

The Age of Reason: Financial Decisions Over the Lifecycle

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The views expressed in this paper are not necessarily those of the Federal Reserve Bank of Chicago or of the Federal Reserve Board.

“Performance” peaks.

- Baseball: 29 (James 2003)
- Mathematicians, theoretical physicists, and lyric poets: early 30s (Simonton 1988).
- Chess players: mid-30s (Charness and Bosman 1990).
- Autocratic rulers: early 40s (Simonton 1988).
- Novelists: 50 (Simonton 1988).
- Economists?
 - 20s (Hamermesh and Oster 1998)
 - Nobel-Prize-winners (Weinberg & Galenson 2005)
 - “Conceptual” laureates: 43
 - “Experimental” laureates: 61

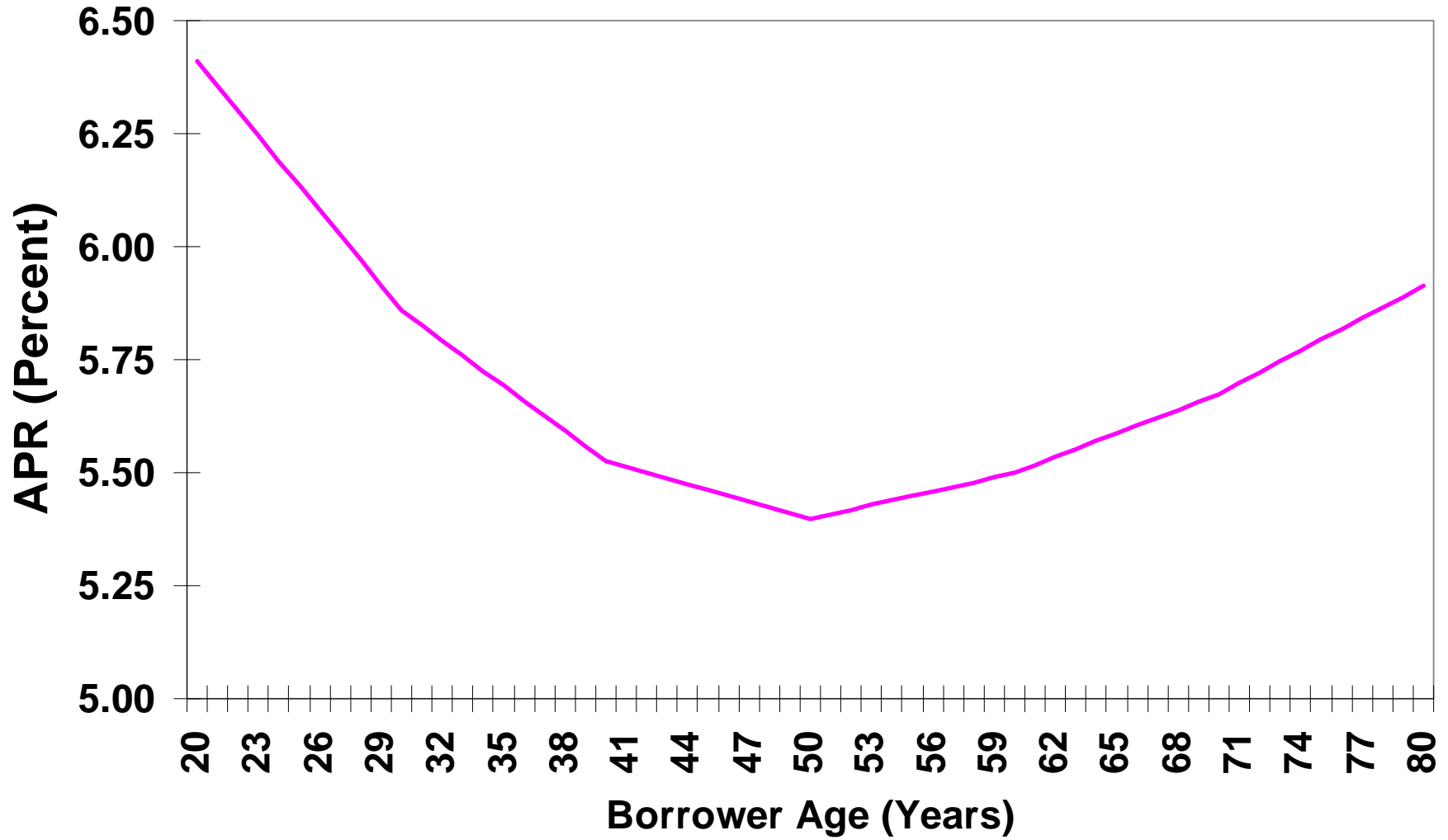
Our findings:

- Financial “performance” rises then declines with age
- Performance:
 - negotiate low (borrowing) interest rates
 - pay fewer fees
- This regularity is confirmed for 10 separate types of financial choices
- On average, financial performance peaks at age 53

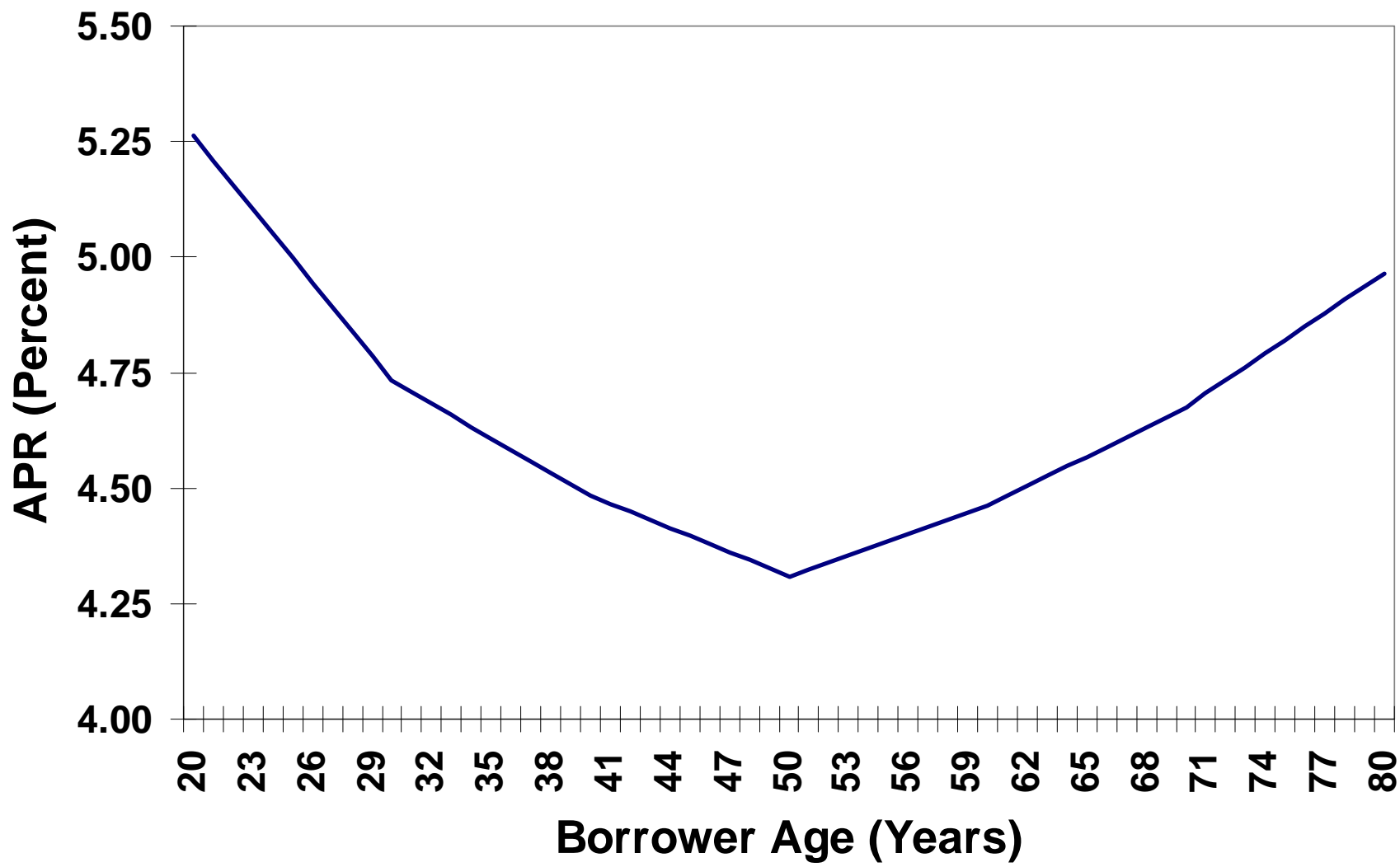
(1,2) Home Equity Loans and Home Equity Credit Lines

- Proprietary data from large financial institutions
- 75,000 contracts for home equity loans and lines of credit, from March-December 2002
- We observe:
 - Contract terms: APR and loan amount
 - Borrower demographic information: age, employment status, years on the job, home tenure, home state location
 - Borrower financial information: income, debt-to-income ratio
 - Borrower risk characteristics: FICO (credit) score, loan-to-value (LTV) ratio

