Entrepreneurs' Diversification and Labor Income Risk

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Motivation

- **Labor income risk** refers to the uncertainty associated with the potential loss of employment or fluctuations in wages that can affect a person's ability to earn a consistent income
- Key risk from social welfare and economic stability perspective
  - Dismissals impose considerable welfare losses on employees (Low, Meghir and Pistaferri, 2010)
- By absorbing shocks rather than passing them to employees via layoffs and wage cuts, **firms play a pivotal role in providing implicit insurance of labor income risk** to their employees

Long-standing Idea

Knight (1921)

The system under which the confident and venturesome assume the risk and insure the doubtful and timid by guaranteeing to the latter a specified income in return for an assignment of the actual results ... is the enterprise and wage system of industry.

- Implicit contract models (Baily, 1974; Azariadis, 1975)
- Risk-neutral entrepreneurs insure risk-averse workers by insulating their salaries from adverse shocks to production, in exchange for a lower average salary
- Risk-neutrality not necessary; a lower average salary not the only possible benefit. **Determinants and benefits of such insurance provision are not well understood.**

Entrepreneur's Diversification as a Source of Risk Capacity

- An entrepreneur's (= a firm's owner's) ability to shield her employees from shocks should depend on how severely her own wealth is affected by these shocks
- Diversification of an entrepreneur's sources of income should thus be a key determinant of her risk capacity and thereby her ability to honor the implicit contracts with their employees (Berk and Walden, 2013)
- Intuition: A negative shock affecting one of the entrepreneur's firms may less likely translate into layoffs and wage cuts in this firm, if the other firms owned by the same entrepreneur are less affected by the shock or are not affected by the shock at all

This Paper

We study the role of an owner's diversification across private equity stakes in different firms in her firm's ability to provide employment and employee earnings insurance

Focus on closely-held firms

1. Vast majority of the private sector labor force is employed in SMEs, most of which are closely held firms
2. Entrepreneurial wealth stems from private equity stakes in one or a few firms (Moskowitz and Vissing-Jørgensen, 2002)
3. Lack of entrepreneurs' diversification could limit insurance provision

Shocks Outside of Employees' Control

To assess the insurance provision by firms to their employees, it is convenient to focus on a single, easily measured source of **exogenous shocks outside of employees' control**

This paper: **export shocks** = fluctuations in firms' exports induced by exchange rate movements as in Caggese et al. (2019)

As these are macro shocks, for diversification across firms to increase entrepreneurs' risk bearing capacity, firms must have a **heterogeneous exposure** to it

Export Shocks

Canada = open economy, among top exporters of raw materials such as oil, gas, wood, and ores

- 'Exogenous currency shock' for firms that export commodities that are priced in USD on global markets
- 'Demand shock' for firms that price output in CAD
- Assume that firms are price takers in the FX market and cannot readily redirect their exports across destination countries
- Firms bear significant costs in terms of both time and investment when they enter new export markets (Baldwin and Krugman, 1989; Das, Roberts and Tybout, 2007)

Main Findings Summary I

- Export shocks hitting a typical firm impact the firm's performance. A typical firm does not fully hedge currency fluctuations.
- Export shocks induce layoffs (= forced employee separations) and fluctuations in employee earnings
- Positive (negative) export shock decreases (increases) layoff rate and increases (decreases) employee earnings growth

Main Findings Summary II

- The heterogeneity of exposures of firms in an owner's portfolio to export shocks—"diversification"—affects how the owner's focal firm translates export shocks into layoffs and employee earnings growth
- Owners with one standard-deviation higher risk capacity due to diversification than the average exhibit 13% lower pass-through rate of export shocks to layoffs and provide 41% more earnings insurance to their employees
- Evidence on the 1) heterogeneity of the effect, 2) mechanism of insurance provision, 3) benefits for owners from providing such insurance

Related Literature

1. Risk sharing within the firm
   - Guiso, Pistaferri and Schivardi (2005); Ellul, Pagano and Schivardi (2018); Ellul and Pagano (2019)
   - Role of risk capacity of firms' owners
2. Internal labor markets of business groups and diversified firms
   - Giroud and Mueller (2015); Tate and Yang (2015); Cestone et al. (2017); Faccio and O'Brien (2021)
   - Risk capacity of firms' owners as a determinant of layoffs and employee earnings fluctuations
3. Propagation of shocks via firm networks defined by ownership
   - Giroud and Mueller (2019); Bena, Dinc and Erel (2021)
   - How shocks propagation depends on owners' diversification

