SUPPLEMENT TO "CORPORATE TAX CUTS AND THE DECLINE IN THE MANUFACTURING LABOR SHARE"

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APPENDIX A: DATA APPENDIX

THIS APPENDIX describes the data and presents some descriptive patterns. The first section lists the data sources, Section A.2 compares the manufacturing labor share obtained from different data sources, and Section A.3 presents the underlying patterns in the manufacturing labor share and corporate tax rates across countries and US states.

A.1. *Description of Data Sources*

Data Sources for Cross-Country Analysis. The OECD and KLEMS data used in Section 2 come from the following sources. Data on labor shares come from the World KLEMS website (worldklems.net). We use the 2011 update of the November 2009 release of the EU KLEMS database. Later releases do not include observations before 1996. We add to this the KLEMS data for Canada from the same website. The manufacturing sector is taken to be the time series "Total Manufacturing Sector."

The pre-2000 OECD data on corporate tax rates were collected from Table II.1 at http://www.oecd.org/tax/tax-policy/tax-database. The post-2000 data come from Table II.1 at https://stats.oecd.org/index.aspx?DataSetCode=Table_II1. We use the basic combined central and subcentral (statutory) corporate income tax rate given by the adjusted central government rate plus the sub-central rate.

Data Sources for Benchmark Manufacturing Calibration. The data targets used in the calibration of the model in Section 5 come from the following sources.

The entry rate was computed from the Census Bureau's Business Dynamics Statistics release available at https://www.census.gov/programs-surveys/bds.html. We use data from the manufacturing sector to compute the average exit rate targeted by the model. The same data set is used to compute the employment distributions in 2014.

Targets for the average establishment size, the concentration of employment in large establishments, as well as the distributions of establishments across employment and value added are available in the 1970 Statistical Abstract of the United States and draw on the Census of Manufactures.[1] From the Annual Survey of Manufactures (ASM), we find that the labor share in manufacturing in 1967 was 53.9%. The labor share is the sum of all

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[1]The documents can be found at https://www.census.gov/library/publications/time-series/statistical_abstracts.html. For later years, we use data from the Census Bureau's Annual Survey of Manufactures, available at https://www.census.gov/data/developers/data-sets/Annual-Survey-of-Manufactures.html.

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forms of compensation plus fringe benefits of all employees of operating manufacturing establishments divided by value added. For 1954, we impute fringe benefits using data from 1967. The benefit share of value added was 5.7% in that year. Employees comprise all full-time and part-time employees. Employees in administrative offices and auxiliary units are included. Employment in central administration—such as corporate headquarters, as well as proprietors and partners—is excluded.

Data Sources for Major Sector Calibration. To construct our sample of firms in the Compustat database, we proceed as follows. From the annual Compustat database, we exclude firm-year observations with an ISO Currency Code different than the US dollar, firms in the finance, utilities, and government sectors, as well as observations with negative sales or negative total assets.

We compute firm-level labor shares as the annual wage bill divided by value added. To compute the wage bill, we use the Compustat variable *xlr* whenever available. For the remaining observations, we compute the wage bill by multiplying the number of employees with an imputed wage rate. For missing firm-year observations that have nonmissing *xlr* values for the same firm in adjacent years, we impute a wage rate by inflating (or deflating) that firm's wage rate in the adjacent year (*xlr* divided by number of employees) according to the average rate of wage growth from the QCEW in that firm's sector. If a firm never reported its wage bill, then we assign a wage bill by multiplying the firm's employment with the average wage rate in that sector from QCEW.[2] Value added is defined as the wage bill plus earnings before interest (*ebitda*) plus the change in inventory (*invt*). We remove negative observations of value added and trim the resulting labor share at 150% following Kehrig and Vincent (2021). We exclude firms in agriculture and construction because there are very few firms in those sectors in the Compustat data. The resulting sector-level labor shares are presented in Table VII.

Data Sources for US State Analysis. The US state-level data used in Section 7.1 come from the Annual Survey of Manufactures 1972–2012 (labor shares), the BEA (unemployment rates), and the data Appendix of Saez and Zucman (2016) (income from corporate taxation). State-level corporate tax rates denote the average corporate tax rate in a state. We focus on mainland US states; that is, we exclude Alaska and Hawaii.

Data Sources for US Industry Analysis. The US industry-level data come from the following sources. Data from the County Business Patterns (CBP) comes from the US Census. Data prior to 1986 are available in the National Archives Catalog, while post-1986 data can be found at the Census website.[3] Our data-cleaning procedure follows that used in Autor, Dorn, and Hanson (2013), as does the concordance between the 1972 and 1987 SIC classification systems. For the concordances between the 1997 and 2002 NAICS and the 1987 SIC classification systems, we use the concordance provided on the NBER-CES Manufacturing Industry Database website.[4] For the years 2007–2012, we use the concordances provided by the US Census.[5] To compute establishment weights, we use the establishment counts from the CBP database.

[2]If, for instance, a manufacturing firm reported 40 thousand dollars average salary (xlr/emp) in 1980, but did not report any salary information in 1981, we multiply 40 thousand dollars by the rate of wage inflation in the US manufacturing sector between 1980 and 1981 as reported in the QCEW.

[3]https://www.census.gov/programs-surveys/cbp.html.

[4]https://www.nber.org/research/data/nber-ces-manufacturing-industry-database.

[5]https://www.census.gov/naics/.

From the US Economic Census, we obtain information on manufacturing concentration ratios at the four-digit SIC level.[6] We combine these data with state-level average corporate tax rates. We compute industry-specific tax rates by industry-state-time specific establishment shares from the County Business Patterns. Industry-specific tax rates are then computed by weighting state-time specific average tax rates with these establishment shares.

For the regressions in Table C.VIII, we computed the 10-year differences in the labor share and the sales concentration indices from 1972 to 2012. The state tax data are only available for the years 1974 to 2011. We therefore replaced the differences at the two ends of the sample period by the difference in the effective tax rate from 1974 to 1992 and from 1992 to 2011.

