Debt, Jobs, or Housing: What's Keeping Millennials at Home?

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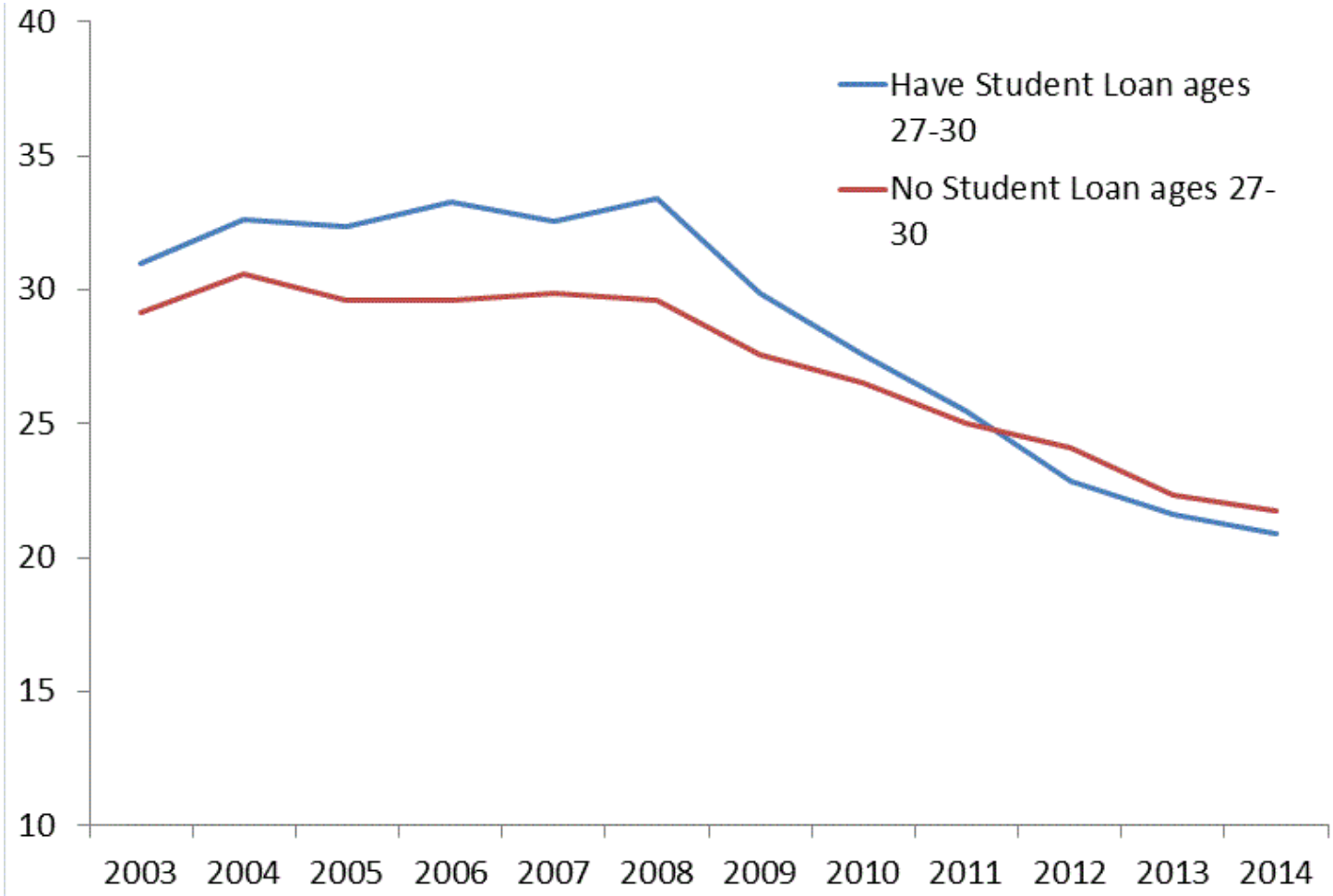
Background: NY Fed / Equifax Consumer Credit Panel (CCP) in brief

- 5% representative sample of all U.S. residents with credit reports, quarterly, 1999Q1-2015Q1
- Fine geographic detail, individual- & household-level
- Representative at each cross section, and yet can follow fileholders over time
  - Sample on last four digits of SSN
  - Representative entry - age in, immigrate
  - Representative attrition - age out, emigrate
- Figures - the economic lives of recent cohorts of American youth

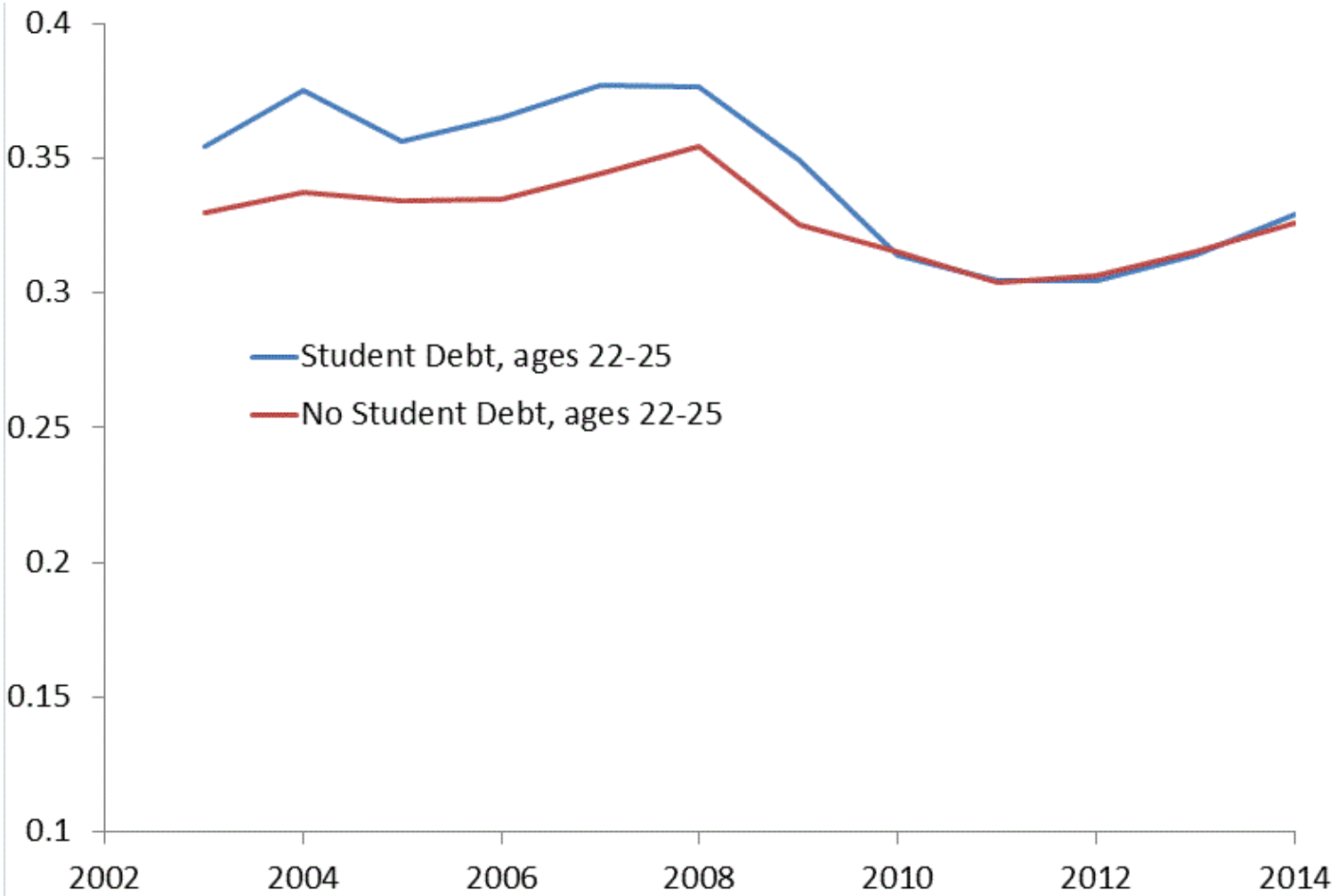
Homeownership at 30 in the CCP

Source: FRBNY / Equifax



Auto loans at 25 in the CCP

Source: FRBNY / Equifax



Young Americans increasingly co-reside with their parents

- Various sources suggest a steep upward trend
  - Kaplan et al (2012), Duca (2013) using CPS, Pew Research Center, Matsudaira using Census / ACS, Sallie Mae annual surveys
  - Measurement is difficult

- FRBNY Consumer Credit Panel: 5% U.S., fine geographic detail, individual- & household-level
  - Document this trend using a large & recent administrative data source
  - Estimate the drivers of the retreat "home" - Student debt? Youth (un)employment? Housing costs?

- Point: to understand the drivers of the large recent changes in young Americans' economic lives, with an eye to prospects for the housing market and the ongoing recovery.

