The Employer Penalty, Voluntary Compliance, and the Size Distribution of Firms: Evidence from a Survey of Small Businesses

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Executive Summary

A new survey of 745 small businesses shows little change in the size distribution of businesses between 2012 and 2016, except among businesses with 40–74 employees, in a way that is closely related to whether they offer health insurance coverage. Using measures of both size and voluntary regulatory compliance, the paper links these changes to the Affordable Care Act's employer mandate. As of 2017, between 28,000 and 50,000 businesses nationwide appear to be reducing their number of full-time-equivalent employees to below 50 because of that mandate. This translates to roughly 250,000 positions eliminated from those businesses.

I. Introduction

Taxes and regulations are known to affect the size distribution of businesses because smaller businesses are less subject to enforcement. Large informal sectors are an obvious result in developing countries (Gërxhani 2004), but measurement challenges have hindered quantifying the size distortions' impact on developed-country employment and productivity. This paper uses new and unique data that are readily linked to a specific regulation: the 2010 Affordable Care Act's (ACA) employer mandate. The mandate's size provision took full effect in 2015 and is especially interesting, not only due to its notoriety but also because of its bright-line threshold and enforcement by monetary penalty. This paper quantifies the size incentive of that penalty, develops a framework for combining evidence on size with evidence on voluntary compliance, and uses a new survey of businesses to quantify the number of businesses that changed from large to small as a consequence of the law.

The key size threshold in the ACA is 50 full-time-equivalent employees (FTEs), which establishes the legal definition of a "large" business that is subject to the employer mandate. Momentarily ignoring the important distinction between FTEs and total employment, I display in figure 1 a time series of the share of employment by small businesses, using a criterion of 50 total employees, among private businesses with 25–99 employees. The data are sourced from the tables prepared by the Agency for Healthcare Research and Quality from the insurance-employer component of the Medical Expenditure Panel Survey (MEPS-IC).[1] The 2015, 2016, and 2017 shares are all well outside the range observed in the recent history period 2008–14 and in the direction to be expected given that large employers were subject to a new regulation. Also notable is that the shares trend down after 2015, returning back to the historical range by 2018.

Garicano, Lelarge, and Van Reenen (2016) show how the distortionary effects of size-dependent regulations appear muted when the observer uses a different measure of size than regulators do. This is the case in figure 1, which looks at total employment as opposed to the full-time equivalents specified by the ACA and has total employment binned rather broadly (25–49 and 50–99). Both Garicano et al. (2016) and Gourio and Roys (2014) therefore obtain size measures that are especially close to
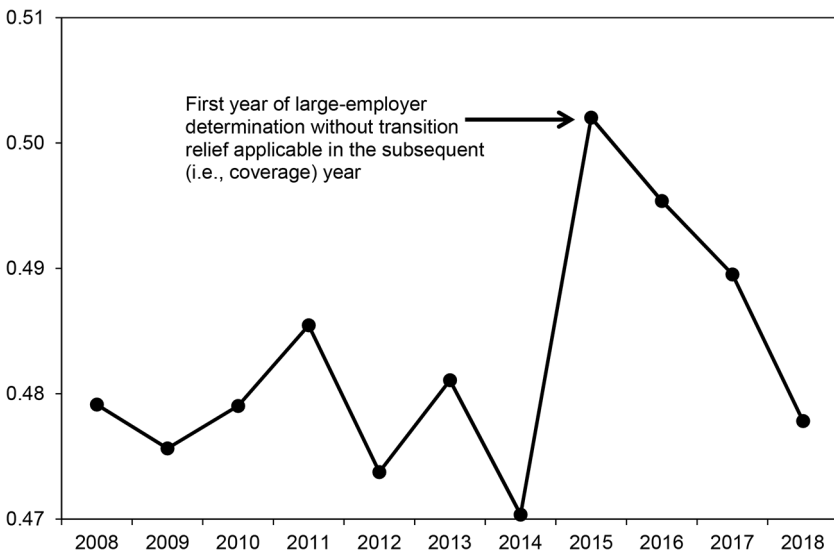

Fig. 1. Employees in firms with 25–49 employees, as a share of employees in firms with 25–99 employees (private sector insurance-employer component of the Medical Expenditure Panel Survey; full-time and part-time counted equally).

regulator measures and find large size distortions in the French economy. They do not link the distortions to specific regulations but instead focus on France where many size-dependent regulations are thought to be binding. One of their estimation methods is to compare the actual firm-size distribution to a Pareto distribution and measure the nonmonotonicity of the actual distribution in the neighborhood of the threshold.

Despite its measurement errors for this purpose, the MEPS-IC data (fig. 1) clearly show a change in the firm-size distribution coincident with the ACA's size provision and in the expected direction. The Mercatus-Mulligan data used in this paper have five measurement advantages that help further establish and quantify links between the ACA and firm-size distortions. First, it separately measures full- and part-time employment and therefore can produce good proxies for FTEs. Second, voluntary compliance—that is, offering employer-sponsored health insurance (ESI) even when exempt from the mandate—can be measured. This allows the measurement of size distortions to focus on businesses for which the employer mandate is binding. Third, the survey was not conducted at the corporate level and therefore did not require any corporation's approval to publish results. Rather, individuals were confidentially surveyed, and these individuals happened to be managers at businesses. If the sample aggregate happens to reveal politically incorrect business practices, such a finding cannot impugn any particular business. Fourth, the managers of the sample businesses were asked whether and how the law changed their hiring practices, with answers that can be compared with the size and compliance measurements obtained earlier in the survey. Fifth, because the ACA has proven to be a partisan issue, the survey was structured to complete all measurements of actual business activity, which get the most weight in my analysis, before the survey respondent was asked anything about the act itself. Moreover, the end of the survey asked about each respondent's political affiliation, which turned out to be almost exactly balanced between Democrat and Republican.

All measurement methods have some weaknesses in practice. The Mercatus-Mulligan survey was conducted only after the ACA and therefore cannot measure firms that went out of business because of, or at least coincident with, the law. Before-after analysis with the survey requires either using its retrospective questions or linking with other surveys, both of which are done in this paper. The respondents are drawn from a verified-respondents panel, which is an asset groomed by a commercial survey enterprise to economically provide accurate statistics to its clients. But the enterprise also involves confidential intellectual property,

which makes it difficult to simply model how respondents are ultimately drawn from the national population of small-business managers. The sample has more than 700 respondents but thousands of respondents would permit even more analysis to be done, such as accurately distinguishing the number of firms with 48 FTEs from those with 49. Also important is that the survey's strengths and weaknesses are unique relative to the government surveys and other measurement methods used to study the size distribution of businesses and the impact of regulations generally. The survey can thereby substantially contribute to the overall body of knowledge on these subjects by offering a new perspective that does not automatically inherit previous measurement weaknesses.

Section II of this paper briefly provides the quantitative details of the ACA's employer mandate. Section III has a simple cost-function framework for considering a business's trade-offs between changing its hiring practices versus its fringe-benefit offerings, especially as they relate to the propensity to offer ESI by size of business. The Mercatus-Mulligan sample details are provided in Section IV. Section V displays estimates of the nationwide prevalence of "49er" businesses, which are defined to be small businesses that have fewer than 50 FTEs for the purpose of avoiding employer-penalty assessments. Section VI concludes.

The Mercatus-Mulligan survey instrument and additional summary statistics are provided in appendix I of an early version of this paper (Mulligan 2017). Appendix II of that paper details the construction of an independent variable used in some of this paper's analysis.

II.   ACA Background

Multiple components of the ACA can affect employment and the composition of employee compensation: premium tax credits, cost-sharing subsidies, Medicaid expansions, the individual mandate, the employer mandate, and the small employer health tax credit. Except in the increasingly rare cases in which part-time positions are eligible for ESI too, an employee (and family) at a firm that offers affordable coverage would be eligible for premium tax credits and cost-sharing subsidies (hereafter, "exchange subsidies") only if the employee worked part-time, or not at all, which reduces his or her willingness to supply full-time labor to employers offering affordable coverage. This can discourage employers from offering coverage. A Medicaid expansion can encourage or discourage earning income. The individual mandate, which imposed a monetary income-based penalty on nonpoor households that fail to purchase

coverage when it is affordable, might have discouraged households from earning income but encouraged workers to supply their labor to businesses offering coverage rather than to those not offering it.

