

What Explains The 2007-2009 Drop in Employment?
Mian and Sufi
Online Appendix [Not for publication]

1. Theory

We provide the full analytical details of the model presented in section 3. Consumption allocation of consumers is given by:

$$P_c^N C_c^N = \alpha D_c \text{ and } P^T C_c^T = (1 - \alpha) D_c \quad (\text{A1})$$

Output is governed by:

$$y_c^T = b e_c^T, \text{ and } y_c^N = a e_c^N \quad (\text{A2})$$

Total employment on each island is normalized to one with $e_c^T + e_c^N = 1$. Wages are given by the respective marginal product:

$$w_c^N = a P_c^N \text{ and } w_c^T = b P^T \quad (\text{A3})$$

Free mobility of labor across sectors equates the two wages in (A3), making the non-tradable good price independent of its county, i.e.:

$$P_c^N = \frac{b}{a} P^T \quad (\text{A4})$$

Goods market equilibrium in non-tradable and tradable sectors implies that:

$$y_c^N = C_c^N \quad \forall c \text{ and } \sum_{c=1}^S y_c^S = \sum_{c=1}^S C_c^T \quad (\text{A5})$$

Solving the steady state of the model under the symmetry assumption, with $D_c = D_0$. We obtain:

$$e_c^{*N} = \alpha, e_c^{*T} = (1 - \alpha), P_c^{*N} = \frac{D_0}{a}, P_c^{*T} = \frac{D_0}{b}, w_c^{*N} = w_c^{*T} = D_0 \quad (\text{A6})$$

We next introduce heterogeneous household expenditure shocks by normalizing $D_0 = 1$ letting $D_c = 1 - \delta_c$, with $\delta_{c+1} > \delta_c$ and the average of the demand shocks being $\bar{\delta}$.

If prices and wages are fully flexible, then (A1), (A2) and (A5) for the non-tradable sector gives us:

$$ae_c^N = \frac{\alpha D_c}{P_c^N} \quad (\text{A7})$$

Plugging (A1), (A2) and (A5) for tradable sector, and plugging in (A7) for e_c^N in $e_c^T = 1 - e_c^N$ gives us:

$$b \sum_{c=1}^S \left(1 - \frac{\alpha D_c}{b P_c^T}\right) = \frac{(1-\alpha)}{P^T} \sum_{c=1}^S D_c \quad (\text{A8})$$

Solving (A8) gives us $P^T = \frac{1-\bar{\delta}}{b}$. Plugging this into (A4) gives us $P_c^N = \frac{1-\bar{\delta}}{a}$. We can now solve for e_c^N and hence e_c^T through (A7). Wages can be obtained from (A3). Subtracting the old steady state prices and employment from the new prices and employment gives us:

$$\Delta P^T = -\frac{\bar{\delta}}{b}, \Delta P_c^N = -\frac{\bar{\delta}}{a}, \Delta w_c^N = \Delta w_c^T = -\bar{\delta}, \Delta e_c^N = -\alpha \left(\frac{\delta_c - \bar{\delta}}{1 - \bar{\delta}}\right), \text{ and } \Delta e_c^T = \alpha \left(\frac{\delta_c - \bar{\delta}}{1 - \bar{\delta}}\right)$$

2. Oster and Altonji-Elder-Taber test for omitted variable bias

Oster (2014) suggests a test for omitted variable bias that uses the information contained in the change in coefficient and the change in R-square when moving from uncontrolled to controlled regression. Her methodology based on Altonji, Elder and Taber (2005) shows that if selection on the observed controls is proportional to the selection on the unobserved controls, then we can compute an identified set. Oster (2014) suggests testing whether the identified set for the treatment effect includes zero.

We perform this test using information in columns 1, 2, 3 and 4 of Table 3 by computing her recommended identified set $[\tilde{\beta}, \beta^*(2.2\tilde{R}, 1)]$, where $\beta^*(2.2\tilde{R}, 1) = \tilde{\beta} - \frac{(\tilde{\beta} - \tilde{\beta})(2.2\tilde{R} - \tilde{R})}{(\tilde{R} - \tilde{R})}$ ¹. The recommended sets [0.131, 0.174] and [0.0492, 0.166] safely exclude zero, thus rejecting that the effect of housing net worth shock on non-tradable employment is driven by omitted variables.

3. Test of uncertainty hypothesis using NFIB data

We test the uncertainty hypothesis outline in the main text using quarterly state-level survey response data from the *National Federation of Independent Businesses* between 2002 and 2012. The NFIB conducts monthly surveys of small businesses in which they ask a series of questions (Dunkelberg and Wade (2012)). One of the survey questions specifically asks business owners, ‘‘What is the single most important problem facing your business today?’’ There are ten potential answers: 1. Taxes, 2. Inflation, 3. Poor sales, 4. Financing and interest rates, 5. Cost of labor, 6.