Popular discussion

- National Association of Realtors: drop from steady-state 40% to 30% share of existing home purchases by first time buyers
- NAR 2014: NAR President Steve Brown cites student loans as primary factor holding back first-time buyers.
- CFPB 2013 - hypothesizes links between student debt, delayed household formation, and delayed homeownership.

Recent research

- Matsudaira (forthcoming): 1960-2007 Census / ACS youth co-residence with parents and its response to local unemployment, wages, housing costs. Cross-sections of states, demographic trend heterogeneity.

- Dettling & Hsu (2014): Relate recent changes in debt and delinquency to the move home to parents, and to the duration until recovery of independence.

- Ortalo-Magne & Rady (2006): Youth income and credit access/down payment requirement as the lynch pin of the starter housing market, *and*, under carefully defined conditions, the trade-up market.

- Duca (2013), Paciorek (2014), Agarwal, Hu, & Huang (2013), Dyrda, Kaplan, & Rios-Rull (2012), Card & Lemieux (2000).

What's the value of the CCP in this context?

- Long panel - 1999 through 2015 ongoing, administrative data source
- Millions of observations per wave - allow us to observe residence choices at a given age under a wide variety of (geographically fine) local economic conditions
  - 2005-7 move-out rate of 23 to 25 year-olds in Fort Wayne, IN v. 2007-9 move-out rate of 23 to 25 year-olds in Fort Wayne, IN
  - 2005-7 move-out rate of 23 to 25 year-olds in Fort Wayne, IN v. 2005-7 move-out rate of 23 to 25 year-olds in Fargo, ND
- Panel is crucial - fixed cultural differences, unobserved counterfactual locations.

FRBNY Consumer Credit Panel (CCP) contents

- Balances, payments, limits, delinquency, & default on all standard consumer debts
- Foreclosure, bankruptcy, liens, collections, court actions
- Geographic location to the Census block
- Age, FICO-equivalent risk score
- Individual- & household-level
- Missing: gender, race/ethnicity, ...

Aggregates consistent with Flow of Funds, G.19, ACS, SCF*

Primary hurdle: Measurement of living with parents

- CCP pulls in all adults at primary sample member's address
- Sharing an address (down to apt #) with an individual 15-45 years older
  - Share a mailbox
  - Age band includes 99.8% of mothers & 84.7% of fathers (CDC Vital Statistics)
  - Median maternal age at first birth 1990: 24, 1980: 23
- 10+ household members = living independently
  - 3.7% of 25-year-olds, 3.6% of 30-year-olds

CPS Measurement of living with parents

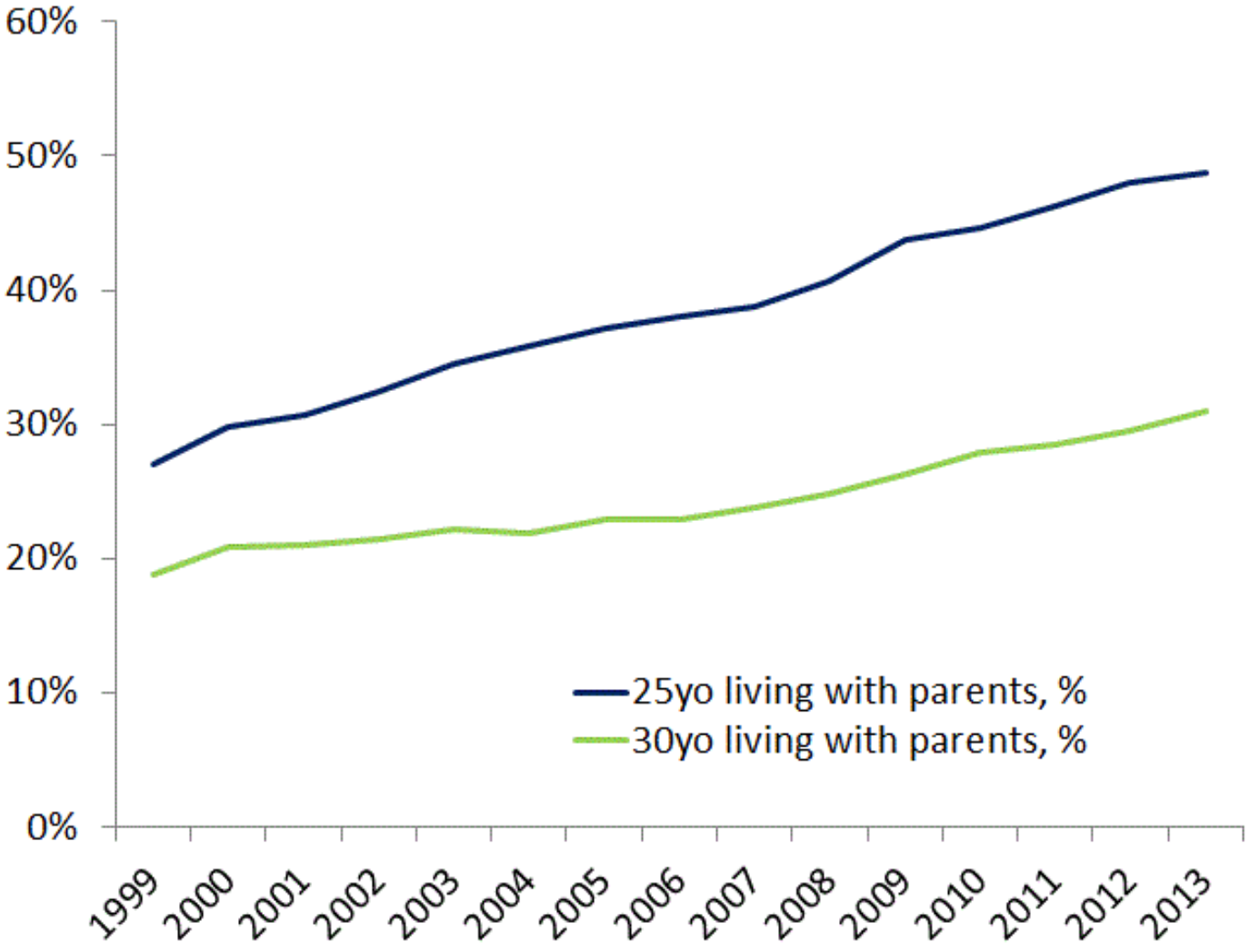
- CPS: Household head + up to 15 household members
- Relationship of all 15 to household head, some accounting of relationships among the 15
- We: Take all CPS 25yos living with someone 15-45 years older
- 84.0% are measurably living with
  - parent, parent-in-law (spouse or partner), stepparent, sibling's parent, sibling's parent-in-law, foster parent, grandparent, parent's partner
- 8.6% significantly older relations and friends - incl. sibling, aunt/uncle, cousin, former stepparent - total 92.6%

CPS Measurement of living with parents

- Measurably wrong about 7.3%
  - 1.8% significantly older spouse
  - Smaller groups: older roommate, older landlord, older roomer
  - 1% either miscodes or exceedingly complex scenarios
- No trend in our "mismeasurement" over time: Varies over a 1% range from 2003-2012, no sig. linear or quadratic trend

