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WALRAS–BOWLEY LECTURE: MARKET POWER AND WAGE INEQUALITY

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We propose a theory of how market power affects wage inequality. We ask how goods and labor market power jointly determine the level of wages, the skill premium, and wage inequality. We then use detailed microdata from the U.S. Census Bureau between 1997 and 2016 to estimate the parameters of labor supply, technology, and the market structure. We find that a less competitive market structure lowers the average wage of high-skilled workers by 11.3%, and of low-skilled workers by 12.2%, contributes 8.1% to the rise in the skill premium, and accounts for 54.8% of the increase in between-establishment wage variance.

KEYWORDS: Market power, wage inequality, skill premium, technological change, market structure, endogenous markups, endogenous markdowns.

1. INTRODUCTION

WAGE INEQUALITY IN THE UNITED STATES has risen sharply since the 1980s. The skill premium, the ratio of the average wage of workers with college education or more over the average wage of workers with up to a high school education, has risen from 50% in 1980 to nearly 100% in recent years.[1] Furthermore, recent work has highlighted the significant role played by heterogeneous firms in shaping the evolution of wage inequality. Most of the rise in wage inequality is due to the increase in between-firm inequality.[2] Over the same period, there has been a corresponding rise in market power.[3]

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[1]See Acemoglu and Autor (2011).
[2]See Song, Price, Guvenen, Bloom, and von Wachter (2018).
[3]See Hall (2018), De Loecker, Eeckhout, and Unger (2020), and Hershbein, Macaluso, and Yeh (2022).

the cracks.[1] Further, regulators have historically conferred relatively few whistleblower awards, raising questions about the usefulness of whistleblowers in enforcement efforts.[2] Given that regulators have the power to subpoena documents and interview employees with or without a whistleblower, it is unclear whether whistleblower involvement is associated with more severe enforcement outcomes.

Using the universe of SEC and DOJ enforcement actions for financial misrepresentation since the passage of the Sarbanes-Oxley Act of 2002 (hereafter, SOX) (Karpoff, Lee, and Martin [2008a,b], Karpoff et al. [2017]), we investigate whether whistleblower involvement is associated with more severe enforcement outcomes. Specifically, we examine the associations between whistleblower involvement and: (i) monetary penalties against targeted firms; (ii) monetary penalties against culpable executives; and (iii) the length of prison sentences imposed against employee respondents.[3] We also investigate the association between whistleblower involvement and penalties assessed against third-party respondents (e.g., the firm's auditor, bankers, suppliers), as well as the duration of the discovery and regulatory proceedings periods. Notably, we examine the role of whistleblowers conditional on the existence of a regulatory enforcement action. This distinction is important because our tests exploit variation in consequences to SEC and DOJ enforcement with and without whistleblower involvement; we do not examine whistleblower allegations for which there are no corresponding regulatory enforcement actions.

To identify whistleblower involvement in enforcement actions, we use two distinct data sources. First, we begin with a data set of employee whistleblowing allegations we obtained from the U.S. government using a Freedom of Information Act (FOIA) request (Bowen, Call, and Rajgopal [2010]), Wilde [2017]). The Sarbanes-Oxley Act of 2002 tasked the Occupational Safety and Health Administration (OSHA) with fielding employee complaints of discrimination for blowing the whistle on alleged financial misconduct. OSHA is required to communicate these allegations to the SEC (OSHA [2012]), after which the SEC can choose to investigate the underlying allegations or refer the allegations to the DOJ. We obtain 934 allegations of financial misconduct in complaints filed with OSHA from 2002 to 2010.

[1] A whistleblower in the Bernie Madoff Ponzi scheme made multiple attempts over a nine-year period to alert the SEC concerning the fraud. He stated, "In May 2000, I turned over everything I knew to the SEC. Five times I reported my concerns, and no one would listen until it was far too late." (Markopolos [2010], p. 3).

[2] The U.S. federal government has offered financial rewards to whistleblowers since 1863. Between the creation of the SEC Whistleblower Office in 2011 and the SEC's report to Congress on the Dodd-Frank Whistleblower Program in 2016, only 34 whistleblowers received bounties under the program (SEC [2016a]). Many, including the Government Accountability Office, have criticized agencies for being slow and inefficient in addressing whistleblower concerns related to the OSHA whistleblower program (Scott [2010]).