Home Equity Loan APR by Borrower Age



Home Equity Credit Line APR by Borrower Age



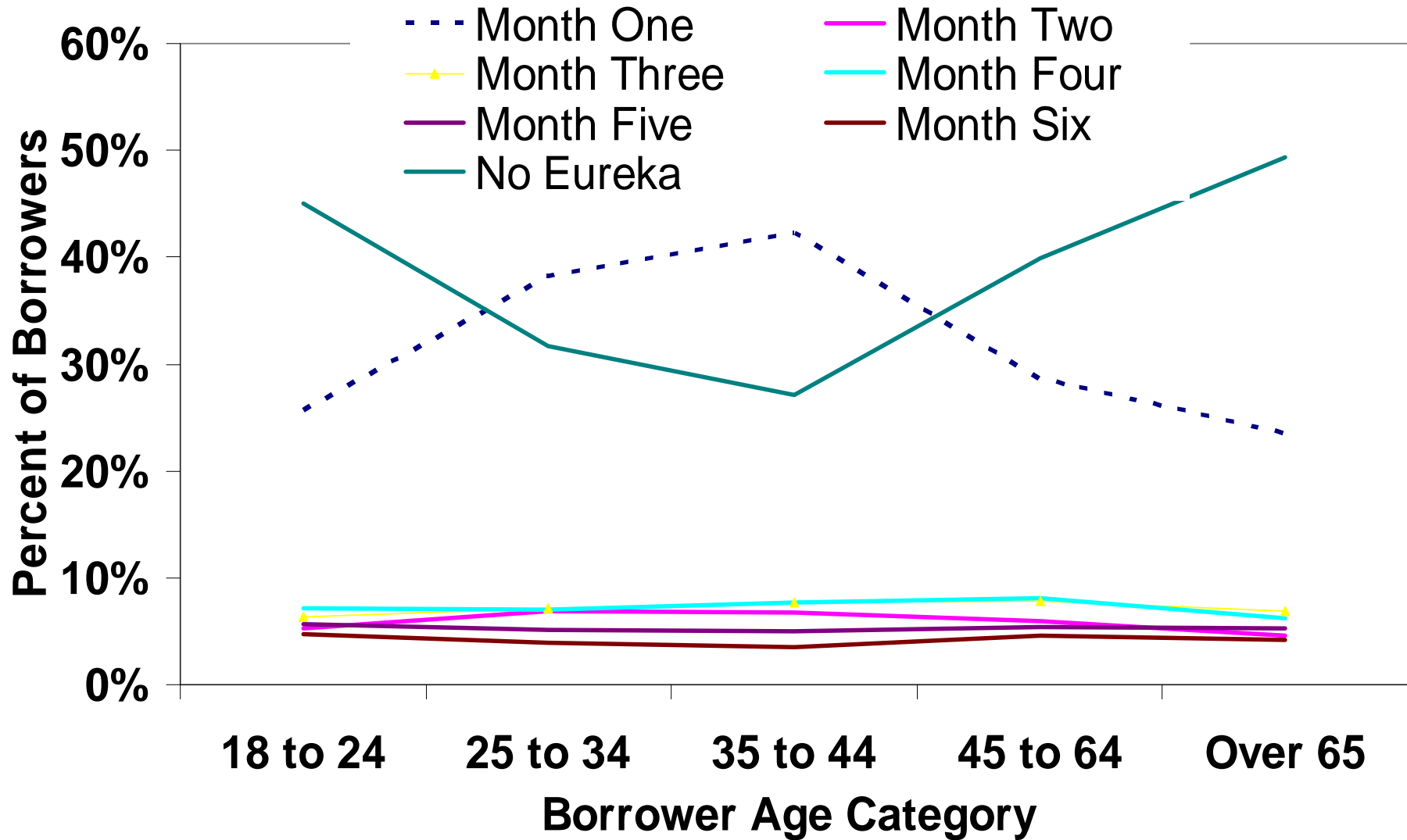
(3) “Eureka”: Learning to Avoid Interest Charges on Balance Transfer Offers

- Balance transfer offers: borrowers pay lower APRs on balances transferred from other cards for 6-9 months
- New purchases on card have higher APRs
- Payments go towards balance transferred first, then towards new purchases
- Optimal strategy: make **no** new purchases on card to which balance has been transferred

Eureka: Predictions

- Borrowers may not initially understand card terms
- Borrowers learn about terms through usage
 - We will see “eureka” moments: new purchases on balance-transfer cards drop to zero in the month after borrowers “figure out” how to optimize
- Study: 14,798 balance transfer accounts over the period January 2000 to December 2002

