

Rationalizing MPC with agents' heterogeneity

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Households Finance

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- **Marginal Propensity to Consume (MPC):**

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- However, the empirical literature has found that the MPC is large and varies substantially across households.
 - Collective evidence suggests that the MPC is around **0.25**.
 - Higher MPC for lower wealth or liquidity households.
 - Let's call this characteristic of the households **Hand-to-Mouth (H2M)**.

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 - Collective evidence suggests that the MPC is around **0.25**.
 - Higher MPC for lower wealth or liquidity households.
 - Let's call this characteristic of the households **Hand-to-Mouth (H2M)**.
- **Question:** How can we rationalize the H2M behavior?

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They calibrate the model to match the empirical targets

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- The model features two types of households:
 - **Poor Hand-to-Mouth:** HHs with zero net worth which are constrained by the borrowing limit.
 - **Wealthy Hand-to-Mouth:** HHs with positive net worth but with a large share of their wealth in illiquid assets. They are around 1/3 of the population.
 - They are constrained by the transaction costs of illiquid assets.
 - They are better off bearing the welfare loss rather than smoothing their consumption. They have to pay the transaction costs to convert their illiquid assets to liquid assets.
- The wealthy H2M drives high values of the aggregate MPC which in the one-asset models this group is not constrained due to their high net worth.

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Experiments (Kaplan and Violante, 2014)

- Macroeconomic conditions affect the MPC:
 - In mild recessions, wealthy H2M households may avoid accessing illiquid assets, leading to amplified liquidity constraints and a strong consumption response to fiscal stimulus.
 - In severe recessions, more households tap into illiquid assets, resulting in fewer H2M households upon receiving the rebate and a reduced impact on consumption compared to milder downturns.

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- Comparing the budget equivalent of the stimulus payments, the model predicts that the strongest response occurs when the payment is close to the median income.
- The model predicts that the calculated MPC depends on the information structure.
 - MPC is 11% when the HHs are fully informed about the stimulus payment.
 - MPC is 25% when the HHs are only informed about the payment after receiving it.

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 - Many consumers in the model hold little wealth and have a strong precautionary motive.
- The aggregate MPC can differ greatly depending on the distribution of shocks across households.
 - e.g. low-wealth and unemployed HHs have a high MPC.
- The model predicts that the distribution of MPC do not change much over different business cycles.

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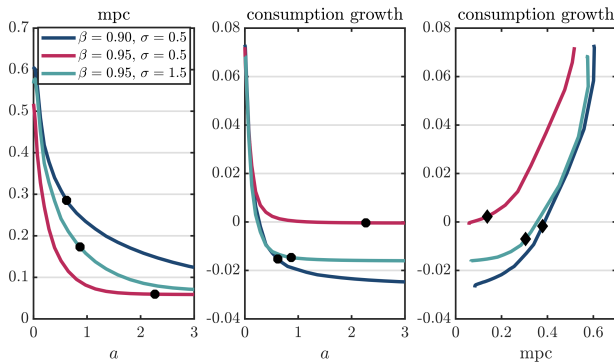
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- They can use the panel structure of the data to capture the long-run heterogeneity in the HHs.
- Motivated by the empirical facts, they calibrate Kaplan and Violante (2014) to capture the extent of preferences heterogeneity.

Canonical Consumption Model



Fact 2

Fact 3

Identifying the H2M

- Two type of H2M:

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	Not $H2M$	$H2M_{NW}$	$H2M_{LIQ}$
Shares	59.3%	23.3%	17.3%

By NW (Zeldes)	By LIQ (KVV)	
	Not $H2M$	$H2M$
Not $H2M$	59.3%	17.3%
$H2M$	6.4%	16.9%

Note: Sample is PSID 1999-2019, with $H2M$ status observed at least three times. Sample size is 30,627.

Characteristics of H2M

	Not $H2M$	$H2M_{NW}$	$H2M_{LIQ}$
Age	46.7	40.0	44.8
Income	99,280	47,758	64,874
Earnings	90,263	45,464	56,335
Liq Wealth (median)	13,666	-7,776	-2,305
Net Worth (median)	174,182	-2,316	50,817
High Liquid Debt	24.7%	65.3%	54.3%
Sample Shares	59.3%	23.3%	17.3%

Note: All figures in 2009 dollars. High Liquid Debt equals one for households with credit card, store credit, student loans, medical or legal bills, or loans from family that sum to a month's or more of earnings, zero otherwise.

Fact 1 - Households Tend to Remain H2M

	Not $H2M_t$	$H2M_{NW,t}$	$H2M_{LIQ,t}$
<i>Panel A</i>			
Not $H2M_{t+2}$	.822	.195	.427
$H2M_{NW,t+2}$	.061	.648	.176
$H2M_{LIQ,t+2}$	.118	.157	.398
<i>Panel B</i>			
Not $H2M_{t+4}$	.807	.244	.470
$H2M_{NW,t+4}$	.066	.578	.181
$H2M_{LIQ,t+4}$	.127	.178	.349

Note: Sample is PSID 1999-2019, with $H2M$ status observed at least three times.

