

HOUSEHOLD FINANCE  
CHAPTER IN PREPARATION FOR  
THE HANDBOOK OF BEHAVIORAL ECONOMICS

John Beshears, James J. Choi, David Laibson, and Brigitte C. Madrian

# Household Finance Encompasses...

---

- The allocation of household resources across time and states of the world
- The methods and instruments by which a household pursues such an allocation
- The design of products, interventions, and regulations that change household financial outcomes
- The implications of the above factors for welfare

# Part I: Facts

- We first discuss patterns in the data that may be inconsistent with the baseline economic model of household financial decision making
  - In some cases, there is a clear behavioral explanation
  - In many more cases, there are competing explanations, some of which are behavioral and some of which are elaborations upon the baseline model (adding in frictions, realistic institutional environments, etc.)
- Five topics
  - Consumption and savings
  - Borrowing
  - Payments
  - Asset allocation
  - Insurance

# Part II: Interventions

- Techniques that firms, policy makers, or other parties deploy to shape household financial behavior
- Seven topics
  - ▣ Financial education and information provision
  - ▣ Peer effects
  - ▣ Product design, contract design, and shrouding
  - ▣ Financial advice
  - ▣ Choice architecture
  - ▣ Interventions manipulating price or quantity
  - ▣ Regulation

# Limiting the Scope

---

- Focus on the U.S. but include examples from other wealthy countries
- Do not cover asset pricing anomalies, but address household asset allocation mistakes
- Leave household financial decisions having to do with health care to the chapter on health economics
- Overlap with the chapter on industrial organization in discussion of the design of financial products and contracts for behavioral households

# Themes

---

- Conditional rationality and the need for calibration
- The search for more/better data
- The challenge of multiple behavioral factors determining choice
- One (among several) major goal going forward: welfare analysis



# Facts

# Consumption and Savings

- Some evidence consistent with the Permanent Income Hypothesis/Lifecycle model
  - ▣ In time series tests, consumption is a random walk and is not predicted by disposable income (Hall 1978)
  - ▣ Consumption does not respond to large predictable payments (Browning and Collado 2001; Hsieh 2003; Kueng 2016) or predictable union wage increases in Italy (Adamopoulos and Zizza 2015)
  - ▣ Some findings that households smooth consumption at retirement (Aguiar and Hurst 2005; Scholz, Seshadri, and Khitatrakun 2006; Agarwal, Pan, and Qian 2015) or anticipate consumption declines (Hurd and Rohwedder 2013)
- Significant evidence inconsistent with the Permanent Income Hypothesis/Lifecycle Model
  - ▣ Consumption responds to predictable changes in income (Hall and Mishkin 1982; Campbell and Mankiw 1989; Shea 1995; Stephens and Unayama 2011) and unexpected changes in income (Johnson, Parker, and Souleles 2006; Parker et al. 2013)
  - ▣ Consumption exhibits high-frequency cycles, e.g. with food stamp receipt (Shapiro 2005; Hastings and Washington 2010)
  - ▣ Consumption drops substantially at retirement (Bernheim, Skinner, and Weinberg 2001; Haider and Stephens 2007; Poterba, Venti, and Wise 2011; Munnell and Rutledge 2013)



# Consumption and Savings

- Rational explanations
  - ▣ Liquidity constraints and buffer-stock/precautionary savings (Deaton 1991; Carroll 1992; Hubbard, Skinner, and Zeldes 1994; Gourinchas and Parker 2002; Aydin 2016)
  - ▣ Consumption commitments (Chetty and Szeidl 2015)
  - ▣ Durables (Gelman et al. 2014)
  - ▣ Illiquid assets with high returns (Kaplan and Violante 2014; Kaplan, Violante, and Weidner 2014)
  - ▣ “Near-rationality” (Cochrane 1989; Hsieh 2003; Kueng 2016)
- Behavioral explanations
  - ▣ “Rule-of-thumb” spending and mental accounting (Campbell and Mankiw 1989; Milkman and Beshears 2009; Hastings and Shapiro 2013; Olafsson and Pagel 2016)
  - ▣ Present bias (Laibson 1997; Laibson, Repetto, and Tobacman 1998; Angeletos et al. 2001)
  - ▣ Gain/loss utility models (Koszegi and Rabin 2006, 2009; Pagel 2014)

