

Restoring Rational Choice: The Challenge of Consumer Finance

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Intervention in Household Finance

- Household finance is the latest arena for the interventionist impulse in economics
 - ▶ Precursors include antitrust, aggregate demand management, and consumer protection in other spheres (food and drugs, autos, etc.)
 - ▶ US legislation in the last ten years includes Pension Protection Act (2006), CARD Act (2009), Dodd-Frank Act (2010)
 - ▶ Dodd-Frank created a new federal agency, the Consumer Financial Protection Bureau (CFPB), and existing agencies (Fed, SEC) have also been active
 - ▶ Similar developments in many other countries (e.g. FCA in the UK)
- Why the household finance arena and why now?

Intervention in Household Finance

- Household finance is the latest arena for the interventionist impulse in economics
- Why the household finance arena and why now?
 - ▶ Increasing demands on consumer financial sophistication (long life, DC retirement systems, expensive higher education and housing, complex financial products)
 - ▶ Evidence from behavioral economics that many consumers are not up to the task
 - ▶ Mistakes in this arena have broader consequences (wealth inequality, rent-seeking competition, systemic risk, and mistrust)

Outline

- This keynote speech examines the case for consumer financial regulation when households make mistakes
 - ▶ I will present it at AEA 2016 as the Ely Lecture, to be published in *AER Papers & Proceedings*
 - ▶ Focus on mistakes rather than traditional rationales for regulation (market power, externalities, etc.)
 - ▶ Focus on the ways people save and borrow rather than the amounts they save and borrow (well covered elsewhere e.g. in Poterba 2014)
- **Section 2:** Household balance sheets
- **Section 3:** What goes wrong in household finance
- **Section 4:** Behavioral welfare economics of regulation
- **Section 5:** Consumer financial regulation in practice

Outline

- This keynote speech examines the case for consumer financial regulation when households make mistakes
- **Section 2:** Household balance sheets
 - ▶ Cross-country variation suggests that financial system design affects behavior
 - ▶ But everywhere, the rich take more risk (primarily by participating at higher rates)
 - ▶ The rich earn higher average returns by taking risk and taking it effectively, contributing to wealth inequality (Piketty 2014)
- **Section 3:** What goes wrong in household finance
- **Section 4:** Behavioral welfare economics of regulation
- **Section 5:** Consumer financial regulation in practice

Outline

- This keynote speech examines the case for consumer financial regulation when households make mistakes
- **Section 2:** Household balance sheets
- **Section 3:** What goes wrong in household finance
 - ▶ Unambiguous mistakes are not always the most important, but they are the easiest to prove beyond a reasonable doubt
 - ▶ Mistakes arise from multiple varieties of financial ignorance, and I suggest a taxonomy
 - ▶ Financial education and disclosures can be helpful, but these “easy fixes” are not enough
- **Section 4:** Behavioral welfare economics of regulation
- **Section 5:** Consumer financial regulation in practice

