Effects of monetary policy on the consumption of heterogeneous households

(Preliminary results, do not cite)

César Carrera **Roger Asencios** **Alan Ledesma**

Banco Central de Reserva del Perú

Motivation

Achieving a low level of inflation implies a central banks that deals with what the impact of its actions is on other key macroeconomic variables such as output gap, investment, or consumption.

Movements in the policy rate go into households' consumption through different channels. When households are heterogeneous, the impact can be related to the difference in their characteristics.

This paper

We study how monetary policy shocks affect household consumption differently across the consumption distribution in Peru.

Households at different consumption levels (deciles) respond unequally to interest rate changes due to differences in income stability, financial inclusion, and labor informality.

- ✓Low-consumption households are largely unresponsive to monetary policy shocks because they have little or no access to credit and maintain consumption close to subsistence levels.
- ✓Middle and upper deciles show stronger responses, either adjusting or smoothing consumption depending on their financial access and labor formality.

We argue that identifying groups that react the most is essential to understanding the transmission mechanism of monetary policy.

Actual discussion …

It is important to mention that much work has been devoted to assessing the quality of survey data with respect to underreporting consumption.

Krueger et al. (2010), Aguiar and Bils (2015) and Attanasio et al. (2015) document that the US CEX survey data underreports consumption relative to aggregate data and that this underreporting has become more severe over time.

Bee et al. (2015) compare reported consumption spending data in the US CEX to comparable data from the national income accounts data and find that the CEX data conform closely to aggregate data for large consumption categories.

What about the dynamics?

Coibion et al (2017) and De Giorgi and Gambeti (2017) find that different types of shocks tend to increase the volatility in private consumption.

Coibion et al (2017) focus on the effects of a monetary policy shock on different measures of inequality (income, earnings, expenditure, and consumption).

Di Giorgi and Gambeti (2017) center the analysis on the effect of different types of shocks (mainly on technology and uncertainty) over households consumption at the first and the tenth decile.

What about the dynamics in Peru?

For the case of Peru, the National Survey to Households (ENAHO) has similar questions regarding consumption that can be match with those in the national account statistics.

Similar than the US case, there is an underreporting problem and the tracking between the two series has been fading overtime.

In line with Coibion et al (2017) and De Giorgi and Gambetti (2017), the potential underreporting of survey data is less of a concern, since we will focus on the dynamics in the response to a monetary policy shock.

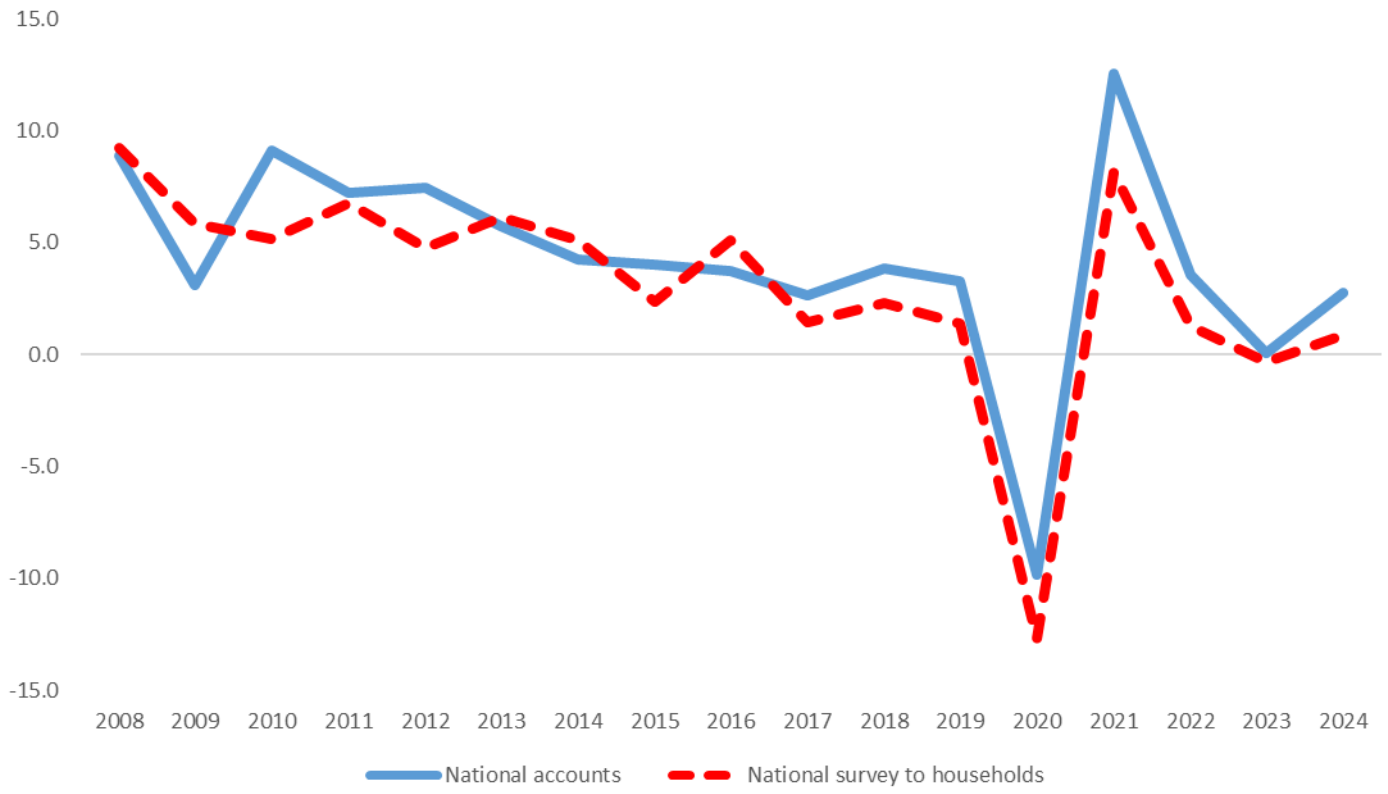
Similar to Coibion et al (2017), we focus on the total expenditure in consumption that is captured in the national survey.

