

Business Policy Strategy in the Recession: Establish More New Businesses or Expand the Existent Businesses?

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Research Background

- On June 1, 2009, General Motors (GM) filed bankruptcy protection and the Federal government will own 60% of automaker under restructuring plan.
- Is it worth tax payers' money to assist an older firm or instead the stimulation investment should be used to help young and new firms.
- Do older mature and also possibly larger firms generate more employment growth or the younger and most likely smaller firms generate more employment growth?

Literature Review

- ***The Power of the Small and Young***

- smaller and younger firms tend to perform better (Hansen, 1992; Dunne and Hughes, 1994; Hart, 2000; Calvo, 2006)

- ***The Opposite Argument***

- small firms were major contributors of new jobs was largely based on methodological flaws (Davis, et al., 1996)
- high failure rate of small firms (Wren and Colin, 1998)
- net job growth rates were higher in older firms (Kaplan, 2003, econ crisis '95, Mexico)
- the probability of firm survival increased with the age and size of the firm (Persson, 2004, Sweden)

Size or age

- the more important factor to employment growth seemed to be firm age, not size; idiosyncratic factors (Haltiwanger and Krizan, 1999)
- age positively impacted growth, (lagged) size (-) (Das, 1995, India)

Literature Review (contin.)

- ***The Impact of Unemployment***

- job reallocation appears to be driven primarily by idiosyncratic shocks (Davis et al., 1996)
- job creation increased significantly during cyclical upswings; job destruction rose in downturns (Stiglbauer, et al., 2003, Austrain)
- considerable ambiguities about the relationship between unemployment and entrepreneurship (Audretsch, et al., 2000).

- ***Industry Sector & Demographic Characteristic Effects***

- industry differ—competitive advantage in some was achieved through aggregation (upsizing); in others through disaggregation (downsizing) of productive process (Reynolds, 1997).
- Demographic factors were also found important in explaining firm survival and growth (Persson, 2004).

Limitations of Current Literature Review

- No consensus on firm/establishment size effect; Firm/establishment age effect not stressed as much as sizes → firm age effect needed
- Size measure: Size changes with time and defining size is difficult → current size
- New job creation vs. net job growth → net
- Ambiguity of unemployment rate effect → innovative measure
- Limited industries and industry details → all industries, 2 & 3-digits NAICS

Hypotheses

- Establishment age has a significant impact on employment growth
- This establishment age impact differs with industry sectors;
- Unemployment rate and demographic factors are also important for business policy strategy in the recession to effectively enhance employment growth.

The Data

- Quarterly Census of Employment and Wages (QCEW), MD data
 - comprehensive coverage of firms/establishments with any numbers of employees, based on unemployment insurance office administrative records,
 - **current, micro data, longitudinal, monthly**
- unemployment data from the BLS
- demographic data from the Census Bureau

Variable Measurement

- macroeconomic variables

- total employment (E)
- unemployment rate (U)
- derivative of unemployment rate (dU)

- establishment level variables

- establishment size (S)
- Establishment count (C)
- Establishment age (A)

- population attribute variables

- Population count (P)
- population age (PA)
- gender ratio (PG)
- racial diversity index (PR) –Simpson's Index of Diversity

The Model

- $E = S * C$ (1)

- $LnE = LnS + LnC$ (2)

- $LnE_i = \alpha_0 LnS_i + \beta_0 LnC_i + \varepsilon_i$ (3)

- $LnS_i = \chi LnA_i + \delta U_i + \varepsilon dU_i + \phi LnP_i + \gamma LnPA_i + \eta PR_i + \iota PG_i + T_1(t) + \varepsilon_1$ (4)

- $LnC_i = \phi LnA_i + \kappa U_i + \lambda dU_i + \mu LnP_i + \nu LnPA_i + o PR_i + \pi PG_i + T_2(t) + \varepsilon_2$ (5)

- $LnE_i = (\chi + \phi) LnA_i + (\delta + \kappa) U_i + (\varepsilon + \lambda) dU_i + (\phi + \mu) LnP_i + (\gamma + \nu) LnPA_i + (\eta + o) PR_i + (\iota + \pi) PG_i + T_1(t) + T_2(t) + \varepsilon + \varepsilon_1 + \varepsilon_2$ (6)

- $LnE_i = \alpha LnA_i + \beta U_i + \chi dU_i + \delta LnP_i + \varepsilon LnPA_i + \phi PR_i + \gamma PG_i + T(t) + \varepsilon + \varepsilon_1 + \varepsilon_2$ (7)