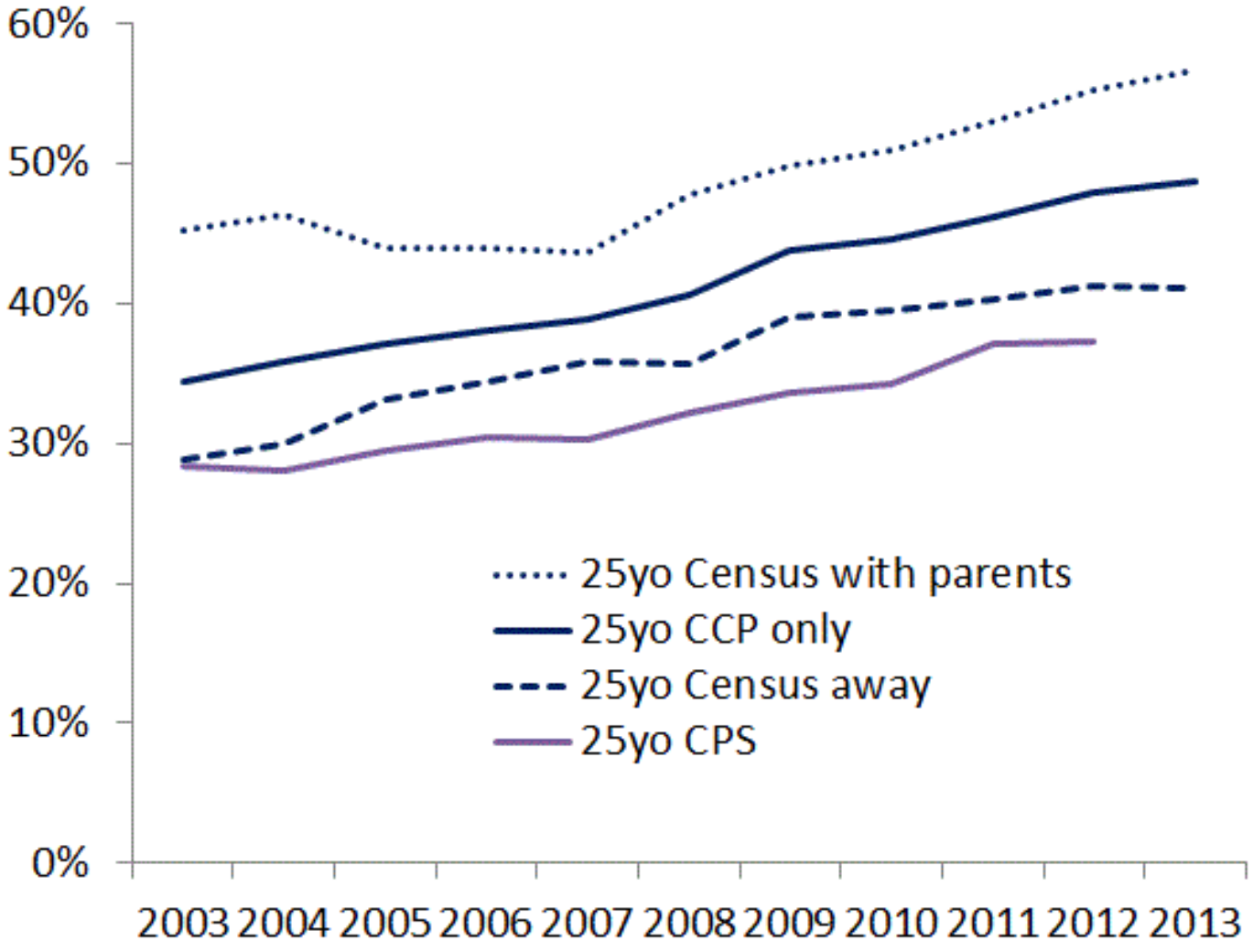
Co-residence with parents in the CCP

Source: FRBNY / Equifax



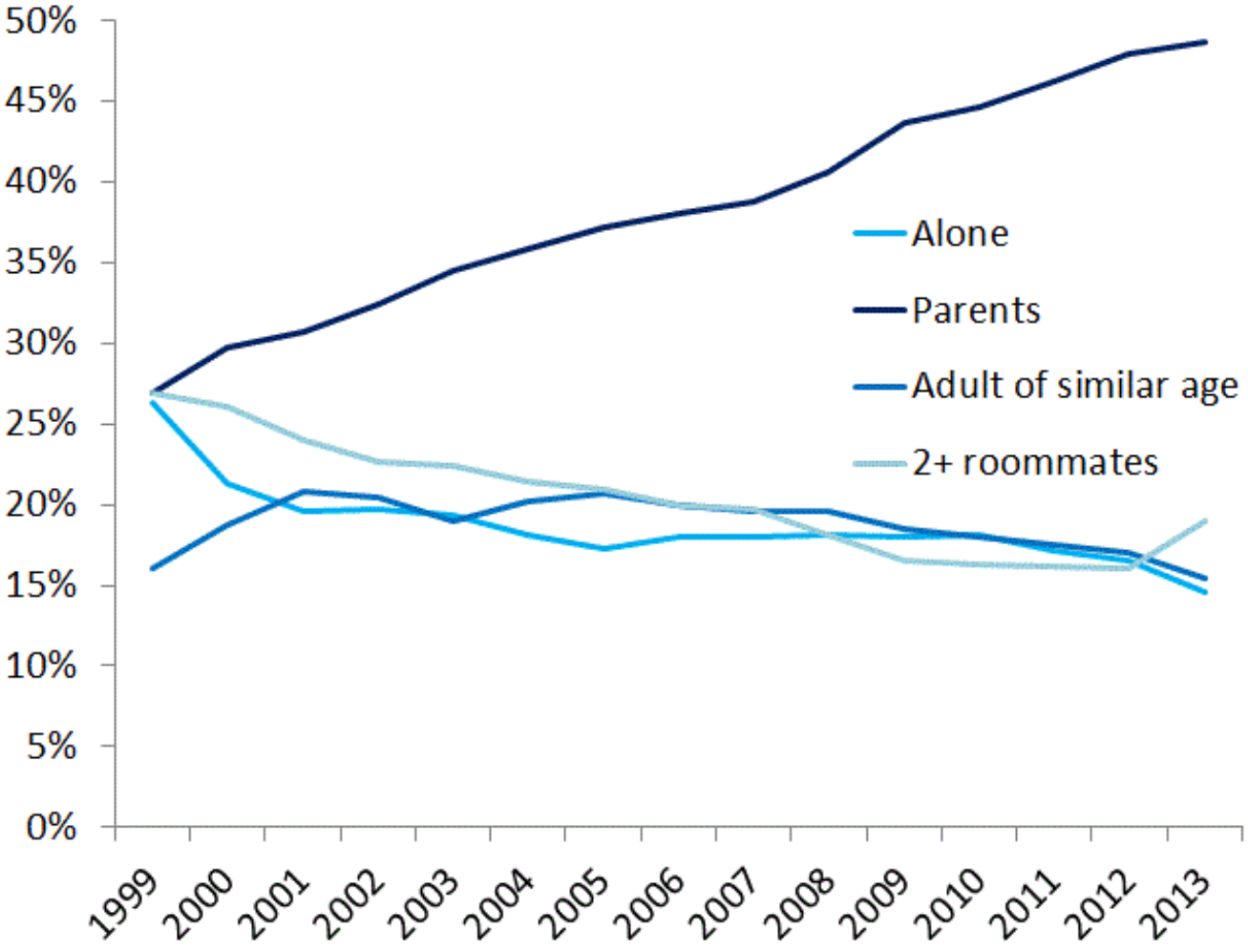
Measurement of coresidence with parents

Source: FRBNY / Equifax



Trends in other 25yo residence choices in the CCP