ENAHO: Consumption quarterly data

Microdata from Peru's National Household Survey (ENAHO), quarterly from 2011 to 2024 (Survay data).

ENAHO records consumption and expenditures for a set of goods and services. For each quarter, we estimate households' consumption from aggregating ENAHO microdata.

Consumption: National accounts vs Survey data



Consumption from heterogeneous' households

Each quarter's data is divided into ten consumption deciles, with information on education, financial inclusion, labor formality, and demographic features of household heads (De Giorgi and Gambeti, 2017).

A group with a higher human capital may smooth consumption when the policy shock hits the economy because they tend to forecast future economic conditions better than other consumers.

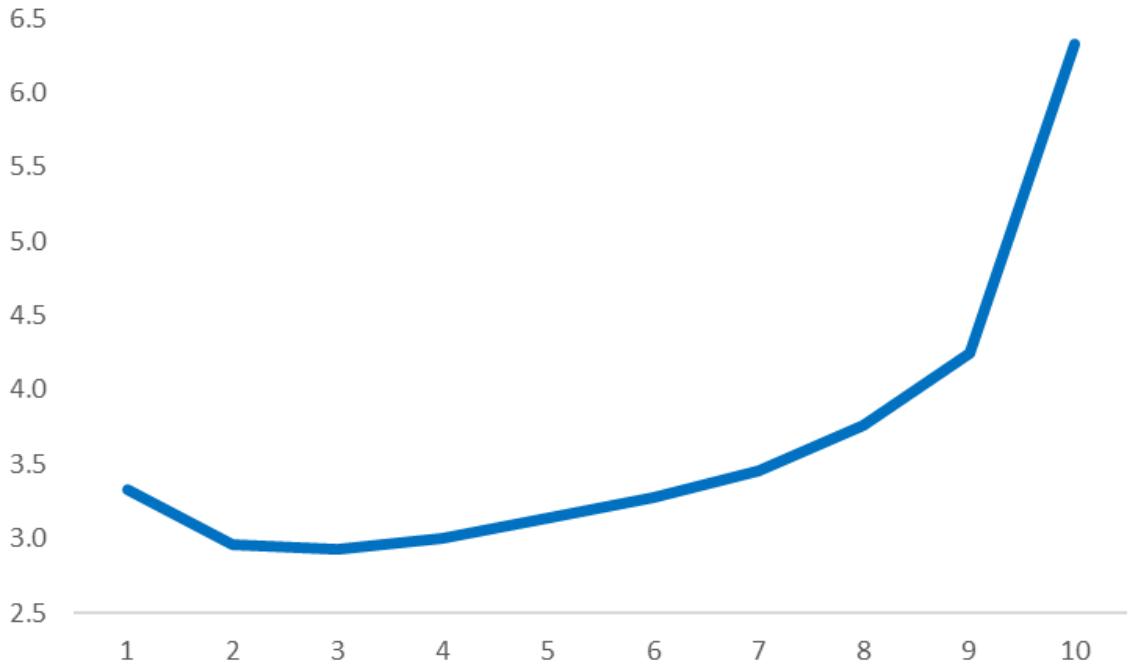
Access to financial products may allow to smooth consumption when a shock hits the economy.