The employer mandate, which is the focus of this paper, is also designed to encourage people to enroll in health insurance. However, unlike the other ACA components, the employer mandate is enforced based on the size of the employer and is therefore expected to affect the distribution of employment and health insurance offerings across employers according to their size.

Federal statutes and regulations specify that the employer mandate is enforced in four steps, ordered chronologically in what follows, and terminated with either a Section 4980H(a) penalty or a Section 4980H(b) penalty. First, an employer is designated as large or small based on its FTE employment in the calendar year prior to the coverage year, with 50 as the cutoff.[2] Part-time employees (less than 30 hours per week) count toward FTEs in proportion to their hours worked.[3] Employers self-designate themselves as large. Second, at the conclusion of the coverage year, large employers use Internal Revenue Service (IRS) Form 1094-C to indicate, by month, full-time employment, total employment, and whether minimum essential coverage was offered to "at least 95% of its full-time employees and their dependents" (8). They use Form 1095-C to list, by month, the required employee contribution for that coverage and the name (Social Security number, etc.) of each employee enrolled (US Department of Treasury, Internal Revenue Service 2017). Third (and perhaps chronologically overlapping with the coverage year and the employer submissions of IRS Forms 1094-C and 1095-C), the Department of Health and Human Services notifies employers (Federally Facilitated Marketplace [FFM] notices) about their employees and dependents who were deemed eligible to receive exchange subsidies during the coverage year.

Fourth, the IRS uses the FFM notices (or similar information contained in IRS Form 8962) together with Forms 1094-C and 1095-C to determine each large employer's penalty, if any, and communicates that determination to employers with IRS Letter 226-J.[4] No penalty is owed by small employers, employers without Letter 226-J, or employers with only plan-ineligible employees (especially part-time employees) listed on their Letter 226-J. Employers offering minimum essential coverage do not owe any Section 4980H(a) penalty. Employers not offering minimum essential coverage do not owe any Section 4980H(b) penalty.

For coverage year 2017, the 4980H(a) penalty is $2,265 per full-time employee (the first 30 full-time employees are exempt) on the payroll during

the coverage year, prorated by month. The 4980H(b) penalty is $3,398 for each full-time employee that appears on the Letter 226-J, capped at $2,265 per full-time employee on the payroll during the coverage year.[5] Neither penalty is deductible from the employer's business-income tax, which makes it more expensive than the same dollar amount paid as employee salary. Table 1 shows how the salary equivalent of the Section 4980H(a) penalty, hereafter referred to as "the employer penalty," is $3,449 for an employer paying business-income tax at a 39% marginal rate in 2017. Hereafter I refer to the amount of the employer penalty in terms of a salary equivalent.

Ignoring Letter 226-J for the moment, the employer penalty adds an extra marginal employer cost to having full-time employees during the coverage year, which, in 2017, is the minimum of $3,449 and the cost of offering affordable coverage to the employee.[6] The same penalty also creates a cost of having more than 50 FTE employees in the year prior to the coverage year. In particular, the prior-year hire that triggers the large-employer designation—puts FTEs above 50—costs as much as $68,987 in addition to the usual salary and benefits for that person.[7] The large-employer designation costs less than $68,987 to the degree that the employer's FTEs include plan-ineligible employees, such as part-time workers or new hires who spend parts of the year in employee-orientation or plan-waiting periods, or that the business faces a marginal income tax rate less than the 39% rate used in table 1.

At first glance, it might appear that the true marginal cost associated with the large-employer designation is less because an employer hiring the fiftieth FTE during the coverage year could get "lucky" and have no

Table 1
The Salary Equivalent of the 2017 Employer Penalty

	Scenario	
Expense Items	Penalty Imposed	Salary Raised
2017 ACA penalty	2,265	0
Salaries	0	3,449
Payroll tax[a]	0	264
Business-income taxes[b]	0	−1,448
Net result for employer expenses including taxes ($)	2,265	2,265

Sources: Mulligan (2015) and 81 FR 12282.
Note: ACA = Affordable Care Act.
[a]7.65% rate.
[b]39% rate.

full-time employees show up on the Letter 226-J (to be delivered in the year after the coverage year, or later). But in that contingency, a higher marginal cost of the fifty-first FTE exists because the fifty-first may be the person who appears on a Letter 226-J, thereby triggering a penalty for up to 21 full-time employees rather than just 20.[8] For the purposes of this paper, it is worth noting that Letters 226-J to some degree smooth out the threshold effect and put somewhat more weight on full-time employment than part-time employment, even for the purposes of the large-employer designation.

The employer penalty is complicated to enforce. As a result, the IRS did not enforce any penalty for coverage year 2014 (large-employer designation in 2013) and set the threshold at 100 FTEs for coverage year 2015 (US Internal Revenue Service 2015). IRS Letter 226-J for coverage year 2016 (large-employer designation in 2015, the first year when the threshold was 50 FTEs) was not sent to employers until late 2018 and it has yet to be shown whether the employer penalty will collect the expected revenue (Sheen 2018). In 2017, Republicans in Congress and in the executive branch came close to repealing the entire ACA and the ongoing *Texas v. Azar* federal court case might invalidate it. To the extent that the employer penalty is on a path to repeal or weak enforcement, the penalty's size distortion may decline over time (recall fig. 1).

The small employer health tax credit is based on employer size but, unlike the employer penalty, it does not have a sharp size threshold because the credit is phased out continuously with size (between 10 and 25 FTEs) and with average annual employee wage (between about $26,000 and $52,000; US Government Accountability Office 2012, table 2). Moreover, credit participation has been reported as "limited." Mulligan (2017, app. I) contributes some new data on this point.

III.   Modeling the Distribution of Labor-Market Outcomes

The structure of the employer penalty potentially causes businesses that would otherwise be designated as large businesses (50 or more FTEs) to keep their employment below the threshold. A simple cost-function analysis shows how, in theory (a) the ACA penalty creates this incentive; (b) compliance—that is, offering ESI—is nonmonotonic with employer size around the threshold; and (c) the mass of firms below the threshold are a mix of those that would and would not offer ESI absent the ACA.[9]

A.   The Costs of Compliance and Penalty Avoidance

Each employer has an efficient size v, measured as FTEs. Its actual size, also measured in FTEs, is n and its associated costs are $f(n - v)$, where f is a convex function having its minimum at $n - v = 0$.[10] The employer can offer ESI at cost $\delta(v)$, net of the willingness of employees to pay for that coverage via less cash compensation. The term δ presumably varies across employers, even conditional on v. It can be negative, in which case the joint surplus of the employer and employee (including any pre-ACA income tax advantages) is enhanced when coverage is offered. The term δ also includes administrative costs and insurance-premium loads, and the scale economies often present on these types of costs suggest that (a) δ and v would be negatively correlated across employers and (b) larger employers are more likely to offer ESI. Item (b) has been frequently observed (Henry J. Kaiser Foundation and Health Research and Educational Trust 2012) and is confirmed in this paper's new data.

Absent the ACA, the firm's only costs are $f(n - v) + \delta(v)\text{ESI}$, so that cost-minimizing FTEs is $n = v$, and the cost-minimizing offer decision is simply the indicator of whether $\delta < 0$. Because the $\delta < 0$ businesses offer ESI even without the ACA, they might be considered voluntary compliers with the stated purpose of the ACA's employer mandate. The $\delta > 0$ businesses do not voluntarily comply: they do not offer ESI without an additional pecuniary incentive. To compete in the market for labor, they also pay greater cash compensation (holding constant worker characteristics) than the $\delta < 0$ employers do.

With the ACA, there are two additional costs to consider: the employer penalty $L(n)(n - 30)\tau_n$ and an additional cost of ESI, $\tau_e n$:

$$c(n, \text{ESI}; v, \delta) = f(n - v) + (1 - \text{ESI})L(n)(n - 30)\tau_n + (\delta(v) + \tau_e n)\text{ESI}, \quad (1)$$

where $L(n)$ is an indicator for large-employer status ($n \geq 50$). The rate τ_n would be \$3,449 for an employer with no part-time employees. The static model here ignores the distinction between coverage year and prior year and does not account for zero marginal penalty for large employers that nonetheless have fewer than 30 full-time employees.

