wage do not tend to reduce employment among low-wage workers demonstrates that their wages were suppressed below competitive levels due to the exercise of monopsony power.

19. When workers face higher switching costs between jobs, this tends to reduce labor market mobility and to facilitate the exercise of monopsony power. Anything that raises the costs of searching for a new job or switching jobs, including job-specific training or heterogenous characteristics of job offers within the same industry as well as restraints on labor mobility such as those being challenged here, will tend to dampen the elasticity of supply faced by a single firm, thereby increasing its labor market power. Using dynamic models of monopsony, Professor Manning showed that employers have some wage-setting power at the *firm level*, even in the presence of many competitors.<sup>51</sup> Workers seldom change jobs with the same ease with which a consumer might (say)

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48. *Id.* at 792.

49. Weyl *et al.* (2018) at 561 (citing Card & Krueger (1994) at 792).

50. *See, e.g.*, Arindrajit Dube, William Lester & Michael Reich, *Minimum Wage Effects Across State Borders: Estimates Using Contiguous Counties*, 92(4) REVIEW OF ECONOMICS AND STATISTICS 945-964, 945 (2010) (finding “no adverse employment effects” of minimum wage policies); Arindrajit Dube, William Lester & Michael Reich, *Minimum Wage Shocks, Employment Flows, and Labor Market Frictions*, 34(3) JOURNAL OF LABOR ECONOMICS 663-704 (2016) (finding that minimum wage laws increase wages without reducing overall employment levels).

51. *See, e.g.*, ALAN MANNING, MONOPSONY IN MOTION: IMPERFECT COMPETITION IN LABOR MARKETS 80, 104–05, 107–08 (2003) [hereafter, Manning (2003)].

switch to filling up her car at a different gasoline station; therefore, one should not expect competition from multiple potential employers to keep wages competitive in the same way that competition from multiple filling stations may discipline the retail markup charged for gasoline.<sup>52</sup>

Various economists have utilized and extended Professor Manning's framework to estimate firm-specific elasticities of supply, which suggest significant levels of buying power for employers.<sup>53</sup>

Economists have studied the labor supply elasticity by analyzing both the flow of labor into the firm ("recruits") and the flow of labor out of the firm ("quits"). The residual labor supply elasticity can be estimated based on the responsiveness of both flows to changes in compensation. The econometric estimates produced by such studies again reveal substantial monopsony power.<sup>54</sup>

20. The economic literature has documented various sources of firm-specific monopsony power, including high industry concentration,<sup>55</sup> no-poach or noncompete provisions,<sup>56</sup> and certain

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52. Manning (2011), *supra*, at 974-975 ("people think jobs are a 'big deal'...when asked open-ended questions about the most important events in their life over the past year, employment-related events (got job, lost job, got promoted) come second after "family" events (births, marriages, divorces, and death)[.]").

53. Boris Hirsch, Thorsten Schank & Claus Schnabel, *Differences in labor supply to monopsonistic firms and the gender pay gap: An empirical analysis using linked employer-employee data from Germany*, 28 JOURNAL OF LABOR ECONOMICS 291-330 (2010) (finding monopsony power across a range of German industries); Michael R. Ransom and Ronald L. Oaxaca, *New market power models and sex differences in pay*, 28 JOURNAL OF LABOR ECONOMICS 267-89 (2010) (finding monopsony power for a single employer); Michael R. Ransom & David P. Sims, *Estimating the firm's labor supply curve in a "new monopsony" framework: Schoolteachers in Missouri*, 28 JOURNAL OF LABOR ECONOMICS 331-55 (2010) (finding monopsony power among public schools in Missouri).

54. *See, e.g.*, Manning (2003) 80, 104-05, 107-08 (2003). *See also* Douglas Webber, *Firm Market Power and the Earnings Distribution*, 35 LABOUR ECONOMICS 123-134, 128 (2015); Douglas Webber, *Firm-Level Monopsony and the Gender Pay Gap*, 55(2) INDUSTRIAL RELATIONS 323-345, 344 (2016); Weyl et. al. (2018) at 561-562.

55. Benmelech et al. (2019); Azar et al. 2017.

56. Alan B. Krueger, Orley Ashenfelter et al., *Theory and Evidence on Employer Collusion in the Franchise Sector* (IZA Discussion Paper, No. 11672, July 2018) [hereafter Krueger & Ashenfelter (2018)]; Evan Starr, JJ Prescott, and Norman Bishara, *Noncompetes in the US labor*

aspects of the “information and market environment.”<sup>57</sup> In a recently published study in the *American Economic Review*, Professor Dube and his co-authors find that recruiters on the online task platform MTurk face a low labor supply elasticity despite the absence of a concentrated labor market generally.<sup>58</sup> Regarding the source of monopsony in online task markets, the authors posit the imbalance of power between worker and recruiter may be “exacerbated by the information environment facing workers, which makes searching for alternative jobs difficult.”<sup>59</sup>

**B. No-Hire Agreements Enhance Monopsony Power by Suppressing Labor Mobility**

21. From an economic perspective, an agreement not to compete in the labor market is directly analogous to an agreement not to compete in the product market: Supposing hypothetically that separately-owned McDonald’s restaurants had agreed not to compete in the product market through (say) a market-allocation agreement,<sup>60</sup> the predicted result would be unambiguously anticompetitive, with higher prices (and lower output) for McDonald’s products than would otherwise prevail.<sup>61</sup> Similarly, when McDonald’s restaurants agree not to compete in the labor

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*force*, JOURNAL OF LAW AND ECONOMICS (forthcoming) (2019); Evan Starr, *The Use, Abuse, and Enforceability of Non-Compete and No-Poach Agreement* (University of Maryland Robert H. Smith School of Business Economic Innovation Group, February 2019 Issue Brief).

57. Arindrajit Dube, Jeff Jacobs, Suresh Naidu & Siddharth Suri, *Monopsony in Online Labor Markets*, AMERICAN ECONOMIC REVIEW: INSIGHTS, 2(1) 33-46 (2020).

58. *Id.*

59. *Id.* at 45.

60. U.S. Department of Justice, *Price Fixing, Bid Rigging, And Market Allocation Schemes*, available at: <https://www.justice.gov/atr/price-fixing-bid-rigging-and-market-allocation-schemes> (“Market division or allocation schemes are agreements in which competitors divide markets among themselves. In such schemes, competing firms allocate specific customers or types of customers, products, or territories among themselves.”).

61. See, e.g., N. GREGORY MANKIW, PRINCIPLES OF ECONOMICS 339 (Cengage Learning 8th ed. 2018). See also MCDAT00307691 at MCDAT00307700 (

[REDACTED]

market, the predicted result is lower compensation (and less employment) for McDonald's employees,<sup>62</sup> as this Court has noted.<sup>63</sup>

22. Economists recognize that market wages, like market prices, are set at the margin: Just as the market price for a product is determined by the most price-sensitive customers on the product's demand curve, the market wage is determined by the most wage-sensitive workers on the

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62. See, e.g., Caves & Singer (2019), *supra*, at 410-411; see also Kevin Caves & Hal Singer, *Analyzing High-Tech Employee: The Dos and Don'ts of Proving (and Disproving) Classwide Antitrust Impact in Wage Suppression Cases*, ANTITRUST SOURCE (2015) [hereafter Caves & Singer (2015)], at 3-4. See also Justice Department and Federal Trade Commission Release Guidance for Human Resource Professionals on How Antitrust Law Applies to Employee Hiring and Compensation (October 20, 2016), available at <https://www.justice.gov/opa/pr/justice-department-and-federal-trade-commission-release-guidance-human-resource-professionals> (“Workers are entitled to the benefits of a competitive market for their services. They are harmed if companies that would ordinarily compete against each other to recruit and retain employees agree to fix wages or other terms of employment or enter into so-called ‘no-poaching’ agreements by agreeing not to recruit each other’s employees.”). See also Department of Justice, No More No-Poach: The Antitrust Division Continues to Investigate And Prosecute “No-Poach” And Wage-Fixing Agreements (April 10, 2018), available at: <https://www.justice.gov/atr/division-operations/division-update-spring-2018/antitrust-division-continues-investigate-and-prosecute-no-poach-and-wage-fixing-agreements> (“When companies agree not to hire or recruit one another’s employees, they are agreeing not to compete for those employees’ labor. The same rules apply when employers compete for talent in labor markets as when they compete to sell goods and services. After all, workers, like consumers, are entitled to the benefits of a competitive market. Robbing employees of labor market competition deprives them of job opportunities, information, and the ability to use competing offers to negotiate better terms of employment.”).

63. *Stephanie Turner v. McDonald's USA et. al.*, Case No. 1:19-cv-05524 (N.D. ILL.), Order Denying Defendants’ Motion to Dismiss (April 24, 2020) [hereafter Turner MTD Denial] at 3 (“Plaintiff’s causation allegations are plausible due to basic principles of economics: if fewer employers compete for the same number of employees, wages will be lower than if a greater number of employers are competing for those employees.”); *Leinani Deslandes v. McDonald's USA et. al.*, Case No. 1:17-cv-04857 (N.D. ILL.), Order Denying In Part Defendants’ Motion to Dismiss (June 25, 2018) [hereafter Deslandes MTD Denial] at 14 (“Even a person with a rudimentary understanding of economics would understand that if competitors agree not to hire each other’s employees, wages for employees will stagnate.”).

labor supply curve.<sup>64</sup> Agreements not to compete for labor therefore suppress the market wage generally, not just the wages of those workers whose mobility is directly suppressed.<sup>65</sup>

23. Professors Alan Krueger and Orley Ashenfelter (2018) analyze no-poaching agreements generally.<sup>66</sup> The authors constructed a theoretical model showing how no-poaching agreements generally dampen the labor supply elasticity faced by an employer,<sup>67</sup> thereby allowing the employer to drive a larger wedge between the wage and workers' MRP. Another article by Gürkaynak, Güner and Özkanlı (2013) reviews the litigation outcomes in several cases involving no-poaching agreements.<sup>68</sup>

24. Although McDonald's and its Franchisees all operate under the McDonald's brand name, the Franchisee restaurants are separately owned and operated.<sup>69</sup> The work performed (and the

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64. See Caves & Singer (2015) at 2-4 (explaining how a prohibition on "cold calling" to recruit individualized employees results in generalized wage suppression); see also Appendix Figures A1-A2.

65. In economic terms, suppression of the market wage affects not just marginal workers, but also inframarginal workers. Similarly, a price-fixing conspiracy causes inflated prices for all buyers, not just marginal customers. See, e.g., MODERN IO at 107-110.

66. Krueger & Ashenfelter (2018).

67. *Id.* at 15-16.

68. Gonenc Gurkaynak, Ayşe Güner Dönmez & Ceren Özkanlı, *Competition Law Issues in the Human Resources Field*, 4(3) JOURNAL OF EUROPEAN COMPETITION LAW & PRACTICE (2013); see also *Williams v. I.B. Fischer* (within the same firm); *U.S. v. Ebay* (2012) (across firms); *U.S. v Adobe* (2010) (across firms).

69. See MCDAT00320585 at MCDAT00320594 (

[REDACTED]

output produced) in a McDonald’s restaurant is designed to be as uniform as possible from one restaurant to the next;<sup>70</sup> record evidence confirms that McDonald’s employees have brand-specific skills and training aimed at promoting a uniform brand quality and experience.<sup>71</sup>

25. The existence and use of the No-Hire Agreement to suppress labor market mobility (reviewed in Part II below), implies that Defendants perceive that labor competition from non-McDonald’s employers does not materially constrain Defendants’ payments to its workers and thus directly informs the dual inquiries of Defendants’ monopsony power and the relevant market. In the absence of McDonald’s-branded restaurant owners’ collective monopsony power, the No-Hire Agreement would make little economic sense, even if motivated by purportedly procompetitive reasons.<sup>72</sup> The Challenged Conduct would have no effect on Class Member compensation—and

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70. *See, e.g.*, MCDAT00049035 at MCDAT00049052 [REDACTED]

71. *See, e.g.*, MCDAT00376709 [REDACTED]

[REDACTED]; MCDAT00115421 [REDACTED]; MCDAT00049035 at MCDAT00049095 ([REDACTED]); Deposition of Jez Langhorn (February 14, 2020) [hereinafter Langhorn Dep.] at 69:5-15 ([REDACTED]); *id.* at 69:20-70:24 ([REDACTED]); MCDAT00113499 at MCDAT00113503 ([REDACTED]).

72. As explained in Part VI below, McDonald’s may claim that the No-Hire Agreement incentivizes investments in worker training by barring Class Members from receiving training at one McDonald’s restaurant and then defecting to another McDonald’s restaurant *for higher pay*. But even under this theory, the No-Hire Agreement allows McDonald’s to exercise wage-setting power—that is, to pay the worker less than she would earn if she moved to another Franchisee.

therefore would serve no economic purpose—if any attempt by McDonald’s-branded restaurant owners to exercise their collective buying power could be defeated by labor market competition from non-McDonald’s employers. Accordingly, through the mere existence and use of the No-Hire Agreement, Defendants have revealed the contours of the relevant labor market—namely, that it excludes competition from non-McDonald’s employers—and confirmed the existence of McDonald’s brand-specific monopsony power, consistent with the labor economics literature reviewed in Part I.A above. McDonald’s brand-specific monopsony power is further confirmed by my impact regressions in Part III, which show that McDonald’s significantly suppressed Class Member compensation via the No-Hire Agreement—something that would not have been economically possible if a McDonald’s-only relevant labor market did not exist.

26. Compensation suppression flowing from the No-Hire Agreement would not be possible if, counterfactually, McDonald’s labor were a perfectly fungible commodity, such as paper clips. A McDonald’s restaurant can purchase as many perfectly interchangeable paper clips as it requires at the market price, as illustrated in Appendix Figure C1. Because the supply of paperclips is (from the point of view of one restaurant) effectively unlimited, one McDonald’s restaurant need not be concerned that other McDonald’s restaurants will bid up the price of paper clips by purchasing “too many” of them. If McDonald’s labor were like paper clips, an individual McDonald’s restaurant would face a flat labor supply curve, and would have no choice but to pay the competitive wage. In that case, McDonald’s restaurants could hire as much labor as necessary without driving up the competitive equilibrium wage.

27. But the record evidence reviewed in Part II below confirms that, in reality, McDonald’s restaurant owners did not view labor as perfectly fungible; at both the McOpCos and the Franchisee stores, McDonald’s restaurant owners have leveraged the No-Hire Agreement to



prevent their employees from being hired away by other McDonald's restaurants. If a McDonald's worker could be replaced as easily as a paper clip, none of this would make economic sense. Thus, the use of the No-Hire Agreement to suppress labor mobility implies that McDonald's restaurants face an upward-sloping labor supply curve. As illustrated in Appendix Figure C2, this implies that McDonald's restaurants possessed and exercised wage-setting power to suppress wages below competitive levels.

28. Additional record evidence further indicates that McDonald's and Franchisees had brand-specific monopsony power. In April 2015, the McOpCos instituted a hiring moratorium, in the form of a prohibition on hiring crew members from Franchisees located within ■ miles of a corporate store. According to former McDonald's executive Karen King,<sup>73</sup> the hiring moratorium was implemented [REDACTED]

[REDACTED].<sup>74</sup> In the absence of brand-specific

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73. Ms. King was Executive Vice President and Chief Field Officer for McDonald's in the United States from 2015 until the end of 2016, and held other executive posts at McDonald's beforehand. Deposition of Karen King (November 13, 2020) [hereafter, King Dep.] at 24:21-28:11.

74. *Id.* at 179:14-19 [REDACTED]; MCDAT00333989 at MCDAT00333995 [REDACTED]; MCDAT00334049 ([REDACTED]); MCDAT00342238 ([REDACTED]). To address these concerns, the McOpCos imposed a moratorium forbidding McOpCos from hiring a crew member from any Franchisee within ■ miles. *See* King Dep. Exhibit 50 (memorandum detailing temporary moratorium on hiring franchisee crew members,) and MCDAT00112991 ([REDACTED]). *See also* MCDAT00342235-39 (Langhorn Dep. Exhibit 49) ([REDACTED]) and MCDAT00112988 ([REDACTED]). *See also* Deposition of Lori Duggan (January 8, 2020) [hereafter Duggan Dep.] at 72:17-23 [REDACTED]



six-month window, indicating that a recently unemployed worker could not be freely re-hired by another McDonald's for six months following resignation or termination.<sup>77</sup> This cool-down period is economically significant in part because the typical low-wage worker would not have sufficient accumulated savings to withstand not working for six months. Record evidence indicates that the prohibition on hiring current and former employees from competing Franchisees or McOpCos has been in the Franchise Agreement as far back as the 1970s.<sup>78</sup> Record evidence indicates that, since at least the mid-1990s, [REDACTED]

[REDACTED]

[REDACTED].<sup>79</sup> In April 2015, the McOpCos expanded this hiring restriction to encompass

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person who is at the time employed by McDonald's, any of its subsidiaries, or by any person who is at the time operating a McDonald's restaurant or otherwise induce, directly or indirectly, such person to leave such employment. This paragraph 14 shall not be violated if such person has left the employ of any of the foregoing parties for a period in excess of six (6) months.”).

77. *Id.*

78. See MCDAT00026839 at MCDAT00026844 (1973); MCDAT0037519 (December 1995); MCDAT00157544 at MCDAT00157551 (May 2014); MCDAT00099796 at MCDAT00099804 (May 2015); MCDAT00119036 at MCDAT00119044 (May 2016); MCDAT00007978 at MCDAT00007986 (May 2016 agreement, signed January 2017).

