RESEARCH BRIEF

Institute for the Study of
Employee Ownership and Profit Sharing

Do ESOPs Substitute for Cash Compensation? Preliminary Evidence from the Health and Retirement Study

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Questions: All else equal, do workers who participate in ESOPs earn lower wages or salaries than otherwise comparable peers? That is, do ESOPs substitute for cash compensation, as would be predicted by standard economic theory? If not, and ESOP benefits tend to come on top of wages/salaries, what theories of the labor market could account for that finding?

Summary: In an analysis of data from the 2008-2020 waves of the Health and Retirement Study (HRS), a large biennial survey of Americans over the age of 50, we find **no evidence of ESOP "wage substitution," even when attempting to account for the possible effects** of information we do not know about workers who do and do not participate in ESOPs or firms that do and not offer them to their employees. We propose possible explanations for these results.

Although additional research on this question is needed given limitations in the data and methodology employed, our work suggests that, on average, ESOP benefits tend to *augment* rather than *replace* other forms of compensation – and that the standard theory of wage-setting in a competitive labor market is inadequate to the task of explaining this finding.

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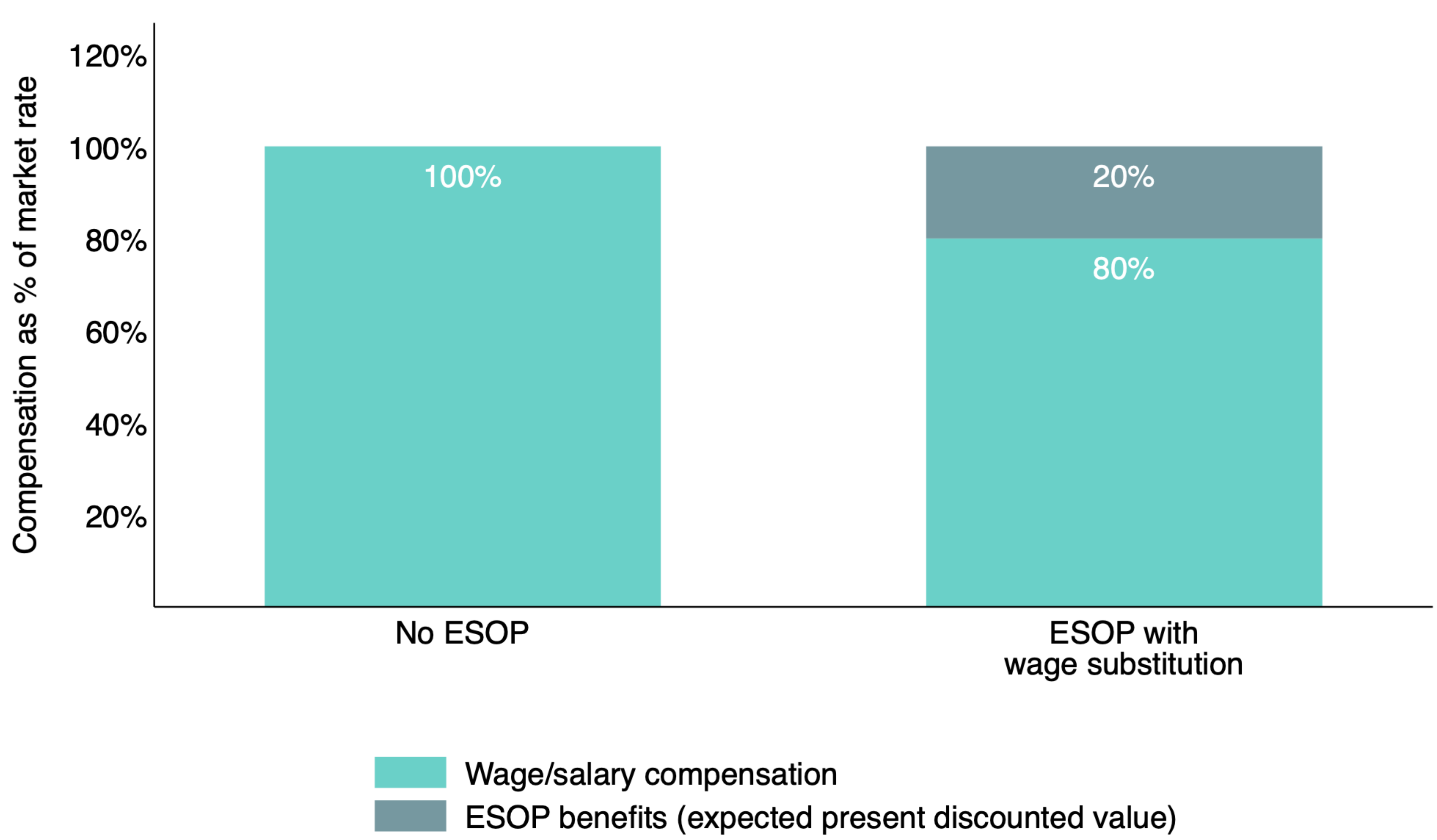
Wage Substitution and Economic Theory