Data

- Canadian Employer-Employee Dynamics Database (CEEDD)
- CEEDD is a set of linkable administrative files from individual (T1) and corporate (T2) tax records
- T2 Schedule 50 reports firm equity holdings (common and preferred shares, ultimate ownership)
- **Canadian-controlled for-profit private corporations**
- Record of Employment (ROE) reports earnings and reason for employer-employee separation $\rightarrow$ **layoffs**
- Export data at firm-year level $\rightarrow$ **export shocks**
- Firm-shareholder panel of 3.7 million observations with an average of 301,000 firms and 456,000 shareholders per year
- Firm-shareholder-employee panel of 26 million observations with an average of 1.8 million employees per year

Export Shocks due to CAD Exchange Rate Movements

$$\Delta e_{it} = \sum_{c} \eta_{ic\tau} \, \Delta E_{ct},$$

- E_{ct} is the annual average exchange rate denoted in CAD per unit of foreign currency of country c
- $\Delta E_{ct} > 0$ is appreciation of country c's currency vis-à-vis CAD
- $\eta_{ic\tau}$ is the share of firm i's exports to country c at τ
- Pre-determined export shares $\tau \in [t-2, t-1]$
- $\Delta e_{it} < 0$ is a negative shock to exporters. Conversely, $\Delta e_{it} > 0$ is a positive shock.

Export Shock Example

- Consider an oil producing company that exports to the U.S., such as Calgary-headquartered Canadian Natural Resources Limited (CNRL).
- Fluctuations in USD/CAD exchange rate are among the major risk factors for CNRL and are included among the primary causes of net earnings volatility.
- Between 2014 and 2015 alone, the CAD depreciated by almost 16% against the USD, but appreciated by more than 3% against the Euro, benefiting exporters to the United States and damaging exporters to countries that use the Euro as currency.

Risk Bearing/Transmission Capacity

1. Construct export shocks $\Delta e_{\iota t}$ for each firm ι that is part of the owner's portfolio
2. Define changes in sales induced by export shocks $\Delta \hat{s}_{\iota t} = \Delta e_{\iota t}\, Sales_{\iota t-1}$
3. Construct portfolio-level sales shocks $\Delta \hat{S}_{jt}$ as the weighted average of the sales shocks across firms in owner j's portfolio
4. Compute the variance of firm ι's sales shocks and the variance of owner j's portfolio sales shocks using years from $t-4$ to t
5. Define owner j's risk capacity vis-à-vis firm i at t as

$$RC_{ijt} = \text{Var}(\Delta \hat{s}_{it}) - \text{Var}(\Delta \hat{S}_{jt})$$

Risk Bearing/Transmission Capacity

RC_{ijt} captures the extent to which firm i's owner j can offer risk bearing/transmission capacity of export shocks affecting firm i, as made possible by the portfolio of owner j

- $RC_{ijt} > 0$: Owner's portfolio can mitigate the effect of an export shock to firm i

  When portfolio firms export to countries whose currency pairs have a low or negative correlations, or when the portfolio includes non-exporting firms

- $RC_{ijt} < 0$: Owner's portfolio can transmit/amplify the effect of an export shock to firm i

Insurance Provided to Employees

Employment insurance: layoff rate change

$$\Delta \frac{n_{ijt}^{Layoff}}{n_{ijt}} = \beta_1 \, \Delta e_{it} + \beta_2 \, \Delta e_{it} \, RC_{ijt} + \beta_3 \, RC_{ijt} + \\ + X'_{it-1} \, \gamma_1 + Z'_{jt-1} \, \gamma_2 \; + \mu_i \; + \mu_j + \mu_{mt} + \mu_{pt} + \varepsilon_{ijt}$$

Earnings insurance: employees' earnings growth

$$\Delta w_{lijt} = \beta_1 \, \Delta e_{it} + \beta_2 \, \Delta e_{it} \, RC_{ijt} + \beta_3 \, RC_{ijt} + X'_{it-1} \, \gamma_1 + \\ + Z'_{jt-1} \, \gamma_2 + V'_{lt-1} \, \gamma_3 \; + \mu_i + \mu_j + \mu_l + \mu_{mt} + \mu_{pt} + \varepsilon_{lijt}$$