Work in the formal labor market secures incomes for longer periods of time, which also helps the access to liquidity networks.

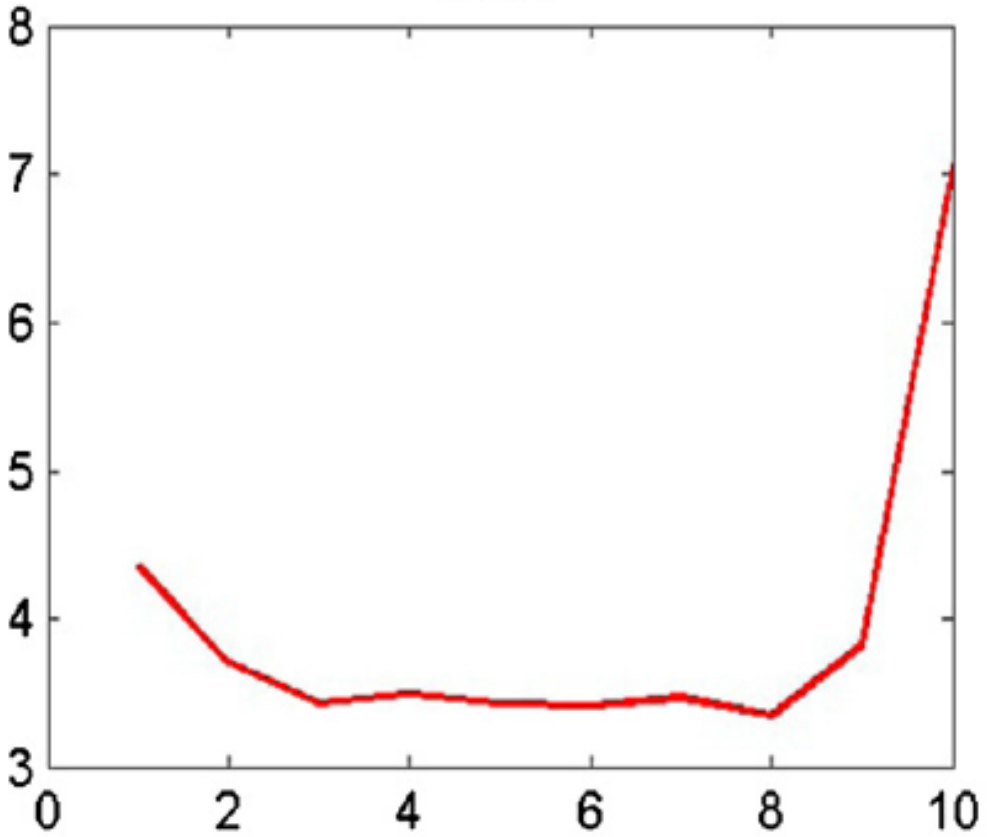
Heterogeneous households

Decile	Consumption	Age	< HS	HS	Some college	College	Financial inclusion	Labor informality
1	118	48,42	75,6	13,9	1,3	1,6	16,0	98,0
	(27,81)	(14,28)						
2	182	49,11	67,4	19,1	2,6	3,4	21,7	93,9
	(19,35)	(14,16)						
3	232	49,43	59,3	24,2	3,3	5,6	26,9	88,2
	(18,73)	(14,15)						
4	281	50,13	53,5	27,1	4,4	7,5	31,9	82,2
	(20,20)	(14,11)						
5	332	50,37	47,5	29,5	5,3	10,1	37,7	76,2
	(22,95)	(14,09)						
6	391	51,14	43,5	29,7	6,5	12,8	42,1	70,1
	(26,55)	(14,30)						
7	459	51,66	37,1	31,5	7,2	16,7	48,5	63,9
	(31,68)	(14,29)						
8	551	52,38	31,1	30,5	8,7	22,1	56,1	56,2
	(42,90)	(14,28)						
9	702	53,38	24,7	28,2	10,4	29,1	63,8	47,1
	(69,90)	(14,29)						
10	1244	54,48	13,3	19,8	11,0	48,3	79,8	30,5
	(558,07)	(14,69)						

Standard deviation of consumption distribution: Peru



Standard deviation of consumption distribution: US



A Monetary Policy Shock

Empirical approach

A Structural Vector Autoregression (SVAR) model is estimated following Christiano, Eichenbaum, and Evans (1999) to identify a monetary policy shock.

