

TRICKLE-DOWN CONSUMPTION

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Log wage ratio

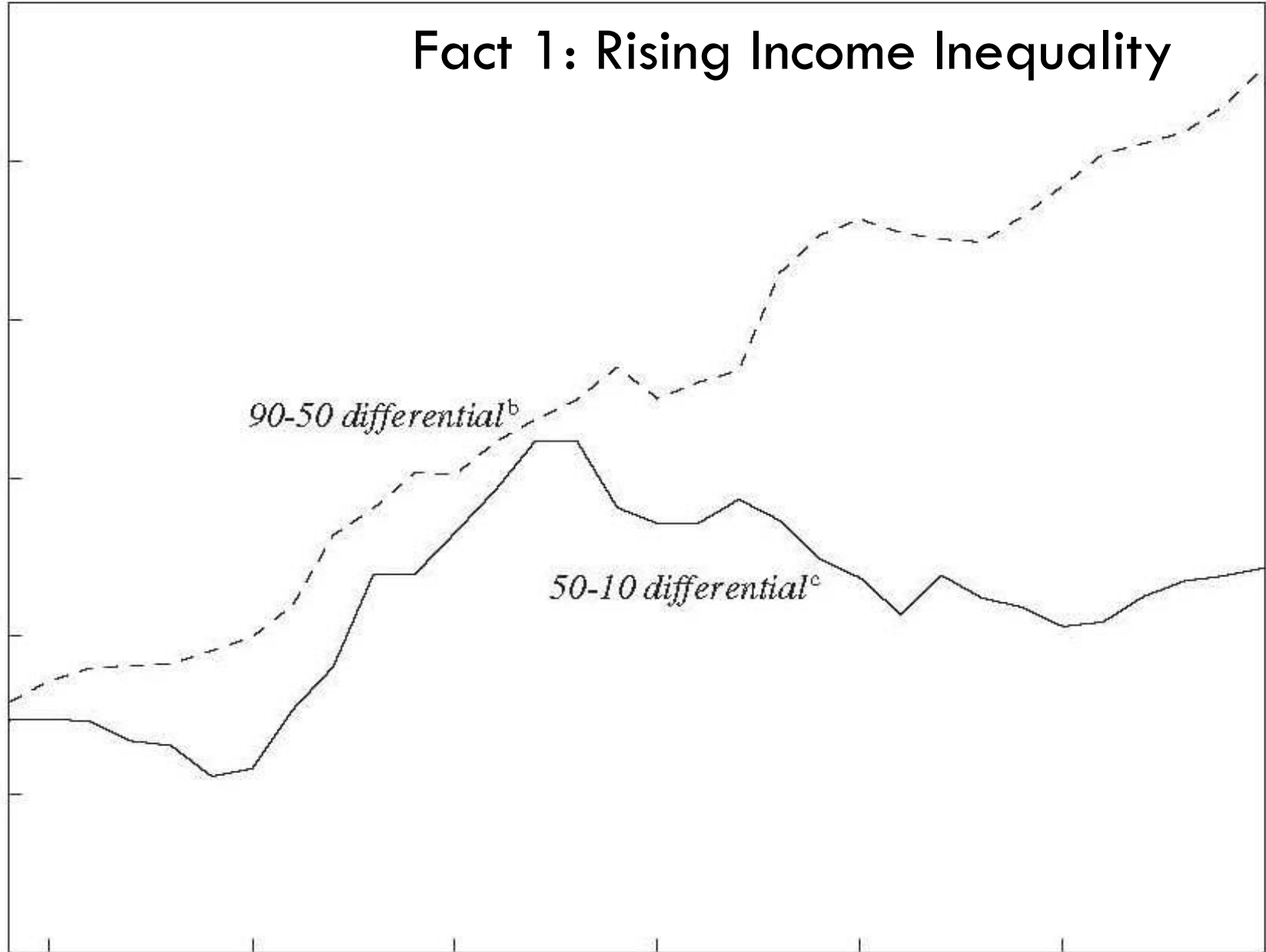
Fact 1: Rising Income Inequality

0.80
0.75
0.70
0.65
0.60

90-50 differential^b

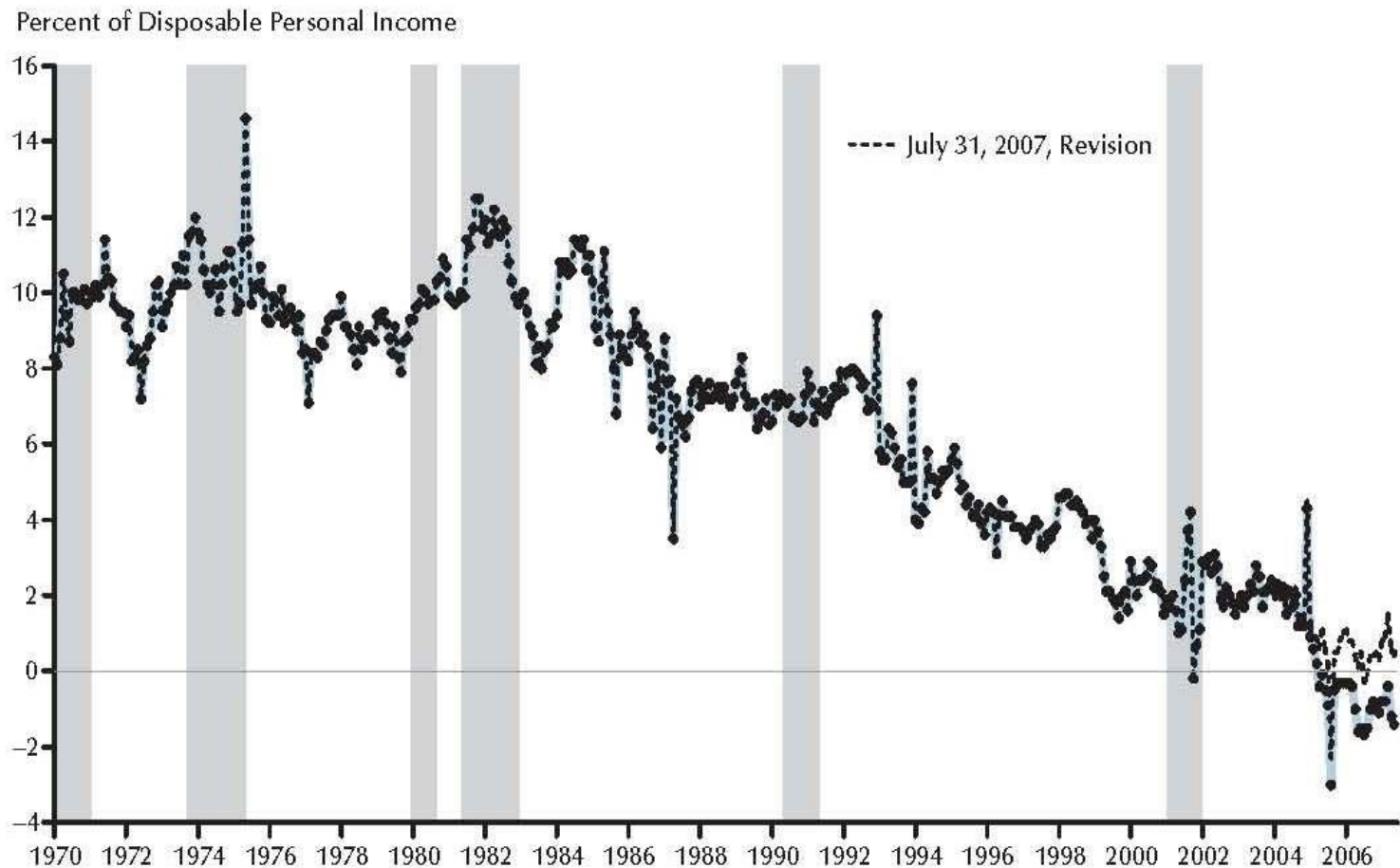
50-10 differential^c

1975 1980 1985 1990 1995 2000



Fact 2: Decreasing Saving Rate

NIPA: Personal Saving as a Percent of Disposable Personal Income (monthly, SA)



NOTE: Shaded bars indicate recessions.

SOURCE: Bureau of Economic Analysis.

Our Research Question

- Are these two trends related?
- In particular: Are rising incomes and consumption at the top positively related to non-rich households' spending out of income

Structure of Talk

- Document main fact (correlation)
 - ▣ Talk about measurement error and correlated shocks
- Explanations:
 - ▣ Reverse causality
 - ▣ Permanent income
 - ▣ Price effects through home equity or sticky consumption
- These stories cannot explain away correlation
- Try to go after mechanisms/facilitators to establish credibility & understand outcomes
- Assess magnitude in terms of saving rate

Documenting the Main Fact

Dependent Variable:

Log Total Annual Consumption for a given non-rich household in the CEX 1980-2008

- ▣ “Non-Rich”: Restrict CEX sample to households below the 80th percentile in their state-year cell
- ▣ State-year income distribution (deciles) as defined by level March CPS, 1980 to 2008
- ▣ Note: We turn Durables (cars & houses) in CEX into a flow

Documenting the Main Fact

- Main variables of interest: **Income & Consumption of Rich**
 - Rich: 80th percentile income;
 - Very Rich: 90th percentile income
 - Measured as 3 year averages (prior 2 years) to capture time component and deal with small sample measurement

- Control for Household characteristics:
 - **HH Income (non-parametrically – dummies for income buckets of \$2,000)**
 - Race; education; number of adults & children in the HH
- State & Year fixed effects; State-specific trend
- CEX weights
- Standard errors clustered at the state level

Relation of Top Income Levels and Non-Rich Consumption: **Main Correlation**

Dependent Variable: *Log Consumption of a Non-Rich CEX Household*

Sample in CEX:	Non-Rich	Non-Rich	Non-Rich	Non-Rich
Definition: Income x:	x < 80th %ile	x < 80th %ile	x < 80th %ile	x < 80th %ile
Log(80th%ileIncome)	0.265 [0.114]*		0.343 [0.135]*	0.331 [0.149]*
Log(90 th %ileIncome)		0.209 [0.092]*		
Log(50th%ileIncome)				0.000 [0.132]
Log(20th%ileIncome)				0.012 [0.095]
Fraction of labor force that is unemployed				-0.062 [0.241]
State and Year F.E.s	Yes	Yes	Yes	Yes
State-Specific Trend	No	No	Yes	Yes
Household IncomeFE	Yes	Yes	Yes	Yes
Household Controls	Yes	Yes	Yes	Yes
Observations	77531	77531	77531	77531
R-squared	0.59	0.59	0.59	0.59

* ; significant at 5% confidence level; standard errors clustered at state level

Relation of Top Income Levels to Non-Rich Consumption: **Who Impacts Whom**

Dependent Variable: *Log Consumption of a Non-Rich CEX Household*

Sample in CEX:	Rich	Median
Definition: Income x:	x > 80th %ile	40th %ile < x < 60th %ile
Log(80th%ileIncome)		0.354 [0.156]*
Log(50th%ileIncome)	0.136 [0.151]	
Log(20th%ileIncome)	-0.062 [0.108]	
Unemployed	-0.602 [0.372]	-0.200 [0.336]
State and Year F.E.s	Yes	Yes
State-Specific Trend	Yes	Yes
Household IncomeFE	Yes	Yes
Household Controls	Yes	Yes
Observations	20775	19055
R-squared	0.38	0.29

* ; significant at 5% confidence level; standard errors clustered at state level

Consumption of the Rich

- Most of our stories related consumption of the nonrich to consumption of the rich (rather than income)
- Issues with statistics are harder when dealing with consumption of the rich rather than income of the rich:
 - ▣ State-year shocks in consumption are easy to imagine
 - Buying new ipads, eg
 - ▣ Measurement error in consumption in CEX especially severe for rich
- Instrument consumption of rich with income at 80th, 95th percentiles

Effect of Rich Consumption on Non-Rich Consumption: **IV Estimates**

Dependent Variable:	First Stage	Second Stage:	
	<i>Log (Consumption of Rich)</i>	<i>Log (Consumption of Non-Rich)</i>	<i>Ratio of Consumption to Income</i>
Sample:		All Non-Rich	All Non-Rich
Log(80thPercentileIncome)	0.489 [0.180]*		
Log(95thPercentileIncome)	0.319 [0.204]		
Log(ConsumptionofRich)		0.435 [0.134]**	0.611 [0.219]**
Log(ConsumptionofVeryRich)			
State and Year F.E.s	Yes	Yes	Yes
State-Year Trend	Yes	Yes	Yes
Household income F.E.s	Yes	Yes	Yes
Household controls	Yes	Yes	Yes
Observations	77531	77531	77531
R-squared	0.83	0.594	0.567
First Stage F-Statistic	15.98		
OLS Corresponding Coefficient		0.189 [0.054]**	0.257 [0.088]**