79. See, e.g., MCDAT00219729 ([REDACTED])

[REDACTED]  
[REDACTED]). See also Leon Dep. at 32:21-33:2 [REDACTED]

[REDACTED]

[REDACTED]). Record evidence indicates that McDonald's corporate human resources department [REDACTED]

[REDACTED] d. See, e.g., Deposition of Jessie Lopez (March 10, 2020) [hereinafter Lopez Dep.] at 251:16-25 [REDACTED]

[REDACTED]

[REDACTED]). See also MCDAT00376796 ([REDACTED]) and MCDAT00376797 [REDACTED]). See also Lopez

Dep. at 245:15-246:1; 253:7-21; 254:10-255:15 ([REDACTED]).

crew members as well, imposing a one-year moratorium on hiring crew members from Franchisees located within [REDACTED] miles.<sup>80</sup>

31. A Franchisee in violation of the No-Hire Agreement could face penalties associated with breaching the Franchise agreement.<sup>81</sup> The first such breach would allow McDonald's to "seek judicial enforcement of its rights and remedies, including, but not limited to, injunctive relief, damages, or specific performance."<sup>82</sup> In case of multiple breaches, McDonald's could terminate the Franchise Agreement at its sole discretion, and even "take possession of the Restaurant" from the Franchisee.<sup>83</sup>

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80. *See, e.g.*, MCDAT00112988 [REDACTED]

[REDACTED]. *See also* King Dep. Exhibit 126 (April 1, 2015 email – Karen King (Senior Vice President, Chief People Officer) emailed multiple "US Partners" (Franchisees) regarding the hiring moratorium: "Charlie Robeson announced that he will declare a one-year moratorium on McOpCo hiring from franchisee organizations. McOpCo is not to benefit by hiring your best and brightest. They will be sending targeted communications to their Regions post the webcast and will be assessing the right approach for engaging with impacted Owner/Operators, as well as their entire Region, on this topic."). *See also* MCDAT00342492 [REDACTED]

81. *See, e.g.*, MCDAT00099796 at Paragraph 19, Other Breaches. [REDACTED]

82. *Id.*

83. *See, e.g.*, MCDAT00099796 at Paragraph 20(a), Effect of Termination [REDACTED]





[REDACTED]

[REDACTED].<sup>90</sup> The letter explains that, [REDACTED]

[REDACTED]

[REDACTED]

<sup>91</sup>

Record evidence indicates that this policy letter was recirculated among franchisees.<sup>92</sup> Some evidence suggests that McOpCo restaurants were reluctant to hire a Franchisee's former employee within six months, even when a release was granted.<sup>93</sup> Other record evidence indicates that, [REDACTED]

[REDACTED]

90. *See* MCDAT00375195 ([REDACTED]).

91. *Id.* (emphasis in original).

92. *See* MCDAT00385899 ([REDACTED])

[REDACTED]).

93. *See* MCDAT00342458 ([REDACTED])

*See also* MCDAT00342492 ([REDACTED]).

[REDACTED]

[REDACTED]

[REDACTED] 94

35. Record evidence yields examples of how the No-Hire Agreement restricted labor mobility. [REDACTED] [REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

94. See MCDAT00351646 ([REDACTED]).

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

95. See MCDAT00219889.

96. *Id.*

97. *Id.*

98. *Id.*



36. Call logs maintained by McDonald's Human Resources Consulting<sup>99</sup> show [REDACTED]

[REDACTED]

[REDACTED].<sup>100</sup> For example, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>101</sup> In 2015, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>102</sup> In 2016, [REDACTED]

[REDACTED]<sup>103</sup> The call center [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>104</sup> In 2017, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>105</sup>

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99. See e.g., MCDAT00218128.

100. MCDAT00376796, "HRC McOpCo Call Logs.xlsx"; MCDAT00376797, "HRC non McOpCo Call Logs.xlsx."

101. MCDAT00376797, "HRC non McOpCo Call Logs.xlsx," CASE\_ID 3938016.

102. MCDAT00376796, "HRC McOpCo Call Logs.xlsx," CASE\_ID 4930641.

103. *Id.* CASE\_ID 5045613.

104. *Id.*

105. MCDAT00376797, "HRC non McOpCo Call Logs.xlsx," CASE\_ID 5376580.

37. Email archives from McDonald's corporate provide additional evidence that the No-Hire Agreement impeded labor mobility. In one example involving a current employee, [REDACTED]

[REDACTED]<sup>106</sup> In another, [REDACTED]

[REDACTED]

[REDACTED]<sup>107</sup> The employee elaborates that [REDACTED]

[REDACTED]<sup>108</sup>

38. A March 2017 internal email [REDACTED]

[REDACTED]

[REDACTED]<sup>109</sup> [REDACTED]

[REDACTED]

[REDACTED]. An October 2017 email

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>111</sup> [REDACTED]

[REDACTED]

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106. See MCDAT00343431 (a June 2017 internal McOpCo email).

107. See MCDAT00348142 (an April 2016 email exchange between [REDACTED]).

108. *Id.*

109. MCDAT00366320 (a March 2017 internal McOpCo email announcement).

110. *Id.*

111. MCDAT00389925 (an October 2017 email between [REDACTED]).

██<sup>112</sup> Moreover, records of employee phone calls received by the McDonald's Human Resources Consulting line demonstrate that ██████████

██<sup>113</sup> For example, on April 27, 2017 ██████████

██. <sup>114</sup> ██████████

██<sup>115</sup> On April 24, 2018, ██████████

██<sup>116</sup> On August 2, 2018 ██████████

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### III. THE CHALLENGED CONDUCT GENERATED ECONOMICALLY AND STATISTICALLY SIGNIFICANT ANTICOMPETITIVE EFFECTS

39. The economic literature reviewed in Part I above demonstrates that firm-specific monopsony power is widespread, including in low-skilled labor markets and in relatively unconcentrated labor markets. In light of this, it is likely that both McDonald's Franchisees and the McOpCos would continue to exercise some degree of monopsony power over their employees, even in the absence of the No-Hire Agreement. What matters here is that the No-Hire Agreement, by restraining labor market mobility, allowed McDonald's stores to exercise *more* labor market (buying) power than they otherwise would have enjoyed. The econometric models detailed below

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112. *Id.*

113. *See* MCDAT00376797; MCDAT00376796.

114. *See* MCDAT00376797 CASE\_ID 5382945.

115. *Id.*

116. *See* MCDAT00376797 CASE\_ID 5629333.

117. *See* MCDAT00376797 CASE\_ID 5694807.

are designed to measure this incremental anticompetitive effect. In particular, I test the hypothesis that, holding other factors constant, increased competition among McDonald's stores in the *absence* of the No-Hire Agreement resulted in upward pressure on wages relative to the time period during which the No-Hire Agreement was in place. As explained below, the results confirm that Class Member compensation would have been significantly higher in the absence of the No-Hire Agreement. These results are highly significant in both a statistical and an economic sense.

**A. Standard Econometric Methods Show That the No-Hire Agreement Suppressed Class Compensation**

40. The cessation of the No-Hire Agreement, combined with the availability of highly granular payroll data both before and after its cessation, allows me to analyze a “natural experiment,” defined as “[a] naturally occurring instance of observable phenomena that yield data that approximate a controlled experiment.”<sup>118</sup> I do so using econometric methods, which are standard statistical techniques for “estimating economic relationships, testing economic theories, and evaluating and implementing government and business policy.”<sup>119</sup> The Federal Judicial Center’s

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118. Daniel L. Rubinfeld, *Reference Guide on Multiple Regression*, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 305 (3rd ed. National Academies Press 2011) [hereafter REFERENCE MANUAL], at 355.

119. JEFFREY M. WOOLDRIDGE, *INTRODUCTORY ECONOMETRICS: A MODERN APPROACH 2* (South-Western 2009 4th ed.) [hereafter, WOOLDRIDGE]. As such, econometric methods are widely used by economists and other analysts in academia, government, and private businesses. R. CARTER HILL, WILLIAM E. GRIFFITHS, & GEORGE G. JUDGE, *UNDERGRADUATE ECONOMETRICS 1* (John Wiley & Sons 2nd ed. 2001) [hereafter Hill et. al.] (“The importance of econometrics extends far beyond the discipline of economics. Econometrics is a set of research tools also employed in the business disciplines of accounting, finance, marketing, and management. It is also used by social scientists, specifically researchers in history, political science, and sociology. Econometrics plays an important role in such diverse fields as forestry, and in agricultural economics...Thus research methods employed by economists, which comprise the field of econometrics, are useful to a broad spectrum of individuals.”). *See also* CHRISTIAAN HEIJ ET. AL., *ECONOMETRIC METHODS WITH APPLICATIONS IN BUSINESS AND ECONOMICS* (Oxford University Press 2004), at Introduction (“Decision making in business and economics is often supported by the use of quantitative information. Econometrics is concerned with summarizing relevant data information by means of a model. Such econometric

*Reference Manual on Scientific Evidence* explains that multiple regression analysis (the standard econometric tool for analyzing relationships between variables, which I employ here) is “a well-accepted scientific methodology.”<sup>120</sup> A key advantage of multiple regression analysis is that it allows one to rigorously analyze the effect of one variable on another—here, the No-Hire Agreement on Class Members’ compensation—while controlling for other variables that influence wages. In this way, multiple regression analysis “distinguishes among a number of competing factors... allowing the court to isolate a key relationship...”<sup>121</sup>

41. When testing for the effects of alleged anticompetitive conduct in an antitrust context, it is standard practice in economics to employ an econometric model that compares prices (wages here) during a time period in which the conspiracy is alleged to have occurred with prices in another benchmark period in which the alleged conspiracy or restraint was absent, holding constant other factors that may affect prices.<sup>122</sup> Accordingly, I have developed an econometric model to compare

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models help to understand the relation between economic and business variables and to analyse the possible effects of decisions...Nowadays econometrics forms an indispensable tool to model empirical reality in almost all economic and business disciplines.”). *See also* B. ESPEN ECKBO, ED. *HANDBOOK OF CORPORATE FINANCE: EMPIRICAL CORPORATE FINANCE*, Vol. 1 (North Holland 2007), Part 1 (reviewing various econometric applications in corporate finance). *See also* JEFFREY D. CAMM ET. AL. *ESSENTIALS OF BUSINESS ANALYTICS* (South-Western 2nd ed. 2016).

120. *REFERENCE MANUAL*, at 308 (“Because multiple regression is a well-accepted scientific methodology, courts have frequently admitted testimony based on multiple regression studies[.]”).

121. Johnathan Baker & Daniel Rubinfeld, *Empirical Methods in Antitrust Litigation: Review and Critique*, 1 *AMERICAN LAW AND ECONOMICS REVIEW* 386-435, 388 (1999) [hereafter Baker & Rubinfeld] (“Empirical methods can help courts identify what happened and why. This can often be accomplished through a multiple regression analysis that distinguishes among a number of competing factors that were correlated with a fact pattern - allowing the court to isolate a key relationship or critical influence using models that describe the statistical relationship between one variable and a number of others.”).

122. *See, e.g.*, Baker & Rubinfeld, *supra*, at 392 (“Reduced form equations are perhaps the most commonly employed in price-fixing cases. In this litigation setting, the goal is typically to determine whether and how much prices rose as a result of the alleged cartel...The price effect of the alleged conspiracy is measured by the coefficient on a dummy variable that takes on the value of one during

(1) the compensation paid to Class Members when the No-Hire Agreement was in effect to (2) the compensation paid to Class Members after the cessation of the No-Hire Agreement, while controlling for other factors that might explain movements in compensation.

### 1. Compensation Data Summary

42. The dependent variable in my regression model is the amount of compensation paid to an individual Class Member at a given point in time. To construct the dependent variable, I compiled granular, employee-specific compensation data for both Franchisees and McOpCos. My primary regression dataset (not including additional regressions in the Appendix) spans ■ states and includes payroll data for approximately ■ McDonald's restaurant employees.<sup>123</sup> Although this regression dataset does not include all payments to all Class Members, it bears emphasis that (1) the McOpCo production utilized a random (and thus representative) sampling process negotiated with Defendants,<sup>124</sup> (2) the Franchisee payroll data was selected based on what plaintiffs' counsel

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the period (or in the markets) in which the conspiracy is in operation.”). The American Bar Association's treatise offers similar guidance. *See also* ABA SECTION OF ANTITRUST LAW, PROVING ANTITRUST DAMAGES 180 (3d ed. 2017) (“The dummy variable model uses data from both the alleged conspiracy period and the non-conspiracy period to estimate the relationship between price, economic factors, and a dummy variable for the alleged conspiracy period, with the dummy variable measuring how much higher prices were in the alleged conspiracy period relative to the non-conspiracy period, after controlling for the other economic factors.”). *See also* ABA SECTION OF ANTITRUST LAW, PROOF OF CONSPIRACY UNDER FEDERAL ANTITRUST LAWS 227 (American Bar Association 2010) [hereafter ABA Proof of Conspiracy], n. 39 (“One way to estimate such a model would be to use the price of the product in question as the dependent variable, while using measurements of relevant demand and supply factors as explanatory variables, including a dummy variable that takes a value of one during the class period and zero otherwise. This dummy variable would capture the price inflation if any, during the class period after controlling for the effect of all the other demand and supply factors.”).

123. It bears emphasis that my estimates of Aggregate Damages in Part V below do not rely on payroll data to calculate aggregate classwide compensation. Instead, I use Crew Labor and Management Labor costs recorded in profit and loss (P&L) statements encompassing all Franchisees and McOpCos. *See* MCDAT00376784-95.

124. McDonalds produced payroll data for a ten percent random sample of McOpCos nationwide. *See* Appendix D for details.

was able to obtain via subpoena, targeting large payroll providers serving Franchisees to maximize representativeness;<sup>125</sup> (3) the regression analysis yields comparable results and conclusions, regardless of whether the model is applied to the McOpCo payroll data or the Franchisee payroll data. That similar results are obtained when the same regression models are estimated on two different and independently sampled data sets—each representing distinct geographies, ownership structures, and local economies—indicates that the results of the regression model are robust to the choice of datasets used, and that the Franchisee data are likely representative of all Class Members who work at a Franchisee.<sup>126</sup> Moreover, (4) additional payroll data analyzed in the Appendix encompasses approximately ██████ McDonald’s restaurant employees, spans █ states, and, like my primary regression models, shows that Class Member compensation increased significantly after cessation of the No-Hire Agreement, holding other factors constant;<sup>127</sup> and, (5) monthly, restaurant-level financial data that I analyze in the Appendix encompasses *all* McOpCos and *all* Franchisees nationwide, and similarly shows that Class Member compensation per restaurant increased significantly after cessation of the No-Hire Agreement, holding other factors constant.<sup>128</sup>

43. Payroll data for McOpCo restaurants is drawn from the Lawson database used by McDonald’s corporate. It included sufficient detail for regression analysis, including the

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125. ADP and Paychex are among the largest payroll providers nationwide. Another payroll provider, Mize, was subpoenaed in part because the company advertises itself as “Serving McDonald’s Owners Nationwide.” *See e.g.*, McDonald’s Accounting & Consulting Service, Mizecpas.com, accessed January 2021, available at: <https://www.mizecpas.com/industries/mcdonalds/>

126. *See, e.g.*, David Kaye & David Freedman, *Reference Guide on Statistics*, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 295 (3rd ed. National Academies Press 2011) [hereafter STATISTICS REFERENCE MANUAL] (“**representative sample**. Not a well-defined technical term. A sample judged to fairly represent the population, or a sample drawn by a process likely to give samples that fairly represent the population, for example, a large probability sample”).

127. *See* Appendix D, Tables D1-D2.

128. *See* Appendix D, Table D3.

compensation paid to specific employees during specific pay periods, the employee's job title, whether or not the employee was salaried, and identifying information for the specific McDonald's location in question. By agreement of the parties, McDonald's did not produce payroll for all McOpCos, but instead produced it for a ten percent random (and thus representative) sample of McOpCos in the United States.

44. Franchisee compensation data was produced by some individual Franchisees, and by third-party payroll providers such as Paychex, Mize, and ADP. Paychex was the only payroll provider to produce data by pay period (e.g., paycheck-by-paycheck, whether weekly, biweekly, semi-monthly, or monthly). Certain Paychex data lacked information regarding an individual's job title or job description, and thus was excluded. Other data pertained to non-McDonald's employees, as employers evidently owned both McDonald's restaurants and other businesses, and thus was similarly excluded.<sup>129</sup> My use of the Paychex data was limited to payroll data that could be clearly identified as pertaining to McDonald's employees, based primarily on the job title. Production from other payroll providers (Mize and ADP) are reviewed in more detail in the Appendix.<sup>130</sup> Although Mize and ADP did not produce data suitable for my payroll regression analysis, in the Appendix I show that my econometric model, when adapted to these data, is directionally consistent with the

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129. For example, the data included pay data for the employees of [REDACTED] and the [REDACTED]

130. Mize produced two datasets, one reflecting annual payroll data and a second reflecting recorded changes in the wage rate. The annual payroll data reported total annual hours but did not report total annual pay. The compensation rate data produced by Mize reported changes in pay rates, but not the hours associated with each incremental change. ADP produced only annual data reporting the last wage rate in a given year, but did not report hours worked, job title, job description, or restaurant location. *See* Appendix D.



regression results reported below. Finally, individual Franchisees produced only limited payroll data, which was not suitable for regression analysis.<sup>131</sup>

## 2. Econometric Model

45. As explained above, although McDonald's announced internally and to Franchisees in March 2017 [REDACTED], there is evidence that Franchisees continued to abide by the No-Hire Agreement after March 2017.<sup>132</sup> Moreover, although the July 2018 AG Settlement was publicized in a press release posted on the Internet and received some media coverage, the March 2017 announcement was not similarly publicized.<sup>133</sup> The mechanism by which wages rise is that employees begin taking advantage of their newfound mobility, which they cannot do until they understand the restriction was relaxed; accordingly, in my econometric model, I specify July 2018 as the end-date of the Challenged Conduct. The regression models below consistently indicate that, holding other factors constant, Class Member compensation increased in a statistically significant way after July 2018. Moreover, when I perform separate regression analyses for Managers and Crew, the regressions show that compensation for both Managers and Crew increased in a statistically significant way after July 2018.<sup>134</sup>

46. Borrowing from the literature on compensation regressions, I estimated multivariate regression models in which the dependent variable to be explained is the compensation paid to a given Class Member at a given point in time, and the key independent variable of interest captures

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131. For example, many Franchisees simply did not produce data after the end of the No-Hire Agreement, or omitted job titles, or restaurant locations, or produced thousands of non-machine-readable PDFs. *See* Appendix D.

