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Health insurance and employee productivity: Findings from the 2007 Survey of Business Owners

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Abstract

Do firms providing employee health insurance have a higher sales-revenue-per-employee than firms who do not? We attempt to address this question using 543,135 private US businesses from 2007 Survey of Business Owners. Among firms with fewer than 50 employees, those providing health insurance did not have a higher sales-revenue-per-employee, and among firms with 50 or more employees, those providing health insurance had a higher sales-revenue-per-employee. Oaxaca-Blinder decomposition shows that for firms below 50 employees or above 50 employees, gains in sales-revenue-per-employee are driven by differences in endowments and not based on differences in how similar endowments are leveraged. The results broadly suggest that there may not be a "business case" for providing health insurance in firms with fewer than 50 employees. The findings have implications for firm owners aiming to meet the health insurance mandates and for policy makers in understanding the impact of increases in sales-per-employee on the economy and in designing tax breaks and tax credits for business owners providing health insurance to employees.

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1. Introduction

Economic benefits from providing employee health insurance have been increasingly called into question in recent years. With the advent of Patient Protection and Affordable Care Act (PPACA) this debate has gained further traction. Policy makers, depending on their political affiliation, have touted the benefits or costs of providing health insurance in influencing businesses performance. Several studies show that small firms bear significant short- and long-run costs from providing health insurance (Harris et al. 2014)[1]. Interest groups supporting small business owners highlight increased direct and indirect costs and higher administrative and compliance costs from of providing health insurance (Heriot et al. 2011, Kapur et al. 2012, Allhoff and Hall 2014). Whether there is an economic case for providing employee health insurance is an important question to understand for researchers and policymakers alike.

Studies have linked improved health directly to employee productivity (Mattke et al. 2007). However, reviewing past studies mostly based on surveys and case studies, Buchmueller (2000) concludes that although health insurance could provide indirect benefits, there is no support for performance gains from providing health care coverage. Conversely, a subsequent review has shown that health coverage increases productivity (O'Brien 2003). These conflicting set of findings call for a closer examination of the relationship between health insurance and labor productivity.

We draw on a sample of 543,135 firms from the 2007 Survey of Business Owners. We ask – what are the employee productivity differentials between firms (< 50 employees vs. >= 50 employees) with and without employee health insurance? To make the analysis pertinent to PPACA, we use the greater than or equal to 50 employee cut-off as PPACA imposes "tax or a penalty [on] employers with 50 or more full-time employees that fail to provide adequate health insurance." As a measure of sales productivity, we use sales-revenue-per-employee. Sales, compared to reported profits (based on tax deductions, cost outlays, loss writeoffs, among others that are prominent among small firms), are more reliably reported by firms. As the provision of health insurance could have variegated influences on employees, sales-to-employees ratio indirectly captures a variety of factors that drive sales, including improved service, greater motivation, among others. We further conduct a counterfactual analysis using Oaxaca-Blinder decomposition method to show that the differences in endowment, and not coefficients (or, how firms differ in use of equivalent resources) explain differences in sales-revenue-per-employee. The results do not support the economic rationale for providing health insurance to employees.

2. Employee health insurance and productivity

Endogeneity in the employee health insurance and productivity link stems from simultaneity between the provision of health insurance and employee productivity and from the error term in the regression influencing both the choice of health insurance and employee productivity. Related to simultaneity, as smaller and private firms are more labor intensive (Acs and Audretsch 1987), providing health insurance could be beneficial as it increases the commitment of employees, attracts more talented employees, and lowers turnover to improve performance. Economic gains from health insurance could in turn provide more funds to expand health insurance coverage in a firm. In making decisions to provide health insurance, small firm owners would also consider mutual causality between uncertainty in future cash flows from

[1] Source: https://www.forbes.com/sites/williamdunkelberg/2016/09/22/the-cost-of-health-insurance-is-a-big-big-problem-for-small-business/#25d99edd25d9

providing health insurance and fixed financial commitment to yearly employee health insurance payments.