# Borrowing: Credit Cards, Payday Loans, Bankruptcy

## □ Credit cards

- Baseline view: Households are liquidity-constrained and increase borrowing when credit limits increase (Gross and Souleles 2002)
- High interest payments (Ausubel 1991), the simultaneous holding of credit card debt and illiquid wealth such as DC assets (Laibson, Repetto, and Tobacman 1998; Laibson et al. 2015), and patterns of delinquency (Kuchler 2013) seem best explained by present bias
- Consumers often fail to choose the correct contract (Shui and Ausubel 2005; Agarwal et al. 2015; Incekara-Hafalir 2015; Stango and Zinman 2016)
- Other behavioral factors influencing unsecured borrowing include exponential growth bias (Stango and Zinman 2009) and advertising (Bertrand et al. 2010)

## □ Payday loans

- Some evidence that payday borrowing helps consumption smoothing (Zinman 2009; Morse 2011) and improves job performance (Carrell and Zinman 2014) or at least does not have adverse impacts (Carter and Skimmyhorn 2015)
- Other work finds that payday borrowing is the result of self-control problems (Gathergood 2012) and leads to poor financial outcomes (Meltzer 2011; Skiba and Tobacman 2011)

## □ Bankruptcy

- The number of consumer bankruptcies tripled between 1984 and 1991 (Buckley and Brinig 1998)
  - Decline in social stigma (Buckley and Brinig 1998; Gross and Souleles 2002; Efrat 2006; Livshits, MacGee, and Tertilt 2010)
  - Smaller frictions (Livshits, MacGee, and Tertilt 2010), despite the evidence that liquidity constraints prevent many from filing (Gross, Notowidigdo, and Wang 2014)
  - Increase in consumer debt (Domowitz and Sartain 1999; White 2009)
- Just 1% of households file for bankruptcy annually, and 15% would benefit from doing so (White 1998)
  - Some evidence for strategic behavior, preserving option value (White 1998; Fay, Hurst, and White 2002; Lefgren and McIntyre 2009)
  - Other evidence that consumers do not take on optimal debt before declaring (Zhang, Sabarwal, and Gan, 2015)

# Borrowing: Mortgages

- Households overpay for broker commissions (Hall and Woodward 2012)
- Households make mistakes when paying for points (Agarwal, Ben-David, and Yao 2016)
- Households do not refinance optimally (Andersen et al. 2015)
- Some argue that expansion in credit supply played the primary role in the mortgage crisis of 2007-2009
  - ▣ Subprime zip codes had the largest increase in mortgage credit but smallest income growth and large subsequent increase in delinquencies (Mian and Sufi 2009, but see Adelino, Schoar, and Severino 2016)
  - ▣ Households did not understand complex mortgages (Amromin et al. 2010), and intermediaries profited by pushing expensive loans on households (Agarwal and Evanoff 2013)
- Others argue that the crisis was primarily the result of borrowers' and lenders' overly optimistic beliefs about house prices (Foote et al. 2008; Gerardi et al. 2008; Mayer, Pence, and Sherlund 2009; Foote et al. 2012) and that research stressing low-income borrowers is missing key facts about refinancing (Foote, Loewenstein, and Willen 2016)
- Extrapolative beliefs regarding house prices likely a root cause (Kuchler and Zafar 2016)