- β_1 estimates the pass-through of the export shocks to layoffs
- β_2 estimates the differential pass-through for an owner with higher/lower risk capacity

Firm and Employee Characteristics

Panel A: firm characteristics

	mean	SD	p50	p10	p90	N
Assets (000)	2,032.5	4,659	552.5	82.4	4,632.1	3,582,904
Sales (000)	3,044.5	6,078.4	943.7	163.3	7,294.6	3,582,904
Firm age	17.8	11.9	15	5	40	3,582,904
Number of employees	24.3	377.7	7	2	42	3,582,904
Layoff rate	0.14	0.26	0	0	0.53	3,582,904
Number of owners	2.4	2.7	2	1	4	3,582,904

Panel B: worker characteristics

	mean	SD	p50	p10	p90	N
Age	43.8	13.2	45	25	60	27,159,485
Tenure	7.7	4.1	7	3	14	27,159,485
Earnings (yearly, 000)	51.1	74.1	41.7	13.4	90.8	27,159,485

Ownership Characteristics

Panel C: ownership

	mean	SD	p50	p10	p90	N
Ownership share	0.53	0.32	0.5	0.125	1	3,582,904
Share change	-.002	8.2	0	0	0	4,260,127
		Frequency		**Percent**		**N**
Share transactions among owners		248,360		8.07		3,079,124
New owner entry		114,880		3.73		3,079,124
New majority owner entry		24,791		0.81		3,079,124
Old owner exit		122,628		3.98		3,079,124
Old majority owner exit		28,590		0.93		3,079,124

Risk Capacity

Panel D: risk capacity

Number of firms owned	**mean**	**t-stat**	**N**
1	0.0096		1,566,016
2	0.9999	46.38***	943,831
3	2.864	33.10***	443,927
4	4.708	15.72***	221,850
≥ 5	7.235	15.80***	407,280

Number of firms / industries	1	2	≥ 3
1	0.0096		
2	0.5305	1.283	
≥ 3	1.203	3.130	6.373

Export Shock Validation

	Sales growth		Profitability	
	(1)	(2)	(3)	(4)
Shock	6.058***	5.560***	8.309***	8.361***
	(1.112)	(1.143)	(0.743)	(0.759)
Firm size	-22.76***	-26.18***	3.857***	4.966***
	(0.664)	(0.791)	(0.201)	(0.220)
Firm size squared	0.281***	0.422***	-0.353***	-0.359***
	(0.026)	(0.031)	(0.009)	(0.010)
Firm age	-210.1***	-205.8***	14.98***	12.92***
	(0.785)	(0.814)	(0.456)	(0.471)
Firm age squared	65.48***	64.55***	-5.045***	-4.264***
	(0.298)	(0.306)	(0.182)	(0.188)
Wealth (income)		-2.968***		-2.679***
		(0.117)		(0.100)
Wealth (assets owned)		-0.670***		-0.203***
		(0.055)		(0.044)
Owner leverage		-1.492***		2.801***
		(0.050)		(0.074)
Ownership share		-0.238		-0.697***
		(0.253)		(0.211)
Industry × year effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	Yes	Yes	Yes	Yes
R^2	0.445	0.444	0.606	0.615
Number of observations	4,536,205	4,184,170	4,970,867	4,591,977

Main Result: Risk Capacity and Layoff Rate Change

	(1)	(2)	(3)	(4)
Shock	-4.670***	-3.901***	-4.540***	-4.421***
	(0.639)	(0.636)	(0.652)	(0.674)
Shock × Risk Capacity	0.614***	0.510***	0.610***	0.590***
	(0.092)	(0.091)	(0.095)	(0.098)
Risk Capacity	-0.0647***	-0.0610***	-0.0728***	-0.0671***
	(0.008)	(0.008)	(0.010)	(0.010)
Firm size	-2.045***	-1.928***	-2.094***	-1.630***
	(0.244)	(0.243)	(0.255)	(0.274)
Firm size squared	0.110***	0.102***	0.113***	0.0960***
	(0.009)	(0.009)	(0.010)	(0.010)
Firm age	1.419***	1.743***	1.549***	1.338***
	(0.397)	(0.397)	(0.418)	(0.432)
Firm age squared	-0.313**	-0.490***	-0.359**	-0.314**
	(0.140)	(0.141)	(0.148)	(0.153)
Wealth (income)				-0.196***
				(0.058)
Wealth (assets owned)				0.140***
				(0.034)
Owner leverage				0.143***
				(0.029)
Ownership share				-0.367***
				(0.133)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.129	0.130	0.110	0.112
Number of observations	3,870,297	3,870,130	3,794,227	3,582,904

