The Effect of Political Frictions on Long Term Care Insurance

AFA 2020 Meeting

Jessica Liu and Weiling Liu

January 5, 2020

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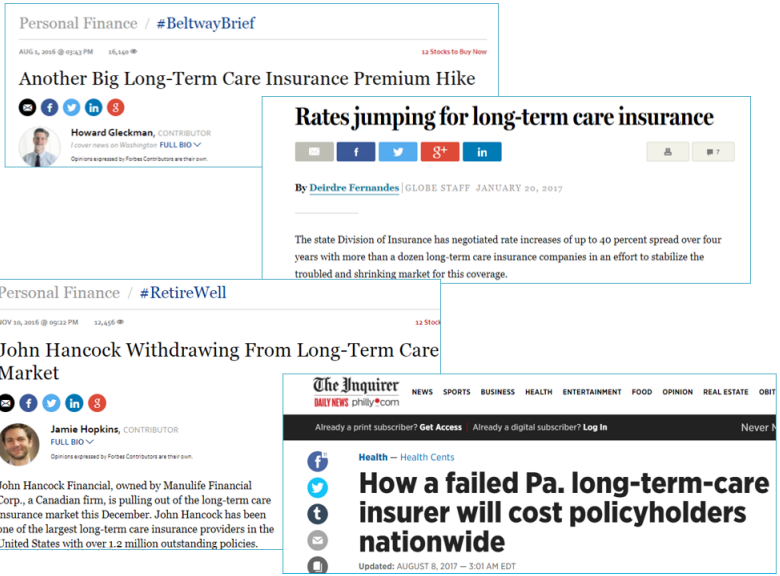
- Cost of LTC can be very high.
- Medicaid and Medicare only provide limited coverage under extreme financial or health conditions.
- Created in the 1980's, long term care insurance (LTCI) provided a potential safety net for millions of Americans.

Today, the Market is Unraveling



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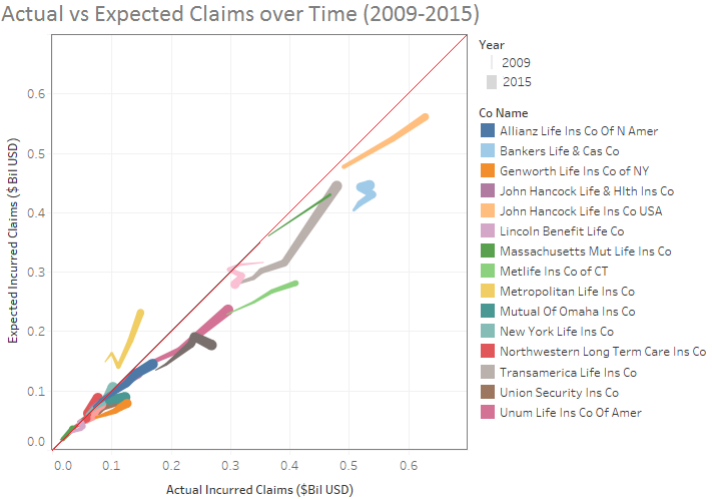

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  - Since regulators must approve all price changes, how do regulators affect prices in the LTCI market?
  - Political considerations may lead regulators to disallow necessary rate increases, exacerbating profit loss and firm dropout.
  - We hypothesize that regulators are tougher on companies during election years, if he is a Democrat, and if he does not need to raise campaign funds

Overview

Data

In addition to regulatory reports, we hand-collected novel data from state websites as well as individual PDF filings.

PREMIUMS AND CLAIMS

- National Association of Insurance Commissioner (NAIC) Long Term Care Experience Reports
  - all Life Insurance Companies
  - sample from 1997-2015
  - state x company x year

ELECTION CYCLES

- Insurance Commissioner office tenure dates, winning vote share, and financing
  - hand collected from state election websites
  - sample from 1997-2015
  - state x year

Data

APPROVAL RATES (2 sources)

- California Long Term Care Rate and History Guide
  - displays rate history for all LTC policies sold by any company that wrote LTC policies in California in the past ten years
  - state x company x year
  - sample from 2007-2015
- NAIC System for Electronic Rate & Forms Filing (SERFF)
  - hand collected missing data based upon pdf filings
  - nationwide sample from 2007-2015
  - state x company x year

Example of PDF filing

Prudential

Karen L. Smyth, FLMI, ACS, AIAA, AIRC, CLTC, LTCP
Assistant Secretary
Group Insurance

