The Rise of Pass-Throughs and the Decline of the Labor Share[†]

By Matthew Smith, Danny Yagan, Owen Zidar, and Eric Zwick*

We study the coevolution of the fall in the US corporate-sector labor share and the rise of business activity in tax-preferred pass-throughs. We find that reallocating activity to the form it would have taken prior to the Tax Reform Act of 1986 accounts for one-third of the decline in the corporate-sector labor share between 1978 and 2017. Our adjustments are concentrated among mid-market firms in services, magnifying the role of the manufacturing sector and superstar firms in driving the remaining decline in the labor share. Our findings highlight the importance of tax policy when measuring factor shares. (JEL D22, E25, H25, K34, L60, L80)

In the past 40 years in the United States, the share of corporate-sector value added accruing to labor in national accounts fell from 62.9 percent to 57.9 percent (Figure 1, panel A). This period coincided with a striking rise in the share of business activity organized in "pass-through" form (Figure 1, panel B). This paper shows that these trends are related.

Why would growth of the pass-through sector, which now accounts for the majority of business income, matter for the corporate-sector labor share? The simple answer is taxes. First, entrepreneurs have flexibility to characterize their income as labor payments or as profits. They typically choose the label that minimizes taxes subject to the law. In recent years, that label has been profit for a growing number of firms. Second, the composition of corporate-sector firms has changed: many labor-intensive firms are now organized outside the corporate sector as tax-preferred

Panel A. Corporate-sector labor share
(1978–2017, BEA)

Panel B. Corporate versus noncorporate gross
value added (1978–2017, BEA)

Panel C. Business activity in pass-through
form (1980–2016, SOI)

Panel D. Value added across selected industry
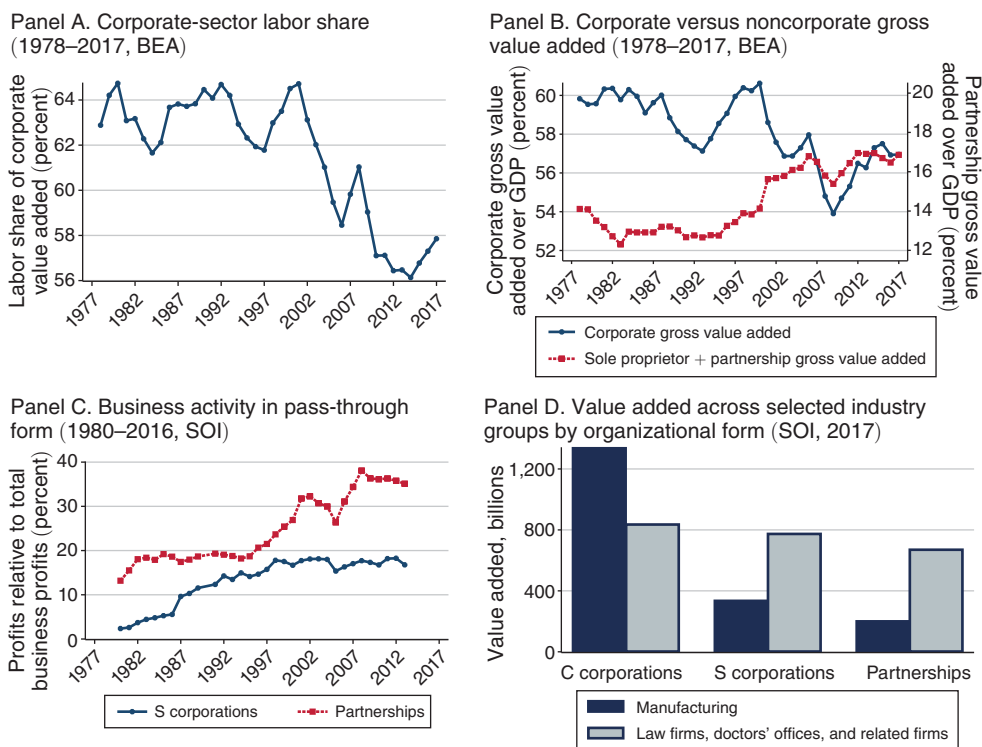groups by organizational form (SOI, 2017)

FIGURE 1. THE EVOLUTION OF PASS-THROUGH AND CORPORATE ACTIVITY IN THE UNITED STATES

Notes: Panel A plots the labor share in the corporate sector defined as "corporate-sector compensation of employees over corporate-sector gross value added" from the national income and product accounts (NIPAs) constructed by the US Bureau of Economic Analysis (BEA). Panel B plots the share of business value added by organizational form. Aggregate corporate-sector and sole-proprietorship-and-partnership value added is sourced from NIPA Tables 1.14 and 7.5. Panel C shows profits of S corporations and partnerships from IRS Statistics of Income (SOI) tables. Panel D plots value added in key industry groups by organizational form, computed using SOI data. Manufacturing is NAICS 31-33, and law firms, doctors' offices, and related firms are NAICS 54 and 62.

partnerships. The joint quantitative importance of these factors for falling labor shares and rising capital shares is an open question with implications for the analysis of technological change, inequality, and tax policy.

The historical turning point for the rise of pass-throughs is the Tax Reform Act of 1986 (TRA86). TRA86 lowered personal income tax rates substantially and raised the tax burden on (non-pass-through) C corporations. As a result, by organizing in pass-through form, entrepreneurs avoid C corporation taxes and benefit from lower effective tax rates. Subsequent changes in payroll taxation and in the legal treatment of pass-throughs raised the benefits and feasibility of adopting pass-through form, accelerating the pace of this sector's growth.

We take two steps to quantify the contribution of the pass-through sector to the decline of the labor share. First, we reclassify a portion of S corporation value added as labor income. Using data on 183,000 firms that switch from C corporation to S corporation form between 2000 and 2012, we estimate that reported labor payments fall sharply in the switching year by 2.29 percent of sales, which are offset by a

corresponding increase in reported profits. Estimates that account for heterogeneous effects by firm size imply that 1.22 percent of aggregate S corporation sales can be thought of as recharacterized labor payments.

This behavior implies that the decline in labor payments captures a reporting response, as owner-managers compensate themselves in the tax-preferred form of S corporation profits. Had these firms remained C corporations, owner-managers would have likely continued to pay themselves via labor income to avoid payout and corporate tax. Reclassifying 1.22 percent of aggregate S corporation sales increases the corporate-sector labor share by 0.89 percentage points in 2017.

Our second adjustment is to "reincorporate" partnership activity into the corporate sector. Since 1980, partnership net income has grown from 13 percent to 35 percent of total business profits. This rise occurred as the corporate sector in the national accounts shrank from 60 percent to 57 percent of GDP and the noncorporate business sector—which includes partnership activity—grew from 14 percent to 17 percent of GDP (Figure 1, panel C). Partnership activity comprises mainly capital-light activity in the form of financial, legal, and consulting services. These businesses have higher labor shares than the businesses that have remained in corporate form. Treating these partnerships as C corporations both reverses the recent decline of corporate-sector value added relative to GDP and increases the corporate-sector labor share by 0.79 percentage points in 2017.