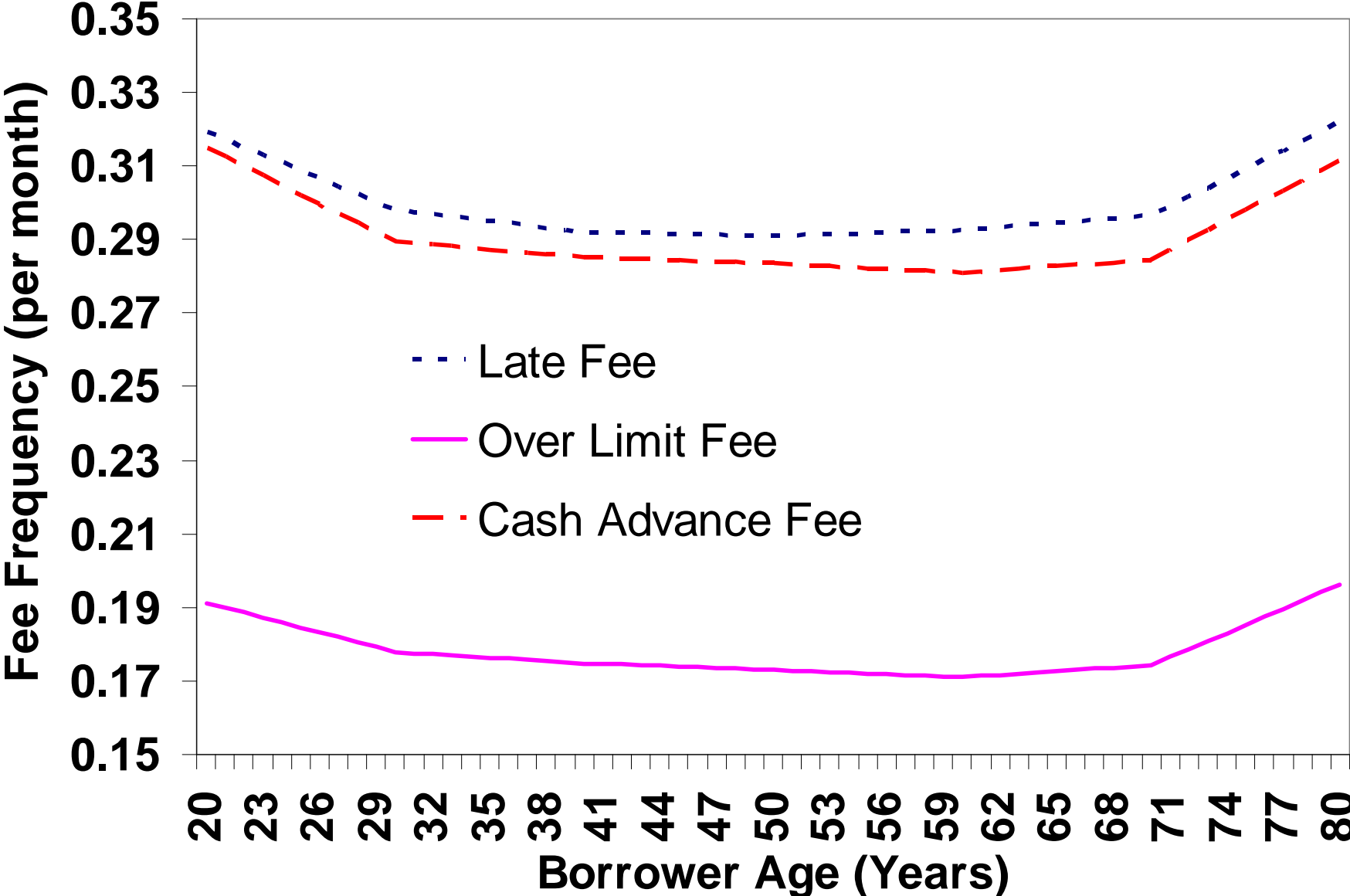
Fraction of Borrowers in Each Age Group Experiencing a Eureka Moment, by Month



(4,5,6) Fee payments

- We examine payments of three types of credit card fees:
 - Late payment fees
 - Over credit limit fees
 - Cash advance fees
- We again see U-shaped patterns by age
- The opportunity cost model (younger and older adults have more time to avoid fees) would predict the opposite pattern
- 3.9 million month-borrower observations on credit card purchases from January 2002 through December 2004