Source: FRBNY / Equifax



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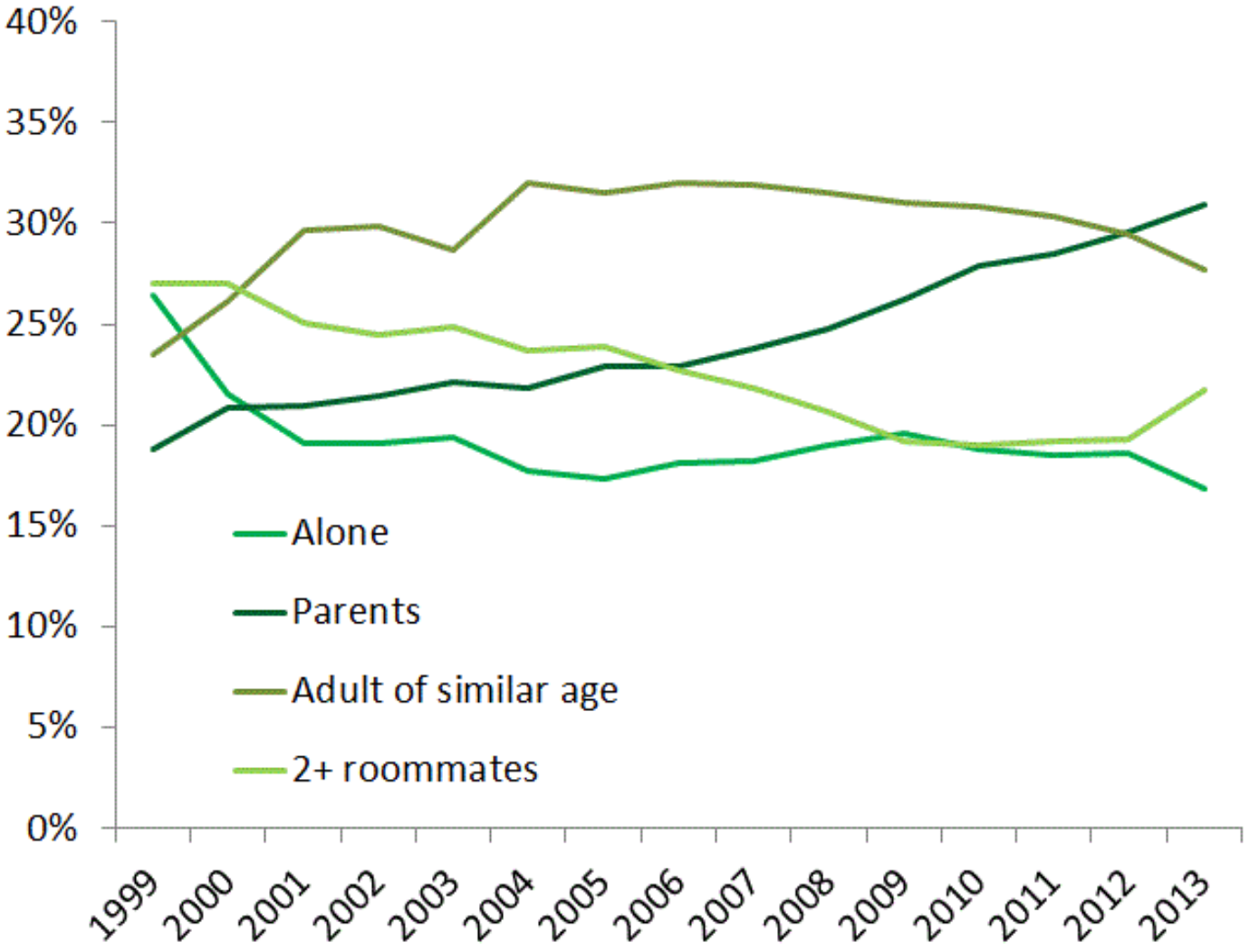
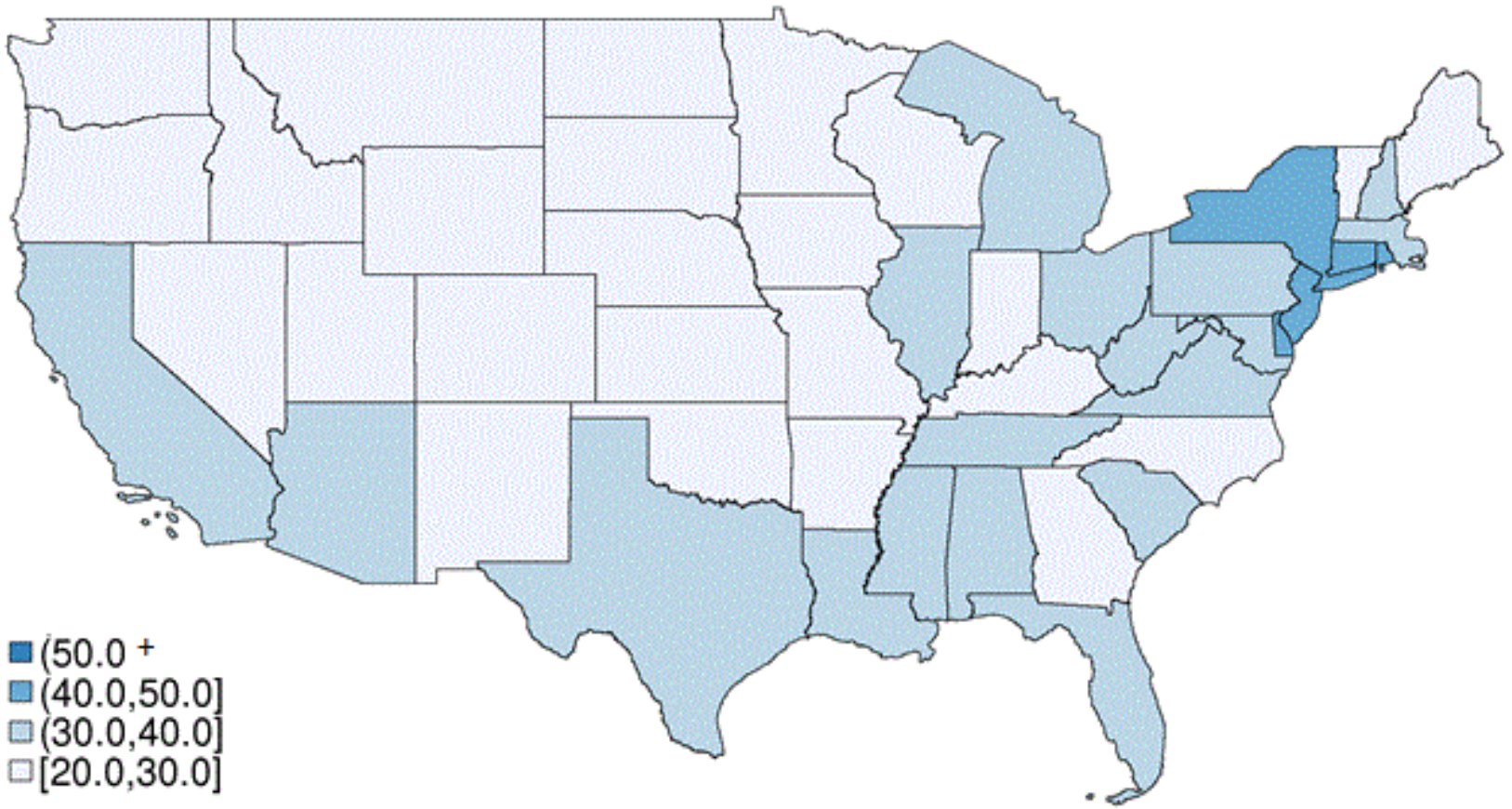


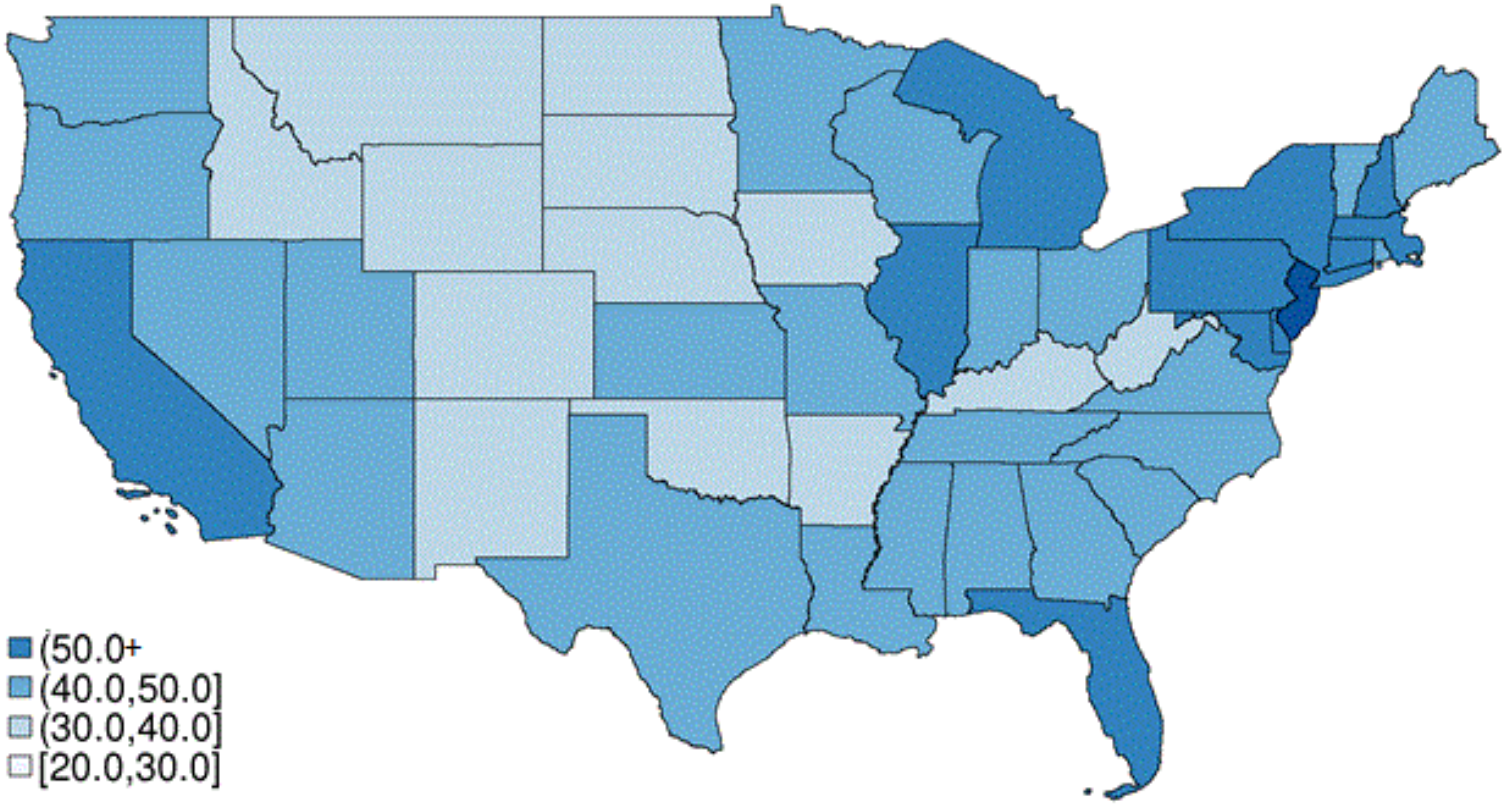
Co-residence with parents by state, 2003