- **Standard economic theory suggests in a competitive labor market, workers of similar ability who are employed in similar jobs should earn equivalent total compensation in equilibrium**, even if the structure of that compensation varies.[1]
- For instance, such theory asserts that employees who receive stock options or retirement plans should earn less in the form of wages/salaries than similarly-situated workers who are not offered such benefits, even though their *total compensation packages* should be worth approximately the same amount (in "expected present value" terms[2]).
- Likewise, the standard theory of the labor market implies that those who participate in an Employee Stock Ownership Plan (ESOP) should, all else equal, take home smaller compensation packages than otherwise comparable peers.
- For simplicity, **we refer to a reduction in wage/salary income associated with the use of non-cash compensation as *wage substitution*.**
- The figure below illustrates how the structure of total compensation might differ for workers with and without ESOPs in a competitive market characterized by wage substitution where, for example, the ESOP benefit is valued at 20% of the total market rate compensation package.



Does Wage Substitution Really Occur in ESOPs?

- However, whether wage substitution in fact applies in the case of ESOPs is an empirical question, and **available evidence suggests that ESOP benefits tend to come *on top of* rather than *in place of* market rate compensation** (Kardas, Scharf, and Keogh 1998; Kruse 2002; Kim and Ouimet 2014).[3]

- The figure below further illustrates how compensation packages **might** differ in the scenarios described above if it were assumed that wage substitution *does not* occur, or only *partially* occurs (i.e. if non-wage benefits like ESOPs do reduce cash compensation but less than dollar-for-dollar).

- That said, because there may be other factors that affect both wages and a firm's decision to establish an ESOP (e.g. productivity), it has been difficult to rigorously and convincingly answer the question at hand. As observed by Buchele, Kruse, Rodgers, and Scharf (2010), "[s]tatistical evidence for wage substitution is harder to come by than anecdotal evidence."[4] We offer new facts.

- **Even if ESOP employee-owners do not earn lower wages/salaries than seemingly comparable workers at non-ESOP firms, wage substitution may still be taking place**: for example, ESOP firms may differentially attract the most productive workers (conditional on observable characteristics), who would actually be expected to earn *even more* if employed elsewhere.

ESOPs in the Health and Retirement Study (HRS)

- The Health and Retirement Study (HRS) is a biennial panel survey of Americans over age 50 conducted by the Institute for Social Research at the University of Michigan **with support from the U.S. Federal Government through the National Institute on Aging and Social Security Administration.**[5]

- Since 1992, each wave of the HRS has interviewed around 20,000 respondents, making it **the largest and most comprehensive dataset on the health and economic well-being of older Americans of the government.**

- Starting in 2008, the HRS began asking detailed questions about characteristics of individuals' pension plans, including whether they participate in an Employee Stock Ownership Plan (ESOP).

- Respondents have the option to provide information on up to four pension plans per survey wave; our analysis includes data from seven waves covering the period 2008-2020.

- The table below shows a breakdown by type of all plans reported by surveyed workers during this period; ESOPs amount to 1.3% of the total.[6]