The constant $\tau_e > 0$ multiplies n, representing an impact of the ACA on the supply of workers to employers offering ESI. For example, households that are otherwise eligible for exchange subsidies are less willing to supply labor to firms offering coverage. Even without subsidies, exchange coverage is a health insurance alternative to ESI that is created

by the ACA. The ACA's additional regulation of employer plans may also discourage ESI. The term τ_e would be negative if the individual mandate were encouraging households to supply labor to ESI firms rather than non-ESI firms (e.g., the individual mandate and the perception that exchange coverage is a poor substitute for ESI may push households in that direction). Also note that, unlike τ_n, part of τ_e could be a marginal cost to an industry without affecting the size of suppliers within that industry because it causes suppliers to exit. A fuller analysis would also consider the decision to split a larger business into multiple small ones and give more emphasis to the case in which the shift of labor supply away from ESI employers was greater in magnitude than τ_n, but for simplicity I keep the number of businesses constant and give most of the attention to the case in which τ_e is less than τ_n.[11]

When not offering ESI, the cost function is discontinuous in FTEs at the $n = 50$ threshold between small and large businesses, where it jumps by $20\tau_n$. Businesses not offering ESI that would otherwise be large can sharply reduce their costs by cutting their employment below the threshold. Moreover, because $\tau_e > 0$ by itself raises the cost of ESI, some businesses that would be large and offering ESI but for the ACA may be induced by the law to drop ESI (compensated by an increase in cash pay) and reduce FTEs below the threshold. I refer to either type of business as a "49er" because 49 is the largest integer number of FTEs that is below the $n = 50$ threshold.[12] By this definition, 49ers are not offering ESI under the ACA.

B.   The Propensity to Comply by Size of Business

Presumably, 49er businesses are the ones with v above but relatively close to 50. Therefore, this model predicts that the ACA can increase the ESI propensity of businesses with FTEs above but close to 50 for two reasons: $\tau_n > 0$ reduces the cost of ESI for large businesses and $\tau_n > 0$ eliminates 49ers, which disproportionately would not be offering ESI absent the ACA, from the sample of businesses with FTEs above but close to 50.

On the other side of the $n = 50$ threshold, the ESI propensity is low for two reasons: $\tau_e > 0$ increases the cost of ESI and the introduction of the 49ers that, by definition, would otherwise be large businesses. If we assume that 49ers have v greater than but close to 50 FTEs and ultimately have n less than but close to 50, then the ESI propensity is nonmonotonic in size: it is especially low just below $n = 50$ and especially high just above it. This pattern is obvious in my data.

In addition to the two types of 49ers, seven other types of responses to the ACA are possible in this model: (a) small businesses with no response in employment or ESI offering; (b) small businesses that keep employment constant but drop ESI due to $\tau_e > 0$;[13] (c) small businesses that add ESI and reduce employment due to the marginal cost of employment $\tau_e > 0$;[14] (d) small businesses that keep ESI but reduce employment due to the marginal cost of employment $\tau_e > 0$; (e) relatively large businesses that marginally reduce employment due to the marginal cost $\tau_n > 0$, but still staying above the threshold and not offering ESI; (f) large businesses that are induced by the ACA to offer ESI but also marginally reduce employment; and (g) large businesses that offer ESI regardless of the ACA and marginally reduce employment due to $\tau_e > 0$.

IV. Survey Design

I estimate the national number of 49ers using a small-business survey that was conducted by Hanover Research for the Mercatus Center at George Mason University, hereafter the "Mercatus-Mulligan survey." Hanover was instructed to survey managers or owners employed full-time at a business that existed in both 2016 and at the time of the survey (the week of March 13–17, 2017) and had between 2 and 199 full-time employees. The survey respondents must, at the time of the survey, have a role in the businesses' hiring and employee-benefit decisions. The sampling began by identifying members of a verified-respondents panel whose personal information indicated that they likely fit the required respondent profile.[15] A random sample of identified panel members was invited by email to participate in the survey and receive a reward for completion. A survey was terminated early, and any responses excluded from the sample, if responses to one of the first eight questions indicated that the respondent did not fit the aforementioned profile. Hanover further excluded about 15% of respondents from its final sample of 745 because the respondent (a) completed the survey too quickly, (b) flat or straight-lined through the responses (e.g., always chose answer "A"), or (c) gave nonsense answers to the open-ended questions. Respondents provided their answers online at their convenience (typically in the early evening) and were permitted to take a long pause during their survey. Including the long pauses, the median (average) survey duration was 13 (26) minutes, respectively. The sampling was stratified between business sizes 2–49 and 50–199: in principle, invitations to one of the strata would cease if that strata were significantly larger than the other.

However, in this survey no action was taken to rebalance the strata because the two were of similar size throughout the survey week.[16]

Respondents appeared to work or reside in 47 states plus the District of Columbia.[17] They worked in a variety of industries, as shown in Mulligan (2017, app. I). Almost exactly equal numbers of respondents indicated that they more frequently vote Democrat versus Republican.[18] Hereafter, I use "respondent" to refer to either the individual employee who completed the survey or the entire business.

I also note that, because the survey was individual based, a business's probability of inclusion in the sample increased with the number of employees it had fulfilling the respondent criteria. To estimate an employment-weighted average for the national population of businesses, I therefore take the corresponding unweighted average in the Mercatus-Mulligan sample. To estimate an average for the business population, I take weighted sample averages, where the weights are the inverse of the sample businesses' total employment. The former case is illustrated in figure 2, which shows the fraction of aggregate small-business employment in each business-size category (classified by total employment in 2016) in the sample and compares it with the national distribution in 2014, which is the most recent year available.[19] The Mercatus-Mulligan series shown in figure 2 is just the unweighted sample frequency, whereas the Census Bureau series
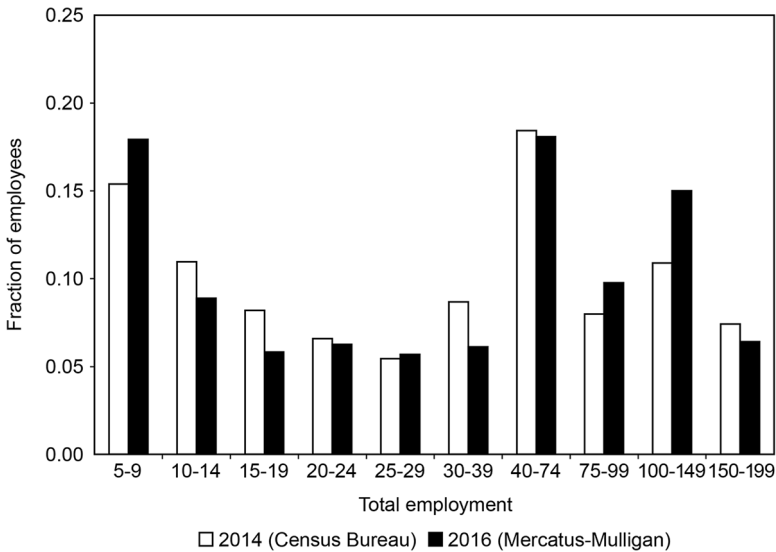

Fig. 2.   The size distribution of employers having 5–199 employees

is taken from its employment table rather than its business-count table. Further discussion and illustrations are provided in Mulligan (2017, app. I).

V.   Estimates of the Number of 49ers Created by the ACA

The Mercatus-Mulligan survey separately measured firm-level full-time and part-time employment, as defined by the ACA, for calendar year 2016. They were measured in brackets: 0, 1–4, 5–9, 10–14, 15–19, 20–24, 25–29, 30–34, 35–39, 40–49, 50–74, 75–99, 100–49, 150–99, and 200+.[20] Full-time employment was also measured at the time of the survey (March 2017). These brackets were finer than those available from MEPS-IC public tabulations (recall fig. 1), but even so total employment and full-time-equivalent employment can therefore only be approximated.