Source: FRBNY / Equifax



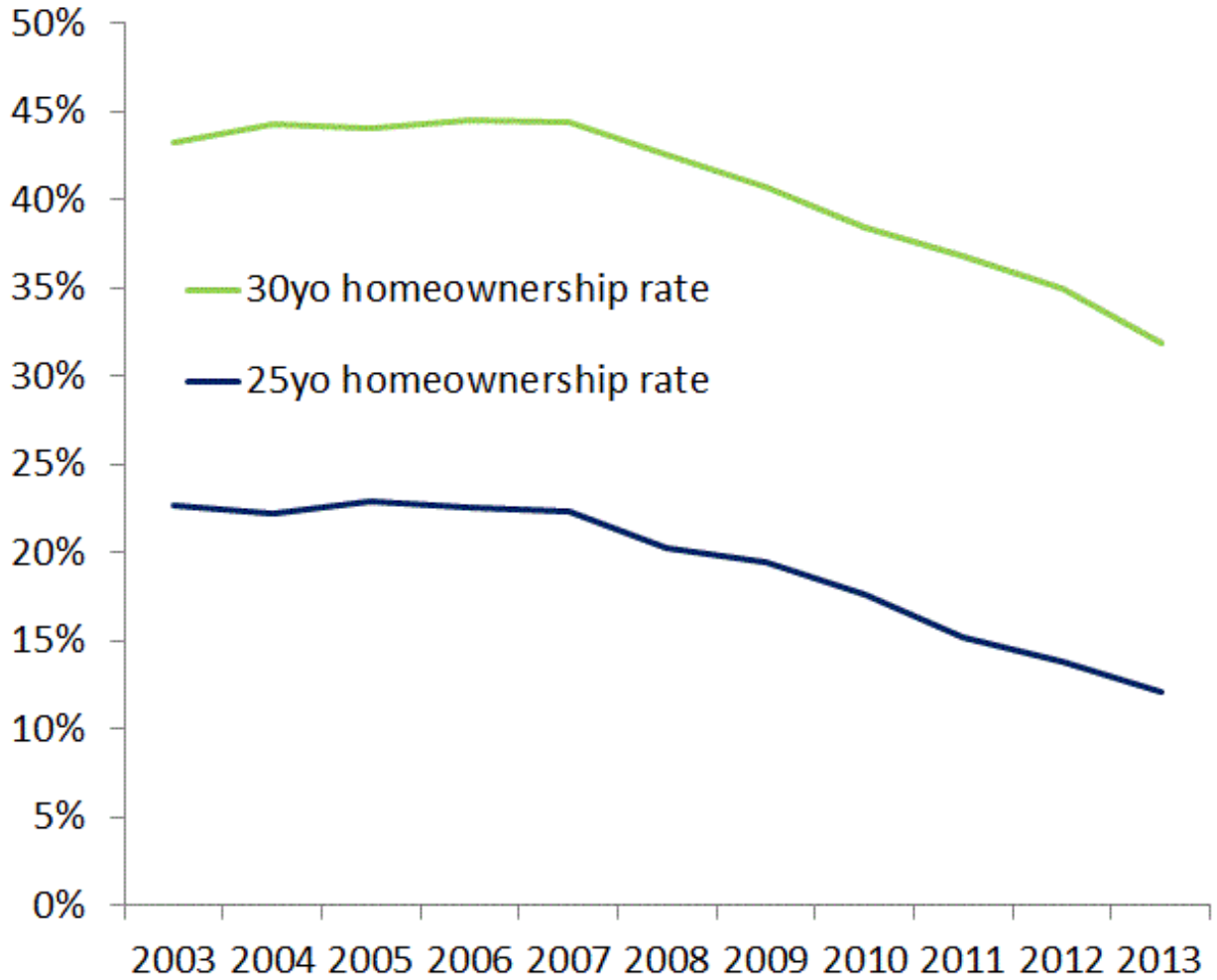
Co-residence with parents by state, 2013

Source: FRBNY / Equifax



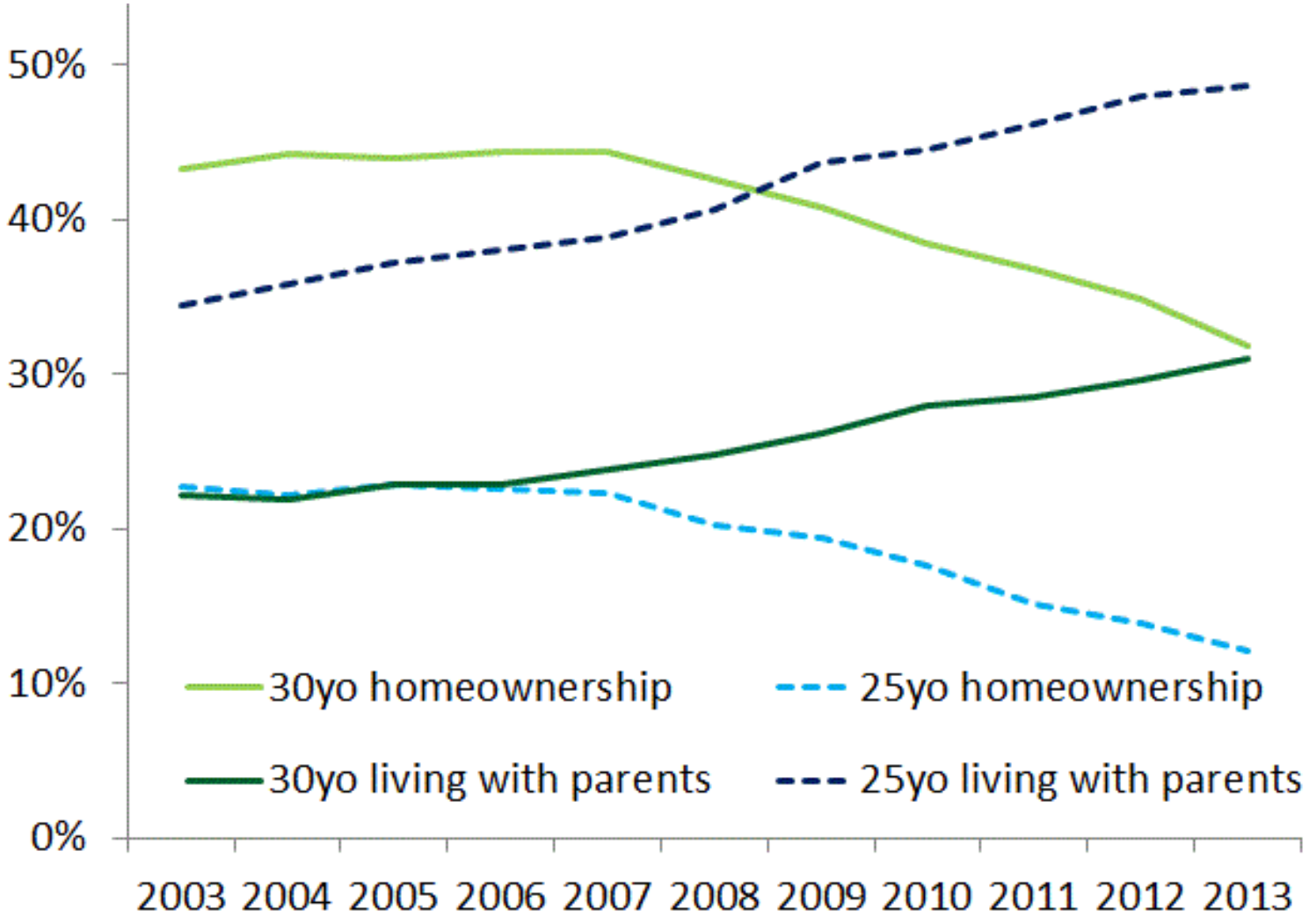
Homeownership in the CCP, from home-secured debt

Source: FRBNY / Equifax



Homeownership & coresidence w/ parents in the CCP

Source: FRBNY / Equifax



Placing residence choices in context

Outside data sources merged in at state, county, zip code level

CoreLogic zip code-level HPI:

- Tracks changes in home prices using repeat transaction sales
- 6739 zip codes, SD 80.1; covers 63% of CCP youth sample

State-level youth (18-30yo) unemployment:

- Authors' calculations using the CPS
- Mean 9.9%, range 1.8% 2000 CT to 22.1% 2010 WV