132. *See* Introduction and Assignment above; *see also* Part II.B above.

133. *See* Introduction and Assignment above.

134. *See* Appendix Tables E1 and E2.

the effect of the Challenged Conduct, holding constant other factors that may affect compensation. The regression equation can be written as follows:

$$\ln(c_{ijt}) = \beta_0 + \beta_1 PreAG_t + \sum_k \lambda_k X_{ijt}^k + \varepsilon_{ijt} \quad (0.1)$$

The regression equation can be divided into three main components: (1) the *dependent* variable ( $\ln(c_{ijt})$ ), which measures Class Member compensation; (2) the key *independent* variable ( $PreAG_t$ ), which measures the effect of the No-Hire Agreement on Class Member compensation; (3) the *control* variables ( $X_{ijt}^k$ ), which collectively control for other factors (aside from the No-Hire Agreement) that may influence Class Member compensation; and (4) an error term ( $\varepsilon_{ijt}$ ). I describe each component below. (In addition, the regression variables are listed in Table 2 below).

47. *First*,  $\ln(c_{ijt})$  is the dependent variable of the regression model;  $c_{ijt}$  is the real compensation paid to Class Member  $i$  working at McDonald's restaurant  $j$  at time  $t$ . It is standard to use natural logarithms ( $\ln$ ) of the dependent variable in econometrics; this allows the regression coefficients to be interpreted in percentage terms.

48. *Second*, the key variable of interest,  $PreAG_t$ , measures variation in the Challenged Conduct over time. Specifically,  $PreAG_t$  is an indicator variable equal to one before the AG Settlement and to zero thereafter. In the equation above, the percentage change in compensation associated with the Challenged Conduct is given by  $\beta_1$ . (Note that  $\beta_0$  is the intercept of the regression equation). If the percentage change given by  $\beta_1$  is negative and statistically significant, this implies the Challenged Conduct is associated with wage suppression, holding other factors constant.

49. *Third*, the symbol  $X_{ijt}^k$  denotes the *control* variables in the model, which account for factors such as differences in local labor market conditions across time and across stores. The control

variables include federal, state or local minimum wages,<sup>135</sup> the local (county) unemployment rate,<sup>136</sup> and local (county) per-capita income.<sup>137</sup> These variables capture local economic conditions that may influence the demand for McDonald's labor.<sup>138</sup>

50. Among the control variables, the regression model includes "fixed effect" variables that control for a range of different labor classifications ("Job Code Fixed Effects") used in Franchisees' and McOpCos' record-keeping systems, based on the employee's specific job title. The regression models also control for employee-specific fixed effects ("Worker Fixed Effects"), which hold constant all individual-specific characteristics that are fixed over time.<sup>139</sup> Also included is a control variable that captures whether a given employee is compensated on an hourly basis or a salaried basis (obtained directly from the payroll records, as opposed to being inferred from

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135. Federal minimum wage data were compiled from U.S. Department of Labor, *available at* <https://www.dol.gov/whd/minwage/chart.htm>. State and local minimum wages were compiled by the Washington Center for Equitable Growth, *available at* <https://equitablegrowth.org/working-papers/historical-state-and-sub-state-minimum-wage-data/>. The effective minimum wage is equal to the highest minimum wage applicable to an employee in a given location.

136. Local unemployment rates were compiled from the Bureau of Labor Statistics, "Local Area Unemployment Statistics," *available at* <https://www.bls.gov/lau/>.

137. Per capita income was compiled from the Bureau of Economic Analysis, "Regional Economic Accounts," *available at* <https://apps.bea.gov/regional/downloadzip.cfm>.

138. *See, e.g.,* Kevin Caves & Hal Singer, *Analyzing High-Tech Employee: The Dos and Don'ts of Proving Classwide Impact in Wage Suppression Cases* ANTITRUST SOURCE (2015) at 4; *see also* Order Granting Plaintiffs' Supplemental Motion for Class Certification, *In re High-Tech Employees Antitrust Litig.*, 985 F.Supp.2d 1167, at 1206 (N.D. Cal. 2013).

139. For the McOpCo data, this is defined as the unique combination of an employee's ID and their store ID. For the Franchisee data, this is defined as the unique combination of an employee's name and their employing firm.

compensation levels).<sup>140</sup> Summary statistics for the regression variables are reported in Table 1 below.<sup>141</sup>

TABLE 1: REGRESSION SUMMARY STATISTICS

<i>Franchisees (Paychex)</i>				
Variable	Mean	Standard Deviation	Minimum	Maximum
<i>Hourly Wage</i>	██████	██████	██████	██████
<i>Annual Salary</i>	██████	██████	██████	██████
<i>Effective Minimum Wage</i>	██████	██████	██████	██████
<i>Local Unemployment Rate</i>	██████	██████	██████	██████
<i>Local Income Per Capita</i>	██████	██████	██████	██████
<i>McOpCos</i>				
<i>Hourly Wage</i>	██████	██████	██████	██████
<i>Annual Salary</i>	██████	██████	██████	██████
<i>Effective Minimum Wage</i>	██████	██████	██████	██████
<i>Local Unemployment Rate</i>	██████	██████	██████	██████
<i>Local Income Per Capita</i>	██████	██████	██████	██████

Notes: All dollars adjusted to 2020 levels. The standard deviation measures variation (spread) of data around the average. See WOOLDRIDGE at 726-728. The summary statistics presented above correspond to the regression datasets used in Tables 2 and 3 below.

51. The output of the econometric model is reported in Table 2 below. The difference between the regressions in columns (1) and (2) is that the former controls for Job Code Fixed Effects, and the latter layers on controls for Worker Fixed Effects. The results in columns (1) and (2) are qualitatively similar, despite the fact that the Worker Fixed Effects effectively limit the regression model to analyzing changes in compensation for individual workers over time, as opposed to cross-sectional differences in compensation between different workers. In addition, although the regression coefficients are allowed to vary between Franchisee restaurants and McOpCos, the

140. For Franchisee data in Paychex, there are two data fields that identify salaried employees (the ████████ data field and the ████████ data field). For McOpCos, salaried employees are identified using the LR3 Lawson database’s ████████ data field. My results are robust to limiting the sample to hourly employees only. See Appendix D.

141. Outliers have been removed from the regression data set. My conclusions are robust to the inclusion or exclusion of these outliers. Robustness regressions of Tables 2 and 3 with the inclusion of outlier observations are shown in Appendix Tables E12 and E13.

regression results are qualitatively similar. For example, according to column (2), a ten percent increase in local real income per capita is associated with a 4.5 percent increase in compensation at McOpCos, and a 4.8 percent increase in compensation at Franchisee restaurants.

TABLE 2: COMPENSATION REGRESSIONS

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<b><i>PreAG (McOpCo)</i></b>	<b>-0.025***</b>	<b>-0.015***</b>
	<b>(0.000)</b>	<b>(0.000)</b>
<b><i>PreAG (Franchisee)</i></b>	<b>-0.030***</b>	<b>-0.033***</b>
	<b>(0.000)</b>	<b>(0.000)</b>
<i>Salaried Indicator (McOpCo)</i>	7.612***	7.618***
	(0.000)	(0.000)
<i>Salaried Indicator (Franchisee)</i>	8.403***	n/a
	(0.000)	n/a
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.692***	0.49***
	(0.000)	(0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.549***	0.224***
	(0.000)	(0.000)
<i>Local Unemployment Rate (McOpCo)</i>	-0.018***	-0.02***
	(0.000)	(0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.015***	-0.004***
	(0.000)	(0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.017***	0.451***
	(0.000)	(0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.044***	0.484***
	(0.000)	(0.000)
<i>McOpCo Store Flag</i>	-0.031	n/a
	(0.141)	n/a
<i>Constant</i>	0.8***	-3.465***
	(0.000)	(0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	18	132,248
<i>Observations</i>	12,500,773	12,500,773
<i>R-Squared</i>	99.8%	99.9%

*Notes:* The first bolded rows measure the effect of the No-Hire Agreement; non-bolded rows are control variables. The figures in parentheses below each coefficient are robust  $p$ -values. The  $p$ -values indicate the statistical significance of each coefficient estimate. For example, a  $p$ -value of 0.01 or less indicates that the coefficient is statistically significant at the one percent level, meaning there is less than a one percent probability that this result would have occurred by random chance. See WOOLDRIDGE at 776-777. Thus, the uniformly low  $p$ -values (all well below 0.01) confirm that each coefficient is highly statistically significant. Asterisks indicate statistical significance (\*\*\*)  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ). For example, the entry for *PreAG (Franchisee)* in column (2) is -0.033\*\*\*, with a  $p$ -value of (0.000). This means that, holding other factors constant, Class Member compensation at Franchisees was 3.3 percent lower before the AG Settlement than after the AG Settlement, and that there is (much) less than a one percent chance that this result would have been observed by pure chance.

52. The regression models consistently explain over 99 percent of variation in employee compensation, as seen in the *R*-squared statistics.<sup>142</sup> The regression results demonstrate that the No-Hire Agreement suppressed Class Member compensation while it was in force. Consistent with the anticompetitive hypothesis, the presence of the No-Hire Agreement is associated with a negative and highly statistically significant decrease in wages at the one percent level. This means that there is less than a one percent chance that there is no difference in compensation paid to Class Members before and after the cessation of the Challenged Conduct. For example, according to the *PreAG (Franchisee)* coefficient in column (2) of Table 2, compensation paid to Class Members employed by Franchisees was 3.3 percent lower before the AG Settlement than after, holding other factors constant. Even if no distinction is made between Franchisees and McOpCos, the regression model yields comparable results, showing statistically and economically significant increases in compensation following the end of the No-Hire Agreement.<sup>143</sup>

53. The coefficients on the control variables in Table 2 are consistent with economic expectations. Salaried workers earn significantly more than hourly workers. An increase in the local minimum wage is associated with a significant increase in compensation, as is an increase in local (county) income. An increase in the local (county) unemployment rate (and hence a deterioration in local economic conditions) is significantly associated with lower compensation.

54. The regressions in Table 2 above treat all time periods following the AG Settlement equally. In the alternative, it is reasonable to hypothesize that the economic ramifications of the AG

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142. This high *R*-squared is due, in part, to the inclusion of the salaried employees. If I rerun the same models excluding the salaried employees, the *R*-squared for the regression with job title fixed effects is 76 percent, and the *R*-squared for the regression with employee fixed effects is 95.5 percent. See Appendix Table E6 and E7.

143. See Appendix Table E2.

Settlement would have taken time to work through the thousands of McDonald's restaurants, as newfound labor mobility would have been increasingly discovered and leveraged by Class Members. Under this hypothesis, the wages paid to Class Members immediately after the AG Settlement went into effect may still reflect substantial residual suppression, implying that the effect of the Challenged Conduct estimated in Table 2 above might be understated (as that model treats *every* time period after the AG Settlement as being free from the Challenged Conduct).

55. To test this hypothesis, I estimated versions of the econometric model designed to directly measure the extent to which Class Member compensation has adjusted upwards toward a new, more competitive equilibrium after the AG Settlement. The AG Settlement took effect in July 2018, and the regression data set runs through December 2019, which yields a total of eighteen months in the *PostAG* period. I therefore divided the *PostAG* variable into three separate six-month segments, each of which captures the cumulative effect of the AG Settlement after a given amount of time has passed. The results are presented in Table 3 below.

TABLE 3: COMPENSATION REGRESSIONS (WITH EQUILIBRIUM ADJUSTMENT)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PostAG1 (Jul-Dec 2018) (McOpCo)</i>	<b>0.015***</b> (0.000)	<b>0.013***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019) (McOpCo)</i>	<b>0.034***</b> (0.000)	<b>0.017***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019) (McOpCo)</i>	<b>0.053***</b> (0.000)	<b>0.035***</b> (0.000)
<i>PostAG1 (Jul-Dec 2018) (Franchisee)</i>	<b>0.013***</b> (0.000)	<b>0.023***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019) (Franchisee)</i>	<b>0.038***</b> (0.000)	<b>0.042***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019) (Franchisee)</i>	<b>0.045***</b> (0.000)	<b>0.067***</b> (0.000)
<i>Salaried Indicator (McOpCo)</i>	7.612*** (0.000)	7.618*** (0.000)
<i>Salaried Indicator (Franchisee)</i>	8.403*** (0.000)	n/a n/a
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.69*** (0.000)	0.491*** (0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.545*** (0.000)	0.228*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	-0.018*** (0.000)	-0.02*** (0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.015*** (0.000)	-0.007*** (0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.015*** (0.000)	0.432*** (0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.042*** (0.000)	0.279*** (0.000)
<i>McOpCo Store Flag</i>	-0.032 (0.140)	n/a n/a
<i>Constant</i>	0.798*** (0.000)	-3.245*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	18	132,248
<i>Observations</i>	12,500,773	12,500,773
<i>R-Squared</i>	99.8%	99.99%

Notes: See Table 2, *supra*.

56. As seen in Table 3 above, these results indicate that Class Member compensation did not immediately revert to competitive levels following the AG Settlement. Instead, the data are indicative of a recovery as the effects of the Challenged Conduct began to wear off, and Class Member wages began to approach a new equilibrium. For example, according to the results in



column (2), for the first six months after the AG Settlement, Class Member compensation at Franchisees was approximately 2.3 percent higher than before the AG Settlement, holding other factors constant; for the second six-month interval, compensation was about 4.2 percent higher; finally, for the third six-month interval, compensation was about 6.7 percent higher. A similar pattern is observed for the McOpCos. Even if no distinction is made between Franchisees and McOpCos, the regression model yields comparable results, showing statistically and economically significant increases in compensation in the time periods following the end of the No-Hire Agreement.<sup>144</sup>

57. In summary, the estimated coefficients in Table 2, which treats all observations after the AG Settlement as part of the Clean Period, may understate the full impact of the No-Hire Agreement, as compensation in time periods shortly after the AG Settlement took effect could still have been tainted by the No-Hire Agreement. Accordingly, the best available estimates of impact to Class Members are the *PostAG3* coefficients Table 3, column (2): But for the No-Hire Agreement, compensation would have been approximately 6.7 percent higher for Class Members employed by Franchisees, and 3.5 percent higher for Class Members employed by McOpCos. (It bears emphasis that even these estimates are conservative to the extent that compensation levels had not fully recovered by the second half of 2019).

58. To further confirm the robustness of my regression models, I have estimated other specifications that control for different variables in Appendix E. My results are robust to controlling for the distance to the nearest separately-owned McDonald's, the population density of the county in which the store is located, the local county wages in "limited service" restaurants (that is, Quick Service Restaurants) reported to the Bureau of Labor Statistics through its Quarterly Census of

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144. See Appendix Table E3.

Employment and Wages, as well as McDonald's share of all Quick Service Restaurants within a given county.<sup>145</sup> The fact that my results are robust to controlling for changes in local wages in similar restaurants throughout the county confirms that the wage recovery among Class Members following the removal of the No-Hire Agreement was specific to McDonald's, as opposed to being driven by a more general equilibrium wage movements involving other fast-food chains. My results are also robust to controlling for linear and nonlinear time trends.<sup>146</sup>

59. To confirm the robustness of my preferred model (in Table 3), I have also confirmed that my results are robust to estimating separate regression models for each of the two primary categories of McDonald's labor (Crew and Managers). The results of these alternative models confirm that the Challenged Conduct suppressed compensation across both categories, and the results are highly statistically and economically significant.<sup>147</sup> Table 4 below displays the compensation suppression estimates from these regressions. As seen below, Crew Members at Franchisees would have earned approximately 6.8 percent more in the absence of the No-Hire Agreement. In contrast, Crew Members at McOpCos would have earned approximately 3.3 percent

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145. See Appendix Tables E8 and E9.

146. See Appendix Tables E10 and E11. When time trends are added to the regressions, the signs on two key economic variables (county income and county unemployment) are reversed. This indicates that the time trends are sufficiently collinear with the local unemployment rate and local income to change the sign on these control variables. Given that the introduction of the time trends flips the sign of two key economic variables, and given that that the *R*-squared of the regression is above 99 percent *without* including the time trends, inclusion of the time trends appears to result in overfitting of the regression model and is therefore not appropriate. See, e.g., Halbert White, Robert Marshall, & Pauline Kennedy, *The Measurement of Economic Damages in Antitrust Civil Litigation*, 6(1) ECONOMIC COMMITTEE NEWSLETTER, ABA ANTITRUST SECTION 17–22 (Spring 2006). See also Justin McCrary & Daniel L. Rubinfeld, *Measuring Benchmark Damages in Antitrust Litigation* 3(1) JOURNAL OF ECONOMETRIC METHODS (2014) 63–74, 67 (“it is always possible to use an in-sample model selection procedure to produce a damages estimate of zero, just by adding a sufficient number of irrelevant covariates so that the model fully explains prices in the conspiracy period (‘overfitting’)”).

147. See Appendix Table E1.

more. This is consistent with the fact that the No-Hire Agreement prohibited Franchisees from competing with each other for Crew labor, but did not prohibit McOpCos from hiring Franchisee Crew (with the exception of the 2015 hiring moratorium). Given that Franchisees account for over 90 percent of McDonald's restaurants, it is reasonable to expect that compensation paid to McOpCo Crew labor would also have been suppressed.

TABLE 4: COMPENSATION SUPPRESSION ESTIMATES FOR CREW AND MANAGERS

Franchisees		McOpCos	
Crew	Managers	Crew	Managers
6.8%	2.5%	3.3%	4.0%

*Note:* Compensation suppression estimates from equilibrium adjustment regressions with the same control variables used in Table 3 above.