Together, these two adjustments imply that the 5.0 percentage point decline in the labor share is overstated by 32 percent. The extent of understated labor income has grown over time in line with the pass-through sector's expansion. In the 1990s, the growth of S corporations accounts for most of this effect, whereas partnerships play a larger role in more recent years. All of the decline in our adjusted series occurred since the early 2000s.

More than half of the adjustment comes from skilled service firms in capital-light industries. Firms in these industries include law firms, consultancies, doctors' and dentists' offices, and financial service firms such as hedge funds and private equity funds. Such medium-sized firms account for a disproportionate share of pass-through value added, while large, capital-intensive manufacturers are more prominent as C corporations (Figure 1, panel D). By correcting for downward bias among mid-market service firms, our adjusted series implies a larger role for superstar firms and the manufacturing sector to drive the remaining decline in the labor share.

I. Institutional Background and Data

A. *Institutional Background*

The way entrepreneurs report their income depends on tax rules. This section describes US business taxes as of 2017. We focus on the three formal business types: C corporations, S corporations, and partnerships. C and S corporations are both in the corporate sector, whereas partnerships and sole proprietorships are not. We focus on formal business because sole proprietorships have not exhibited clear growth over the past 40 years and their role in labor share measurement is studied elsewhere (Gollin 2002; Elsby, Hobijn, and Şahin 2013).

C corporations pay the corporate income tax; their taxable shareholders pay dividend taxes on distributed profits. C corporations can retain earnings to delay the owner-level tax. In contrast, S corporations do not pay corporate tax and they cannot defer the distribution of profits, which are deemed distributed and taxable at the owner level when earned. The tax rate that applies to S corporation profits is the individual income tax rate for each owner based on their share of firm profits.

Owner-managers have leeway in whether they report their income as wages or profits. TRA86 made S corporation form tax superior to C corporation form for eligible firms. Ever since, the S corporation share of business activity has risen while the C corporation share has fallen.

C corporation owner-managers face tax incentives to report their income as wages while S corporation owner-managers face tax incentives to report it as profits. Since wages are deductible, owner-managers of C corporations can avoid the corporate tax plus dividend tax when they report their share of profits as wages. Their wage income faces personal income tax plus payroll and social insurance taxes. In contrast, S corporation owner-managers do not pay payroll and social insurance taxes when they report their share of profits as business income.

In 2017, the tax rate for C corporation profits was 35 percent at the entity level and 15–23.8 percent (including the 3.8 percent surtax on net investment income) for taxable dividends depending on a taxpayer's income bracket. The top marginal income tax rate for wages was 39.6 percent. The payroll tax rate was 12.4 percent for the first \$118,500 of wages. The more relevant marginal incentives for top earners were the uncapped social insurance taxes of 2.9 percent for Medicare and 0.9 percent for the Affordable Care Act. Thus, a high-income C corporation owner-manager saved 7.1 percent—$(35 + 0.238 \times (100 - 35)) - (39.6 + 3.8)$—on the margin by paying herself as wages; a high-income S corporation owner-manager saved 3.8 percent in payroll and social insurance taxes by paying herself in profits. Comparing corporate forms, the lowest rate for a C corporation owner-manager was 43.4 percent, which exceeded the 39.6 percent rate for an S corporation owner-manager. This wedge encouraged firms to organize as S corporations and label owner-manager income as profits.[1]

A related change in the organization of business activity is the growth of partnerships. Following TRA86 and state law changes permitting partnerships to receive limited liability protection, many firms that might have otherwise chosen C corporation form instead organized as partnerships. This option appeals especially to firms, such as large law firms and consultancies with too many owners to receive pass-through tax treatment as S corporations, and financial firms that have nonindividual investors as limited partners.

Unlike the case of S corporations, owner-managers of partnerships receive little pay as wages. Instead, their compensation is ordinary business income (i.e., profits) and guaranteed payments, both of which enter the national accounts as proprietors' income in the noncorporate business sector. The tax treatment of this compensation

---

[1] S corporation owner-manager compensation is required to be "reasonable" and reflect the value of market services. In practice, the IRS rarely adjusts S corporation owner tax liabilities (Auten, Splinter, and Nelson 2016; Nelson 2016).

can allow partners to avoid payroll and social insurance taxes just like in S corporations (Office of Tax Analysis 2016).

B. *Data*

Administrative Tax Data.—Our event studies use de-identified administrative tax data from 1996 to 2016 for the population of C corporations and S corporations. We use a sample of firms that switch from C corporation to S corporation form between 2000 and 2012, which allows us to study outcomes in a four-year window around the switching event. During this time, the number of firms switching each year is approximately 15,000, cumulatively accounting for nearly 10 percent of all C corporations in 2000. The outcome variable in the event studies is *Labor payments*, which equals *Salaries and wages* plus *Compensation of officers*, *Pension and profit-sharing contributions*, and *Benefit programs*, as listed on the business income tax return.

Following Smith et al. (2019), we link S corporations and individual-owned partnerships to their owners for 2001–2014 by merging firm-level business income tax returns onto firm information returns that identify owners. We then merge on each owner's fiscal income and W-2 wage payments. We use this population of linked owner-firm data to compute *Owner pay*, which combines wages and ordinary business income paid to owners, at the industry and firm-size levels. We supplement these population-level data with the Integrated Business Data aggregates from the Statistics of Income (SOI) samples from 1980 to 2015, as well as other public aggregates for all business forms. We produce additional collapses from the restricted-use SOI corporate and partnership samples covering the years 1992–2017 and 1987–2017, respectively. Online Appendix D.1 describes these supplemental data and how we use them.

Macroeconomic Data.—Aggregate data on corporate- and noncorporate-sector value added and labor compensation come from the US national income and product accounts (NIPAs). Gross value added of corporate business is from Table 1.14, line 1. Corporate-sector compensation of employees is from Table 1.14, line 4. US GDP comes from Table 1.1.5, line 1.

Noncorporate-sector value added components come from Table 1.13. National income for sole proprietors and partnerships is from Table 1.13, line 19. Compensation of workers within this sector is line 20. Proprietors' income is line 23. This table uses a national income, net of depreciation, concept to measure sectoral activity within and outside the corporate sector. We supplement this table with depreciation information for sole proprietorships and partnerships from Table 7.5, line 8, to derive a gross value added concept comparable to the concept for the corporate sector.

II. Pass-Throughs and Recharacterized Labor Payments

A. *S Corporations*

Our goal is to estimate how much S corporation owner pay would take the form of wages if S corporations were C corporations. Following Smith et al. (2019), we

estimate how wages and profits evolve after a firm's choice to reorganize from C corporation to S corporation form with an event study:

$$(1) \qquad Y_{it} = \sum_{k \in \{-5+, -4, -3, -2, 0, 1, 2, 3, 4, 5+\}} \gamma_k \mathbf{1}(t = k) + \alpha_i + \delta_t + \varepsilon_{it},$$

where Y_{it} is total wage payments or profits divided by contemporaneous firm sales, γ_k are the coefficients of interest on event time indicators, α_i are firm fixed effects, and δ_t are calendar-year fixed effects. The analysis sample includes 183,000 firms that switch corporate form between 2000 and 2012, that have maximum sales greater than $100,000 in 2014 US dollars, and that exist for at least four years before and after the switch event. Online Appendix B provides summary statistics.