Methodology

- Hierarchical Modeling
- Nested regression
- Temporal and spatial effects
- SUR

Analysis

- Figure I. Quarterly Total Employment Change by Establishment Age, 2004q1-2008q1

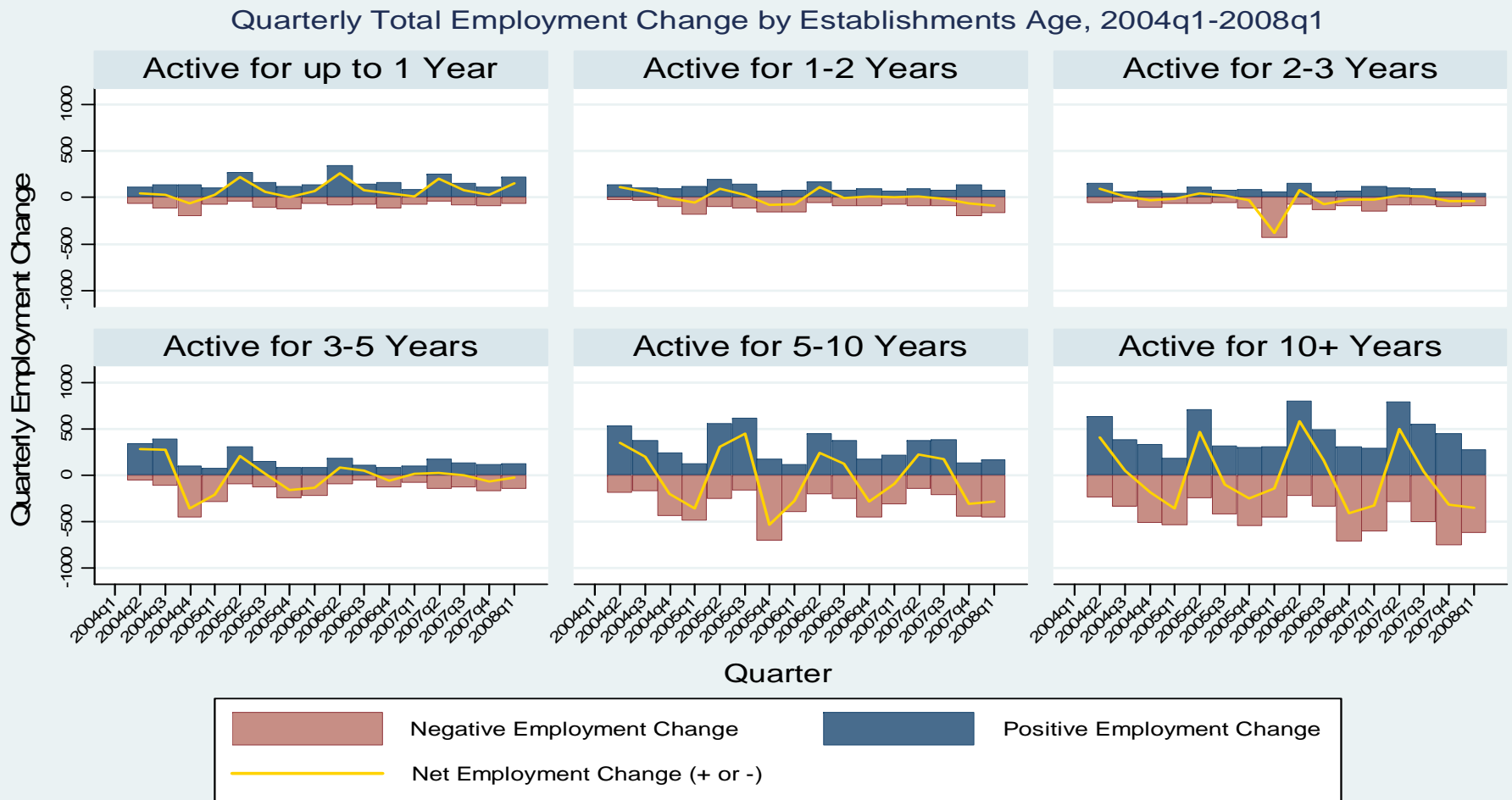


Figure 2. Quarterly Total Employment Change by Establishment Age for Small Establishments (<50), 2004q1-2008q1