¹ See Oster (2014) for definitions.

Government requirements and red tape, 7. Competition from large businesses, 8. Quality of labor, 9. Costs/Availability of insurance, and 10. Other.

Appendix Figure 1 plots the percentage response to some of the ten potential answers over time. The percentage of respondents citing “poor sales” as their single most important problem increases from around 10% in 2006 to 33% towards the end of 2009. Moreover the increase in respondents citing poor sales starts in the second half of 2007, coinciding with the start of the economic recession. The rise in concern for poor sales is consistent with the hypothesis that weakness in household balance sheets reduced overall demand.

What about concerns regarding business uncertainty? We group business owners citing “taxes” and “government requirements and red tape” together to proxy for concerns regarding government policy uncertainty. Appendix Figure 1 shows that the percentage of respondents citing taxes or government red tape as top concern also rises during the recession. However, the increase happens significantly later, in the fourth quarter of 2008, than the increase in concerns regarding poor sales.

The top panel in Appendix Figure 2 displays the state-level correlation between the increase in businesses citing “poor sales” as their major concern between 2006 and 2009 and the change in housing net worth during the same period. The bottom panel repeats this exercise for the increase in businesses citing regulation and taxes as their single most important problem. There is a stark difference in the correlation patterns.

Consistent with our result in Table 3, the fraction of businesses citing poor sales as their most important problem increased more in states experiencing a larger decline in housing net worth. The slope of the OLS predictive relationship in the top panel of figure 3 is -0.55 with a t-stat of 3.6 and R-sq of 25%. Further, a regression of job losses in the non-tradable sector in a given state from 2007 to 2009 on the contemporaneous increase in the fraction of businesses citing poor sales as their top concern reveals a negative and statistically significant relation. In other words, states in which businesses were citing poor sales were the states in which household spending was sharply down and jobs were disproportionately lost.

However, the lower panel of Appendix Figure 2 shows that there is no negative relationship between the increase in concerns regarding government taxation/red-tape and the change in housing net worth. In fact the sign of the relationship goes in the wrong direction, although it is not statistically significant. The slope of the OLS predictive relationship is 0.21 with a t-stat of 1. In short, not only does the state-level measure of business uncertainty increase much later in time, it is also not correlated in the cross-section with the change in housing net worth.

4. Test of uncertainty hypothesis using state government cuts

We address one additional form of uncertainty suggested by Mericle, Shoag and Veuger (2012). Governments in states with housing problems may need to cut expenditures dramatically, thus raising business uncertainty.² However, we show that such state government cuts were concentrated in 2009 (appendix figure 3), much later than when job losses started. Further, we can control directly for mid-year state budget cuts and the results are robust (Appendix Table II).

² We are grateful to Daniel Shoag for highlighting this issue and providing data.

Appendix Table I Industry Categorization

This table presents the 294 4-digit industries along with their percentage share in total 2007 employment, their industry classification according to classification method # 1, and the geographical herfindahl index used in the second industry classification. See text for more details.

