Heterogeneity in Corporate Tax Incidence by Worker Characteristics

By Patrick Kennedy, Christine L. Dobridge, Paul Landefeld, and Jacob Mortenson [*]

In 2017, the U.S. Congress enacted the largest changes to the corporate tax code since the mid-1980s in the law commonly known as the Tax Cuts and Jobs Act (TCJA). One of the largest changes, in terms of foregone tax revenue, was discarding the existing graduated corporate income tax rate schedule with a top marginal rate of 35% in favor of a flat corporate income tax rate of 21%.

Existing research finds that corporate tax changes have meaningful effects on the earnings of workers and returns to firm owners (Suárez Serrato and Zidar, 2016; Fuest, Peichl and Siegloch, 2018; Dobridge, Landefeld and Mortenson, 2022; Risch, Forthcoming). Indeed, Kennedy et al. (2023) provide evidence that TCJA led to higher earnings for workers in the top 10% of the within-firm earnings distribution as well as for firm executives.

Relatedly, extensive research in labor economics documents that the effects of labor demand shocks are often mediated by an individual's gender, age and work experience, and Fuest, Peichl and Siegloch (2018) find that corporate tax incidence varies considerably for different demographic groups.

Here we extend the Kennedy et al. (2023) methodology to study whether the incidence of TCJA's corporate tax cuts on worker earnings varies with individuals' characteristics: gender, age, and employment tenure, specifically.

I. Institutional Setting and Empirical Strategy

The following empirical analysis compares pre- and post-TCJA wage earnings of workers at C and S corporations, as in Kennedy et al. (2023). C and S corporations are two legally distinct types of businesses in the United States. Among other differences, C corporations are taxed on corporate profits at corporate income tax rates and pay taxes directly to the federal government. In contrast, the taxable income of S corporations is passed through to the owners of the firm, who pay taxes at individual income tax rates.

TCJA effectively reduced marginal tax rates for C corporations considerably more than for S corporations on average, providing a natural policy experiment to study effects of corporate tax cuts on workers' earnings. As noted above, TCJA reduced the corporate income tax rate for C corporations in the highest tax bracket from 35% to 21%. For S corporations, TCJA enacted two main changes to the tax treatment of business income. First, TCJA reduced the highest marginal individual income tax rate from 39.6% to 37%. Second, TCJA introduced the "Qualified Business Income" or "QBI" deduction—a new 20% deduction on certain business income that further reduced the marginal income tax rate for high-income S corporation owners from 37% to 29.6%.[1]

Kennedy et al. (2023) find that the observed C corporation marginal tax rate declined by approximately 5 percentage points after TCJA relative to S corporations in the sample—about a 20% relative reduction in the C corporation tax rate compared to S corporations. We use this policy variation to identify the effects of TCJA on earnings of different types of workers across

[*] Kennedy: National Bureau of Economic Research and Joint Committee on Taxation (patrick.kennedy@jct.gov); Dobridge: Board of Governors of the Federal Reserve System, (christine.l.dobridge@frb.gov); Landefeld: Joint Committee on Taxation, (paul.landefeld@jct.gov); Mortenson: Joint Committee on Taxation, (jake.mortenson@jct.gov). The views and opinions expressed here are the authors' own. They are not necessarily those of the Board of Governors of the Federal Reserve System, its members, or its staff. This research embodies work undertaken for the staff of the Joint Committee on Taxation, but as members of both parties and both houses of Congress comprise the Joint Committee on Taxation, this work should not be construed to represent the position of any member of the Committee. This work is integral to the Joint Committee on Taxation staff's work and its ability to model and estimate the effects of changes in the tax treatment of U.S. corporations.