The Prudential Insurance Company of America
Long Term Care Unit
2101 Welsh Road
Dresher, Pennsylvania 19025
Tel 215 658-6279 Fax 888 294-6322

February 2, 2009

The Honorable Joel Ario
Commissioner of Insurance
Pennsylvania Department of Insurance
1326 Strawberry Square, 13th Floor
Harrisburg, Pennsylvania 17120

Re.: The Prudential Insurance Company of America
NAIC #304-68241
Individual Long Term Care Insurance
Form Numbers: GRP 98720, GRP 98721, GRP 98722, et al

Dear Commissioner Ario:

We enclose for your review a long-term care insurance rate schedule change. We are requesting the approval of a premium rate increase for the above referenced forms.

These forms were previously approved by the Department on April 12, 1999. This policy series was sold nationwide during the period of 1998 through 2004. They are no longer being marketed in any state.

We are proposing the premiums on policies that do not include the optional Cash Benefit Rider be increased by 18%. The premiums on policies with the optional Cash Benefit Rider would be increased by 28%. Some of Prudential's pricing assumptions for these policies, although based on the best information then available, were not consistent with our emerging experience. In addition, the historical and projected loss ratios of the business with the Cash Benefit Rider are significantly higher than those of the reimbursement model business. The rate increase is needed to help ensure that future premiums, in combination with existing reserves, will be adequate to fund anticipated claims. This same increase is also being requested nationwide on the comparable forms to those listed above. We have tried to keep these increases as low as

Insurance Company Name

Regulator title, usually the state insurance commissioner

Statement of purpose

Description of product

Basic characterization of requested rate changes

Empirical Findings on Prices

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- We answer this using premium change requests (2007-2015).
- We examine how 4 dimensions of regulators' political climate affected LTCI price changes:

1. Election cycles
2. Political capital
3. Party affiliation
4. Campaign financing

Part 1: Election Cycles

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- State insurance commissioners are either elected (12/50 states) or appointed.

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- State insurance commissioners are either elected (12/50 states) or appointed.

- Typical elections cycles last 4 years, but some last 2 years.
- Election cycles are staggered across states.
- Since large premium increases generate negative press, regulators may either reject premium change requests or grant a smaller amount than requested.

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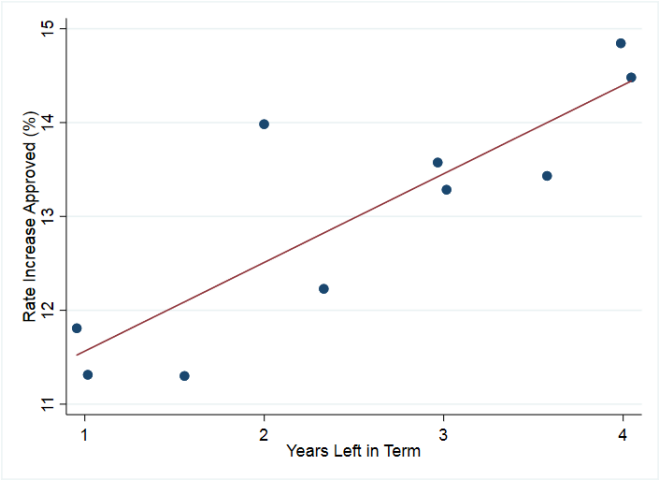

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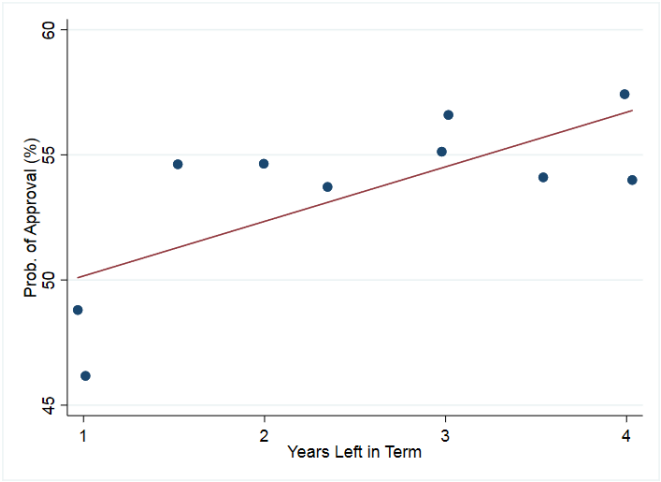

Part 1: Election Cycles

Regulators become more stringent closer to re-election.