NAICS	Industry Name	Percentage of total employment in 2007	Industry Classification # 1	Industry Classification # 2 (Geographical Herfindahl Index, x100)
4411	Automobile dealers	1.05	non-tradable	0.37
4412	Other motor vehicle dealers	0.15	non-tradable	0.27
4413	Automotive parts accessories and tire stores	0.41	non-tradable	0.28
4421	Furniture stores	0.23	non-tradable	0.39
4422	Home furnishings stores	0.27	non-tradable	0.47
4431	Electronics and appliance stores	0.42	non-tradable	0.50
4451	Grocery stores	2.13	non-tradable	0.36
4452	Specialty food stores	0.15	non-tradable	0.61
4453	Beer wine and liquor stores	0.13	non-tradable	0.31
4461	Health and personal care stores	0.89	non-tradable	0.46
4471	Gasoline stations	0.73	non-tradable	0.14
4481	Clothing stores	1.06	non-tradable	0.60
4482	Shoe stores	0.18	non-tradable	0.55
4483	Jewelry luggage and leather goods stores	0.14	non-tradable	0.49
4511	Sporting goods hobby and musical instrument stores	0.38	non-tradable	0.37
4512	Book periodical and music stores	0.16	non-tradable	0.54
4521	Department stores	1.36	non-tradable	0.36
4529	Other general merchandise stores	1.12	non-tradable	0.20
4531	Florists	0.09	non-tradable	0.23
4532	Office supplies stationery and gift stores	0.27	non-tradable	0.40
4533	Used merchandise stores	0.12	non-tradable	0.38
4539	Other miscellaneous store retailers	0.23	non-tradable	0.36
7221	Full-service restaurants	3.76	non-tradable	0.42
7222	Limited-service eating places	3.40	non-tradable	0.37
7223	Special food services	0.49	non-tradable	0.61
7224	Drinking places (alcoholic beverages)	0.31	non-tradable	0.51
1132	Forest nurseries and gathering of forest products	0.00	tradable	2.10
1141	Fishing	0.01	tradable	4.88
2111	Oil and gas extraction	0.10	tradable	4.93
2121	Coal mining	0.07	tradable	1.69
2122	Metal ore mining	0.03	tradable	5.48
2123	Nonmetallic mineral mining and quarrying	0.10	tradable	0.19
3111	Animal food manufacturing	0.05	tradable	0.33
3112	Grain and oilseed milling	0.05	tradable	1.05
3113	Sugar and confectionery product manufacturing	0.07	tradable	1.23
3114	Fruit and vegetable preserving and specialty food manufacturing	0.15	tradable	0.69
3115	Dairy product manufacturing	0.11	tradable	0.50
3116	Animal slaughtering and processing	0.44	tradable	0.43
3117	Seafood product preparation and packaging	0.03	tradable	2.57
3118	Bakeries and tortilla manufacturing	0.25	tradable	0.77
3119	Other food manufacturing	0.14	tradable	0.82
3121	Beverage manufacturing	0.12	tradable	0.92
3122	Tobacco manufacturing	0.02	tradable	8.08
3131	Fiber yarn and thread mills	0.04	tradable	1.67
3132	Fabric mills	0.07	tradable	0.94
3133	Textile and fabric finishing and fabric coating mills	0.04	tradable	2.28
3141	Textile furnishings mills	0.07	tradable	3.38
3149	Other textile product mills	0.07	tradable	0.52
3151	Apparel knitting mills	0.02	tradable	4.58
3152	Cut and sew apparel manufacturing	0.14	tradable	12.42

3159	Apparel accessories and other apparel manufacturing	0.01	tradable	2.63
3161	Leather and hide tanning and finishing	0.00	tradable	3.03
3162	Footwear manufacturing	0.01	tradable	3.54
3169	Other leather and allied product manufacturing	0.02	tradable	2.20
3221	Pulp paper and paperboard mills	0.12	tradable	0.80
3222	Converted paper product manufacturing	0.25	tradable	0.46
3231	Printing and related support activities	0.53	tradable	0.55
3241	Petroleum and coal products manufacturing	0.09	tradable	1.25
3251	Basic chemical manufacturing	0.15	tradable	1.79
3252	Resin synthetic rubber and artificial synthetic fibers and filaments manufacturing	0.08	tradable	0.99
3253	Pesticide fertilizer and other agricultural chemical manufacturing	0.03	tradable	0.92
3254	Pharmaceutical and medicine manufacturing	0.21	tradable	1.51
3255	Paint coating and adhesive manufacturing	0.06	tradable	1.00
3256	Soap cleaning compound and toilet preparation manufacturing	0.09	tradable	1.42
3259	Other chemical product and preparation manufacturing	0.10	tradable	2.71
3261	Plastics product manufacturing	0.60	tradable	0.33
3262	Rubber product manufacturing	0.13	tradable	0.53
3271	Clay product and refractory manufacturing	0.05	tradable	0.69
3272	Glass and glass product manufacturing	0.09	tradable	0.76
3279	Other nonmetallic mineral product manufacturing	0.08	tradable	0.44
3311	Iron and steel mills and ferroalloy manufacturing	0.10	tradable	3.30
3313	Alumina and aluminum production and processing	0.06	tradable	1.07
3314	Nonferrous metal (except aluminum) production and processing	0.06	tradable	1.02
3315	Foundries	0.14	tradable	0.60
3322	Cutlery and handtool manufacturing	0.05	tradable	1.04
3324	Boiler tank and shipping container manufacturing	0.08	tradable	0.66
3325	Hardware manufacturing	0.04	tradable	1.33
3326	Spring and wire product manufacturing	0.05	tradable	0.74
3327	Machine shops; turned product; and screw nut and bolt manufacturing	0.33	tradable	0.59
3329	Other fabricated metal product manufacturing	0.24	tradable	0.47
3331	Agriculture construction and mining machinery manufacturing	0.18	tradable	1.01
3332	Industrial machinery manufacturing	0.12	tradable	0.84
3333	Commercial and service industry machinery manufacturing	0.08	tradable	0.88
3334	Ventilation heating air-conditioning and commercial refrigeration manufacturing	0.14	tradable	0.79
3335	Metalworking machinery manufacturing	0.15	tradable	0.79
3336	Engine turbine and power transmission equipment manufacturing	0.09	tradable	1.29
3339	Other general purpose machinery manufacturing	0.25	tradable	0.42
3341	Computer and peripheral equipment manufacturing	0.09	tradable	2.59
3342	Communications equipment manufacturing	0.14	tradable	2.83
3343	Audio and video equipment manufacturing	0.02	tradable	2.38
3344	Semiconductor and other electronic component manufacturing	0.32	tradable	1.85
3345	Navigational measuring electromedical and control instruments manufacturing	0.33	tradable	1.27
3346	Manufacturing and reproducing magnetic and optical media	0.03	tradable	3.54
3351	Electric lighting equipment manufacturing	0.05	tradable	1.43
3352	Household appliance manufacturing	0.06	tradable	2.43
3353	Electrical equipment manufacturing	0.12	tradable	0.75
3359	Other electrical equipment and component manufacturing	0.13	tradable	0.72
3361	Motor vehicle manufacturing	0.17	tradable	2.46
3362	Motor vehicle body and trailer manufacturing	0.13	tradable	2.86
3363	Motor vehicle parts manufacturing	0.52	tradable	0.65
3364	Aerospace product and parts manufacturing	0.35	tradable	3.29
3365	Railroad rolling stock manufacturing	0.03	tradable	7.19
3366	Ship and boat building	0.13	tradable	3.46
3369	Other transportation equipment manufacturing	0.04	tradable	1.85
3372	Office furniture (including fixtures) manufacturing	0.12	tradable	0.83
3391	Medical equipment and supplies manufacturing	0.27	tradable	0.87
3399	Other miscellaneous manufacturing	0.31	tradable	0.62
5112	Software publishers	0.29	tradable	3.26
1133	Logging	0.05	construction	0.28
2361	Residential building construction	0.75	construction	0.37
2362	Nonresidential building construction	0.64	construction	0.48