As in Smith et al. (2019), a nontrivial share of S corporation profits would have been reported as labor payments if the firms organized as C corporations. For all firms in our sample, over 2 percent of sales are suddenly paid as profits instead of wages upon switching. We interpret the immediate divergence in both profits and labor payments to reflect recharacterized wages rather than technological changes around the switch.[2]

To map micro estimates to aggregate quantities, we depart from Smith et al. (2019) and estimate heterogeneous impacts by firm size. Figure 2, panel A estimates the effects on labor payments for firms divided into groups based on mean firm sales. We partition firms based on mean sales with boundaries at $100,000, $500,000, $1 million, $10 million, and $100 million in 2014 US dollars. Scope for relabeled labor income is greater among smaller firms, as effect sizes monotonically decrease with firm size. Effect sizes exceed 2 percent of sales even among firms with $1 million to $10 million in sales and are meaningful (1.1 percent of sales) for firms in the $10 million to $100 million size group. Only the largest firms show no relabeling response upon switching.[3] Other variables do not experience major declines following switching events (online Appendix B).

Among S corporations, mid-market firms account for a substantial share of aggregate activity. Firms with less than $10 million and firms with $10 million to $100 million in average sales respectively account for 51 percent and 30 percent of total S corporation value added, 38 percent and 34 percent of total sales, and 65 percent and 25 percent of total owner pay in the most recent available years (Figure 2, panel B).

To transform these event studies into a post-switch estimate of recharacterized wages, define $\bar{\gamma}$ to be the average of γ_k for the post period $k \in 0, 1, 2, 3, 4$, where the outcome is total wage payments relative to firm sales. We report two averages: $\bar{\gamma}_E$ and $\bar{\gamma}_S$ for equal and size weights, respectively. We estimate $\bar{\gamma}_E$ to be 2.44 percent of

---

[2] Online Appendix Figure A.1A presents a plot showing the immediate divergence between profits and wages in the switching year. Online Appendix Table A.4 presents regression estimates and alternative specifications. We estimate effects relative to firm sales rather than measures of value added to minimize the impact of accounting changes on the scaling variable and to permit loss firms to enter the sample. Our homogeneous estimates differ slightly from Smith et al. (2019) because we use a longer sample and broaden the definition of wage payments using new data.

[3] Online Appendix Figure A.1B plots effects for the five largest industries in terms of S corporation profits in 2017. Each industry shows a large decline in labor payments after switching, though firms in white-collar services show larger effects.

Panel A. Organizational form switches reveal recharacterized wages
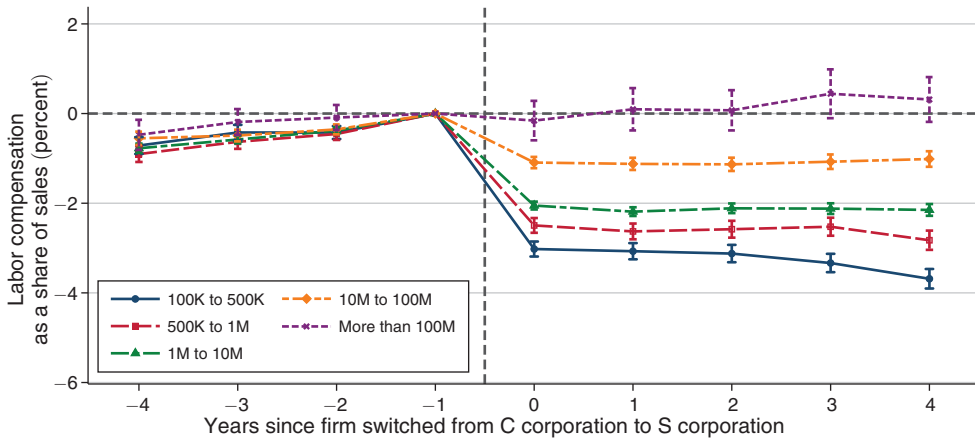
Panel B. S corporation activity by firm-size bin
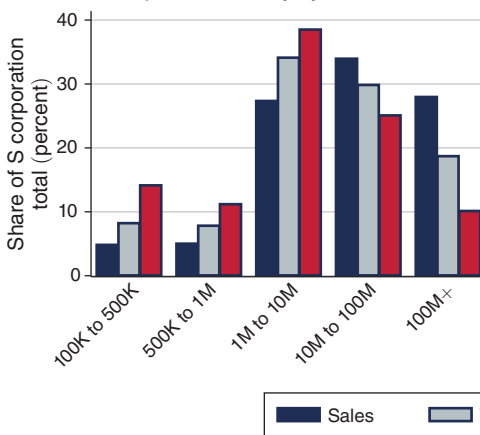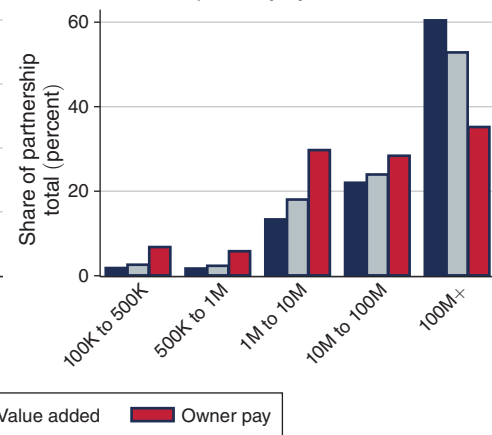
Panel C. Partnership activity by firm-size bin

FIGURE 2. ESTIMATING RECHARACTERIZED WAGES OF PASS-THROUGH BUSINESS

Notes: This figure shows inputs we use to compute recharacterized wages of S corporations and partnerships. Panel A shows event-study estimates for equation (2), which describe the effect of organizational form switching on labor compensation as a share of sales, accounting for heterogeneity by business size (as measured by sales in constant 2014 US dollars). Panels B and C show the distribution of sales and owner pay across the same size bins for S corporations and partnerships, respectively. S corporations with sales of less than $100,000 account for 0.7 percent of aggregate owner pay and 0.64 percent of aggregate sales; partnerships with sales less than $100,000 account for −6.3 percent of aggregate owner pay and 0.34 percent of aggregate sales. Appendix Figure A.8 shows how the relative size of these groups has evolved over time. We weight according to the sales distribution when averaging panel A's event-study estimates to yield an aggregate recharacterized-wage share of S corporation receipts. Bin-specific sales are from SOI samples, and owner pay is from our linked firm-owner data. We show sales for 2017 and owner pay for the last available year, 2014.

sales. To account for heterogeneity by firm size, we estimate a variant of equation (1) that permits γ_k to differ by firm size. Specifically, we estimate

$$(2) \quad Y_{it} = \sum_{k\in\{-5+,-4,-3,-2,0,1,2,3,4,5+\}} \sum_b \gamma_{b,k}\mathbf{1}(t = k, i \in b) + a_i + d_t + e_{it},$$

where b corresponds to a sales bin (defined as in Figure 2, panel A), a_i are firm fixed effects, and d_t are calendar-year fixed effects. If we estimate the average post-period effect $\bar{\gamma}_b$ at the size-bin level and compute the weighted average using size-group

level, S corporation sales in 2017 as weights, the estimate for $\bar{\gamma}_S$ is 1.22 percent of sales.