Related to the effects of the error term, employee health insurance and productivity link could be influenced by organizational unobservables. Employee motivation, participation, non-insurance related incentives and rewards, and organizational processes absorbed into unobservables in the error term could affect the degree to which productivity could be enhanced by providing health insurance. Using Medical Expenditure Panel Survey, Abraham et al. (2009) found that employees in smaller firms (typically private firms) are less likely to receive fringe benefits, and the likelihood of providing higher wages and fringe benefits increases with firm size. Smaller firms are also unable to pool health risk of fewer employees and incur higher costs in searching and identifying health insurance plans. Unobservables in the error term, related to employees, stem from variations in preference for lower uncertainty in future health outcomes and propensity to improve productivity when offered health insurance despite lower compensation or limited chances for organizational advancement.

Overall, endogeneity between health insurance and the level of productivity is an important consideration.

Endogeneity in extant work on health insurance-labor productivity link

Most studies exploring the relationship between health insurance and productivity are based on simulations and surveys (Buchmueller 2000, O'Brien 2003, Beach et al. 2012). However, two recent working articles drew on econometric methods to assess employee health insurance and firm performance relationship.

Nguyen and Zawacki (2009), using linear and quadratic measure of county-level health expenditures as instruments, draw on two cross-sectional samples of 2,100 and 2,400 firms from 1997 and 2002 insurance supplements of Medical Expenditure Panel Survey (MEPS-IC) and Census of Manufacturers, respectively. They find that health insurance increases labor productivity. Their study focuses on two groups of firms – more than 100 employees or fewer than 100 employees. As small firms are heterogeneous and different ownership structures ranging from life-style entrepreneurs to family businesses to husband-wife teams, there would be a significant heterogeneity in health insurance related productivity gains among firms with fewer than 100 employees.

In a related report from Upjohn Institute for Employment Research, using a sample of 24,545 firms followed from 2001 to 2005 derived by combining Longitudinal Business Database and MEPS-IC, Luque et al. (2013) find "young small businesses offering health insurance seem to be more likely to survive, and once they have been in business for a while, offering health insurance seems to increase their chances of success (as measured by employment and payroll growth)" (page 7). Their study uses instruments based on predicted health insurance paid by the employers with similar firm characteristics and state dummies, an instrument not measured directly at the firm-level but inferred from a pool of business owners. On page 14, they state that "The mixed findings of our instrument tests indicate that caution should be exercised when interpreting our results."

3. Identification strategy

Using law change as an exogenous shock may not provide a clean identification because such laws are widely publicized before their passage, significant lobbying efforts and activism influence such laws, and to avoid compliance employers downsize labor pools after passage of such law (e.g., reducing the number of full-time employees). Furthermore, most laws do not require all firms to provide health insurance – for example, neither Massachusetts health care reform nor PPACA made it mandatory for firms of all sizes to provide healthcare. According to the Small Business Advocacy report of 2014, the 28.5 million businesses in the US have 17 employees on average. State and federal mandates, including PPACA, usually exempt such small firms; therefore, such law changes may not directly impact a majority of firms in the US economy. Stakeholders impacted by the law influencing passage of the law, actions from business owners to avoid compliance, and a majority of firms in the economy not required to comply with the law, are some of the factors that limit the use of a clean difference-in-difference specification.

Compared to previous instruments at county-level (Nguyen and Zawacki 2009) or predicted health insurance paid by the employers with similar firm characteristics and state dummies (Luque et al. 2013), we use the following instruments: (i) total number of veteran owners among the four owners with highest ownership; (ii) percentage share of black owners among four owners with highest ownership; (iii) percentage share of Hispanic owners among four owners with highest ownership; and (iv) a dummy variable = 1 if the business was operated as a franchise [else, = 0].

In addition to the proposed instruments, continuing from past work we also include state and sector dummies as controls in both first and second stage regressions (Nguyen and Zawacki 2009, Luque et al. 2013). We develop intuition for these instruments below.

Veterans start businesses with both economic and non-economic goals and their decision to provide health insurance may not only be driven by productivity gains (Hope et al. 2011) but also by non-economic motives. Veterans are less likely to exclusively rely on economic calculus of providing health insurance and are more likely to rely on socioeconomic and affective calculus. As lack of health insurance increases stress and uncertainty for employees, veteran owners could be more sensitive to health insurance related needs of employees, and their decisions would be less directly aimed at employee productivity gains. As veterans receive health insurance from the Veterans Administration, increasing number of veteran owners may perceive health insurance as a right than a product. Veteran owners would, therefore, have different motives in making decisions to provide health insurance (Gumus and Regan 2014). Although increasing veteran owners could also influence unobservables in the error term, such as organizational culture, practices, and routines.

