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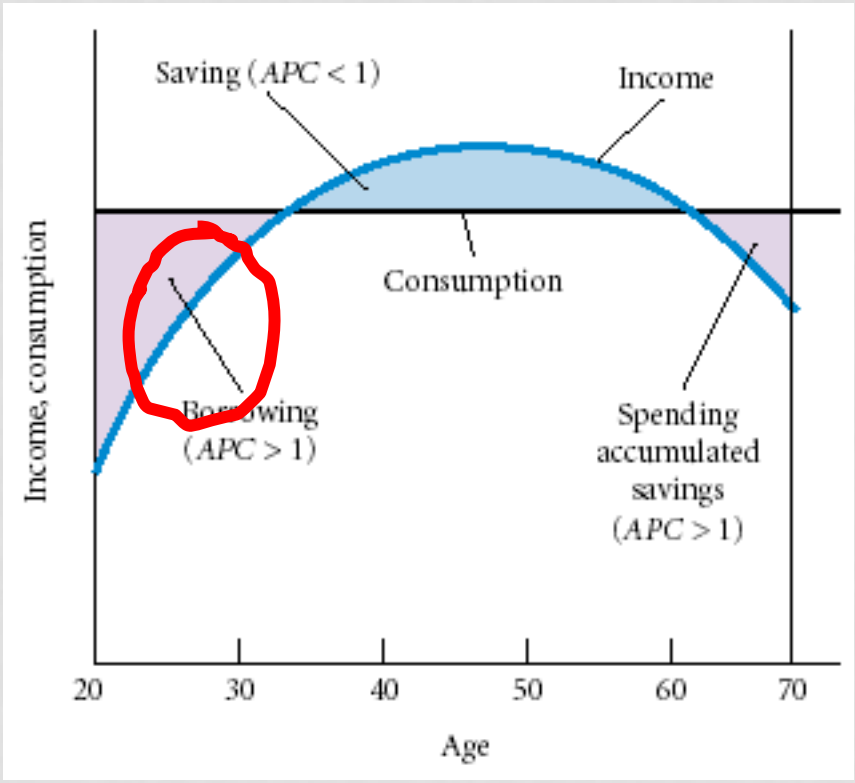
CONSUMER FINANCIAL KNOWLEDGE AND INTERACTION WITH DEBT INSTRUMENTS

EVIDENCE FROM THE UNITED STATES

THEORETICAL CONTEXT

- Life-Cycle Income Considerations
- Income Smoothing
- Complications?
- Uncertainty
- Capital Markets



INCOME SMOOTHING

- Credit Cards as a Market Instrument
- Credit Cards as a Spending Stimuli

- The Role of Consumer Knowledge
- Measured using a composite measure based on 6 financial knowledge questions:

SAMPLE QUESTION

- Which of the following credit card users is likely to pay the GREATEST dollar amount in finance charges per year, if they all charge the same amount per year on their cards?
- Someone who always pays off their credit card bill in full shortly after it is received
- **Someone who only pays the minimum amount each month (%)***
- Someone who pays at least the minimum amount each month, and more when they have more money
- Someone who generally pays their card of in full, but occasionally will pay the minimum when they are short on cash
- Don't know

EMPIRICAL MODEL

- $CCU = a + b_1K + b_2F + b_3X + e$
- Where K = composite knowledge
  F = Selected Financial Factors
  X = demographic characteristics

Credit Card Use Consisted of 5 separate behaviors scored on a Likert-type scale (1 = strongly agree, 5 = strongly disagree)
1: My Credit Cards are usually at their maximum limit
2: I always pay off my credit cards at the end of each month
3: I often make only the minimum payment on my credit cards
4: I am seldom delinquent in making payments on my credit cards
5: I seldom take cash advances on my credit cards

RESULTS

- Sample of 1,354 College Students
- Multinomial Regression was applied to indicate High, Medium or Low Risk Behavior for Five separate models
- Prediction of More Risky Behaviors
- Reference Category for Knowledge is Medium Knowledge Score

RESULTS

- **Model 1: Credit Card At Maximum Limit**
- High Knowledge Score: 42% less likely
- Low Knowledge Score: 106% more likely
- **Model 2: Always Pay Off Cards (non-revolver)**
- High Knowledge Score: NS
- Low Knowledge Score: 25% less likely
- **Model 3: Often Minimum Payment**
- High Knowledge Score: 49% less likely
- Low Knowledge Score: NS

RESULTS

- **Model 4: Seldom Delinquent**
- High Knowledge Score: 56% more likely
- Low Knowledge Score: 55% less likely
- **Model 5: Seldom Cash Advance**
- High Knowledge Score: 39% more likely
- Low Knowledge Score: 46% less likely

CONSIDERATIONS

- Data limitations
- Knowledge Conceptually
- Objective versus Subjective Knowledge

THE DATA

- National Financial Capability Study (2009 & 2012) sponsored by FINRA
- Both waves included a state-by-state survey component (all 50 states plus the District of Columbia)
- Pooled sample (n = 53,655)

EXPLORING RATIONAL BORROWING DECISIONS

- Neoclassical Model: **Fully Informed** consumers make **utility maximizing** choices among market alternatives
- **Optimal** Borrowing: least cost method
- Are all borrowers a reasonable fit for this model?
- Are there some borrowers who are making sub-optimal decisions?
- Bounded Rationality:
  - "Components such as individual knowledge and the ability to apply or draw from that knowledge in light of alternatives and uncertainty must be taken into consideration." (Simon, 2000)
- Accurate forecasts based on uncertainty and limited information (optimism)