[3] The respondent is the party (either a firm or an individual) targeted by the SEC/DOJ.

monitoring of regulators and allows private parties access to information previously only privy to regulators. The alignment in incentives and information likely results in greater overlap in enforcement actions as the two mechanisms converge on higher-quality cases, potentially improving enforcement outcomes.[1]

To test our conjecture, we focus on the interaction between the SEC, a public enforcer, and private shareholder litigants, a private enforcement mechanism, following an SEC policy change that initiated the public disclosure of SEC comment-letter correspondence. Specifically, in June 2004, the SEC announced a shift in policy: starting with corporate reports filed after August 1, 2004, the agency would publicly disclose its comment letters and corporate filers' responses. Before this policy change, comment letters were only accessible to parties who filed a Freedom of Information Act (FOIA) request. The stated objective of the policy change was to alleviate both the delay and the selective access to SEC comment letters. In making the comment letters public, the SEC increased the transparency of its oversight activities.[2] We examine whether this increased transparency facilitates the alignment of the public and private enforcers' incentives and information sets, resulting in a greater overlap of enforcement actions. Our evidence suggests that public enforcement (via SEC comment letters) and private enforcement (via private securities litigation) coincide to a greater extent after the SEC comment letters are released publicly. Additionally, there appears to be an increased alignment in timing: the (absolute) filing lag between private and public enforcement activities declines significantly following the SEC's disclosure policy change.

Having demonstrated greater alignment in enforcement following the public disclosure of SEC comment letters, we turn to the specific factors contributing to the alignment. First, we consider the SEC's incentive alignment: Did the SEC increase enforcement efforts after its enforcement activities became more observable and easily monitored? We find that the SEC steps up its oversight activities during the post-public disclosure period. Specifically, the SEC is more likely to issue comment letters to firms with questionable accounting practices (i.e., firms that eventually must restate their financials).

In addition to increased enforcement efforts, the SEC is also less susceptible to political influence in the post-disclosure period. Whereas the SEC was less likely to enforce against politically connected firms in the pre-disclosure period when the SEC's oversight activities were not readily observable, we find a positive association in the post-disclosure period, consistent with Heese et al. (2017). The conflicting evidence in the two disclosure regimes provides a reconciliation of contradictory findings in Correia (2014) and Heese et al. (2017): While the SEC can be captured when its actions are opaque to the public, such incentives are mitigated, even reversed, when the SEC's actions become visible to the public. In sum, the SEC's increased tendency to issue comment letters to restating firms and to politically connected firms suggests that regulatory transparency reduces political capture and enhances regulators' incentives to detect financial reporting problems.

Next, we turn to the role of information alignment. We conjecture that public disclosure of SEC comment letters enhances private parties' information access by revealing information previously only privy to the SEC.[3] The narrowed information gap between private litigants and the SEC likely results in a greater overlap of enforcement targets. We conduct two sets of tests of the information channel. First, we conduct cross-sectional tests that examine whether the increased overlap is greatest for firms with more information asymmetry (i.e., smaller, younger firms with less institutional ownership and fewer analysts following). Our findings are broadly consistent with these predictions.

In our second set of tests of the information channel, we examine whether the availability of information from SEC's filing reviews improves private litigants' ability to identify "quality" lawsuits. With access to SEC comment letter correspondence, plaintiffs' attorneys can more easily target firms with questionable financial reporting practices, thereby reducing nuisance lawsuits. We hypothesize that the increased merit of securities litigation translates to a lower likelihood of case dismissal and larger settlement amounts. In this analysis, we focus on the effect of enhanced information access on the merit of cases pursued by securities lawyers. To isolate the impact of the litigants' information access and avoid the confounding effects of the changing SEC's incentives across the two disclosure regimes, we focus exclusively on the post-disclosure period. To capture differential information access, we exploit the relative timing of a lawsuit filing date and the related comment letter dissemination date. If a lawsuit is filed after (before) the relevant comment letters are disseminated, then the plaintiffs have (do not have) access to relevant correspondence between the SEC and the registrant.

[1] Greater overlap demonstrates the complementarity of public and private enforcement. Private mechanisms pick up where the public enforcement stops (due to resource constraints or incentive problems). Aided by greater regulatory transparency, private enforcers can better target corporate wrongdoing and impose additional costs on the bad actors. Ultimately, the alignment of the two mechanisms leads to more efficient enforcement if the engagement of both holds more corporate wrongdoers accountable while reducing deadweight loss associated with nuisance cases.