A.   Before-After Estimates from Total Employment Measures

The Mercatus-Mulligan survey does not measure employment before the implementation of the employer mandate. Using the survey as part of a before-after estimate of the number of 49er businesses therefore requires combining it with earlier and comparable data on the size distribution of small businesses. The Census Bureau's business survey of 2012 is one such survey, because it uses firm-level size bins although it measures total employment rather than FTEs or their components.[21]

Figure 2 suggests that there is little change in the size distribution if the 40–49 bracket is combined with the 50–74 bracket. However, the 40–74 total employment bracket has become more intensive in businesses with 40–49 employees. The Mercatus-Mulligan sample-share point estimate is 0.45, which is remarkably greater than 0.37 for 2012.[22] This is essentially the same result as the MEPS-IC before-after result in figure 1, except with different source data that have finer size bins.

Because any business with at least one part-time employee has total employment greater than its FTEs, an employer can change from large to small by the ACA's definition without going below 50 total employees. In other words, a 49er business is by definition to the left of the 50-FTE threshold even though it can be on either side of the 50-employee threshold. The 49ers to the right of that threshold do not affect the amount of employment at businesses with fewer than 50 total employees except to the extent that the workers who are let go (or not hired) are absorbed by a business that does have less than 50 total employees. If we had an estimate of the impact of the employer mandate on the amount of employment by businesses with, say, 40–49 employees, that would be a lower

bound on prevalence of 49er businesses as measured by their combined employment.

The first four rows of table 2 show estimates of this type derived from the Mercatus-Mulligan–Census Bureau comparison discussed earlier (first column) and from the MEPS-IC (second column). The first column takes the Mercatus-Mulligan estimate of national employment by businesses sized 40–49 and subtracts what it would have been if it had grown from its level in 2012 (as measured by the Census Bureau) at the same rate as national payroll employment (7.6%), with a result of 636,842 extra employees. If we attribute these extra employees to 49er businesses with less than 50 employees, and they average 40 employees each, then there were 15,921 49er businesses with less than 50 employees in 2016. The second column repeats the exercise with the MEPS-IC but uses the 25–49 bracket and compares 2015–16 with 2013–14.

Table 2
Estimates of Threshold Crossings from Total Employment Data; Before-After Estimates

	MM/Census Bureau	MEPS-IC
49er businesses with fewer than 50 employees:		
Employment before	2,772,015	7,850,967
Employment after, projected with		
aggregate employment from before	2,981,318	8,159,201
Employment after, actual	3,618,161	8,560,443
Employment gap (= actual – projected)	636,842	401,242
Businesses, at 40 employees per business	15,921	10,031
Businesses, at 45 employees per business	14,152	8,916
49er businesses with 50 or more employees:		
Aggregate employees eliminated (assumption A)	NA	399,158
Number at 10 positions eliminated per business		
(assumption A)		39,916
Aggregate employees eliminated (assumption B)	NA	192,657
Number at 10 positions eliminated per business		
(assumption B)		19,266
Total number of 49er businesses:		
Assumption B, with 45 average employment		
below 50	NA	28,182
Assumption A, with 40 average employment		
below 50	NA	49,947

Sources: Mercatus-Mulligan (MM) survey, Census Bureau, insurance-employer component of the Medical Expenditure Panel Survey (MEPS-IC), St. Louis FRED series PAYEMS. Note: MM/Census Bureau uses brackets 40–49 and 50–74. MEPS-IC uses 25–49 and 50–99. MM/Census uses the years 2012 and 2016. MEPS-IC uses 2013–14 and 2015–16. Assumption A: employment per business would have grown the same 50–99 as for the entire labor market (2.3%). Assumption B: employment per business among 50–99 would have been the same as in 2013–14. NA = not available.

The estimates in the top panel of table 2 have a couple of potential sources of error. One is that the total employment data do not show exactly what 40–49 or 25–49 employment would have been without the employer mandate and therefore do not show the exact impact of the mandate on employment in the categories. Even if we knew the impact on employment in those categories, it would be different from the employment of the 49er businesses because the employer mandate presumably has a nonzero effect on the employment of, say, businesses sized 40–49 that are not 49er businesses. I interpret that top panel as an order-of-magnitude check on what this paper's cross-sectional estimates show. We may also be concerned about changes in the size distribution during a business cycle recovery, although figure 1 suggests that the size distribution shifted in the other (rightward) direction during the recovery years 2011–14 and may have continued to shift that way after 2015.

Because most small businesses have part-time employees, there are likely more 49er businesses with at least 50 employees than with less than 50 employees. Estimating the number of 49er businesses having at least 50 employees is, with these data, even more difficult because (a) those businesses do not change total employment categories and (b) the two types of 49ers have offsetting effects on average employment of the 49er businesses with at least 50 total employees.[23] The middle panel of table 2 reports how much extra the businesses sized 50–99 would have to hire for employees per business in that group to have increased from 2013–14 either at the same rate as the entire labor market (assumption A) or at a zero rate (assumption B).[24] The extra employees reflect the activities of both types of 49ers as well as the activities of the non-49er businesses in the 50–99 size category. The smaller 49ers presumably would have had fewer employees than the average business sized 50–99 and thereby raise the average by leaving the category. The non-49ers may also be reducing average employees per business because the employer penalty is a tax on full-time employment. If these two cancel, then the entries in the middle panel of table 2 are estimates of the aggregate number of positions removed by the 49er businesses that have at least 50 employees. If we further assume that the average 49er business with at least 50 employees reduced employment by 10, then we can divide by 10 to get estimates of the number of 49er businesses that have at least 50 employees.

Overall, these back-of-the-envelope calculations with time series on total employment suggest that there are roughly 28,000–50,000 49er businesses, with roughly 9,000–16,000 of them having fewer than 50 total

employees. As expected, 49ers are difficult to detect with total employment measures.

B.   Estimates Using Compliance Rates

An accurate assessment of the impact of regulation on the size distribution of businesses requires size measures that closely approximate how size is measured by the regulation, which in the case of the ACA is FTEs. Even with FTE measures, detecting an economically meaningful number of 49er businesses—say, 10% of all businesses that would otherwise have 50–74 FTEs—is a statistical challenge because the mandate presumably does not bind for the majority of businesses that would offer health insurance coverage regardless of the mandate. These challenges have been cited in previous research of the effect of regulation on the size distribution of businesses (Gourio and Roys 2014; Garicano et al. 2016).

The Mercatus-Mulligan survey has an advantage in measuring voluntary compliance. Table 3's top row shows that 64% of small businesses were offering ESI at the time of the survey.[25] Weighted by employment, the percentage is 74. The bars in figure 3 display the propensity to comply

Table 3
The Propensity to Offer Employer-Sponsored Health Insurance (ESI) in Various Subsamples

Time Frame and Subsample of Small Businesses	Percentage of Businesses Offering	Percentage of 2016 Employees at Businesses Offering
In March 2017, among the entire sample	64	74
In March 2017, among those not offering in 2013	45	71
In 2013, among those not offering in March 2017	44	67
In 2013, among the entire sample	63	70
ESI Change	**Percentage of Small Businesses**	**Percentage of 2016 Employees at Small Businesses**
Dropped ESI in the past 6 months	5	6
Added ESI in the past 6 months	<1	<1

Source: Mercatus-Mulligan survey.
Note: A small business is defined as any business having 2–199 full-time employees.
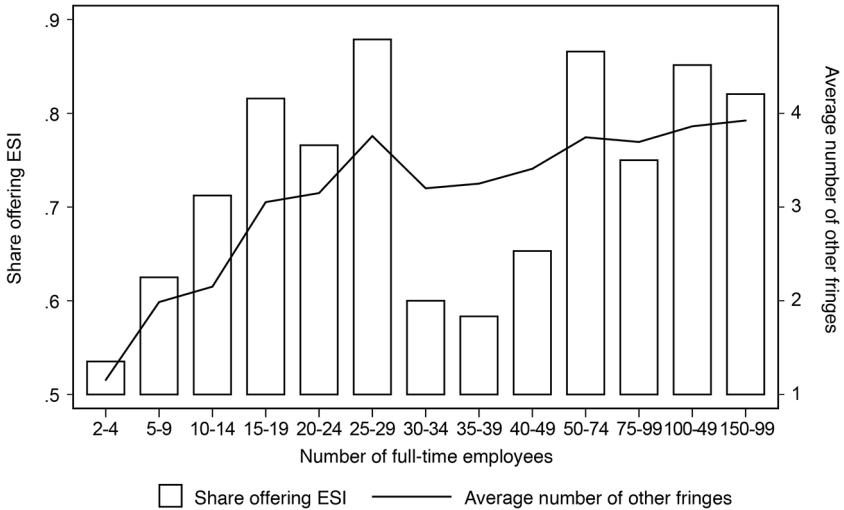
Fig. 3. Non-ESI firms stay below 50 full-time employees. ESI firms do not. Measured in March 2017 by the Mercatus-Mulligan survey. ESI = employer-sponsored health insurance.

by business size, measured as the bracketed number of full-time employees at the time of the survey. Compliance includes voluntary compliance, that is, any business that offers health insurance coverage to its employees even though it is exempt from the mandate. Notice how the compliance propensity dips sharply between 30 and 49 full-time employees. One of the tallest bars in the chart is the one that begins at 50 full-time employees.