A.2. *US Manufacturing Labor Share: Definitions and Data Sources*

Labor share measures can differ across data sources due to differences in how compensation and value added are defined. In Section 5, we calibrated the model to fit key moments of the distribution of establishment labor shares computed from US Census data. In this section, we compare the Census labor share to manufacturing labor shares from other data sources, namely the industry-level NIPA data produced by the Bureau of Economic Analysis (BEA), the industry-level data from the Major Sector Productivity and Costs program of the Bureau of Labor Statistics (BLS), and the NBER manufacturing database. The resulting series are compared in Figure A.1 and Table A.I and are explained below. The upshot of our analysis is that while sources somewhat disagree on the level of the manufacturing labor share, they all show a substantial decline, varying from 20 pp to 29 pp depending on source and definition. The Census and BLS data show a secular decline throughout our sample period, whereas the BEA series show a later but faster decline. We show below that this stems mainly from differences in the definitions of value added.

We define the *labor share* as the ratio of total labor compensation to value added, and the *payroll share* as the ratio of total payroll to value added, that is, excluding fringe benefits. Figure A.1 shows the trends in payroll and labor shares from different sources. The left panel shows that while the NBER and Census payroll shares are virtually identical, the BEA measure is shifted upwards. The right panel shows that the BLS measure of the manufacturing labor share is lower than that of the Census, which in turn is lower than the BEA measure. All series display a large decline, which is summarized in Table A.I. Despite the level differences, all measures have in common a substantial decline by more than 20 percentage points since the 1950s.

The BEA and the BLS both compute labor compensation based mainly on information from the Quarterly Census of Employment and Wages (QCEW). Total labor compensation is defined as wages and salaries plus supplements to wages and salaries. Wages and salaries include wages, salaries, commissions, tips, bonuses, severance payments and early retirement buyout payments, supplementary allowances, the exercising of nonqualified stock options, in-kind earnings, and supplements to wages and salaries. It specifically includes employees and corporate officers. Supplements to wages and salaries include employer contributions to employee pension and insurance funds and to government social insurance. The unit of analysis is a firm.

[6]Manufacturing concentration data are available from the Census website. Data for years 1947–1992 is available in an Excel file at https://www.census.gov/data/tables/1992/econ/census/concentraion-ratio-data.html while the post-1992 data are available from the Census' FTP server at https://www2.census.gov.

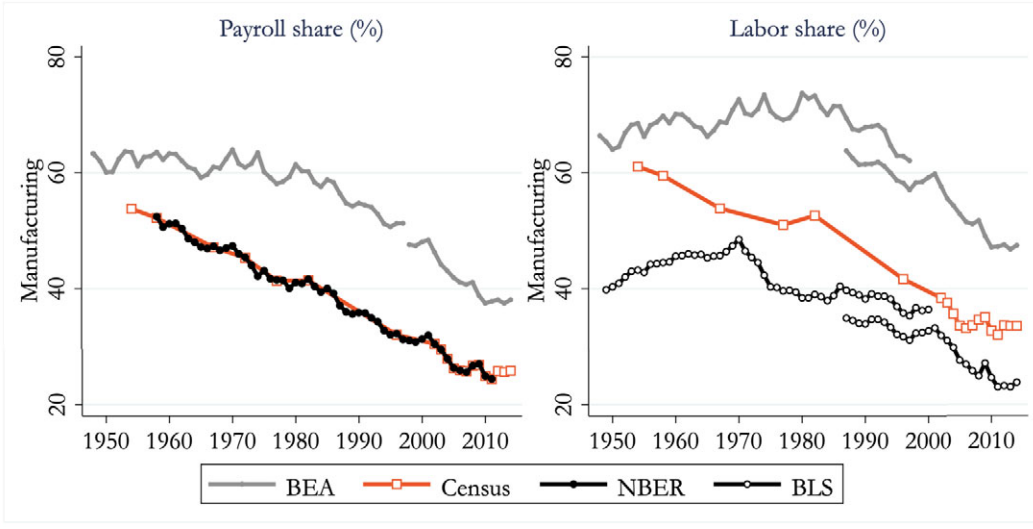


FIGURE A.1.—Comparison of manufacturing labor share measures.

From the BLS, only total labor compensation is available, whereas the BEA data are broken down into wages and salaries and supplements to wages and salaries. The BLS adds a fraction of proprietor's income to total labor compensation. The compensation cost for labor services of proprietors is imputed based on the assumption that it is the same as that of the average employee in a sector. The BEA does not include earnings of the self-employed in total labor compensation.[7]

The Census data are based on mandatory report forms.[8] It includes each establishment's total annual payroll, consisting of all forms of compensation paid, such as salaries, wages, tips and gratuities, commissions, bonuses, vacation allowances, sick leave pay, dismissal pay, and employee contributions to qualified pension plans. This measure excludes payments to proprietors. Fringe benefits are computed in a separate variable and include payroll taxes, employer-paid insurance premiums, pension plans, other employer-paid benefits, and profit or other compensation of proprietors or partners of unincorporated businesses. Stock options are included in fringe benefits in the manufacturing censuses.

TABLE A.I

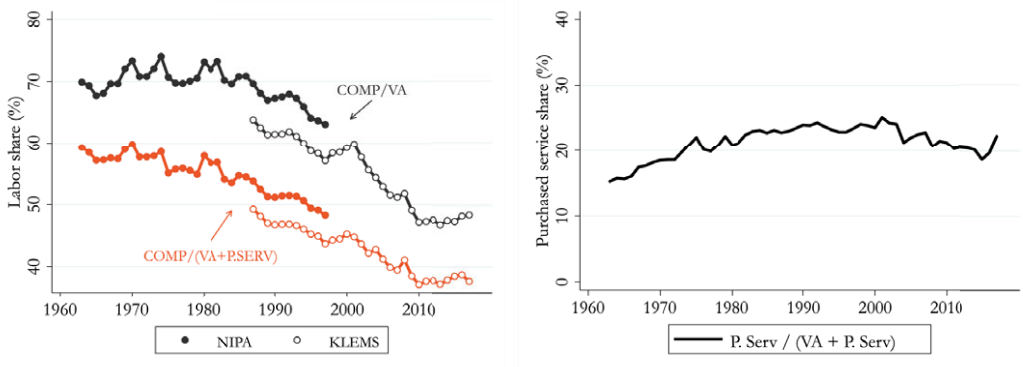
LONG-RUN CHANGES IN VARIOUS LABOR SHARE MEASURES.

	NIPA / BEA	BLS	Census	NBER
Labor share	−21.3	−20.2	−29.1	
Payroll share	−25.8		−29.4	−28.0

Note: Changes are in percentage points between 1954 and 2011. The NBER data begin in 1958. Payroll share measures from the BLS and labor share measures from the NBER are not available. See the definitions in the text.