The lower size-weighted estimate follows from larger firms having smaller declines in labor compensation as a share of their sales. This empirical feature is important for applying these estimates to study aggregate quantities. Accordingly, we use the size-bin-specific estimates to ask how much S corporation activity would be recorded as labor income within the corporate sector if all S corporations were instead C corporations. We use the estimates 3.25 percent, 2.61 percent, 2.12 percent, and 1.09 percent for the respective size groups in Figure 2 (excluding the top group). Because S corporation profits cannot be more than 100 percent capital income and because the largest bin's confidence intervals are positive but include zero, we set the coefficient for the largest bin $\bar{\gamma}_{100M+}$ equal to zero. Thus, in our adjustment, S corporation profits among firms with sales greater than $100 million are entirely capital. We make the same assumption for firms with less than $100,000 in sales, which can be financial conduits and account for a minimal share of aggregate revenues and profits.

We draw on linked owner-firm data for S corporations from 2001 to 2014 and use the size-bin-specific $\bar{\gamma}_b$ to construct an implied labor share for S corporation owners $\omega_{b,t}^S$:

$$(3) \qquad \omega_{b,t}^S = \frac{Owner\ Wages_{b,t}^S + \bar{\gamma}_b \times Sales_{b,t}^S}{Owner\ Pay_{b,t}^S}.$$

Here, $\bar{\gamma}_b \times Sales_{b,t}^S$ represents the contribution of recharacterized wages for owners to the labor share. In 2014, applying equation (3) delivers $\omega_{b,2014}^S$ equal to 62.5 percent, 63.4 percent, 58.9 percent, 47.5 percent, and 15.2 percent for the respective size groups in Figure 2, panel B.

B. *Recharacterized Wages in Partnerships*

Unlike S corporations, partnerships do not face reasonable compensation rules and instead compensate owner-managers via profit distributions. To construct a concept of labor share for partnership owners, we develop an estimate in a consistent fashion to the estimate from S corporations. The goal is to estimate how much owner pay would take the form of wages if partnerships were C corporations.

We assume that the share of owner pay (i.e., wages plus profits) that partnerships would report as wages equals the share for similarly sized S corporations; that is, we assume $\omega_{b,t}^P = \omega_{b,t}^S$. We then use linked owner-firm data for partnerships to construct size-bin shares of owner pay from the partnership sector each year. These size-bin shares serve as weights for computing an aggregate labor share ω_t^P for partnership owners in year t.

In 2014, we estimate a labor share of owner pay ω_t^P equal to 41.9 percent. Large firms account for a larger share of owner pay among partnerships (Figure 2, panels B and C), so this figure is lower than the analog for S corporations. During the period when our linked owner-firm data are available, ω_t^P falls from 55.9 percent

in 2001 to 41.9 percent in 2014, which reflects the entry of larger firms into the partnership sector over time.[4]

III. Labor Shares after Pass-Through Adjustments

A. *S Corporations*

How much would the corporate-sector labor share have declined if all S corporations were C corporations? To answer this question, we recompute the corporate-sector labor share after adding S corporation recharacterized wages to the numerator, leaving the denominator unchanged. For each firm-size bin and year, S corporation recharacterized wages equal the size-bin-specific $\bar{\gamma}_b$ from Section IIA multiplied by sales in that bin. In 2017, we estimate that $99 billion of aggregate S corporation profits are recharacterized wages. Table 1 provides a simple way to understand the $99 billion estimate. In 2017, aggregate S corporation sales equal $8.12 trillion and the 2017-sales-bin-weighted mean of $\bar{\gamma}_b$ equals 1.22 percent. Their product equals $99 billion.

Accounting for S corporation recharacterized wages, the aggregate labor share in 2017 is understated by 0.89 percentage points. How important is this adjustment for the decline in the labor share? The labor share fell from 62.9 percent in 1978 to 57.9 percent in 2017, equal to 5.0 percentage points. Hence, our adjustment implies that 17.7 percent of the decline in the corporate labor share is due to tax-motivated growth of S corporations.

Figure 3, panel A displays the results for the full time series. The S corporation adjustment opens up immediately after TRA86, consistent with research documenting immediate adjustments for many firms (Feenberg and Poterba 1993; Gordon and Slemrod 2000). The adjustment widens modestly over time. Two factors explain why this widening is less pronounced than the overall growth of pass-through firms. First, as ownership rules for S corporations relaxed, larger and more capital-intensive S corporations account for a growing share of activity. Thus, in later years, more activity falls into size bins where we estimate lower recharacterized-wage shares. Second, as partnership form became more flexible and legally substitutable for corporate form in the 1990s, growth in the pass-through sector shifted from S corporations to partnerships.

B. *Partnerships*

We now estimate a counterfactual labor share in the case where tax-motivated growth of partnerships would have instead occurred in C corporation form. Reincorporating partnerships requires a few considerations that complicate the calculation relative to the case of S corporations. First, because the national accounts do not separate sole proprietorships and partnerships, we need to remove sole proprietors from aggregate series. Second, there existed a baseline level of partnership

---

[4] We use 55.9 percent for years prior to 2001 and 41.9 percent for years after 2014.

Table 1—Calculation of Labor Share Adjustment (2017)

| Component	2017
Panel A. BEA corporate labor share	
Corporate-sector employee compensation (BEA)	$6.42T
Divided by: Corporate-sector gross value added (BEA)	$11.09T
Equals: Corporate-sector labor share	57.9%
Panel B. Pass-through adjusted corporate labor share	
Corporate-sector employee compensation (BEA)	$6.42T
Plus: S corporation recharacterized wages	$99B
Plus: Excess partnership employee compensation	$529B
Plus: Partnership recharacterized wages	$187B
Divided by:	
Corporate-sector gross value added (BEA)	$11.09T
Plus: Excess partnership employee compensation	$529B
Plus: Excess partnership profits	$469B
Plus: Excess partnership other capital income	$73B
Equals: Pass-through adjusted corporate labor share	59.5%
Panel C. Adjustment components	
S corporation sales (SOI)	$8.12T
Times: Recharacterized wages as a share of S corporation sales	1.22%
Equals: S corporation recharacterized wages	$99B
Noncorporate employee compensation (BEA)	$1.13T
Times: Partnership share of noncorporate employee compensation (SOI)	82.2%
Less: 1986 noncorporate employee compensation GDP-deflated to current year (BEA)	$396B
Equals: Excess partnership employee compensation	$529B
Noncorporate profits (proprietors' income) (BEA)	$1.50T
Times: Partnership share of profits (SOI/BEA)	72.3%
Less: 1986 noncorporate proprietors' income GDP-deflated to current year (BEA)	$619B
Equals: Excess partnership profits	$469B
Noncorporate other capital income (BEA)	$657B
Times: Partnership share of noncorporate other capital income (SOI)	81.5%
Less: 1986 noncorporate other capital income GDP-deflated to current year (BEA)	$463B
Equals: Excess partnership other capital income	$73B
Excess partnership profits (above) + W-2 wages paid to partners (SOI)	$485B
Times: Wages as a share of profits	41.9%
Less: W-2 wages paid to partners (SOI)	$17B
Equals: Partnership recharacterized wages	$187B