Risk Capacity and Layoff Rate Change: +/− Shock

	Positive shocks				Negative shocks			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Shock	-4.626***	-3.814***	-4.522***	-4.358***	14.51***	12.72***	13.88***	14.08***
	(0.711)	(0.707)	(0.726)	(0.751)	(2.637)	(2.635)	(2.705)	(2.776)
Shock × Risk Capacity	0.669***	0.557***	0.665***	0.637***	-1.230***	-0.950**	-1.247**	-1.328***
	(0.103)	(0.102)	(0.107)	(0.110)	(0.476)	(0.472)	(0.502)	(0.511)
Risk Capacity	-0.0721***	-0.0675***	-0.0802***	-0.0739***	-0.0409***	-0.0420***	-0.0502***	-0.0446***
	(0.009)	(0.009)	(0.011)	(0.011)	(0.008)	(0.008)	(0.009)	(0.009)
Firm size	-2.046***	-1.928***	-2.095***	-1.631***	-2.033***	-1.918***	-2.085***	-1.621***
	(0.244)	(0.243)	(0.255)	(0.274)	(0.243)	(0.243)	(0.255)	(0.274)
Firm size squared	0.110***	0.102***	0.113***	0.0960***	0.110***	0.102***	0.113***	0.0955***
	(0.009)	(0.009)	(0.010)	(0.010)	(0.009)	(0.009)	(0.010)	(0.010)
Firm age	1.416***	1.740***	1.545***	1.334***	1.405***	1.731***	1.534***	1.324***
	(0.397)	(0.397)	(0.418)	(0.432)	(0.397)	(0.397)	(0.418)	(0.432)
Firm age squared	-0.312**	-0.489***	-0.357**	-0.313**	-0.309**	-0.487***	-0.355**	-0.310**
	(0.140)	(0.141)	(0.148)	(0.153)	(0.140)	(0.141)	(0.148)	(0.153)
Wealth (income)				-0.195***				-0.196***
				(0.034)				(0.034)
Wealth (assets owned)				0.140***				0.140***
				(0.058)				(0.058)
Owner leverage				0.143***				0.143***
				(0.029)				(0.029)
Ownership share				-0.368***				-0.367***
				(0.133)				(0.133)
Industry × year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes	No	No	Yes	Yes
R^2	0.129	0.130	0.110	0.112	0.129	0.130	0.110	0.112
Number of observations	3,870,297	3,870,130	3,794,227	3,582,904	3,870,297	3,870,130	3,794,227	3,582,904

Main Result: Risk Capacity and Employee Earnings Growth

	(1)	(2)	(3)	(4)
Shock	4.150***	3.790***	4.379***	4.152***
	(0.753)	(0.746)	(0.717)	(0.722)
Shock × Risk Capacity	-1.795***	-1.661***	-1.887***	-1.690***
	(0.296)	(0.292)	(0.322)	(0.296)
Risk Capacity	0.191***	0.198***	0.206***	0.225***
	(0.032)	(0.031)	(0.042)	(0.041)
Tenure	-39.19***	-38.96***	-39.32***	-38.89***
	(0.760)	(0.756)	(0.768)	(0.793)
Tenure squared	8.656***	8.585***	8.683***	8.586***
	(0.226)	(0.225)	(0.228)	(0.236)
Age	-454.0***	-456.7***	-450.0***	-446.4***
	(16.501)	(16.451)	(16.515)	(16.763)
Age squared	80.27***	81.00***	79.60***	78.98***
	(3.114)	(3.105)	(3.115)	(3.165)
Firm size	0.532	1.449***	1.089**	0.658
	(0.389)	(0.385)	(0.543)	(0.516)
Firm size squared	-0.0201	-0.0520***	-0.0399**	-0.0271
	(0.014)	(0.014)	(0.020)	(0.019)
Firm age	7.651***	7.060***	8.092***	8.066***
	(0.841)	(0.777)	(0.859)	(0.877)
Firm age squared	-1.578***	-1.146***	-1.772***	-1.657***
	(0.267)	(0.248)	(0.274)	(0.279)
Wealth (income)				-1.156***
				(0.091)
Wealth (assets owned)				0.0279
				(0.051)
Owner leverage				-0.316***
				(0.049)
Ownership share				0.906***
				(0.255)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.468	0.469	0.469	0.469
Number of observations	28,448,358	28,446,663	28,407,689	27,159,485