**B. Market Definition Is Not Economically Necessary Here, And Would Be Common to the Class in Any Case**

60. The direct evidence reviewed in Part II.A above shows that McDonald's exercised monopsony power over Class Members. (This is unsurprising, given that labor economists have found monopsony power in low-wage labor markets generally and in fast-food labor markets specifically, as explained in Part I.A above.) In light of this direct evidence of Defendants' buying power, it is not economically necessary to demonstrate market power indirectly by defining relevant labor market(s).<sup>148</sup> Market definition for monopsony markets focuses on the extent to which workers

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148. See, e.g., Jonathan Baker & Timothy Bresnahan, *Economic Evidence in Antitrust: Defining Markets and Measuring Market Power in* PAOLO BUCCIROSSI, ED., HANDBOOK OF ANTITRUST ECONOMICS 1- 42 (MIT Press 2008) [hereafter Baker & Bresnahan], at 15. See also Aaron S. Edlin & Daniel L. Rubinfeld, *Exclusive or Efficient Pricing? The Big Deal Bundling of Academic Journals*, 72 ANTITRUST L.J. 119, 126 (2004) ("Market definition is only a traditional means to the end of determining whether power over price exists. Power over price is what matters...if power can be shown directly, there is no need for market definition: the value of market definition is in cases where power cannot be shown directly and must be inferred from sufficiently high market share in a relevant market."). See also PHILLIP E. AREEDA, EINER ELHAUGE & HERBERT HOVENKAMP, 10 ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION 267, 325-28, ¶ 1758b. (1996 & Supp. 2003); see also PHILLIP AREEDA, LOUIS KAPLOW & AARON EDLIN,

can (or cannot) avoid wage suppression below competitive levels by a hypothetical monopsonist by switching to alternative employers.<sup>149</sup> The market definition exercise would ask whether a *hypothetical* monopsonist over all McDonald's labor could exercise monopsony power. But direct evidence demonstrates that McDonald's has, *in fact*, exercised monopsony power by suppressing wages through the No-Hire Agreement. It follows immediately that the hypothetical monopsonist of the market definition exercise could also exercise wage-setting power.

61. Economists routinely study the effects of horizontal collusion in product markets without the need to define a relevant product market. The standard economic approach to evaluating the effects of an alleged horizontal conspiracy is to construct a regression model designed to test the hypothesis that the alleged conspiracy inflated the prices charged by conspirators, relative to what would have been charged in the absence of the alleged conspiracy.<sup>150</sup> That is what I have done here, except that my regression model measures wage suppression rather than price inflation. Conceptually, this is a distinction without a difference, given that monopsony power is the mirror image of monopoly power.

62. McDonald's monopsony power is further confirmed by record evidence showing (1) McDonald's employees have brand-specific skills and training aimed at promoting a uniform brand quality and experience;<sup>151</sup> (2) in the wake of a wage increase for their own workers, the McOpCos instituted a hiring moratorium preventing McOpCos from hiring crew members from Franchisees located within ■ miles of a corporate store;<sup>152</sup> (3) through the existence and use of the No-Hire

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ANTITRUST ANALYSIS: PROBLEMS, TEXT AND CASES ¶ 344 (6th ed. 2004). *See also* Merger Guidelines, §4 (“[e]vidence of competitive effects can inform market definition[.]”).

149. Merger Guidelines §12.

150. *See, e.g.*, Baker & Rubinfeld, *supra*, at 392.

151. *See* Part I.B, *supra*.

152. *See* Part I.A, *supra*.

Agreement, Defendants have revealed the contours of the relevant labor market, and confirmed the existence of brand-specific monopsony power;<sup>153</sup> and (4) the labor economics literature reviewed in Part I.A above, showing pervasive monopsony power, even by individual employers. In light of this evidence, it is clear that a hypothetical monopsonist controlling *all* McDonald's restaurants would also have the ability to suppress compensation below competitive levels—regardless of how the relevant geographic market is defined. This observation renders geographic market definition irrelevant. Moreover, my compensation regressions already account for factors specific to local markets, including controls for county-specific factors and worker-specific factors.

63. In any case, to the extent it is deemed necessary as a legal matter, the relevant labor market(s) could be defined using evidence common to the Class. Like most market definition exercises, it may rely to a significant extent (even exclusively) on documentary evidence.<sup>154</sup> For example, as a part of the 2015 hiring moratorium noted above, which prohibited McOpCos from recruiting crew members from franchisees within [REDACTED] miles, McDonald's [REDACTED] [REDACTED].<sup>155</sup> Using information on the location and ownership of Franchisees and McOpCos, I performed a similar exercise to illustrate that the data and methods involved are entirely common to the Class. Using geographic data for every McDonald's restaurant in the United States, I calculated the number of separately-owned McDonald's within 25 miles of each restaurant. As seen in Table 5 below, only eight percent of McDonald's locations do not have

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153. See Part I.B, *supra*.

154. Baker & Bresnahan, *supra*, at 11 (“Market definition is more often conducted without these types of systematic empirical analyses than with them...qualitative evidence can be compelling, at times more probative than quantitative evidence.”).

155. See, e.g. MCDAT00113004 ([REDACTED])

[REDACTED] t). See also King Dep. at 84:13-86:7.

any separately-owned McDonald's restaurant within 25 miles, and only 11.5 percent do not have at least two separately-owned stores within 25 miles.<sup>156</sup>

TABLE 5: DISTRIBUTION OF SEPARATELY-OWNED STORES WITHIN 25 MILES

Number of Separately-Owned McDonald's Within 25 Miles	Number of Stores	Share	Cumulative Share
More than 10	██████████	71.00%	100.00%
10	██████	1.27%	29.00%
9	██████	1.43%	27.73%
8	██████	1.48%	26.30%
7	██████	1.73%	24.82%
6	██████	1.95%	23.09%
5	██████	2.14%	21.14%
4	██████	2.38%	19.00%
3	██████	2.35%	16.61%
2	██████	2.81%	14.27%
1	██████	3.50%	11.46%
0	██████	7.96%	7.96%
<b>Total</b>	<b>13,964</b>	<b>100%</b>	<b>100%</b>

64. Further, common evidence suggests that about eight percent of McDonald's employees commute ten miles or more to work at a McDonald's.<sup>157</sup> This constitutes a lower bound on the geographic distance over which Class Members at the margin would be willing to travel to

156. To determine common ownership, I combined operator data fields provided by McDonald's with additional ownership fields produced by McDonald's. See 000000\_MCDAT00031199.xlsx. I used a conservative algorithm that assumes that two Franchisee restaurants are commonly owned if they share any combination of these fields. (I also classified all McOpCos as commonly owned). I verified the accuracy of this common ownership field using data produced by Mize, a payroll provider, which includes ownership information for ██████ restaurants. When I compare the Mize ownership field to the field I constructed from the McDonald's data, I find that the two ownership fields overlap 93 percent of the time. (The numerator used to calculate this overlap statistic is based on the number of commonly owned stores according to *both* Mize and McDonald's; the denominator is the number of commonly owned stores according to *either* Mize or McDonald's.)

157. See Appendix 7. Commute distances were calculated using Mize payroll data, which include address information for employees working in ██████ stores in ██████ states. Commuting distances for over 85,000 employees were calculated using geocoded addresses.

secure higher compensation at a different McDonald's. Common evidence also suggests that about 88 percent of McDonald's employees live within 20 miles or less of an alternative, separately-owned McDonald's location, while about 91 percent of McDonald's employees live within 25 miles or less of a separately-owned location.<sup>158</sup>

65. Moreover, record evidence indicates that suppressed hiring occurred across distant geographic areas: Class Members at the margin—for example, those in the process of relocation—were willing to substitute between alternative McDonald's stores located hundreds of miles apart, but were still bound by the No-Hire Agreement.<sup>159</sup> Record evidence confirms [REDACTED]

[REDACTED]<sup>160</sup> If Class Members viewed employment at other fast-food brands as a perfect substitute for employment at McDonald's, they would have no economic incentive to seek

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158. *Id.*

159. *See, e.g.*, MCDAT00376797 ([REDACTED])

[REDACTED]; *see also id.* Case ID 3911831 ([REDACTED])

[REDACTED]. *See also* MCDAT00376796 [REDACTED]

[REDACTED]. *See also id.* Case ID 5236948 ([REDACTED])

[REDACTED]  
160. *See* Leon Dep. at 55:16-58:15 ([REDACTED])

[REDACTED]).

permission to work at a distant McDonald's hundreds of miles away. Finally, market definition may also be informed by estimates of the elasticity of supply faced by McDonald's,<sup>161</sup> which by construction would be informed entirely by common methods and evidence.

#### **IV. THE CHALLENGED CONDUCT GENERATED COMMON IMPACT**

66. In this section, I show that common impact can be demonstrated using two separate yet mutually reinforcing methods, both of which have been successfully employed by economists to prove Common Impact in prior antitrust litigation. Under the first method, which uses in-sample prediction from my wage regression in Part III, I estimate that approximately 99 percent of Class Members suffered antitrust injury, including 99 percent of Crew, and 98 percent of Managers. Under the second method, which establishes the existence of a compensation structure using both econometric and record evidence, I show that effectively all Class Members suffered antitrust injury. I therefore conclude that all or almost all Class Members can be shown to have suffered antitrust injury across the two methods of proving Common Impact.

##### **A. Predicting Individual Wages Based on My Wage Regression Model Shows That Nearly All Class Members Received Lower Compensation Than They Would Have in the But-For World**

67. The first method I employ to demonstrate Common Impact compares the compensation that each Class Member actually received to the compensation they would have received in the absence of the Challenged Conduct, as determined by my regression model. Under this method, a Class Member suffers antitrust injury whenever her actual compensation in any given payment period during the Class Period is below the compensation she would have received per the

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161. These econometric methods are described in the literature review in Part I.A.3 above (e.g., measuring recruit and quit rates), showing that employers in low-wages labor markets generally possess monopsony power, and any econometric method selected would be common to the class. Moreover, all data used to inform an econometric estimate of McDonald's labor supply elasticity would be common to the class.



regression (prediction) model in the absence of the No-Hire Agreement. This standard form of in-sample prediction gives me sufficient data to compute the proportion of Class Members that sustained antitrust injury on one or more occasions. This method has been successfully employed in several antitrust class actions to demonstrate Common Impact.<sup>162</sup>

68. The logic of the first method is spelled out in the introductory chapter of the Federal Judicial Center's *Reference Manual on Multiple Regression*, which illustrates how multiple regression analysis can be used to determine whether individual plaintiffs suffered injury from employment discrimination.<sup>163</sup> I apply the same framework to determine whether individual Class Members suffered wage suppression from the Challenged Conduct: The method begins with my econometric model from Part III.A above, which controls for factors (other than the No-Hire Agreement) that may affect Class Member compensation.<sup>164</sup> Next, my econometric model is used to predict the amount of compensation that individual Class Members would have been paid under competitive conditions, and this prediction is compared to the compensation that individual Class

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162. See, e.g., *In re Air Cargo Shipping Servs. Antitrust Litig.*, No. 06-MD-1775 JG VVP, 2014 WL 7882100 (E.D.N.Y. Oct. 15, 2014). See also *In re Capacitors Antitrust Litigation* (No. III), case No. 17-md-02801-JD, 2018 WL 5980139 (N.D. Cal. Nov. 14, 2018); *In re Packaged Seafood Prods. Antitrust Litig.* 332 F.R.D. 308 (S.D. Cal. 2019).

163. REFERENCE MANUAL, n. 4 (“The first step in such a regression analysis is to specify all of the possible “legitimate” (i.e., nondiscriminatory) factors that are likely to significantly affect the dependent variable and which could account for disparities in the treatment of male and female employees. By identifying those legitimate criteria that affect the decision-making process, individual plaintiffs can make predictions about what job or job benefits similarly situated employees should ideally receive, and then can measure the difference between the predicted treatment and the actual treatment of those employees. If there is a disparity between the predicted and actual outcomes for female employees, plaintiffs in a disparate treatment case can argue that the net “residual” difference represents the unlawful effect of discriminatory animus on the allocation of jobs or job benefits.”) (emphasis added).

164. *Id.* (“The first step in such a regression analysis is to specify all of the possible “legitimate” (i.e., nondiscriminatory) factors that are likely to significantly affect the dependent variable and which could account for disparities in the treatment of male and female employees.”)

Members actually received.<sup>165</sup> If the predicted competitive compensation for an individual Class Member on a given payment exceeds that Class Member's actual compensation, this "residual" difference represents antitrust injury to said Class Member attributable to the Challenged Conduct for that payment.<sup>166</sup> Using the regression models developed in Part III.A above, I estimate that approximately 99 percent of Class Members suffered antitrust injury, including 99 percent of Crew, and 98 percent of Managers.<sup>167</sup>

**B. A Separate Regression Model Demonstrates the Existence of a Compensation Structure That Likely Transmitted Wage Suppression Across All Class Members**

69. Another standard method of proving Common Impact is a two-pronged, class-wide approach that has been accepted in prior antitrust litigation, including in *High-Tech Employee* and in *Arizona Travel Nurses*.<sup>168</sup> The first prong requires classwide evidence demonstrating that the

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165. *Id.* ("By identifying those legitimate criteria that affect the decision-making process, *individual plaintiffs* can make predictions about what job or job benefits similarly situated employees should ideally receive, and then can measure the difference between the predicted treatment and the actual treatment of those employees.").

166. *Id.* ("If there is a disparity between the predicted and actual outcomes for female employees, plaintiffs in a disparate treatment case can argue that the net 'residual' difference represents the unlawful effect of discriminatory animus on the allocation of jobs or job benefits.").

167. To be clear, this is not to say that 99 percent of Class Members who are designated as Crew suffered injury on every payment by Defendants, but instead that 99 percent of Class Members who are designated as Crew suffered an underpayment attributable to the No-Hire Agreement on at least one payment. Thus, for a given Class Member, it is possible to escape injury at one (lower) wage level, but after achieving another (higher) wage level, to have suffered an underpayment, as the step up was smaller than what is predicted in the but-for world.

168. I was the plaintiffs' economic expert in *Arizona Travel Nurses*. I have also served as expert for plaintiffs in other classes that have been certified based in part on my proof of common impact, including most recently *In Re Lidoderm Antitrust Litigation*. The district court accepted my methodology for proving antitrust impact in *Johnson v. Arizona Hospital & Healthcare Ass'n*, No. CV 07-1292-PHX-SRB, 2009 WL 5031334 (D. Ariz. 2009) at \*8, 11. The same "two-step" methodology utilized in *Johnson* was accepted by the court in *In re High-Tech Employees Antitrust Litigation*, 985 F.Supp.2d 1167, at 1206 (N.D. Cal. 2013), *Order Granting Plaintiffs' Supplemental Motion For Class Certification* ("Plaintiffs noted that Dr. Leamer's approach followed a roadmap widely accepted in antitrust class actions that uses evidence of general price effects plus evidence of a price structure to conclude that common evidence is capable of showing widespread harm to the

Challenged Conduct had a generally suppressive effect on compensation paid to Class Members; this has already been shown using my wage regression model in Part III.A above. The second prong involves determining whether there is class-wide evidence of a compensation structure that would transmit the artificially reduced compensation (found by the first prong) broadly across the Class. The second prong is demonstrated below.

70. The existence of a compensation structure is often attributed to “internal equity”—sometimes referred to by economists as “wage compression”—the notion that laborers doing comparable work believe that they should receive similar compensation (“Compression”). As a recent article in the *Quarterly Journal of Economics* notes, “a long tradition in economic thought—as well as in psychology, sociology, and organizational behavior—has advanced the notion that individuals also care about their pay relative to that of their co-workers.”<sup>169</sup> Because employees value Compression, employers respond by implementing uniform compensation structures that pay comparable compensation for comparable work. One textbook explains that “[p]ay structure refers to the array of pay rates for different work or skills within a single organization,”<sup>170</sup> and refers to examples of compensation structures at companies such as Merrill Lynch and Lockheed Martin.<sup>171</sup> In what follows, I test for the hypothesis of wage compression among McDonald’s employees.

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class.”). *See also, e.g., Johnson*, 2009 WL 5031334 at \*8, 11 (finding predominance where conduct was alleged to suppress bill rates for nurses generally and evidence was presented that bill rates were correlated with nurse pay rates); Caves & Singer (2015), *supra*, at 5.

169. Emily Breza, Supreet Kaur & Yogita Shamdasani, *The Morale Effects Of Pay Inequality*, 133(2) QUARTERLY J. ECON. (2018). *See also* Caves & Singer (2015), *supra*, at 2; GEORGE MILKOVICH, JERRY NEWMAN & BARRY GERHART, COMPENSATION 69 (10th ed. McGraw-Hill 2011) (“Internal alignment, also called *internal equity*, refers to the pay relationships among different jobs/skills/competencies within a single organization.”) (emphasis in original).

170. Milkovich, et al., *supra*, at 69.

171. *Id.* at 69-73.

## 1. Econometric Evidence of a Compensation Structure

71. Using standard econometric methods, I performed regressions to test whether changes in hourly compensation are broadly shared across Class Members. Similar to analyses performed by Plaintiffs' expert economist, Professor Edward Leamer, in *High-Tech Employee*, these regressions measure the extent to which an increase in hourly compensation for Class Members generally is statistically associated with an increase in compensation for an individual Class Member.<sup>172</sup> Specifically, I estimated regressions in which the dependent variable was set equal to an individual Class Member's weekly pay rate, and the independent variable was set equal to either: (A) the average hourly wage paid to all *other* workers of that Class Member's same type (Crew or Manager) in *that* year; or (B) the average hourly wage paid to all *other* workers of the Class Member's same type in the *prior* year. The regressions include each of the control variables used in my impact regressions in Part III.A above.

72. The results of these regressions are shown in Table 6. As seen below, an increase in the compensation paid to *other* Class Members of the same type of occupation is positively and highly statistically significantly related to the compensation paid to an individual Class Member, even after controlling for the same factors as my prior regressions. For example, the result in column

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172. See *Order Granting Plaintiffs' Supplemental Motion for Class Certification, High-Tech Employees Antitrust Litig.*, 985 F.Supp.2d 1167, at 58-61 (N.D. Cal. 2013). See also Caves & Singer, *supra*, at 5. Another economic expert in *In Re High Tech Employee*, Professor Kevin Hallock, also testified to the existence of a compensation structure. He found that high-tech firms such as Google used "formalized compensation systems," including "using market surveys, using survey data, having clear structures, [and] grades," and that Compression was important to Defendants. See Expert Report of Kevin Hallock (Redacted Version), Oct. 27, 2013, No. 11-CV-02509-LHK (N.D. Cal.) ECF No. 958-2, ¶8. In *Dr. Seaman et al. v Duke University et al.*, Professor Peter Cappelli concluded that restrictions on the ability of Duke and UNC to hire each other's faculty lowered the amount that Duke and UNC had to pay to retain their faculty. See Expert Report of Peter Cappelli, July 2, 2018, No. 1:15-cv-00462-CCE-JLW, ECF No. 315-1 ¶9. Professor Cappelli further demonstrated that Duke and UNC had formalized pay systems, and that both universities respected the concept of Compression. *Id.* ¶¶39-41 (formalized pay systems), ¶59 (Duke's internal equity).

