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Two Exemplified Applications of Townsend Thai Monthly Micro Dataset: When Theories Meet Data

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Presentation Outline

- Data organization: Household Financial Account
- Extraordinary tales of ordinary households
- First Application: Wealth Planner
- Second Application: Cash Management
- Concluding Remarks



Data Organization: Household Financial Account

- Townsend Thai Monthly Micro Survey mostly collects data by transactions or activities.
- Need to compile raw data to get important variables to study economic situations of households, e.g. consumption, income, assets, debts, and wealth.
- Apply the framework provided by **Samphantharak and Townsend. (2009) “Households as Corporate Firms: An Analysis of Household Finance Using Integrated Household Surveys and Corporate Financial Accounting.”**
- The most up-to-date version, financially supported by Thailand Research Fund, is available up to December 2012 at <http://riped.utcc.ac.th/data-services/fedr>

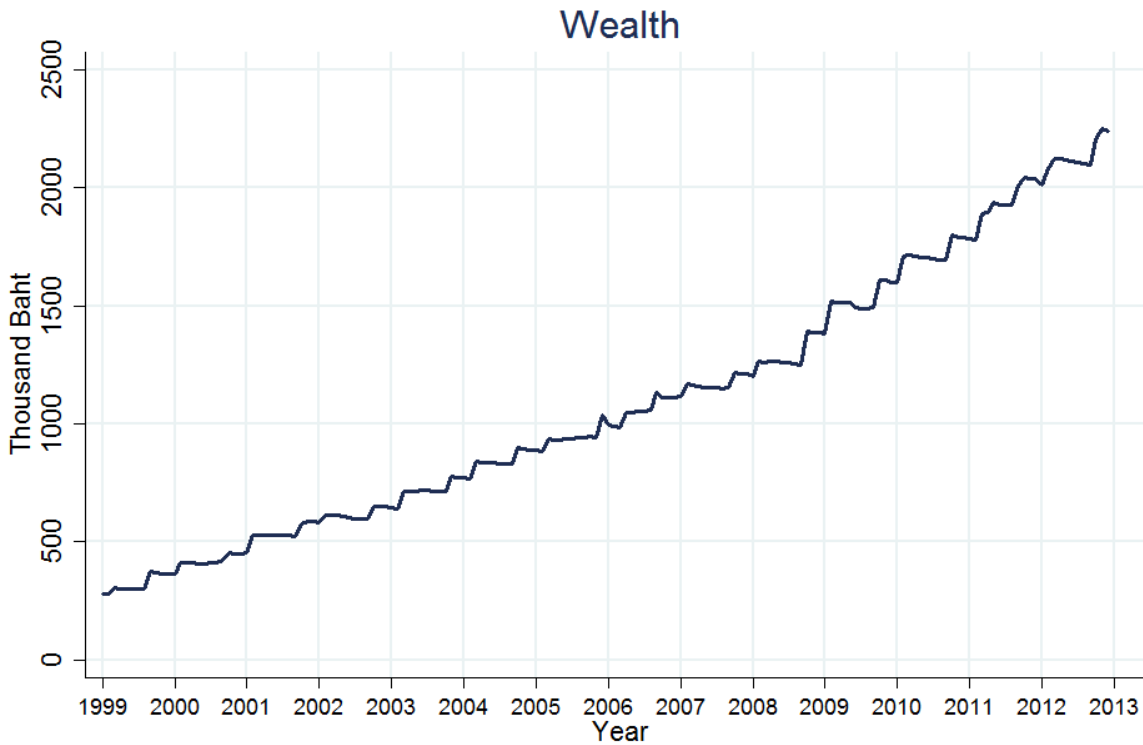


IS: Consumption, Income, Saving
BS: Assets, Liabilities, Wealth
CF: Cash Flows





Extraordinary Tales of Ordinary Households: The First Household

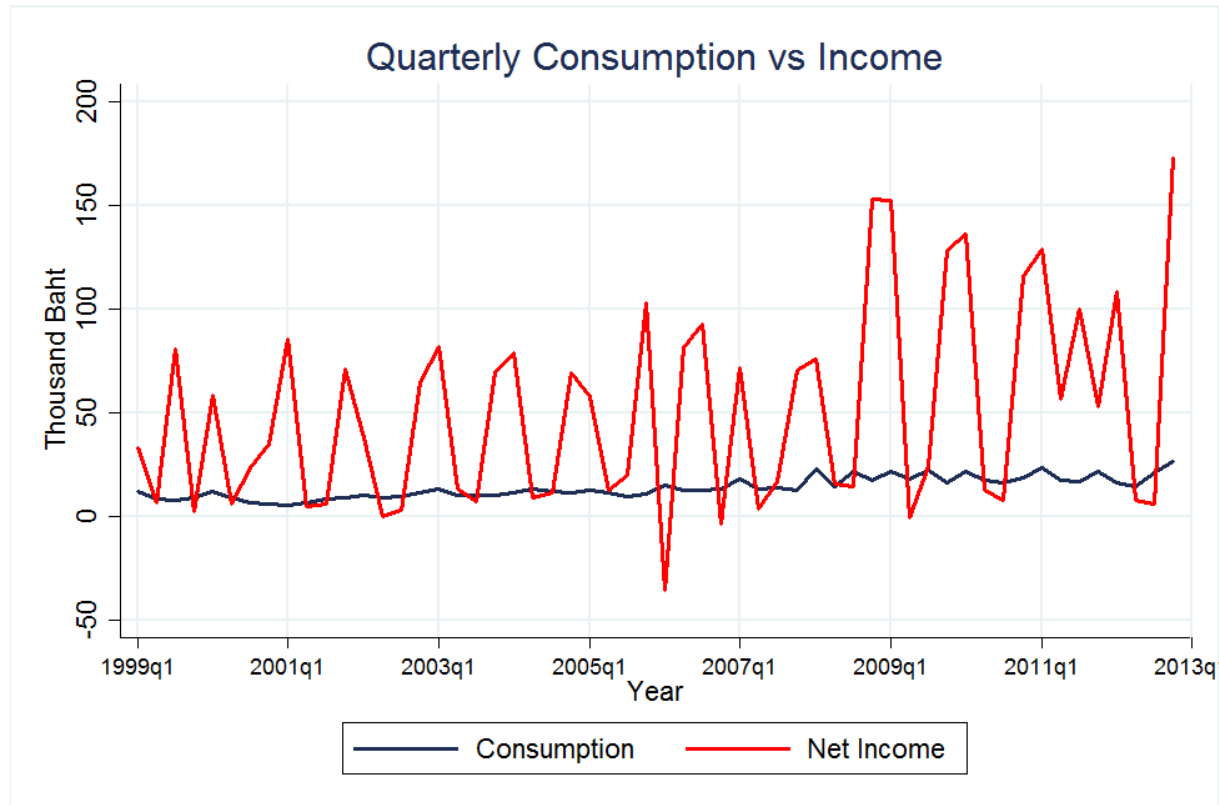


Growth Rate:

- 13.23% a year

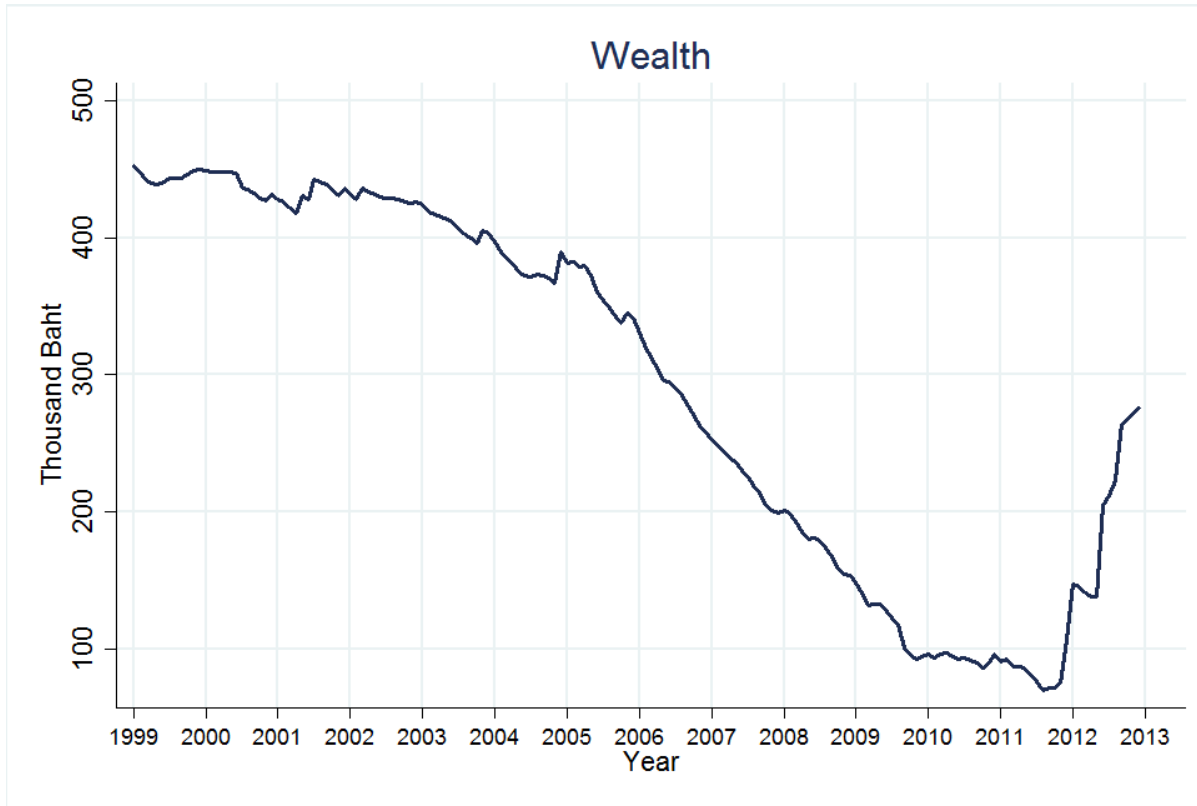


The First Household: Consumption Smoothing



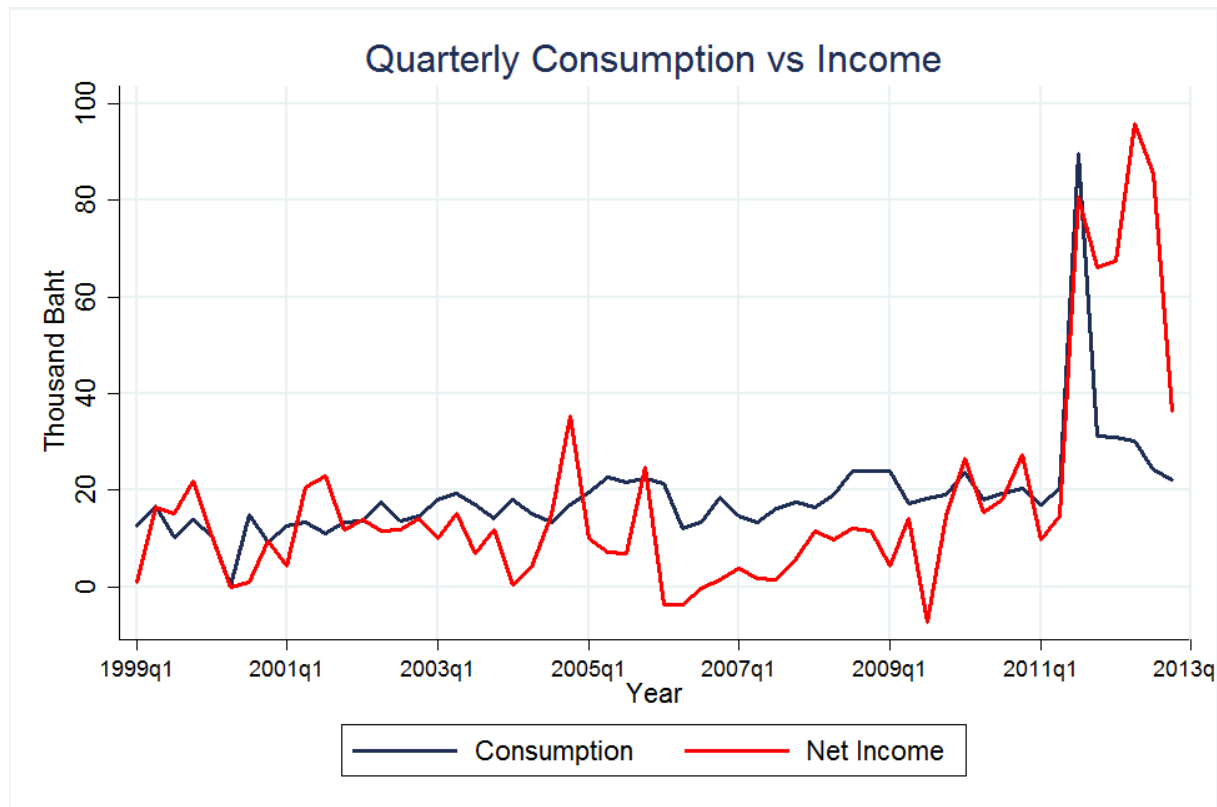


Extraordinary Tales of Ordinary Households: The Second Household



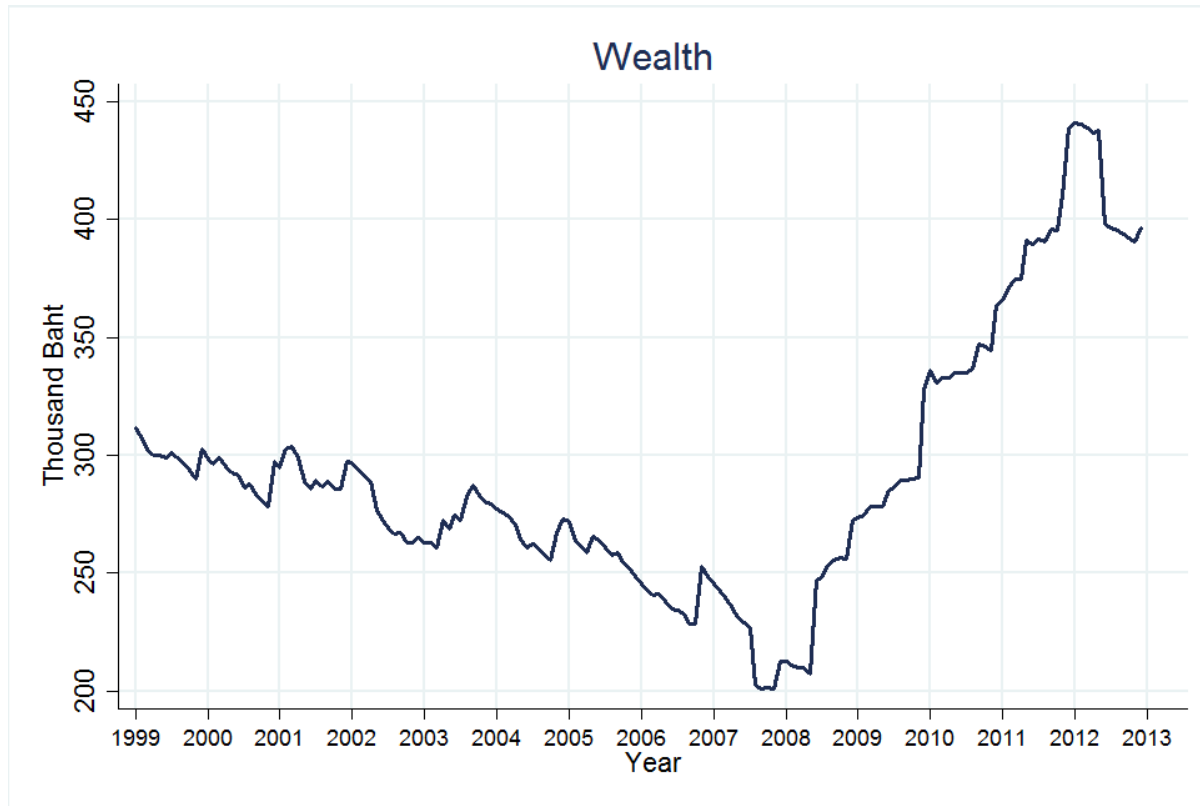


The Second Household: Consumption Smoothing



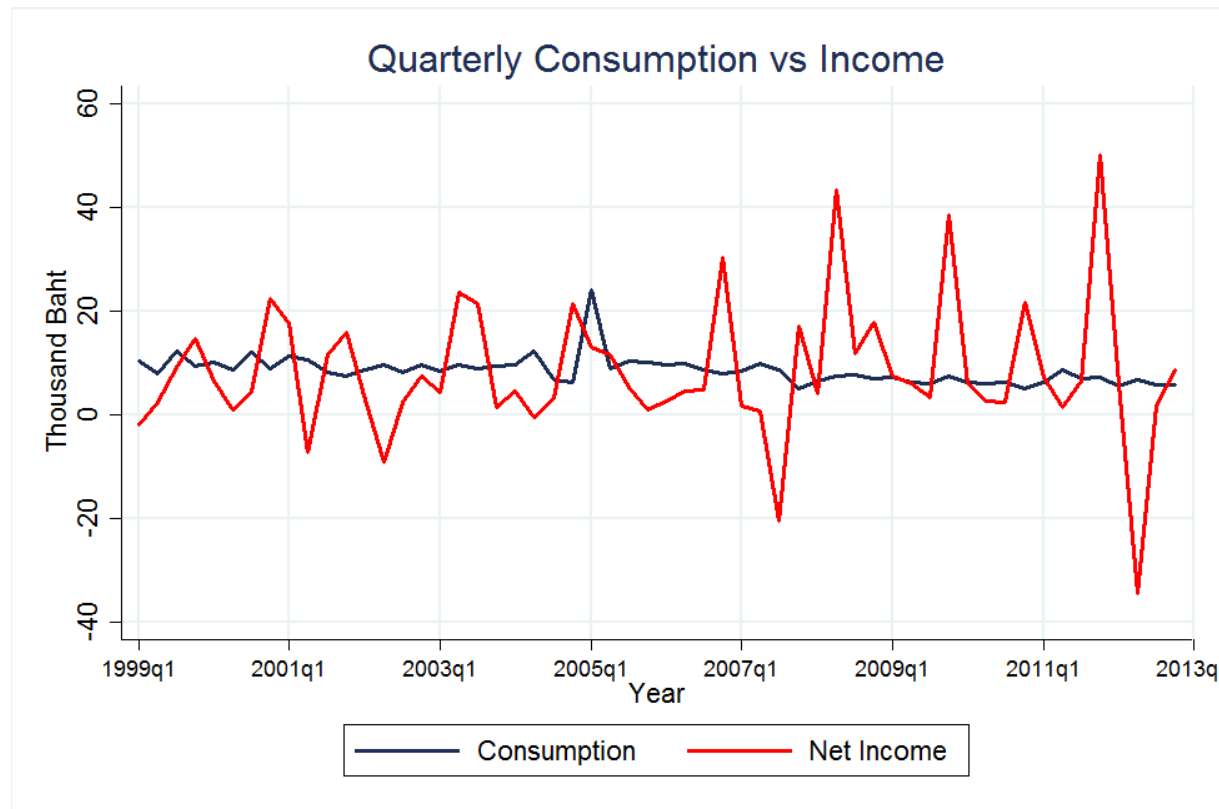


Extraordinary Tales of Ordinary Households: The Third Household





The Third Household: Consumption Smoothing





Wealth Planner

Additional Contributors:

- Stefanie Stantcheva
- Victor Zhorin
- Parit Sripakdeevong



The Wealth Planner