Notes: This table summarizes our adjustments to the corporate-sector labor share. Panel A uses aggregates from NIPA Table 1.14 to compute the baseline labor share of corporate-sector gross value added. Panel B gives an overview of our adjustments; namely, adding recharacterized wages of S corporations and partnerships to labor compensation and adding excess partnership gross value added to corporate-sector gross value added. Panel C shows how we calculate each of the aggregates we use in panel B to adjust the panel A labor share.

activity prior to TRA86. We want to exclude these partnerships from our exercise to focus on partnership growth that is likely to be tax motivated.

Table 1, panel C walks through our computation in steps for 2017. The first step is to isolate partnerships in the sole-proprietorships-and-partnership value added series from the US Bureau of Economic Analysis (BEA). This series relies on partnership and sole proprietor tax filings plus adjustments to align definitions with national income concepts.[5]

---

[5] The largest adjustments in the BEA series include misreporting, reducing payments to corporate partners that appear in the corporate sector's account, and reducing partnership payments for payments made to other partnerships that would otherwise be double counted. Pearce (2015) and Cooper et al. (2016) discuss how tiered partnerships complicate measurement of aggregate partnership income.

Panel A. Adjusting for recharacterized S corporation wages
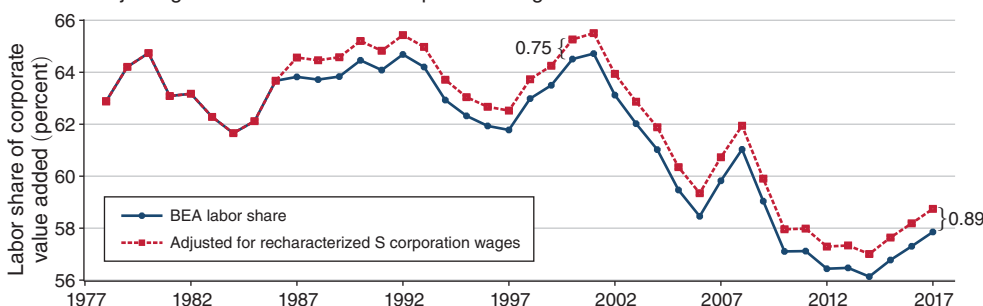
Panel B. Adjusting for partnership growth in noncorporate sector
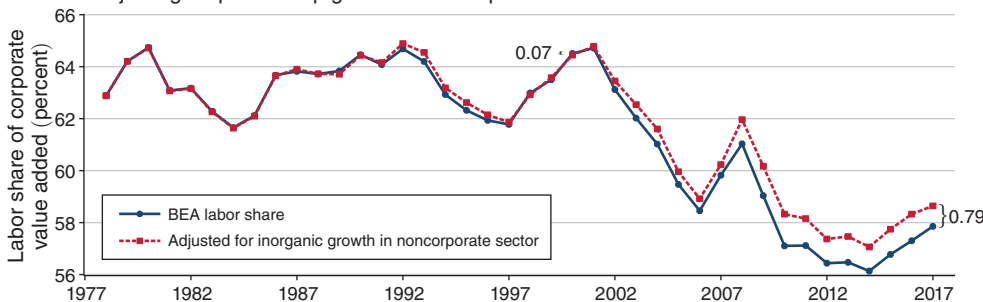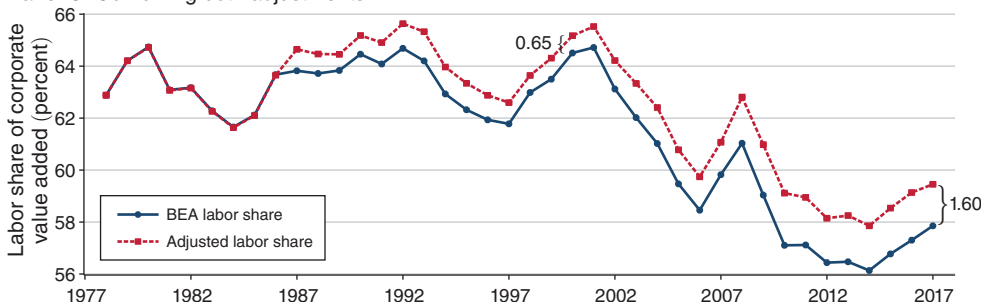

Panel C. Combining both adjustments

Figure 3. Adjusted Corporate-Sector Labor Shares (1978–2017)

Notes: This figure plots adjusted corporate sectors against the headline labor share computed using NIPA Table 1.14 aggregates (the "BEA labor share"). Panel A computes the labor share after adding our estimate of recharacterized wages of S corporations to corporate-sector compensation. Specifically, we apply estimates from equation (2) for each firm-size bin and year. Panel B computes the labor share after adding excess partnership compensation growth and recharacterized wages of partnerships to corporate-sector compensation, and excess partnership gross value added growth to corporate-sector gross value added. We estimate recharacterized wages of partnerships by applying estimates from equation (3) for each firm-size bin and year. Panel C, our preferred series, combines these adjustments.

In 2017, gross value added for sole proprietorships and partnerships is $3.29 trillion. Gross value added equals the sum of three components: labor compensation is $1.13 trillion; proprietors' income (i.e., non-W-2 payments to sole proprietors and partners) accounts for $1.50 trillion; and rental income, net interest, and depreciation account for $0.66 trillion. To estimate each component of gross value added for partnerships, we use the partnership share of the analogous component from

SOI aggregates for sole proprietorships and partnerships. For example, in 2017, partnerships generated 82.2 percent, 72.30 percent, and 81.5 percent of combined partnership and sole proprietorship employee compensation, proprietors' income, and other capital income, respectively.[6]

For 2017, we therefore allocate these respective shares of each component of sole-proprietorship-and-partnership gross value added to partnerships. We compute this allocation share each year to account for different growth rates between the partnership and sole proprietorship sectors and among components.

The second step is to compute a baseline level of partnership value added that we assume would have remained outside the corporate sector. We set this baseline to be the 1986 level of partnership value added as a share of GDP. By construction, this assumption ensures that there is no difference between the adjusted and unadjusted corporate-sector amounts in 1986 and before. Subsequently, as the noncorporate sector grows relative to GDP and the partnership sector grows relative to the sole proprietorship sector, the amount of partnership activity to be reincorporated increases. We compute baseline 1986 shares of GDP component by component because labor compensation and proprietors' income have grown faster than other capital income within gross value added.