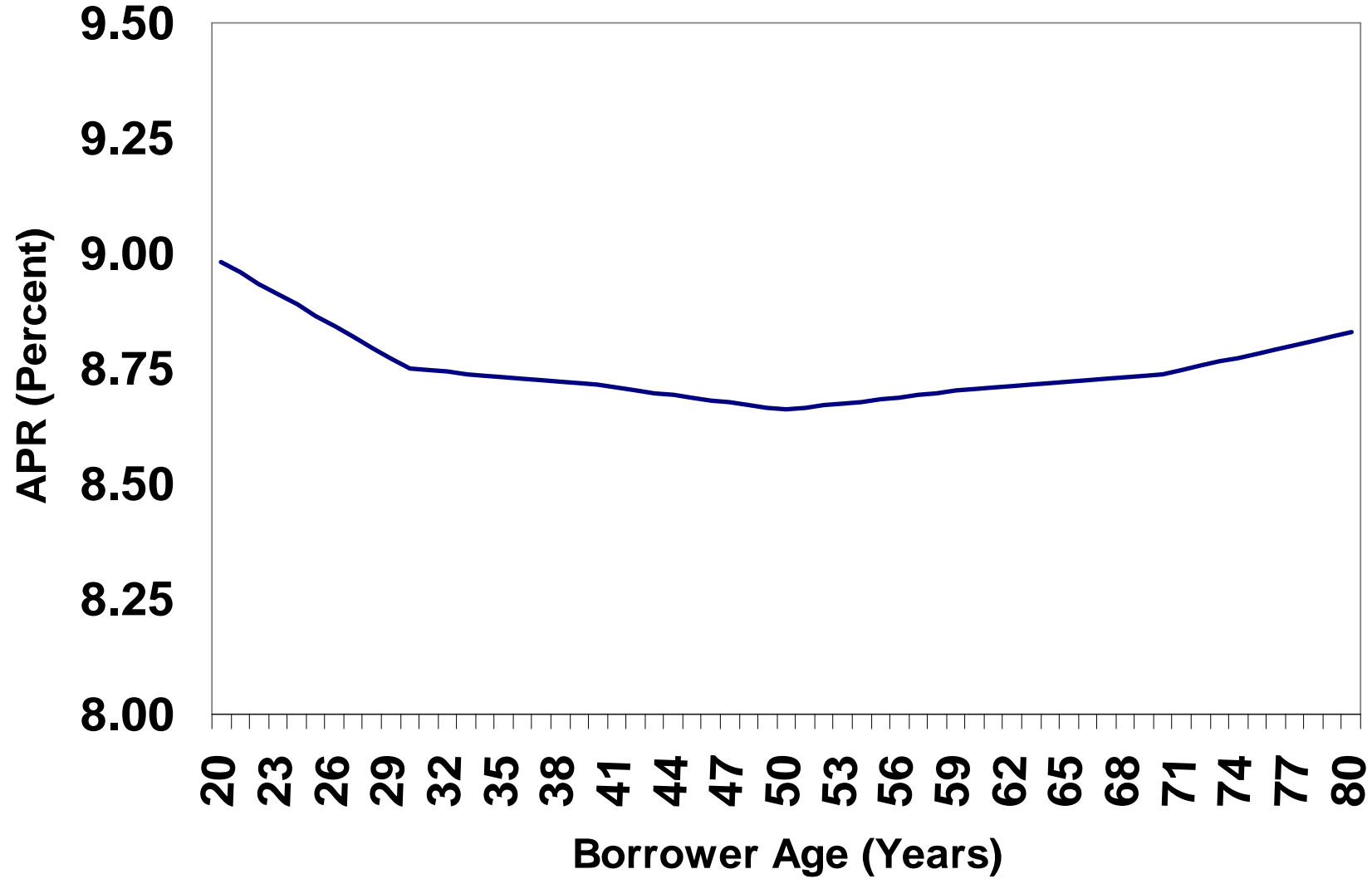
Frequency of Fee Payment by Borrower Age



(7) Auto Loans

- Proprietary data from several large financial institutions
- 6,996 loans for purchase of new and used autos
- We observe:
 - Contract terms: APR and loan amount
 - Borrower demographic information: borrower age and state of residence
 - Borrower financial information: income, debt-to-income ratio
 - Borrower risk characteristics: FICO score
 - Automobile characteristics: value, age, model, make and year.