[7]For the manufacturing sector, the treatment of the self-employed is of little consequence in practice. Sector-level total compensation time series based on BLS and BEA data are virtually identical.

[8]This applies to the Census of Manufactures (CMF) and the Annual Survey of Manufactures (ASM). It also applies to the NBER manufacturing database, which draws mainly on variables from the ASM.



(a) BEA labor share measures

(b) Purchased services in value added

FIGURE A.2.—Manufacturing value added: The role of purchased services. Panel (a): The blue lines show the ratio of compensation to value added. The red lines show the ratio of compensation to value added plus purchased services. The connected x-markers use total compensation from the BEA's industry-level NIPA tables. The connected dots use total compensation data from the BEA's KLEMS data. Panel (b): Data come from the BEA KLEMS.

The unit of analysis is an establishment. This implies that compensation of employees in eventual separate headquarters is excluded.[9]

Total payroll and total compensation are slightly higher in the BEA data compared to the other data sources, mainly due to the differences in industry definitions. Because the BEA's unit of analysis is a firm, not an establishment, remuneration to corporate headquarters is included in the BEA's measure. In addition, the population of manufacturing production sites need not fully overlap with that of the Census, as some manufacturing plants that are part of a firm that is classified in a different sector might be excluded from the BEA data and vice versa.

The denominators of the labor and payroll share definitions differ across data sources, mainly due to the BEA's treatment of purchased services, which are subtracted from its value added measures, but not from those of the Census (and NBER).[10] While the denominator in the BLS measure of the *aggregate* labor share is value added, to compute the manufacturing labor share, sectoral output (sales to final demand plus the intermediate goods sent to other industries) is used.

Panel (a) of Figure A.2 shows versions of the BEA labor share measures that include purchased services in value added and compare it to the original series. Including purchased services lowers the labor share but hardly affects the substantial decline of slightly above 20 percentage points between 1963 and 2019. Panel (b) shows the share of purchased services in value added including purchased services. The relative share increases from the 1960s until 1990 and declines after 2000. This hump-shaped pattern results in a smaller decline in the BEA manufacturing labor share at the beginning of our sample and an acceleration after 2000 relative to the Census measure.

Historical BEA data are based on the SIC industry classification system. The revisions to the historical series have, as of 2020, only been extended back to the year 1986. The

[9]The same data have recently been used in De Loecker, Eeckhout, and Unger (2020) and Kehrig and Vincent (2021).

[10]See also Appendix D.4 in Autor, Dorn, Katz, Patterson, and Van Reenen (2020).

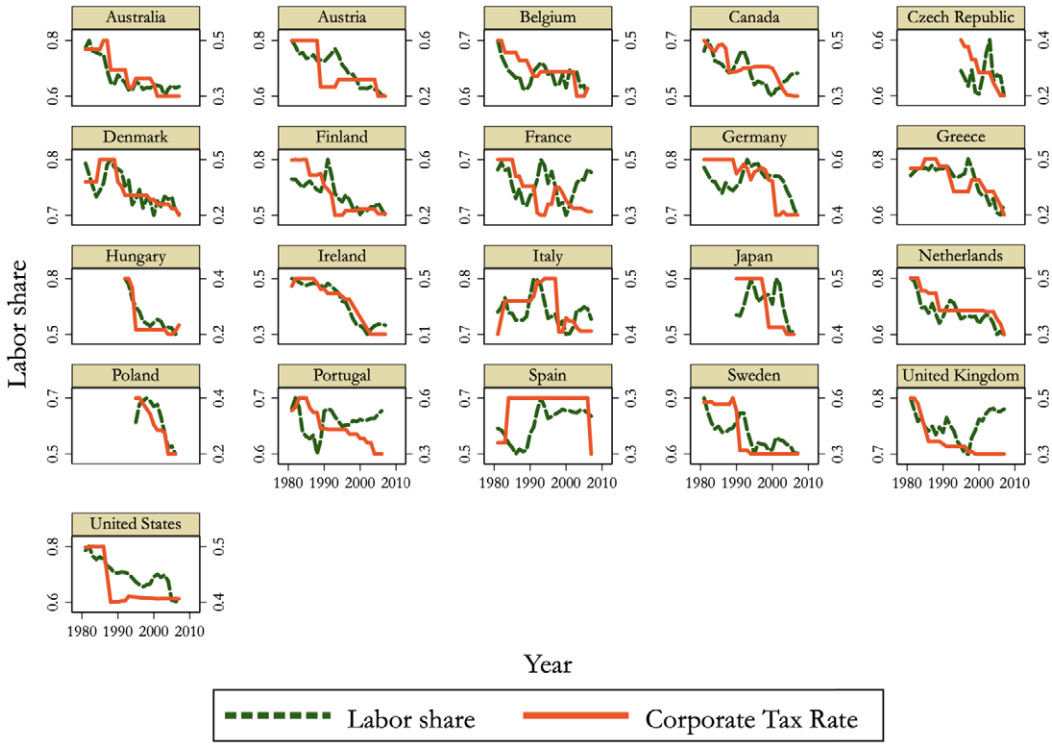


FIGURE A.3.—Trends in statutory corporate tax rates and labor shares by country. Trends in statutory corporate tax rate and labor's share of income in the manufacturing sector for each country. Corporate tax rates are shown on the right y-axis. Source: OECD and KLEMS.

revised data are part of the BEA KLEMS data set, which is fully consistent with the BEA's industry-level NIPA data from 1997 onward.

A.3. *Patterns in Corporate Taxation and Labor Shares Across Countries and US States*

Trends in country-level statutory corporate tax rates together with manufacturing labor shares are shown in Figure A.3 for the countries in our sample. Countries with short panels (Estonia, Korea, Latvia, Lithuania, Luxembourg, Slovenia, and Slovakia) were excluded from the figure. These countries are included in the analysis in Section 2. Excluding them from our regressions does not affect our results.

Trends in state-level effective corporate tax rates together with manufacturing labor shares are shown in Figures A.4 and A.5.