	(1) Size of Increase	(2) Prob of Approval, All	(3) Prob of Approval, New
Years Left in Term	0.57***	1.84***	2.09**
	(0.19)	(0.62)	(0.90)
Mean Dependent Variable	13.02	54.64	53.52
State FE and Year FE	Yes	Yes	Yes
Company FE	Yes	Yes	Yes
Number of Observations	9,043	9,043	6,108
R-squared	0.17	0.21	0.20

Note: Levels of significance: * 10%, ** 5%, *** 1%.

Part 1: Election Cycles

Two follow up questions:

1. Do elected versus appointed regulators respond differentially to election cycles?
2. How do companies respond to regulators' election cycles?

Part 1a: Elected vs Appointed Regulators

Elected regulators have a sharper response to election cycles than appointed regulators.

	Commissioner Directly Elected		Appointed Commissioner	
	(1)	(2)	(3)	(4)
	Prob of Approval	Size of Increase	Prob of Approval	Size of Increase
Years Left in Term	1.86**	0.68**	1.51	0.38
	(0.74)	(0.24)	(0.99)	(0.26)
Mean Dependent Variable	58.03	11.95	52.52	13.15
State FE and Year FE	Yes	Yes	Yes	Yes
Company FE	Yes	Yes	Yes	Yes
Number of Observations	2,369	2,369	6,674	6,674
R-squared	0.23	0.16	0.21	0.17

Note: Levels of significance: * 10%, ** 5%, *** 1%.

Part1b: Companies' Behavior during Election Cycles

Companies are not significantly more likely to apply or ask for a bigger increase closer to re-election.

	(1) Size of Requested Increase	(2) Number of Requests
Years Left in Term	0.03	0.04
	(0.11)	(0.03)
Mean Dependent Variable	10.03	1.70
State FE and Year FE	Yes	Yes
Company FE	Yes	Yes
Number of Observations	21,956	21,956
R-squared	0.11	0.20

Note: Levels of significance: * 10%, ** 5%, *** 1%.

Part 2: Political Capital

Regulators with higher vote share are less sensitive to re-election.

	Prob of Approval		Size of Increase	
	(1)	(2)	(3)	(4)
Years Left in Term	2.39***	3.11**	0.84***	1.89***
	(0.57)	(1.00)	(0.19)	(0.57)
Winning Vote Margin	0.04	0.13	-0.04**	0.09**
	(0.07)	(0.09)	(0.01)	(0.04)
Years Left in Term × Winning Vote Margin		-0.03		-0.05**
		(0.03)		(0.02)
Mean Dependent Variable	58.33	58.33	12.12	12.12
State FE and Year FE	Yes	Yes	Yes	Yes
Company FE	Yes	Yes	Yes	Yes
Number of Observations	2,291	2,291	2,291	2,291
R-squared	0.24	0.24	0.16	0.17

Note: Levels of significance: * 10%, ** 5%, *** 1%.

Tenure Length

Part 3: Party Affiliation

Democrats are more stringent, but similarly sensitive to re-election.

	Prob of Approval		Size of Increase	
	(1)	(2)	(3)	(4)
Years Left in Term	1.77***	1.40*	0.54***	0.50*
	(0.61)	(0.83)	(0.18)	(0.26)
Democrat	-8.30***	-10.27***	-3.91***	-4.14***
	(2.32)	(3.49)	(0.85)	(1.27)
Years Left in Term x Democrat		0.79		0.09
		(1.31)		(0.43)
Mean Dependent Variable	51.78	51.78	12.54	12.54
State FE and Year FE	Yes	Yes	Yes	Yes
Company FE	Yes	Yes	Yes	Yes
Number of Observations	9,043	9,043	9,043	9,043
R-squared	0.21	0.21	0.17	0.17

Note: Levels of significance: * 10%, ** 5%, *** 1%.

Firm's Response

Part 4: Campaign Financing

Regulators with more cash/fewer contributions are more stringent.