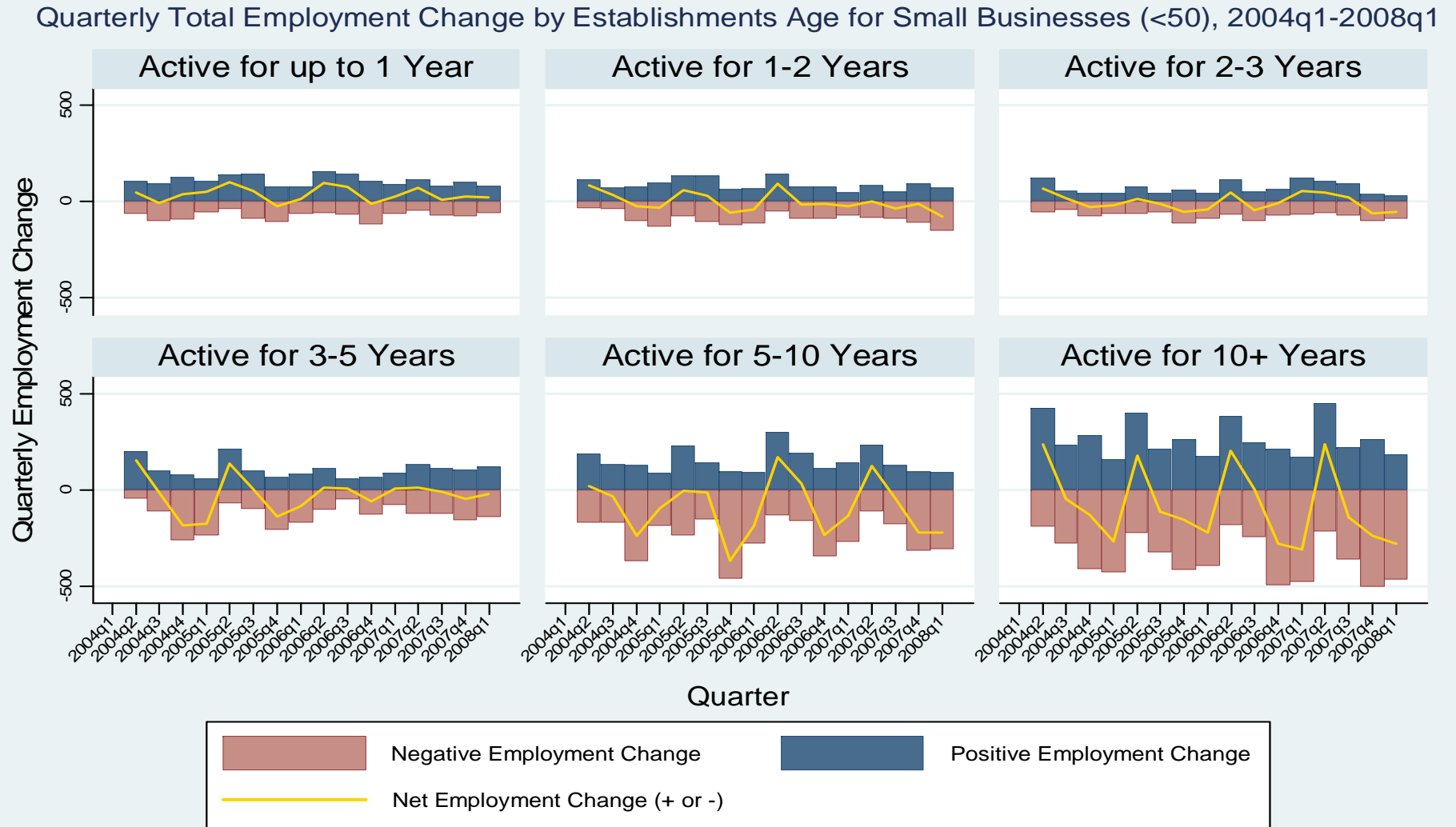


Figure 3. Quarterly Total Employment Change by Establishment Age for Medium Establishments (50-99), 2004q1-2008q1

Quarterly Total Employment Change by Establishments Age for Medium Businesses (50-99), 2004q1-2008q1