[2] SEC oversight activities range from the Division of Corporate Finance (DCF)'s review and comment process to the Division of Enforcement's (DOE's) issuance of Accounting and Auditing Enforcement Releases (AAERs). The latter involves the most egregious fraud cases and captures only a small fraction of the SEC's overall enforcement. Most accounting and disclosure deficiencies that come to the SEC's attention are resolved through the SEC's review and comment process (Bayless, 2000; Heese et al., 2017).

[3] Plaintiff lawyers could, in theory, request comment letter correspondence via FOIA before 2004. However, access to such correspondence was severely limited. First, plaintiff attorneys had no reliable means of identifying which firms received comment letters, so they could not file relevant FOIA requests. For the SEC to process a FOIA request, the request had to name a specific company for specified dates (i.e., one could not ask for, say, all comment letters issued in 2002 to Fortune 500 firms). Duro et al. (2019) highlight that before 2004, only 56% of the comment letter FOIA requests were "accepted" by the SEC, and the SEC took an average of 697 days to respond.

Investments & Acquisitions — February 2018

Below is a list of 56 acquisitions and angel, seed, venture, and corporate investment transactions that occurred in 15 countries in February 2018. The U.S. led with 34 deals, followed by Europe with 12, Asia with 7, Latin America with 2, and Canada with 1.

Prior issues: 1125, 1123

Investments & Acquisitions February 2018

Company	Buyer/Investor	Amount (mil.)	Country
B2B PAYMENTS			
BMS	WebPT[1]	*	U.S.
DailyPay	Series B[2]	$9.0	U.S.
Dwolla	venture round[3]	$12.0	U.S.
Fraedom	Visa[1]	*	U.K.
HighRadius	corporate round[4]	*	U.S.
ODeX	corporate round[5]	*	India
Tipalti	Series C[6]	$30.0	U.S.
WeTravel	seed funding[7]	$2.0	U.S.
Zervant	Series B[8]	$7.4	Finland
BIOMETRICS			
Tapits Technologies	ICICI[9]	*	India
COLLECTIONS			
CU Recovery	PSCU[1]	*	U.S.
The Loan Service	PSCU[1]	*	U.S.
CREDIT CARDS			
Algorand	seed funding[10]	$4.0	U.S.
Citi's Colombia Cards	Banco Colpatria[1]	*	Colombia
Coinsquare	venture round[11]	$23.4	Canada
Team Labs	seed funding[12]	$4.0	U.S.
CRYPTOCURRENCY			
Copernicus Gold	venture round[13]	$3.5	Singapore
Oneiro	seed funding[14]	$3.0	U.K.
Poloniex	Circle Internet Fin.[1]	$400.0	U.S.
SETL	corporate round[15]	*	U.K.
DEBIT CARD			
Current	Series A[16]	$1.0	U.S.
ECOMMERCE			
FastSpring	Accel-KKR[17]	*	U.S.
YapStone	Series C[18]	$70.0	U.S.
FOREIGN EXCHANGE			
Changelink	Fexco[1]	*	U.K.
LENDING			
Anyfin	Series A[19]	$5.9	Sweden
Even Financial	corporate round[20]	$3.0	U.S.
Lending Solutions	Warburg Pincus[21]	$400.0	U.S.
Roostify	Series B[22]	$25.0	U.S.
LOYALTY			
Capillary Technologies	Series D[23]	$20.0	Singapore
Cardlytics	IPO[24]	$70.0	U.S.
Tavisca Solutions	Affinion Group[1]	*	U.S.

Company	Buyer/Investor	Amount (mil.)	Country
MERCHANT ACQUIRING			
Creditcall	Network Merchants[1]	*	U.K.
Integrity Payment Sys.	Payroc[1]	*	U.S.
IRN (CurvePay)	Shift4 Payments[1]	*	U.S.
Payworks	Series B[25]	$14.5	Germany
Priority Holdings	MI Acquisitions[1]	$1,000.0	U.S.
ProcessOut	angel round[26]	$1.0	U.S.
MOBILE PAYMENTS			
Ant Financial	Alibaba[27]	*	China
Cortex MCP	Uphold[1]	*	U.S.
Lydia	venture round[28]	$16.1	France
MoneyOnMobile	debt for equity	$3.7	India
MoneyOnMobile	post-IPO equity[29]	$5.0	India
RecargaPay	Series B[13]	$22.0	Brazil
Thyngs	Crowdcube	$0.4	U.K.
MONEY TRANSFERS			
Eurogiro	Inpay[1]	*	Denmark
TransferZero	BitPesa[1]	*	Spain
P2P PAYMENTS			
Greenlight Financial	Series A[31]	$16.0	U.S.
POS SUPPLIES			
Paper Systems	General Credit Forms[1]	*	U.S.
PREPAID CARDS			
Great Lakes Scrip	Bold Orange[1]	*	U.S.
SECURITY			
Amino Payments	seed funding[32]	$4.5	U.S.
IdentityMind	Series C[33]	$10.0	U.S.
Payfone	Series F[34]	$23.0	U.S.
SOFTWARE			
Future POS	Shift4 Payments[1]	*	U.S.
Moltin	Series A[35]	$8.0	U.S.
POSitouch	Shift4 Payments[1]	*	U.S.
Restaurant Manager	Shift4 Payments[1]	*	U.S.