2371	Utility system construction	0.44	construction	0.84
2372	Land subdivision	0.07	construction	0.53
2373	Highway street and bridge construction	0.28	construction	0.34
2381	Foundation structure and building exterior contractors	0.91	construction	0.58
2382	Building equipment contractors	1.62	construction	0.40
2383	Building finishing contractors	0.78	construction	0.64
2389	Other specialty trade contractors	0.48	construction	0.34
3211	Sawmills and wood preservation	0.10	construction	0.23
3212	Veneer plywood and engineered wood product manufacturing	0.10	construction	0.34
3219	Other wood product manufacturing	0.27	construction	0.29
3273	Cement and concrete product manufacturing	0.20	construction	0.28
3323	Architectural and structural metals manufacturing	0.34	construction	0.41
3371	Household and institutional furniture and kitchen cabinet manufacturing	0.29	construction	0.62
4233	Lumber and other construction materials merchant wholesalers	0.23	construction	0.45
4441	Building material and supplies dealers	1.00	construction	0.26
4442	Lawn and garden equipment and supplies stores	0.15	construction	0.12
5311	Lessors of real estate	0.45	construction	0.85
5312	Offices of real estate agents and brokers	0.31	construction	0.70
5313	Activities related to real estate	0.54	construction	0.98
5413	Architectural engineering and related services	1.19	construction	0.77
1131	Timber tract operations	0.00	other	0.89
1142	Hunting and trapping	0.00	other	1.68
1151	Support activities for crop production	0.06	other	1.21
1152	Support activities for animal production	0.02	other	0.39
1153	Support activities for forestry	0.02	other	1.70
2131	Support activities for mining	0.20	other	2.48
2211	Electric power generation transmission and distribution	0.46	other	0.33
2212	Natural gas distribution	0.08	other	1.02
2213	Water sewage and other systems	0.04	other	0.45
2379	Other heavy and civil engineering construction	0.08	other	0.67
3274	Lime and gypsum product manufacturing	0.02	other	1.24
3312	Steel product manufacturing from purchased steel	0.04	other	0.98
3321	Forging and stamping	0.11	other	0.85
3328	Coating engraving heat treating and allied activities	0.12	other	1.05
3379	Other furniture related product manufacturing	0.04	other	1.19
4231	Motor vehicle and motor vehicle parts and supplies merchant wholesalers	0.30	other	0.55
4232	Furniture and home furnishing merchant wholesalers	0.13	other	1.23
4234	Professional and commercial equipment and supplies merchant wholesalers	0.58	other	0.92
4235	Metal and mineral (except petroleum) merchant wholesalers	0.14	other	0.88
4236	Electrical and electronic goods merchant wholesalers	0.37	other	1.22
4237	Hardware plumbing and heating equipment and supplies merchant wholesalers	0.20	other	0.55
4238	Machinery equipment and supplies merchant wholesalers	0.60	other	0.47
4239	Miscellaneous durable goods merchant wholesalers	0.30	other	1.06
4241	Paper and paper product merchant wholesalers	0.15	other	1.58
4242	Drugs and druggists' sundries merchant wholesalers	0.20	other	1.35
4243	Apparel piece goods and notions merchant wholesalers	0.17	other	5.41
4244	Grocery and related product merchant wholesalers	0.65	other	0.68
4245	Farm product raw material merchant wholesalers	0.06	other	0.13
4246	Chemical and allied products merchant wholesalers	0.12	other	0.69
4247	Petroleum and petroleum products merchant wholesalers	0.09	other	0.44
4248	Beer wine and distilled alcoholic beverage merchant wholesalers	0.15	other	0.53
4249	Miscellaneous nondurable goods merchant wholesalers	0.32	other	0.59
4251	Wholesale electronic markets and agents and brokers	0.29	other	0.77
4541	Electronic shopping and mail-order houses	0.23	other	0.70
4542	Vending machine operators	0.05	other	0.39
4543	Direct selling establishments	0.17	other	0.26
4811	Scheduled air transportation	0.40	other	3.29
4812	Nonscheduled air transportation	0.04	other	1.51
4831	Deep sea coastal and great lakes water transportation	0.05	other	10.59
4832	Inland water transportation	0.02	other	3.35
4841	General freight trucking	0.83	other	0.40