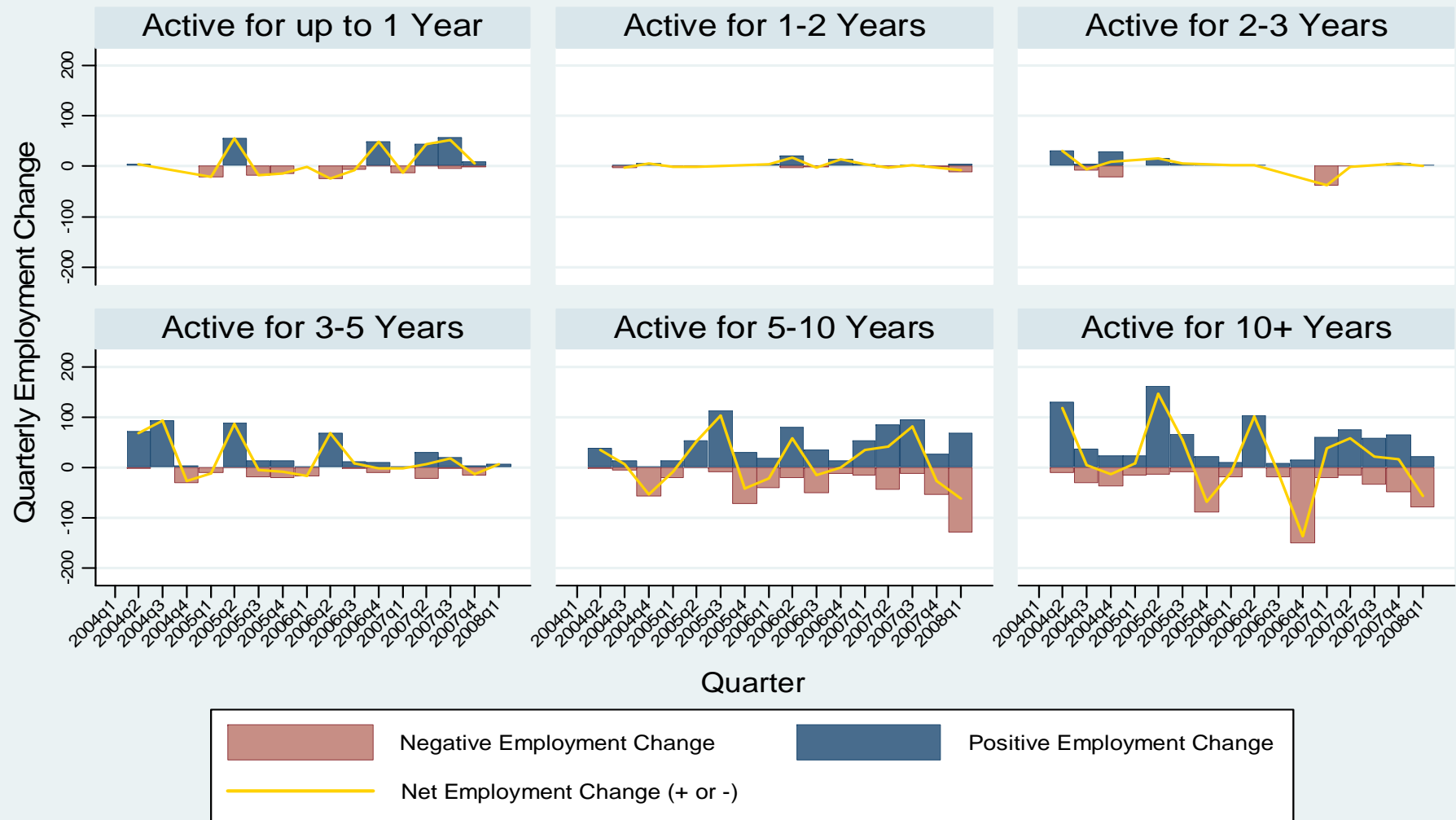
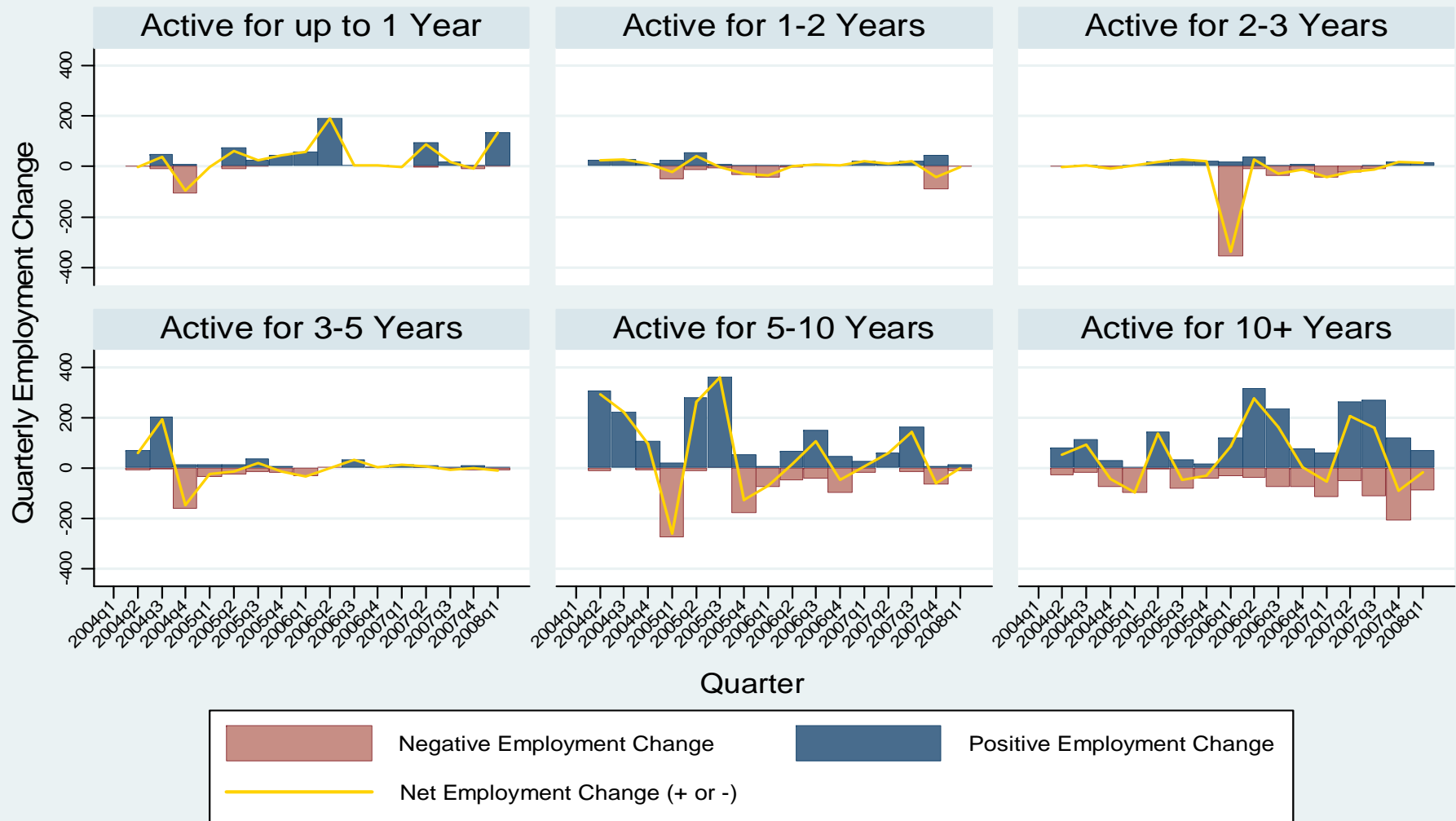