APPENDIX B: MODEL CALIBRATION: DETAILS FOR SECTION 6

In Section 6, we calibrate the model for a number of major economic sectors. To do so, we construct sector-specific moments from the Census BDS and Compustat around the initial year, 1985, when the sector-specific data on tax returns become available from the IRS. The Census BDS provides industry-specific statistics on exit rates, average firm size, and employment concentration and is available starting in 1987. We use the reported values for 1987 as calibration targets. The targets for the average labor share and the

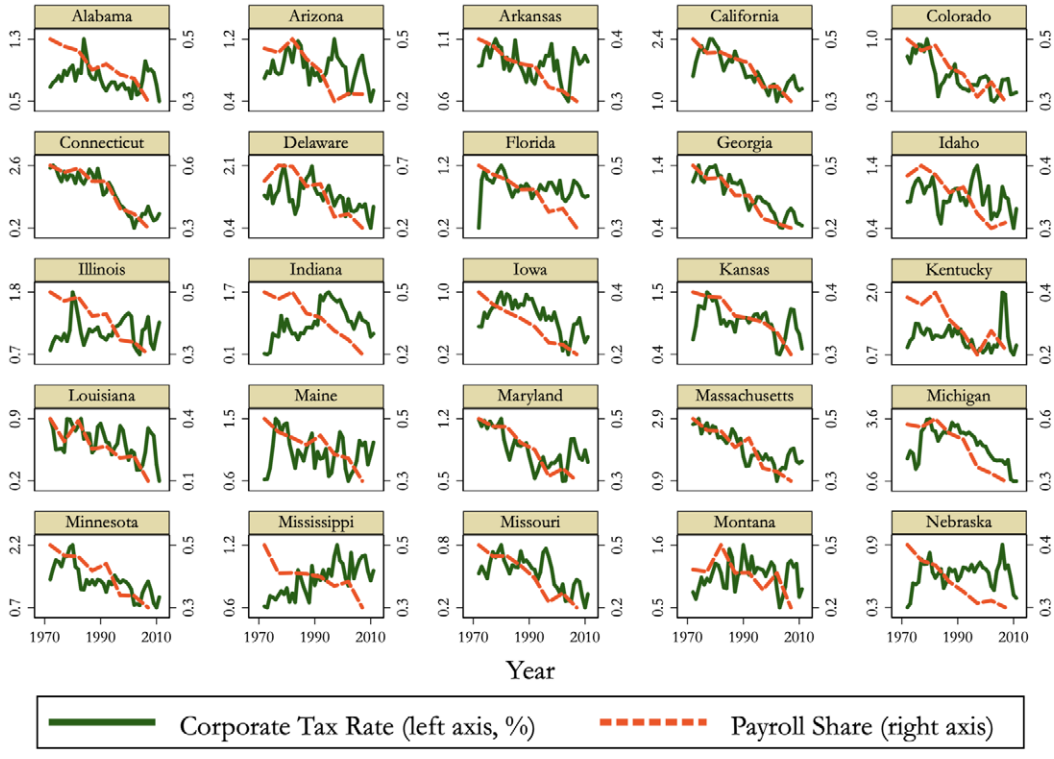


FIGURE A.4.—Trends in effective corporate tax rates by state: Alabama–Nebraska. Effective tax rates are calculated as the ratio of total corporate tax revenue and gross operating surplus in a state and are taken from Saez and Zucman (2016).

ratio of the value added weighted median labor share to the unweighted median labor share are computed in Compustat using data for the 10 years prior to 1985. We combine multiple years to ensure a sufficiently large sample size for the calculation of distributional moments of the firm-level labor shares.

Next, we calibrate our model for each sector, using the appropriate sector-specific empirical targets. The discount rate, the capital depreciation rate, and the span-of-control parameters are kept at the levels reported in Table II. In our benchmark analysis of the manufacturing sector, we assumed that labor shares follow a symmetric triangular distribution across firms. Because several of the nonmanufacturing sectors display nonsymmetric labor share distributions, we introduce a new parameter, m, which controls the mode of the triangular distribution. In the symmetric case, the mode is given by $m = \frac{\gamma-\beta}{2}$, where γ and β, respectively, define the maximum and minimum of the distribution. To calibrate m, we target an additional empirical moment: the ratio of the value-added weighted standard deviation of labor shares over the median value-added labor share. A lower mode m skews the distribution of labor shares toward low-labor-share firms and increases the standard deviation.[11]

[11] For comparability, we also recalibrate the 1985 manufacturing sector level using the new empirical targets. Our results are quantitatively very similar if we do not recalibrate the mode of the triangular distribution for the manufacturing sector but leave it unchanged from the symmetric case.

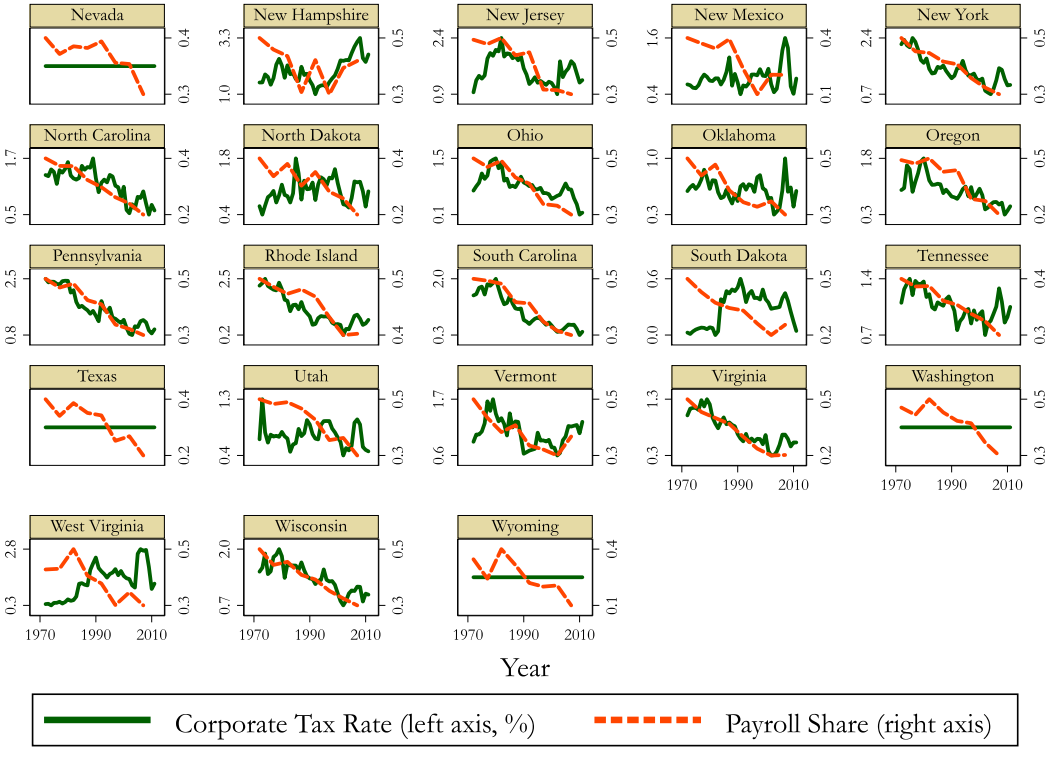


FIGURE A.5.—Trends in effective corporate tax rates by state: Nevada–Wyoming. Effective tax rates are calculated as the ratio of total corporate tax revenue and gross operating surplus in a state and are taken from Saez and Zucman (2016).