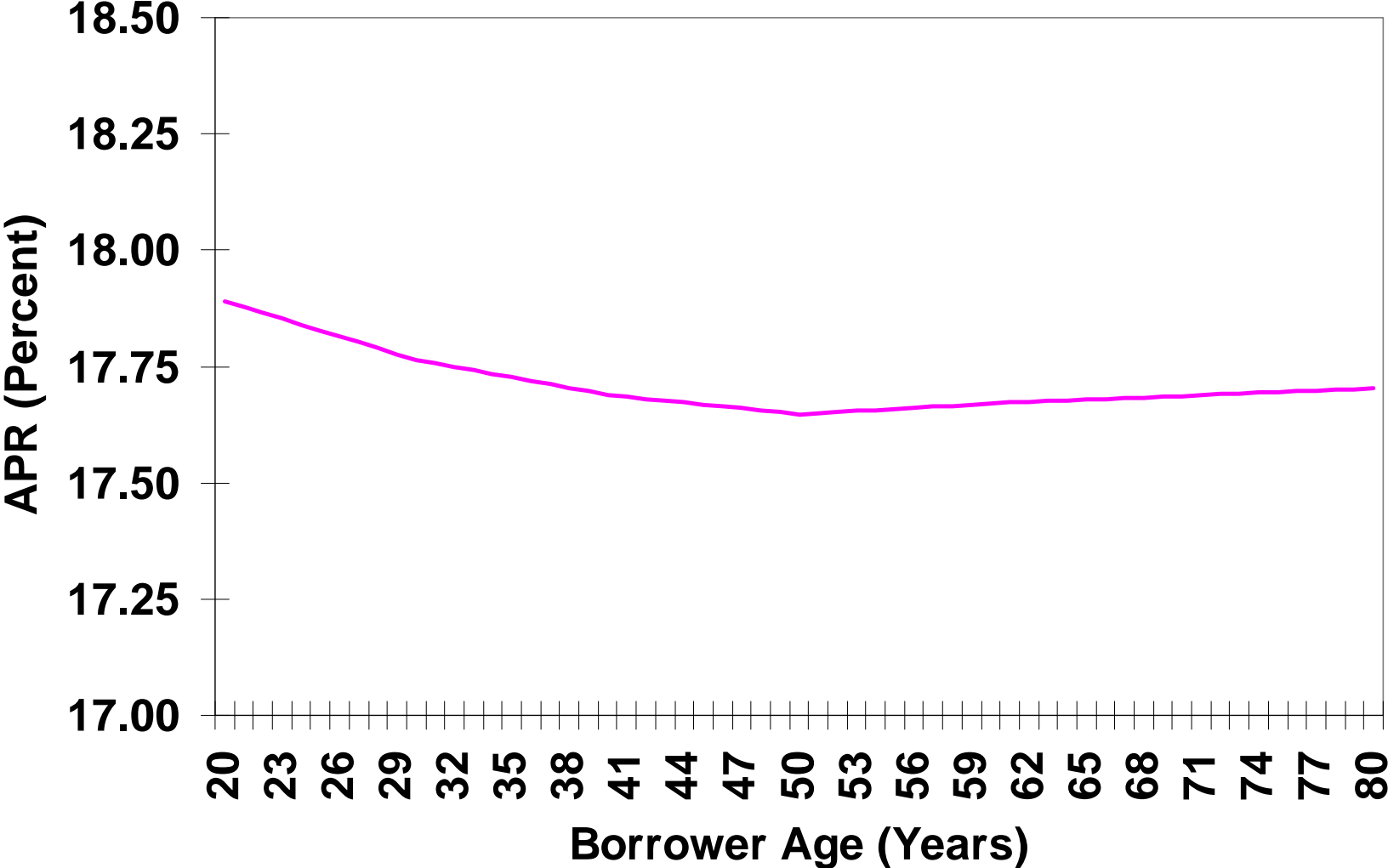
Auto Loan APR by Borrower Age



(8) Credit Card APRs

- Proprietary data from a large financial institution that issues credit cards nationally
- 128,000 accounts over a 36 month period from 1/2002 to 12/2004
- We observe:
 - Card terms: APR, fees paid
 - Borrower risk information: FICO (credit) score, card balances, other debt
 - Borrower demographic information: age, gender, income