MEASURING FINANCIAL KNOWLEDGE

- Objective Financial Knowledge
- **Question 1**
- Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think that you would have in the account if you left the money to grow?
- A) More than $102
- B) Exactly $102
- C) Less than $102

MEASURING FINANCIAL KNOWLEDGE

- Objective
- **Question 2**
- Imagine that the interest rate on your savings account was 1% per year, and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?
- A) More than today
- B) Exactly the same
- C) Less than today

MEASURING FINANCIAL KNOWLEDGE

- Objective
- **Question 3**
- If interest rates rise, what will typically happen to bond prices?
- A) They will rise
- B) They will fall
- C) They will stay the same
- D) There is no relationship between bond prices and interest rates

MEASURING FINANCIAL KNOWLEDGE

- Objective
- **Question 4**
- A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less.
- A) True
- B) False
- C) Don't know

MEASURING FINANCIAL KNOWLEDGE

- Objective
- **Question 5**
- Buying a single company's stock usually provides a safer return than a stock mutual fund.
- A) True
- B) False
- C) Don't know

MEASURING FINANCIAL KNOWLEDGE

- **Subjective** Knowledge:
- Single-item measure
- ‘‘On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?’’

Very Low	Low	Somewhat Low	Neutral	Somewhat High	High	Very High
1	2	3	4	5	6	7

COMBINING THESE CONCEPTS

- Based on earlier work by Allgood and Walstad (2013)
- 4 mutually exclusive knowledge categories combining subjective and objective components
  - High Objective, High Subjective (HO-HS)
  - High Objective, Low Subjective (HO-LS)
  - Low Objective, High Subjective (LO-HS)
  - Low Objective, Low Subjective (LO-LS)

Classifications of "high" or "low" were based on sample median values

BORROWING BEHAVIOR

- Focus on High-Interest Loans (Alternative Financial Services in the United States) which include:
- 1) payday Loans
- 2) Rent-to-Own Financing
- 3) Title Loans
- 4) Tax-Refund Anticipation Loans
- 5) Pawn Shops

CONTROLLING FOR OBJECTIVE NEED

- Possession of an emergency fund
- Lack of any income shock in prior 12 months
- Homeownership
- Health Insurance
- Checking or saving account ownership
- No difficulty paying bills
- Credit score > 720
- No medical or student loan debt

EMPIRICAL MODEL FOR ANALYSIS

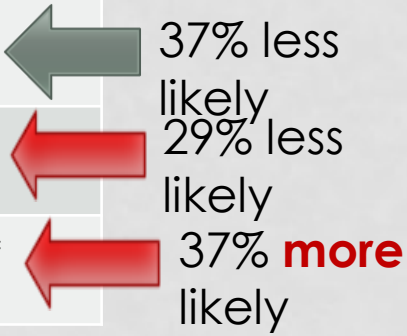
- 5 Separate Logistic Regression Analyses: ("yes" if individuals report utilization of each separate service in the five years prior to the survey, "no" otherwise)
- Separate Analyses run for each Objective Need Control (noted previously)
- Other relevant controls: age, gender, ethnicity, education level, marital status, number of children, labor force participation, income, insurance ownership, banking status, emergency fund, difficulty with bill management, income shock, and risk attitude

RESULTS

- Objective Knowledge consistently associated with decreased likelihood of AFS use (ranging between 12-20% less likely per unit increase)
- Subjective Knowledge was significantly associated with increased likelihood of AFS use for auto-title loans, tax-refund anticipation loans, and rent-to-own transactions (NS otherwise)

RESULTS CONTINUED

Respondent has taken a payday loan in the past 5 years	
Knowledge Measure (Ref: LO-LS)	
HO-HS	.627***
HO-LS	.714***
LO-HS	1.371***



This pattern is identical for each of the other AFS behaviors analyzed

CONTROLLING FOR OBJECTIVE NEED (MAYBE?)

Table 6. Odds ratios from logistic regressions for objective-subjective knowledge indicators

Dependent variable:	(1) =1 if respondent has taken an auto title loan in the past 5 years; =0 otherwise	(2) =1 if respondent has taken a "payday" loan in the past 5 years; =0 otherwise	(3) =1 if respondent has taken a tax refund anticipation check in the past 5 years; =0 otherwise	(4) =1 if respondent has used a used a pawn shop in the past 5 years; =0 otherwise	(5) =1 if respondent has used a rent-to-own store in the past 5 years; =0 otherwise
Reference category for coefficient estimates below is low objective, low subjective financial knowledge. Sample limited to individuals who…					
have emergency funds					
High objective, high subjective	.556 ***	.476 ***	.502 ***	.564 ***	.450 ***
High objective, low subjective	.580 ***	.510 ***	.374 ***	.593 ***	.353 ***
Low objective, high subjective	1.700 ***	2.125 ***	1.990 ***	1.556 ***	1.811 ***
have not experienced an income shock					
High objective, high subjective	.692 ***	.582 ***	.599 ***	.624 ***	.577 ***
High objective, low subjective	.834 **	.658 ***	.537 ***	.700 ***	.617 ***
Low objective, high subjective	1.388 ***	1.169 *	1.344 ***	1.159 *	1.381 ***
own a home					
High objective, high subjective	.685 ***	.526 ***	.457 ***	.588 ***	.462 ***
High objective, low subjective	.769 ***	.662 ***	.443 ***	.666 ***	.503 ***
Low objective, high subjective	1.759 ***	1.627 ***	1.599 ***	1.482 ***	1.725 ***

Now 112% more likely (was 37%)

IMPLICATIONS AND MARKET CONSIDERATIONS

- Alignment of Objective and Subjective Knowledge
- Limitations of knowledge
- Market Instruments