$$\max_{\{c_t, z_t\}} \mathbb{E} \left\{ \sum_{t=1}^{T-1} \left(\delta^t \frac{c_t^{1-\kappa}}{1-\kappa} \right) + \delta^T \beta \left(\frac{c_T^{1-\kappa}}{1-\kappa} \right) \right\}$$

subject to

$$w_{t+1} = \left(r^r z_t + r^f (1 - z_t) \right) \left\{ w_t + \mu_t + \gamma (y_t \mu_t - \mu_t) + x \frac{\mathbb{I}[die_t]}{(1 + \pi)^t} - c_t - C_t \right\}$$

where c_t is consumption in period t

C is committed expenditure

z is fraction of wealth allocated to risky asset

w is stock of liquid asset

y is realized income, and $\ln y_t \sim N \left(-\frac{1}{2} \sigma_y^2, \sigma_y^2 \right)$

μ is mean income

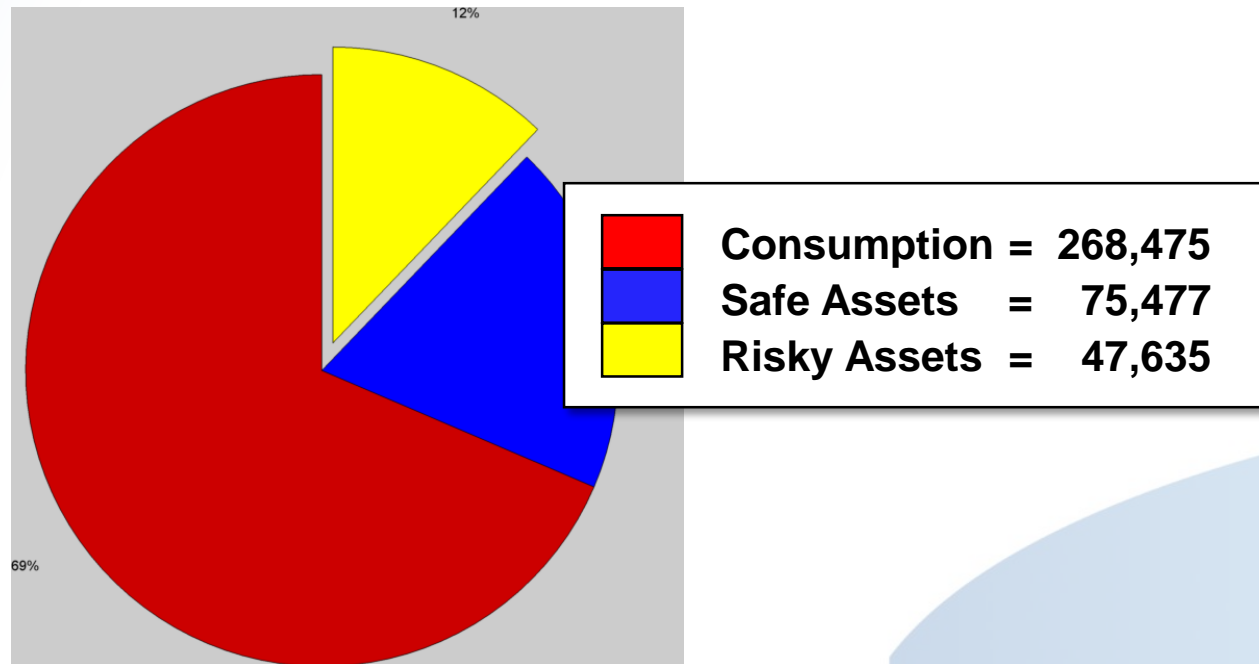
x is insurance indemnity expected to receive if the head dies.