(1) indicates that a ten percent increase in the average compensation of other Crew members is associated with a 7.9 percent increase in compensation to an individual Crew member. Similarly, the result in column (3) indicates that a ten percent increase in the average compensation of other Managers is associated with a 3.2 percent increase percent increase in compensation to an individual Manager. These results are consistent with the existence of a compensation structure: An increase in the compensation paid to others is associated with a statistically and economically significant increase in the compensation paid to an individual. Importantly, the correlation among compensation

levels need not be perfect; what matters is that Class Member compensation levels are determined by common factors, and thus show a strong tendency to move together.

TABLE 6: COMPENSATION STRUCTURE REGRESSIONS

Explanatory Variable	Dependent Variable: $\ln(\text{Compensation})$			
	(1) Crew	(2) Crew	(3) Managers	(4) Managers
<i>ln(Other's Avg Comp)</i>	<b>0.791***</b> (0.000)		<b>0.316***</b> (0.000)	
<i>ln(Other's Avg Comp) 1-yr lag</i>		<b>0.521***</b> (0.000)		<b>0.247***</b> (0.000)
<i>Salaried Indicator (McOpCo)</i>	n/a	n/a	5.125*** (0.000)	5.674*** (0.000)
<i>Salaried Indicator (Franchisee)</i>	n/a	n/a	n/a	n/a
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.456*** (0.000)	0.481*** (0.000)	0.433*** (0.000)	0.441*** (0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.247*** (0.000)	0.231*** (0.000)	-0.069*** (0.000)	0.002 (0.820)
<i>Local Unemployment Rate (McOpCo)</i>	-0.011*** (0.000)	-0.012*** (0.000)	-0.015*** (0.000)	-0.016*** (0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.008*** (0.000)	-0.005*** (0.000)	-0.008*** (0.000)	0 (0.911)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	-0.014*** (0.000)	0.295*** (0.000)	0.235*** (0.000)	0.37*** (0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.001 (0.863)	0.587*** (0.000)	-0.448*** (0.000)	-0.003 (0.898)
<i>McOpCo Store Flag</i>	n/a	n/a	n/a	n/a
<i>Constant</i>	-0.309*** (0.000)	-3.105*** (0.000)	-1.557*** (0.000)	-2.872*** (0.000)
<i>Job Code Fixed Effects?</i>	Y	Y	Y	Y
<i>Worker Fixed Effects?</i>	Y	Y	Y	Y
<i>Number of FE</i>	113,818	113,818	18,430	18,430
<i>Observations</i>	10,110,383	10,110,383	2,390,390	2,390,390
<i>R-Squared</i>	96.7%	96.4%	100.0%	100.0%

Notes: Robust  $p$ -values in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Salaried Indicators and the McOpCo variable with a "n/a" indicate that the effect is subsumed within the worker fixed effects.

73. Similar results are obtained when the compensation of other workers from the prior year is used to predict the compensation earned by an individual in the current year. As seen in column (2) of Table 6 above, a ten percent increase in the average compensation of other Crew members in the prior year is associated with a 5.2 percent increase in compensation paid to an

individual Crew member in the current year. Finally, as seen in column (4), a ten percent increase in the average compensation of other Managers in the prior year is associated with a 2.6 percent increase in compensation paid to an individual Manager in the current year.

**2. Record Evidence Consistent with a Compensation Structure**

74. Record evidence indicates that the compensation paid to Class Members followed a formulaic compensation structure, consistent with considerations of Compression.<sup>173</sup> McDonald's corporate implements a regimented compensation structure across its organization, sometimes referred to as the [REDACTED]<sup>174</sup> McDonald's corporate [REDACTED]. Record evidence shows that McDonald's corporate [REDACTED].

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173. Record evidence shows that McDonald's [REDACTED]. See, e.g., MCDAT00227394 [REDACTED] and MCDAT00386439 ("[REDACTED]"). See also MCDAT00227394 at MCDAT00227408 [REDACTED] and MCDAT00113621 at MCDAT00113623 [REDACTED].

174. See MCDAT00113621 at MCDAT00113623 [REDACTED]. See also Duggan Dep. at 51:16-22 (According to McDonald's head of US Rewards, Lori Duggan: [REDACTED]). See also MCDAT00148170 at MCDAT00148176 [REDACTED].





[REDACTED]”<sup>178</sup> Record evidence shows that [REDACTED]

[REDACTED]

[REDACTED]”<sup>179</sup> [REDACTED]

[REDACTED]”<sup>180</sup> [REDACTED]

[REDACTED]

[REDACTED]”<sup>181</sup>

77. [REDACTED]

[REDACTED]

[REDACTED]”<sup>182</sup> [REDACTED]

[REDACTED]

[REDACTED]”<sup>183</sup>

78. This evidence is indicative of the type of wage compression associated with considerations of Compression. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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178. Duggan Dep. at 36:16-37:18 ([REDACTED])

[REDACTED] See also Duggan Dep. Exhibit 12 ([REDACTED]).

179. MCDAT00116264 at MCDAT00116317.

180. *Id.*

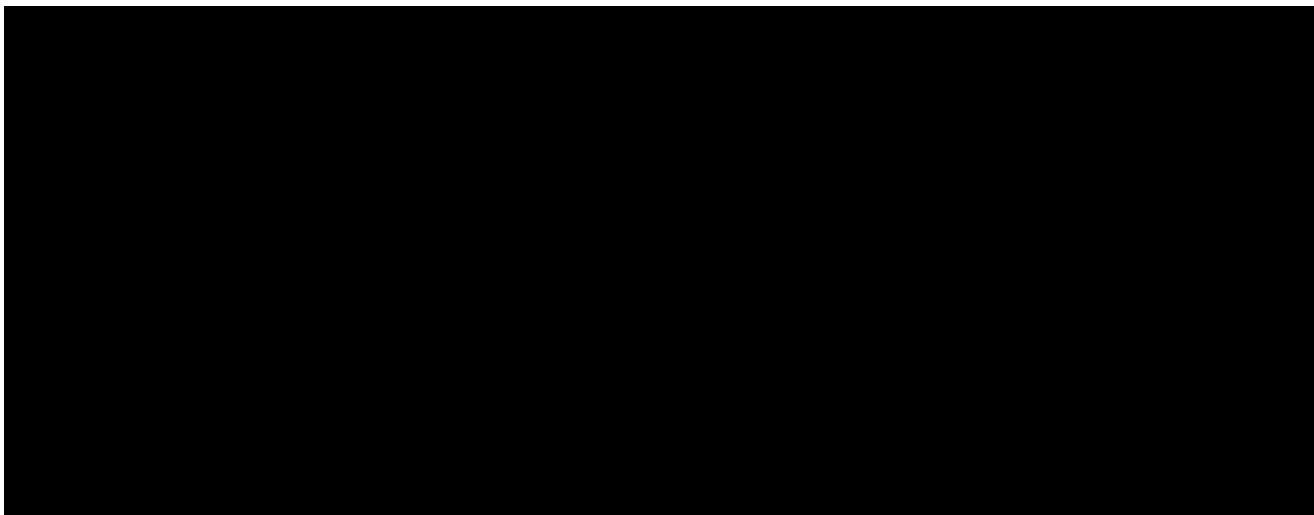
181. *Id.* at MCDAT00116318.

182. *Id.* at MCDAT00116318-20.

183. *Id.*

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79. A second set of compensation structure tables provided by McDonald's are

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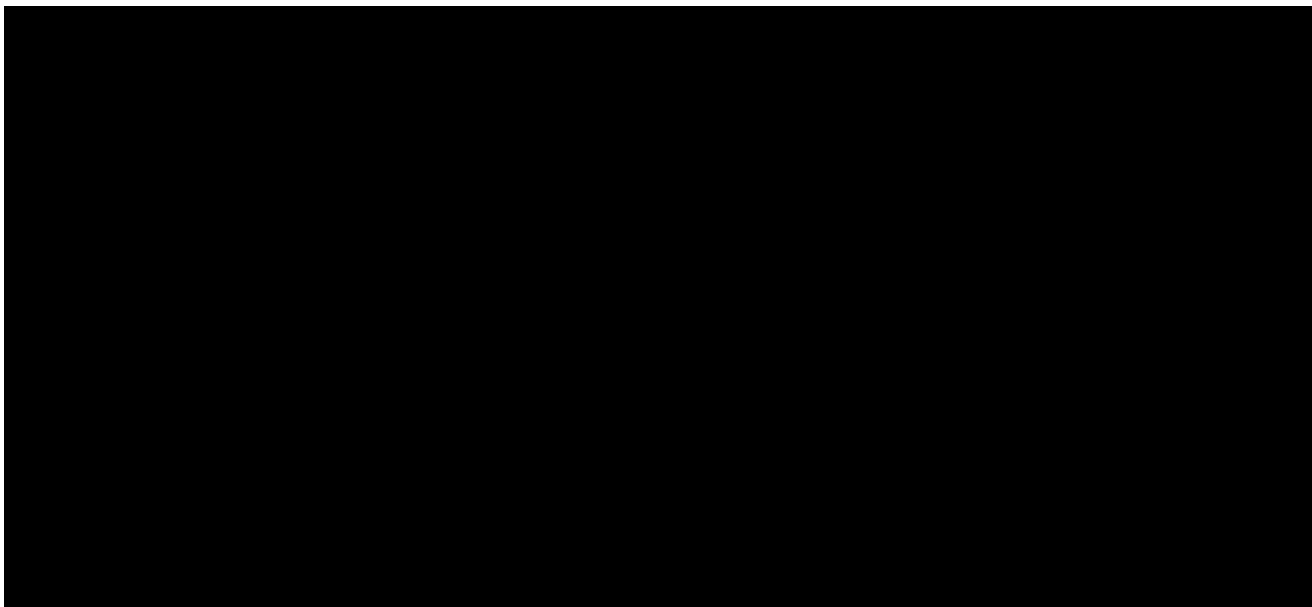
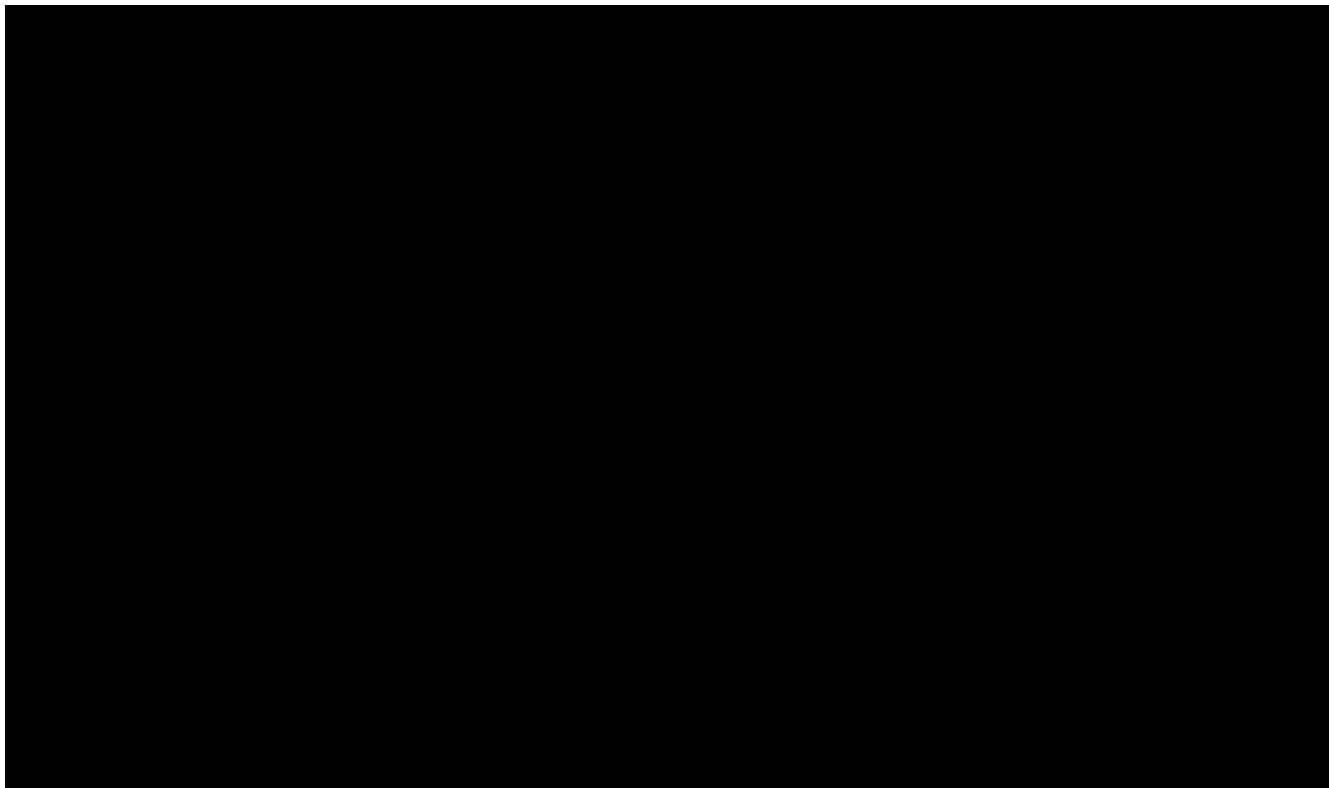
. According to McDonald's,


187 These two

tables are reproduced below.

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184. *Id.*  
185. *Id.*  
186. *Id.* at MCDAT00116320-1.  
187. *Id.* at MCDAT00116320.

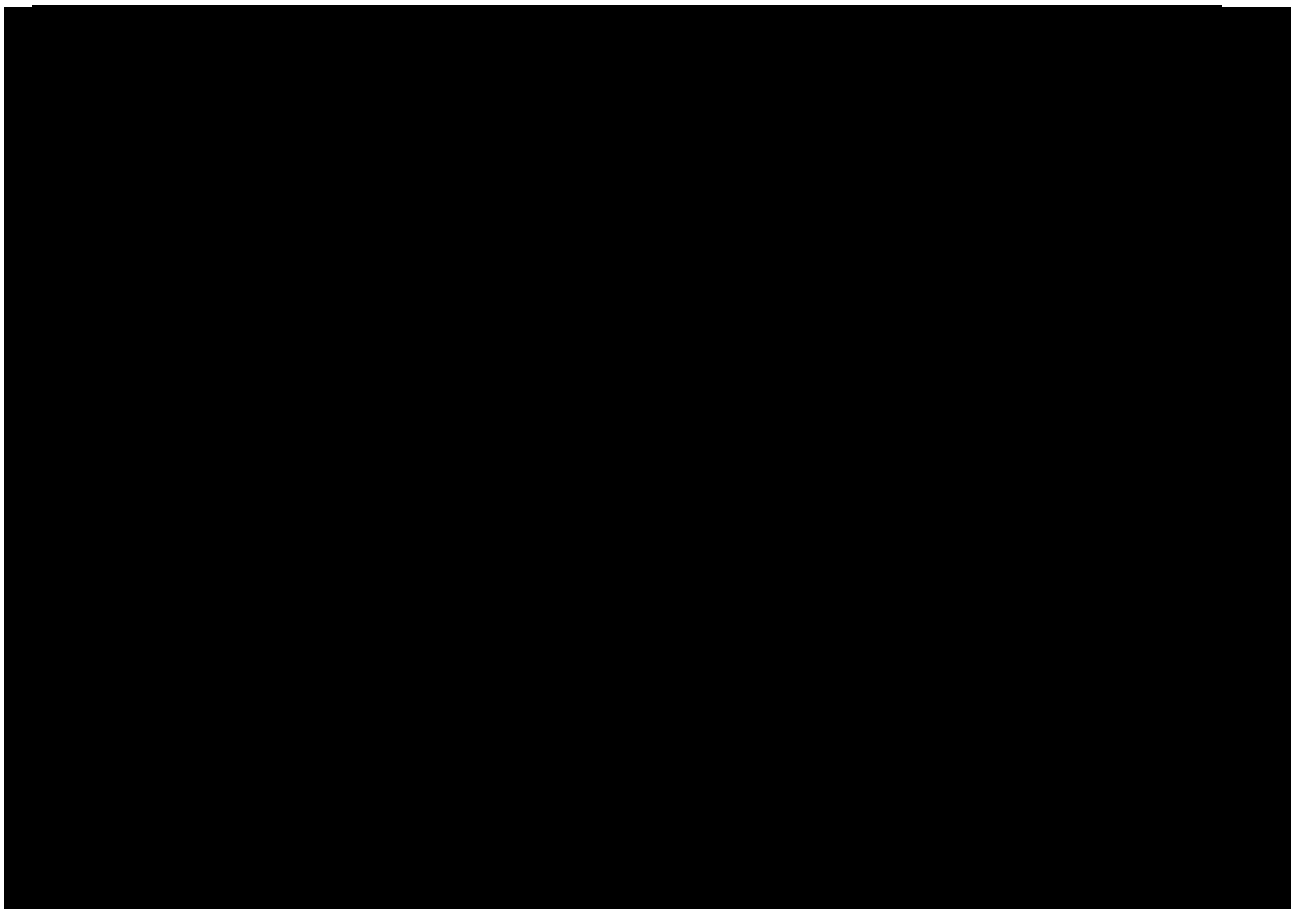


80. Record evidence shows that the McOpCos adhered to an internal Compensation Structure like the examples provided in 

[REDACTED] 188 [REDACTED]

[REDACTED]

[REDACTED] A sample is shown below.