Outline

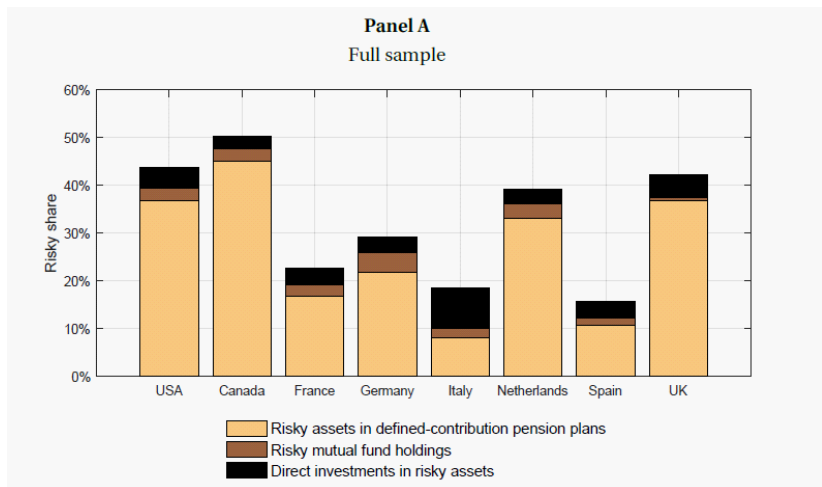
- This keynote speech examines the case for consumer financial regulation when households make mistakes
- **Section 2:** Household balance sheets
- **Section 3:** What goes wrong in household finance
- **Section 4:** Behavioral welfare economics of regulation
 - ▶ The benefit-cost tradeoff is between improved outcomes for behavioral agents and (i) distortions to the choices of rational agents, (ii) deadweight resource costs
 - ▶ A simple model illustrates this tradeoff in the case of pure interventions against products, and more realistic interventions that mitigate mistakes in using products
 - ▶ Transfers from behavioral to rational agents increase the impact of intervention on the size of a product market, but lower the optimal scale of intervention to the extent that transfers are not social losses
- **Section 5:** Consumer financial regulation in practice

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- **Section 2:** Household balance sheets
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- **Section 4:** Behavioral welfare economics of regulation
- **Section 5:** Consumer financial regulation in practice
 - ▶ Three US examples (hopefully relevant in other countries as well)
 - ▶ Asset allocation in retirement saving: the PPA (2006) and the spread of target-date funds
 - ▶ Unsecured borrowing: credit cards, bank overdrafts, and payday loans
 - ▶ Reverse mortgages: an opportunity for regulation to push towards better products?

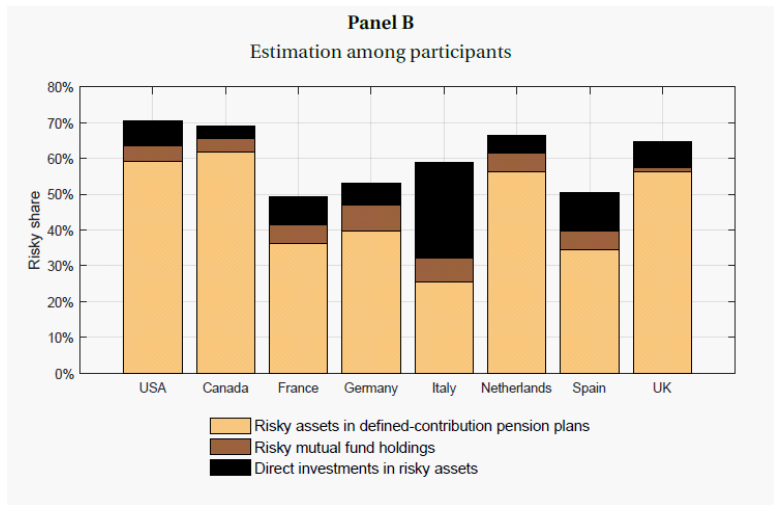
Risk-Taking Across Countries

- DC retirement systems have a huge effect on risktaking by households



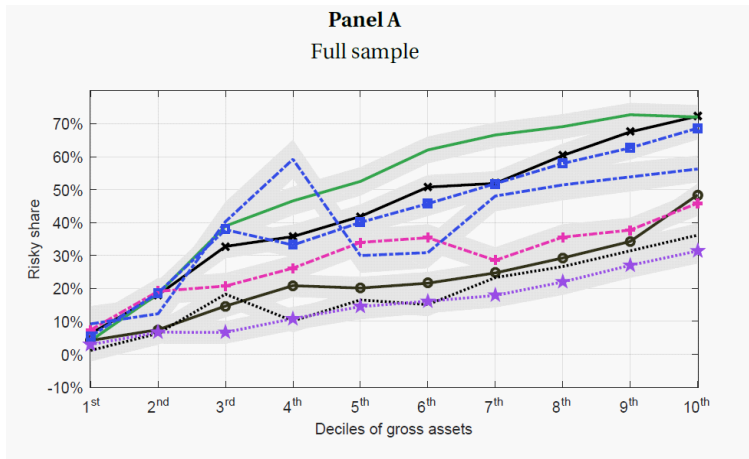
Risk-Taking Across Countries

- The main effect is through the participation rate, less cross-country variation among participants