The sector-specific tax rates are available from the IRS website in SIC format for the years 1985, 1990, 1995, 1996, and 1997 and in NAICS format from 1999–2013. We map the single-digit NAICS values to single-digit SIC values. Each sector is calibrated using the respective 1985 tax rate. The IRS only reports tax rates for an aggregate trade sector. We apply the same tax rate to firms in the wholesale and retail trade sectors.

TABLE B.I

SECTOR-SPECIFIC CALIBRATION RESULTS.

	Data						Model					
Sector	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Manufacturing	0.604	0.924	0.104	54.0	0.528	0.309	0.616	0.869	0.104	54.0	0.529	0.326
Mining	0.408	0.761	0.208	23.0	0.524	0.682	0.405	0.766	0.208	23.0	0.524	0.681
TCPU	0.706	0.986	0.129	24.0	0.537	0.191	0.712	1.00	0.129	24.0	0.537	0.191
Wholesale Trade	0.588	0.924	0.113	13.0	0.379	0.315	0.587	0.912	0.113	13.0	0.379	0.314
Retail Trade	0.610	0.950	0.135	13.0	0.370	0.200	0.644	0.937	0.135	13.0	0.370	0.209
Services	0.687	0.954	0.106	14.0	0.565	0.230	0.672	0.965	0.106	14.0	0.565	0.230

Note: The moments are: (1) the average labor share, (2) the ratio of the value-added median labor shares over the unweighted median labor share, (3) the exit rate, (4) the average firm size in 1987, (5) the fraction of employment in the largest firms, (6) the ratio of the value-added weighted standard deviation of labor shares over the median value-added labor share.

TABLE B.II

SECTOR-SPECIFIC CALIBRATION RESULTS: PARAMETER VALUES.

Sector	Parameter					
	μ_ε	σ_ε	x	$\underline{\beta}$	m	c_e
Manufacturing	0.860	0.270	0.104	0.301	1.379	115.62
Mining	0.901	0.260	0.208	0.164	3.261	92.90
TCPU	0.863	0.268	0.129	0.414	1.143	36.88
Wholesale Trade	0.699	0.207	0.113	0.312	1.827	32.00
Retail Trade	1.102	0.198	0.135	0.431	1.739	37.10
Services	0.451	0.276	0.106	0.382	1.291	26.36

Note: The table shows the calibrated parameter values for major sectors.

To calibrate the model parameters for each sector, we minimize the difference between the six data moments in that sector and the corresponding values implied by the model. The results are listed in Table B.I. The associated parameter values are shown in Table B.II. The fit of the model is very high and is comparable to the results reported in the main text.

To construct Figure 5, we simulate a new steady state for each sector using its effective corporate tax rate in 2013 and compute the change in the labor share between steady states. We plot those changes against the actual decline, as reported by the BEA. To construct the data point for the actual change in the trade-sector labor share, we weight the wholesale and retail trade sectors by their value added in 1985.

APPENDIX C: ADDITIONAL RESULTS AND SENSITIVITY

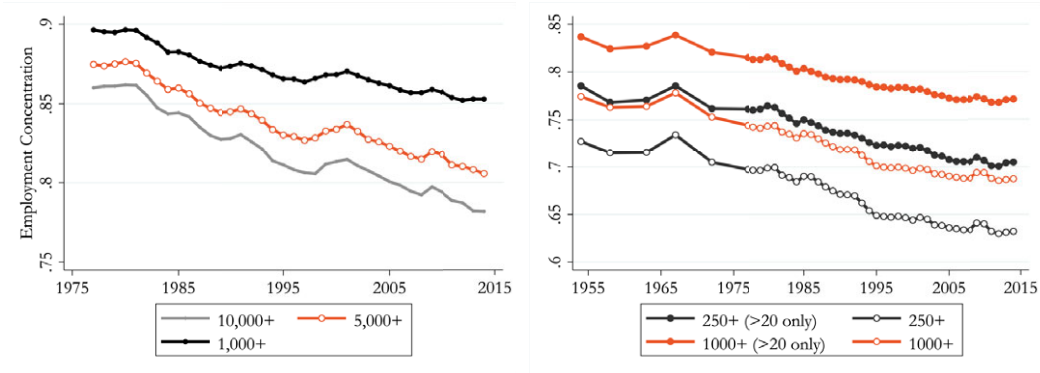
C.1. *Employment Concentration in the US*

Figure C.1 shows the trends in manufacturing employment concentration at the firm level (panel (a)) and at the establishment level (panel (b)). The concentration measures at the firm level come from the BDS data, and show a downward trend regardless of the employment cutoff used to measure concentration. To compute the concentration measures for a longer horizon, we supplement the BDS data, available starting in 1977, with establishment-level data from the quinquennial Census of Manufactures for the years 1954–1972. The trends in manufacturing establishment-level employment concentration mirror those of firm-level concentration. Conditioning the concentration measures to establishments with at least 20 employees does not change the patterns.

C.2. *Capital-Labor Ratios Across Countries*

We test for the effects of corporate taxes on capital investment by linking aggregate K/N ratios from Penn World Table v9.1 to corporate tax rates for a subset of countries in our sample. We compute K/N by dividing the total capital services in a country by the total number of hours worked. Figure C.2 shows the changes in aggregate capital-labor ratios against the changes in the corporate tax rates between 1981 and 2007. The plot includes a fitted line from robust estimation and shows a negative relationship.