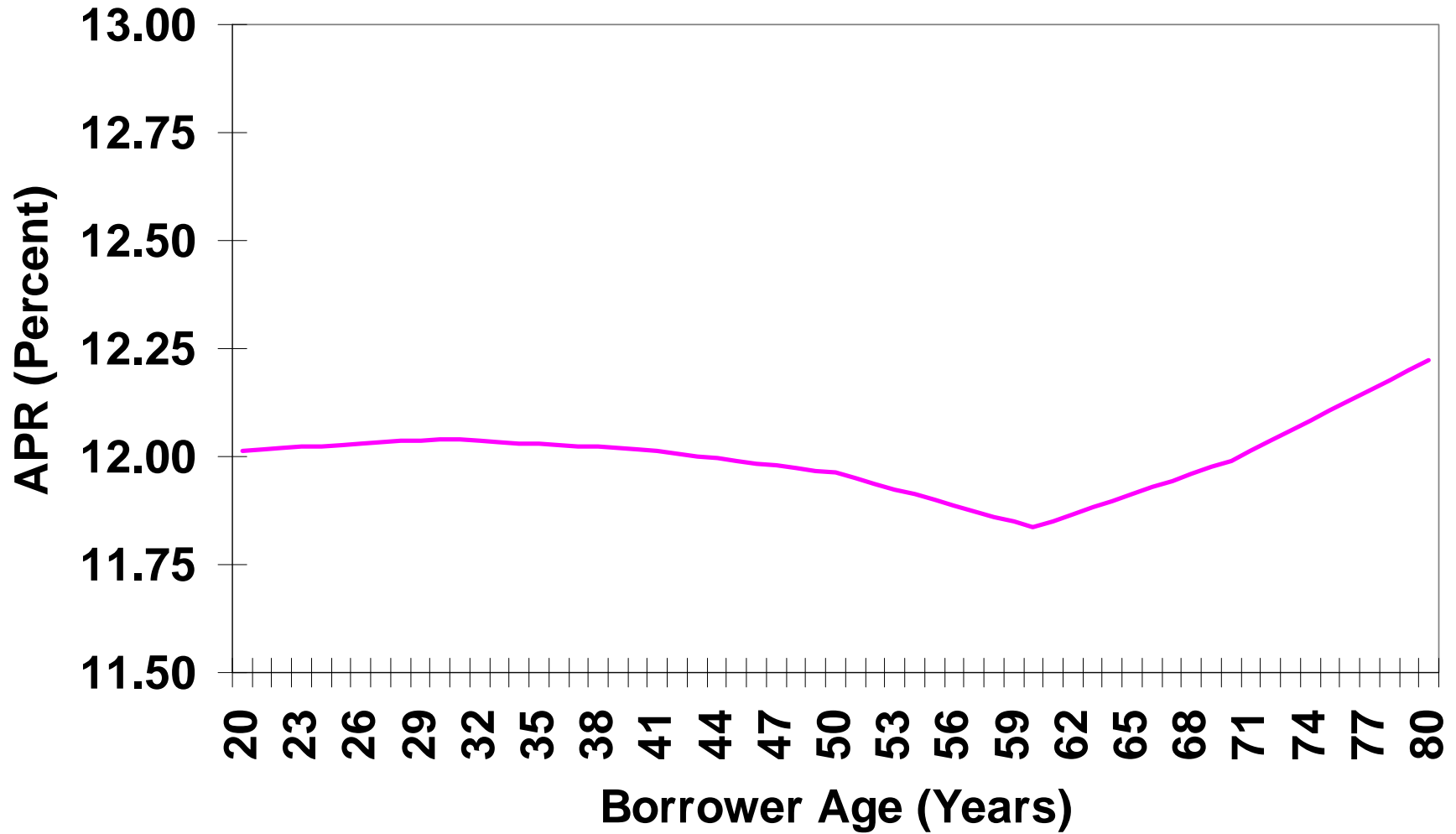
Credit Card APR by Borrower Age



(9) Mortgage APRs

- Proprietary data from a large financial institution that originates first mortgages in Argentina
- 4,867 fixed-rate, first-mortgage loans on owner-occupied properties between June 1998 and March 2000
- We observe:
 - Contract terms: APR and loan amount
 - Borrower demographic information: age, employment status, years on the job, home tenure, home location
 - Borrower financial information: income, debt-to-income ratio
 - Borrower risk characteristics: Veraz (credit) score, loan-to-value (LTV) ratio