Related to the next two instruments – percentage black owners and percentage Hispanic owners – Bernstein (2002) found that black or Hispanic owners are less likely to offer pension or health insurance coverage. Black or Hispanic owners due to their unique socioeconomic and geographic location disadvantages, may have limited access to financial expertise (Bates 1985, 1997, Kim et al. 2006) necessary to make tradeoff decisions between compensation, insurance, and productivity. As minority business owners facing systematic discrimination among lenders, their businesses are also financially constrained to making commitments to fixed employee health insurance payments (Blanchflower et al. 2003, Muravyev et al. 2009). Lenders would be less

willing to support increased costs from health insurance that could affect cash flows, and thereby dissuade minority owners from providing health insurance. Supporting that minority business owners would have weak effects on improving productivity, studies have found that minority-owned businesses are less financially successful (Fairlie and Robb 2007, 2008). Thus, the instrument of minority owners could be related to the decision of providing health insurance, and due to greater failure rates and lower growth rates of minority businesses, it is weakly related to productivity improvements.

Finally, franchisees must comply with a series of franchisor policies. Their decision to adopt employee health insurance would be less driven by idiosyncratic firm-specific factors and most franchisors also cover employees through their health network (Kaplan 2007). Related to the effect of this instrument on productivity, although franchisors implement strict standards for performance on all franchisees, at the franchise level, productivity is affected by several exogenous factors such as franchisee location, geographic density of franchisees from the same franchisor, and efficacy of marketing campaign from the franchisor in a geographic area. Furthermore, as franchisors strive for standardization, unobservables in errors term would be less idiosyncratic, as franchisors actively manage agency relationships (Mathewson and Winter 1985), transfer knowledge transfer across their franchise network (Wang and Altinay 2008), and coordinate activities across franchisees (Anderson 1984).

4. Data

Our study uses the 2007 Survey of Business Owners (SBO) collected by US Census (U.S. Census Bureau 2012). The sample includes all businesses from the non-agricultural sector, who filed tax returns with the Internal Revenue Service in the US, had revenues of more than $1,000 and were in existence during 2007. Additional details on data collection are available on PUMS SBO 2007 website[2].

The initial sample contains 2,165,680 firms. We dropped firms that were not operating[3] (880,006 firms) or did not have paid employees (612,160 firms)[4]. We then dropped observations with missing data on health insurance provision, establishment year, family business, operated for fewer than 40 hours a week, seasonal business, and franchise establishment. In order to eliminate the upward bias resulting from high performing and high payroll-per-employee firms, we also limit our sample to those firms with less than 95th percentile of receipts per employee and payroll per employee. Our final sample consists of 543,135 firms of which 464,963 firms have under 50 employees and 78,172 firms have 50 employees or more.

Summary statistics of all variables are shown in Table 1.

Table 1: Summary Statistics (n=543,135 firms)

Variable	Description	Mean	Std. Dev.	Min	Max
Receipt per employee	Total Receipts of firm per employee (in 1000's)	149.95	143.59	0	785.71

[2] https://www.census.gov/econ/sbo/methodology.html?2007
[3] We also drop firms that have missing operating status.
[4] We do not include weights in our analysis because the interpretation of our estimates may not be causal.

