The Wealthy Hand-to-Mouth

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The wealthy hand-to-mouth (W-HtM)

- **W-HtM**: households with little liquid wealth but substantial illiquid wealth
- **P-HtM**: households with little liquid wealth and little illiquid wealth
- **N-HtM**: households with substantial liquid wealth
The wealthy hand-to-mouth (W-HtM)

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- **Like the P-HtM:**
  - Large MPC out of small transitory income windfalls

- **Unlike the P-HtM:**
  1. Escape standard definitions and empirical measurement
  2. Similar demographic characteristics to the N-HtM
  3. Behave like the N-HtM for large income shocks
Outline

1. Simple 3 period model to illustrate
   • Emergence of the W-HtM when assets are illiquid
   • High MPC for the W-HtM

2. Strategy for identifying the HtM in survey data on household portfolios

3. Apply strategy to household data from 8 countries:
   US, Canada, Australia, UK, Germany, France, Italy and Spain

4. Estimation of MPC out of transitory shocks

5. Implications for modeling and fiscal policy: compare 3 models
W-HtM households in theory

- Why live hand-to-mouth, rather than use wealth to smooth shocks?
W-HtM households in theory

• Why live hand-to-mouth, rather than use wealth to smooth shocks?

• High-return illiquid assets generate trade-off:

  Better consumption smoothing (short-run) vs
  Higher lifetime consumption (long-run)

• Smoothing requires either:
  1. Opportunity cost of holding large cash balances
  2. Borrowing at expensive rates
  3. Paying transaction cost to adjust illiquid asset

• Intuition: welfare losses from not smoothing are second order
Three period deterministic model

- At $t = 0$: portfolio choice for endowment of 1 unit:
  - Liquid asset with return $1$ ($m_1$)
  - Illiquid asset with return $R > 1$, cannot be accessed at $t = 1(a)$

- At $t = 1$: receive income $y_1$, consume $c_1$, save/borrow $m_2$
- At $t = 2$: receive income $y_2$ and consume $c_2$

- Preferences: $u(c_1) + u(c_2)$ (no discounting)
Three period deterministic model

• At $t = 0$: portfolio choice for endowment of 1 unit:
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• At $t = 2$: receive income $y_2$ and consume $c_2$

• Preferences: $u(c_1) + u(c_2)$ (no discounting)

• Study HtM behavior at $t = 1$:
  • N-HtM: households with $m_2 > 0, \ a > 0$
  • P-HtM: households with $m_2 = 0, \ a = 0$
  • W-HtM: households with $m_2 = 0, \ a > 0$
Three period deterministic model

\[ \max u(c_1) + u(c_2) \]

subject to:

\[ t = 0 : \quad m_1 + a = 1 \]

\[ t = 1 : \quad c_1 + m_2 = y_1 + m_1 \]

\[ t = 2 : \quad c_2 = y_2 + m_2 + Ra \]
Optimal savings with an illiquid asset
Optimal savings with an illiquid asset
Optimal savings with an illiquid asset

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Kaplan, Violante and Weidner (2014)
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From theory to measurement

- **Two kinks** in household budget constraint:
  1. Zero liquid wealth \( m_2 = 0 \)
  2. Credit limit \( m_2 = -m \)

- HtM households end pay-period at one of these kinks
From theory to measurement

• **Two kinks** in household budget constraint:
  1. Zero liquid wealth \((m_2 = 0)\)
  2. Credit limit \((m_2 = -m)\)

• HtM households end pay-period at one of these kinks

• Mismatch in timing of \(c\) and \(y\) within a pay-period

• **Survey data:** HtM households may hold some liquid wealth:
  • HtM at zero kink have positive av. liquid wealth
  • HtM at credit limit have av. liquid wealth above limit
Identification of HtM in survey data

- Households with positive net liquid wealth:

  P-HtM at the zero kink: \[ a_t = 0 \text{ and } 0 \leq m_t \leq m^* \]

  W-HtM at the zero kink: \[ a_t > 0 \text{ and } 0 \leq m_t \leq m^* \]
Identification of HtM in survey data