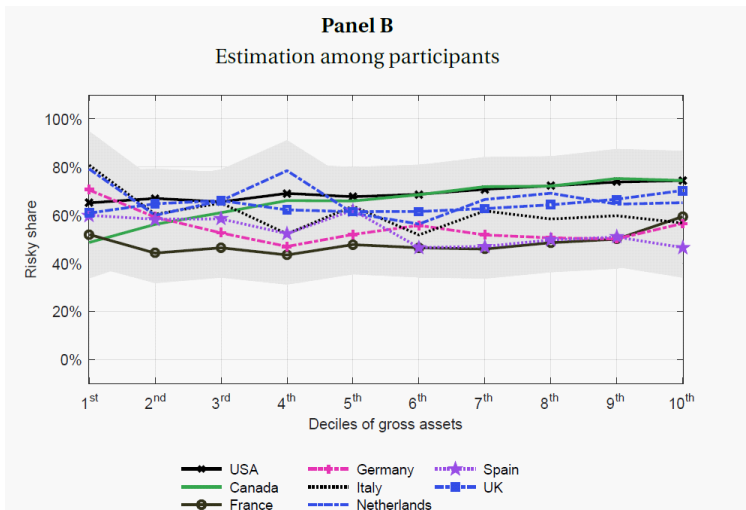
Risk-Taking by the Wealthy

- In every country, wealthier people take more risk



Risk-Taking by the Wealthy

- Again, the main effect is through the participation rate, much less variation among participants



Effective Investing and Wealth Inequality

- Investment strategies can affect wealth inequality
- In a stylized model without saving,

$$W_{i,t+1} = W_{it}(1 + R_{i,t+1}),$$

where $(1 + R_{i,t+1})$ is the gross return on household i 's portfolio.
Taking logs,

$$\begin{aligned} w_{i,t+1} &= w_{it} + r_{i,t+1} \\ &= w_{it} + E_t r_{i,t+1} + \tilde{r}_{i,t+1}, \end{aligned}$$

where $E_t r_{i,t+1}$ is the rational (econometrician's) expectation of the log portfolio return for household i , and $\tilde{r}_{i,t+1} = r_{i,t+1} - E_t r_{i,t+1}$ is the unexpected component of the log portfolio return.

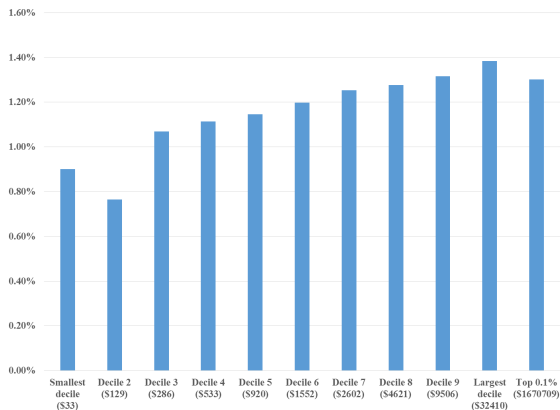
- Now consider cross-sectional variances Var^* and covariances Cov^* at a point in time.