81. Record evidence from independent Franchisees indicates that they created compensation structures consistent with [REDACTED]

[REDACTED] Franchisee records contain [REDACTED]

[REDACTED]

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188. *See, e.g.*, MCDAT00248405 ([REDACTED]); MCDAT00229304 ([REDACTED] p.); MCDAT00229921 (for Store #2223-Gardner-Rt 68); MCDAT00230163 ([REDACTED] MCDAT00252702 ([REDACTED])).



82. In summary, record evidence indicates that the compensation paid to Class Members followed a formulaic compensation structure, disseminated from the McOpCos to the Franchisees, consistent with considerations of Compression and the results of my compensation structure regressions. This allows me to conclude that the compensation-suppressing effects of the Challenged Conduct were not confined to a subset of Class Members, but instead would have been broadly shared across the Class.

#### V. AGGREGATE DAMAGES TO THE CLASS

83. Aggregate damages can be written as the product of (1) the generalized wage effect from the regression model developed in Part III.A above; and (2) the aggregate compensation paid to Class Members while the Challenged Conduct was in effect. I calculated Aggregate Damages using the equilibrium adjustment regressions summarized in Table 4 above.

84. As seen below, Aggregate Damages for June 29, 2013 (the start of the Damages Period) through July 12, 2018 (the date of the AG Settlement) come to approximately \$ [REDACTED] or about 5.9 percent of the \$ [REDACTED] in total Class Member compensation over the (five-year) Damages Period.<sup>192</sup> This 5.9 percent effect is below estimates from other antitrust class actions involving suppression of class member compensation.<sup>193</sup> Of the total Aggregate Damages of \$ [REDACTED], approximately \$ [REDACTED] derives from underpayments to Crew (equal to \$ [REDACTED] +

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192. It is unsurprising that Class Member compensation totaled \$46 billion over a five-year period, given that McDonald's is one of the largest employers in the U.S. *See, e.g.*, Alexander E.M. Hess, "The 10 largest employers in America" *USA Today* (August 22, 2013) (listing McDonald's as the third-largest employer behind Wal-Mart and Yum! Brands).

193. *See, e.g.*, *In re: High-Tech Employee Antitrust Litig.*, 5:11-cv-02509-LHK (N.D. Cal July 11, 2014), Dkt. 967-1 at 20 (average suppression of 9.3%); *Nitsch v. DreamWorks Animation SKG Inc.*, 14-cv-04062-LHK (N.D. Cal. Feb. 10, 2016), Dkt. 215-6 at 85 (average suppression of 17.3%); *Seaman v. Duke University, et al.*, 15-cv-462 (M.D.N.C. Mar. 6, 2019), Dkt. 315-3 at 37 (average suppression of 6.3%).

\$ [REDACTED] and approximately \$ [REDACTED] derives from underpayments to Managers (equal to \$ [REDACTED] + \$ [REDACTED]).

TABLE 7: AGGREGATE DAMAGES, [REDACTED] (6/29/2013 – 7/11/2018)

	Franchisees		McOpCos	
	Crew	Managers	Crew	Managers
Class Member Compensation	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Total Class Compensation	[REDACTED]			
But-For Increase	6.8%	2.5%	3.3%	4.0%
<b>Aggregate Damages</b>	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<b>Total Class Damages</b>	[REDACTED]			

*Note:* Class Member Compensation calculated from Crew Labor and Management Labor costs recorded in profit and loss (P&L) statements for Franchisees and McOpCos. See MCDAT00376784-95. But-for compensation increase from Table 4.

85. Damages can also be expressed on a per-Class Member basis. I estimate that there are approximately 600,000 Class Members per year of the Damages Period.<sup>194</sup> Accordingly, damages are estimated at approximately [REDACTED]

#### VI. MCDONALD'S LIKELY EFFICIENCY DEFENSES ARE BOTH UNAVAILING AND CLASSWIDE

86. Franchisees had obvious anticompetitive economic incentives to adhere to the No-Hire Agreement—namely, lower compensation paid to Class Members translates directly into greater Franchisee profit. McDonald's also had clear anticompetitive economic incentives to employ the No-Hire Agreement: *First*, the McOpCos, like the Franchisees, earn greater profit when Class Member compensation is lower. *Second*, from McDonald's perspective as a franchisor, the wage

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194. See Appendix Tables F3-F5.

savings and enhanced profit enjoyed by the Franchisees meant that Franchisees would, all else equal, pay more for the opportunity to own and operate a McDonald's restaurant.

87. Ignoring the obvious anticompetitive explanations for the No-Hire Agreement, McDonald's has asserted instead that the No-Hire Agreement was [REDACTED] [REDACTED] [REDACTED]<sup>95</sup> and that the No-Hire Agreement was intended to [REDACTED] [REDACTED]<sup>196</sup> It bears emphasis that McDonald's own designated corporate witness [REDACTED].<sup>197</sup> In any case, below I consider this efficiency claim (the "Free Rider Defense"). Based on my analysis of this potential defense, I am not persuaded to alter my conclusion of anticompetitive effects. That McDonald's has been willing to abandon the No-Hire Agreement implies that it was never critical to the efficient functioning of the business. (In contrast to other antitrust litigation, where the restraint is still in place, and the defendant can more credibly claim that the restraint is essential). Critically,

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195. *Defendants McDonald's USA, LLC and McDonald's Corporation's Objections and Responses to Plaintiff's Second Set Of Interrogatories* (April 8, 2019), at 14-15.

196. *Id.* at 19.

197. Deposition of James Kramer (January 23, 2020) [hereinafter Kramer Dep.] at 112-114; 121-22 ([REDACTED])

[REDACTED] See Kramer Dep. Exhibit 27 (Mr. Kramer's signed verification) and *McDonald's Objections* at 14 [REDACTED]

[REDACTED] See also Kramer Dep. at 146:2-7 (" [REDACTED]

[REDACTED] *Id.* at 23-31.



any assessment of Efficiencies would be informed solely on common methods and common evidence.

88. The Free Rider Defense suggests that, in the absence of the Challenged Conduct, Franchisees might decrease their investments in training under the rationale that investments in training would invite poaching of a newly trained worker by other Franchisees. Of course, such poaching could be prevented by offering the employee sufficient compensation to induce her not to switch to another restaurant. Thus, the Free-Rider Defense is an admission of monopsony power: It presupposes that McDonald's exploited the No-Hire Agreement to suppress Class Member compensation below what it would be otherwise.

89. I have seen no evidence that the cessation of the Challenged Conduct had any negative effect on McDonald's training of its employees. If the Free Rider Defense were valid, the withdrawal of the No-Hire Agreement should result in an overall diminution in the quality of McDonald's labor force, and thus in the value of its output and the overall quality of the brand. This would make McDonald's less attractive to investors, yet I have seen no evidence that McDonald's became less attractive to investors as a result of the cessation of the Challenged Conduct. Nor have I seen any evidence that McDonald's ceased or substantially cut back on employee training as a result of the cessation of the Challenged Conduct.<sup>198</sup> Indeed, a McDonald's executive testified that

[REDACTED]

[REDACTED].<sup>199</sup> Additional record evidence confirms that training standards have remained

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198. McDonald's produced limited training data from Hamburger University, which was insufficient for analysis. *See* Appendix D.

199. Lopez Dep. at 260:16-9 [REDACTED]

*Id.* at 261:5-8 [REDACTED]

unchanged.<sup>200</sup> To the extent that franchised restaurants are loathe to invest in general skills that their employees could also deploy at other brands, the No-Hire Agreement would have done nothing to enhance incentives to invest in general skills.

90. To the extent there are any consumer benefits in a downstream food-services market purportedly achieved through the No-Hire Agreement, those purported “offsets” would occur outside of the relevant input labor market and would require the court to engage in an arbitrary multi-market balancing. Even ignoring this concern, the claim that restricting mobility reduces training costs and thereby lowers downstream prices (say, of sandwiches) is unavailing because a no-hire agreement reduces the training costs for one franchisee but *raises* the training costs for the second franchisee that would have hired the dissatisfied worker; and (2) the franchisor would prefer that a disgruntled worker move to another store, rather than leave the system.

91. Given McDonald’s clear economic incentives to remain competitive with other brands, it would be surprising if the end of the Challenged Conduct had a detrimental effect on training. In sectors of the economy where no-poach agreements are generally absent, employers still invest in training workers. As a franchisor, McDonald’s has clear economic incentives to ensure that the workforce in McDonald’s-branded restaurants is highly trained; if one Franchisee poaches an

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\_\_\_\_\_ *Id.* at 15-22; 80-83.

200. *See, e.g.*, MCDAT00026823 ( \_\_\_\_\_

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\_\_\_\_\_ MCDAT00072703

( \_\_\_\_\_

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\_\_\_\_\_); MCDAT00376335 at MCDAT00376346 \_\_\_\_\_ ( \_\_\_\_\_ 8);

MCDAT00072933 at MCDAT00072934 ( \_\_\_\_\_); MCDAT00032305

( \_\_\_\_\_).

employee from another, both the employee and the value of her training remains within the McDonald's franchise system. Moreover, it is unlikely that McDonald's would have agreed to remove the No-Hire Agreement from its Franchisee contracts if it were in any way essential to the operations of the enterprise.

92. Finally, it bears repeating that the question of proffered Efficiencies to justify the No-Hire Agreement lends itself naturally to classwide analysis. For example, if the No-Hire Agreement creates stronger investment incentives due to the elimination of free riding, that effect would be felt classwide and not with respect to any particular Class Member. Moreover, the data necessary to test any efficiency claim would be common to the class. Accordingly, any purported efficiency defenses here would not raise individualized issues.

#### CONCLUSION

93. For the foregoing reasons, I conclude that common methods and evidence demonstrate Anticompetitive Effects and Common Impact to the Class, with approximately 99 percent of Class Members suffering antitrust injury, including 99 percent of Crew, and 98 percent of Managers. I also conclude that common methods and evidence demonstrate Aggregate Damages attributable to the No-Hire Agreement totaling approximately \$ [REDACTED], or about 5.9 percent of Class Member compensation over the Damages Period. Of this, approximately \$ [REDACTED] derives from underpayments Crew, and approximately \$ [REDACTED] derives from underpayments to Managers. On a per Class Member basis, damages are estimated at approximately \$ [REDACTED] [REDACTED]. I also conclude that the Efficiencies likely to be claimed by McDonald's are unavailing and, in any case, would be assessed via evidence and methods common to the Class.

\* \* \*

Hal J. Singer, PhD:



Hal J. Singer

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Executed on January 15, 2021.

**APPENDIX A: CURRICULUM VITAE**



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**Education**

Ph.D., The John Hopkins University, 1999; M.A. 1996, Economics

B.S., Tulane University, *magna cum laude*, 1994, Economics. Dean's Honor Scholar (full academic scholarship). Senior Scholar Prize in Economics.

**Current Positions**

ECON ONE, Washington, D.C.: Managing Director 2018-present.

GEORGETOWN UNIVERSITY, MCDONOUGH SCHOOL OF BUSINESS, Washington, D.C.: Adjunct Professor 2010, 2014, 2016, 2018, 2019, 2020.

GEORGE WASHINGTON UNIVERSITY, SCHOOL OF PUBLIC POLICY, GEORGE WASHINGTON INSTITUTE FOR PUBLIC POLICY, Washington, D.C.: Senior Fellow 2016-present.

**Employment History**

ECONOMISTS INCORPORATED, Washington, D.C.: Principal 2014-2018.

NAVIGANT ECONOMICS, Washington, D.C.: Managing Director, 2010-2013.

EMPIRIS, L.L.C., Washington, D.C.: Managing Partner and President, 2008-2010.

CRITERION ECONOMICS, L.L.C., Washington, D.C.: President, 2004-2008.  
Senior Vice President, 1999-2004.

LECG, INC., Washington, D.C.: Senior Economist, 1998-1999.

U.S. SECURITIES AND EXCHANGE COMMISSION, OFFICE OF ECONOMIC ANALYSIS, Washington, D.C.: Staff Economist, 1997-1998.

THE JOHNS HOPKINS UNIVERSITY, ECONOMICS DEPARTMENT,  
Baltimore: Teaching Assistant, 1996-1998.

### **Honors**

Honoree, Outstanding Antitrust Litigation Achievement in Economics, American Antitrust Institute, *In re Lidoderm Antitrust Litigation*, Oct. 9, 2018.

Finalist, Outstanding Antitrust Litigation Achievement in Economics, American Antitrust Institute, *Tennis Channel v. Comcast*, Dec. 4, 2013.

### **Authored Books and Book Chapters**

*Do Municipal Broadband Networks Stimulate or Crowd Out Private Investment? An Empirical Analysis of Employment Effects*, in THE IMPACT OF THE INTERNET ON JOBS (Lorenzo Pupillo, ed. Palgrave 2017).

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## **Memberships**

American Economics Association

American Bar Association Section of Antitrust Law

## **Reviewer**

Journal of Risk and Insurance

Journal of Competition Law and Economics

Journal of Risk Management and Insurance Review

Journal of Regulatory Economics

Managerial and Decision Economics

Telecommunications Policy

## APPENDIX B: MATERIALS RELIED UPON

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MCDAT00008091

MCDAT00026823

MCDAT00026839

MCDAT00031199

MCDAT00032305

MCDAT00049035

MCDAT00072703

MCDAT00072933

MCDAT00099796

MCDAT00112988

MCDAT00112991

MCDAT00113004

MCDAT00113499

MCDAT00113567

MCDAT00113609

MCDAT00113621  
MCDAT00115421  
MCDAT00116264  
MCDAT00119036  
MCDAT00133521  
MCDAT00137335  
MCDAT00146714  
MCDAT00148170  
MCDAT00157544  
MCDAT00157551  
MCDAT00185934  
MCDAT00185942  
MCDAT00186051  
MCDAT00186188  
MCDAT00186217  
MCDAT00186317  
MCDAT00219729  
MCDAT00219860  
MCDAT00219889  
MCDAT00227195  
MCDAT00227394  
MCDAT00229304  
MCDAT00229921  
MCDAT00230163  
MCDAT00248405  
MCDAT00252702  
MCDAT00307691  
MCDAT00307696  
MCDAT00320585  
MCDAT00324083  
MCDAT00333989  
MCDAT00334049  
MCDAT00342220  
MCDAT00342235  
MCDAT00342238  
MCDAT00342458  
MCDAT00342492  
MCDAT00343431  
MCDAT00348142  
MCDAT00348544

MCDAT00351646  
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MCDAT00366320  
MCDAT00375195  
MCDAT00376335  
MCDAT00376709  
MCDAT00376784  
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#### **DEPOSITIONS**

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*Deposition of Lori Duggan (January 8, 2020), Exhibit 1*

**APPENDIX C: LABOR SUPPLY AND DEMAND GRAPHS**

FIGURE C1: COMPETITIVE (“PERFECTLY ELASTIC”) LABOR SUPPLY CURVE

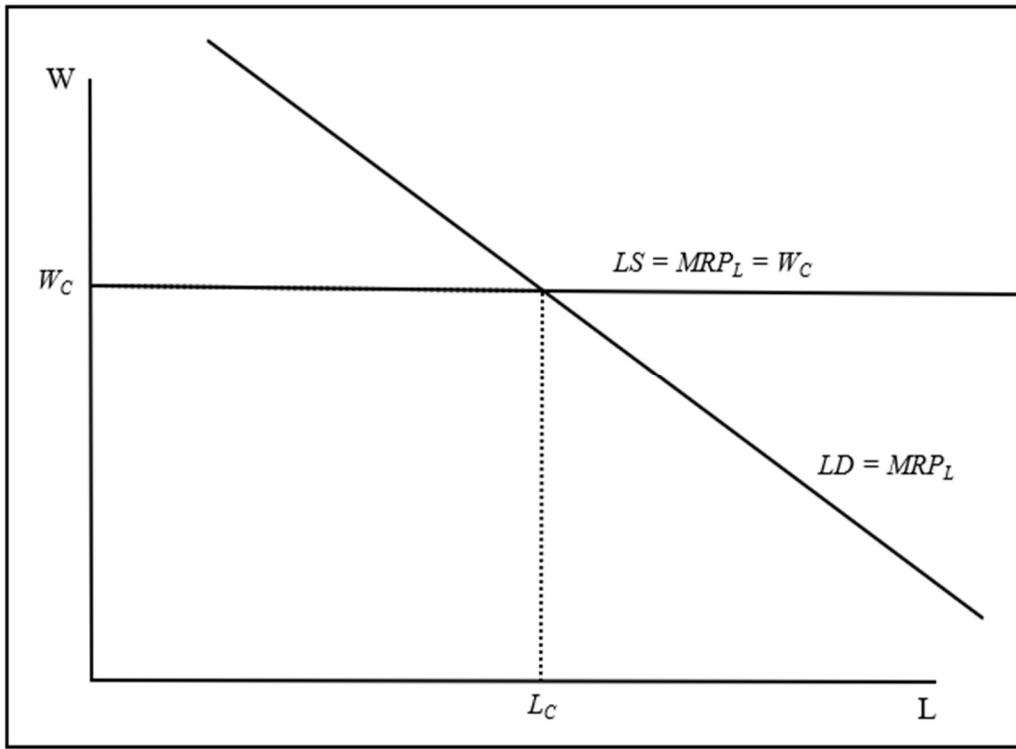
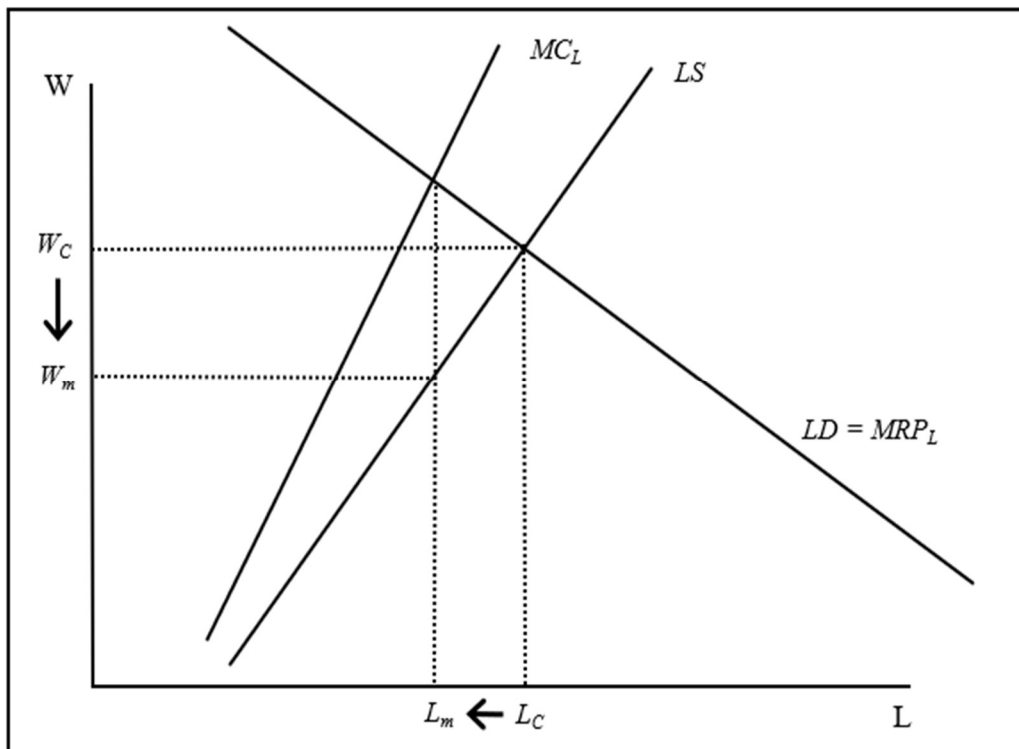