The interbank interest rate (in domestic currency) proxies the policy rate.

Other variables include the exchange rate, output gap, inflation, and terms of trade.

The SVAR distinguishes between variables that react contemporaneously (e.g., exchange rate) and those that react with a lag (e.g., consumption, output, inflation).

The model is estimated separately for aggregate consumption and each decile's consumption series (in year-on-year growth rates).

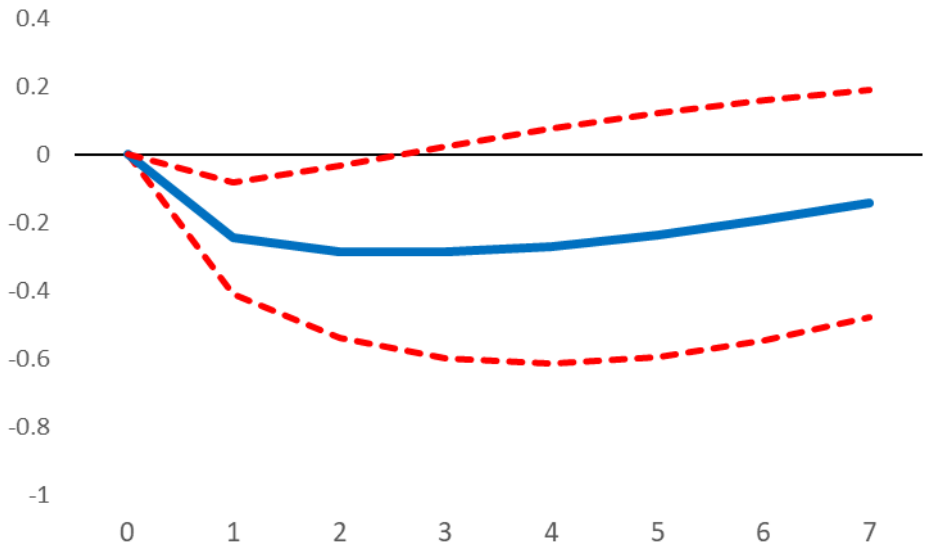
Strategy on revealing effects on consumption

In order to valid survey data on consumption, we compare results with either data from national accounts and that from Enaho.

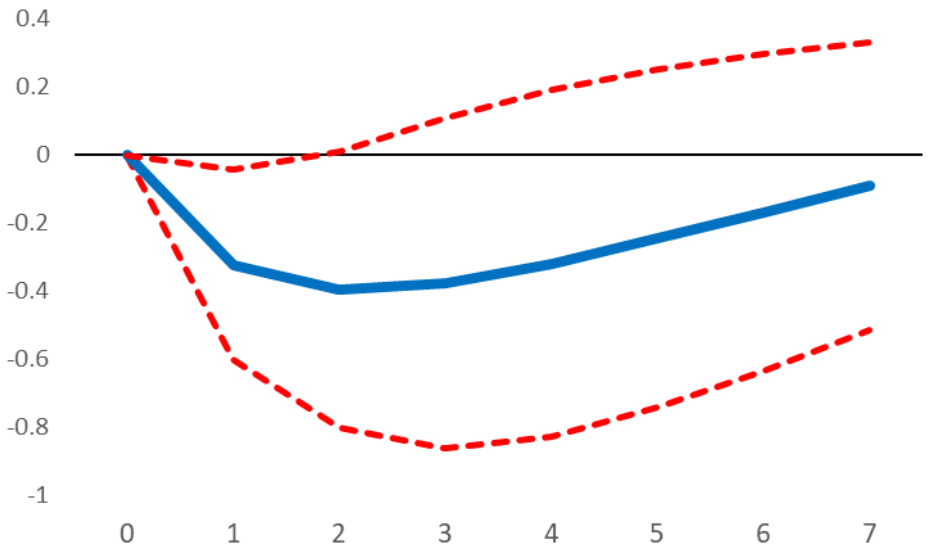
Even thought there is critics on survey data for consumption, some work argues that the dynamics are worth to work with.

If results on impulse/response at the aggregate level are similar, then we may learn what happens at the household level.