Effective Investing and Wealth Inequality

$$\begin{aligned} E[\text{Var}^* w_{i,t+1} - \text{Var}^*(w_{it})] &= E[\text{Var}^*(E_t r_{i,t+1})] + E[\text{Var}^*(\tilde{r}_{i,t+1})] \\ &\quad + 2E[\text{Cov}^*(w_{it}, E_t r_{i,t+1})]. \end{aligned}$$

- The average growth in wealth inequality depends on
 - ▶ the cross-sectional variance of expected log returns (negligible empirically)
 - ▶ the cross-sectional variance of unexpected log returns
 - ▶ the covariance between log wealth and expected log returns.
- What matters here are **log** returns, which are lowered by underdiversification even if simple returns are the same.

Who Invests Effectively in India?



Average log returns on directly held Indian stocks by account size decile, from Campbell, Ramadorai, and Ranish (2015) dataset.

Who Invests Effectively in India and Sweden?

	India	Sweden
$\text{Var}^*(w_{it})$	4.55	2.42
$E[\Delta \text{Var}^* w_{i,t+1}]$	0.021	0.060
Sum of investment effects	0.015	0.051
$E[\text{Var}^*(E_t r_{i,t+1})]$	0%	2%
$E[\text{Var}^*(\tilde{r}_{i,t+1})]$	57%	25%
$2E[\text{Cov}^*(w_{it}, E_t r_{i,t+1})]$	43%	73%

- Swedish results (annual, all holdings of classifiable financial assets) from Bach, Calvet, and Sodini (2015)
- Sum of investment effects is substantial relative to measured growth in wealth inequality
- Both underdiversification and the covariance between log wealth and log returns are important

The Lessons

- Financial system design affects outcomes across countries
 - ▶ There is no unique model, and no prior reason to believe any one system is the best
- In all countries, wealthier households take more risk
 - ▶ This may reflect declining relative risk aversion, but it operates primarily through participation which is hard to rationalize
- Wealthy households earn higher average log returns both through risktaking and through the form in which risk is taken
 - ▶ This contributes meaningfully to wealth inequality

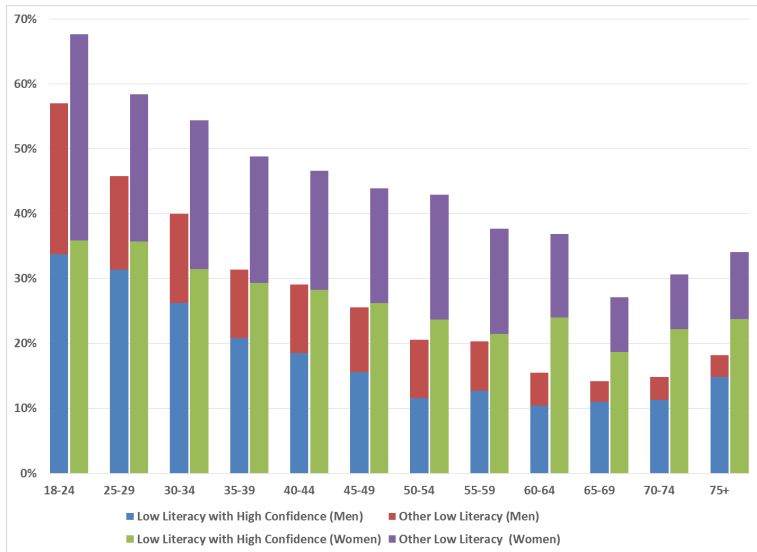
Mistakes

- The literature has documented some unambiguous mistakes:
 - ▶ Failure to pick up “free money”, employer matches in 401(k) plans (Choi et al. 2011)
 - ▶ Failure to locate taxable assets in non-taxable accounts (Barber and Odean 2003, Bergstresser and Poterba 2004)
 - ▶ Failure to refinance fixed-rate mortgages (Campbell 2006, Andersen et al. 2015, Johnson et al. 2015)
- Other mistakes may be even more important if harder to prove
 - ▶ Nonparticipation in risky asset markets
 - ▶ Repeated high-cost borrowing
 - ▶ Unused home equity in old age