FIGURE C2: UPWARD-SLOPING LABOR SUPPLY CURVE (SHOWING MONOPSONY POWER)





**APPENDIX D: DATA REVIEW & ANALYSIS OF PAY DATA**

**A. McOpCo Payroll Data**

94. McDonald’s produced payroll datasets for a sample of its McOpCo (corporate-owned) stores. These datasets come from the “Lawson” data system which tracks employee status and individual employee payroll by pay period. McDonalds initially produced data for all of its McOpCo stores in Florida, but declined to do the same for other states. Per agreement between the parties, payroll data for a 10 percent randomly selected sample of nationwide stores was produced on 11/1/2019, which included data through September 2019. McDonald’s supplemented its Lawson data production on 3/5/2020 to include Florida store stores that were within the 10 percent national sample.<sup>201</sup>

95. After combining and cleaning the McOpCo payroll data, the dataset contains [REDACTED] McOpCo stores and [REDACTED] McOpCo employees from January 2013 through September 2019.<sup>202</sup> If the sample is limited to only the nationally sampled stores (which excludes the original FL stores not in the sample, as well as “non-sample” stores produced where an employee from a sample store moved),<sup>203</sup> the dataset includes [REDACTED] stores and [REDACTED] employees. In any case, my regression results

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201. See “RE\_ McDonald's - Lawson data [Lawson and P&L Supp].msg”

202. The Lawson data included some data points that pre-date the production timeframe agreed to by the parties, which begins in 2013. See “RE\_ McD Lawson Discovery Letter [Lawson Dates].msg”. I exclude these observations for being potentially unrepresentative of the agreed upon 10% sample. As a robustness check, I add these extra data into the regression in Appendix Table E14 and E15. Their inclusion does not materially impact the regression results.

203. McDonalds’s Lawson production included employees who moved between stores in the random sample and stores outside of the random sample. See “RE\_ McDs - Lawson sample [National Sample].msg” [REDACTED]

[REDACTED]

are robust to including all Lawson data produced (as I do in Tables 1-4), or to limiting the analysis to the nationwide random sample of McOpCos, as shown in Appendix Tables E4 and E5.

## **B. Franchisee Payroll Data**

### **1. Paychex**

96. Paychex, an independent payroll provider,<sup>204</sup> produced payroll for ■ franchisees using its payroll systems.<sup>205</sup> The data include employee level hours, wage rates, and total pay by pay period. The data include employee job titles and company names, but do not specify the restaurant location within a company. The Paychex data does not contain store-level information, so it is not possible to determine exactly how many stores are represented in the data.<sup>206</sup>

### **2. Mize**

97. Mize CPAs Inc., an independent payroll provider,<sup>207</sup> produced payroll for ■ franchisees using its payroll systems. The data come in two parts, 1) annual employee hours by store,<sup>208</sup> and (2) employee wage changes over time. Mize did not produce individual paycheck-level information.

98. The most granular data provided by Mize tracks changes in employee pay rates across time; this dataset covers approximately ■ employees from June 2013 to December 2018. An

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204. <https://www.paychex.com/>

205. 70 Franchisees were produced, but two had only 2 observations each and were excluded.

206. The Paychex files ending in Bates Numbers 008 through 017 are in a different format than the rest of the production. While these files largely contain the same information in a different format, the files ending in 008 through 017 do not contain any information about the employees' position. Paychex confirmed that these files are accurate and are from two different internal systems: "Flex" and "Preview." See "FW\_Paychex - Sample spreadsheets [Paychex].msg".

207. <https://www.mizecpas.com/services/payroll/>. See "FW\_Deslandes\_Turner v\_McD - Mize Responses\_ODNSS-OGI\_025795\_000003\_[Mize Qs].msg"

208. The annual data provided do not reflect annual pay rate, nor can annual pay rate be calculated given the provided variables, as gross annual pay is missing. Only "current" (likely as of the report date) pay rate is provided for each employee.

approximation of my econometric model based on the pay rate change data yields similar results to those found for the more complete McOpCo and Paychex datasets. As seen below, according to the Mize payroll data, employee compensation (as measured by pay rate) was approximately six percent lower before the cessation of the No-Poach Agreement, holding constant other factors.

APPENDIX TABLE D1: COMPENSATION REGRESSIONS, MIZE PAY CHANGE DATA

Explanatory Variable	Dependent Variable: <i>ln(compensation)</i>	
	(1) No Fixed Effects	(2) Fixed Effects
<i>PreAG</i>	-0.05*** (0.00178)	-0.06*** (0.00098)
<i>ln(Real Minimum Wage)</i>	0.64*** (0.00643)	0.47*** (0.00568)
<i>Local Unemployment Rate</i>	-0.02*** (0.00037)	-0.02*** (0.0004)
<i>ln(Local Real Income Per Capita)</i>	0.11*** (0.00354)	0.66** (0.01129)
<i>Constant</i>	-0.2** (0.03574)	-5.77 (0.12167)
<i>Job Code Fixed Effects?</i>	N	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Store Fixed Effects?</i>	N	Y
<i>Number of FE</i>	--	115,129
<i>Observations</i>	256,383	256,383
<i>R-squared</i>	9.1%	97.9%

Note: See Table 2, *supra*

### 3. ADP

99. ADP, LLC, an independent payroll provider,<sup>209</sup> produced payroll for ■■■ franchisees using its payroll systems. ADP did not produce individual paycheck-level information. The data produced contain annual employee gross pay with hourly rates. The data do not contain store

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209. <https://www.adp.com/>

locations or employee job types. ADP produced duplicated files in its production which were confirmed and removed.<sup>210</sup> This dataset covers approximately [REDACTED] employees from 2009 to 2020.

100. An approximation of my econometric model, based on the available ADP *annual aggregate* data, yielded results similar to those found for payroll-based McOpCo and Paychex datasets. Because the AG Settlement occurred in mid-2018, I tested a *PreAG* period *including* 2018 and a *PreAG* period *excluding* 2018 (ending in 2017). My results are robust to this variation. The ADP data does not include job title information and therefore it is not possible to control for job code fixed effects. Instead, I included store fixed effects and Worker Fixed Effects. As seen below, the coefficients on the *PreAG* term are consistently negative and statistically significant, as expected. For example, according to column (1), compensation was six percent lower while the No-Poach Agreement was in effect, holding other factors constant.

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210. See “FW\_ ADP Production [ADP].msg”

APPENDIX TABLE D2: COMPENSATION REGRESSIONS, ADP ANNUAL DATA

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>				
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
	<b>2018 Included In <i>PreAG</i></b>	<b>2018 Excluded From <i>PreAG</i></b>	<b>2018 Included In <i>PreAG</i></b>	<b>2018 Excluded From <i>PreAG</i></b>
<i>PreAG</i>	-0.06*** (0.00165)	-0.06*** (0.00192)	-0.02*** (0.001)	-0.01*** (0.0019)
<i>Salaried Indicator</i>	8.64** (0.0342)	8.64** (0.03415)	7.82* (0.08162)	7.82* (0.08156)
$\ln(\text{Real Minimum Wage})$	0.97*** (0.00523)	0.93*** (0.00567)	0.81** (0.02822)	0.8** (0.03191)
<i>Local Unemployment Rate</i>	0*** (0.00066)	0*** (0.00075)	0*** (0.00035)	0*** (0.00036)
$\ln(\text{Local Real Income Per Capita})$	0.03*** (0.00192)	0.04*** (0.00211)	0.03** (0.02364)	0.14** (0.03035)
<i>Constant</i>	-0.05** (0.01955)	-0.19** (0.02054)	0.2 (0.28269)	-0.99 (0.35396)
<i>Job Code Fixed Effects?</i>	N	N	N	N
<i>Worker Fixed Effects?</i>	N	N	Y	Y
<i>Store Fixed Effects?</i>	N	N	Y	Y
<i>Number of FE</i>	--	--	35,650	35,650
<i>Observations</i>	53,707	53,707	53,707	53,707
<i>R-squared</i>	93.4%	93.4%	99.9%	99.9%

Notes: See Table 2, *supra*.

### C. Restaurant Owner and Location Data

101. McDonald's produced one separate file containing restaurant ownership and location information, which was amended with two files from discovery to form a complete list of Restaurant Owner and Location Data. "Franchise Restaurant List.xlsx" was produced on 4/8/2019 and contains data for [REDACTED] Franchisee locations. "CONFIDENTIAL -- McOpCo Restaurants 2013 to 2019 YTD.xlsx" was produced on 7/23/2019 and contains information for [REDACTED] McOpCo locations. "000000\_MCDAT00031199.xlsx" additionally contains ownership data for [REDACTED] Franchisee locations.



local economic factors, as well as store fixed effects. According to both columns, McDonald's labor costs per store were approximately four percent lower before the AG Settlement than after, holding other factors constant.

APPENDIX TABLE D3: COST OF LABOR REGRESSIONS, PROFIT AND LOSS DATA

<b>Dependent Variable: <i>ln(Real Labor Cost Per Store)</i></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PreAG</i>	<b>-0.04***</b> <b>(0.00102)</b>	<b>-0.04***</b> <b>(0.00046)</b>
<i>ln(Real Minimum Wage)</i>	0.44*** (0.00358)	0.42*** (0.00273)
<i>Local Unemployment Rate</i>	-0.02*** (0.00021)	-0.01*** (0.00014)
<i>ln(Local Real Income Per Capita)</i>	-0.06*** (0.00165)	0.12*** (0.00438)
<i>Constant</i>	10.74** (0.01664)	8.84** (0.04716)
<i>Store Fixed Effects?</i>	N	Y
<i>Number of FE</i>	--	13,928
<i>Observations</i>	1,097,010	1,097,010
<i>R-squared</i>	2.3%	86.0%

Notes: See Table 2, *supra*.

## APPENDIX E: ROBUSTNESS REGRESSIONS

APPENDIX TABLE E1: COMPENSATION REGRESSIONS (WITH EQUILIBRIUM ADJUSTMENT)  
(CREW AND MANAGERS)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>Crew</b>	<b>Managers</b>
<i>PostAG1 (Jul-Dec 2018) (McOpCo)</i>	<b>0.012***</b> (0.000)	<b>0.015***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019) (McOpCo)</i>	<b>0.016***</b> (0.000)	<b>0.02***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019) (McOpCo)</i>	<b>0.033***</b> (0.000)	<b>0.04***</b> (0.000)
<i>PostAG1 (Jul-Dec 2018) (Franchisee)</i>	<b>0.025***</b> (0.000)	<b>0.008***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019) (Franchisee)</i>	<b>0.041***</b> (0.000)	<b>0.009***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019) (Franchisee)</i>	<b>0.068***</b> (0.000)	<b>0.025***</b> (0.000)
<i>Salaried Indicator (McOpCo)</i>	n/a	7.618***
<i>Salaried Indicator (Franchisee)</i>	n/a	(0.000)
	n/a	n/a
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.501*** (0.000)	0.441*** (0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.29*** (0.000)	0.108*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	-0.02*** (0.000)	-0.019*** (0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.009*** (0.000)	0.003*** (0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.431*** (0.000)	0.436*** (0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.417*** (0.000)	-0.039* (0.073)
<i>McOpCo Store Flag</i>	n/a	n/a
	n/a	n/a
<i>Constant</i>	-3.336*** (0.000)	-2.947*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	Y	Y
<i>Number of FE</i>	113,818	18,430
<i>Observations</i>	10,110,383	2,390,390
<i>R-Squared</i>	96.0%	99.99%

Notes: See Tables 2, *supra*.



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APPENDIX TABLE E2: COMPENSATION REGRESSIONS  
(NON-INTERACTED VARIABLE MODEL)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PreAG</i>	<b>-0.025***</b> <b>(0.000)</b>	<b>-0.015***</b> <b>(0.000)</b>
<i>Salaried Indicator</i>	7.64*** (0.000)	7.618*** (0.000)
<i>ln(Real Minimum Wage)</i>	0.685*** (0.000)	0.477*** (0.000)
<i>Local Unemployment Rate</i>	-0.018*** (0.000)	-0.019*** (0.000)
<i>ln(Local Real Income Per Capita)</i>	0.019*** (0.000)	0.455*** (0.000)
<i>McOpCo Store Flag</i>	-0.033*** (0.000)	n/a n/a
<i>Constant</i>	0.803*** (0.000)	-3.486*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	18	132,248
<i>Observations</i>	12,500,773	12,500,773
<i>R-Squared</i>	99.8%	99.99%

Notes: See Tables 2, *supra*.

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APPENDIX TABLE E3: COMPENSATION REGRESSIONS (WITH EQUILIBRIUM ADJUSTMENT)  
(NON-INTERACTED VARIABLE MODEL)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PostAG1 (Jul-Dec 2018)</i>	<b>0.016***</b> (0.000)	<b>0.013***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019)</i>	<b>0.035***</b> (0.000)	<b>0.017***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019)</i>	<b>0.051***</b> (0.000)	<b>0.036***</b> (0.000)
<i>Salaried Indicator</i>	7.64*** (0.000)	7.617*** (0.000)
<i>ln(Real Minimum Wage)</i>	0.683*** (0.000)	0.478*** (0.000)
<i>Local Unemployment Rate</i>	-0.018*** (0.000)	-0.019*** (0.000)
<i>ln(Local Real Income Per Capita)</i>	0.017*** (0.000)	0.434*** (0.000)
<i>McOpCo Store Flag</i>	-0.03*** (0.000)	n/a n/a
<i>Constant</i>	0.797*** (0.000)	-3.28*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	18	132,248
<i>Observations</i>	12,500,773	12,500,773
<i>R-Squared</i>	99.8%	99.99%

Notes: See Tables 2, *supra*.

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APPENDIX TABLE E4: COMPENSATION REGRESSIONS  
(LIMITED TO McOPCo NATIONAL SAMPLE)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PreAG (McOpCo)</i>	<b>-0.033***</b> (0.000)	<b>-0.019***</b> (0.000)
<i>PreAG (Franchisee)</i>	<b>-0.031***</b> (0.000)	<b>-0.033***</b> (0.000)
<i>Salaried Indicator (McOpCo)</i>	7.605*** (0.000)	7.621*** (0.000)
<i>Salaried Indicator (Franchisee)</i>	8.403*** (0.000)	n/a n/a
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.693*** (0.000)	0.505*** (0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.548*** (0.000)	0.224*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	-0.013*** (0.000)	-0.017*** (0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.015*** (0.000)	-0.004*** (0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.026*** (0.000)	0.538*** (0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.043*** (0.000)	0.484*** (0.000)
<i>McOpCo Store Flag</i>	-0.15*** (0.000)	n/a n/a
<i>Constant</i>	0.796*** (0.000)	-4.452*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	16	64,893
<i>Observations</i>	6,263,341	6,263,341
<i>R-Squared</i>	99.6%	99.9%

Notes: See Tables 2, *supra*.

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APPENDIX TABLE E5: COMPENSATION REGRESSIONS (WITH EQUILIBRIUM ADJUSTMENT)  
(LIMITED TO McOPCo NATIONAL SAMPLE)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PostAG1 (Jul-Dec 2018) (McOpCo)</i>	<b>0.023***</b> (0.000)	<b>0.017***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019) (McOpCo)</i>	<b>0.038***</b> (0.000)	<b>0.017***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019) (McOpCo)</i>	<b>0.052***</b> (0.000)	<b>0.034***</b> (0.000)
<i>PostAG1 (Jul-Dec 2018) (Franchisee)</i>	<b>0.013***</b> (0.000)	<b>0.023***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019) (Franchisee)</i>	<b>0.038***</b> (0.000)	<b>0.042***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019) (Franchisee)</i>	<b>0.045***</b> (0.000)	<b>0.067***</b> (0.000)
<i>Salaried Indicator (McOpCo)</i>	7.606*** (0.000)	7.621*** (0.000)
<i>Salaried Indicator (Franchisee)</i>	8.403*** (0.000)	n/a n/a
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.693*** (0.000)	0.507*** (0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.545*** (0.000)	0.228*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	-0.013*** (0.000)	-0.017*** (0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.015*** (0.000)	-0.007*** (0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.025*** (0.000)	0.529*** (0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.041*** (0.000)	0.279*** (0.000)
<i>McOpCo Store Flag</i>	-0.17*** (0.000)	n/a n/a
<i>Constant</i>	0.795*** (0.000)	-4.305*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	16	64,893
<i>Observations</i>	6,263,341	6,263,341
<i>R-Squared</i>	99.6%	99.9%

Notes: See Table 2, *supra*.