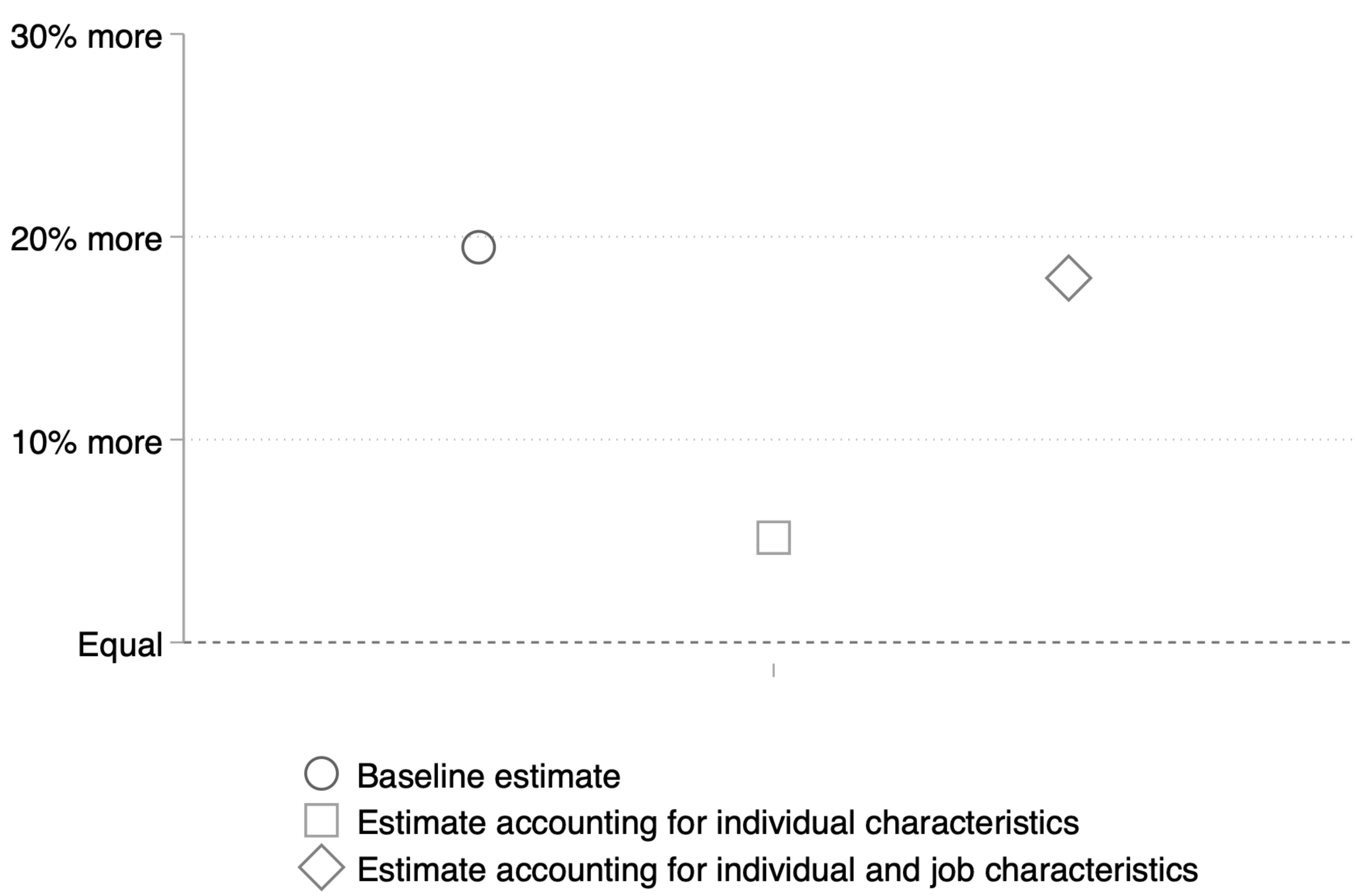
Percentage of Reported Pensions in the HRS by Plan Type (2008-2020)

Plan Type	% of Reported Plans
ESOP	1.3%
401(k)	50.3%
Supplemental Retirement Account	4.5%
Defined Benefit Plan	13.9%
401(a)/403(b)/457	8.8%
Thrift Savings Plan (TSP)	2.1%
Combination Plan	0.3%
IRA/Keough	0.1%
Other Defined Contribution Plan	18.7%
TOTAL	100.0%

Estimating the Impact of ESOP Participation on Wage and Salary Income

- Using the HRS data, we can estimate the effect of ESOP participation on wages with the help of advanced statistical analysis.
- Because the HRS tracks individuals over time, we can also control for any effect of individual- or job-specific characteristics.
- Furthermore, we can account for the effects of demographic attributes like age, gender, race, education, region, or industry, as well as job-specific factors like tenure and firm size.
- As shown in the below graph, **we consistently find that wage/salary income is estimated to be 5-20% higher for ESOP workers than non-ESOP peers, meaning that we do not see any evidence of wage substitution**.
- We can also estimate the impact of ESOP participation on wages using an alternative measure of earned income in the HRS that is based on a different approach to asking respondents about their wages/salaries; doing this leaves our conclusion broadly unchanged.