Figure 4. Quarterly Total Employment Change by Establishment Age for Large Establishments (100+), 2004q1-2008q1

Quarterly Total Employment Change by Establishments Age for Large Businesses (≥ 100), 2004q1-2008q1



Regression Coefficients: for Dependent Variable—Employment Growth lnE, Model (7)

	T(t)	lnA	U	DU	lnP	lnPA	PR	PG
Overall	-0.62	0.07	0.02	-0.04	1.10	1.65	-1.97	-2.89
Agricult.	-1.54	-0.17	0.04	-0.04	0.29	6.45	-1.71	-5.74
Mining	-0.56	-0.17	-0.02	-0.03	0.54	7.15	-0.87	<u>15.90</u>
Constr.	-0.95	<u>-0.63</u>	0.03	-0.05	1.07	1.03	-0.13	-0.32
Utilities	-0.75	-0.05	0.00	-0.01	0.83	0.35	-0.70	-7.51
Tra.&Wa.	-1.40	0.04	0.06	-0.06	1.09	1.41	0.19	2.16
Mfg.	0.06	<u>0.20</u>	0.02	-0.02	0.77	-0.04	-4.58	-7.49
Wholesa.	-1.12	<u>0.27</u>	0.03	-0.04	1.14	3.23	-1.31	-3.59
Retail	-0.50	-0.20	0.01	-0.04	1.18	0.70	-0.47	-2.35
Info.	0.13	0.02	0.00	-0.01	1.29	<u>-3.58</u>	-1.57	-1.61
Edu.	0.09	<u>0.26</u>	0.03	-0.05	<u>2.74</u>	6.53	-1.60	7.16
Health Sv	0.15	0.07	-0.01	0.00	1.03	3.85	0.18	-2.13
Fin.& Ins.	-0.66	0.01	0.00	-0.01	1.45	5.99	-1.55	-2.62
Real Es.	-0.97	-0.15	0.03	-0.07	1.57	9.67	-5.94	-6.76
Manage.	-0.73	0.14	-0.01	-0.01	1.19	1.61	-0.30	6.39
Prof. Svcs	0.03	0.05	-0.01	0.00	1.11	1.09	1.66	0.83
Accomm.	0.04	<u>-0.31</u>	0.05	<u>-0.12</u>	0.75	8.16	-0.42	-3.25
Admin.	0.06	0.14	0.00	-0.04	<u>3.70</u>	1.29	-2.10	5.09
Arts&Rer	-1.94	<u>0.24</u>	0.17	<u>-0.15</u>	1.32	0.31	0.37	6.57
Other Sv	-0.37	<u>-0.39</u>	0.01	-0.02	1.19	1.41	-0.59	-0.43