Even without the ACA, the propensity to offer ESI is expected to increase with business size. I adjust for this by counting the number of other fringe benefits that each sample respondent offers.[26] As shown by figure 3's solid series, this number is a smoother function of business size and increases with size in almost every instance.

Figure 3's pattern can be detected in a regression framework by regressing an indicator variable for ESI on indicator variables for the size brackets between 30 and 49, the number of other fringe benefits, the business's median annual salary of nonmanagement full-time employees, and industry indicator variables. As shown in table 4's ordinary least squares (OLS) column, the indicator coefficients range from –0.12 to –0.20, which is about the dip shown in figure 3.

The other fringes variable is economically and statistically significant. The interquartile range for that variable is 4, which by itself explains 20 percentage points of ESI propensity. As shown in figure 3, 20 percentage points is comparable to what can be explained with business size.

Table 4
The Propensity to Offer Employer-Sponsored Health Insurance (ESI) by Employer Size

Regressor		ESI at the Time of the Survey						ESI in 2013		Drop ESI in 2017
	OLS	TSLS1	TSLS1	TSLS1	TSLS2	TSLS3		TSLS1	TSLS3	TSLS1
				Size Regressors						
Probability of having 30–49 FTEs in 2016		−.267 (.099)	−.256 (.100)	−.288 (.098)	−.176 (.083)	−.079 (.095)		.075 (.100)	.011 (.097)	.168 (.056)
Have 30–34 full-time employees at the time of the survey	−.14 (.10)									
Have 34–39 full-time employees at the time of the survey	−.20 (.12)									
Have 40–49 full-time employees at the time of the survey	−.12 (.06)									
				Other Regressors						
Number of other fringe benefits offered	.05 (.01)	.05 (.01)	.05 (.01)	.03 (.01)	.05 (.01)	.05 (.01)		.06 (.01)	.06 (.01)	.00 (.00)
Dental benefit offered				.20 (.04)						
Median annual salary of full-time nonsupervisory employees ($10,000s)	00.00 (.01)	00.00 (.01)	00.00 (.01)	00.00 (.01)	00.00 (.01)	00.00 (.01)		00.00 (.01)	00.00 (.01)	.01 (00.00)
Nineteen industry indicators	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Adjusted R^2	.089									
Observations	745	745	745	745	745	745		745	745	745

Source: From the March 2017 Mercatus–Mulligan Survey.

Note: Dependent variable is an indicator for offering ESI. The TSLS1 specification treats the probability variable as an endogenous variable, instrumenting it with the three time-of-survey size indicators (as well as the other regressors shown). TSLS2 is the same, except also using 2016 size indicators. TSLS3 excludes the time-of-survey size indicators. An employer is coded as having ESI in 2013 if and only if it (a) did not have ESI at the interview (March 2017) but had discontinued it recently or (b) it had ESI at the interview and had it for at least 3 years. Italics indicate that dental benefits are excluded. OLS standard errors are in parentheses. OLS = ordinary least squares; FTE = full-time-equivalent employee.

This result is probably unsurprising because both employer and employee characteristics pushing toward ESI (business size, employee-family situations, etc.) tend also to push toward offering other fringe benefits.

The OLS coefficients on size still do not fully reflect the prevalence of 49ers because some of them might have had fewer than 50 full-time employees even without the ACA. The ideal size regressor would be an indicator of having 30–49 FTEs, with no measurement errors. It is only possible with the Mercatus-Mulligan survey to measure the probability that a respondent has 30–49 FTEs, which can differ from zero and one (and thereby imperfectly measuring the ideal), because the numbers of full- and part-time employees are measured in brackets that contain more than one integer. The remainder of table 4 therefore addresses the measurement error by using instrumental variables for the probability measure.[27]

The probability (of having 30–49 FTEs) measure is assigned to each business based on its brackets for full- and part-time employment. The probability assignment is done in three steps: (1) assigning a probability of each integer number of full-time employees 10, 11, . . . , 199 from the reported bracket and assuming that size is distributed Pareto within brackets, (2) assigning a probability of each integer number of part-time employees 0, 1, . . . , 249 from the reported bracket and assuming that size is distributed Pareto within brackets, and (3) forming a joint distribution by assuming within-bracket independence between full- and part-time employment. Assuming each part-time employee is 2/3 FTE, the joint distribution assigns each sample respondent a probability of FTEs in the interval [30, 50]. See Mulligan (2017, app. II) for additional details.

The probability is then used as a regressor in the ESI equations, using full-time employment bracket indicators as instrumental variables. The two-stage least squares estimates are shown in the second column of table 4. The estimated coefficient on the probability variable is –0.267, which suggests that businesses with 30–49 FTEs are 26.7 percentage points less likely to offer ESI, holding constant the other regressors. This is almost twice as much as the coefficients shown in the OLS column, which is expected given that full-time employment is not the same as FTEs and the latter is what designates an employer as large for penalty purposes. Either of these is suggesting that, weighted by employment, businesses with size close to but below the threshold are 12%–27% less likely to be offering coverage. I interpret these extra non-ESI employers as the 49ers.

Although not shown in the table, the coefficient on the probability variable would, transformed to a marginal effect at the sample means, also be –0.27 if the second column were estimated as a probit rather than

a linear probability variable. Results are similar if the dental benefit is omitted or entered separately from the other non-ESI benefits (third and fourth columns of the table). The probability variable's coefficient is somewhat closer to zero if 2016 size indicators are also used in the first-stage regression (see the TSLS2 column). The TSLS3 column shows no statistically significant effect when the only first-stage size indicators are from 2016, and the point estimate is about a third of what it is with TSLS1. As the reader might guess from figure 3, results are quite different if a threshold of 75 or 100 is used instead of 50, which is to be expected because the ACA's threshold is 50 rather than 75 or 100.

As discussed in Section II, the FTE threshold applies in the calendar year prior to the coverage year. For this reason, my preferred specifications measure ESI at the time of the survey (March 2017) and relate it to the FTE threshold in the prior calendar year (2016). At the same time, measurement error in the probability variable and its ingredients (e.g., respondents have imperfect recall or interpret the meaning of the workforce question somewhat differently than the ACA measures the FTEs) suggests that its ingredients should not be used to predict it in the first-stage regressions. This is why table 4's TSLS1 specifications exclude the 2016 full-time indicators, except as ingredients to constructing the probability variable.[28]

Table 5 shows the arithmetic for translating the regression coefficient into an estimate of the national total number of 49er businesses, regardless of whether their total employment is more or less than 50. Limiting the Mercatus-Mulligan sample to 5–199 total employees, the sample average probability variable is .141 as shown in row (2). The 2014 Census Bureau data, scaled to 2016 using national payroll employment over that period, suggest that there are 44 million people nationally who worked in 2016 for employers sized 5–199 (total employment). Multiplying the two, we have about 6 million people nationally who worked for employers with 30–49 FTEs, as shown in row (6). Interpreting the coefficient of –0.267 (second column of table 4) as indicating 49ers, that makes 1.7 million employees at 38,327 49er businesses nationwide. Table 5's bottom line of 38,327 is fairly consistent with the rougher before-after estimates shown in table 2.