β is bequest factor



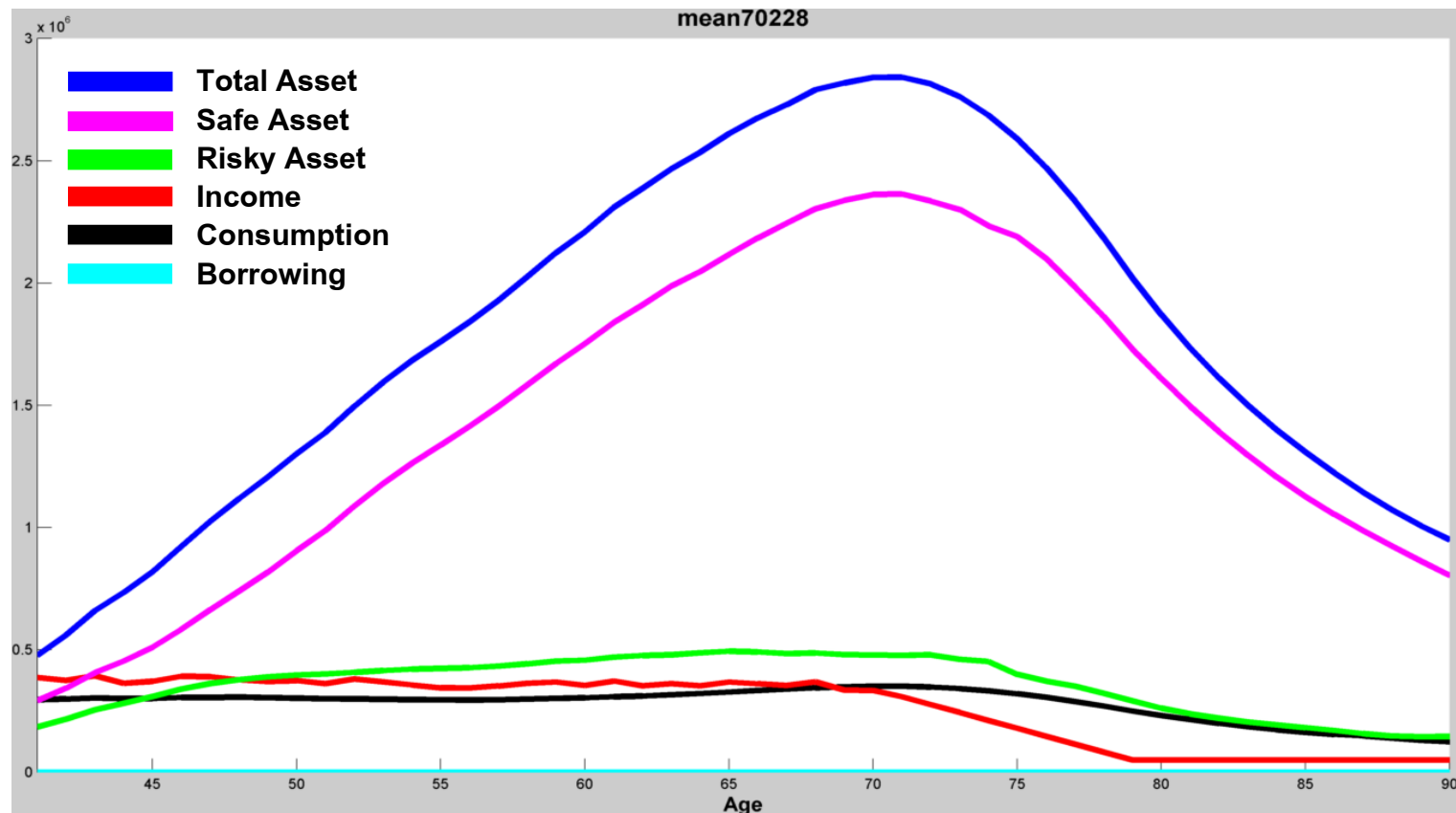
The Planner Result for The First Household

- The input for the planner was collected in 2013





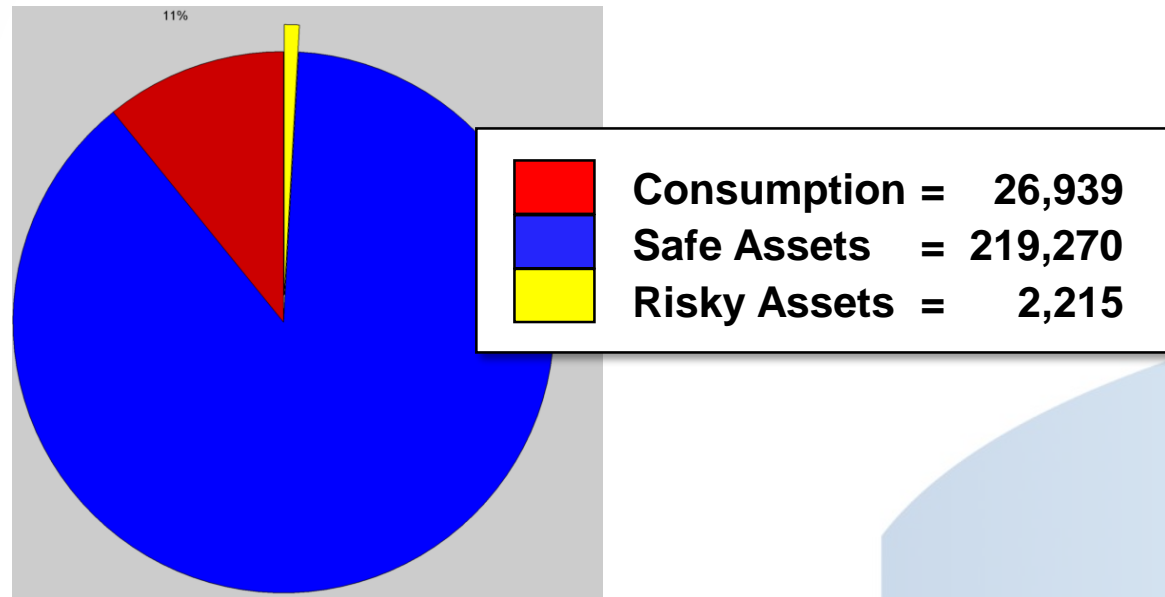
The Planner Result for the First Household Average Path over Life-cycle