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APPENDIX TABLE E6: COMPENSATION REGRESSIONS  
(LIMITED TO NON-SALARIED EMPLOYEES)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PreAG (McOpCo)</i>	<b>-0.024***</b> (0.000)	<b>-0.015***</b> (0.000)
<i>PreAG (Franchisee)</i>	<b>-0.031***</b> (0.000)	<b>-0.034***</b> (0.000)
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.699*** (0.000)	0.497*** (0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.576*** (0.000)	0.245*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	-0.018*** (0.000)	-0.02*** (0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.015*** (0.000)	-0.006*** (0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.017*** (0.000)	0.459*** (0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.045*** (0.000)	0.577*** (0.000)
<i>McOpCo Store Flag</i>	0.028 (0.178)	n/a n/a
<i>Constant</i>	0.712*** (0.000)	-3.61*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	18	129,430
<i>Observations</i>	11,984,013	11,984,013
<i>R-Squared</i>	76.1%	95.5%

Notes: See Tables 2, *supra*.

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APPENDIX TABLE E7: COMPENSATION REGRESSIONS (WITH EQUILIBRIUM ADJUSTMENT)  
(LIMITED TO NON-SALARIED EMPLOYEES)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PostAG1 (Jul-Dec 2018) (McOpCo)</i>	<b>0.015***</b> (0.000)	<b>0.013***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019) (McOpCo)</i>	<b>0.033***</b> (0.000)	<b>0.016***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019) (McOpCo)</i>	<b>0.052***</b> (0.000)	<b>0.034***</b> (0.000)
<i>PostAG1 (Jul-Dec 2018) (Franchisee)</i>	<b>0.013***</b> (0.000)	<b>0.025***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019) (Franchisee)</i>	<b>0.039***</b> (0.000)	<b>0.042***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019) (Franchisee)</i>	<b>0.048***</b> (0.000)	<b>0.069***</b> (0.000)
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.697*** (0.000)	0.498*** (0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.572*** (0.000)	0.249*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	-0.018*** (0.000)	-0.02*** (0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.015*** (0.000)	-0.009*** (0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.015*** (0.000)	0.441*** (0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.043*** (0.000)	0.379*** (0.000)
<i>McOpCo Store Flag</i>	0.03 (0.147)	n/a n/a
<i>Constant</i>	0.709*** (0.000)	-3.392*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	18	129,430
<i>Observations</i>	11,984,013	11,984,013
<i>R-Squared</i>	76.2%	95.5%

Notes: See Table 2, *supra*.

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APPENDIX TABLE E8: COMPENSATION REGRESSIONS  
(INCLUDING ADDITIONAL CONTROL VARIABLES)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PreAG (McOpCo)</i>	<b>-0.024***</b> <b>(0.000)</b>	<b>-0.013***</b> <b>(0.000)</b>
<i>Salaried Indicator (McOpCo)</i>	7.611*** (0.000)	7.626*** (0.000)
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.689*** (0.000)	0.568*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	-0.018*** (0.000)	-0.015*** (0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.021*** (0.000)	0.314*** (0.000)
<i>ln(Miles to Nearest Independent McDonald's) (McOpCo)</i>	-0.005*** (0.000)	n/a n/a
<i>ln(County Population Per Sq. Mile) (McOpCo)</i>	-0.004*** (0.000)	0.644*** (0.000)
<i>McDonald's Share of County QSR Stores (McOpCo)</i>	-0.038*** (0.000)	-0.174*** (0.000)
<i>Constant</i>	0.766*** (0.000)	-6.4*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	16	121,799
<i>Observations</i>	12,264,988	12,264,988
<i>R-Squared</i>	99.8%	99.99%

Notes: See Tables 2, *supra*.

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APPENDIX TABLE E9: COMPENSATION REGRESSIONS (WITH EQUILIBRIUM ADJUSTMENT)  
(INCLUDING ADDITIONAL CONTROL VARIABLES)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PostAG1 (Jul-Dec 2018) (McOpCo)</i>	<b>0.015***</b> (0.000)	<b>0.011***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019) (McOpCo)</i>	<b>0.033***</b> (0.000)	<b>0.016***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019) (McOpCo)</i>	<b>0.052***</b> (0.000)	<b>0.034***</b> (0.000)
<i>Salaried Indicator (McOpCo)</i>	7.612*** (0.000)	7.626*** (0.000)
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.687*** (0.000)	0.57*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	-0.018*** (0.000)	-0.016*** (0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.02*** (0.000)	0.299*** (0.000)
<i>ln(Miles to Nearest Independent McDonald's) (McOpCo)</i>	-0.005*** (0.000)	n/a n/a
<i>ln(County Population Per Sq. Mile) (McOpCo)</i>	-0.004*** (0.000)	0.66*** (0.000)
<i>McDonald's Share of County QSR Stores (McOpCo)</i>	0.001 (0.433)	-0.011*** (0.000)
<i>Constant</i>	0.755*** (0.000)	-6.371*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	16	121,799
<i>Observations</i>	12,264,988	12,264,988
<i>R-Squared</i>	99.8%	99.99%

Notes: See Table 2, *supra*.



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APPENDIX TABLE E10: COMPENSATION REGRESSIONS  
(INCLUDING TIME TRENDS)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PreAG (McOpCo)</i>	<b>0.007***</b> (0.000)	<b>-0.002***</b> (0.000)
<i>PreAG (Franchisee)</i>	<b>-0.015***</b> (0.000)	<b>-0.005***</b> (0.000)
<i>Salaried Indicator (McOpCo)</i>	7.652*** (0.000)	7.634*** (0.000)
<i>Salaried Indicator (Franchisee)</i>	8.404*** (0.000)	n/a n/a
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.64*** (0.000)	0.469*** (0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.528*** (0.000)	0.135*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	0.003*** (0.000)	0.007*** (0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.007*** (0.000)	0.002*** (0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.045*** (0.000)	-0.018*** (0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.05*** (0.000)	0.077*** (0.000)
<i>Linear Time Trend (McOpCo)</i>	0.085*** (0.000)	0.105*** (0.000)
<i>Linear Time Trend (Franchisee)</i>	0.001 (0.519)	-0.02*** (0.000)
<i>Nonlinear Time Trend (McOpCo)</i>	-0.004*** (0.000)	-0.004*** (0.000)
<i>Nonlinear Time Trend (Franchisee)</i>	0.001*** (0.000)	0.003*** (0.000)
<i>McOpCo Store Flag</i>	-0.675*** (0.000)	n/a n/a
<i>Constant</i>	0.668*** (0.000)	0.917*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	18	132,248
<i>Observations</i>	12,500,773	12,500,773
<i>R-Squared</i>	99.8%	99.99%

Notes: See Tables 2, *supra*.

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APPENDIX TABLE E11: COMPENSATION REGRESSIONS (WITH EQUILIBRIUM ADJUSTMENT)  
(INCLUDING TIME TRENDS)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PostAG1 (Jul-Dec 2018) (McOpCo)</i>	-0.009*** (0.000)	0.001*** (0.000)
<i>PostAG2 (Jan-Jun 2019) (McOpCo)</i>	0.002*** (0.000)	0.013*** (0.000)
<i>PostAG3 (Jul-Dec 2019) (McOpCo)</i>	0.02*** (0.000)	0.021*** (0.000)
<i>PostAG1 (Jul-Dec 2018) (Franchisee)</i>	0.017*** (0.000)	0.008*** (0.000)
<i>PostAG2 (Jan-Jun 2019) (Franchisee)</i>	0.043*** (0.000)	0.016*** (0.000)
<i>PostAG3 (Jul-Dec 2019) (Franchisee)</i>	0.052*** (0.000)	0.025*** (0.000)
<i>Salaried Indicator (McOpCo)</i>	7.651*** (0.000)	7.633*** (0.000)
<i>Salaried Indicator (Franchisee)</i>	8.401*** (0.000)	n/a n/a
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.639*** (0.000)	0.469*** (0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.536*** (0.000)	0.156*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	0.003*** (0.000)	0.006*** (0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.011*** (0.000)	0 (0.334)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.044*** (0.000)	-0.053*** (0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.045*** (0.000)	0.054*** (0.000)
<i>Linear Time Trend (McOpCo)</i>	0.093*** (0.000)	0.115*** (0.000)
<i>Linear Time Trend (Franchisee)</i>	0.017*** (0.000)	-0.011*** (0.000)
<i>Nonlinear Time Trend (McOpCo)</i>	-0.004*** (0.000)	-0.005*** (0.000)
<i>Nonlinear Time Trend (Franchisee)</i>	-0.001*** (0.000)	0.002*** (0.000)
<i>McOpCo Store Flag</i>	-0.703*** (0.000)	n/a n/a
<i>Constant</i>	0.691*** (0.000)	1.246*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	18	132,248
<i>Observations</i>	12,500,773	12,500,773
<i>R-Squared</i>	99.8%	99.99%

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APPENDIX TABLE E12: COMPENSATION REGRESSIONS  
(NO OUTLIERS EXCLUDED)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PreAG (McOpCo)</i>	-0.031*** (0.000)	-0.018*** (0.000)
<i>PreAG (Franchisee)</i>	-0.054*** (0.000)	-0.033*** (0.000)
<i>Salaried Indicator (McOpCo)</i>	7.62*** (0.000)	7.615*** (0.000)
<i>Salaried Indicator (Franchisee)</i>	8.131*** (0.000)	7.096*** (0.000)
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.688*** (0.000)	0.469*** (0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.523*** (0.000)	0.18*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	-0.014*** (0.000)	-0.015*** (0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.008*** (0.000)	-0.003*** (0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.024*** (0.000)	0.452*** (0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.112*** (0.000)	0.463*** (0.000)
<i>McOpCo Store Flag</i>	0.61*** (0.000)	n/a n/a
<i>Constant</i>	0.084** (0.013)	-3.45*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	24	145,545
<i>Observations</i>	14,180,021	14,180,021
<i>R-Squared</i>	99.8%	99.99%

Notes: See Tables 2, *supra*.

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APPENDIX TABLE E13: COMPENSATION REGRESSIONS (WITH EQUILIBRIUM ADJUSTMENT)  
(NO OUTLIERS EXCLUDED)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PostAG1 (Jul-Dec 2018) (McOpCo)</i>	<b>0.022***</b> (0.000)	<b>0.016***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019) (McOpCo)</i>	<b>0.039***</b> (0.000)	<b>0.019***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019) (McOpCo)</i>	<b>0.055***</b> (0.000)	<b>0.033***</b> (0.000)
<i>PostAG1 (Jul-Dec 2018) (Franchisee)</i>	<b>0.035***</b> (0.000)	<b>0.023***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019) (Franchisee)</i>	<b>0.057***</b> (0.000)	<b>0.04***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019) (Franchisee)</i>	<b>0.063***</b> (0.000)	<b>0.065***</b> (0.000)
<i>Salaried Indicator (McOpCo)</i>	7.62*** (0.000)	7.615*** (0.000)
<i>Salaried Indicator (Franchisee)</i>	8.13*** (0.000)	7.09*** (0.000)
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.686*** (0.000)	0.47*** (0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.52*** (0.000)	0.184*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	-0.014*** (0.000)	-0.015*** (0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.009*** (0.000)	-0.006*** (0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.023*** (0.000)	0.441*** (0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.112*** (0.000)	0.284*** (0.000)
<i>McOpCo Store Flag</i>	0.63*** (0.000)	n/a n/a
<i>Constant</i>	0.051 (0.139)	-3.321*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	24	145,545
<i>Observations</i>	14,180,021	14,180,021
<i>R-Squared</i>	99.8%	99.99%

Notes: See Table 2, *supra*.

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APPENDIX TABLE E14: COMPENSATION REGRESSIONS  
(INCLUDING McOpCo 2011 & 2012 DATA)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PreAG (McOpCo)</i>	-0.03*** (0.000)	-0.018*** (0.000)
<i>PreAG (Franchisee)</i>	-0.03*** (0.000)	-0.033*** (0.000)
<i>Salaried Indicator (McOpCo)</i>	7.619*** (0.000)	7.615*** (0.000)
<i>Salaried Indicator (Franchisee)</i>	8.404*** (0.000)	n/a n/a
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.684*** (0.000)	0.472*** (0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.549*** (0.000)	0.224*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	-0.014*** (0.000)	-0.015*** (0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.015*** (0.000)	-0.004*** (0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.025*** (0.000)	0.455*** (0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.044*** (0.000)	0.484*** (0.000)
<i>McOpCo Store Flag</i>	-0.113*** (0.000)	n/a n/a
<i>Constant</i>	0.807*** (0.000)	-3.479*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	20	140,473
<i>Observations</i>	13,681,247	13,681,247
<i>R-Squared</i>	99.8%	99.99%

Notes: See Tables 2, *supra*.

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APPENDIX TABLE E15: COMPENSATION REGRESSIONS (WITH EQUILIBRIUM ADJUSTMENT)  
(INCLUDING McOpCo 2011 & 2012 DATA)

<b>Dependent Variable: <math>\ln(\text{compensation})</math></b>		
<b>Explanatory Variable</b>	<b>(1)</b>	<b>(2)</b>
<i>PostAG1 (Jul-Dec 2018) (McOpCo)</i>	<b>0.021***</b> (0.000)	<b>0.016***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019) (McOpCo)</i>	<b>0.038***</b> (0.000)	<b>0.019***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019) (McOpCo)</i>	<b>0.057***</b> (0.000)	<b>0.037***</b> (0.000)
<i>PostAG1 (Jul-Dec 2018) (Franchisee)</i>	<b>0.013***</b> (0.000)	<b>0.023***</b> (0.000)
<i>PostAG2 (Jan-Jun 2019) (Franchisee)</i>	<b>0.038***</b> (0.000)	<b>0.042***</b> (0.000)
<i>PostAG3 (Jul-Dec 2019) (Franchisee)</i>	<b>0.045***</b> (0.000)	<b>0.067***</b> (0.000)
<i>Salaried Indicator (McOpCo)</i>	7.619*** (0.000)	7.614*** (0.000)
<i>Salaried Indicator (Franchisee)</i>	8.403*** (0.000)	n/a n/a
<i>ln(Real Minimum Wage) (McOpCo)</i>	0.682*** (0.000)	0.472*** (0.000)
<i>ln(Real Minimum Wage) (Franchisee)</i>	0.545*** (0.000)	0.228*** (0.000)
<i>Local Unemployment Rate (McOpCo)</i>	-0.014*** (0.000)	-0.015*** (0.000)
<i>Local Unemployment Rate (Franchisee)</i>	-0.015*** (0.000)	-0.007*** (0.000)
<i>ln(Local Real Income Per Capita) (McOpCo)</i>	0.023*** (0.000)	0.441*** (0.000)
<i>ln(Local Real Income Per Capita) (Franchisee)</i>	0.042*** (0.000)	0.279*** (0.000)
<i>McOpCo Store Flag</i>	-0.123*** (0.000)	n/a n/a
<i>Constant</i>	0.805*** (0.000)	-3.324*** (0.000)
<i>Job Title Fixed Effects?</i>	Y	Y
<i>Worker Fixed Effects?</i>	N	Y
<i>Number of FE</i>	20	140,473
<i>Observations</i>	13,681,247	13,681,247
<i>R-Squared</i>	99.8%	99.99%

Notes: See Table 2, *supra*.

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**APPENDIX F: ADDITIONAL ANALYSIS****TABLE F1: COMMUTING DISTANCE FOR MCDONALD'S EMPLOYEES**

<b>Employee Distance to McDonald's Store</b>	<b>Number of Employees</b>	<b>Percent</b>
Less than ten miles	██████	92%
Over ten miles	██████	8%
<b>Total</b>	<b>██████</b>	<b>100%</b>

*Source:* Mize Franchisee Payroll data; McDonald's restaurant location data. *Notes:* Addresses were geocoded using geocod.io; addresses with 100% score & rooftop identification used for this analysis. Distance calculated as straight line between employee's home address and location of a McDonald's restaurant. Distances over 100 miles excluded as outliers.

**TABLE F2: EMPLOYEE DISTANCE TO SEPARATELY OWNED MCDONALD'S RESTAURANTS**

<b>Number of Alternative Independently Owned McDonald's Locations</b>	<b>20-Mile Radius</b>		<b>25-Mile Radius</b>	
	<b>Number of Employees</b>	<b>Percentage</b>	<b>Number of Employees</b>	<b>Percentage</b>
0	██████	12.5%	██████	9.0%
1 - 5	██████	13.4%	██████	12.3%
6 - 10	██████	4.9%	██████	6.5%
10+	██████	69.2%	██████	72.2%
<b>Total</b>	<b>██████</b>	<b>100%</b>	<b>██████</b>	<b>100%</b>

*Source:* Mize Franchisee Payroll data; McDonald's stores location data; 000000\_MCDAT00031199.xlsx. *Notes:* Franchisee restaurants classified as commonly owned if they share any combination of operator name and owner name fields in 000000\_MCDAT00031199.xlsx. All McOpCos classified as commonly owned. *See also* Table F1, *supra*.

**TABLE F3: ESTIMATED CLASS MEMBERS BY YEAR**

<b>Year</b>	<i>Franchisee-Owned Stores</i>		<i>Corporate-Owned Stores</i>	
	<b>Crew Labor</b>	<b>Management Labor</b>	<b>Crew Labor</b>	<b>Management Labor</b>
June 29 - December 31, 2013	463,805	83,928	56,518	10,227
2014	482,387	82,713	57,789	9,909
2015	454,310	77,610	52,430	8,957
2016	373,755	65,505	38,290	6,711
2017	473,055	77,272	39,291	6,418
January 1 - July 11, 2018	547,932	83,960	36,202	5,547
<b>Yearly Average</b>	<b>465,874</b>	<b>78,498</b>	<b>46,753</b>	<b>7,961</b>
<b>Class Members Per Year</b>	<b>599,086</b>			

*Source:* Regression data yearly average headcounts by store, see work papers for details.