C. *ESI Transitions*

Table 3 shows that it was uncommon for businesses to be without ESI in both 2013 and at the time of the survey. With this much ESI-status transition, not to mention size transition, we expect 2016 or time-of-survey

Table 5
The Nationwide Prevalence of 49er Businesses

Statistic	Source	Value
(1) "Excess ESI" conditional on 30–49 FTEs in 2016	Table 4	−.267
(2) Probability of having 30–49 FTEs in 2016, among businesses having total employment between 5 and 199, employment weighted	Mercatus-Mulligan survey, simple average	.141
(3) 2014 national employment by businesses 5–199	Census Bureau	42,679,871
(4) 2014 national payroll employment	Bureau of Labor Statistics	138,958,000
(5) 2016 national payroll employment	Bureau of Labor Statistics	144,306,000
(6) 2016 national employment at businesses with 30–49 FTEs	(2) × (3) × (5)/(4)	6,227,595
(7) Employment at the businesses with "excess ESI"	(1) × (6)	−1,664,523
(8) Average employment at businesses with 30–49 FTEs in 2016	Mercatus-Mulligan survey, average weighted by probability/(total employment)	43.4
(9) Number of 49er businesses in 2016	−(7)/(8)	38,327

Note: Row (9) varies proportionally with row (1). ESI = employer-sponsored health insurance; FTE = full-time-equivalent employee.

size to poorly predict ESI in 2013. The final three columns of table 4 confirm this, although perhaps it is surprising that the probability-variable point estimates are not negative as in the table's previous five columns.

Table 3 shows that it was rare for small businesses to add ESI in the 6 months prior to the survey.[29] It was more common to drop ESI in that time frame. Table 4's final column suggests that dropping ESI is especially common for businesses with between 30 and 49 FTEs in 2016. Indeed, if we compare that column's probability-variable coefficient with the second column, it suggests that more than half (16.8 of 26.7) of the extra non-ESI businesses of that size recently dropped their ESI. This is consistent with the hypothesis that a number of businesses that would have been close to but above 50 FTEs are induced by the ACA to both (a) drop ESI because doing so permits their employees to receive exchange subsidies and (b) reduce their employment to avoid the employer penalty.[30]

D.   Employer Reports about the ACA's Effect on Their Hiring

The earlier results indicate that businesses near the 50-FTE threshold and not voluntarily offering ESI were reducing their hiring to avoid being penalized for failing to offer ESI. We can also check whether the managers at these businesses describe their hiring practices as responding to the ACA in this way because survey respondents were asked how "employment practices changed at your company as a result of the ACA." They were given multiple answer choices and could choose more than one.

For the purposes of regression analysis, I summed indicators for the replies "Yes, we are reducing hours for new employees," "Yes, we are reducing hours for existing employees," "Yes, we are hiring more employees at part-time status rather than full-time status," or "Yes, we are hiring fewer employees." I also formed an indicator variable as the disjunction of these four answers. The overall sample means of the counting and indicator variables are 0.46 and 0.34, respectively.[31]

Table 6 is much the same as table 4, except in using these two reduced-hiring measures as dependent variables. The coefficients on the FTE-probability variables are economically and statistically significant. In other words, businesses just below the 50-FTE threshold are disproportionately reporting that the ACA caused them to reduce hiring.

For the Mercatus-Mulligan survey summary statistics, see table 3's averages of offering and changing coverage. Table 5's row (2) shows the average propensity to have 30–49 FTEs in 2016. Table 7 displays additional sample summary statistics.

Table 6
Employer Reports of the Affordable Care Act's (ACA) Impact, by Employer Size

Regressor	Counting Variable				Indicator Variable		
	OLS	TSLS1	TSLS2	TSLS3	TSLS1	TSLS2	TSLS3
				Size Regressors			
Probability of having 30–49 FTEs in 2016		.421 (.169)	.303 (.142)	.243 (.163)	.264 (.109)	.187 (.092)	.156 (.105)
Have 30–34 full-time employees at the time of the survey	.55 (.16)						
Have 34–39 full-time employees at the time of the survey	–.19 (.21)						
Have 40–49 full-time employees at the time of the survey	.22 (.11)						
				Other Regressors			
Number of other fringe benefits offered	.03 (.01)	.03 (.01)	.03 (.01)	.03 (.01)	.01 (.01)	.01 (.01)	.02 (.01)
Dental benefit offered							
Median annual salary of full-time nonsupervisory employees ($10,000s)	.04 (.01)	.04 (.01)	.04 (.01)	.04 (.01)	.03 (.01)	.03 (.01)	.03 (.01)
19 industry indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	.046						
Observations	745	745	745	745	745	745	745

Note: Dependent variable counts responses for reducing hours and reduced hiring "as a result of the ACA." The TSLS1 specification treats the probability variable as an endogenous variable, instrumenting it with the three time-of-survey size indicators (as well as the other regressors shown). TSLS2 is the same, except also using 2016 size indicators. TSLS3 excludes the time-of-survey size indicators. The indicator variable counts each respondent at most once, even if they replied both reducing hours and hiring. OLS standard errors are in parentheses. OLS = ordinary least squares; FTE = full-time-equivalent employee.

Table 7
Summary Statistics for the March 2017 Mercatus-Mulligan Survey

Variable	Observations	Mean	Median	Standard Deviation	Minimum	Maximum
Number of fringe benefits offered (not counting ESI)	745	3.07	3	2.23	0	9
Offer dental plan	745	.55	1	.50	0	1
Median annual salary of a typical nonmanagement full-time employee	745	52,195	48,000	23,148	0	100,000

Source: Mulligan-Mercatus survey.
Note: See also Tables 3 and 5. ESI = employer-sponsored health insurance.

E.   The Number of Positions Absent from 49er Businesses

The national number of positions absent from 49er businesses is the product of the number of 49er businesses and the average number of extra positions that 49er businesses would have had but for the ACA. Without more information on how 49ers are formed—for example, how the cost function varies across businesses and whether (and why) a 49er business might choose a number of FTEs strictly less than 49 FTEs— the Mercatus-Mulligan sample is not well suited to estimate the latter. Table 8 therefore allows the reader to make an educated guess as to the average number of FTEs absent among 49ers and then look up a national number of positions absent. At an average of 6 FTEs per 49er, that makes roughly 250,000 positions eliminated nationwide at 49er businesses. At 10 FTEs per 49er, that is about 400,000 positions.

   Three external pieces of evidence suggest that the average number of absent FTEs per 49er exceeds 3 or 4 and could be as great as 10. First, most 49er businesses must have strictly fewer than 49 FTEs, because businesses with exactly 49 FTEs are too difficult to detect with the total employment data (recall fig. 1). Second, assuming that the distribution of FTEs but for the ACA would have been smooth, there are too many 49er businesses for all of them to have had exactly 50 or 51 FTEs but for the ACA. Otherwise, but for the ACA, there would be an extraordinary pile of businesses at 50 and 51 FTEs.

Table 8
Positions Absent from the 38,327 49er Businesses

Average Number of FTEs Eliminated or Not Created to Keep FTEs below 50, Conditional on Positive	National Number of Positions Absent	
	FTE	FT + PT
3	114,981	123,029
4	153,307	164,039
5	191,634	205,049
6	229,961	246,058
7	268,288	287,068
8	306,615	328,078
9	344,942	369,087
10	383,268	410,097
11	421,595	451,107
12	459,922	492,117

Source: Table 5.
Note: 1.07 positions (full- and part-time combined) are assumed for each FTE. FTE = full-time-equivalent employee; FT = full-time employee; PT = part-time employee.

Third, recall that table 2 also has estimates of aggregate positions eliminated by 49er businesses. Based on the MEPS-IC, table 2 shows that 192,657 fewer employees are found in 2015–16 in businesses sized 50–99 than would be found if those businesses had the same average employment as in 2013–14 (assumption B). The total is 399,158 if average employment had grown in proportion to the total labor market (assumption A). Note that these totals exclude the 49ers that have total employment less than 50, although I suspect that they are less numerous than the 49ers with 50 or more. The totals also include large businesses that marginally reduced their employment due to the penalty. With those caveats, we can estimate the average number of positions eliminated by 49ers by dividing table 2's middle panel aggregates by the number of 49er businesses with more than 50 employees. If that number is 20,000, then the average number of positions eliminated ranges from 10 (assumption B) to 20 (assumption A). At 40,000 businesses, the average number of positions eliminated ranges from 5 to 10.