Robustness

- FEs: firm (production function), industry-by-year (industry cycle), province-by-year (macro conditions), owner (risk aversion), employee (education, skills)
- Controls: Owner's wealth, leverage, and size of the equity stake (may jointly drive diversification and insurance provision). Employee age and tenure. Import shock.
- Subsample of dominant owners: $\geq$33.33% or $\geq$50%
- Subsample of firms that are active in international trade
- Aggregation to firm-level and firm-employee panels
- Alternative definitions of export shock, risk capacity, layoff rate
- Alternative clustering of standard errors

Heterogeneity

How Do Entrepreneurs Provide Insurance to Employees?

Owners with greater risk bearing capacity provide insurance to employees of firms affected by adverse shocks in (at least) two ways:

1. **directly**, by letting their **own compensation** from the firm covary **more** with (hence buffer) the shocks hitting the firm,
2. **via the firm's financial policy**, by letting it adjust **more** its **leverage** in response to shocks

Mechanism for Insurance Provision

	Owner's compensation		Firm leverage	
	(1)	(2)	(3)	(4)
Shock	1.618	-0.624	-1.883*	-1.718*
	(3.032)	(3.064)	(0.966)	(0.968)
Shock × Risk Capacity	2.015**	1.739**	-0.788***	-0.550***
	(0.823)	(0.822)	(0.144)	(0.143)
Risk Capacity	-0.0966	0.0577	0.181***	0.00677
	(0.123)	(0.121)	(0.023)	(0.021)
Firm size	8.626***	3.311**	62.60***	31.60***
	(1.287)	(1.413)	(1.812)	(1.390)
Firm size squared	-0.175***	0.197***	-2.136***	-1.023***
	(0.051)	(0.054)	(0.069)	(0.052)
Firm age	-73.92***	-64.83***	2.735***	5.270***
	(2.160)	(2.158)	(0.774)	(0.776)
Firm age squared	17.79***	19.65***	-0.0494	-0.327
	(0.766)	(0.766)	(0.276)	(0.278)
Wealth (income)		-41.08***		1.049***
		(0.418)		(0.111)
Wealth (assets owned)		-2.928***		-2.169
		(0.216)		(0.083)
Owner leverage		-0.791***		-8.119***
		(0.132)		(0.125)
Ownership share		26.29***		-0.209
		(0.838)		(0.236)
Industry × year effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	Yes	Yes	Yes	Yes
R^2	0.196	0.206	0.366	0.386
Number of observations	2,192,834	2,110,509	3,838,043	3,627,305

Benefits for Owners from Insurance Provision

- Entrepreneurs' risk bearing capacity is:
  - Negatively correlated with employee turnover rate and employee quits rate (= voluntary employee separations)
  - Positively correlated with employee tenure
  - Positively correlated with employee average earnings
  - Positively correlated with firm profitability and owner's total income
- **Consistent with the provision of insurance translating into better employee retention and lower costs of employee turnover**, ultimately increasing firm profitability and owner's wealth
- Inconsistent with implicit contract model's prediction that entrepreneurs gain from insurance provision via lower average wages

Benefits for Owners from Insurance Provision

	Turnover		Profitability	
	(1)	(2)	(3)	(4)
Risk Capacity	-1.221***	-1.218***	0.0819***	0.161***
	(0.269)	(0.280)	(0.021)	(0.021)
Firm size	7.638	9.465	-23.02***	-10.02***
	(5.727)	(6.601)	(1.060)	(1.001)
Firm size squared	0.0765	0.109	0.594***	0.164***
	(0.242)	(0.275)	(0.040)	(0.037)
Firm age	-30.87***	-26.97***	4.635***	3.813***
	(3.349)	(3.474)	(0.771)	(0.780)
Firm age squared	2.480*	1.672	-1.624***	-1.310***
	(1.350)	(1.410)	(0.282)	(0.285)
Wealth (income)		-3.811***		-3.334***
		(0.535)		(0.125)
Wealth (assets owned)		-4.212***		-0.488***
		(1.218)		(0.075)
Owner leverage		-0.643**		3.448***
		(0.260)		(0.111)
Ownership share		-1.477		-0.570**
		(1.584)		(0.239)
Industry × year effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	Yes	Yes	Yes	Yes
R^2	0.404	0.412	0.623	0.633
Number of observations	3,729,180	3,518,934	3,873,302	3,656,510