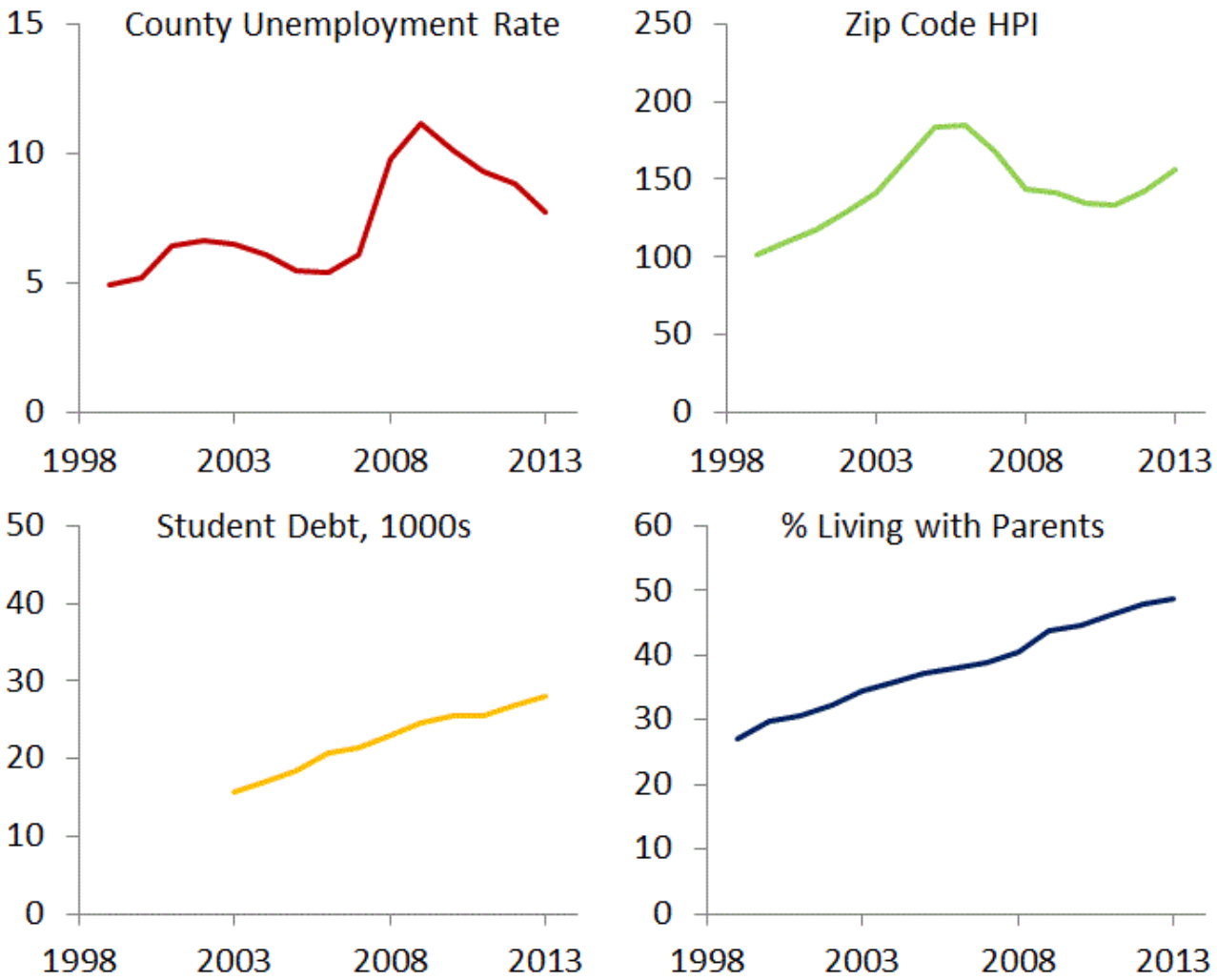
BLS county-level unemployment data:

- BLS Local Area Unemployment Statistics (LAUS)
- 3218 counties containing 32,038 zip codes, SD 3.7ppt

IRS county-level mean household income data

Economic conditions and housing choices, 1999-2013

Source: BLS, CoreLogic, FRBNY / Equifax



Lack of business cycle sensitivity

- Our first guesses at economic factors driving youth home to parents would be
  - Weak youth labor market (Dyrda, Kaplan, & Rios-Rull 2012, Duca 2013, Matsudaira forthcoming)
  - High housing costs (Agarwal, Hu, & Huang 2015; Ortalo-Magne & Rady 2006)
- Does the business cycle sensitivty of youth employment and of housing costs, and the lack of business cycle sensitivity of co-residence with parents, imply that co-residence is not driven by jobs and housing?
- Do the similar ~linear upward trends of student debt and co-residence with parents imply that the increase in co-residence is simply a means of coping with escalating student debt?

Stock model of the dependence of co-residence with parents on local economic climate

Consider the following pooled, stock model of co-residence with parents at time *t:*

$$\Pr(Y_{it+1} = 1 \mid X_{iclt}, Z_{cl}, l, t) = X_{iclt}\beta + Z_{cl}\gamma + \delta_{s(l)} + \varepsilon_{iclt},$$

Individual i, cohort c, location l, time t

Useful for

- More description
- Decomposition - Generating intuition regarding business cycle sensitivity, jobs, and housing
- Pointing out the problems of stock models of co-residence with parents

Estimation sample

- CCP 23- and 25-year-olds from 1999 through 2013
- Subsample to 1%
- Require age (minor cut), require local information - retain 63% of full sample, lose most rural segment
- $N = 567,932$ youth, ~11.9 million panel observations

Student debt

- Endogeneity of student debt owing to parent generosity
- Lack of informative institutional variation in student debt
  - Unsubsidized Stafford loan program 1993
- One solution: average student debt price of a degree for the state-cohort
- State college graduation rate:
  - IPEDS # of college-age youth who receive associate's or bachelor's degree within 150% of normal time to degree
  - Census # 24-year-olds in state
- CCP state-cohort average student debt
  - 24-year-olds (run sensitivity to 22)
  - Total CCP student debt among 24-year-olds
  - Note accounts for dropouts.

Independent variable	(1)	(2)	(3)	(4)
Unemployment	0.718***	0.243**	0.071	0.045
	(0.145)	(0.106)	(0.087)	(0.082)
Youth Unemploymt	0.924***	0.378***	0.118**	0.097
	(0.105)	(0.075)	(0.059)	(0.060)
HPI	0.079***	0.028***	0.020*	0.020**
	(0.007)	(0.010)	(0.010)	(0.010)
Income ('000s)	0.131***	0.090***	0.076***	0.077***
	(0.029)	(0.025)	(0.024)	(0.024)
SL / Grad ('000s)		0.414***	0.112***	0.094*
		(0.046)	(0.032)	(0.053)
Grad. Rate		0.111**	-0.003	0.026
		(0.048)	(0.055)	(0.060)
Age 25 Dummy	-5.922***	-4.310***	-5.909***	-5.953***
	(0.353)	(0.392)	(0.305)	(0.340)
Year Trend			1.206***	2.000***
			(0.096)	(0.219)
State-Year Trends	No	No	No	Yes
R^2	.034	.038	.039	.039