Financial Illiteracy

- Standard questions (“Big Three” from Lusardi-Mitchell 2008, plus two from 2009 National Financial Capability Study to make “Big Five”)
 - ▶ Cumulation of interest payments over time
 - ▶ Offsetting effects of inflation and nominal interest rate on real purchasing power
 - ▶ Relative risks of single-stock and mutual-fund investing
 - ▶ Comparison of 15-year and 30-year mortgages
 - ▶ Relation between interest rates and bond prices
- Summary of results from 2012 NFCS
 - ▶ Define financial illiteracy as a score of ≤ 2 out of 5.
 - ▶ Define high confidence as self-assessed financial capability of ≥ 5 out of 7

Financial Illiteracy by Gender and Age



How Worried Should We Be?

These results are worrying because:

- The Big Five questions are easy relative to the knowledge needed to make good practical decisions
- Some financially illiterate people have low self-confidence and will seek help, but more are highly confident and may resist hints and “nudges”
 - ▶ Overconfident financial illiteracy is particularly common among the elderly
- There is a vast literature documenting problems caused by ignorance about:
 - 1 Financial concepts (financial illiteracy)
 - 2 Contract terms (fine print)
 - 3 Financial history (overweighting personal experience)
 - 4 Self (overconfidence)
 - 5 Incentives, strategy, and equilibrium (naïveté)

Easy Fixes? Financial Education and Disclosures

- Financial education is a worthy endeavor but limited evidence of its effectiveness
- Disclosures are low-cost interventions but
 - ▶ They require at least some sophistication to interpret
 - ▶ The effects can be undone by distracting marketing
 - ▶ Costs can often be shifted to evade disclosure requirements



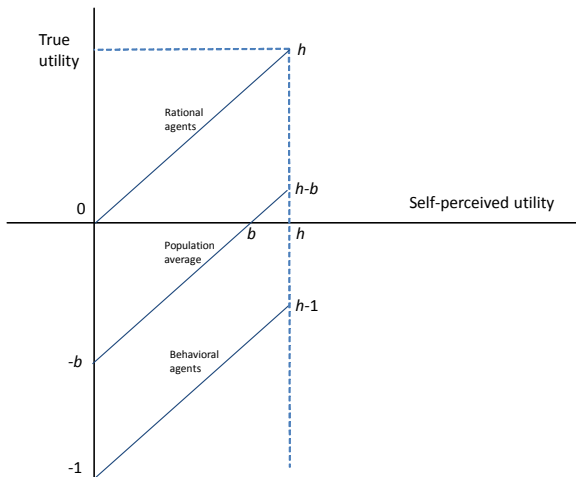
Annual Percentage Rate (APR) for Purchases	0% until the last day of the billing period ending during February 2009 ¹ ; then the standard APR, a rate between 10.99% and 18.99%
Other APRs	Balance Transfers: 0% until the last day of the billing period ending during August 2009 ² ; then the standard APR for purchases Cash Advances: 23.99% Default Rate: Up to 30.99%*
Variable Rate Information	The standard purchase APR may vary monthly and equals the Prime Rate plus an amount between 5.99% and 13.99%. ³
Grace Period for Repayment of the Balance of Purchases	At least 25 days when you pay your balance in full each month
Method of Computing the Balance for Purchases	Average Daily Balance (including new purchases)
Annual Fee: NONE	Minimum Finance Charge: \$ 50

Source: Ru and Schoar 2015

A Simple Model

- Two financial products are available, A and B .
- Utility of product A , $U_A = 0$ (normalization).
- Utility of product B is u , distributed uniform $(0, h)$ for rational agents.
- Behavioral agents have the same distribution of self-perceived utility but their true utility is one unit lower at $u - 1$.
- A fraction b of agents are behavioral.