- Households with positive net liquid wealth:
  
  P-HtM at the zero kink: \( a_t = 0 \) and \( 0 \leq m_t \leq m^* \)
  
  W-HtM at the zero kink: \( a_t > 0 \) and \( 0 \leq m_t \leq m^* \)

- Households with negative net liquid wealth:
  
  P-HtM at the credit limit: \( a_t > 0, \ m_t < 0, \ m_t \leq m^* - m \)
  
  W-HtM at the credit limit: \( a_t = 0, \ m_t < 0, \ m_t \leq m^* - m \)
Bias in estimator of HtM share with $m^* = \frac{y_t}{2}$

1. Average balances: downward bias
   
   - It misses some HtM households
   
   - It never mistakes a N-HtM for HtM
Bias in estimator of HtM share with $m^* = y_t/2$

1. Average balances: downward bias
   - It misses some HtM households
   - It never mistakes a N-HtM for HtM

2. Balances at a random point during pay-period
   - It misses some cases of HtM households
   - It mistakes a N-HtM for HtM only if the household has liquid balances at the end of the pay-period $< y_t/2$ away from threshold
Survey data on household portfolios

- **United States:** Survey of Consumer Finances 1989-2010
- **Canada:** Survey of Financial Security 2005
- **Australia:** Household Income and Labour Dynamics 2010
- **United Kingdom:** Wealth and Assets Survey 2010
- **Germany, France, Italy and Spain:** Household Finance and Consumption Survey 2008-2010

**Sample selection:** head 22-79 years, positive income

**Sample size per survey:** ~5,000 households (oversampling rich)
Empirical details

• Pay-period: Bi-weekly (supported by CEX)

• Income: All labor income plus government transfers that are regular inflows of liquid wealth, before taxes

• Liquid wealth: Checking, savings, money market and call accounts plus directly held mutual funds, stocks and corporate bonds, plus imputed cash holdings, net of credit card debt

• Illiquid wealth: Value of housing and real estate net of mortgages and HELOC, private retirement accounts, cash value of life insurance, certificates of deposit and saving bonds

• Borrowing limit: One month of income
How large is the share of HtM in the US?

- 30% of US households are HtM, 2/3 of which are W-HtM
What is the portfolio composition of the W-HtM?

- Mostly homeowners, but 1/5 of W-HtM do not own real estate.

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Kaplan, Violante and Weidner (2014)
A graph showing the share of HtM among homeowners by leverage ratio, with a trend indicating that the share increases as the leverage ratio increases.

- Leverage ratio is a strong predictor of HtM status.

The graph includes the following information:

- Share of HtM among Homeowners
- Leverage Ratio

Kaplan, Violante and Weidner (2014)
W-HtM are a robust feature of portfolio data

(a) Income-weighted share of HtM

(b) Pay-period of 1 month

(c) Reported credit limit

(d) Vehicles in illiquid wealth
Age profile of HtM households?

- **P-HtM**: young households
- **W-HtM**: middle-age households

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Kaplan, Violante and Weidner (2014)
Do W-HtM look more like P-HtM or N-HtM?

(a) Median net liquid wealth

(b) Median net illiquid wealth

(c) Portfolio share: housing

(d) Portfolio share: retirement accounts

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Kaplan, Violante and Weidner (2014)
Do W-HtM look more like P-HtM or N-HtM?

(a) Fraction married

(b) Number of children

(c) Median income

(d) Frac w/ unemp member

Kaplan, Violante and Weidner (2014)
## Persistence of HtM status

<table>
<thead>
<tr>
<th>2007 to 2009</th>
<th>P</th>
<th>W</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>0.548</td>
<td>0.127</td>
<td>0.326</td>
</tr>
<tr>
<td>W</td>
<td>0.101</td>
<td>0.455</td>
<td>0.444</td>
</tr>
<tr>
<td>N</td>
<td>0.055</td>
<td>0.129</td>
<td>0.816</td>
</tr>
<tr>
<td>Ergodic</td>
<td>0.126</td>
<td>0.191</td>
<td>0.683</td>
</tr>
</tbody>
</table>