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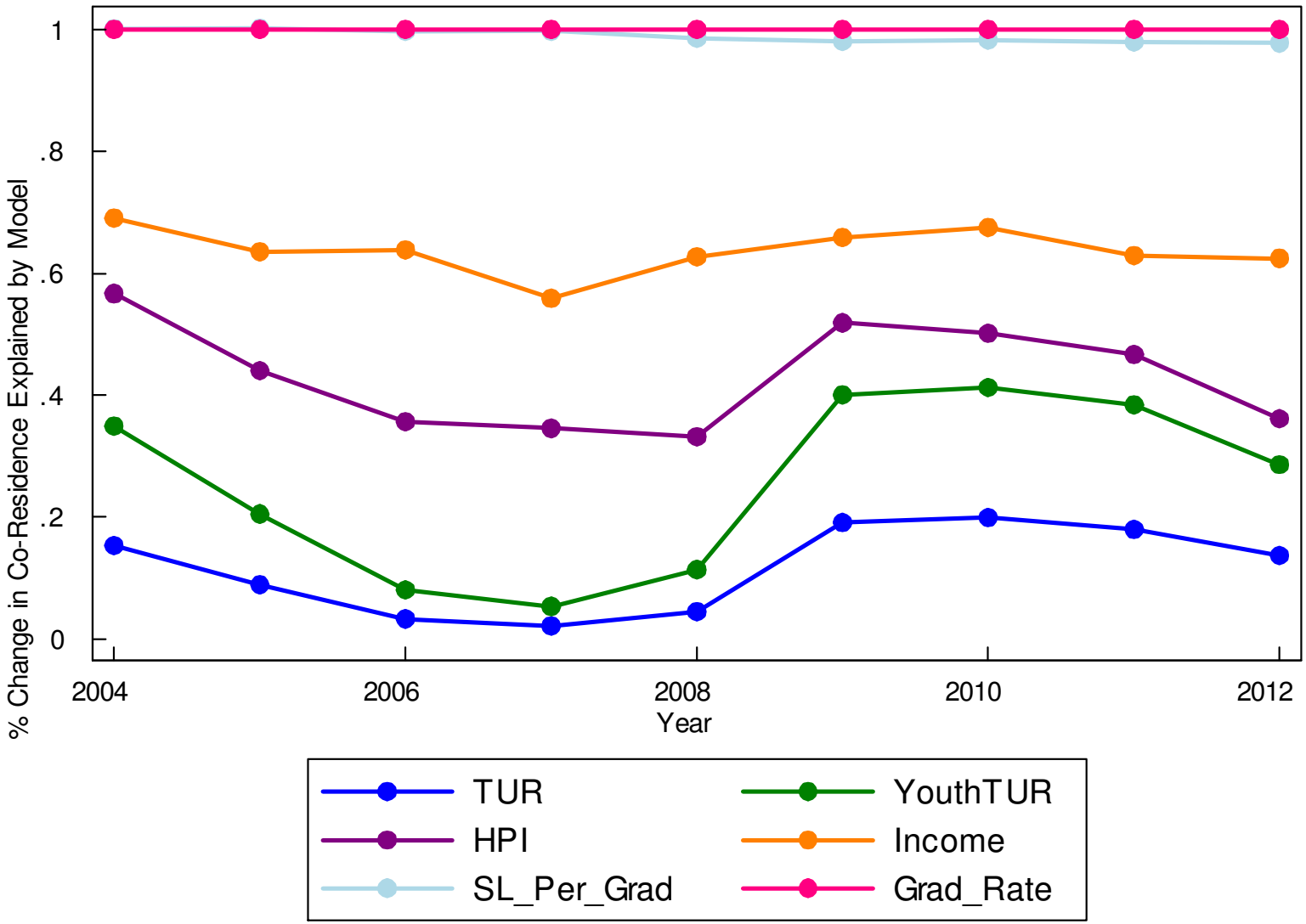
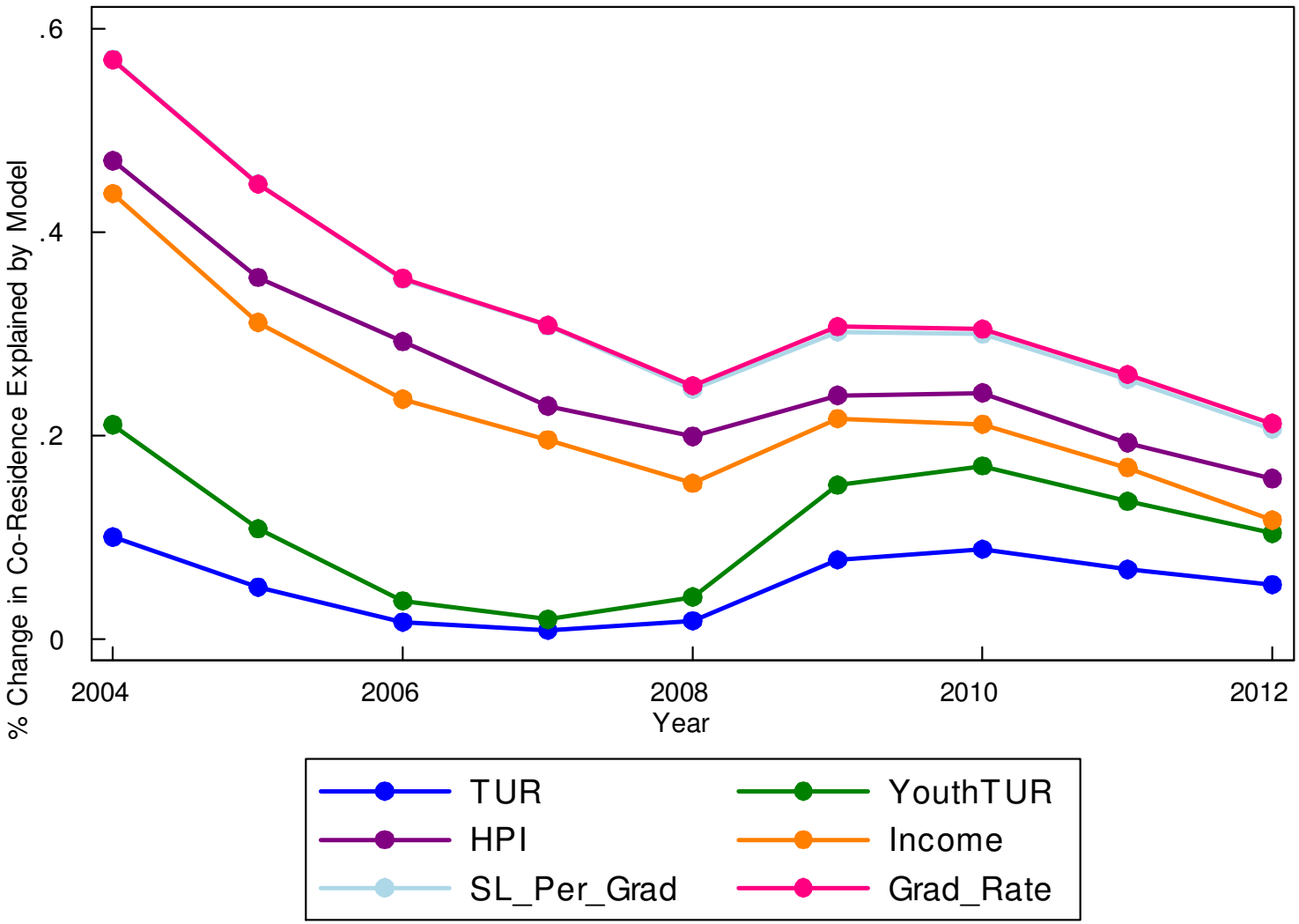
Decomposition of stock model estimates, no time trend

Source: FRBNY / Equifax



Decomposition of stock model estimates, with time trend

Source: FRBNY / Equifax



How different are parent and child locations?

	Stock Values			Flow Values		
	All	Indep.	Parents	All	Indep.	Parents
Unemploymnt	7.0	6.9	7.3	0.4	0.4	0.4
	(3.0)	(3.0)	(3.0)	(2.4)	(2.4)	(2.5)
Youth Unemp.	9.7	9.4	10.0	1.0	1.0	1.1
	(3.2)	(3.1)	(3.3)	(3.2)	(3.2)	(3.3)
House P Index	144.4	141.2	148.6	4.7	6.8	2
	(44.7)	(43.5)	(46.0)	(34.2)	(33.4)	(34.9)
Income ('000s)	53.2	52.1	54.9	1.8	1.7	1.9
	(15.4)	(14.9)	(16.0)	(4.4)	(4.5)	(4.2)
SL Per Grad	20.1	19.3	21			
('000s)	(7.4)	(7.3)	(7.6)			
Grad. Rate	29.1	29.2	29.1			
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Flow home to parents from independent living

$$\Pr(Y_{it+1} = 1 | Y_{it} = 0, X^H_{ilt}, X^H_{ilt+1}, Z^H_{cl}, i, c, l) = (X^H_{ilt+1} - X^H_{ilt})\beta^H + Z^H_{cl}\gamma^H + \delta^H_{s(l)} + \varepsilon^H_{ilt},$$

Y_{it} = indicator for residence with parents for individual i at time t

X^H_{ilt} = county-level BLS unemployment, state-level youth unemployment, zip code-level CoreLogic HPI & IRS mean income for individual i in *independent* location l at time t; some specifications repeat vector of local conditions from year i was 18.

Z^H_{cl} = state-level student debt reliance of college grads, and graduation rate among 24yos, in cohort c and location l

Student debt II

- Another solution: predict state-cohort student debt price of degree using tuition
- IPEDS private and public tuition levels when state-cohort was 18
  - Weight using private and public shares for state
- First stage
  - Mean annual tuition sticker price coefficient in state-cohort debt price of degree expression = 1.13 private (0.53 public), p-values < 0.001, F-stat 154.30
  - Sticker price, not net price (or weighted public + private price) is strongest predictor of debt
- Not sensitive to controls for
  - Age 18 local (youth & total) unemployment
  - Age 18 local income
  - Age 18 local house prices

Independep var	(1)	(2)	(3)	(4)	(5)
				Time Trend	$\widehat{S}_{cl}$
ΔUnemploymt	-0.100	-0.009	0.002	-0.045	-0.085
	(0.070)	(0.060)	(0.058)	(0.046)	(0.073)
ΔYouth Unmp	0.100*	0.000	-0.007	-0.028	-0.012
	(0.057)	(0.064)	(0.058)	(0.041)	(0.042)
ΔHPI	0.022***	0.025***	0.023***	0.011***	0.013***
	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)
ΔIncome	-0.041**	0.021	0.019	-0.012	-0.018
('000s)	(0.015)	(0.024)	(0.022)	(0.030)	(0.032)
SL Per Grad		0.194***	0.172***	0.080***	0.139***
('000s)		(0.024)	(0.024)	(0.021)	(0.019)
Grad. Rate			-0.080*	-0.043	-0.034
			(0.043)	(0.028)	(0.029)
State FEs	No	No	No	Yes	No
R^2	0.0038	0.0053	0.0056	0.0093	0.0033
Observations	315,345	315,345	315,345	315,345	315,345