Table C.I shows a formal test of this relationship. The dependent variable is the log of K/N and the regressors are listed in the rows. Column (1) shows that countries where tax rates fell by more saw an increase in their aggregate capital intensity. Column (2)



(a) Firm-level (b) Establishment-level

FIGURE C.1.—Manufacturing employment concentration. Concentration is defined by the inverse of the Pareto index implied by the share of employment among the largest firms (establishments). Letting s_x denote the share of firms (establishments) with more than x employees, and e_x their share in total employment, the Pareto index is computed by $\iota_P = \log s_x / (\log s_x - \log e_x)$. Panel (a) shows the concentration among firms with more than 1000, 5000, and 10,000 employees. Panel (b) shows the concentration among establishments with more than 250 and 1000 employees. The lines labeled (> 20) only show the respective indices conditioning on establishments with at least 20 employees. Sources: BDS and Census of Manufacturers.

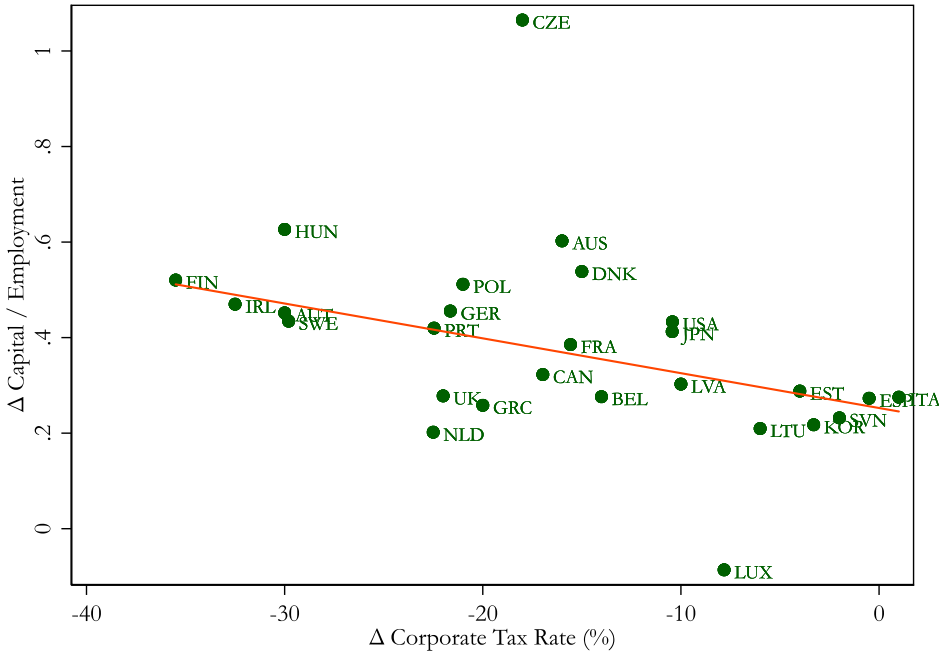


FIGURE C.2.—Corporate taxes and capital-labor ratios: 1981–2007. The figure shows the change in aggregate log capital-labor ratio between 1981 and 2007 against the change in the corporate tax rate (in percentage points). Source: OECD and Penn World Table v9.1.

TABLE C.I

CORPORATE TAX CUTS AND CAPITAL-LABOR RATIO: OECD 1981–2007.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corporate tax rate	−0.48	-0.54	−0.34	−0.29	−0.18	−0.20	−0.07	−0.07
	(0.16)	(0.20)	(0.04)	(0.04)	(0.12)	(0.13)	(0.03)	(0.03)
Price of capital		−0.13		−0.09		−0.10		0.00
		(0.09)		(0.02)		(0.11)		(0.02)
TFP		−0.03		0.10		−0.14		0.00
		(0.12)		(0.03)		(0.10)		(0.02)
N	579	579	579	579	579	579	579	579

Note: The dependent variable is the aggregate capital-labor ratio. Standard errors are clustered at the country level in Columns (1)–(2). Columns (3)–(4) employ a robust estimation method to correct for outliers. All regressions control for fixed-country and year effects.

controls for capital costs and total factor productivity. Because the Czech Republic and Luxembourg are visible outliers in Figure C.2, we reestimated these regressions using a robust estimation method in Columns (3)–(4). The results are broadly similar, with slightly lower but more precise tax elasticities.[12] Overall, the estimated tax elasticities are in the −0.3 to −0.5 range depending on specification. Columns (5)–(8) include controls for country-specific trends. These estimates assume that the long-run association between tax rates and the capital-labor ratio is attributable to factors outside the model that affect tax rates and capital per worker at the same time. As a result, they reflect a short-to-medium run response of the capital-labor ratio to taxes. The estimated size effects are qualitatively consistent with the model, but are quantitatively smaller. Considering that time-to-build can be long for the capital stock, we view these shorter-run responses as a lower bound on capital's response in the long run.

Table C.II shows results from the difference specification using 10-year differences (Columns 1 and 3) and 20-year differences (Columns 2 and 4) controlling for fixed-year effects. Columns 3 and 4 additionally include changes in the relative price of capital and TFP as control variables. Consistent with the levels specification, results show a negative association between the capital-labor ratio and the tax rate with an elasticity of around 0.5% across specifications.

TABLE C.II

CORPORATE TAX CUTS AND CAPITAL-LABOR RATIO: OECD 1981–2007.

	(1)	(2)	(3)	(4)
Δ Tax Rate (x100)	−0.50	−0.49	−0.54	−0.52
	(0.20)	(0.17)	(0.23)	(0.15)
N	318	119	318	119

Note: The dependent variable is the change in the aggregate capital-labor ratio over 10 years in Columns 1 and 3, and over 20 years in Columns 2 and 4. All specifications include fixed-year effects. Columns 2 and 4 also include the change in the price of capital and TFP as controls. Standard errors are clustered at the country level.

[12]Following Karabarbounis and Neiman (2013), we use the "rreg" command in Stata to perform these estimations. The two-step GLS estimates yield similar results.

C.3. *Difference Regressions*

This section presents estimation results from additional specifications. In the main text, we reported results from regressions in levels of the variables of interest with fixed effects for states (or industries) and years. Those specifications are superconsistent for long-run relationships between variables. Versions of those specifications with state-specific, or industry-specific trends are identified by shorter-run variations instead. They resulted in different coefficient estimates for variables that theoretically display different reactions in the long-run and the short-run. For example, the investment-to-capital ratio temporarily increases in the short-run in response to a lower tax rate, but reverts back to its initial level in the long-run. Here, we report results from difference specifications. Note that difference regressions mechanically eliminate long-run, cointegrating relationships. Because our focus is on those long-run relationships, we try to circumvent this issue by taking differences over 10 years, which we assume are sufficiently long for short-run dynamics to have played out.