4842	Specialized freight trucking	0.40	other	0.28
4851	Urban transit systems	0.05	other	1.70
4852	Interurban and rural bus transportation	0.02	other	1.58
4853	Taxi and limousine service	0.06	other	2.75
4854	School and employee bus transportation	0.18	other	0.67
4855	Charter bus industry	0.03	other	0.74
4859	Other transit and ground passenger transportation	0.06	other	0.81
4861	Pipeline transportation of crude oil	0.01	other	12.78
4862	Pipeline transportation of natural gas	0.03	other	3.57
4869	Other pipeline transportation	0.01	other	0.89
4871	Scenic and sightseeing transportation land	0.01	other	1.69
4872	Scenic and sightseeing transportation water	0.01	other	5.83
4879	Scenic and sightseeing transportation other	0.00	other	6.81
4881	Support activities for air transportation	0.15	other	1.26
4882	Support activities for rail transportation	0.03	other	1.55
4883	Support activities for water transportation	0.08	other	5.43
4884	Support activities for road transportation	0.07	other	0.63
4885	Freight transportation arrangement	0.18	other	1.57
4889	Other support activities for transportation	0.03	other	5.36
4921	Couriers and express delivery services	0.45	other	0.83
4922	Local messengers and local delivery	0.04	other	2.12
4931	Warehousing and storage	0.59	other	0.45
5111	Newspaper periodical book and directory publishers	0.59	other	0.95
5121	Motion picture and video industries	0.26	other	12.20
5122	Sound recording industries	0.02	other	9.29
5151	Radio and television broadcasting	0.22	other	1.62
5152	Cable and other subscription programming	0.04	other	9.92
5161	Internet Publishing and Broadcasting	0.04	other	3.66
5171	Wired telecommunications carriers	0.56	other	0.64
5172	Wireless telecommunications carriers (except satellite)	0.25	other	1.06
5173	Telecommunications Resellers	0.03	other	0.98
5174	Satellite telecommunications	0.01	other	2.16
5175	Cable and Other Program Distribution	0.22	other	0.54
5179	Other telecommunications	0.02	other	2.64
5181	Internet Service Providers and Web Search Portals	0.07	other	5.66
5182	Data processing hosting and related services	0.32	other	0.86
5191	Other information services	0.05	other	1.77
5211	Monetary authorities- central bank	0.02	other	5.07
5221	Depository credit intermediation	1.77	other	0.57
5222	Nondepository credit intermediation	0.63	other	0.92
5223	Activities related to credit intermediation	0.29	other	0.91
5231	Securities and commodity contracts intermediation and brokerage	0.45	other	5.75
5232	Securities and commodity exchanges	0.01	other	20.19
5239	Other financial investment activities	0.35	other	3.05
5241	Insurance carriers	1.17	other	0.77
5242	Agencies brokerages and other insurance related activities	0.74	other	0.53
5259	Other investment pools and funds	0.03	other	3.10
5321	Automotive equipment rental and leasing	0.17	other	0.82
5322	Consumer goods rental	0.20	other	0.33
5323	General rental centers	0.03	other	0.24
5324	Commercial and industrial machinery and equipment rental and leasing	0.14	other	0.77
5331	Lessors of nonfinancial intangible assets (except copyrighted works)	0.03	other	1.72
5411	Legal services	1.00	other	1.16
5412	Accounting tax preparation bookkeeping and payroll services	1.02	other	1.58
5414	Specialized design services	0.12	other	1.49
5415	Computer systems design and related services	1.05	other	1.21
5416	Management scientific and technical consulting services	0.84	other	1.11
5417	Scientific research and development services	0.58	other	1.42
5418	Advertising public relations and related services	0.38	other	2.16
5419	Other professional scientific and technical services	0.50	other	0.50
5511	Management of companies and enterprises	2.60	other	0.85
5611	Office administrative services	0.40	other	0.88
5612	Facilities support services	0.16	other	0.89