* ; significant at 5% confidence level; standard errors clustered at state level

Effect of **Very Rich** Consumption on Non-Rich Consumption: **IV Estimates**

Dependent Variable:	First Stage	Second Stage:	
Sample:	<i>Log (Consumption of Very Rich)</i>	<i>Log (Consumption of Non-Rich)</i>	<i>Ratio of Consumption to Income</i>
Log(80thPercentileIncome)		All Non-Rich	All Non-Rich
Log(95thPercentileIncome)	0.675 [0.173]**		
Log(ConsumptionofRich)			
Log(ConsumptionofVeryRich)		0.304 [0.135]*	0.437 [0.209]*
State and Year F.E.s	Yes	Yes	Yes
State-Year Trend	Yes	Yes	Yes
Household income F.E.s	Yes	Yes	Yes
Household controls	Yes	Yes	Yes
Observations	77424	77424	77424
R-squared	0.76	0.593	0.567
First Stage F-Statistic	15.24		
OLS Corresponding Coefficient		0.071 [0.030]*	0.092 [0.047]

** ; significant at 5% confidence level; standard errors clustered at state level*

Traditional Explanations: Permanent Income Hypothesis

- Does income of the non-rich grow faster in those markets where top income is rising faster?
- CEX is a repeated cross-section; not panel
- PSID analysis:
 - Does current 80% (90%) percentile income in a state predict higher future income for non-rich households in that state, controlling for their own current income, state F.E. & year F.E.?

**Do Higher Top Income Levels Today Predict Higher or More Stable Future
Income for Non-Rich?**

Panel A	(1)	(2)	(3)	(5)	(6)	(8)
<i>Dependent Variable:</i>	<i>Log(HH income) in t+1</i>		<i>Log(income) in t+2</i>		<i>in t+4</i>	
Log(HH income)	0.689 [0.007]**	0.689 [0.007]**	0.17 [0.015]**	0.625 [0.008]**	0.073 [0.015]**	0.547 [0.009]**
Log(80th%ileIncome)	0.019 [0.096]	0.121 [0.159]	0.012 [0.213]	0.021 [0.147]	0.016 [0.176]	-0.095 [0.126]
Log(50th%ileIncome)		-0.047 [0.250]	0.223 [0.293]	-0.066 [0.186]	0.126 [0.246]	-0.095 [0.181]
Log(20th%ileIncome)		-0.068 [0.094]	-0.023 [0.114]	-0.089 [0.087]	-0.082 [0.109]	-0.03 [0.098]
State and Year F.E.s	Yes	Yes	Yes	Yes	Yes	Yes
Household F.E.s	No	No	Yes	No	Yes	No
HH time-vary control	Yes	Yes	Yes	Yes	Yes	Yes
Observations	55870	55870	55870	55377	55377	42293
R-squared	0.65	0.65	0.79	0.57	0.78	0.51

Permanent Income Ideas with Behavioral Bias: Upwardly-Biased Expectations

- Does more income at the top change non-rich people's expectations about their own future financial well-being?
 - ▣ Survey of Consumers, University of Michigan
 - ▣ Micro data used to build the Consumer Sentiment Indices, 1980 to 2008
- Control for own income, age, gender, race, education, marital status, education, HH size (adults and children)
- Merge by state and year to CPS

- Expectations Variables:
 - ▣ Expect real income to go up in the next year?
 - ▣ Expected pct change in family income in the next year

Table 6: Expectations about Future Income Growth and Top Income Levels

Panel A	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent Variable:</i>	<i>Expect Real Income to Go Up in the Next Year (Y=1)</i>					
<i>Sample:</i>	All			Middle Income		
Log(80thPercentileIncome)	-0.054 [0.029]	-0.091 [0.056]			-0.069 [0.065]	
Log(90thPercentileIncome)			-0.055 [0.030]	-0.071 [0.045]		-0.055 [0.057]
Log(50thPercentileIncome)		0.025 [0.071]		0.008 [0.065]	0.007 [0.074]	-0.005 [0.071]
Log(20thPercentileIncome)		0.017 [0.038]		0.017 [0.039]	0.017 [0.045]	0.017 [0.046]
Household income F.E.s	Yes	Yes	Yes	Yes	Yes	Yes
State and Year F.E.s	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	126177	126177	126177	126177	105748	105748
R-squared	0.1	0.1	0.1	0.1	0.1	0.1

Panel B	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent Variable:</i>	<i>Expected Percent Change in Household Income in the Next Year</i>					
Sample:	All			Middle Income		
Log(80thPercentileIncome)	-3.015 [1.637]	-2.821 [2.670]			-2.63 [2.809]	
Log(90thPercentileIncome)			-1.913 [1.609]	-0.589 [2.003]		-0.12 [2.264]
Log(50thPercentileIncome)		-0.713 [2.714]		-2.44 [2.389]	0.372 [2.669]	-1.561 [2.504]
Log(20thPercentileIncome)		0.547 [1.241]		0.797 [1.289]	-0.226 [1.473]	0.08 [1.524]
Household income F.E.s	Yes	Yes	Yes	Yes	Yes	Yes
State and Year F.E.s	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	117534	117534	117534	117534	99629	99629
R-squared	0.07	0.07	0.07	0.07	0.06	0.06

Permanent income & precautionary savings through reduction in variance

- Does income variance of the non-rich decrease in those markets where top income is rising faster?
- CEX is a repeated cross-section; not panel
- PSID analysis:
 - Does current 80% (90%) percentile income in a state predict lower future income variance for non-rich households in that state, controlling for their own current income, state F.E. & year F.E.?