	Reg Coef. (cont.)			No. of obs	# Groups		Log res.likel.	Wald chi2(10)	Prob > chi2
	ei1	ei2	cons.		NAICS	Cnty			
Overall	1.29	0.76	-8.44	102101	93 (20)	1926	-10029	42159	0.0000
Agricult	2.38	0.87	-7.38	5113	5	99	-448	7190	0.0000
Mining	1.24	1.02	-33.63	1730	3	37	-558	1085	0.0000
Constr.	1.70	0.82	-4.76	4032	3	72	2910	3006	0.0000
Utilities	1.38	0.49	2.08	1324	-	24	515	612	0.0000
Trans. & W	2.15	0.94	-15.15	8730	11	172	-2492	6105	0.0000
Mfg.	0.98	0.90	2.83	22206	21	424	19044	344789	0.0000
Wholesale	1.90	1.14	-11.89	4023	3	72	1549	5620	0.0000
Retail	1.18	0.82	-6.08	15939	12	287	7848	10767	0.0000
Info.	0.38	0.65	-2.13	6707	7	136	-1218	2080	0.0000
Edu.	0.92	0.95	-47.11	1341	24	24	1698	18557	0.0000
Health	0.78	0.78	-11.31	5264	4	94	8516	24314	0.0000
Fin & Ins	1.30	0.58	-22.65	4873	5	96	-386	2027	0.0000
Real Es.	1.74	0.74	-25.13	3183	3	61	719	2617	0.0000
Manage	1.52	0.90	-18.62	1310	-	24	-230	819	0.0000
Prof. Svcs	0.93	0.94	-9.18	1344	24	24	3259	20684	0.0000
Accommod	1.00	1.02	-14.14	2688	2	48	4291	39134	0.0000
Admin.	0.96	0.91	-44.72	2632	2	47	3477	39218	0.0000
Arts & Rec.	2.83	0.94	-20.12	3756	3	70	774	9804	0.0000
Other Svcs	1.12	0.82	-8.70	5376	4	96	5549	4823	0.0000

Future Research Directions

- More consistent data exploration for Figures 1-4.
- Selected three-digit NAICS industry level
- Labor force versus overall population attribute data
- Additional variables to focus on a few specific races if racial composition effect is in question
- SUR in situations where hierarchical modeling and multistage regression are required.
- Firm age effect, the merger, and acquisition of businesses

Conclusion

- Establishment age is associated with local employment growth.
- Need to consider industry characteristics for business policies.
- For most major industry sectors, older establishments tend to have a higher employment growth level, ceteris paribus → investing in older establishments to create jobs
- But not for Agriculture(11), Mining (21), Construction (23), Utilities (22), Retail Trade (44-45), Real Estate (53), Accommodation (72), and Other Services (81).
- For Information (51) and Finance & Insurance (52), the establishment age effect is insignificant

Conclusion (cont.)

- A research extension: measure unemployment rates with a derivative vector as well as a magnitude vector
- When unemployment rates trend up, the county employment declines three months later in almost all industry sectors, but three economically acyclical sectors— Utilities (22), Health Svcs(62), and Management(55).
- Nested establishment age-size-count linkage: for most industry sectors in Maryland, counties with older establishments tend to have larger average establishment sizes but tend to have smaller numbers of total establishments, holding other variables constant.