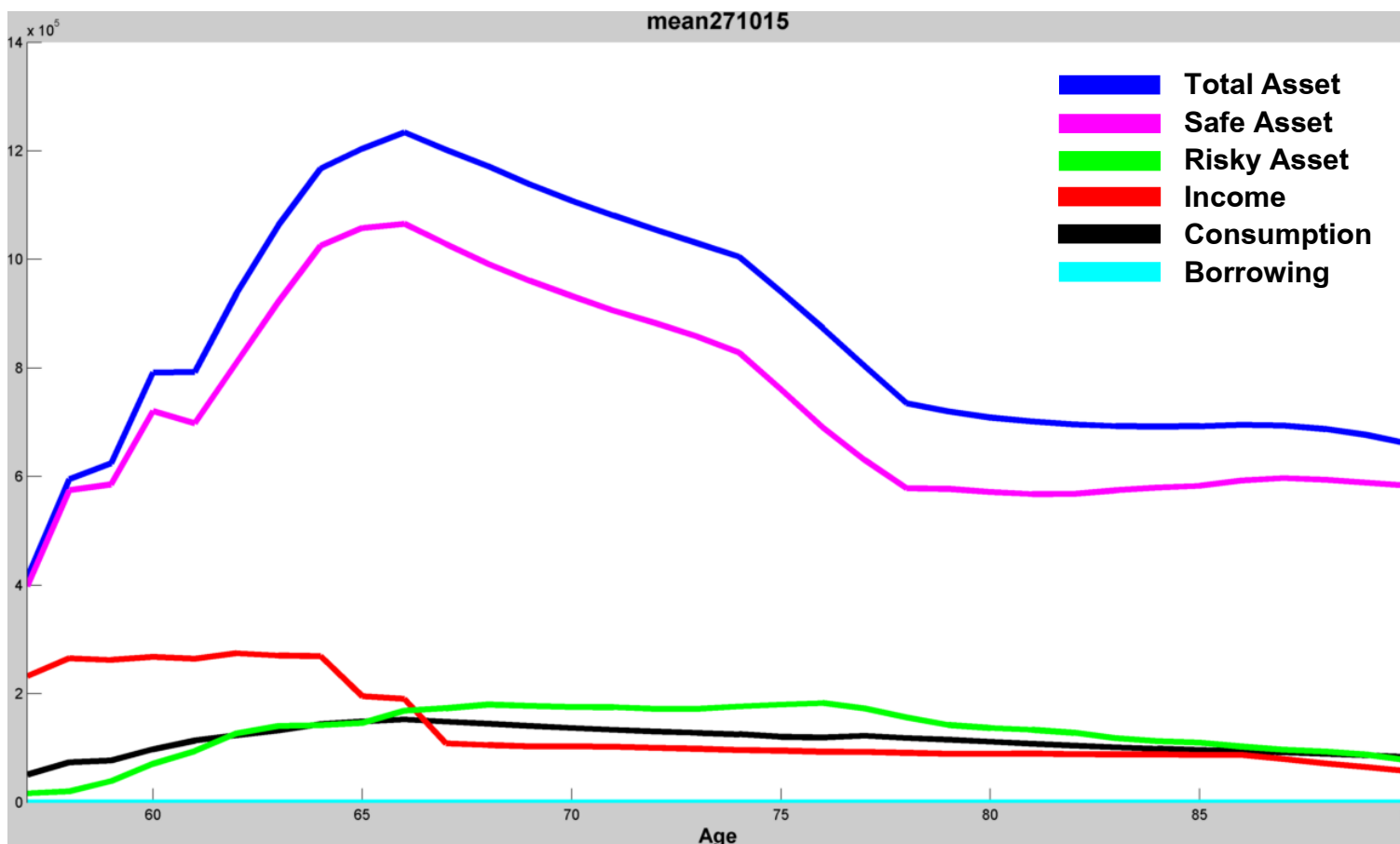
The Planner Result for The Second Household

- Suggested to scale down more than two-third of the actual recent consumption.
- Very low level of risky assets recommended.





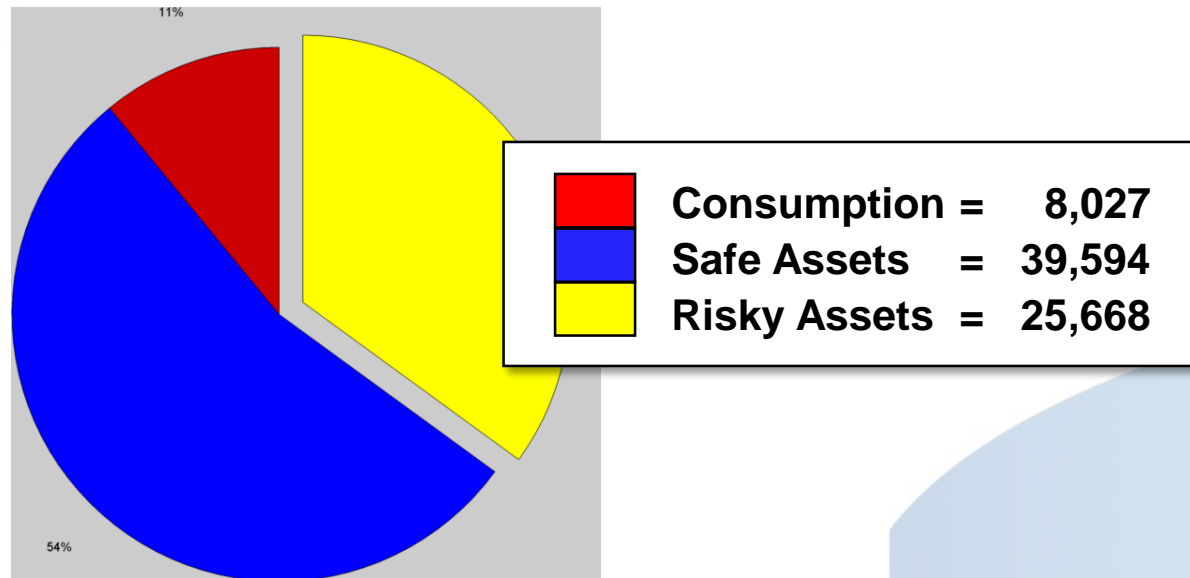
The Planner Result for the Second Household Average Path over Life-cycle





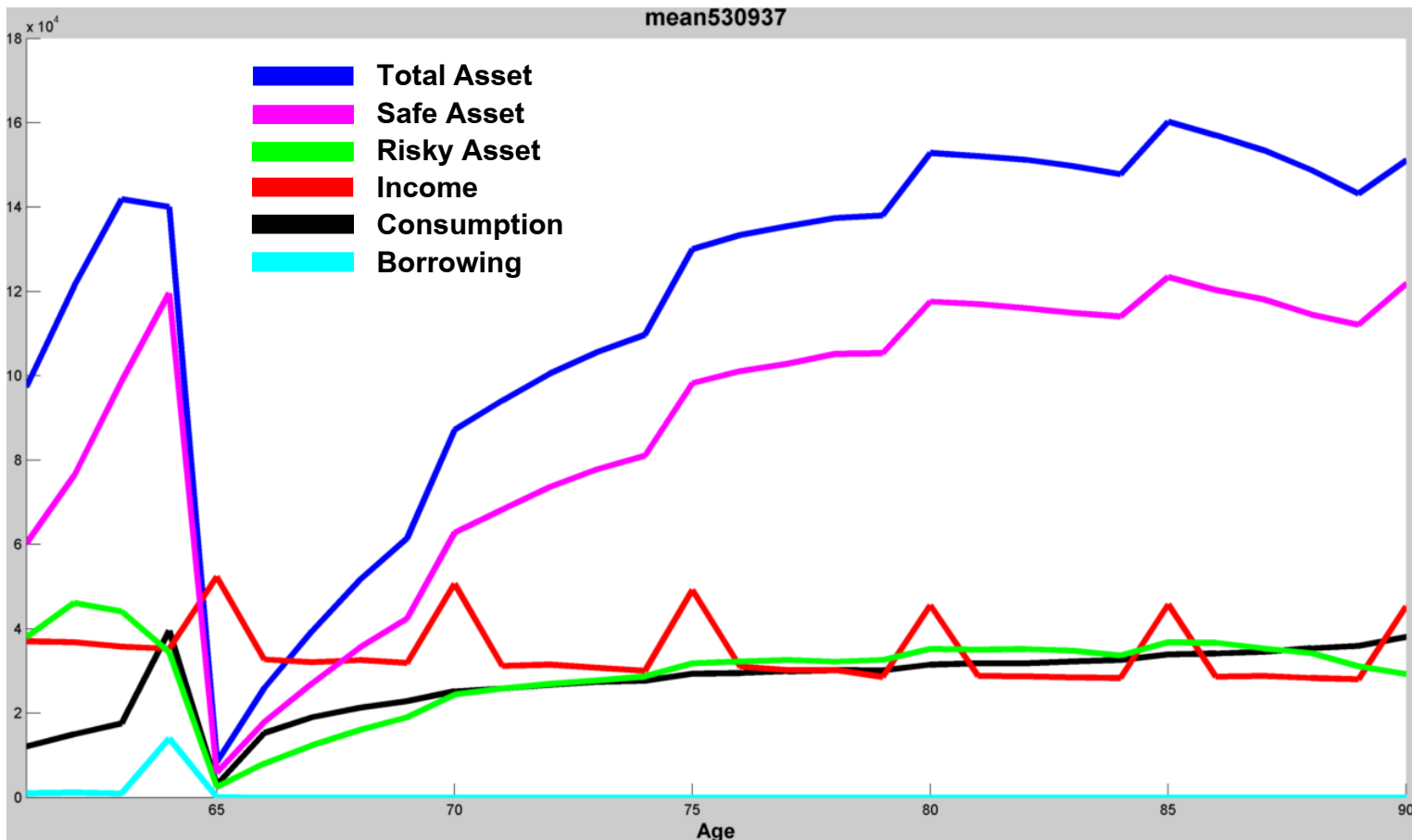
The Planner Result for The Third Household