Do Higher Top Income Levels Today Predict More Stable Future Income for Non-Rich?

<i>Dependent Variable:</i>	<i>S.D. of Log(HH income) between t+1 and t+4</i>	
Log(HH income)	-0.102 [0.006]**	-0.102 [0.006]**
Log(80th%ileIncome)	0.161 [0.042]**	0.112 [0.086]
Log(50th%ileIncome)		0.051 [0.106]
Log(20th%ileIncome)		-0.003 [0.043]
State and Year F.E.s	Yes	Yes
HH time-vary controls	Yes	Yes
Observations	50468	50468
R-squared	0.1	0.1

Traditional Explanations:

Home Equity (Price Level) Wealth Effect

- Top income growth may drive house prices up, which provides more home equity borrowing for home owners
- We replicate our main analysis, but allow for heterogeneity of effect:
 - ▣ Between home owners and renters
 - ▣ Also in paper..
 - By time period (pre and post 1995)
 - By local housing supply elasticity

Effect of Rich Income on Non-Rich Consumption: **Home Equity Channel**

Dependent Variable:	Log Consumption			
Shelter Defined As:	Budget/Payments		Rental Equivalence	
Log(80 th %ileIncome)	0.321 [0.149]*		0.346 [0.151]*	
Log(90 th %ileIncome)		0.279 [0.139]		0.295 [0.140]*
Log(80 th %ileIncome)*Homeowner	0.070 [0.037]		0.199 [0.053]**	
Log(90 th %ileIncome)*Homeowner		0.055 [0.035]		0.189 [0.047]**
State and Year F.E.s	Yes	Yes	Yes	Yes
State-Year Trend	Yes	Yes	Yes	Yes
Household income F.E.s	Yes	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes
Observations	75646	75646	73601	73601
R-squared	0.60	0.60	0.63	0.63

Other Local Price Explanations: Sticky Consumption

- Rich getting richer may drive up local prices.
- If households exhibit habits in consumption
- Or if households have consumption commitments
- Price levels could cause more consumption by non-rich

Table 6: Local Price Channel

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent Variable:</i>	<i>Log(Local CPI)</i>		<i>Log(Consumption)</i>			
<i>Sample:</i>	State-year panel		All Non-Rich			
<i>Estimation</i>	<i>OLS</i>	<i>OLS</i>	<i>OLS</i>	<i>OLS</i>	<i>IV</i>	<i>IV</i>
Log(80thPercentileIncome)	0.539 [0.108]**		0.333 [0.159]*			
Log(90thPercentileIncome)		0.312 [0.089]**		0.282 [0.138]		
Log(50thPercentileIncome)	-0.252 [0.117]*	-0.097 [0.110]				
Log(20thPercentileIncome)	0.093 [0.062]	0.081 [0.063]				
IV Log(ConsumptionofRich)					0.431 [0.146]**	
IV Log(ConsumptionofVeryRich)						0.403 [0.153]**
Log(Local CPI)			0.274 [0.171]	0.296 [0.156]	0.159 [0.116]	0.229 [0.125]
Unemployment Rate	0.077 [0.211]	0.118 [0.213]	-0.074 [0.289]	-0.089 [0.295]	-0.001 [0.198]	-0.015 [0.236]
State and Year F.E.s	Yes	Yes	Yes	Yes	Yes	Yes
State-specific time trends	Yes	Yes	Yes	Yes	Yes	Yes
Household income F.E.s	No	No	Yes	Yes	Yes	Yes
Household controls	No	No	Yes	Yes	Yes	Yes
Observations	553	553	68149	68149	68149	68105
R-squared	0.95	0.95	0.60	0.60	0.60	0.59

What's left: Trickle-Down Consumption

- Having ruled out stories of
 - ▣ Permanent income (rational & behavioral)
 - ▣ Price effects (home equity wealth & sticky consumption)
 - ▣ Reverse causality
- We look for mechanism evidence to help clarify and show evidence of direct trickling
- Visibility: Does increased consumption by rich on the most visible goods trickle down in status-seeking “jones” effect?
- Supply driven demand: As the market size for “rich” products increase due to an increase in income of the rich, the less rich are exposed to more of those non-necessity goods.