# Payments

- Consumers do not minimize costs of payments
  - ▣ 8% of households do not have a bank account, mainly due to insufficient liquidity and mistrust of banks (Burhouse et al. 2008)
  - ▣ Consumers frequently pay overdraft fees due to inattention (Stango and Zinman 2014)
  - ▣ People enter long-term contracts when pay-per-use would be cheaper due to present bias and overconfidence (DellaVigna and Malmendier 2006; Shy 2008)
- Convenience, speed, security, access, ease of set-up, or credit constraints play a role in choice of transaction method (Schuh and Stavins 2009, 2011, 2015; Zinman 2009)
- Payment method can influence spending choices – paying via credit card induces a higher willingness to pay (Prelec and Simester 2001)

# Asset Allocation

- Stock market participation puzzle (Vissing-Jorgensen 2003)
- Insufficient diversification (Calvet, Campbell, and Sodini 2009)
  - Home bias (French and Poterba 1991; Lewis 1999)
  - Local bias (Ivkovic and Weisbenner 2005; Huberman 2016)
  - Employer stock (Benartzi 2001; Choi, Laibson, and Madrian 2005)
- Extrapolative beliefs
  - Difficulty noticing mean reversion (Beshears et al. 2013; Fuster, Hebert, and Laibson 2012)
  - Survey evidence (Amromin and Sharpe 2014; Greenwood and Shleifer 2014; Kuchler and Zafar 2016) and trading evidence (Benartzi 2001; Kaustia and Knupfer 2008; Choi et al. 2009)
  - Past experiences of stock returns and inflation affect portfolio choice much later in life (Malmendier and Nagel 2011, 2016), but also a preferences channel
- Trading behavior
  - Disposition effect (Shefrin and Statman 1984; Odean 1998), but also a reverse disposition effect for funds (Chang, Solomon, and Westerfield 2016)
  - Trading responds to salient news (Barber and Odean 2008; Dougal et al. 2012)
  - Traders prefer stocks that resemble lotteries (Barberis and Huang 2008; Kumar 2009; Bakshi and Lin 2016)
  - Traders seem to be guided by emotions and sensation-seeking (Dorn, Huberman, and Sengmueller 2008; Grinblatt and Keloharju 2009; Strahilevitz, Odean, and Barber 2011)
- Asset location – failure to hold assets in the appropriate account given tax treatment (Barber and Odean 2004; Bergstresser and Poterba 2004)

# Insurance

- Annuity puzzle – households do not hold enough annuities (e.g., Koijen, van Niewenbergh, and Yogo, 2016) relative to benchmark (Yaari 1965)
  - Bequests (Lockwood 2012; De Nardi and Yang 2014), adverse selection (Mitchell et al. 1999), self-insurance against health care costs (De Nardi, French, and Jones 2009; Ameriks et al. 2011), and shocks to health and mortality risk (Reichling and Smetters 2015; Yogo 2016) can explain some of the gap
  - Framing, e.g. consumption versus investment (Brown et al. 2008; Beshears et al. 2014), extrapolation of stock returns (Chalmers and Reuter 2012; Previtiero 2014), and cognitive ability (Warner and Pleeter 2015) may also play a role
- Similarly, households do not hold enough life insurance (Bernheim et al. 2003; Bernheim et al. 2006) and hold annuities and life-insurance at the same time (Koijen, van Nieuwerburgh, and Yogo 2016)
- Property and casualty insurance purchases are in part driven by behavioral factors
  - Responsive to salient events, like floods (Gallagher 2014; Atreya, Ferreira, and Michel-Kerjan 2015; Botzen, Kunreuther, and Michel-Kerjan 2015)
  - Responsive to framing (Johnson et al. 1993)
- Property and casualty insurance deductibles chosen are often “too low” in the sense of implying implausibly high levels of risk aversion (Sydnor 2010; see Rabin 2000)
  - Probability weighting explains the data (Barseghyan et al. 2013a; 2013b)
  - Risk preferences unstable across insurance contexts (Barseghyan, Prince, and Teitelbaum 2011; but see Einav et al. 2012)