*Terms not disclosed. [1]Acquisition. [2]Led by Inspiration Ventures. [3]Led by Foundry Group. [4]From Citi Ventures and PNC. [5]From Invoice Bazaar. [6]Led by Zeev Ventures. [7]Led by The House Fund. [8]Led by Tesi. [9]Purchased 9.9% equity stake. [10]Led by Union Square Ventures. [11]Led by Canaccord Genuity Group. [12]Led by Crosscut Ventures. [13]Investors not disclosed. [14]Led by Cosimo Ventures. [15]Including Credit Agricole and Citi. [16]From Fifth Third Capital. [17]Purchased majority stake. [18]Including Mastercard. [19]Led by Accel. [20]Including American Express. [21]Purchased 55% interest from Fiserv. [22]Including Santander InnoVentures. [23]Led by Sequoia Capital. [24]Initial public offering on NASDAQ. [25]Including Visa. [26]From Francis Nappiz. [27]Purchased 33% of the equity. [28]Led by CNP Assurances. [29]From S7 Group. [31]Including SunTrust and Amazon. [32]Led by First Round Capital. [33]Co-led by Benhamou Global and Eastern Link. [34]Including Synchrony Financial. [35]Led by Underscore VC.

discipline" (Goldstein and Sapra 2013). In our context, the SEC may exert more effort to protect its reputation when CLs become subject to public scrutiny.

Alternatively, disclosure of CLs could weaken the effect of the review process if companies infer the SEC's oversight priorities from the letters sent to peer firms—thereby allowing firms to violate financial regulation in ways that are less likely to be the focus of CLs. This alternative hypothesis is consistent with prior theoretical and empirical research demonstrating that corporate financial reporting is shaped by managers' anticipation of the behavior of other market participants (Becker 1968; Fischer and Verrecchia 2000) and regulators (Kedia and Rajgopal 2011; Blackburne 2014).

It is also possible that the disclosure of comment letters is inconsequential. One view is that CL reviews are ineffective and thus their disclosure is unlikely to have an effect.[2] While possible, this view is called into question by substantial anecdotal and empirical evidence on the effect of CLs (e.g., Boone et al. 2013; Bozanic et al. 2017; Johnston and Petacchi 2017; Brown et al. 2018).[3] Another view is that, even if CLs are effective, firms could carefully address all comments regardless of whether CLs are publicly disclosed, because failing to do so could lead to negative repercussions such as more frequent CL reviews or, in the extreme, a costly enforcement action (OIG 2008a). Finally, it is possible that the disclosure of CLs incentivizes firms to be more vigilant about their financial reporting, improving overall reporting quality. In turn, higher reporting quality could reduce the likelihood of CLs identifying substantive issues, making CLs apparently inconsequential

[2] For instance, some politicians have raised concerns about "the utility of devoting hundreds of professional staff to a process that is not designed to detect fraudulent conduct." (e.g., Paredes 2009; Katz 2010, 2011).

[3] Several additional considerations suggest that CLs do matter. First, they allow the SEC to obtain answers to questions that are frequently dodged, dismissed, or ignored when asked by investors or analysts (Hollander et al. 2010). Second, the large backlog of Freedom of Information Act (FOIA) requests preceding the policy change suggests a vivid public interest in these letters (OIG 2007). Third, the SEC believes that these letters prompt firms to change their reporting practices (OIG 2008b). Finally, short-sellers use CLs (Dechow et al. 2016).