	Prob of Approval	Size of Increase	Prob of Approval	Size of Increase
	(1)	(2)	(3)	(4)
Years Left in Term	1.97*	0.77**	1.86*	0.75**
	(0.92)	(0.24)	(0.84)	(0.24)
Cash on Hand	-0.32*	-0.17**		
	(0.15)	(0.06)		
Campaign Contributions			0.20***	0.03***
			(0.04)	(0.01)
Mean Dependent Variable	57.54	11.88	57.43	11.85
State FE and Year FE	Yes	Yes	Yes	Yes
Company FE	Yes	Yes	Yes	Yes
Number of Observations	2,167	2,167	2,148	2,148
R-squared	0.25	0.17	0.26	0.17

Note: Levels of significance: * 10%, ** 5%, *** 1%.

Horserace

Anecdotal Evidence

"Massachusetts lags behind virtually every other state in taking timely action in response to rate increase filings and in granting necessary rate increases."

- Genworth (2017 Statement)

"We have suspended sales in Hawaii, Massachusetts, New Hampshire, and Vermont, and will consider similar actions in other states where we are unable to make satisfactory rate increases..."

- Genworth (2017 10Q)

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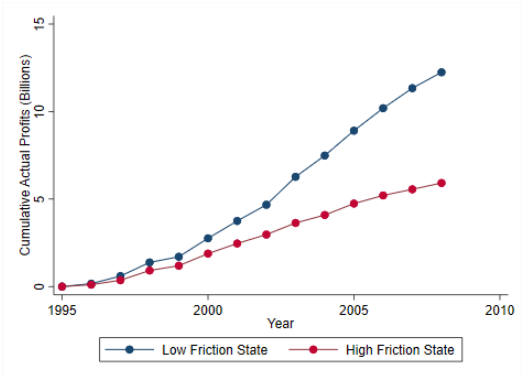
- We hypothesize that pricing frictions may cause profit loss, and thus, decreased supply.
- To test this, we examine:
  1. How profits accumulated over time depending on the state regulator
  2. How dropouts varied over time depending on the state regulator

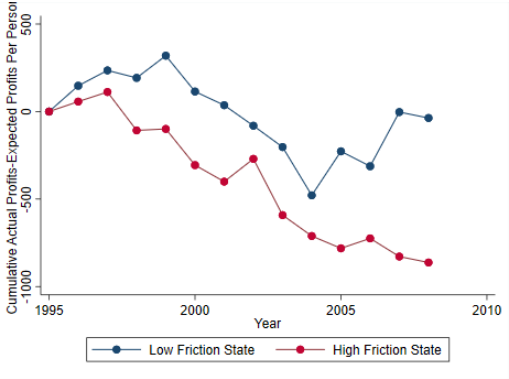
Insurer Profits Over Time

States experiencing more election cycle frictions earn less profits.

(a) Actual Profits



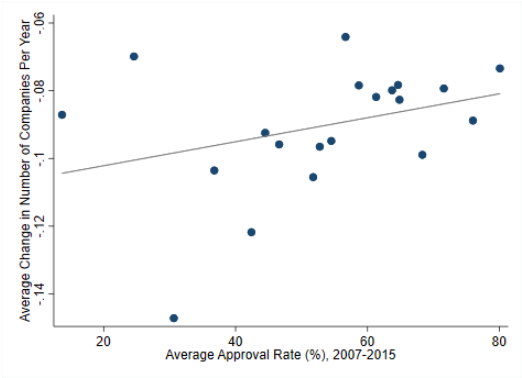
(b) Actual Minus Expected Profits



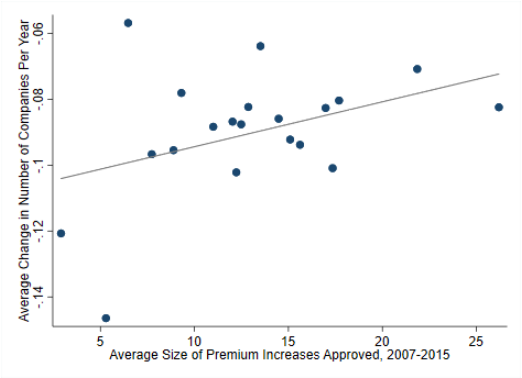
Insurer Dropout

States with more stringent regulators experienced more dropouts.

(a) Number of Company Exits versus Probability of Approval



(b) Number of Company Exits versus Size of Approved Increase



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Using calibrated model, we find that when cost shocks are high, election cycle frictions can generate negative welfare loss.