Independep var	(1)	(2)	(3)	(4) Time Trend	(5) $\widehat{S}_{cl}$
ΔUnemploymt	-0.100	-0.009	0.002	-0.045	-0.085
	(0.070)	(0.060)	(0.058)	(0.046)	(0.073)
ΔYouth Unmp	0.100*	0.000	-0.007	-0.028	-0.012
	(0.057)	(0.064)	(0.058)	(0.041)	(0.042)
ΔHPI	0.022***	0.025***	0.023***	0.011***	0.013***
	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)
ΔIncome ('000s)	-0.041**	0.021	0.019	-0.012	-0.018
	(0.015)	(0.024)	(0.022)	(0.030)	(0.032)
SL Per Grad ('000s)		0.194***	0.172***	0.080***	0.139***
		(0.024)	(0.024)	(0.021)	(0.019)
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	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)
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			(0.043)	(0.028)	(0.029)
State FEs	No	No	No	Yes	No
R^2	0.0038	0.0053	0.0056	0.0093	0.0033
Observations	315,345	315,345	315,345	315,345	315,345

Flow away to independent living from parents

$$\Pr(Y_{it+1} = 0 | Y_{it} = 1, X^A_{ilt}, X^A_{ilt+1}, Z^A_{cl}, i, c, l) = (X^A_{ilt+1} - X^A_{ilt})\beta^A + Z^A_{cl}\gamma^A + \delta^A_{s(l)} + \varepsilon^A_{ilt},$$

Y_{it} = indicator for residence with parents for individual i at time t

X^A_{ilt} = county-level BLS unemployment, state-level youth unemployment, zip code-level CoreLogic HPI of individual i in *parent* location l at time t

Z^A_{cl} = state-level student debt reliance of college grads, and graduation rate among 24yos, in cohort c and location l.

Independep var	(1)	(2)	(3)	(4)	(5)
				Time Trend	$\widehat{S}_{cl}$
ΔUnemploymt	-0.203	-0.076	-0.082	-0.077	-0.356***
	(0.211)	(0.182)	(0.171)	(0.153)	(0.109)
ΔYouth Unmp	0.014	-0.296*	-0.290*	-0.191*	-0.175*
	(0.187)	(0.163)	(0.146)	(0.111)	(0.105)
ΔHPI	0.061***	-0.002	-0.002	0.007	-0.015*
	(0.011)	(0.006)	(0.006)	(0.005)	(0.002)
ΔIncome	-.448***	-.121***	-.119***	-0.045	-0.124***
('000s)	(0.051)	(0.035)	(0.034)	(0.043)	(0.032)
SL Per Grad		-.353***	-.347***	-0.253***	-0.418***
('000s)		(0.028)	(0.028)	(0.041)	(0.088)
Grad. Rate			0.025	-0.166*	0.004
			(0.087)	(0.086)	(0.069)
State FEs	No	No	No	Yes	No
R^2	0.0083	.021	.021	.028	0.021
Observations	231,479	231,479	231,479	231,479	231,479

Independep var	(1)	(2)	(3)	(4)	(5)
				Time Trend	$\widehat{S}_{cl}$
ΔUnemploymt	-0.203	-0.076	-0.082	-0.077	-0.356***
	(0.211)	(0.182)	(0.171)	(0.153)	(0.109)
ΔYouth Unmp	0.014	-0.296*	-0.290*	-0.191*	-0.175*
	(0.187)	(0.163)	(0.146)	(0.111)	(0.105)
ΔHPI	0.061***	-0.002	-0.002	0.007	-0.015*
	(0.011)	(0.006)	(0.006)	(0.005)	(0.002)
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ΔIncome	-.448***	-.121***	-.119***	-0.045	-0.124***
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SL Per Grad		-.353***	-.347***	-0.253***	-0.418***
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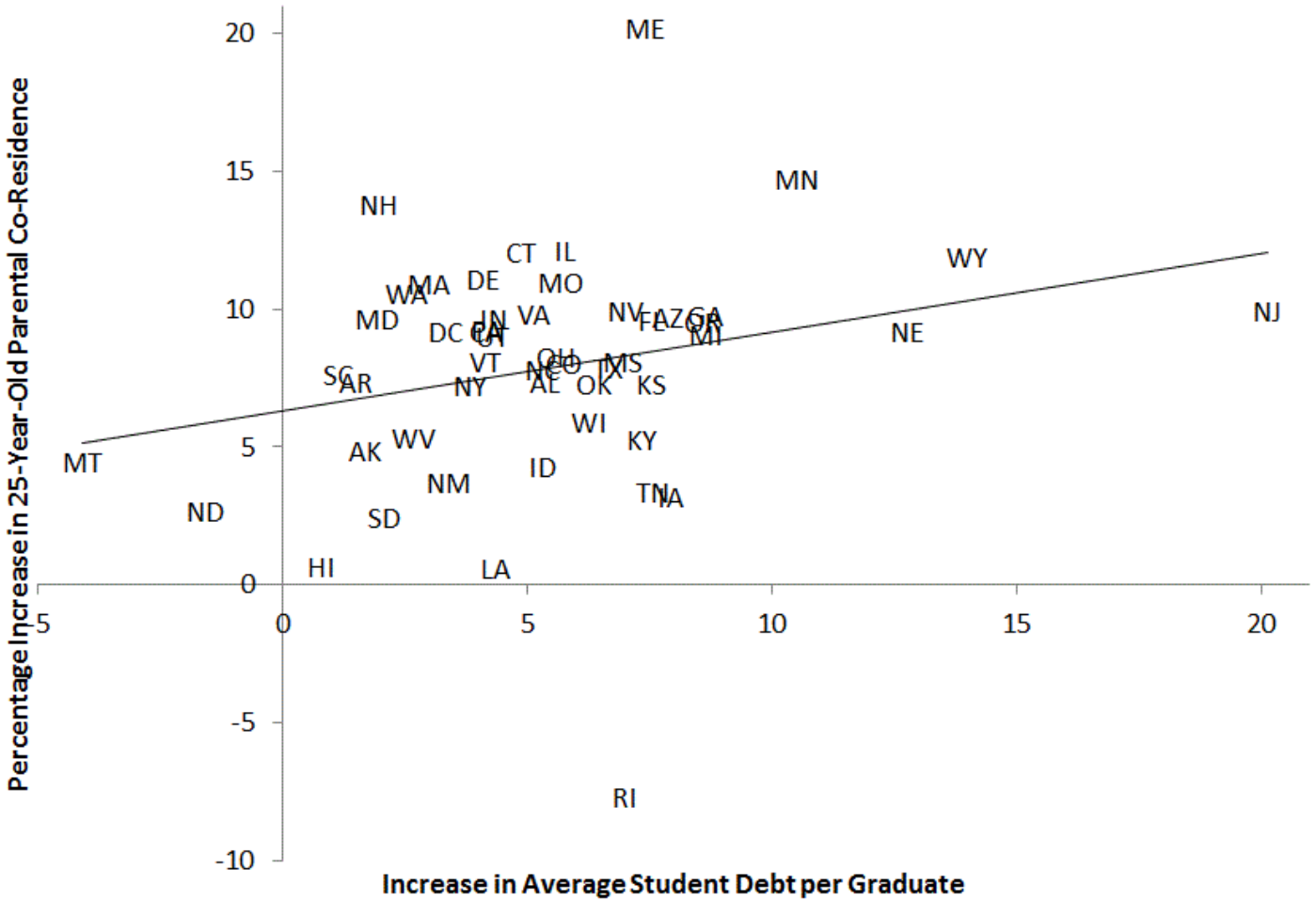
Grad. Rate			0.025	-0.166*	0.004
			(0.087)	(0.086)	(0.069)
State FEs	No	No	No	Yes	No
R^2	0.0083	.021	.021	.028	0.021
Observations	231,479	231,479	231,479	231,479	231,479

State-level scatter plot of student debt growth against growth in co-residence

2008-2013, Source: FRBNY / Equifax



Conclusions

- From 1999-2013, Consumer Credit Panel youth show a persistent upward trend in living with parents, accompanied by downward trends in homeownership, living alone, and living with groups of roommates.

- CCP data are of particular value in studying the striking changes in youth residence, as they allow comparisons across 15 cohorts and at fine geographic levels. At the same time, the panel allows us to track individual residence transitions.

Conclusions

- Estimates suggest that local economic growth is of mixed value in curing youths' retreat to parents: While improving youth labor markets enable moves away, strengthening local house prices send independent youth back home.

- The opposing contributions of job and housing markets to coresidence choices in a boom (or bust) go some distance toward explaining the lack of business cycle sensitivity of co-residence with parents in a model in which jobs and house prices, nevertheless, matter.

- High state-cohort student debt costs of college substantially lower rates of moving out and increase rates of moving home, so that as student debt trends ever upward, American youth trend toward home.