Summary

- We study the role that firm's owners' diversification plays in the provision of insurance against labor income risk
- Owners' diversification is robustly associated with risk-sharing within firms
- Owners provide insurance to employees by increasing the exposure of their own pay to firm shocks and adjusting firms' financial leverage
- Results consistent with such insurance being provided to retain valuable human capital and avoid costly terminations

Heterogeneity: Age

	Age 18-34		Age 35-50		Age 51-65	
	(1)	(2)	(3)	(4)	(5)	(6)
Shock	-4.375***	-4.303***	-2.756***	-2.644***	-3.666***	-3.022***
	(0.928)	(0.956)	(0.881)	(0.904)	(1.025)	(1.053)
Shock × Risk Capacity	0.623***	0.643***	0.403***	0.356***	0.484***	0.430***
	(0.131)	(0.135)	(0.115)	(0.118)	(0.135)	(0.138)
Risk Capacity	-0.0781***	-0.0771***	-0.0648***	-0.0565***	-0.0772***	-0.0768***
	(0.013)	(0.014)	(0.012)	(0.012)	(0.014)	(0.014)
Firm size	-2.835***	-2.419***	-2.245***	-1.999***	-2.894***	-2.288***
	(0.35)	(0.375)	(0.398)	(0.411)	(0.426)	(0.449)
Firm size squared	0.143***	0.128***	0.113***	0.103***	0.132***	0.109***
	(0.013)	(0.014)	(0.014)	(0.015)	(0.015)	(0.016)
Firm age	1.631***	1.279**	3.625***	3.516***	2.709***	2.471***
	(0.557)	(0.575)	(0.623)	(0.639)	(0.744)	(0.763)
Firm age squared	-0.362*	-0.268	-1.161***	-1.166***	-0.820***	-0.759***
	(0.203)	(0.209)	(0.217)	(0.223)	(0.254)	(0.260)
Wealth (income)		-0.173**		-0.0598		-0.034
		(0.078)		(0.082)		(0.099)
Wealth (assets owned)		0.0913**		0.111**		0.204***
		(0.045)		(0.047)		(0.054)
Owner leverage		0.124***		0.144***		0.226***
		(0.04)		(0.046)		(0.057)
Ownership share		-0.117		-0.139		-0.562***
		(0.182)		(0.189)		(0.217)
Industry × year effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes
Owner effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.119	0.120	0.133	0.135	0.134	0.136
Number of observations	2,932,598	2,773,337	2,701,752	2,561,686	2,279,649	2,168,459

Back

Heterogeneity: Tenure

	Tenure < 3 years		3 years $\leq$ Tenure ≤ 5 years		Tenure > 5 years	
	(1)	(2)	(3)	(4)	(5)	(6)
Shock	-6.332***	-6.353***	-3.896***	-3.450***	-1.688**	-1.417*
	(1.080)	(1.119)	(1.098)	(1.131)	(0.739)	(0.759)
Shock × Risk Capacity	0.693***	0.706***	0.500***	0.439***	0.301***	0.290***
	(0.153)	(0.158)	(0.144)	(0.148)	(0.100)	(0.102)
Risk Capacity	-0.0557***	-0.0481***	-0.0454***	-0.0414***	-0.0469***	-0.0455***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.010)	(0.010)
Firm size	-3.005***	-2.380***	-2.727***	-2.070***	-1.391***	-0.903**
	(0.334)	(0.350)	(0.404)	(0.417)	(0.333)	(0.352)
Firm size squared	0.165***	0.142***	0.152***	0.126***	0.0751***	0.0551***
	(0.012)	(0.013)	(0.015)	(0.015)	(0.012)	(0.013)
Firm age	2.801***	2.622***	3.744***	3.652***	1.963**	1.948**
	(0.584)	(0.608)	(0.899)	(0.922)	(0.827)	(0.850)
Firm age squared	-0.727***	-0.679***	-0.806***	-0.800***	-0.294	-0.319
	(0.221)	(0.229)	(0.299)	(0.306)	(0.235)	(0.242)
Wealth (income)		-0.209**		0.151		-0.130
		(0.082)		(0.094)		(0.082)
Wealth (assets owned)		0.164***		0.219***		0.217***
		(0.049)		(0.054)		(0.043)
Owner leverage		0.210***		0.222***		0.217***
		(0.044)		(0.053)		(0.043)
Ownership share		0.0922		-0.275		-0.889***
		(0.201)		(0.218)		(0.171)
Industry × year effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes
Owner effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.125	0.127	0.141	0.142	0.118	0.119
Number of observations	2,879,999	2,714,048	2,455,623	2,324,839	2,411,765	2,298,362