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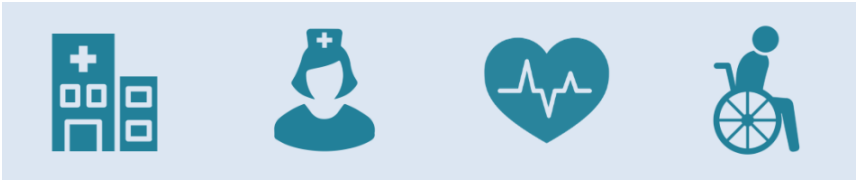
  2. are not democrats
  3. have less stock of funding
- To attenuate election cycle frictions, states could introduce longer tenure lengths or a rotating committee of regulators.

Thank You!

Email: we.liu@northeastern.edu



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Structural Model

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In each period,

- Both players observe a random cost shock θ.
- The regulator chooses a maximum allowable per-person premium increase, $\hat{p}$.
- Knowing $\hat{p}$, the company decides whether to pay to obtain rate increase.
- The company drops out of the market if it expects negative profits.

Model: Consumer Problem

There are a finite number of consumers in the LTCI market, N.

In each period, consumer i's utility from insurer j is

$$U_{ij} = \beta_j - \alpha p_j + \epsilon_{ij}$$

where

- ϵ_{ij} is i.i.d with mean 0 extreme value distribution.
- β_j is an unobserved company fixed effect
- p_j is the price of company j's LTCI policy.
- If consumers choose the outside option (not buy insurance), $j = 0$.

Model: Insurer Problem

The per-period insurer payoff is given by:

$$u_j(apply_j, drop_j, p_j, t_j, y, \theta_j; \nu) = (p_j * (1 + \hat{p_j} * \mathbb{1}(apply_j = 1)) \\ -t_j) * N_j - AppCost * \mathbb{1}(apply_j = 1) + ScrapValue$$

where $N_j = s_j * Q$ is total consumers, p_j is unit price, t_j is annualized cost, y is years left in term , $AppCost$ is the application cost, $\hat{p_j}$ is the max allowable price increase, and θ_j is per-period cost shock.

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The dynamic problem is given by:

$$V_j(p_j, t_j, y; apply_j, drop_j, \nu) = \max\{0, u_j + \beta E[V_j(p_j', t_j', y'; apply_j, drop_j, \nu) | p_j, t_j, y, apply_j, drop_j, \nu]\}$$

where p' is next period's premium level and t' is next period's claims.

Model: Regulator Problem

In each period, if the company is in business, the regulator chooses an allowed rate increase $\hat{p}$ to maximize:

$$V_r = \underbrace{E[CV(p, \hat{p}; \nu)]^{0.5} * E[V_j(p, t, y; apply_j, drop_j, \nu)]^{0.5}}_{\text{geometric mean of consumer surplus and profits}} + \underbrace{\gamma * E[CV(p, \hat{p}; \nu)]/y^{\kappa}}_{\text{re-election pressure}}$$

where γ and κ are parameters to be estimated, and

$E[CV(p_j, \hat{p}; \nu)] = \sum_{m=0}^{\infty} \beta^m E[(\beta_j - \alpha p_{jm}) * N_{jm} | p_{j0} = p_j; \beta_j, \alpha]$.

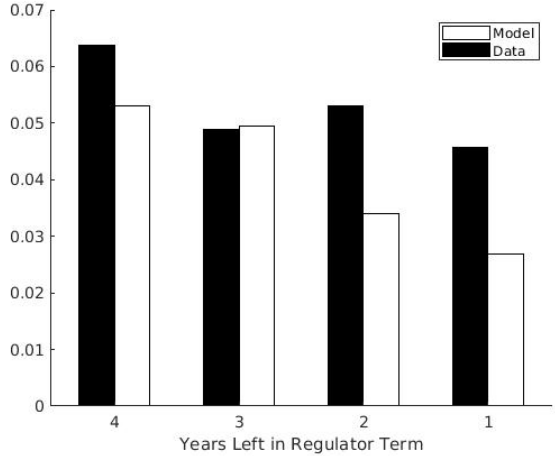
Model Fit

We calibrate the model by estimating parameters $AppCost, \gamma, \kappa$, and $ScrapValue$ using a two-step procedure outlined in Bajari and Levin (2007).