Log of Receipt per employee	Log of total receipts of firm per employee	4.57	1.09	0	6.67
Health insurance	Health insurance offered by the firm	0.6187	0.4857	0	1
Pay per employee	Payroll per employee (in '000s)	32.40	22.44	0	107.14
Log of pay per employee	Log of payroll per employee	3.2327	0.8429	0	4.68
Seasonal Business	Seasonal Business	0.0202	0.1407	0	1
Family Business	Family Business	0.3976	0.4894	0	1
Operated less than 40 hours per week	Operated less than 40 hours per week	0.0753	0.2639	0	1
Homebased business	Home-based business	1.84	0.37	0	2
Established between 1980 and 1989	Firm established between 1980 and 1989	0.2042	0.4031	0	1
Established between 1990 and 1999	Firm established between 1990 and 1999	0.2464	0.4309	0	1
Established between 2000 and 2002	Firm established between 2000 and 2002	0.0932	0.2908	0	1
Established in 2003	Firm established in 2003	0.0335	0.1799	0	1
Established in 2004	Firm established in 2004	0.0386	0.1926	0	1
Established in 2005	Firm established in 2005	0.0373	0.1894	0	1
Established in 2006	Firm established in 2006	0.0334	0.1796	0	1
Established in 2007	Firm established in 2007	0.0165	0.1274	0	1
Sales to government	Federal/State/Local government is 10% of sales	0.1150	0.3190	0	1
Instruments[1]					
Total veterans	Total veterans among top four owners	0.2335	0.4860	0	4
Percent Black	Percentage of black among top four owners	0.0196	0.1329	0	1
Percent Hispanic	Percentage of Hispanic among top four owners	0.0384	0.1800	0	1
Franchise	Operated as a franchise	0.0483	0.2145	0	1

[1] The state and sector dummies as instruments not included in the table.

5. Empirical Specification

Although the proposed instruments are weakly exogenous, the weak instrument tests support the validity of the instruments (presented in Table 3). We test the predictive power of instruments using the first stage estimation. The first stage estimation is specified as:

$$\begin{aligned} HealthIns_i = {} & \eta + \lambda_1 TotVet + \lambda_2 PctBlk + \lambda_3 PctHisp + \lambda_4 Franchise + \pi \ln(PayPerEmp)_i \\ & + \mu_1 Govt_i + \mu_2 Seasonal_i + \mu_3 Familybus_i + \mu_4 less40hours_i + \mu_5 Homebased_i \quad (1) \\ & + Est + State + Sector + \nu_i \end{aligned}$$

The predicted values of health insurance are then used in the base model specified as:

$$\ln\left(\text{ReceiptPerEmp}\right)_i = \alpha + \beta\, \hat{\text{HealthIns}}_i + \chi \ln\left(\text{PayPerEmp}\right)_i + \delta\, \text{Govt}_i + \eta\, \text{Seasonal}_i + \pi\, \text{Familybus}_i + \theta\, \text{less40hours}_i + \xi \text{Homebased}_i + \text{Est} + \text{State} + \text{Sector} + \varepsilon_i \quad (2)$$

Where the subscript *i* is the individual businesses

HealthIns is a dummy variable =1 (else = 0) if the business provided health insurance to its employees.

ln(ReceiptperEmp) represents the log of ratio of total receipts (sales) in dollars to number of employees.

TotVet is the total number of veterans among four owners with highest ownership

PctBlk is the share of black owners among four owners with highest ownership

PctHisp is the share of Hispanics among four owners with highest ownership

Franchise is a dummy variable=1 (else = 0) if the business was operated as a franchise

ln(PayPerEmp) is the log of ratio of payroll in dollars to number of employees

Govt is a dummy variable =1 if the business had more than 10% of its sales from federal/state/local government.

Seasonal is a dummy variable = 1 (else = 0) if business is seasonal

Familybus is a dummy variable = 1 (else = 0) if it is family business

Less40hours is a dummy variable = 1 (else = 0) if business operates less than 40 hours a week

Homebased is a dummy variable = 1 (else = 0) if it is a homebased business

Est is a set of dummy variables for the year in which the business was established. The excluded category is are businesses established before 1980.

State is a set of dummy variables for the state in which the business is located. Alabama is the excluded state.

Sector is a set of dummy variables for the industry sector of the business. The industry sector is North American Industry Classification System (NAICS)). Agriculture/Forestry/Fishing and Hunting sector is the excluded category.

To account for possible correlation among businesses within a state, we estimate the robust standard errors clustered by state-level. We use log of receipts (sales) per employee as a proxy for employee productivity (Morrison and Berndt 1981, Wagner 2002, O'Brien 2003). Recent work has shown that employee compensation is an important criterion in the decision to provide insurance. We, therefore, control for log of payroll-per-employee. Due to the need for compliance with federal and state labor laws (Maltby and Yamada 1997), we include control for whether the business had received more than 10% of sales from federal/state/local government. We also control for whether the firm is operating as a family business, whether business is a seasonal business, operates for less than 40 hours per week, and whether business is home-based business.