Demand System Estimation

$$W^k_{ist} = \beta^k \text{Log}(80\text{thPercentileIncome})_{st} + \sum_{l=1}^5 \log\left(\frac{P_t^l}{P_t}\right) + \log\left(\frac{P_{st}}{P_t}\right) \\ + \text{HouseholdControls}_{ist} + \text{HouseholdIncomeDummies}_{ist} + \text{State}_s + \text{Year}_t + \varepsilon_{ist}$$

- W is budget share of consumption category
 - l are price levels by goods: housing, food, etc..
 - s denotes local (state) prices
-
- Are consumption budget allocations sensitive to rich income (consumption) in a demand system estimation?
 - Can we use these budget share sensitivities to enlighten mechanism

	Income			β_{Log}	β_{Log}	β_{80} / Budget	β_{90} / Budget
Category:	Elasticity	Visibility Index	Budget Share	(80thIncome)	(90thIncome)	Share	Share
Food Away	1.241	0.620	0.05	0.025***	0.027***	0.51	0.55
Food at Home	0.234	0.510	0.24	0.012	0.011	0.05	0.05
Tobacco	-0.240	0.760	0.01	-0.002	-0.002	-0.19	-0.19
Alcohol Away	1.148	0.600	0.00	-0.001	0.000	-0.22	0.00
Alcohol at Home	0.883	0.610	0.01	-0.001	0.000	-0.18	0.00
Clothing	0.748	0.710	0.03	0.007	0.008	0.22	0.26
Jewelry	0.788	0.670	0.00	0.001	0.001	0.32	0.32
Salons, Fitness	0.755	0.600	0.01	0.006**	0.005*	0.71	0.59
Furniture	1.006	0.680	0.02	0.000	0.001	0.00	0.06
Health Insurance	0.539	0.260	0.03	-0.009	-0.013	-0.31	-0.44
Business Services	0.957	0.260	0.01	-0.007***	-0.003	-0.76	-0.33
Rec / Sports Eq.	1.153	0.660	0.02	-0.006	-0.005	-0.37	-0.31
Oth Rec Services	0.982	0.580	0.03	-0.004	0.002	-0.15	0.07
Charity	0.865	0.340	0.02	0.004	0.003	0.25	0.19
Interest	0.396	0.260	0.00	-0.004***	-0.005***	-1.73	-2.17
Home Improve	0.787	0.500	0.01	0.006	0.001	0.61	0.10
Recre.Vehicles	0.256	0.660	0.00	-0.004	-0.005	-1.03	-1.28
Appliances	0.512	0.680	0.01	-0.005*	-0.005**	-0.94	-0.94
Utilities	0.482	0.310	0.06	-0.032**	-0.026*	-0.56	-0.46
Health	0.727	0.360	0.03	0.005	0.002	0.17	0.07
Media	0.710	0.570	0.01	0.000	-0.001	0.00	-0.09
Gas, Transit	0.510	0.390	0.05	-0.019**	-0.016**	-0.40	-0.34
Travel	1.084	0.460	0.01	0.000	0.002	0.00	0.27
Education	0.674	0.560	0.01	-0.007	-0.013*	-0.61	-1.14
Cars	1.129	0.730	0.11	-0.047**	-0.041***	-0.42	-0.36
Domestic Serv	1.009	0.340	0.01	-0.010**	-0.008***	-0.80	-0.64
Home Maint.	1.073	0.310	0.02	0.008	0.003	0.42	0.16
Shelter	0.661	0.500	0.18	0.085**	0.077**	0.46	0.42
Phones	0.393	0.470	0.03	0.000	0.001	0.00	0.04

Demand System Estimates

Category:	Income Elasticity	Visibility Index	Budget Share	$\beta_{\text{Log}} (80^{\text{th}} \text{ Income})$	$\beta_{80} / \text{Budget Share}$
Food Away	0.427	0.620	0.046	0.025***	0.51
Salons, Fitness	0.323	0.600	0.009	0.006**	0.71
Business Serv.	0.278	0.260	0.009	-0.007***	-0.76
Interest	0.178	0.260	0.002	-0.004***	-1.73
Appliances	0.215	0.680	0.005	-0.005*	-0.94
Utilities	0.156	0.310	0.061	-0.032**	-0.56
Gas, Transit	0.250	0.390	0.045	-0.019**	-0.40
Education	0.388	0.730	0.086	-0.047**	-0.42
Cars	0.412	0.340	0.013	-0.010**	-0.80
Domestic Serv	0.318	0.500	0.191	0.085**	0.46
Shelter	0.427	0.620	0.046	0.025***	0.51