Figure: Model Fit

	Model Moments	Data Moments
Targeted Moments		
Mean Premium Increase	0.04	0.05
Mean Dropout Probability	0.12	0.14
Mean Application Probability	0.22	0.22
Un-Targeted Moments		
Std. Dev. Premium Increase	0.14	0.14
Std. Dev. Dropout Probability	0.34	0.35
Std. Dev. Application Probability	0.43	0.44

Model Fit for Conditional Price Moments

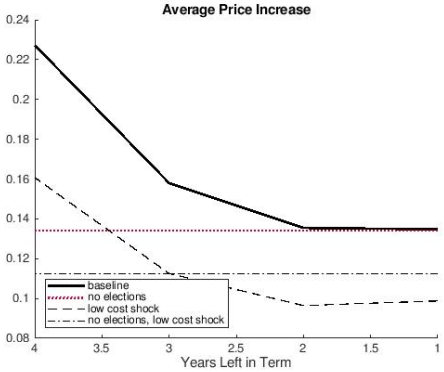


Model Fit Considerations

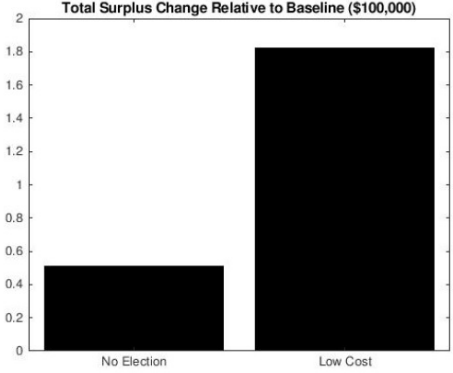
Counterfactuals

Starting from calibration, we analyze how equilibrium would change if:

1. Election cycle pressure were removed
2. Cost shocks were decreased



(a) Optimal Price Increases Rates



(b) Welfare Gains

Model Fit Considerations

Our model fit may not be ideal for several resons.

For tractability, we have:

- Focused upon pricing frictions and abstracted away from market structure considerations
- Modeled one representative cohort of consumers
- Chosen a reduced form equation for regulator utility

Return

Part 2: Tenure Length as Political Capital

- Average tenure length of a commissioner is 4.3 years, and median (75th percentile) is 4 (7) years.

Return

Part 2: Tenure Length as Political Capital

- Average tenure length of a commissioner is 4.3 years, and median (75th percentile) is 4 (7) years.
- A long tenure of 7 or more years alleviates re-election pressure.

	Prob of Approval		Size of Increase	
	(1)	(2)	(3)	(4)
Years Left in Term	1.84***	2.45***	0.56***	0.71***
	(0.64)	(0.72)	(0.19)	(0.22)
Long Tenure	-0.01	7.19*	-0.42	1.39
	(2.78)	(3.98)	(1.22)	(1.67)
Years Left in Term x Long Tenure		-3.14*		-0.79
		(1.63)		(0.88)
Mean Dependent Variable	51.78	51.78	12.54	12.54
State FE and Year FE	Yes	Yes	Yes	Yes
Company FE	Yes	Yes	Yes	Yes
Number of Observations	9,043	9,043	9,043	9,043
R-squared	0.21	0.21	0.17	0.17

Note: Levels of significance: * 10%, ** 5%, *** 1%. Return

Horserace

	(1) Prob of Approval	(2) Size of Increase
Years Left in Term	0.78**	1.91*
	(0.25)	(0.87)
Campaign Contributions	0.02**	0.19***
	(0.01)	(0.04)
Cash on Hand	-0.15**	-0.20
	(0.07)	(0.17)
Mean Dependent Variable	11.85	11.85
State FE and Year FE	Yes	Yes
Company FE	Yes	Yes
Number of Observations	2,148	2,148
R-squared	0.17	0.26

Firms' Response to Democrats

	Num Policies Requested		Size of Increase	
	(1)	(2)	(3)	(4)
Years Left in Term	0.04	0.06	0.03	0.13
	(0.03)	(0.05)	(0.11)	(0.15)
Democrat	0.15	0.25	0.61	1.20**
	(0.10)	(0.16)	(0.45)	(0.58)
Years Left in Term x Democrat		-0.04		-0.23
		(0.06)		(0.18)
Mean Dependent Variable	51.78	51.78	12.54	12.54
State FE and Year FE	Yes	Yes	Yes	Yes
Company FE	Yes	Yes	Yes	Yes
Number of Observations	21,956	21,956	21,956	21,956
R-squared	0.20	0.20	0.11	0.11

Note: Levels of significance: * 10%, ** 5%, *** 1%.

Return