[1] See Kennedy et al. (2023) for a discussion of other differences in the legal status of C and S corporations and a detailed explanation of the QBI deduction.

the within-firm earnings distribution. Specifically, we use a difference-in-differences design to compare earnings outcomes of workers in C and S corporations before and after the legislation, controlling for industry-size-year fixed effects. The regression specification is given by:

$$(1)$$
$$\ln\left(Y_{ftc(p)}\right) = \beta C_f \cdot Post_t + \gamma_f + \alpha_{is(f),t} + \varepsilon_{ftc(p)},$$

where f denotes firms, t is year, c is worker type, p is percentile of the within-firm earnings distribution, i is industry, and s is firm size bin.[2]

The outcome variable $\ln(Y_{ftc(p)})$ is the natural log of annual average earnings of worker-type c in firm f and year t at within-firm earnings percentile p. For example, for the specification evaluating TCJA's earnings effects for women, $\ln(Y_{ftc(p=25)})$ uses the natural log of average annual earnings of all women at the 25th percentile of the within-firm earnings distribution.

The variable C is an indicator for C corporation and $Post$ is an indicator variable equal to one in the post-TCJA period (2018 to 2019). The specification includes firm fixed effects (γ_f) as well as industry-year-size fixed effects ($\alpha_{is(f),t}$). Under the parallel trends assumption described in Kennedy et al. (2023), the coefficient of interest β is interpretable as the differential effect of the tax cut on C corporation workers' earnings compared to S corporation workers' earnings within the same industry and firm size bin.

II. Data

We use a panel of employer-employee-matched annual federal tax records for C and S corporations from the Internal Revenue Service (IRS) to conduct the empirical analysis. We draw the firm data from stratified samples of C and S corporate tax filings that are compiled each year by the Statistics of Income division of the IRS (Statistics of Income, 2013). We balance the panel across the analysis period from 2013 to 2019 and restrict the sample to firms with at least 50 employees (as measured by the number of W-2s issued by the firm) and $1 million in sales in each pre-treatment year, 2013 to

2016. Additionally, we drop firms that switch between C and S entity types over the sample period, though this is a negligible fraction of firms in the sample (Kennedy et al., 2023).

To measure workers' earnings, we use the universe of employee-level Form W-2s filed with the IRS—annual reports of earnings filed by a firm for each individual employed in a given tax year. The measure of earnings used is Medicare wages (Box 5 of Form W-2), which is a broader measure than taxable wages as it incorporates some deductible forms of compensation. We merge the corporate tax return sample with W-2 filings based on employer identification numbers to create measures of worker earnings at various points of the within-firm earnings distribution by year: the 20th to the 99th percentiles.[3] The final sample includes about 15,800 firms and 110,400 firm-years, encompassing 37.5 million employees with W-2 filings.

We observe individuals' age and gender from the Master Database maintained by the Social Security Administration (SSA), which we match with the W-2 data based on Taxpayer Identification Number. In our heterogeneity analyses, we examine effects for men and women as well as by age and employment tenure. For age, we examine effects for employees above and below age 40, which is approximately the average age of the employee sample. We measure an individual's tenure in a given firm as the number of years observed receiving a W-2 from that firm during the sample period. For the tenure split, we compare effects for workers who have not switched employers in the sample period (tenure greater than five years) with workers who either switched jobs or entered or exited the labor force during the sample period (tenure less than or equal to five years). Guided by the findings in Kennedy et al. (2023), we also separately examine the earnings of workers above and below the 90th percentile of the within-firm earnings distribution.

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[2]We measure industry at the NAICS 3-digit level and construct five size categories based on average employment from 2013 to 2016: 50-99 employees; 100-199 employees; 200-499 employees; 500-999 employees; and 1000+ employees.

[3]We cut the sample at the 20th percentile to exclude part-time or part-year workers whose earnings tend to be volatile. A detailed discussion of the dataset construction can be found in Joint Committee on Taxation (2022). All firm-level variables are defined as in Kennedy et al. (2023).

Table 1—: Firm Summary Statistics

| | 2016 Mean Outcomes | | |
	All	C Corps	S Corps
Sales ($ millions)	783	1,128	201
Employment	2,382	3,368	722
Mean earnings ($ thous)	65.0	69.3	57.6
Federal tax per worker ($)	6,236	6,551	5,706
Firm age	34	32	37
N Firms	15,777	9,897	5,880

Notes: This table displays mean sales, employee counts, annual worker earnings, federal income tax collected per employee, and firm age for firms in the sample, measured in 2016.