- Suggested impossibly low consumption: less than 700 Baht/month
- The result implies that the household will get into trouble.





The Planner Result for the Third Household Average Path over Life-cycle





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Cash Management

Additional Contributor: Fernando Alvarez

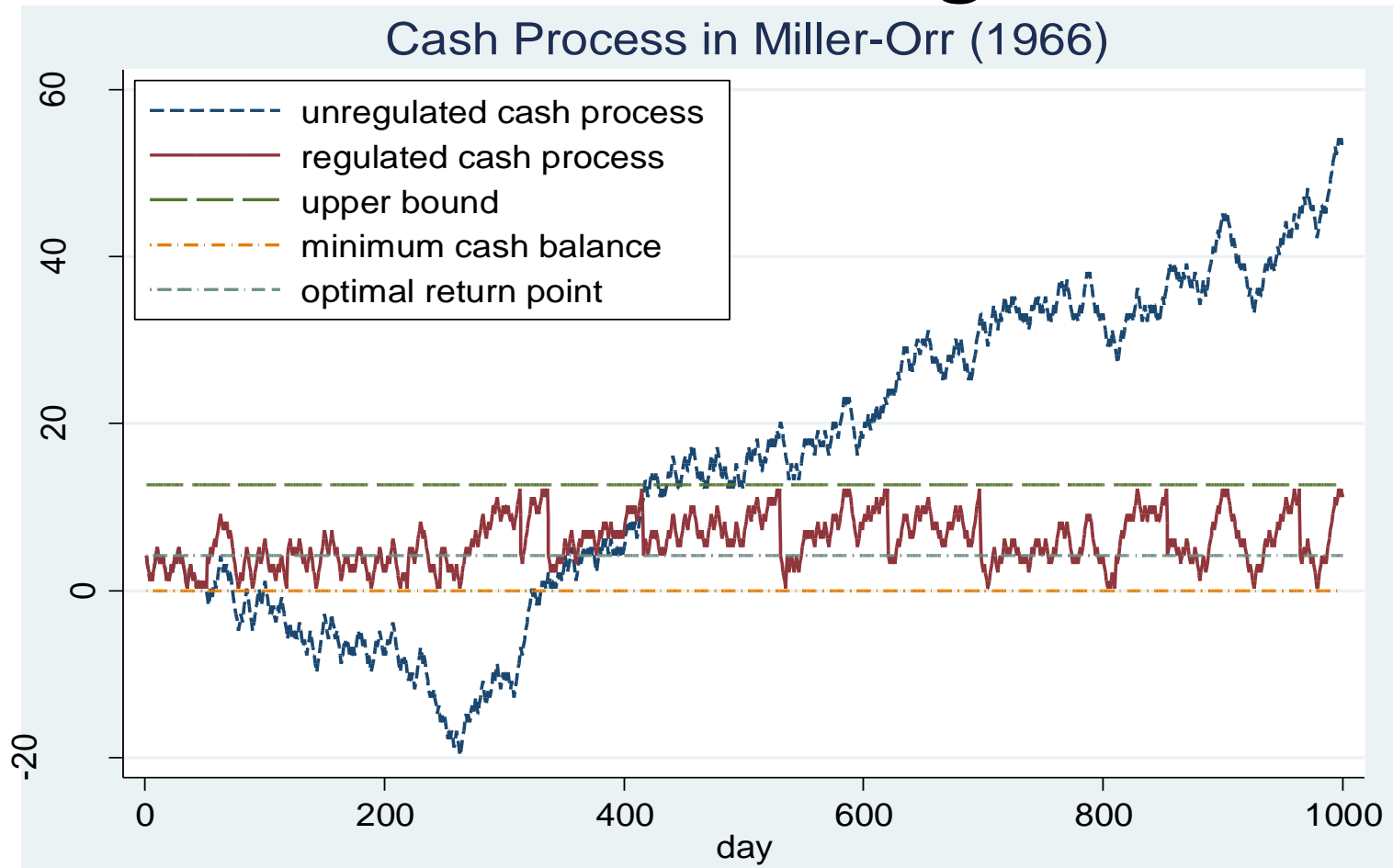


Models of Cash Management

- Baumol-Tobin Model (1952, 1956):
 - Deterministic levels of cash expenditures
 - Household decides how often to withdraw; thus, how much cash to hold
 - Optimal cash process will look like sawteeth.
 - Applied reasonably well particularly for salary-earning households.
- Miller-Orr Model (1966):
 - Cash balance fluctuates irregularly and unpredictably.
 - Optimal solution: chooses upper/lower bound, and optimal return point
 - Once cash it hits the upper/lower bound, the agent will deposit/withdraw to restore cash to its optimal return point.

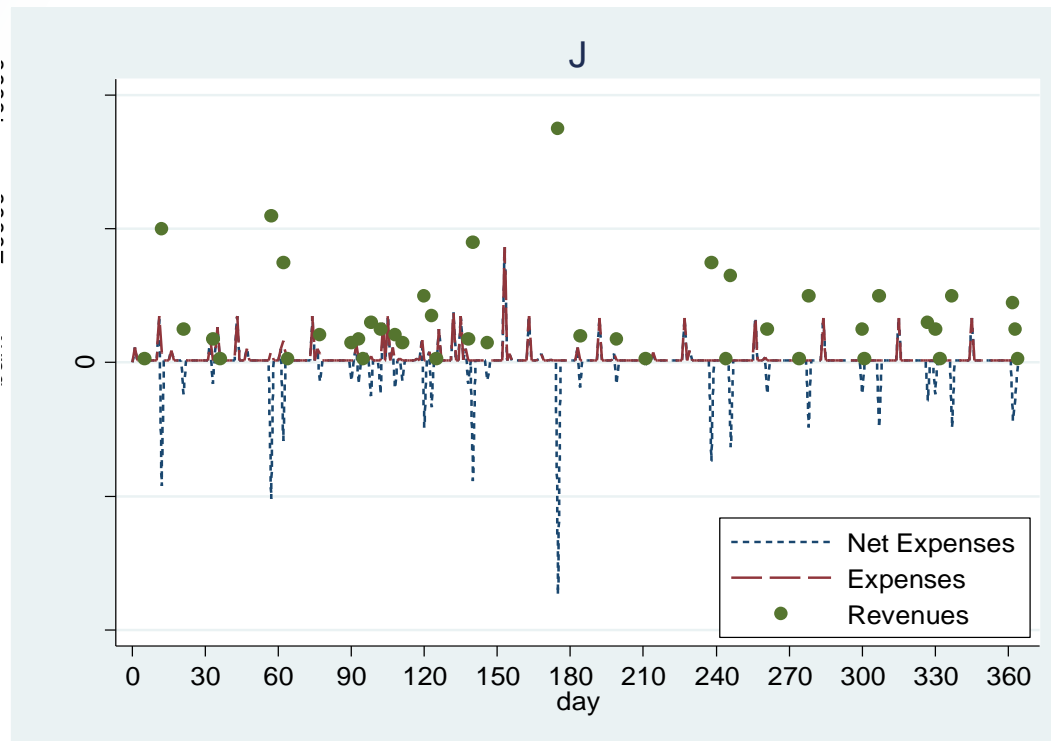


Models of Cash Management



The Actual Cash Management Behaviors from Diary Data: The First Example: Household J