- **Expected durations:**

  - **P-HtM status:** 4.5 years
  - **W-HtM status:** 3.5 years
  - **N-HtM status:** 11 years
Share of HtM across countries

- Substantial cross-country variation in share of HtM
- In all countries, twice as many W-HtM as P-HtM
Portfolios of W-HtM across countries

- Large differences in portfolio composition across countries
Liquid wealth holdings across countries

- Higher liquid wealth in Europe possibly due to lower credit availability
MPC out of transitory income shocks

- Do W-HtM (and P-HtM) respond strongly to transitory $y$ shocks?

- Challenges
  1. Require panel data on income, consumption and wealth
  2. Individual income shocks are not directly observed
MPC out of transitory income shocks

- Do W-HtM (and P-HtM) respond strongly to transitory $y$ shocks?

- **Challenges**
  1. Require panel data on income, consumption and wealth
  2. Individual income shocks are not directly observed

- **Solutions**
  1. Bi-annual data from 1999-2011 waves of PSID
  2. Identification strategy from Blundell-Pistaferri-Preston (2008)
BPP identification strategy

- Residual log income is sum of random walk + IID components

\[ \Delta y_{it} = \eta_{it} + \Delta \varepsilon_{it} \]
BPP identification strategy

- Residual log income is sum of random walk + IID components

\[ \Delta y_{it} = \eta_{it} + \Delta \varepsilon_{it} \]

- Transmission coefficient of shock \( \varepsilon_{it} \) into \( \Delta c_{it} \)

\[ \text{MPC}_\varepsilon \equiv \frac{\text{cov} (\Delta c_{it}, \varepsilon_{it})}{\text{var} (\varepsilon_{it})} \]
BPP identification strategy

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- No foresight assumption: future shocks are not observed
  \[ \text{cov}(\Delta c_{it}, \eta_{i,t+1}) = \text{cov}(\Delta c_{it}, \varepsilon_{i,t+1}) = 0 \]
BPP identification strategy

• Residual log income is sum of random walk + IID components
  \[ \Delta y_{it} = \eta_{it} + \Delta \varepsilon_{it} \]

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• No foresight assumption: future shocks are not observed
  \[ \text{cov} (\Delta c_{it}, \eta_{i,t+1}) = \text{cov} (\Delta c_{it}, \varepsilon_{i,t+1}) = 0 \]

• Then \( \text{MPC} \) can be estimated as:
  \[ \overline{\text{MPC}}_\varepsilon \equiv \frac{\text{cov} (\Delta c_{it}, \Delta y_{i,t+1})}{\text{cov} (\Delta y_{it}, \Delta y_{i,t+1})} \]
Results of BPP estimation

<table>
<thead>
<tr>
<th></th>
<th>3 HtM groups</th>
<th>2 HtM groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P-HtM</td>
<td>W-HtM</td>
</tr>
<tr>
<td>MPC out of transitory income shock</td>
<td>0.243</td>
<td>0.301</td>
</tr>
<tr>
<td></td>
<td>(0.065)</td>
<td>(0.048)</td>
</tr>
</tbody>
</table>

- **W-HtM** have largest point estimate for MPC
- Significantly different from estimated MPC for **N-HtM**
- Split based on net worth uninformative
Implications of W-HtM for fiscal policy

- Failure to treat W-HtM as distinct group leads to distorted view of the effects of fiscal policy:
  1. Aggregate consumption response to lump-sum transfer (FSP)
  2. Size asymmetry in response to FSP
  3. Effects of targeted FSP (e.g. age targeting, income targeting)
  4. Cross country differences in aggregate $C$ response to FSP
Three alternative frameworks

SIM-2: Standard Incomplete Markets model with 2 assets

- Kaplan and Violante (2014): transaction cost of $1,000
- Three types: P-HtM, W-HtM and N-HtM
Three alternative frameworks