# Interventions



# Financial Education and Information Provision

- Programs that provide broad financial education have mixed results
  - ▣ Some evidence of improved decision making, more savings, less delinquency, lower utilization of expensive credit, better investment returns (Bernheim, Garrett, and Maki 2001; Bernheim and Garrett 2003; Agarwal et al. 2010; Lusardi and Scheresberg 2013; Carpena et al. 2015; Clark, Lusardi, and Mitchell 2014, 2015; Berg and Zia 2016; Bruhn et al. 2016; Skimmyhorn 2016)
  - ▣ But effect sizes are often small, and meta-analysis shows that financial literacy programs do not change behavior (Fernandes, Lynch, and Netemeyer 2014)
  - ▣ Teaching rules of thumb may be more effective than formal training (Drexler, Fischer, and Schoar 2014)
  - ▣ Even when education changes decisions, changes are not necessarily for the better (Ambuehl, Bernheim, and Lusardi 2014)
- More targeted information provision also has mixed results
  - ▣ Information about the cost of payday loans reduces take-up by 11 percent (Bertrand and Morse 2011)
  - ▣ A brochure about delaying Social Security claiming increased labor force participation by 5 percentage points (Liebman and Luttmer 2015)
  - ▣ Informing people about matching money left on the table with 401(k) contributions had no effect (Choi, Laibson, and Madrian 2011)
  - ▣ Despite receiving information about index fund fees, people fail to minimize costs (Choi, Laibson, and Madrian 2010)
  - ▣ Simplifying mutual fund disclosures (SEC Summary Prospectus) had no effect on portfolio decisions (Beshears et al. 2011)



# Peer Effects

- Peers influence each other in savings decisions (Duflo and Saez 2002, 2003), portfolio allocations (Hong, Kubik, and Stein 2004; Ivkovic and Weisbenner 2007; Kaustia and Knupfer 2012; Li 2014), trading propensity (Heimer and Simon 2012; Heimer 2014, 2016), and beliefs about markets (Bailey et al. 2016)
- “Social learning” and “social utility” channels (Bursztyn et al. 2014)
- It is more challenging to harness peer effects by providing information about peers’ decisions (Beshears et al. 2015)

# Product Design, Contract Design, and Shrouding

- Households frequently overlook shrouded features of products and focus on salient features
  - Mortgage borrowers are more attentive to initial rates than to reset rates (Gurun, Matvos, and Seru 2013)
  - Investors are more sensitive to mutual fund front-end fees than to operating expenses (Barber, Odean, and Zheng 2005)
  - Advertising affects savings contributions (Hastings, Hortacsu, and Syverson 2013) and mortgage take-up (Gurun, Matvos, and Seru 2013)
  - Making financial opportunities salient increases take-up (Alan et al. 2016; Choi et al. 2016; Karlan et al. 2016)
- Firms respond by designing products and contracts that appeal to consumers on salient dimensions but create shrouded dimensions through which they profit from consumers (DellaVigna and Malmendier 2004; Eliaz and Spiegler 2006; Gabaix and Laibson 2006; Grubb 2009; Heidhues and Koszegi 2010; Bordalo, Gennaioli, and Shleifer 2012; Heidhues and Koszegi 2015; Bordalo, Gennaioli, and Shleifer 2016; Heidhues, Koszegi, and Murooka 2016a, 2016b; Ru and Schoar 2016)
  - Evidence from the banking industry that competition can increase shrouding (Agarwal, Song, and Yao 2016; Di Maggio, Kermani, and Korgaonkar 2016)
  - Firms can increase prices by introducing noise or complexity into the menu of options (Carlin 2009; Gabaix et al. 2016)
  - Interventions that cause consumers to pay more attention often improve welfare but sometimes do not (Grubb 2014)