Figure 1. Worker characteristics, by within-firm earnings percentile

(a) Mean annual earnings

(b) Gender, age, and tenure
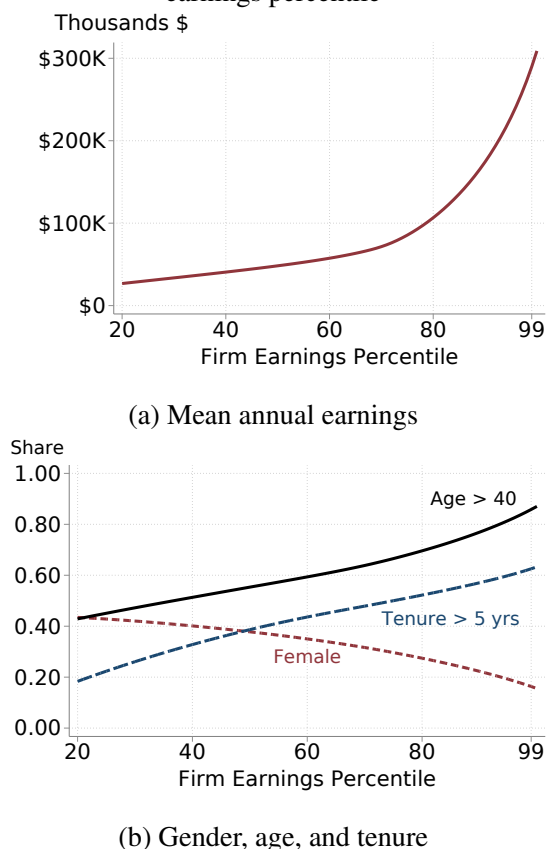
Notes: Figure 1(a) shows mean annual worker earnings across the within-firm earnings distribution for firms in the sample. Figure 1(b) shows the share of female workers, workers above age 40, and workers with tenure greater than 5 years across the distribution for firms in the sample.

Table 1 reports summary statistics for the firm sample in 2016, and Figure 1 shows how worker characteristics vary across the within-firm wage distribution. The firm sample includes approx-

imately 9,900 C corporations and 5,900 S corporations, which collectively employ approximately 38 million workers. C corporations exhibit a long right tail in the firm size distribution, and thus on average are considerably larger than S corporations in terms of sales and employment. There are also differences in mean annual worker earnings, federal tax paid per worker, and firm age between C and S corporations in the sample, although the differences are somewhat smaller.

Examining worker characteristics across the sample, mean annual earnings increase from approximately $47,000 at the median of the within-firm earnings distribution to $300,000 at the top. The female share of workers declines across the distribution, while the fraction of workers above age 40 or with more than 5 years of tenure rises steadily.

III.   Results

Figure 2 plots the β coefficients and corresponding 95% confidence intervals obtained from estimating equation (1) separately for different types of workers across percentiles of the within-firm wage distribution. Panels (a) to (c) show the results for male and female workers, workers above and below age 40, and for workers above and below five years of work history with their employer, respectively.

We do not find compelling evidence that treatment effects vary by gender, age, or employment tenure across the bottom 90 percent of the within-firm earnings distribution, as can be seen from the widely overlapping confidence intervals in this region. Figure 2 does suggest, however, that earnings effects were larger at the upper end of the distribution for men, for employees above the age of 40, and for employees with the longest tenure in a firm in the sample period.

For greater statistical power, we next estimate a variation on equation (1) by pooling firm-year observations for different worker types across percentiles of the within-firm earnings distribution. Table 3 presents results for the full sample of workers, as well as for below and above the 90th percentile. For example, Panel (a) presents results for earnings of men and women in the full sample of workers (columns 1 and 2), in the bottom 90% of the within-firm earnings distribution (columns 3 and 4), and in the top 10% (columns

5 and 6).

Consistent with the visual evidence in Figure 2, we cannot reject the null of zero earnings effect for workers in the bottom 90% in any subgroup. However, within the top 10%, the coefficient estimates for earnings gains are approximately twice as large for men compared to women, for older compared to younger workers, and for long-tenured compared to short-tenured workers.