Consumption: National accounts



Consumption: Enaho (Survey data)

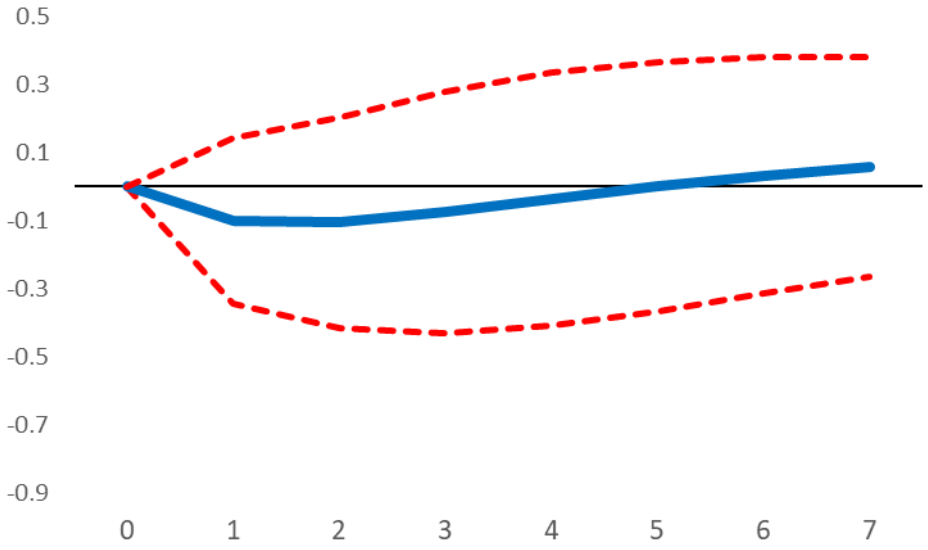


Aggregate Consumption Response

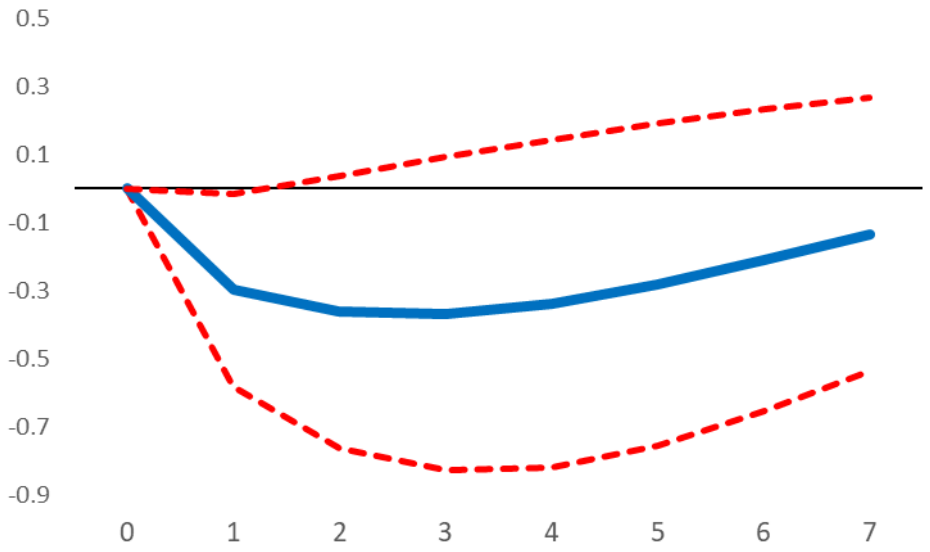
Monetary policy shocks cause a temporary drop in aggregate consumption, peaking between one and two quarters and fading thereafter.

The contraction is slightly larger when measured using household survey data than with national accounts data.