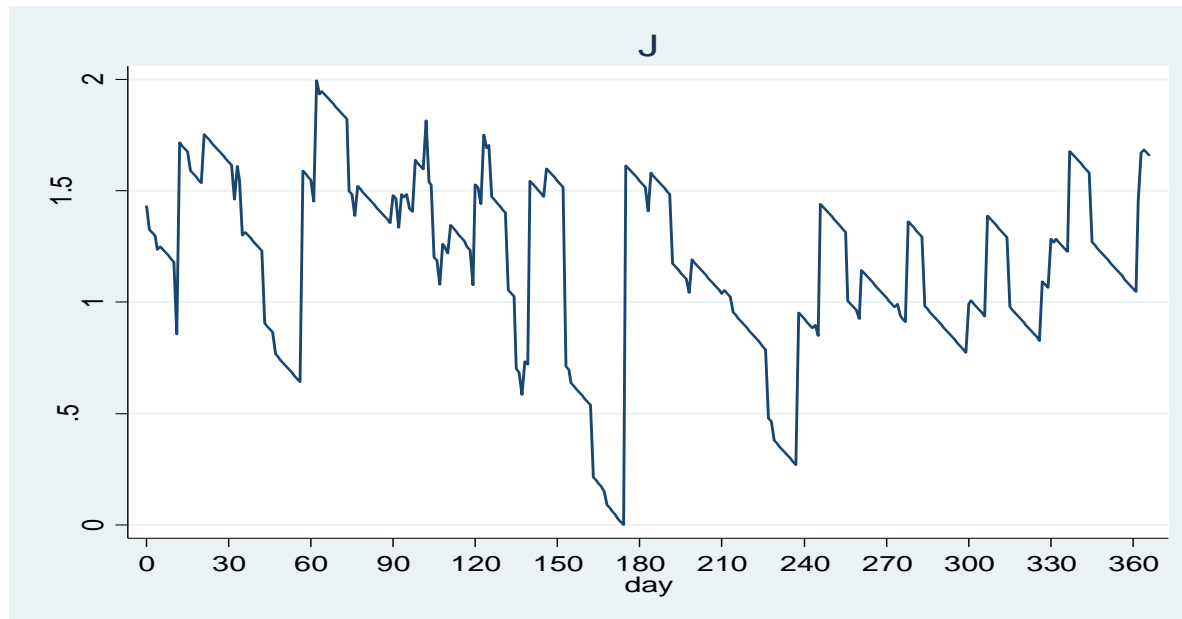
- Uncertain cash revenues; quite stable patterns of expenses.





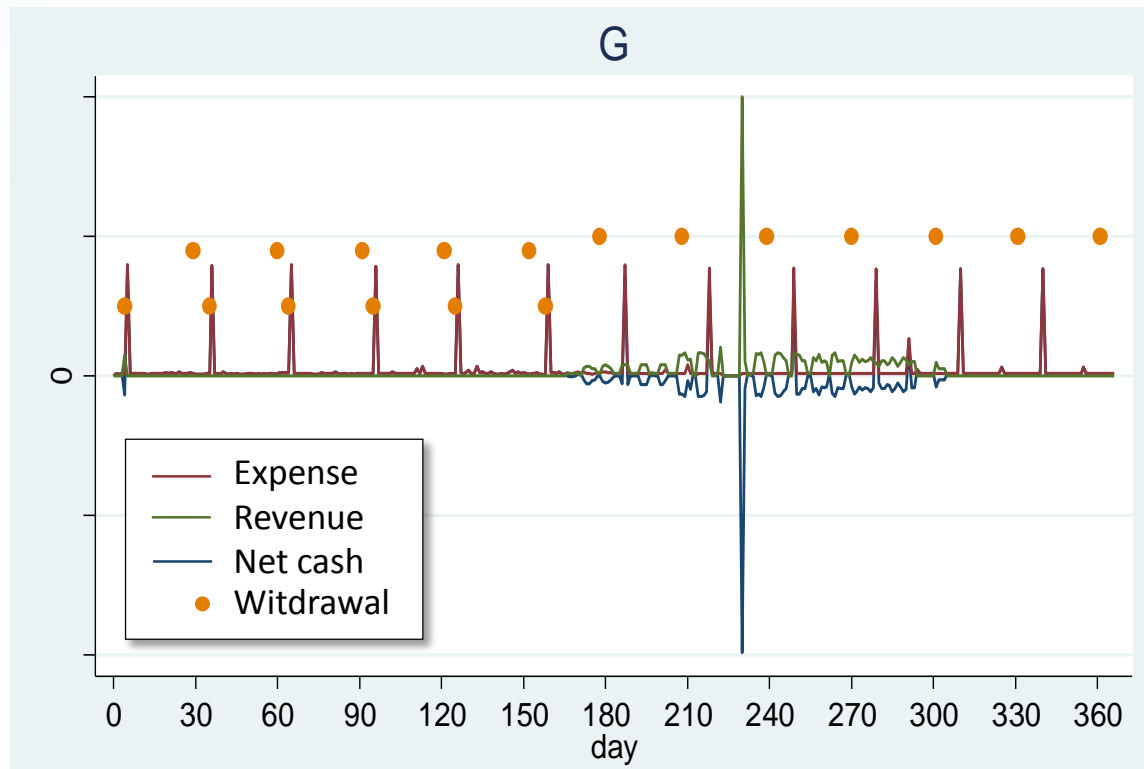
The Actual Cash Management Behaviors from Diary Data: The First Example: Household J

- No deposit/withdrawal for the whole year, but the household did not end up with high cash holding.
- The pattern of cash holding is similar to the Baumol-Tobin model.