The third step is to compute excess partnership value added by subtracting the 1986 baseline from actual partnership value added. In 2017, the amount of employee compensation attributed to partnerships is \$925 billion ($= 82.2\% \times \$1.13T$). Baseline 1986 employee compensation in partnerships as a share of GDP is 2.0 percent, which yields a baseline level of \$396 billion. Hence, we estimate that the excess employee compensation is \$529 billion ($= \$925B - \$396B$). The analogous excess amounts for proprietors' income and other capital income are \$469 billion and \$73 billion.

The fourth step is to decompose the components of excess value added into labor and capital. Employee compensation and other capital income are 100 percent labor and 100 percent capital, respectively. For proprietors' income, we use the labor share of owner pay ω_t^P from Section IIB. In 2017, ω_t^P equals 41.9 percent.[7]

In the final step, we estimate the corporate-sector labor share after reincorporating partnership activity that exceeds its 1986 level. In particular, we add excess employee compensation and the labor share of proprietors' income to the numerator of the corporate-sector labor share. We add all three excess partnership components, which sum to excess partnership value added, to the denominator.

The last lines of Table 1, panel C report the results for 2017. The sum of excess partnership profits and W-2 wages paid to partners is \$485 billion ($\approx \$469B + \$17B$). Multiplying this amount by 41.9 percent yields \$204 billion of labor compensation to partners. We then subtract the \$17 billion in W-2 wages paid to partners, which are included in the employee compensation category, to obtain our estimate of \$187 billion for partnership recharacterized wages.

---

[6] For proprietors' income, we use aggregate sole proprietorship and partnership proprietors' income from the NIPAs to avoid double counting profits in the partnership sector. See online Appendix D.3 for details.

[7] Before applying ω_t^P, we add wages paid to partners from our linked data, which is small relative to owner pay for partnerships (\$17 billion in 2017). Our baseline ω_t^P might be conservative. For example, Piketty, Saez, and Zucman (2018) assume that the labor share of proprietors' income is 70 percent. We consider less conservative assumptions in Table 2.

In 2017, our adjustment adds $716 billion ($\approx$ $529B + $187B) of partnership labor income and $1.07 trillion ($\approx$ $529B + $469B + $73B) of partnership value added to the corporate sector. As a result, we estimate that the aggregate corporate labor share is understated by 0.79 percentage points due to tax-motivated migration of relatively labor-intensive business activity from C corporation form into the noncorporate sector. Relative to the 5.0 percentage point decline of the raw series, our 0.79 percentage point partnership adjustment explains 15.8 percent of the corporate-sector labor share decline.

Figure 3, panel B displays the full time series of results for our partnership adjustment. The graph shows that the partnership adjustment makes little difference until the late 1990s. In recent years, the labor share in the partnership sector exceeds the labor share in the corporate sector by more than 10 percentage points. For example, in 2017, the implied labor share for reincorporated activity is 66.9 percent ($=$ $715B/$1.07T).

This fact reflects compositional differences across corporate form. Partnerships are now predominantly service-sector firms, such as law firms, consultancies, and financial services, whereas the corporate sector includes more capital-intensive activity in manufacturing and trade, especially among C corporations. This evolution can be seen in the surge of proprietors' income relative to interest, taxes, and depreciation, which matches the rise in partnership profits since the 1990s. The time series closely follows state-level legal reforms that extended limited liability to partnerships and the 2001 tax cuts that increased the tax advantage of pass-throughs.

C. *Overall Effect of Pass-Through Growth on the Labor Share*

Figure 3, panel C and Table 1, panels A and B combine the S corporation and partnership adjustments. Over the 1978–2017 period, our corporate labor share series after both adjustments shows a decline of 3.4 percentage points, 31.9 percent (1.6 percentage points) smaller than the 5.0 percentage point decline in the raw BEA data. Instead of the corporate labor share declining from 62.9 percent in 1978 to 57.9 percent in 2017, our adjusted labor share declined from 62.9 percent to 59.5 percent in 2017.[8] Because our S corporation adjustment primarily affects the pre-2000 series, our partnership adjustment contributes more to flattening the recent downward trend.

By increasing the share of economic activity in the corporate sector, our adjustment also alters the trend in corporate gross value added relative to GDP. Instead of flattening and declining since the 1980s, the series continues the trend extending back to the 1950s of increasing corporate activity. In 2017, adjusted corporate-sector value added is 62.3 percent of GDP, instead of 56.8 percent in the unadjusted series (online Appendix Figure A.3).

Online Appendix Table A.1 decomposes the adjustment into contributions by three-digit industry for 2017. The three most important are Professional, Scientific,

---

[8] Online Appendix Table A.5 shows that this result is robust to different start and end points by comparing the five-year average of 1978–1982 versus 2013–2017. Note that the overall effect (1.6 percentage points) differs from the sum of the individual effffects (0.9 percentage points and 0.8 percentage points) because the partnership adjustment increases the denominator. Online Appendix Figure A.4 applies these adjustments to the overall labor share.

Table 2—Adjusting the Labor Share under Different Specifications

	1978 labor share (%)	2017 labor share (%)	Decline 1978–2017 (pp)	Share decline explained by tax reporting (%)
Panel A. Official estimate and main specification				
Official BEA	62.9	57.9	5.0	
Baseline adjustment	62.9	59.5	3.4	31.9
Panel B. Sensitivity analysis of recharacterized-wage share				
Use lower bound on switchers' confidence intervals	62.9	59.6	3.3	34.4
Use upper bound on switchers' confidence intervals	62.9	59.4	3.5	30.6
Use sales minus COGS denominator for switchers event study	62.9	59.5	3.3	33.6
Treat large partnerships like midsize S corporations	62.9	59.9	3.0	40.4
Panel C. Sensitivity analysis of GDP inflation correction				
Keep corporate share of total VA constant at 1986 levels	62.9	59.2	3.7	26.8
Panel D. Joint sensitivity analysis with GDP inflation correction alternative				
Use confidence interval lower bounds + Keep corp. share constant	62.9	59.3	3.6	29.4
Use confidence interval upper bounds + Keep corp. share constant	62.9	59.1	3.7	25.5
Treat large partnerships like midsize S + Keep corp. share constant	62.9	59.5	3.4	32.7

Notes: This table shows sensitivity analysis of our main result. Our baseline adjustment is presented in Table 1.

and Technical Services; Outpatient Healthcare; and Other Financial Services, which respectively contribute 27 percent, 14 percent, and 11 percent of the labor share adjustment. Thus, more than half of the adjustment comes from skilled-service firms in capital-light industries.

Table 2 explores the robustness of our adjusted corporate labor share (see online Appendix C for details). One concern is that our analysis relies on estimates from the population of nonrandom corporate form switchers.[9] To address this concern, we consider alternative recharacterized-wage estimates and changes to the event study specification. We also consider a version of the partnership adjustment that allows the largest partnerships—which include consultancies, law firms, accountancies, and financial service firms that clearly provide human-capital services compensated via nonwage income—to have nonzero recharacterized wages. Across sensitivity analyses, we find that the tax-motivated growth in pass-throughs explains between 26.8 percent and 40.4 percent of the decline in the corporate labor share.