Consumption Share Sensitivities to Top Income Levels: Relationship to Income Elasticity and Visibility of the Consumption Category

<i>Dependent Variable</i>	<i>Estimated Coefficient on Log(80thileIncome) / Budget Share</i>		<i>Estimated Coefficient on Log(90thileIncome) / Budget Share</i>	
	<i>All</i>	<i>Excluding Shelter</i>	<i>All</i>	<i>Excluding Shelter</i>
Elasticity	3.635	3.634	4.308	4.306
	[1.218]**	[1.242]**	[1.361]**	[1.388]**
Visibility	2.465	2.465	2.883	2.883
	[0.714]**	[0.728]**	[0.795]**	[0.811]**
Obs.	29	28	29	28
R-squared	0.63	0.63	0.66	0.66

<i>Dependent Variable</i>	<i>IV Estimated Coefficient on Log(Rich Consumption) / Budget Share</i>		<i>IV Estimated Coefficient on Log(Very Rich Consumption) / Budget Share</i>	
	<i>All</i>	<i>Excluding Shelter</i>	<i>All</i>	<i>Excluding Shelter</i>
Elasticity	4.039	4.038	3.390	3.390
	[1.462]*	[1.490]*	[1.423]*	[1.451]*
Visibility	2.558	2.558	2.004	2.004
	[0.899]**	[0.917]**	[0.953]*	[0.971]*
Obs.	4.039	4.038	3.390	3.390
R-squared	0.51	0.51	0.39	0.39

Mechanism Evidence Continued: Evidence of Debt & Financial Duress

- Self-reports:
 - ▣ Are non-rich households more likely to report that they are “financially bad off” when local top incomes are rising
 - Survey of Consumers, University of Michigan (1980-2008)
- Personal bankruptcy filings:
 - ▣ Does rising top income predicts a larger number of personal bankruptcies
 - State-year panel data on personal bankruptcy filings
- Voting on consumer bills:
 - ▣ Do politicians from districts with greater inequality feel pressure to vote for looser credit?
 - House Voting on Fannie/Freddie opening the floodgates bill

Financial Well Being: Michigan Data

Dependent Variable: **Worse Off Financially than a Year Ago**

	All	All	Middle	Middle
Log hh income of 80 th %ile	0.226 [0.090]*		0.234 [0.093]*	
Log hh income of 90 th %ile		0.244 [0.076]**		0.239 [0.074]**
Log hh income of 50 th %ile	0.058 [0.103]	0.049 [0.100]	0.031 [0.107]	0.032 [0.100]
Log hh income of 20 th %ile	-0.061 [0.056]	-0.049 [0.057]	-0.06 [0.060]	-0.049 [0.060]
Household Controls	Yes	Yes	Yes	Yes
Own household income F.E.s	Yes	Yes	Yes	Yes
Year F.E.s	Yes	Yes	Yes	Yes
State F.E.s	Yes	Yes	Yes	Yes
Observations	12655	12655	105985	105985
R-squared	0.07	0.07	0.06	0.06

Financial Well Being: Michigan Data

Dependent Variable: **More Expenses/ More Debt, Interest and Debt Payments than a Year Ago**

	All	All	Middle	Middle
Log hh income of 80 th %ile	0.026 [0.035]		0.034 [0.041]	
Log hh income of 90 th %ile		0.048 [0.027]		0.061 [0.027]*
Log hh income of 50 th %ile	0.006 [0.038]	-0.01 [0.035]	-0.022 [0.048]	-0.043 [0.041]
Log hh income of 20 th %ile	-0.001 [0.023]	0.004 [0.023]	0.02 [0.028]	0.027 [0.027]
Household Controls	Yes	Yes	Yes	Yes
Own household income F.E.s	Yes	Yes	Yes	Yes
Year F.E.s	Yes	Yes	Yes	Yes
State F.E.s	Yes	Yes	Yes	Yes
Observations	126701	126701	106090	106090
R-squared	0.01	0.01	0.01	0.01