5613	Employment services	2.56	other	0.66
5614	Business support services	0.63	other	0.59
5615	Travel arrangement and reservation services	0.21	other	1.64
5616	Investigation and security services	0.64	other	1.21
5617	Services to buildings and dwellings	1.42	other	0.55
5619	Other support services	0.28	other	0.70
5621	Waste collection	0.16	other	0.38
5622	Waste treatment and disposal	0.05	other	0.81
5629	Remediation and other waste management services	0.10	other	0.44
6111	Elementary and secondary schools	0.69	other	0.58
6112	Junior colleges	0.07	other	1.03
6113	Colleges universities and professional schools	1.35	other	1.23
6114	Business schools and computer and management training	0.06	other	0.90
6115	Technical and trade schools	0.10	other	0.84
6116	Other schools and instruction	0.26	other	0.67
6117	Educational support services	0.06	other	1.25
6211	Offices of physicians	1.79	other	0.41
6212	Offices of dentists	0.68	other	0.44
6213	Offices of other health practitioners	0.51	other	0.37
6214	Outpatient care centers	0.59	other	0.64
6215	Medical and diagnostic laboratories	0.19	other	0.81
6216	Home health care services	0.85	other	0.71
6219	Other ambulatory health care services	0.23	other	0.41
6221	General medical and surgical hospitals	4.31	other	0.39
6222	Psychiatric and substance abuse hospitals	0.19	other	0.60
6223	Specialty (except psychiatric and substance abuse) hospitals	0.19	other	1.44
6231	Nursing care facilities	1.37	other	0.27
6232	Residential mental retardation mental health and substance abuse facilities	0.47	other	0.31
6233	Community care facilities for the elderly	0.58	other	0.31
6239	Other residential care facilities	0.14	other	0.41
6241	Individual and family services	0.92	other	0.51
6242	Community food and housing and emergency and other relief services	0.15	other	0.62
6243	Vocational rehabilitation services	0.29	other	0.33
6244	Child day care services	0.71	other	0.32
7111	Performing arts companies	0.12	other	2.96
7112	Spectator sports	0.11	other	0.91
7113	Promoters of performing arts sports and similar events	0.10	other	1.55
7114	Agents and managers for artists athletes entertainers	0.02	other	11.15
7115	Independent artists writers and performers	0.04	other	7.51
7121	Museums historical sites and similar institutions	0.11	other	1.01
7131	Amusement parks and arcades	0.11	other	5.98
7132	Gambling industries	0.18	other	1.37
7139	Other amusement and recreation industries	0.92	other	0.36
7211	Traveler accommodation	1.54	other	1.46
7212	RV (recreational vehicle) parks and recreational camps	0.04	other	0.22
7213	Rooming and boarding houses	0.01	other	0.84
8111	Automotive repair and maintenance	0.74	other	0.41
8112	Electronic and precision equipment repair and maintenance	0.11	other	0.79
8113	Commercial and industrial machinery and equipment	0.17	other	0.79
8114	Personal and household goods repair and maintenance	0.09	other	0.53
8121	Personal care services	0.51	other	0.43
8122	Death care services	0.12	other	0.24
8123	Drycleaning and laundry services	0.32	other	0.51
8129	Other personal services	0.22	other	1.25
8131	Religious organizations	1.39	other	0.33
8132	Grantmaking and giving services	0.13	other	1.30
8133	Social advocacy organizations	0.11	other	1.27
8134	Civic and social organizations	0.28	other	0.37
8139	Business professional labor political and similar organizations	0.44	other	1.28