Alternatively, we can directly estimate the aggregate number of positions eliminated with table 2's aggregates (middle panel). In other words, the MEPS-IC data suggest that 49er businesses eliminated between 192,657 and 399,158 positions, plus all of the positions eliminated by 49er businesses with less than 50 total employees, minus the positions eliminated by large employers. This range is consistent with the roughly 250,000 positions suggested by the Mercatus-Mulligan survey sample.

The elimination of 250,000 positions from 38,327 businesses is economically significant. Note that about 82,000 employers had 50–74 employees in 2014, and another 40,000 had 75–99 employees. About 5 million people were employed in businesses sized 50–74, and 8 million people were employed in businesses sized 50–99. Presumably their number and collective employment would have grown about 3% or 4% as did the aggregate labor market. The MEPS-IC shows that the business-size categories (by total employment) 50–99 and 100–999 actually grew at a significantly lower rate from 2013–14 to 2015–16 than did any of the other categories.[32]

Eliminating 250,000 positions is also significant by comparison with the scheduling effects of the ACA's employer mandate. Even and Macpherson (2015) and Dillender, Heinrich, and Houseman (2016) independently find that the ACA's employer mandate resulted in up to 1 million positions being scheduled as part-time (less than 30 hours per week) rather than full-time. If that result came from, say, reducing 35-hour weekly schedules to 29 hours per week, that is the aggregate hours equivalent of eliminating about 170,000 positions.[33]

VI.   Conclusions

This paper reports the first results of a new survey of 745 businesses with 2–199 full-time employees and their hiring and compensation practices. The paper focuses on the question of how many businesses are small, by the legal definition, solely because of the ACA's employer mandate: the 49ers. The stakes are large, because crossing the 50-FTE threshold from below, and without offering coverage, costs the salary equivalent of almost $70,000 per year in addition to the marginal employee's salary and benefits.

The paper uses three different methods and two different data sets to detect and begin to quantify the aggregate importance of this business-size distortion: before-after comparisons of business sizes, cross-sectional comparisons linked with employer benefit offerings, and employer descriptions of how the ACA affects their hiring. To my knowledge, this is the first paper to find a business-size distortion that is readily visible in aggregate US data. It is also unique, relative to the international literature on business-size distortions, that the distortion can be linked to a specific regulation beginning in a specific year with a precisely known monetary penalty for violations.

Before-after comparisons between the Census Bureau business survey and the Mercatus-Mulligan survey (table 2 and Sec. V.A) show little change in the size distribution of businesses between 2012 and 2016, except among businesses in the total employment range 40–74. Among the latter businesses, the employment percentage of those with less than 50 employees has increased from 37 to 45, and this does not count the fact that a number of 49ers reduce employment below 50 FTEs without reducing their total employment below 50. Annual time series from the MEPS-IC (fig. 1) show an extraordinary jump in the employment percentage of those with less than 50 employees, beginning in 2015, which is the same year when the large-employer designation began its 50-FTE threshold.

The size distortion is closely linked with whether a business offers ESI to its employees. Even by comparison with businesses employing fewer than 30 full-time workers, the propensity to offer ESI is low among employers with 30–49 full-time employees. The size of this dip in the ESI propensity (fig. 3 and table 4) indicates the prevalence of 49er businesses: they do not offer ESI and thereby keep employment low enough to avoid the ACA's large-employer designation. The cross-sectional finding is my second piece of evidence that the ACA's employer mandate is

pushing a significant number of businesses below the 50-FTE threshold. Arguably it is the strongest evidence because of the difficulty of explaining such a substantial nonmonotonic firm-size pattern apart from the ACA's 50-FTE rule.

My point estimate is that the United States has 38,327 49er businesses that collectively employ 1.7 million people. This translates to roughly 250,000 positions that are absent from 49er businesses because of the ACA, but the Mercatus-Mulligan sample by itself is not well suited for accurately assessing the average number of positions that the 38,327 49er businesses eliminated. The sample also indicates that businesses continue to adjust their employment over time. For example, many of them reported that, because of the ACA, they hire fewer workers, or at least fewer full-time workers, but tried not to adjust the situations of their existing employees. If the ACA and the perceived penalties associated with its employer mandate remain constant, perhaps the prevalence of 49er businesses will increase over time.

By definition, the 49er businesses have less than 50 FTEs and do not offer ESI. But it appears that a majority of them had been offering it in the prior year. Employers with 30–49 FTEs are also disproportionately likely to report that they hire less or have shorter work schedules because of the ACA (table 6). This is my third finding pointing toward an economically significant effect of the ACA on the size distribution of businesses.

Individual-based surveys of businesses are rarely used in economics, but that is bound to change as the survey industry is becoming more efficient (i.e., cheaper for the researcher). It is worth noting the contrast between the Mercatus-Mulligan survey design and in-depth studies of a particular business (e.g., Einav et al. 2014; Handel and Kolstad 2015). The former design has the advantage of representing a wide range of industries and geographic areas. Moreover, this study is not sponsored by any business and therefore does not require a corporation's approval for its release. Corporate approval is a concern for studies of a particular business, especially when the topic involves issues that are sensitive to business public relations such as distorting business practices to lessen the cost of well-intended federal regulations. Another dividend of using a professional survey research firm is that every respondent completed the survey.

This paper does not put its estimates into an equilibrium framework.[34] Future research needs to estimate the number of eliminated positions at 49er businesses that resulted in jobs created at businesses that compete with 49ers in product or labor markets. To the extent that the employer

mandate shifts employment from 49ers to other businesses, future re-
search needs to assess the aggregate productivity loss from the shifts,
recognizing that the ACA's large-employer definition is just a vivid ex-
ample of a more general preexisting enforcement phenomenon. Even
without the ACA, businesses are taxed and regulated and understand
that adding to their payroll tends to increase the enforcement of those
rules, albeit not discretely at 50 FTEs (Bigio and Zilberman 2011; Bachas,
Jaef, and Jensen 2019). One ingredient in such productivity calculations
would be the number of positions shifted, which I found to be roughly
250,000.

From the equilibrium perspective, another interpretation of my cross-
sectional finding—namely, the nonmonotonic relationship between ESI
and employer size around the threshold—is that businesses below the
threshold did not adjust their size but merely dropped their coverage, in
which case I have mislabeled them as 49ers. Indeed, I find that such busi-
nesses are disproportionately likely to have dropped their coverage in the
past year. However, this alternative explanation does not by itself explain
why (a) so many businesses were added to the 25–49 (total employment)
category, (b) so few were added to the 50–99 category, or (c) coverage rates
are not particularly low for businesses with less than 30 FTEs.

The implementation of the employer penalty in January 2015 coin-
cides with a sudden slowdown in the postrecession recovery in aggregate
work hours per capita, with 2016 national employment about 800,000
below the trend prior to the implementation of the employer penalty
(Mulligan 2016). This paper's estimates permit us to gauge the aggregate
importance of the 49er phenomenon, not counting the marginal employ-
ment impact on non-ESI businesses that continue to employ 50 or more
FTEs. If 250,000 positions were the aggregate employment effect of 49ers
(see the equilibrium caveat described earlier), that would be about one-
third of the recovery slowdown.

Perhaps more important would be the social cost of adjustments around
the threshold, which at first glance might seem small to the extent that
some businesses react "merely" by, say, dividing their business into half
so that each half has less than 50 FTEs.[35] The usual Harberger triangle wel-
fare estimates allow for such reactions, because they assume that busi-
nesses are heterogeneous in terms of their costs of avoiding the penalty.
At one extreme, some businesses avoid the penalty at essentially zero cost
because they were already on the margin between above and below the
threshold. But there are also other businesses near the other extreme,
which is that the sacrificed value of surplus for employer and employee

fully offsets the amount of the penalty that they are avoiding. This triangle part of the welfare loss is therefore 38,327 businesses in the quantity dimension and up to $68,987 annually in the price dimension (about $1 billion annually). Even more important is the rectangle part of the welfare loss that comes from the fact that employment and income are substantially taxed by payroll, income, and sales taxes even without the ACA, thereby creating a wedge between the positions' social and private values.[36] If that non-ACA wedge were $20,000 per position per year, then that would be $5 billion of lost annual social value, plus the aforementioned welfare triangle.

Endnotes

1. The MEPC-IC is a nationally representative sample "drawn annually from the most recently updated version of the US Census Bureau's Business Register" and includes about 39,000 private businesses each year (Agency for Healthcare Research Quality 2017). It has no public use files.