To be clear, our empirical argument is that an increasing share of corporate activity is occurring in pass-through form rather than C corporation form and that pass-through owner-managers pay themselves less in wages and more in profits for tax purposes. The Legal Services industry (NAICS 5411) offers a striking example of these dynamics (online Appendix Figure A.5). Between 1994 and 2016, the total number of law firms increased steadily. Nearly all of this growth came via S corporations, which rose from 25,000 to 113,000. In contrast, the number of C corporations declined. In terms of activity shares, C corporations initially accounted for 75.9 percent of corporate receipts, which steadily declined to 33.0 percent. Even

---

[9]We may overstate recharacterized wages if these firms are most likely to benefit from switching. However, auditing firms with prior tax returns as C corporations for aggressive recharacterization would be relatively easy compared to auditing new firms. We may therefore understate the extent of recharacterized wages if these firms tend to be conservative tax planners.

in the early 1990s, when C corporations accounted for the majority of corporate receipts, these firms accounted for less than 20 percent of law firm profits. Instead, firm surplus was distributed as wages to avoid payout tax for owners. The evolution of law firms toward pass-through form implies that income once characterized as corporate-sector wages now appears as S corporation profits or noncorporate partnership income.[10]

The recharacterized-wage share of pass-through income is lower than the estimate of the human-capital share of pass-through income implied by the owner-death and owner-retirement estimates of Smith et al. (2019). This broader concept of human capital includes, for example, returns to sweat equity (Bhandari and McGrattan 2021) or spillovers due to firm-level productivity effects of owner-managers (Jäger and Heining 2019; Choi et al. 2021). Regarding recharacterized wages, in firms with active and passive owners, agency frictions that encourage incentive pay structures likely prevent some C corporations from distributing all profits as wages. IRS rules may also discourage this behavior. Indeed, Smith et al. (2019) find that wage and profit responses to corporate form switches are smaller when firms do not have a majority owner. Such frictions would not affect estimates of the human-capital share of a pass-through firm's income, despite reducing the share of pass-through income that would appear as wages if the firm were a C corporation. The latter is key to answering this paper's central question: how much would BEA's measured labor share change if pass-through firms were instead C corporations?

IV. Conclusion

Our key finding is that adjusting for pass-through growth raises the 2017 corporate-sector labor share by 1.6 percentage points and implies that the 1978–2017 decline is overstated by 31.9 percent. While our emphasis on pass-throughs does not preclude the importance of other mechanisms, it does provide new evidence that can help guide future investigation.

We draw five lessons from our analysis. First, all of the decline in our adjusted series occurred since the early 2000s. Many studies do not focus on mechanisms that strengthened in the 2000s, but there are prominent exceptions. Autor et al. (2020) find that in manufacturing, transportation, and wholesale trade, concentration rose especially strongly since 2000, and they connect rising concentration to falling labor shares. Barkai (2020) finds evidence of rising markups in the 2000s. Autor and Salomons (2018) emphasize a rise in labor-substituting technology since the 1980s, note the acceleration in the labor share's decline since 2000, but do not argue that technology can account for the acceleration.

Second, Autor et al. (2020) emphasize the role of superstar firms. Our findings adjust mid-market firms more than large firms, yielding a larger contribution of the biggest firms to the labor share's decline. Thus, in terms of timing and the firm size distribution, our results reinforce the role played by superstar firms in the labor share decline.

---

[10] While there are relatively few law firm partnerships, these firms are large within the industry. Including partnership receipts, C corporations account for less than 20 percent of total receipts in 2014.

Third, our results reflect the rise of the skilled service sector (Buera and Kaboski 2012) and the tendency of service-sector firms to elect pass-through form and optimize payments to owners in response to taxes. In contrast, trends in manufacturing drive most of the overall decline in the economy-wide labor share.[11] Labor share growth in the services sector is higher with our adjustment, further underscoring the role of manufacturing for the overall decline. Elsby, Hobijn, and Şahin (2013); Karabarbounis and Neiman (2014); Acemoglu and Restrepo (2020); Kehrig and Vincent (2017); and Charles, Hurst, and Schwartz (2019) stress mechanisms affecting manufacturing: offshoring, investment prices, robots, hyperproductive establishments, and skill mismatch, respectively.

Fourth, our analysis concerns tax factors that may be unique to the United States. A natural question concerns whether we can draw lessons for international patterns. Capital taxes have fallen more than labor income taxes across many economies (Auerbach 2006), so the general idea could apply elsewhere. In other countries, one commonly sees deferral of compensation among private businesses, either as retained earnings or generous life insurance and pensions (Kopczuk and Zwick 2020). These forces could affect the labor share in Europe.

While Karabarbounis and Neiman (2014) document declines in several countries, the evidence on the global decline reveals significant heterogeneity and large outliers.[12] Separately, Gutiérrez and Piton (2020) argue that the decline outside the United States is not robust. They focus on the inclusion of self-employed income and real estate in the corporate sector in other countries and how these components bias the labor share toward a downward trend.[13] Thus, cross-country heterogeneity leaves room for a US-specific story for a sharp decline in the US corporate-sector labor share.

Last, our work complements recent studies on the effect of taxes on macroeconomic measurement. These forces operate mainly within large public and manufacturing companies that prevail as C corporations. Guvenen et al. (2017) find that transfer pricing arrangements distort the balance of payments, as profits are shifted overseas to avoid US corporate taxation. Tørsløv, Wier, and Zucman (2020) find that US multinationals shift profits to tax havens and avoid repatriating them, and this shifting has grown over time. Both transfer pricing and profit shifting may lead the corporate-sector labor share to be overstated. Koh, Santaeulàlia-Llopis, and Zheng (2020) find that the change in treatment of intellectual property products in the national accounts flattens the pre-2000 decline in the labor share, leaving a substantial decline that our revised series also shows.

Following the 2017 tax reform, firms face new incentives to select the tax-minimizing corporate form and owner-manager compensation due to, for exam-

---

[11] Following Elsby, Hobijn, and Şahin (2013), we decompose the official series into broad industries (online Appendix Figure A.6). The contribution from manufacturing to the decline is 7.5 percentage points, which was offset by the rise in services. Without the manufacturing decline, the aggregate labor share would have *risen* 3.8 points.

[12] In EU KLEMS data from 1987 to 2011, three of the largest European economies—the United Kingdom, France, and Italy—do not show declines (online Appendix Figure A.7). The United States shows a larger decline than all European countries except Norway, an economy 3 percent the size of the United States. From 1995 to 2011, Scandinavian countries experience declines, as do most former Soviet Socialist Republics (perhaps including East Germany's contribution to the German trend). Drawing strong conclusions from these smaller economies and those undergoing transition from communism to capitalism is hard.