Appendix Table II
Mid-Year State Budget Cuts as a Measure of Policy Uncertainty

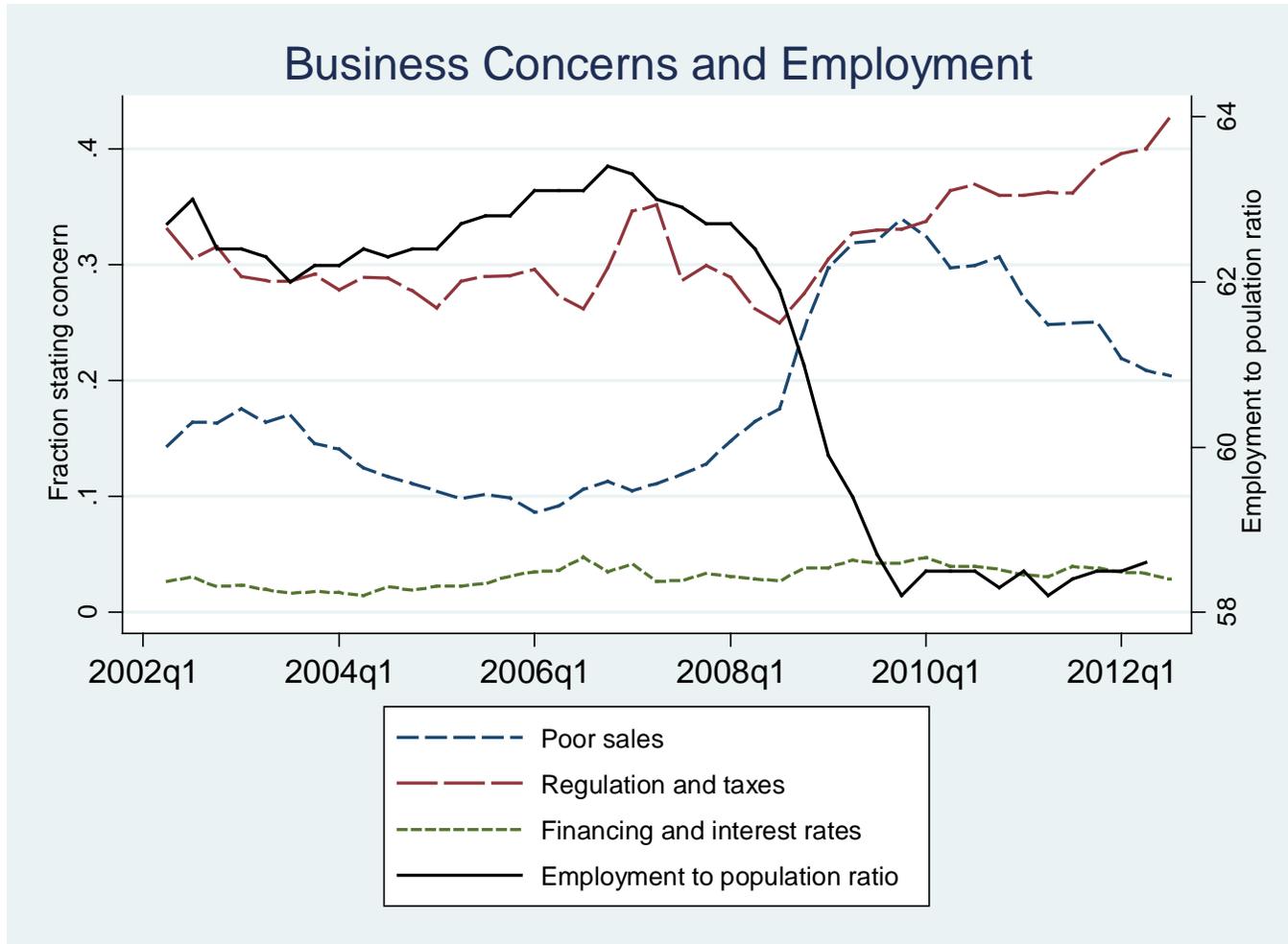
This table presents state level regressions relating employment growth in non-tradable industries from 2007 to 2009 to the state-level change in housing net worth from 2006 to 2009, and mid-year state budget cuts per capita from 2007 to 2009 as reported by the National Association of State Budget Offices. Budget cuts data is from Mericle, Shoag, and Veuger (2012). Standard errors are heteroskedasticity robust.