The Actual Cash Management Behaviors from Diary Data: The Second Example: Household G

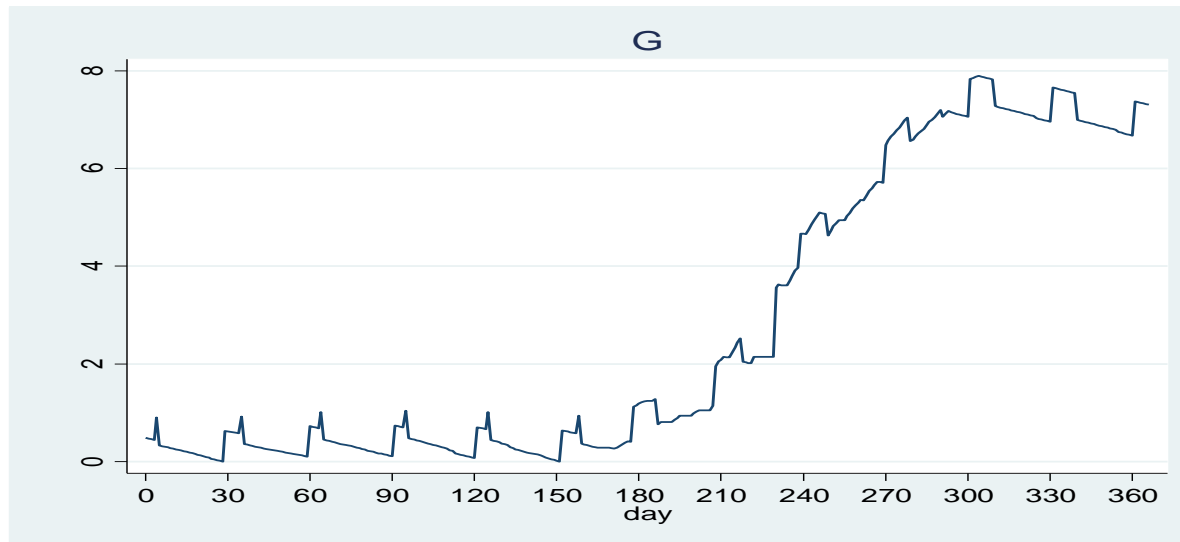
- Regular cash expenses and frequent withdrawals, but no deposit.





The Actual Cash Management Behaviors from Diary Data: The Second Example: Household G

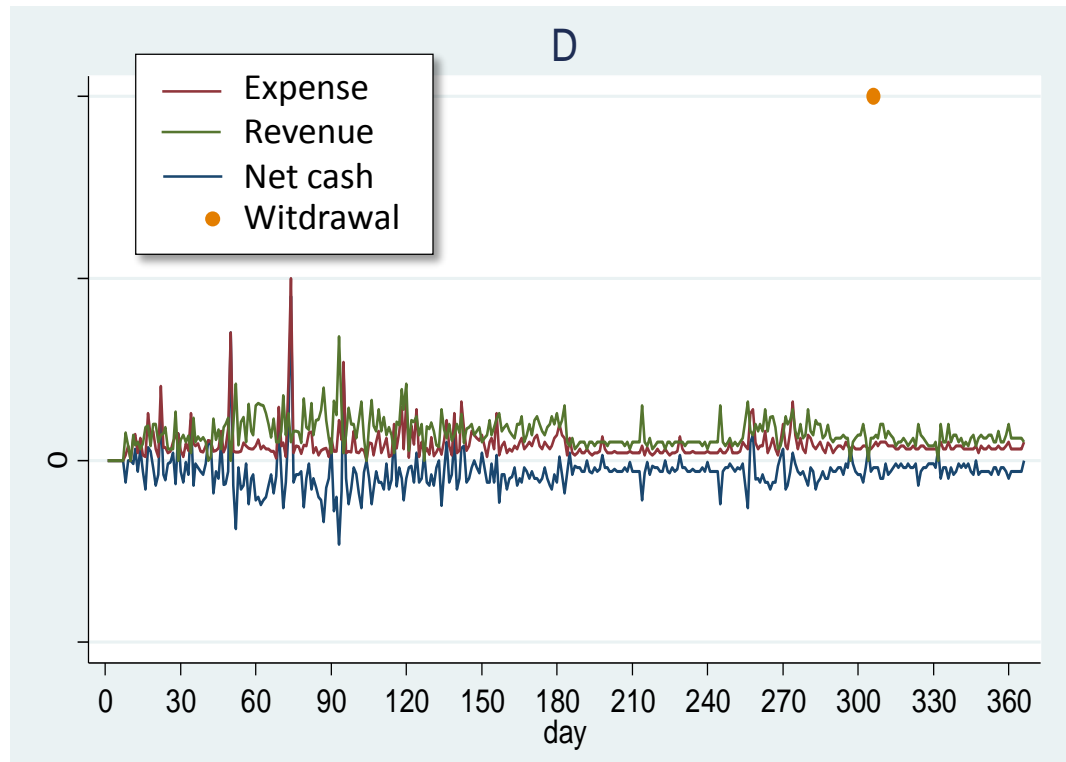
- Cash process can be divided into 3 parts:
 - Quite consistent with the Baumol-Tobin Model
 - Accumulated cash (due to new business)
 - Decumulated cash (due to family problem and trouble with loan repayment).





The Actual Cash Management Behaviors from Diary Data: The Third Example: Household D

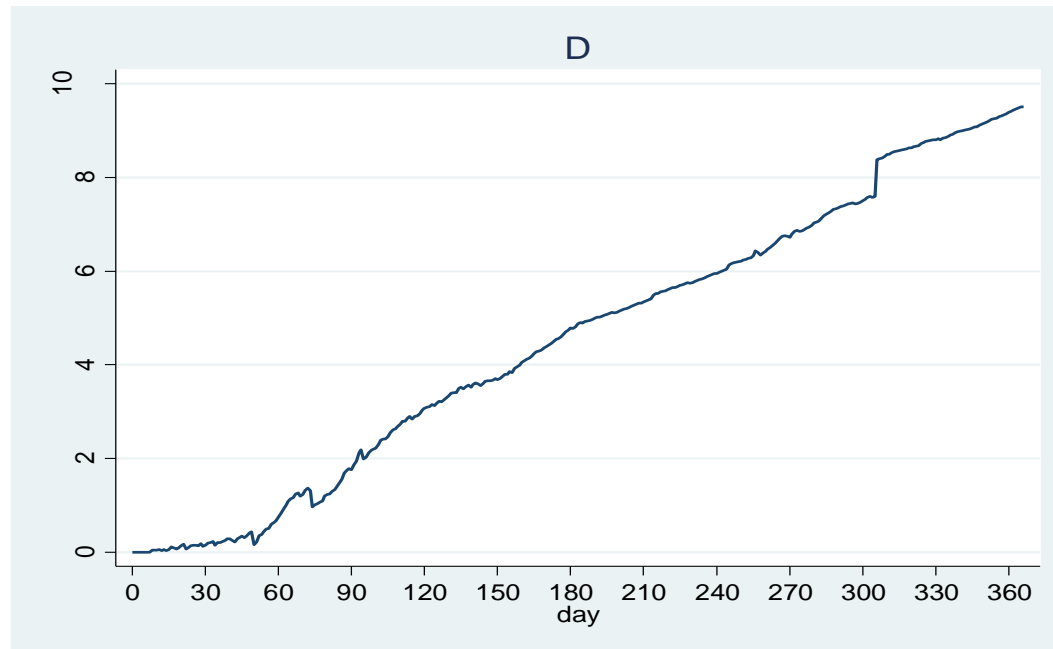
- High frequency for cash revenues (almost every day)
- some jumps in cash expenses.
- Only one withdrawal for the whole year without deposit.





The Actual Cash Management Behaviors from Diary Data: The Third Example: Household D

- Bad management: the normalized cash holding was accumulated to a very high level at the end of the period.





Theory to Policy Implication

- Non-optimal behaviors: no deposit and only a few withdrawals; so, ending up with high cash holding instead of storing in assets with higher returns.
- Possible Explanation:
 - High financial transaction costs.
 - Households did not track their financial situations well.
- Policy Implication:
 - Lower transaction costs
 - Employ technology that allows better/easier tracking of financial situations
 - Training or advisory services based on theoretical models



Concluding Remarks

- Heterogeneity in household financial and economic situations and behaviors exist.
- “One policy fits all” really does not work.
- Micro-level data are imperative to understand households.
- Theories are also important to provide toolkits to improve welfare.
- For Researchers, micro-level data also allow us to learn more about household behaviors; thus, helping develop even better theories.



Special Gratitude

- For financial support for the Townsend Thai Survey Data:



Bank of Thailand



- For the excellent field work: **Thai Family Research Project**