Enaho consumption: 1st decile



Enaho consumption: 10th decile

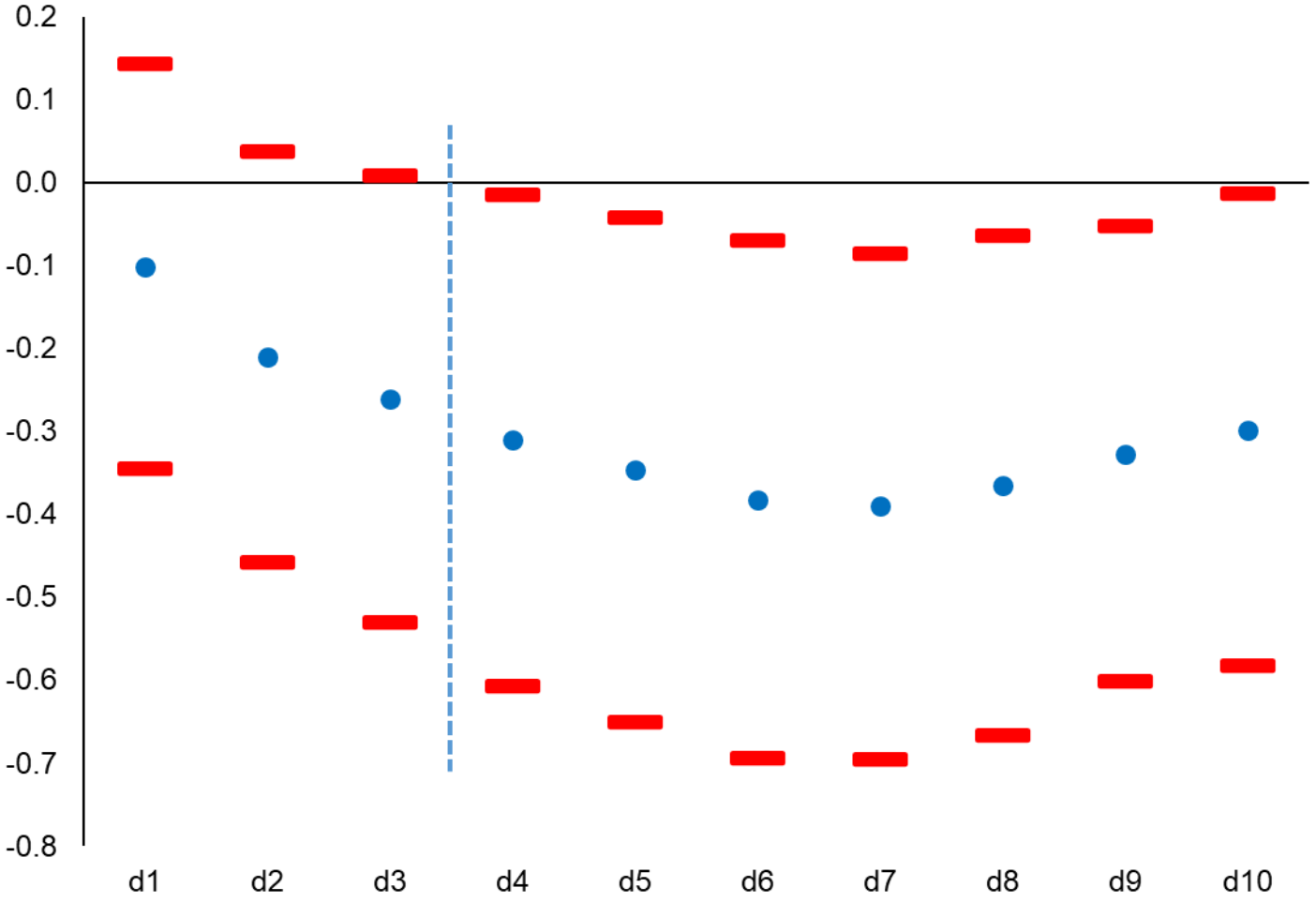


What disaggregated data says ...

The 1st decile has a small reaction. When the monetary policy shock happens, its impact quickly disappear.

On the other hand, the 10th decile seems to have a bigger impact, reduce the consumption, and remains there for a longer period of time than the 1st decile.

Distributional effect of an MPS



What heterogenous households say …

Deciles 1–3: Minimal or statistically insignificant response — households are “hand-to-mouth,” with limited capacity to adjust or smooth consumption.

Deciles 6–8: Strongest negative and statistically significant responses — these groups seem most sensitive to policy shocks, possibly due to partial access to formal credit and mixed exposure to informality.

Decile 10: Mild but persistent response — richer households smooth consumption better but react more slowly.

Volatility Patterns: The tenth decile exhibits the highest consumption volatility over time.

Conclusions

The evidence supports Auclert's (2019) framework, in which heterogeneity in wealth and credit access drives asymmetric consumption responses.

Low-income households are unaffected because they operate outside formal financial markets.

High-income households incorporate expectations and smooth consumption.

Middle-income groups (deciles 6–8) are most impacted by interest rate changes and thus play a key role in monetary transmission.

Monetary policy transmission is heterogeneous and incomplete — traditional aggregate models overstate uniformity of effects.

Financial inclusion and labor formalization policies could improve the pass-through of monetary policy.

Future research should extend Auclert's model to include a third type of agent representing the middle group most affected by policy shocks.

Thanks!