A Simple Model



Intervention Against a Product

- Financial regulator cannot distinguish agents but can impose a cost c on product B .
 - ▶ Initially assume this cost is rebated in a lump sum to agents (standard public finance assumption).
- The regulator is paternalistic and uses true utility of behavioral agents in the social welfare function.

$$\begin{aligned}
 W(c) &= \int_c^h [u - b] f(u) du \\
 &= \left(1 - \frac{c}{h}\right) \left[\left(\frac{h+c}{2}\right) - b \right]
 \end{aligned}$$

for $c \leq h$.

Intervention Against a Product

$$\frac{dW}{dc} = \frac{b - c}{h}.$$

- A small intervention is welfare-improving.
 - ▶ A small distortion has a negligible effect on rational agents but a first-order effect on behavioral agents
- The optimal regulatory cost $c^* = b$ for $b \leq h$. This shuts down a fraction b/h of the market for product B .
 - ▶ If $b > h$, then any cost above h closes down the market for product B and achieves the social optimum.
 - ▶ Close down more of the market when there are more behavioral agents, less when the product is more useful to rational agents (Campbell et al. 2011)
 - ▶ Elizabeth Warren “toaster” paradigm has high b , low h

Deadweight Cost of Regulation

- Consumer financial regulation may not generate revenue that can be rebated. Suppose that a fraction α of the cost is deadweight cost.

$$W(c) = \left(1 - \frac{c}{h}\right) \left[\left(\frac{h+c}{2}\right) - b - \alpha c \right].$$

- If an internal solution exists,

$$c^* = \frac{b - \alpha h}{1 - 2\alpha}.$$

- Optimal intervention is not necessarily lower than before.
 - There is a “Laffer curve” because stronger intervention reduces the fraction of agents who choose product B and eventually reduces total deadweight cost.
 - But social welfare gain from intervention is smaller.
- With a large enough deadweight cost, the problem is non-convex and one should either shut down the whole market or avoid any intervention.

How Paternalistic to Be?

- Paternalism can be politically costly.



- If the regulator puts some weight on agents' self-perceived utility, this is equivalent to shrinking the fraction of behavioral agents b .
- But distributional considerations may push the other way if behavioral agents are poorer than rational agents.

Intervention Against Mistakes

- A more realistic view of financial regulation is that it reduces the mistakes of behavioral agents (by making products easier to use), but at a cost that is borne by all agents.
- Assume the size of the mistake is $g(c)$, where $g(0) = 1$, and $g(c) \geq 0$ and $g'(c) \leq 0$ for all c .
 - ▶ Simple parametric example: $g(c) = 1 - \theta c$ for $c \leq 1/\theta$.

$$W(c) = \left(1 - \frac{c}{h}\right) \left[\left(\frac{h+c}{2}\right) - b - \alpha^* c \right],$$

where $\alpha^* = \alpha - b\theta$.

- Solution has the same form as before, but note that α^* can be negative. If it is, then heterogeneity h increases the optimal scale of intervention.
 - ▶ More worthwhile to use resources improving the usability of a product that is genuinely useful to more people.

Mistakes and Transfers

- Some mistakes generate fees to product providers that get passed on to all buyers in a competitive product market (Gabaix and Laibson 2006).
- This does not alter the welfare analysis of intervention against products.
- But interventions against mistakes are more powerful in shrinking the market (because they reduce cross-subsidies to rational buyers) and should be undertaken at a smaller scale.

Cost-Benefit Analysis

- Cost-benefit analysis is required for almost all consumer financial regulation in the US.
- Measurement of costs seems to be easier than measurement of benefits, which are often stated qualitatively and/or narrowly defined (Jackson and Rothstein 2015).
- The model of the previous section may be useful in structuring research on this topic: measure b , h , α , θ .
- CFPB complaints system is an interesting way to gather data on ex-post regret.