2. US Department of Treasury, Internal Revenue Service (2017). The FTEs are calculated on business days and special provisions are made for seasonal employees. Employees are aggregated across companies with common ownership (Section 4980H(c)(2) of the Internal Revenue Code, as amended by the ACA).

3. Section 4980H(c)(2)(E) of the Internal Revenue Code, as amended by the ACA, says that the conversion factor from part-time employees to full-time employees is the ratio of the former group's monthly work hours to 120. For example, if February had exactly 4 workweeks, then every employee working 15 hours per week would count as one-half of a full-time equivalent for the month of February.

4. Section 1411 of the ACA requires that FFM notices be sent. As one of the conditions for assessing an employer penalty, Section 4980H specifies that employees have "been certified to the employer under Section 1411" as receiving or allowed exchange subsidies. In practice, the IRS has certified under Section 1411 with its Letter 226-J, based on the Forms 8962 filed by employees, rather than the FFM notices (https://www.irs.gov/pub/notices/ltr226j.pdf).

5. Both penalties are indexed for nationwide health-cost inflation, and the indexing formula was changed effective for the 2020 coverage year (84 FR 17537).

6. The cost of offering coverage is more accurately understood as the lost employer-employee surplus, if any, from not having the option of having cash compensation instead of health insurance.

7. The amount $68,987 is 20 times the penalty's $3,449 salary equivalent because a business with 50 full-time employees has 20 more penalties than a business having 49 full-time employees and 0 part-time employees.

8. This combinatorial phenomenon is closely related to "gambler's ruin": getting "lucky" (no Letter 226-J) on the nth FTE raises the cost of getting unlucky on the $(n + 1)$st.

9. Separate from the large-firm determination, the penalty calculation is also expected to distort the composition of employees between full- and part-time. See Mulligan (2015) for theoretical analysis and Even and Macpherson (2015) and Dillender et al. (2016) for empirical findings.

10. For example, v could represent the minimum of a firm-level average cost curve $f(n - v)$, as in Viner (1932).

11. Although τ_e represents the differential supply of labor to ESI firms, nothing in the model (1) represents the impact of the ACA on overall labor-supply incentives. The model also fails to represent changes in the composition of demand among various types of employers as a consequence of the ACA costs they differentially experience and pass on to their customers. Mulligan (2015) shows that the overall labor-supply incentives are in the direction of less labor supply; Gallen and Mulligan (2018) look at, among other things, the composition of demand. This paper's applications of the model (1) should be interpreted as measuring some of the employment effects holding constant the composition of demand and the willingness to supply labor to non-ESI employers. As noted, this paper also neglects employer exit or entry.

12. I do not assume that a 49er business has exactly 49 FTEs because employers may run discrete shifts or locations and therefore maintain a workforce in multiples of, say, four. Also note that many businesses with less than 50 FTEs are not 49er businesses by my definition because they would have fewer than 50 FTEs even if they were not trying to avoid employer-penalty assessments.

13. Among small businesses, this type of response may be more prevalent among the comparatively large businesses because a larger business on the margin of ESI absent the ACA likely has a larger fixed cost of ESI than a smaller firm also on that margin.

14. When offering ESI, the cost function is continuous in FTEs with a single minimum. The ACA reduces the cost-minimizing n (ESI = 1) to the extent that $\tau_e > 0$.

15. For example, the respondent is employed in the occupation of manager.

16. The final sample had 415 respondents from businesses with 2–49 full-time employees and 330 respondents from businesses with 50–199 full-time employees.

17. Location is derived from the respondent's connection to his internet service provider. Note that respondents were able to participate in the survey via mobile devices. Two of the 745 ISP locations were outside of the United States.

18. Here 8.2% preferred not to indicate party affiliation, and 1.2% were not registered to vote.

19. The purpose of fig. 2 is not to offer a before-after estimate (such estimates are discussed in Sec. V.A) but rather to assess whether, away from the threshold, the Mercatus-Mulligan survey methodology skews the size-distribution findings. This purpose is why fig. 2 (a) takes the year most recently available from the Census Bureau (2014) and (b) combines the 40–49 bin with the 50–74 bin.

20. Recall that the survey has no businesses with 0 or 1 full-time employee and no businesses with 200 or more full-time employees; these brackets are relevant for part-time employment.

21. The Census Bureau provides separate counts of "establishments" and "firms"; I use the firm counts. The Mercatus-Mulligan survey does not contain these terms (with one exception on page 18 where "firm" is used); it refers to the sample respondent's "company."

22. Specifically the 0.37 share is calculated as the 2012 national number of employees in businesses sized 40–49 (2.8 million) divided by the number in businesses sized 40–74 (7.6 million). I simulated a bootstrap distribution of that share from the Mercatus-Mulligan sample to quantify how likely sampling error would explain the gap between the Census Bureau and Mercatus-Mulligan share estimates. Only 2.8% of the bootstrap samples have a share as small as the 2012 share from the Census Bureau, which means that sampling error is an unlikely explanation. Note that 2012 is the most recent year for which the ACA had no size provisions.

23. The larger 49ers reduce the average because they remain a business in the 50+ category but reduce employment.

24. These calculations are not attempted with Mercatus-Mulligan and the Census Bureau data because such calculations would be sensitive to small differences in how the two surveys define firms or employees.

25. The propensity to offer ESI may be somewhat less in the MEPS-IC. For example, the MEPS-IC propensity is 60% for businesses sized 10–99 employees (including part-time employees).

26. By using such a measure, I fail to detect those businesses that are 49ers because their cost of offering fringe benefits is generally high. The other fringe benefits are 401(k) matching, dental insurance, paid maternity or paternity leave, short-term disability, long-term disability, life insurance, commuter benefits, and child care benefits.

27. The exclusion-restriction requirement of such an instrumental variable is that, conditional on the other regressors, it be uncorrelated with the measurement error, which in this case derives from the fact that full- and part-time employees are measured in brackets that contain more than one integer. This restriction is not testable with my data, but in principle other data with finer measures of the two employment types could be used to test the restriction and, if rejected, assess the direction and magnitude of the bias introduced.

28. For each of the first stages of table 4's TSLS1 and TSLS2 specifications, the F-test on the joint hypothesis that the three time-of-survey full-time indicators have zero coefficients has a p-value less than .001. Also note that, for a regression of ESI on the exogenous variables for the TSLS3 specification, the F-test on the joint hypothesis that the three 2016 full-time indicators have zero coefficients has a p-value of .48. These results are consistent with the hypothesis that 2016 full-time employment is measured with more error than time-of-survey full-time employment.

29. If ESI is offered on a calendar-year basis, then adding or dropping in the 6 months prior to the survey means that the plan began on January 1, 2017, or ended on December 31, 2016, respectively.

30. As answers to an open-ended survey question about how the ACA affects their ESI offering, employers wrote things like "Sometimes the employees don't want the private medical care because they want to use Obamacare instead of paying a private one," and "Employees at my company are not eligible to apply for plans offered through the Marketplace because my company offers insurance coverage."

31. Of those surveyed, 44% said that the ACA did not change their employment practices, and 4% said that they did not know the effect of the ACA on employment practices. The most common response (25% of the full sample) among the remaining was that weekly hours were being reduced.

32. Recall that more than half of the 49ers are expected to be in the 50–99 total employment category, even though they have less than 50 FTEs.

33. Here each shift from full-time to part-time is counted as 6/35ths of a position. See also the discussion later in text of labor-market equilibrium.

34. See Gallen (2013) for a model along these lines. It is also necessary to assess the degree to which the size regulation creates rents rather than productivity losses (Council of Economic Advisers March 2019, 109–11). Finally, business entry and exit need further consideration, they are not captured by the Mercatus-Mulligan survey, although they may be reflected in my fig. 1 (MEPS-IC data).

35. The ACA includes restrictions on subdividing businesses for this purpose, but the point here is just that businesses on the margin of adjustment are included in proper welfare calculations.

36. That is, the marginal business that reduces employment or output at essentially zero private cost is still creating a significant social cost because taxpayers receive a part of the value it creates. To the extent that output or factor markets are not competitive, there is yet another rectangle to add due to the fact that employment and output are too low even without the ACA and without payroll, income, and sales taxes.

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