# Financial Advice

- Substantial evidence that households investing with brokers have lower returns and higher fees (Bergstresser, Chalmers, and Tufano 2009; Chalmers and Reuter 2012; Hackethal, Haliassos, and Jappelli 2012; Del Guercio and Reuter 2014; Foerster et al. 2015; Reuter 2015)
  - ▣ Advisors gain trust by catering to biases and then recommending high-fee products (Mullainathan, Noeth, and Schoar 2012; Agnew et al. 2014; Anagol, Cole, and Sarkar 2016)
  - ▣ Conflicts of interest (Inderst and Ottaviani 2012a, 2012b, 2012c) or the provision of some auxiliary services like fear reduction (Gennaioli, Shleifer, and Vishny 2015) can explain these results
- Disclosing conflicts of interest can have unintended consequences because people may think the advisor is *more trustworthy* if she discloses, and the advisor may think she has license to act unethically (Cain, Loewenstein, and Moore 2005, 2011)

# Choice Architecture

- Automatic savings can increase savings contributions (Samuelson and Zeckhauser 1988; Madrian and Shea 2001; Choi et al. 2002, 2004; Thaler and Benartzi 2004; Beshears et al. 2008; Benartzi and Thaler 2013) and financial wealth (Chetty et al. 2014)
  - ▣ Having no default (forcing individuals to choose) also increases savings plan contributions (Carroll et al. 2009)
  - ▣ The optimal default is often the employer match threshold or zero (Bernheim, Fradkin, and Popov 2015)
  - ▣ Defaults also affect households' insurance coverage (Kunreuther and Weber 2014) and automobile feature choices (Levav et al. 2010), among many other outcomes
- Simplifying enrollment and application processes can increase savings plan enrollment (Choi, Laibson, and Madrian 2009; Beshears et al. 2013) and student financial aid applications (Bettinger et al. 2012)
- People deposit money in commitment accounts that restrict withdrawals without providing superior returns (Ashraf, Karlan, and Yin 2006; Kast, Meier, and Pomeranz 2012; Dupas and Robinson 2013; Burke, Luoto, and Perez-Arce 2014; Karlan and Linden 2014; Kast and Pomeranz 2014; Beshears et al. 2015; Brune et al. 2016)
  - ▣ Theory suggests that the optimal savings system features a completely illiquid account (Amador, Werning, and Angeletos 2006; Beshears et al. 2016)
  - ▣ Naifs can end up worse-off with commitment devices featuring penalties (John 2016)

# Interventions Manipulating Price or Quantity

- Matching contributions in retirement accounts can boost savings, but the magnitude of the effect tends to be small relative to the financial return offered (Papke 1995; Papke and Poterba 1995; Bassett, Fleming, and Rodrigues 1998; Choi, Laibson, and Madrian 2004; Even and MacPherson 2005; Duflo et al. 2006b; Dworak-Fisher 2011; Engelhardt and Kumar 2007; Mitchell, Utkus, and Yang 2007; Saez 2009)
- Mixed evidence on the effect of tax benefits on savings:
  - Disagreement as to whether the introduction of 401(k)s and IRAs induced net new savings (Engen, Gale, and Scholz 1994; 1996; Papke, Petersen, and Poterba 1996; Poterba, Venti, and Wise 1996)
  - Recent work does not find an economically significant impact (Duflo et al. 2006a; Chetty et al. 2014), but the system of employer-sponsored accounts may nonetheless increase savings
  - Tax credits may be more effective if reframed as a match (Saez 2009) or if accompanied by recommended levels of savings (Grinstein-Weiss et al. 2016)
- Outside of the U.S., retirement account withdrawals are not permitted before retirement age, except under certain circumstances (Beshears et al. 2015)

# Regulation

- Usury laws
- Securities Act of 1933
- Social Security Act of 1935
- Employee Retirement Income Security Act of 1974
- Home Ownership Equity Protection Act (and local anti-predatory lending laws, see Bostic et al. 2008)
- Pension Protection Act of 2006 (and related pension reforms in the UK, Australia, New Zealand, and Singapore)
- Military Lending Act of 2006
- CARD Act of 2009 (see Agarwal et al. 2015)
- Department of Labor new fiduciary standard for financial advisors
- CFPB proposed rule on payday lending