	(1)	(2)	(3)
	Employment growth, non-tradable industries 2007-2009		
Change in housing net worth, 2006-2009	0.238** (0.058)		0.19** (0.072)
Average mid-year state budget cuts per capita, 2007-2009		-0.433** (0.138)	-0.184 (0.160)
Constant	-0.015** (0.007)	-0.020** (0.007)	-0.012* (0.007)
N	50	50	50
R ²	0.26	0.17	0.28

**,* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively

Appendix Figure 1 Top Business Concerns Over Time

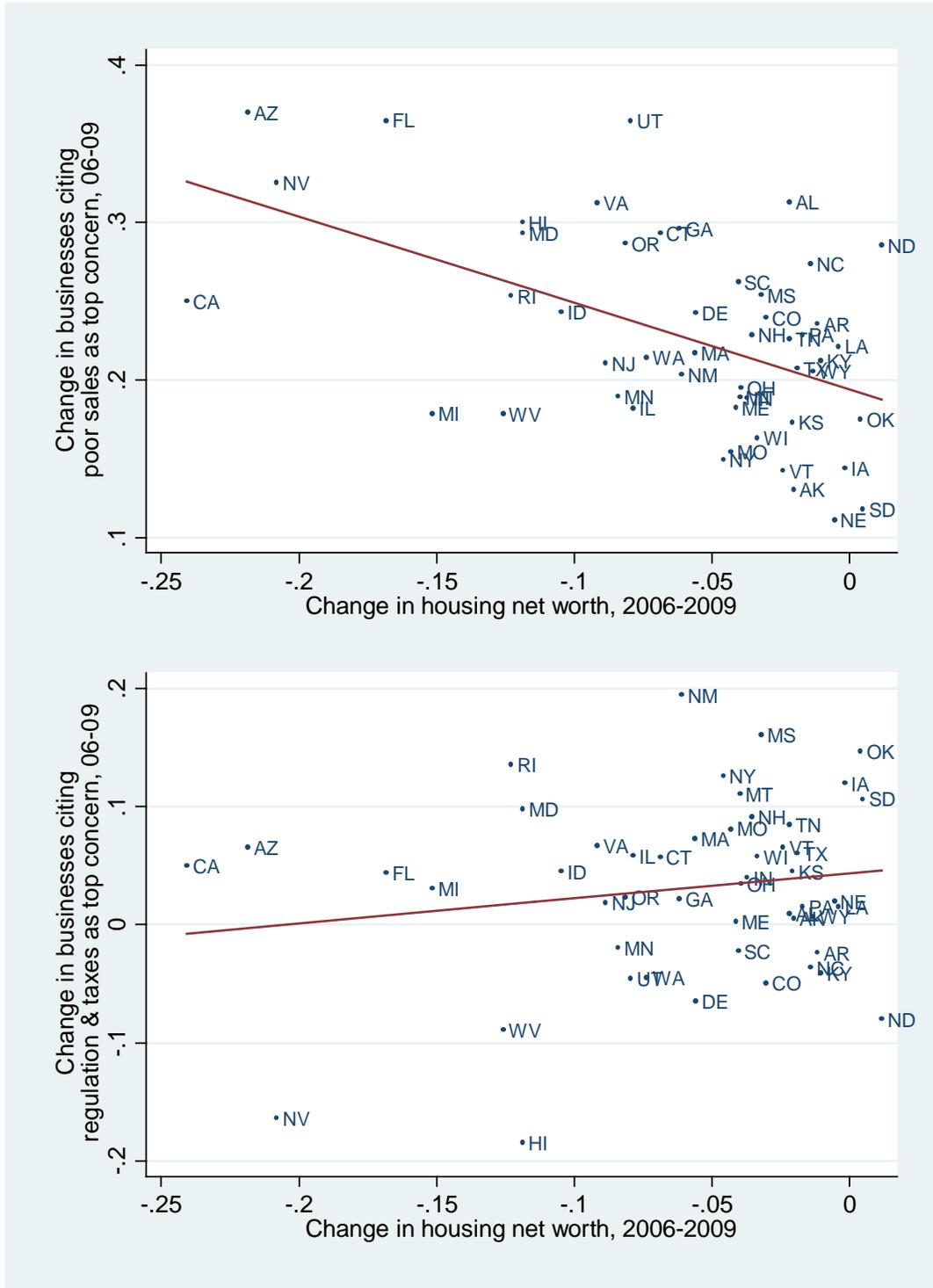
The figure plots responses to the National Federation of Independent Businesses survey between 2002 and 2012. The survey asks small business owners to respond to the following question: “What is the single most important problem facing your business today?” The figure shows responses to five of the ten possible answers, with “regulation” and “taxes” combined into one category.



Appendix Figure 2

Change in Business Concerns And Housing Net Worth Shock

The top panel shows the state-level correlation between the increase in fraction of businesses complaining about “poor sales” as their single most important problem from 2006 to 2009 and change in housing net worth over the same period. The bottom panel repeats this exercise for fraction of businesses complaining about “regulation and taxes” as their single most important problem.



Appendix Figure 3 Mid-year State Budget Cuts and House Price Declines

This figure plots the per-capita mid-year state budget cuts average across states and house price growth. State budget cut data come from the National Association of State Budget Offices.