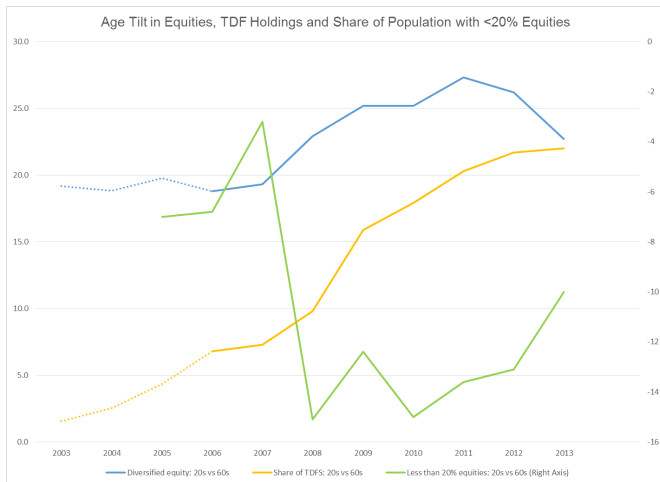
Three Examples

- Asset allocation in retirement saving: the PPA (2006) and the spread of target-date funds
- Unsecured borrowing: credit cards, bank overdrafts, and payday loans
- Reverse mortgages: an opportunity for regulation to push towards better products?

Asset Allocation in Retirement Saving

- The PPA (2006) encouraged employers to offer target-date funds (TDFs) as default 401(k) investments.
 - ▶ Strong effects of defaults (even purely administrative default without auto-enrollment) on TDF adoption and overall participant asset allocation (Mitchell and Utkus 2012)
 - ▶ Since 2006, the fraction of 401(k) participants with little or no (< 20%) diversified equity exposure has fallen from 26% to 18%.
 - ▶ Favorable trends in age tilts, with risk shifting to younger investors from older ones.
- But some important issues remain on the table
 - ▶ Fees and diversification in TDFs
 - ▶ How to control conflicts of interest (fiduciary standard for retirement investment advisers proposed by Department of Labor, employers may not always be benevolent).

Age Tilts in Retirement Saving



Source: Employee Benefits Research Institute and Investment Company Institute

Unsecured Borrowing

- Problems can arise in markets for credit cards, bank overdrafts, and payday loans:
 - ▶ Hidden fees (cards and overdrafts)
 - ▶ Mapping from fees to costs (payday loans)
 - ▶ Repeat borrowing in a “debt trap”
- Varied regulatory responses in recent years:
 - ▶ Fee disclosures (Schumer box)
 - ▶ Certain fees banned unless consumers opt in (overdraft protection)
 - ▶ Fee caps (CARD Act, state usury laws)
 - ▶ Restrictions on forms of credit (Colorado law requiring payday loans to be installment rather than lump-sum loans, CFPB proposal limiting repeat loans)
- Interesting research by consumer financial regulators using modern micro identification techniques

Reverse Mortgages

- Potentially important product for funding retirement, has not reached its potential
 - ▶ CFPB reports usage by $< 3\%$ of eligible households in 2011.
 - ▶ Supply seems critically dependent on Federal Housing Administration (FHA) credit guarantees.
- What is the problem here? A suggestion:
 - ▶ The optimal borrowing strategy is “ruthless default” (Davidoff 2015), tapping a credit line only when house prices fall and then defaulting
 - ▶ But homeowners don't seem to behave this way (Davidoff 2014)
 - ▶ In the absence of ruthless default, reverse mortgages are relatively expensive—possibly because of marketing costs
 - ▶ Consumer financial regulation may have a role to play in promoting a simpler, easier to understand and cheaper to market product.

How Far Can We Go? Beyond Nudges

- I have argued that the economics profession must take the case for paternalistic intervention seriously, and directly confront the tradeoffs.
- “Nudges” are appealing because they affect behavioral agents at minimal cost to rational agents.
- But in many cases, we need to go further and alter product markets even if some rational agents are negatively affected.
- This endeavor can be supported by academic research with structural models and high standards for identification of model parameters and policy effects.