Table 10: Personal Bankruptcy Filings and Top Income Levels

	(1)	(3)	(5)	(9)	(10)	(11)
<i>Dependent Variable:</i>	<i>Log (Number of Personal Bankruptcy Filings/Population)</i>					
Log(80thPercentileIncome)	1.06	0.994	1.018	0.896	1.024	1.167
(t-2)	[0.406]*	[0.365]**	[0.343]**	[0.261]**	[0.347]**	[0.639]
Log unemployment rate			0.176	0.217	0.171	0.171
(t)			[0.048]**	[0.047]**	[0.049]**	[0.049]**
Log(80thPercentileIncome)			-0.209	-0.414	-0.109	-0.045
(t)			[0.286]	[0.258]	[0.320]	[0.298]
Log(50thPercentileIncome)			-0.426	-0.14	-0.573	-0.605
(t)			[0.381]	[0.265]	[0.415]	[0.415]
Log(20thPercentileIncome)			-0.145	-0.361	-0.169	-0.218
(t)			[0.238]	[0.131]**	[0.228]	[0.204]
Log(50thPercentileIncome)						-0.621
(t-2)						[0.858]
Log(20thPercentileIncome)						0.514
(t-2)						[0.489]
State F.E.s	No	Yes	Yes	Yes	Yes	Yes
Year F.E.s	No	Yes	Yes	Yes	Yes	Yes
State F.E.s*year	No	No	No	Yes	No	No
Log(1976-1978 average 80thP	No	No	No	No	Yes	Yes
Observations	1530	1530	1530	1530	1530	1530
R-squared	0.04	0.87	0.88	0.92	0.88	0.88

Political Economy Pressure in Supply of Credit

- Do we see pressure on politicians to loosen credit in districts with rising inequality
 - ▣ Rajan's argument in "Fault Lines"
 - ▣ Federal Housing Enterprises Financial Safety and Soundness Act of 1992 - H.R. 5334
- Analyze congressmen's vote on this bill based on measures of income inequality in the district they represent
 - ▣ Map 102nd congressional districts into 1990 census tract information
 - ▣ Virtually all Democrats voted "yes"; variation is among Republicans

Table 12: Republican Congressmen's Voting on H.R. 5334

	<i>Dependent Variable: Yes Vote</i>				
	(1)	(2)	(3)	(4)	(5)
Log(80thPercentileIncome)- Log(50thPercentileIncome)	1.077 [0.536]*		1.053 [0.564]	1.000 [0.564]	0.961 [0.565]
Log(90thPercentileIncome)- Log(50thPercentileIncome)		0.52 [0.342]			
Log(50thPercentileIncome)			-0.03 [0.206]	0.028 [0.211]	0.121 [0.228]
Log(50thPercentileIncome)- Log(20thPercentileIncome)				-0.524 [0.420]	-0.431 [0.428]
Log(population)					0.471 [0.439]
State F.E.s	Yes	Yes	Yes	Yes	Yes
Observations	163	163	163	163	163
R-squared	0.33	0.32	0.33	0.34	0.34

Magnitude of Effects



- Taking our results so far at face value...
- How much higher would the savings rate of middle class households had been had income at the top grown at the same rate as median income?
- How much higher would aggregate personal savings had been had income at the top grown at the same rate as median income?

Table 11: Counterfactual Analysis using IV Estimates

	(1)	(2)	(3)	(4)	(5)	(6)
	Change in Log Consumption under counterfactual	Change in Consumption under counter- factual	Actual Personal Savings (NIPA)	Additional Savings under counter- factual	Actual Personal Savings Rate (NIPA)	Personal Savings Rate under counterfactual
1990	-0.008	-516.5	276.7	29.8	0.065	0.072
2000	-0.022	-1,336.1	213.1	116.5	0.029	0.045
2005	-0.026	-1,731.9	143.2	180.4	0.015	0.035
2008	-0.027	-1,868.3	592.3	221.1	0.054	0.074

Notes:

- Consumption would be about \$1800 per household lower by end of period had income inequality not grow by top earning more
- Personal savings rate would be 2% higher under counterfactual

Summary

- Evidence suggests a link exists between the rise in income inequality and the decline in middle class savings.
 - ▣ Counterfactual estimate: saving rate would have declined 2% less
- Mechanisms that cannot explain away this correlation:
 - ▣ Permanent income effects (rational, biased, precautionary saving),
price effects (home equity wealth, sticky consumption)
- Instead: Results on financial duress and from demand systems estimations suggest that trickle consumption might be related to an increase supply of “rich” goods and to a desire to keep up with richer co-residents through more “visible” spending.
- Evidence on debt (bankruptcies, financial duress, voting) suggest that rising income inequality might have been a contributing factor to growth in credit use and (where this turned into bad credit) to the financial crisis