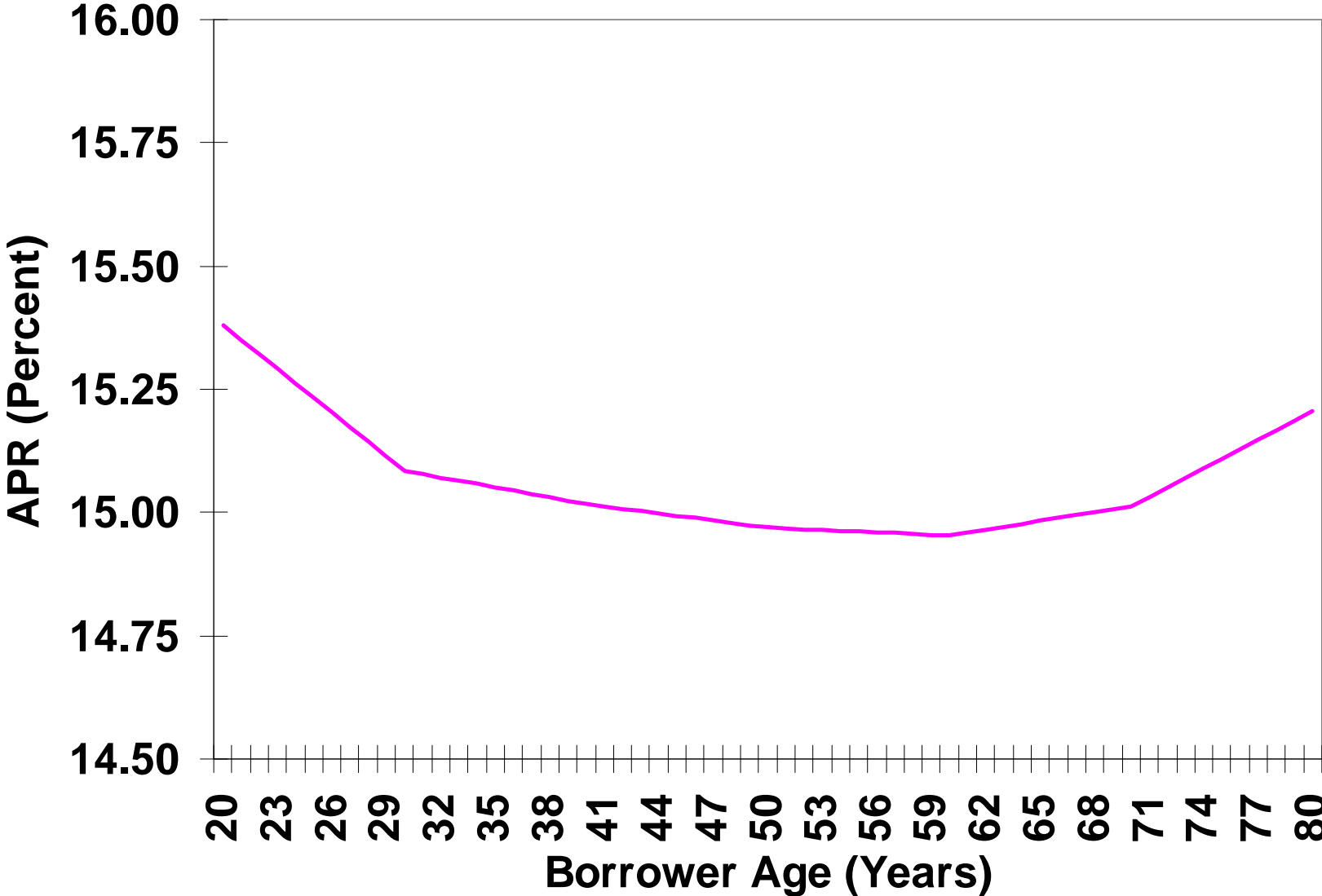
Mortgage APR by Borrower Age



(10) Small Business Credit Card APRs

- Proprietary data set from several large financial institutions that issue small business credit cards nationally
- 11,254 accounts originated between 5/2000 and 5/2002
- Most businesses are small and owned by single families
- We observe:
 - Credit card terms: APR
 - Borrower demographic information: age
 - Borrower risk information: credit score, total number of cards, total card balance
 - Business information: years in business

Small Business Credit Card APR by Borrower Age



U-shape for financial mistakes in 10 examples

- Home equity loans
- Home equity lines of credit
- Eureka moments for balance transfers
- Late payment fees
- Over credit limit fees
- Cash advance fees
- Auto loans
- Credit cards
- Small business credit cards
- Mortgages

	Age of Peak Performance	Standard Error
Home Equity Loans-APR	55.85	4.24
Home Equity Lines-APR	53.30	5.23
Credit Card-APR	50.31	6.02
Auto Loans-APR	49.63	5.03
Mortgage-APR	56.04	8.01
Small Business Credit Card-APR	61.75	7.92
Credit Card Late Fee	51.94	4.87
Credit Card Over Limit Fee	53.97	5.02
Credit Card Cash Advance Fee	54.82	4.89
Eureka Moment	45.81	7.93
Average of the 10 Studies	53.34	

Table 9: Age at which financial mistakes are minimized, for each case study

- We can rule out alternative interpretations:
 - Default risk
 - Opportunity cost of time
 - Medical expenses
 - Discrimination
 - Sample selection
- We are not able to distinguish between age effects and cohort effects.
 - However, we think cohort effects are not dominant since the U-shaped pattern would not be predicted by the most natural cohort-effect mechanisms (e.g. rising financial literacy)

Conclusion

- U-shape for mistakes in all 10 examples
- Others have confirmed this pattern in their data sets:
 - Fiona Scott-Morton (auto loans)
 - Luigi Guiso (portfolio choice)
 - Lucia Dunn (credit cards)
- Implications for public policy
 - 401(k)'s
 - IRA rollover accounts
 - Annuitization
 - Medicare, especially Part D
 - Social Security Privatization
 - Regulation of financial advisors