9 in 10 defendants adjudicated in U.S. district court in FY 2022 were convicted

Of the 71,542 defendants adjudicated in FY 2022, about 92% were convicted (table 6). Nearly all defendants charged with immigration (98%), weapons (94%), or drug (92%) offenses were convicted. About 90% of adjudicated defendants pled guilty. Two percent of defendants were convicted through a bench or jury trial. Defendants adjudicated in U.S.-Mexico border districts had a higher conviction rate (96%) than defendants in nonborder districts (89%). Among felony offenses, rates of nonconviction ranged from 2% for immigration offenses to 12% for regulatory offenses. Cases that were dismissed or otherwise concluded by the judge or prosecutor accounted for most nonconvictions (8%). Acquittals (413 days), dismissals (314 days), and guilty pleas (302 days) took less time to process from case filing to disposition than trials that ended in convictions (776 days). The median days from case filing in U.S. district court to case disposition increased by 5% from 300 days in FY 2021. (See *Federal Justice Statistics, 2021* (NCJ 305127, BJS, December 2022).) During this period, the median case processing time decreased the most for cases disposed by a dismissal (down 18%).

TABLE 6

Disposition and case-processing time of defendants in cases adjudicated in U.S. district court, by most serious offense and judicial district, FY 2022

	Total cases adjudicated	Convicted			Not convicted		
		Total	Guilty plea	Bench/jury trial	Total	Bench/jury trial	Dismissed
All offenses	71,542	91.5%	89.6%	1.9%	8.5%	0.5%	8.0%
Most serious offense at adjudication							
Felony	67,055	93.2%	91.2%	2.0%	6.8%	0.5%	6.4%
Violent	2,970	89.2	83.1	6.0	10.8	1.4	9.4
Property	7,426	90.1	87.3	2.7	9.9	0.7	9.3
Fraud	6,439	89.7	86.9	2.8	10.3	0.7	9.6
Other[a]	987	92.4	90.1	2.3	7.6	0.4	7.2
Drug	22,396	91.6	89.8	1.9	8.4	0.3	8.0
Public order	6,569	91.0	87.0	4.1	9.0	0.9	8.1
Regulatory	722	87.7	82.1	5.5	12.3	3.6	8.7
Other[b]	5,847	91.4	87.6	3.9	8.6	0.6	8.0
Weapons	10,109	93.9	91.6	2.2	6.1	0.7	5.5
Immigration	17,585	97.6	97.2	0.3	2.4	0.1	2.3
Misdemeanor	4,487	66.6	65.8	0.8	33.4	0.4	33.1
Federal judicial district							
U.S.-Mexico border	24,596	95.8%	95.1%	0.7%	4.2%	0.2%	4.0%
Arizona	4,687	96.5	95.8	0.7	3.5	0.2	3.3
California Southern	4,013	87.7	87.2	0.5	12.3	0.4	11.9
New Mexico	2,208	97.1	96.8	0.3	2.9	0.1	2.9
Texas Southern	7,498	97.4	97.0	0.4	2.6	0.2	2.4
Texas Western	6,190	98.2	96.9	1.4	1.8	0.2	1.5
Other judicial districts	46,946	89.2	86.7	2.6	10.8	0.6	10.2
Median time from filing to disposition[c]	314 days	309 days	302 days	776 days	415 days	413 days	314 days

Note: Details may not sum to totals due to rounding. Includes information on felony defendants; Class A misdemeanor defendants, whether cases were handled by U.S. district judges or U.S. magistrate judges; and other misdemeanor defendants, provided their cases were handled by U.S. district judges. Court personnel determine the most serious offense at adjudication as the offense with the greatest statutory maximum sentence. The unit of count is a defendant in a case adjudicated in U.S. district court. Defendants in more than one case are counted separately. The median is the midpoint between the slowest and fastest processing times. A median of 314 days means that half of the defendants received a disposition in less than 314 days and half received a disposition in more than 314 days.

[a]Includes burglary, larceny, motor vehicle theft, arson, transportation of stolen property, and other property offenses, such as destruction of property and trespassing.

[b]Includes nonregulatory violations concerning tax law (tax fraud), bribery, perjury, national defense, escape, racketeering and extortion, gambling, liquor, mailing or transporting obscene materials, traffic, migratory birds, conspiracy, aiding and abetting, jurisdiction, and other offenses.

[c]Includes the interval from the time a case was filed in U.S. district court to sentencing for defendants who were convicted and the interval from case filing to disposition for defendants who were not convicted or whose cases were dismissed.

Source: Bureau of Justice Statistics, based on data from the Administrative Office of the U.S. Courts, Criminal Master File, fiscal year 2022.