Panel (a) shows that the earnings of men employed by C corporations in the top 10% of the distribution increased by 1.2% (se=0.3%) relative to men employed at S corporations after TCJA. This effect is double the 0.6% (se=0.4%) point estimate for women. While the estimates for men and women are not statistically different, the large magnitude of the effect in the male sub-sample implies that earnings increases for men are disproportionately driving the earnings increases at the top of the distribution.

Another piece of evidence suggesting that gains at the top are driven mainly by wage increases for men is simply that, on average, firms employ fewer women at the top of their pay ladders. In our sample, Figure 1(b) reports that men outnumber women by a ratio of approximately 5:1 in the top 10% of the earnings distribution. Gains at the top are thus mechanically driven by increases in men's earnings even in the absence of heterogeneous treatment effects.

Panel (b) of Table 3 show analogous results for workers split by age (< 40 and $\geq$ 40). Heterogeneous effects by age are statistically indistinguishable from zero in the full sample and in the bottom 90% of the distribution. Within the top 10%, however, earnings of C relative to S corporation workers increase by 1.3% (se=0.3%) for workers over 40, while only increasing by a statistically insignificant 0.5% (se=0.4%) for younger workers.

Turning to splits by employment tenure in Panel (c), we observe a post-TCJA earnings increase for those with high and low tenure in the top 10%, though the effect's magnitude is larger for longer-tenured workers. In the full sample, we observe a modest and statistically significant increase only for long-tenured workers.
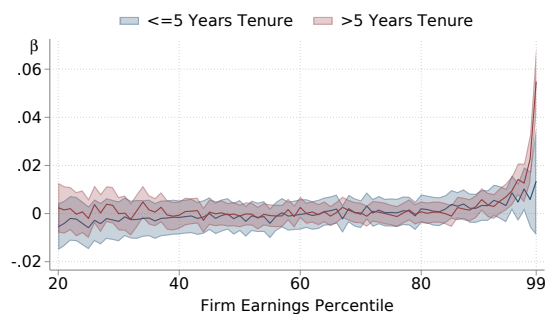
Figure 2. Heterogeneity by Worker Characteristics
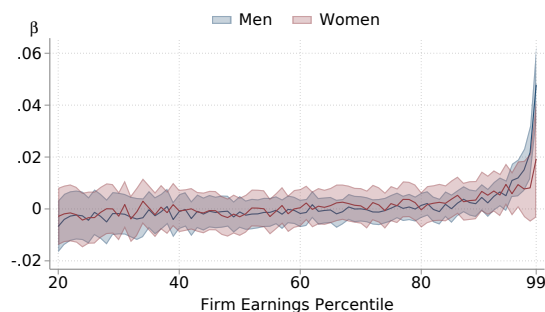
(a) Effects for Men and Women
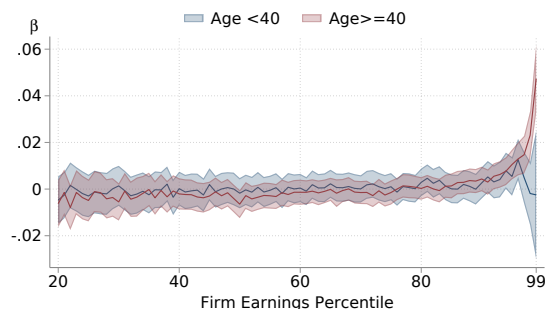
(b) Effects for Over and Under Age 40

(c) Effects for Short and Long Tenure

Notes: These figures show the β estimates from specification (1), where the outcome is log annual worker earnings. Panels 2(a), 2(b), and 2(c) present estimates for men and women, workers above and below age 40, and workers with above and below 5 years of employment tenure during the sample, respectively. The shaded areas show 95% confidence intervals.

Overall, the results in Table 1 imply that earnings increases for older workers and long-tenured workers, in addition to male workers, are driving the observed earnings increases at the top of the distribution for the full worker sample in Kennedy et al. (2023).

IV. Discussion

What are the economic and social forces that give rise to this heterogeneity? We consider two broad classes of explanations, which are not mutually exclusive.