Fact 2 - H2M Do Not Have Higher Consumption Growth

	Consump Growth		Income Growth	
	(1)	(2)	(1)	(2)
$H2M_{NW}$	.002 (.004)	.020 (.007)	.010 (.004)	.028 (.007)
$H2M_{LIQ}$	-.008 (.003)	.002 (.005)	.009 (.004)	.025 (.006)
R^2	.08	.20	.05	.20
Fixed Effects	No	Yes	No	Yes

Note: Sample size is 24,214. Growth rates are annualized. Not- $H2M$ group is omitted in all regressions. Regressions include the controls described in Section 4.1. Standard errors are robust; for Columns (1) and (3) they are clustered by household.

Fact 3 - H2M Have More Volatile Consumption and Income

	$|\Delta \ln(c)_{res}|$		$|\Delta \ln(y + ra)_{res}|$	
	(1)	(2)	(3)	(4)
$H2M_{NW}$	.018 (.003)	.001 (.004)	.018 (.003)	.005 (.004)
$H2M_{LIQ}$	.006 (.003)	-.005 (.003)	.020 (.004)	.007 (.004)
R^2	.01	.38	.01	.44
Fixed Effects	No	Yes	No	Yes

Note: Sample size is 24,214. Growth rates are annualized. Not- $H2M$ group is omitted in all regressions. Regressions include the controls described in Section 4.1. Standard errors are robust; for Columns (1) and (3) they are clustered by household.

Fact 4 - H2M Are More Elastic at Extensive Spending Margin

Dependent variable is $\ln N$				
	PSID (1)	PSID (2)	PSID (3)	CE (4)
$\ln c$	.220 (.005)	.166 (.004)	.221 (.005)	.456 (.002)
$H2M_{NW}$	-.048 (.007)	-.024 (.005)		
$H2M_{LIQ}$	-.036 (.006)	-.010 (.004)		
$H2M_{KVVW}$			-.043 (.005)	-.115 (.002)
R^2	.38	.70	.38	.57
Fixed effects	No	Yes	No	No

Note: Samples sizes are 30,626 for the PSID sample and 192,299 for the CE. Categories are restricted to nondurables and services. Households on average spend on 7.5 of 15 categories in PSID, on 12.1 of 27 categories in the CE. Regressions include the controls described in Section 4.1. Standard errors are robust; for Columns (1) and (3) they are clustered by household.

Fact 4 - H2M Are More Elastic at Extensive Spending Margin

Dependent variable is $\Delta \ln N$			
	(1)	(2)	(3)
$\Delta \ln c$	.138 (.006)	.144 (.006)	.134 (.006)
$\Delta \ln c \times H2M_{NW}$	.038 (.011)	.008 (.015)	-.003 (.015)
$\Delta \ln c \times H2M_{LIQ}$	.015 (.012)	.020 (.015)	.012 (.017)
$\Delta \ln c \times H2M_{NW}$ fixed effect		.049 (.018)	.045 (.018)
$\Delta \ln c \times H2M_{LIQ}$ fixed effect		-.001 (.024)	-.012 (.024)
$\Delta \ln c \times$ Lowest earnings quintile			.057 (.018)
R^2	.11	.11	.12

Note: Sample size is 24,214 in Column (1), 21,894 in Columns (2) and (3). Regressions include controls for $H2M$ status, in addition to the controls described in Section 4.1. Column (2) also includes a fixed effect as well as interacts the conditional mean of $H2M$ status (" $H2M$ fixed effect"). Standard errors clustered at household level.

The mentioned facts show that preference heterogeneity plays a key role in the H2M behavior.

- They calibrate the model with 3 different type of HHs:

Type	Preferences	Share	Share of Not $H2M$	Share of $H2M_{NW}$	Share of $H2M_{LIQ}$
I	$\beta=0.97, \sigma=0.53$	44.7%	58.1%	2.02%	62.3%
II	$\beta=0.94, \sigma=0.95$	33.7%	41.9%	13.7%	37.4%
III	$\beta=0.72, \sigma=2.87$	21.6%	0.03%	84.3%	0.34%

Results

Calibration Results

	Share	All	not $H2M$	$H2M_{NW}$	$H2M_{LIQ}$
<i>Baseline</i>					
All preference groups	100%	0.316	0.050	0.722	0.336
$\beta=0.97, \sigma=0.53$	44.7%	0.121	0.024	0.519	0.243
$\beta=0.94, \sigma=0.95$	33.7%	0.277	0.090	0.520	0.463
$\beta=0.72, \sigma=2.87$	21.6%	0.783	0.775	0.783	0.793
<i>Single type (calibrated and KV)</i>					
$\beta=0.94, \sigma=2.85$	100%	0.389	0.113	0.532	0.589
$\beta=0.94, \sigma=1.5$	100%	0.287	0.068	0.498	0.484

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Conclusion

- The observed MPC is high and heterogeneous across households.
- The H2M behavior is a key driver of the high and heterogeneous MPC.
- The H2M differs from the liquidity constrained HHs in the sense that they have the ability to smooth their consumption but they choose not to.
- The H2M behavior is driven by the preference heterogeneity.

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