As firm size is a significant contributor to health insurance decisions, attracting talented employees, and based on liabilities of smallness (Stinchcombe 1965), we use two subgroups: < 50 employees and >= 50 employees. These cut-offs are relevant in context of PPACA mandate requiring firms with 50 or more employees to provide health insurance.

6. Results

6.1. Instrumental validity

Table 2 presents the first-stage results. For both firm subgroups, we find that the instruments are significantly correlated with the health insurance. Veteran owners are more likely to provide insurance. However, this positive effect size is smaller for firms with >= 50 employees. Higher percentage of Black or Hispanic owners significantly *decreases* the likelihood of health insurance provision by 10.5% (5.9%) and 11.8% (10.2%), respectively, in firms with fewer than 50 (>= 50) employees. Franchisees have a higher likelihood of providing insurance by 4.2% (1.9%) when employing fewer than 50 (>= 50) employees. The directions of effects of instruments are consistent with earlier justification of instruments.

Table 2: First stage instrumental variables regression results by firm size

VARIABLES	Firm size less than 50 employees Health Insurance	Firm size greater than or equal to 50 employees Health Insurance
Log of Pay per employee	0.169***	0.092***
	(0.002)	(0.005)
Seasonal business	-0.122***	-0.067***
	(0.005)	(0.016)
Family business	0.021***	-0.005**
	(0.003)	(0.002)
Operated less than 40 hours per week	-0.117***	-0.101***
	(0.004)	(0.013)
Home-based business	0.154***	0.095***
	(0.005)	(0.015)
Established between 1980 and 1989	-0.049***	-0.020***
	(0.002)	(0.002)
Established between 1990 and 1999	-0.095***	-0.030***
	(0.003)	(0.003)
Established between 2000 and 2002	-0.146***	-0.062***
	(0.005)	(0.006)
Established in 2003	-0.168***	-0.075***
	(0.007)	(0.009)
Established in 2004	-0.182***	-0.084***
	(0.005)	(0.014)
Established in 2005	-0.209***	-0.110***
	(0.005)	(0.011)
Established in 2006	-0.221***	-0.097***
	(0.006)	(0.015)
Established in 2007	-0.214***	-0.049**
	(0.007)	(0.020)
Sales to government	0.070***	0.010***
	(0.003)	(0.003)
Total veterans	0.020***	0.004***
	(0.002)	(0.001)

Percent Black	-0.105***	-0.059***
	(0.006)	(0.018)
Percent Hispanic	-0.118***	-0.102***
	(0.005)	(0.008)
Franchise	0.042***	0.019***
	(0.006)	(0.006)
Constant	-0.212***	0.356***
	(0.018)	(0.056)
State	Yes	Yes
Sector	Yes	Yes
Observations	464,963	78,172
R-squared	0.242	0.086

Robust standard errors clustered by state in parentheses. Agriculture sector is the omitted NAICS sector and Alabama is the omitted state. Firms established before the year 1980 is omitted category. * p<0.10, ** p<0.05, *** p<0.01

6.2. Two Stage Least Square (2SLS) results of impact of health insurance on productivity

Tests for the validity of instruments are presented in Table 3. For each firm group, F-test of excluded instruments was much larger than the rule of thumb value of 10 (Staiger and Stock 1997), suggesting that weak instrument bias was not present in the current specification. The Kleibergen-Paap LM chi-squared test rejects the null hypothesis of under-identification for both firm groups. These tests satisfy the rank condition. The Cragg-Donald Wald F-statistic was significantly higher for both firm groups to reject the null hypothesis of the equation being weakly identified. These under-identification and weak instrument tests provide evidence of instrument validity for both firm groups.

Table 3 presents the results of second-stage estimation. We find that providing health insurance has no effect on improving log of sales-revenue-per-employee for firms with fewer than 50 employees. However, for firms with 50 or more employees, the interpretation is the ratio of geometric mean for firms with 50 or more employees providing health insurance to the geometric mean for the firms with 50 or more employees not providing health insurance. Therefore, the expected difference in geometric mean of firms with 50 or more employees providing health insurance is 3.7 times (exp(1.31)) greater than firms with 50 or more employees not providing health insurance.