SIM-2: Standard Incomplete Markets model with 2 assets
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- Three types: P-HtM, W-HtM and N-HtM

SIM-1: Standard Incomplete Markets model with 1 asset
- One asset version of KV, calibrated to net worth
- Fewer HtM: misses all W-HtM
Three alternative frameworks

SIM-2: Standard Incomplete Markets model with 2 assets
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SIM-1: Standard Incomplete Markets model with 1 asset
- One asset version of KV, calibrated to net worth
- Fewer HtM: misses all W-HtM

SP-S: SPender-Saver model
- Spenders \( c = y \) and Savers (forward looking as in SIM-1)
- Correct number of HtM, but exaggerates their MPC (=1)
MPCs out of $500 in each model

<table>
<thead>
<tr>
<th></th>
<th>SIM-2</th>
<th>SIM-1</th>
<th>SP-S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P-HtM</td>
<td>W-HtM</td>
<td>N-HtM</td>
</tr>
<tr>
<td>Average</td>
<td>0.35</td>
<td>0.44</td>
<td>0.06</td>
</tr>
<tr>
<td>Low income</td>
<td>0.34</td>
<td>0.37</td>
<td>0.16</td>
</tr>
<tr>
<td>Middle Income</td>
<td>0.38</td>
<td>0.44</td>
<td>0.09</td>
</tr>
<tr>
<td>High income</td>
<td>0.31</td>
<td>0.52</td>
<td>-0.02</td>
</tr>
<tr>
<td>Age &lt;= 40</td>
<td>0.38</td>
<td>0.42</td>
<td>0.08</td>
</tr>
<tr>
<td>Age 40-60</td>
<td>0.30</td>
<td>0.42</td>
<td>0.01</td>
</tr>
<tr>
<td>Age&gt;60</td>
<td>0.39</td>
<td>0.51</td>
<td>0.13</td>
</tr>
</tbody>
</table>

- Use group shares from 2010 Survey of Consumer Finances (US)
## Aggregate quarterly MPC

<table>
<thead>
<tr>
<th>Transfer size</th>
<th>SIM-2</th>
<th>SIM-1</th>
<th>SP-S</th>
</tr>
</thead>
<tbody>
<tr>
<td>$500</td>
<td>0.18</td>
<td>0.04</td>
<td>0.35</td>
</tr>
<tr>
<td>Size asymmetry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$50</td>
<td>0.29</td>
<td>0.05</td>
<td>0.35</td>
</tr>
<tr>
<td>$2000</td>
<td>0.05</td>
<td>0.03</td>
<td>0.35</td>
</tr>
<tr>
<td>Income targeting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$500 - bottom tercile</td>
<td>0.26</td>
<td>0.07</td>
<td>0.50</td>
</tr>
<tr>
<td>$500 – top tercile</td>
<td>0.20</td>
<td>0.03</td>
<td>0.34</td>
</tr>
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</table>
Cross-country differences in aggregate MPC out of $500

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Not all HtM households are created equal …

<table>
<thead>
<tr>
<th>P-HtM</th>
<th>W-HtM</th>
</tr>
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<tbody>
<tr>
<td>1/10 population</td>
<td>1/5 population</td>
</tr>
<tr>
<td>young</td>
<td>middle age</td>
</tr>
<tr>
<td>low income</td>
<td>middle income</td>
</tr>
<tr>
<td>no wealth</td>
<td>substantial illiquid wealth</td>
</tr>
<tr>
<td>persistent state</td>
<td>portfolio like N-HtM</td>
</tr>
<tr>
<td></td>
<td>more transient</td>
</tr>
</tbody>
</table>
... and it matters!

<table>
<thead>
<tr>
<th>P-HtM</th>
<th>W-HtM</th>
</tr>
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<tbody>
<tr>
<td>small shocks: high MPC</td>
<td>small shocks: high MPC</td>
</tr>
<tr>
<td>large shocks: high MPC</td>
<td>large shocks: small MPC</td>
</tr>
<tr>
<td>target low income</td>
<td>target middle income</td>
</tr>
</tbody>
</table>