Tables C.III to C.VI show the estimates from difference specifications for regressions in Tables I, VIII, IX, and X in the main text. The coefficient estimates are qualitatively consistent with the estimates reported in the main text. In most cases, the point estimates are close to those reported from the levels specifications and, therefore, are statistically comparable. One exception is the tax elasticity of capital-per-worker in Table C.V, which is 0.02 (0.08) in 10-year differences, whereas the levels estimate in Table IX is −0.25 (0.09). This is somewhat surprising given that the tax elasticity of investment is significantly negative, both in the level and difference specifications. One would expect higher investment expenditures in response to lower taxes to manifest in a higher capital stock over time. A possibility is that 10 years may not be sufficiently long to recover the long-run relationship between taxes and the capital stock in difference form. Indeed, because K/N is highly persistent in the data, with an annual persistence of 0.95, the half-life of a shock to the capital stock is about 20 years. Therefore, in Table C.VI, we report results from a difference specification over 20 years. The estimated coefficient on the corporate tax rate is −0.30 (0.12) in this case, close the −0.25 (0.09) in Table IX.

Table C.VII shows the estimates in Columns 1 and 2 of Table XI for all concentration measures, defined by the value added shares of the top 4, 8, 20, and 50 firms in the industry. Concentration measures that rely on a larger number of firms generally yield smaller standard errors and larger size effects in response to tax changes. Table C.VIII shows the same regressions estimated in difference form. The coefficient estimates are comparable to those from the levels specification in Table C.VII. Table C.IX shows the difference specification results for sales-based concentration measures for varying sampling periods. The estimates are consistent with the estimates from the levels specifications reported in Table XI.

In the main text, we did not report results from a specification that allows for industry-specific trends in value-added concentration. Because the underlying data is quinquennial, there are four data points for each industry during the 1997–2012 period, which is too few to estimate the fixed effects, trends, and tax elasticities in a statistically robust manner. Here, we attempt to control for industry trends by combining *sales-based* measures of concentration at the SIC-4 level between 1972 and 2012, which gives 8 data points for each industry. All estimates should be interpreted subject to that caveat.

We start by revisiting the levels specifications (without industry trends) for the combined sample period. Columns 1 through 4 of Table C.X shows the sales concentration regressions for the full sample for all sales-based concentration measures (top 4, 8, 20,

TABLE C.III

CHANGES IN CORPORATE TAXATION AND LABOR SHARE ACROSS COUNTRIES.

	(1) Manufacturing	(2) Aggregate	(3) Manufacturing	(4) Aggregate
Δ Corporate tax rate	0.29	0.12	0.16	0.10
	(0.09)	(0.04)	(0.07)	(0.05)
Country trend effects	no	no	yes	yes
N	309	309	309	309

Note: The dependent variable is the change in labor's share of income in a country over 10 years. All specifications control for fixed-year effects. Specifications (3)–(4) control for fixed-country (trend) effects. Standard errors in parentheses are clustered at the country level. Source: OECD and KLEMS.

or 50 firms). These estimates do not control for industry-specific trends and are comparable to the results reported in Table XI for all sales-based concentration measures. The results are qualitatively similar: lower effective tax rates in an industry are associated with higher market concentration. The coefficient estimates are somewhat lower in this combined sample (1972–2012 period) than in each of the subperiod reported in Table XI, namely the 1972–1992 period and the 1997–2012 period. A possible explanation for this is the change in the industrial classification system in the data between 1992 and 1997. The crosswalk we use between the two industrial classifications could be a source of measurement error in the combined sample, resulting in attenuated coefficient estimates. To account for that possibility, Panels (c) and (d) interact the fixed-industry effects with an indicator variable for post-1992 data. Accounting for the classification changes results in coefficient estimates that are comparable in magnitude to those in Table XI.

The results from specifications with industry-specific trends in sales concentration are reported in Columns 5–8 of Table XI. Once again, the results are consistent with a negative relationship between the tax rates and concentration, as also indicated by the levels specifications reported in Columns 1–4. The point estimates are somewhat lower, suggesting that the response of sales concentration to tax rates builds slowly over time, leading to larger elasticities in the long-run than in the short-run.

TABLE C.IV

CHANGES IN CORPORATE TAXATION AND THE LABOR SHARE ACROSS US STATES.

	(1)	(2)	(3)	(4)	(5)	(6)
Δ Corporate tax rate	2.02	1.73	2.53	2.22	3.03	2.79
	(0.79)	(1.09)	(0.79)	(1.09)	(1.01)	(1.35)
Δ log wage			0.12	0.17	0.12	0.16
			(0.04)	(0.05)	(0.05)	(0.08)
Δ Unemployment rate					0.36	0.24
					(0.19)	(0.20)
State trend effects	no	yes	no	yes	no	yes
N	288	288	288	288	240	240

Note: The dependent variable is the change in payroll share of value added in the manufacturing sector of a state over 10 years. Corporate tax rate denotes the average corporate tax rate in a state. All specifications control for fixed- year effects. Columns 2, 4, and 6 include fixed-state (trend) effects. Standard errors in parentheses are clustered at the state level. Data come from the Annual Survey of Manufactures 1972–2012, the BEA, and Saez and Zucman (2016). The last two columns cover the 1977 to 2012 period. Standard errors in parentheses.

TABLE C.V

CAPITAL DEEPENING, SECTOR SIZE, AND LABOR SHARE IN US MANUFACTURING.

	(1) $\Delta \log(K/N)$	(2) $\Delta \log(I/N)$	(3) $\Delta \log(I/K)$	(4) $\Delta \log(estabs.)$
		Panel (a)		
Δ Labor Share	0.17	−1.05	−1.22	−0.26
	(0.08)	(0.13)	(0.16)	(0.10)
		Panel (b)		
Δ Tax Rate (x100)	0.02	−0.10	−0.12	−0.33
	(0.08)	(0.09)	(0.12)	(0.10)

Note: Δ denotes differences over 10 years. All specifications control for fixed-year effects (4-digit SIC). Standard errors in parentheses are clustered by sector. Data come from the NBER Manufacturing Industry Database 1958–2011. Data on the number of establishments by industry (specification (3)) come from County Business Patterns and covers the 1974 to 2011 period. An industry's corporate tax rate is the establishment-weighted average of effective state corporate tax rates. See the text for details.