Table 3: Second stage instrumental variables estimation of impact of health insurance on receipts per employee by firm size

	(1)	(2)
VARIABLES	Firm size less than 50 employees ln receipt per emp	Firm size greater than or equal to 50 employees ln receipt per emp
Health insurance	0.102	1.310***

	(0.080)	(0.226)
Log of Pay per employee	0.709***	0.793***
	(0.015)	(0.023)
Seasonal business	0.032*	0.115***
	(0.017)	(0.035)
Family business	-0.010***	0.009
	(0.003)	(0.006)
Operated less than 40 hours per week	-0.083***	0.083**
	(0.013)	(0.036)
Home-based business	0.022	-0.024
	(0.015)	(0.027)
Established between 1980 and 1989	0.025***	-0.001
	(0.005)	(0.009)
Established between 1990 and 1999	0.051***	-0.018**
	(0.007)	(0.009)
Established between 2000 and 2002	0.071***	-0.033*
	(0.013)	(0.019)
Established in 2003	0.054***	-0.031
	(0.013)	(0.023)
Established in 2004	0.058***	-0.019
	(0.015)	(0.041)
Established in 2005	0.042**	0.047
	(0.018)	(0.032)
Established in 2006	-0.003	-0.022
	(0.019)	(0.039)
Established in 2007	-0.064***	0.040
	(0.020)	(0.049)
Sales to government	-0.053***	0.024***
	(0.007)	(0.007)
Constant	2.365***	1.050***
	(0.044)	(0.149)
State dummies	Yes	Yes
Sector dummies	Yes	Yes
F-stat	190.01	61.85
Kleibergen-Paap LM stat	34.59	20.69
Cragg-Donald Wald F-stat	518.20	89.35
Observations	464,963	78,172
R-squared	0.529	0.524

Robust standard errors clustered by state in parentheses. Agriculture sector is the omitted NAICS sector and Alabama is the omitted state. Firms established before the year 1980 is omitted category.
* p<0.10, ** p<0.05, *** p<0.01

6.3. *Oaxaca-Blinder Decomposition*

We draw on Oaxaca-Blinder decomposition approach to assess whether endowment differentials or how endowments are used (or, coefficient) drive the findings. We first split the sample into firms with fewer than 50 employees and 50 or more employees. The explained part of the model shows the mean decrease in productivity of firms offering health insurance if they had same characteristics of firms not offering health insurance (endowments). The unexplained part of the model shows that unobserved predictors such as motivation to work hard, ability and skill level of employees, etc., contribute to the use of endowments, assuming endowments are the same between the two groups.

Among firms with fewer than 50 employees, the productivity gap was -0.466 between firms that provided health insurance (= 4.756 log of sales-revenue-per-employee) and firms that did not (= 4.290). Differences in endowment explained a significant portion of this gap (= -0.490, $p < 0.001$), whereas the coefficient component exacerbated the gap, albeit by a very small amount (= 0.024, $p < 0.001$).

Among firms with 50 or more employees, the productivity gap was -0.758 between firms that provided health insurance (= 4.684) and firms that did not (= 3.926). Differences in endowment explained a significant portion of this gap (= -0.669, $p < 0.001$), whereas coefficients explained a very small amount of gap (= -0.088, $p < 0.001$). The analysis shows that differences in log of sales revenue-per-employee are not driven by improved usage of resources (e.g. motivation, lower turnover etc. related to the coefficients component), but by differences in resource endowments.

7. *Does individual insurance mandate impact sales-revenue-per-employee?*

The findings provide a bleak economic case for providing health insurance in firms with fewer than 50 employees. However, would firm productivity improve simply based on individual health insurance mandate? If mandatory health insurance requirement lowers future uncertainty related to health outcomes then employee turnover would decline and internal employee dynamics could improve due to longer employee tenure. More importantly, smaller firms not offering health insurance may not be at a significant disadvantage in attracting quality candidates in the labor market.

To test for these effects we draw on The Commonwealth of Massachusetts' health care reform law passed in 2006. The law required nearly every resident of Massachusetts to have a minimum level of insurance coverage. For those earning less than 150% of the federal poverty level (FPL), the state provided free health insurance. The law also required employers with more than 10 full-time employees to provide health insurance. The law was amended in 2008 and 2010, however, the timing is relevant to SBO 2007 data collection that occurred after the passage of the law in 2006 but before later amendments to the law. For more details on implementation process during 2006, refer to the rollout of Massachusetts Health Care Reform[5].