Estimated Difference in Wages Between ESOP and Non-ESOP Workers



Conclusions

- While looking for evidence of wage substitution is challenging because of the many other factors at play, **the Federally-supported Health and Retirement Study (HRS) contains the best available data with which to study the relationship between earnings and employee ownership**.
- Even when leveraging the different waves of employees in the longitudinal structure of the HRS data to account for the effects of unobserved differences in worker and firm characteristics, **we do not find any evidence to support the notion that ESOP participants are paid less than comparable peers**.
- On the contrary, we see persuasive evidence that **employee-owners may in fact enjoy a *wage premium*,** though the magnitude and statistical significance of this advantage varies with the precise methodology used.
- While **these findings are difficult to reconcile with the standard economic theories of a competitive labor market, they could nevertheless be consistent with alternative theories** that are gaining support from researchers.
- For instance, in situations where a lack of competition gives employers a certain degree of *power* to set their workers' wages below the level that would obtain if the labor market were more competitive, **institutions that give workers more power of their own – such as employee ownership – could help to boost compensation above the "market rate."**
- It is also possible that ESOP companies are **compensating ESOP workers for advantages that research shows these workers bring to ESOP firms**, such as lower turnover, greater employment stability, and greater willingness to help and monitor each other.
- **Additional research will also be needed to account for other possible sources of statistical bias in our estimates**, including any misreporting of ESOP participation by survey respondents. (These and other issues regarding the topic of wage substitution were covered in a panel discussion held as part of the Institute's June 2024 Silicon Valley Symposium, which featured some of the foremost experts on ESOP research. A recording is available at https://www.youtube.com/watch?&v=KDZzHZA9uMw&feature=youtu.be.)

Endnotes

1. For a representative exposition of the standard neoclassical model of wage-setting in a perfectly competitive labor market, see Chapter 3 (“Competitive Equilibrium and Compensating Wage Differentials”) in Pierre Cahuc, Stéphane Carcillo, and André Zylberberg (2014), *Labor Economics, Second Edition.* Cambridge, MA: MIT Press.

2. Because the value of a non-wage benefit such as a stock option or retirement plan depends in part on uncertain future asset values, the equivalence posited here only holds *in expectation (*i.e. assuming the outcome that obtains on average) and in *present value terms (*i.e. discounting future cash flows at a rate that reflects an individual’s preference for current over future consumption).

3. Kardas, P., A. Scharf, and J. Keough. (1998). “Wealth and income consequences of ESOPs and employee ownership: A comparative study from Washington state,” *Journal of Employee Ownership Law and Finance*, 10(4): 3-52; Kruse, D.L. (2002). “Research Evidence on Prevalence and Effects of Employee Ownership,” Testimony Before the Subcommittee on Employer-Employee Relations, Committee on Education and the Workforce, U.S. House of Representatives, 107th Congress; Kim, E. H. and P. Oiumet. (2014). “Broad-Based Employee Stock Ownership: Motives and Outcomes,” *Journal of Finance*, 69(3): 1273-1319.

4. Buchele, R., D. Kruse, L. Rodgers, and A. Scharf. (2010). “Show Me the Money: Does Shared Capitalism Share the Wealth?” In D.L. Kruse, R.B. Freeman, and J.R. Blasi (eds.), *Shared Capitalism at Work: Employee Ownership, Profit and Gain Sharing, and Broad-based Stock Options,* 351-375. Chicago, IL: University of Chicago Press.

5. University of Michigan Institute for Social Research, “Health and Retirement Study (HRS).” https://hrs.isr.umich.edu/about For our analysis we rely on formatted HRS data files prepared by the RAND Corporation and made available for download at https://www.rand.org/well-being/social-and-behavioral-policy/centers/aging/dataprod.html.

6. This figure for ESOPs may appear somewhat lower than other estimates of the extent of ESOP participation in the economy, but this can likely be explained by the fact that many HRS respondents report plans that are actually ESOP’s as unspecified defined contribution plans instead. See, for example, Joseph Blasi and Douglas Kruse (June 2023), “Employee Ownership and ESOPs: What We Know From Recent Research.” Available at https://www.aspeninstitute.org/wp-content/uploads/2023/08/Employee-Ownership-and-ESOPs-%E2%80%94-What-We-Know-from-Recent-Research.pdf.