TABLE C.VI

CAPITAL DEEPENING, SECTOR SIZE, AND LABOR SHARE IN US MANUFACTURING.

	(1) $\Delta \log(K/N)$	(2) $\Delta \log(I/N)$	(3) $\Delta \log(I/K)$	(4) $\Delta \log(estabs.)$
		Panel (a)		
Δ Labor Share	−0.09	−1.07	−0.98	−0.28
	(0.15)	(0.16)	(0.17)	(0.17)
		Panel (b)		
Δ Tax Rate (x100)	−0.30	−0.23	0.07	−0.46
	(0.12)	(0.10)	(0.13)	(0.13)

Note: Δ denotes differences over 20 years. All specifications control for fixed-year effects (4-digit SIC). Standard errors in parentheses are clustered by sector. Data come from the NBER Manufacturing Industry Database 1958–2011. Data on the number of establishments by industry (specification (3)) come from County Business Patterns and covers the 1974 to 2011 period. An industry's corporate tax rate is the establishment-weighted average of effective state corporate tax rates. See the text for details.

TABLE C.VII

VALUE ADDED CONCENTRATION AND TAXES IN US MANUFACTURING.

Dependent Variable	con-4	con-8	con-20	con-50
			Panel (a)	
Labor Share	−0.20	−0.16	−0.13	−0.08
	(0.09)	(0.07)	(0.05)	(0.03)
			Panel (b)	
Tax Rate (x100)	−0.77	−2.15	−5.14	−6.86
	(3.40)	(3.05)	(2.47)	(3.06)

Note: The measure of concentration is the inverse of the Pareto index implied by the share of value added among the top 4, 8, 20, or 50 firms in the industry. An industry's corporate tax rate is the establishment-weighted average of effective state corporate tax rates. Each cell represents a separate regression and all specifications include industry and year fixed effects. Standard errors are clustered at the sector level.

TABLE C.VIII

VALUE ADDED CONCENTRATION AND TAXES IN US MANUFACTURING.

Dependent Variable	Δcon-4	Δcon-8	Δcon-20	Δcon-50
		Panel (a)		
Δ Labor Share	−0.22	−0.19	−0.16	−0.11
	(0.09)	(0.07)	(0.05)	(0.04)
		Panel (b)		
Δ Tax Rate (x100)	1.77	−0.42	−5.27	−7.72
	(3.62)	(3.33)	(2.80)	(3.75)

Note: Δ denotes differences over 10 years. The measure of concentration is the inverse of the Pareto index implied by the share of value added among the top 4, 8, 20, or 50 firms in the industry. The explanatory variable of interest is reported in the first column. An industry's corporate tax rate is the establishment-weighted average of effective state corporate tax rates. Each cell represents a separate regression and all specifications include year fixed effects. Standard errors are clustered at the sector level.

TABLE C.IX

SALES CONCENTRATION AND TAXES IN US MANUFACTURING.

Dependent Variable	Δcon-4	Δcon-8	Δcon-20	Δcon-50
		Panel (a): 1972–1992		
Δ Labor Share	−0.05	−0.03	−0.04	−0.03
	(0.05)	(0.03)	(0.01)	(0.02)
		Panel (b): 1972–1992		
Δ Tax Rate (x100)	−0.30	−2.24	−3.35	−3.56
	(1.99)	(1.53)	(1.13)	(0.80)
		Panel (c): 1997–2012		
Δ Labor Share	−0.17	−0.15	−0.12	−0.10
	(0.07)	(0.06)	(0.04)	(0.04)
		Panel (d): 1997–2012		
Δ Tax Rate (x100)	1.96	0.63	−4.02	−6.75
	(3.23)	(3.05)	(2.44)	(3.33)
		Panel (e): 1972–2012		
Δ Labor Share	−0.11	−0.10	−0.08	−0.06
	(0.04)	(0.03)	(0.02)	(0.02)
		Panel (f): 1972–2012		
Δ Tax Rate (x100)	1.08	−0.29	−1.73	−2.64
	(1.36)	(1.13)	(0.91)	(0.87)

Note: Δ denotes differences over 10 years. The measure of concentration is the inverse of the Pareto index implied by the share of sales among the top 4, 8, 20, or 50 firms in the industry. The explanatory variable of interest is reported in the first column. An industry's corporate tax rate is the establishment-weighted average of effective state corporate tax rates. Each cell represents a separate regression and all specifications include year fixed effects. Standard errors are clustered at the sector level.

TABLE C.X

SALES CONCENTRATION, LABOR SHARE, AND TAXES IN US MANUFACTURING.

	con-4	con-8	con-20	con-50	con-4	con-8	con-20	con-50
				Panel (a)				
Labor Share	−0.11	−0.08	−0.06	−0.05	−0.08	−0.07	−0.06	−0.04
	(0.04)	(0.04)	(0.02)	(0.02)	(0.04)	(0.03)	(0.02)	(0.01)
				Panel (b)				
Tax Rate (x100)	2.44	0.13	−1.02	−1.58	1.01	−0.58	−1.55	−2.23
	(1.62)	(1.42)	(1.18)	(0.99)	(1.70)	(1.44)	(1.12)	(0.90)
				Panel (c)				
Labor Share	−0.11	−0.09	−0.07	−0.06	−0.07	−0.06	−0.05	−0.03
	(0.04)	(0.03)	(0.02)	(0.02)	(0.04)	(0.03)	(0.02)	(0.01)
				Panel (d)				
Tax Rate (x100)	−1.53	−3.21	−4.21	−4.19	0.89	−0.54	−1.52	−2.53
	(1.50)	(1.36)	(0.98)	(0.90)	(1.73)	(1.46)	(1.14)	(1.05)
Industry Trends	no	no	no	no	yes	yes	yes	yes

Note: The measure of concentration is the inverse of the Pareto index implied by the share of sales among the top 4, 8, 20, or 50 firms in the industry. An industry's corporate tax rate is the establishment-weighted average of effective state corporate tax rates. Each cell represents a separate regression and all specifications include industry and year fixed effects. Panels (c) and (d) interact fixed-industry effects with an indicator for post-1992 surveys to account for the change in industrial classification systems in the data. Columns (4)–(8) include industry-specific trends. Standard errors in parentheses are clustered at the sector level.

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