In Table 4, we use (i) Massachusetts as the treatment group and all other states as control group. The results show that for firms with more than 50 employees the gains are non-significant.

[5] Source: https://malegislature.gov/Laws/SessionLaws/Acts/2006/Chapter58

Whereas for smaller firms (less than 10 or 10-49 employees) the gains are negative and significant. A plausible explanation could be that employees in smaller firms who have limited human capital may not give necessary effort due to reduction in health outcome uncertainty in case of losing the current job. The findings from the main specification and the specification in Table 4, do not offer support for performance gains from providing health insurance.

Table 4: OLS estimation of impact of health insurance on receipts per employee: Massachusetts (MA) as treated vs. other states as control group

	(1)	(2)	(3)
VARIABLES	Firm size less than 10 employees ln receipt per emp	Firm size between 10 and 49 employees ln receipt per emp	Firm size greater than or equal to 50 employees ln receipt per emp
MA dummy	0.005	0.024	-0.176**
	(0.017)	(0.032)	(0.077)
Health Insurance	-0.002	0.067***	0.089***
	(0.003)	(0.005)	(0.010)
MA dummy x Health Insurance	-0.045***	-0.099***	0.017
	(0.016)	(0.030)	(0.077)
Log of Pay per employee	0.710***	0.844***	0.907***
	(0.002)	(0.003)	(0.006)
Seasonal business	0.004	-0.003	0.035
	(0.008)	(0.013)	(0.027)
Family business	0.001	-0.000	0.004
	(0.003)	(0.004)	(0.005)
Operated less than 40 hours per week	-0.146***	-0.045***	-0.042*
	(0.004)	(0.009)	(0.024)
Home-based business	0.084***	0.110***	0.094***
	(0.004)	(0.008)	(0.019)
Established between 1980 and 1989	0.032***	0.003	-0.027***
	(0.004)	(0.005)	(0.007)
Established between 1990 and 1999	0.049***	0.026***	-0.059***
	(0.004)	(0.005)	(0.008)
Established between 2000 and 2002	0.055***	0.039***	-0.112***
	(0.005)	(0.007)	(0.014)
Established in 2003	0.033***	0.015	-0.126***
	(0.007)	(0.012)	(0.024)
Established in 2004	0.035***	0.013	-0.125***
	(0.007)	(0.012)	(0.026)

Established in 2005	0.011*	-0.012	-0.092***
	(0.007)	(0.012)	(0.027)
Established in 2006	-0.049***	-0.037***	-0.143***
	(0.007)	(0.014)	(0.032)
Established in 2007	-0.141***	-0.021	-0.023
	(0.009)	(0.028)	(0.038)
Sales to government	-0.043***	-0.022***	0.032***
	(0.005)	(0.005)	(0.007)
Constant	2.387***	1.667***	1.469***
	(0.028)	(0.031)	(0.064)
Observations	294,899	170,064	78,172
R-squared	0.529	0.557	0.590

Robust standard errors in parentheses. Firms established before the year 1980 is omitted category. Sector dummies included in the model. State dummies are included in all models. Agriculture sector is the omitted NAICS sector and Alabama is the omitted state.
* p<0.10, ** p<0.05, *** p<0.01

8. Conclusion

We attempt to answer whether providing health insurance leads to higher employee productivity. Firms with fewer than 50 employees realized no gain from providing health insurance whereas among those with 50 or employees had a significant gain from providing health insurance. Employers must consider both short-term implications of higher direct and indirect costs of providing insurance, but also more importantly, consider the long-term implications of growth and survival through lower employee turnover and higher employee commitment. For policy makers, the results indicate gains to business owners from providing health insurance are very limited, especially for small firms. This information could help devise tax breaks and tax credit policies in incentivizing business owners in providing health insurance. Thus, from a policy standpoint promoting the provision of health insurance could improve economic stability and promote the well-being of the citizens. Overall, the study aims to contribute to the ongoing debate on the "business case" for providing health insurance in small and private firms.

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