First, the heterogeneity in earnings effects may be driven by differences in worker responses—-that is, the tax cuts may induce some types of workers to work longer hours or increase their productivity relative to others. For example, Goldin (2021) argues women are less flexible in their working hours than men, particularly when they have young children. The implied substitution effects are consistent with our empirical results if men and older workers have lower opportunity costs of working than women and younger workers.

Second, the heterogeneity may reflect firm-level or bargaining responses that distribute rents unequally to different groups of workers. For example, some studies find that women are less likely to bargain in the labor market, and often settle for lower pay when they do (Niederle and Vesterlund, 2008; Leibbrandt and List, 2015; Roussille, Forthcoming). Beyond gender, older workers with longer tenures may be in a stronger bargaining position if they are less substitutable with outside workers (Manning, 2006), or if experience increases the value of their outside options (Caldwell and Danieli, Forthcoming). Homophily and discrimination could also play a role: since executives and managers are more likely to be male and older, they may prefer to share rents with demographically similar workers with whom they are personally friendly (Card, Cardoso and Kline, 2016; Kline et al., 2019; Zeltzer, 2020).

Because workers' hours, productivity, bargaining, and workplace friendships are not empirically observable in the tax data, we are unable to determine which of these channels are most salient in our setting. However, all of them are plausibly consistent with our empirical results and with prior research.

V. Conclusion

Using a panel of matched employee-employer annual tax filings, we investigate the effect of TCJA's corporate tax rate reductions on worker earnings across three dimensions of worker-level heterogeneity: gender, age, and employment tenure. We find little evidence that earnings effects vary heterogeneously for the bottom 90% of the within-firm earnings distribution. We observe stronger earnings effects, however, for men in the top 10% compared to women, as well as for older workers and longer-tenured workers at the top—a finding with potentially important implications for evaluating distributional effects of corporate tax policy changes. These results highlight the importance of continued research studying mechanisms leading to heterogeneous effects of corporate tax changes.

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Table 1—: Pooled Worker Regressions

	Outcome is log annual worker earnings.					
	(1)	(2)	(3)	(4)	(5)	(6)
	All Workers		**Bottom** 90%		**Top** 10%	
Panel (a): Gender	Men	Women	Men	Women	Men	Women
$C \times Post$	-0.000	-0.001	-0.002	-0.000	0.012***	0.006
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
R2	0.46	0.53	0.63	0.66	0.57	0.69
N	7,318,395	5,679,058	6,334,971	5,150,359	983,423	528,386
Panel (b): Age	<40	≥40	<40	≥40	<40	≥40
$C \times Post$	0.000	0.001	-0.000	-0.001	0.005	0.013***
	(0.003)	(0.002)	(0.003)	(0.003)	(0.004)	(0.003)
R2	0.53	0.44	0.65	0.62	0.74	0.56
N	5,880,766	7,214,130	5,394,063	6,224,502	486,354	989,627
Panel (c): Tenure	≤5yrs	>5yrs	≤5yrs	>5yrs	≤5yrs	>5yrs
$C \times Post$	-0.001	0.004**	-0.002	0.001	0.008**	0.013***
	(0.003)	(0.002)	(0.003)	(0.002)	(0.004)	(0.003)
R2	0.51	0.42	0.64	0.63	0.65	0.57
N	6,825,625	6,104,388	6,116,075	5,213,925	709,450	890,440
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry-Size-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N Firms	15,777	15,777	15,777	15,777	15,777	15,777

Notes: This table presents regression results from specification (1), where the outcome is log annual worker earnings. The unit of analysis is a firm-percentile-year cell. For example, in the first row and first column, the observations are the log earnings of male workers at firm f and year t in each of the collapsed within-firm wage percentiles $20, 21, ..., 99$. The top panel shows results for wages of men and women for the full sample of workers columns (1) and (2), for the bottom 90% of the within-firm earnings distribution in columns (3) and (4), and for the top 10% of the within-firm earnings distribution in columns (5) and (6). The middle and bottom panels show results for workers split by age (< 40 and ≥ 40) and split by tenure at the firm during the sample (≤ 5 years and > 5 years). Further details about the dataset and empirical method can be found in Kennedy et al. (2023).