[13] Rognlie (2015) also cites increasing housing costs but does not focus on the corporate sector.

ple, the lower C corporation tax rate and the qualified business income deduction for pass-through firms. As these incentives are understood, investigating future trends in the labor share will require grappling with the nuances of the tax code.

REFERENCES

Acemoglu, Daron, and Pascual Restrepo. 2020. "Robots and Jobs: Evidence from US labor markets." *Journal of Political Economy* 128 (6): 2188–244.

Auerbach, Alan J. 2006. "The Future of Capital Income Taxation." *Fiscal Studies* 27 (4): 399–420.

Auten, Gerald, David Splinter, and Susan Nelson. 2016. "Reactions of High-Income Taxpayers to Major Tax Legislation." *National Tax Journal* 69 (4): 935–64.

Autor, David, and Anna Salomons. 2018. "Is Automation Labor-Displacing? Productivity Growth, Employment, and the Labor Share." *Brookings Papers on Economic Activity* 49 (1): 1–87.

Autor, David, David Dorn, Lawrence F. Katz, Christina Patterson, and John Van Reenen. 2020. "The Fall of the Labor Share and the Rise of Superstar Firms." *Quarterly Journal of Economics* 135 (2): 645–709.

Azmat, Ghazala, and Rosa Ferrer. 2017. "Gender Gaps in Performance: Evidence from Young Lawyers." *Journal of Political Economy* 125 (5): 1306–55.

Barkai, Simcha. 2020. "Declining Labor and Capital Shares." *Journal of Finance* 75 (5): 2421–63.

Bhandari, Anmol, and Ellen R. McGrattan. 2021. "Sweat Equity in US Private Business." *Quarterly Journal of Economics* 136 (2): 727–81.

Buera, Francisco J., and Joseph P. Kaboski. 2012. "The Rise of the Service Economy." *American Economic Review* 102 (6): 2540–69.

Charles, Kerwin Kofi, Erik Hurst, and Mariel Schwartz. 2019. "The Transformation of Manufacturing and the Decline in US Employment." In *NBER Macroeconomics Annual 2018*, Vol. 33, edited by Martin Eichenbaum and Jonathan A. Parker, 307–72. Chicago: University of Chicago Press.

Choi, Joonkyu, Nathan Goldschlag, John C. Haltiwanger, and J. Daniel Kim. 2021. "Early Joiners and Startup Performance." NBER Working Paper 28417.

Cooper, Michael, John McClelland, James Pearce, Richard Prisinzano, Joseph Sullivan, Danny Yagan, Owen Zidar, and Eric Zwick. 2016. "Business in the United States: Who Owns It, and How Much Tax Do They Pay?" *Tax Policy and the Economy* 30 (1): 91–128.

Elsby, Michael W.L., Bart Hobijn, and Ayşegül Şahin. 2013. "The Decline of the US Labor Share." *Brookings Papers on Economic Activity* 44 (2): 1–63.

Feenberg, Daniel, and James Poterba. 1993. "Income Inequality and the Incomes of Very High-Income Taxpayers: Evidence from Tax Returns." *Tax Policy and the Economy* 7: 145–77.

Fleck, Susan, Steven Rosenthal, Matthew Russell, Erich H. Strassner, and Lisa Usher. 2014. "A Prototype BEA/BLS Industry-Level Production Account for the United States." In *Measuring Economic Sustainability and Progress*, edited by Dale W. Jorgenson, J. Steven Landefeld, and Paul Schreyer, 323–72. Chicago: University of Chicago Press.

Gollin, Douglas. 2002. "Getting Income Shares Right." *Journal of Political Economy* 110 (2): 458–74.

Gordon, Roger H., and Joel B. Slemrod. 2000. "Are 'Real' Responses to Taxes Simply Income Shifting Between Corporate and Personal Tax Bases?" In *Does Atlas Shrug? The Economic Consequences of Taxing the Rich*, edited by Joel B. Slemrod, 240–88. Cambridge, MA: Russell Sage Foundation Books at Harvard University Press.

Gutiérrez, Germán, and Sophie Piton. 2020. "Revisiting the Global Decline of the (Non-housing) Labor Share." *American Economic Review: Insights* 2 (3): 321–38.

Guvenen, Fatih, Raymond J. Mataloni, Jr., Dylan G. Rassier, and Kim J. Ruhl. 2017. "Offshore Profit Shifting and Domestic Productivity Measurement." NBER Working Paper 23324.

Jäger, Simon, and Jörg Heining. 2019. "How Substitutable Are Workers? Evidence from Worker Deaths." MPRA Paper 109757.

Kaplan, Steven N., and Joshua Rauh. 2010. "Wall Street and Main Street: What Contributes to the Rise in the Highest Incomes?" *Review of Financial Studies* 23 (3): 1004–50.

Karabarbounis, Loukas, and Brent Neiman. 2014. "The Global Decline of the Labor Share." *Quarterly Journal of Economics* 129 (1): 61–103.

Kehrig, Matthias, and Nicolas Vincent. 2017. "Growing Productivity Without Growing Wages: The Micro-Level Anatomy of the Aggregate Labor Share Decline." Economic Research Initiatives at Duke (ERID) Working Paper 244.

Koh, Dongya, Raül Santaeulàlia-Llopis, and Yu Zheng. 2020. "Labor Share Decline and Intellectual Property Products Capital." *Econometrica* 88 (6): 2609–28.

Kopczuk, Wojciech, and Eric Zwick. 2020. "Business Incomes at the Top." *Journal of Economic Perspectives* 34 (4): 27–51.

Nelson, Susan C. 2016. "Paying Themselves: S Corporation Owners and Trends in S Corporation Income, 1980–2013." Office of Tax Analysis Working Paper 107.

Office of Tax Analysis. 2016. *Gaps Between the Net Investment Income Tax Base and the Employment Tax Base*. Washington, DC: Office of Tax Analysis, US Department of the Treasury.

Pearce, James. 2015. "Measuring Aggregate Business Income with Tax Data." *National Tax Journal* 68 (4): 1025–45.

Piketty, Thomas, Emmanuel Saez, and Gabriel Zucman. 2018. "Distributional National Accounts: Methods and Estimates for the United States." *Quarterly Journal of Economics* 133 (2): 553–609.

Rognlie, Matthew. 2015. "Deciphering the Fall and Rise in the Net Capital Share: Accumulation or Scarcity?" *Brookings Papers on Economic Activity* 46 (1): 1–69.

Smith, Matthew, Danny Yagan, Owen Zidar, and Eric Zwick. 2019. "Capitalists in the Twenty-First Century." *Quarterly Journal of Economics* 134 (4): 1675–745.

Smith, Matthew, Danny Yagan, Owen Zidar, and Eric Zwick. 2022. "Replication data for: The Rise of Pass-Throughs and the Decline of the Labor Share." American Economic Association [publisher], Inter-university Consortium for Political and Social Research [distributor]. https://doi.org/10.3886/E152482V1.

Tørsløv, Thomas R., Ludvig S. Wier, and Gabriel Zucman. 2020. "The Missing Profits of Nations." NBER Working Paper 24701.