Back

Heterogeneity: Earnings

	Bottom Tercile		Middle Tercile		Top Tercile	
	(1)	(2)	(3)	(4)	(5)	(6)
Shock	-2.940***	-2.646**	-2.976***	-2.794***	-3.052***	-2.817***
	(1.028)	(1.060)	(0.916)	(0.941)	(0.747)	(0.758)
Shock × Risk Capacity	0.568***	0.551***	0.388***	0.341***	0.173*	0.124
	(0.151)	(0.154)	(0.127)	(0.130)	(0.097)	(0.098)
Risk Capacity	-0.0910***	-0.0879***	-0.0690***	-0.0608***	-0.0503***	-0.0471***
	(0.016)	(0.016)	(0.013)	(0.013)	(0.010)	(0.010)
Firm size	-4.674***	-4.159***	-4.629***	-3.870***	-3.756***	-3.040***
	(0.451)	(0.465)	(0.429)	(0.435)	(0.423)	(0.424)
Firm size squared	0.192***	0.174***	0.180***	0.156***	0.125***	0.103***
	(0.016)	(0.017)	(0.015)	(0.016)	(0.015)	(0.015)
Firm age	5.439***	4.912***	6.829***	6.475***	6.201***	5.795***
	(0.951)	(0.979)	(0.801)	(0.819)	(0.747)	(0.763)
Firm age squared	-1.290***	-1.119***	-1.700***	-1.583***	-1.370***	-1.258***
	(0.302)	(0.311)	(0.255)	(0.261)	(0.236)	(0.241)
Wealth (income)		-0.152		-0.071		-0.175**
		(0.095)		(0.084)		(0.077)
Wealth (assets owned)		0.130**		0.0469		-0.00907
		(0.052)		(0.048)		(0.043)
Owner leverage		0.279***		0.388***		0.367***
		(0.053)		(0.053)		(0.051)
Ownership share		-0.679***		-0.177		-0.414**
		(0.208)		(0.193)		(0.170)
Industry × year effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes
Owner effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.131	0.132	0.145	0.147	0.160	0.161
Number of observations	1,812,288	1,724,294	1,844,338	1,754,353	1,858,204	1,767,303

Back

Is Insurance Priced Into Lower Average Wages?

	(1)	(2)	(3)	(4)
Risk Capacity	0.163***	0.147***	0.184***	0.216***
	(0.035)	(0.033)	(0.050)	(0.046)
Tenure	23.62***	23.90***	23.75***	23.77***
	(0.281)	(0.280)	(0.282)	(0.292)
Tenure squared	-5.799***	-5.895***	-5.837***	-5.815***
	(0.129)	(0.128)	(0.129)	(0.134)
Age	-32.86**	-42.77***	-31.06**	-37.12**
	(14.595)	(14.418)	(14.646)	(14.930)
Age squared	56.17***	58.46***	55.85***	57.03***
	(2.859)	(2.825)	(2.872)	(2.927)
Firm size	7.369***	7.384***	6.774***	6.164***
	(0.889)	(0.871)	(0.915)	(0.953)
Firm size squared	-0.0862***	-0.0936***	-0.0611**	-0.0434
	(0.028)	(0.027)	(0.029)	(0.030)
Firm age	-15.81***	-17.06***	-15.81***	-15.64***
	(0.806)	(0.802)	(0.812)	(0.816)
Firm age squared	1.679***	2.482***	1.725***	1.775***
	(0.295)	(0.288)	(0.295)	(0.297)
Wealth (income)				-0.166*
				(0.089)
Wealth (assets owned)				0.0447
				(0.038)
Owner leverage				-0.397***
				(0.056)
Ownership share				0.960***
				(0.283)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No