

Peer Effects on Consumption Behavior of Elderly Households

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Introduction

➤ Background:

- ❑ **Consumption** is the key driver of economic stability and long-term growth. It reflects welfare and preferences (Zauberman et al., 2016) and impacts overall economic efficiency. After pandemic-induced demand drops, consumption recovery is vital for returning to steady growth.
- ❑ With aging, the “**silver economy**” is expanding rapidly. Elderly hold more wealth (Hsieh and Joyce, 2023) and their demand for healthcare, care services, and culture grows. Their behaviors differ from younger groups, especially in social participation and loneliness.
- ❑ Studying **elderly consumption is essential** for boosting post-pandemic growth and informing aging-related policies.



Introduction

➤ Literature Review:

- ❑ **Most studies on household consumption focus on traditional factors** such as income (Jappelli & Pistaferri, 2010), life-cycle (Pagel, 2017), rational expectations (Sargent, 1978), and risk aversion (Epstein et al., 2013).
- ❑ **Research on elderly consumption is limited** and often centers on pensions (Kolsrud et al., 2024), retirement (Aguiar & Hurst, 2005), or specific items like food (Harris & Blisard, 2002) and tourism (Chen et al., 2024).
- ❑ **Recent work introduces sociological and psychological perspectives, showing peer effects matter.** For instance, Bailey et al. (2022) find friends' smartphone purchases influence individual choices. Agarwal et al. (2021) show neighbor bankruptcies reduce personal consumption. D'Acunto et al. (2024) highlight stronger effects when peer signals are clearer.
- ❑ **No study directly examines peer effects on elderly consumption.** A few note stronger online peer effects among the elderly (Yin & Zhang, 2025), but without further exploration.



Introduction

➤ **Research Question: Are the consumption behaviors of elderly households influenced by their peer households?**

- Hypothesis 1: Peers' consumption positively affects elderly households' consumption.
- Hypothesis 2: Peer effects operate through social learning and social norms mechanisms.

➤ **Marginal Contribution:**

- This study focuses on elderly households, filling a gap in peer effect research.
- It identifies social learning and social norms as key mechanisms influencing elderly consumption.
- Defining peers at the community/village level enhances empirical accuracy and reliability.



Data and Empirical Strategy

■ Data: China Household Finance Survey (**CHFS**), 2013–2023.

- The **biennial** survey covers 40,000+ households in 29 Chinese provinces, capturing total and category-specific consumption, plus individual, household, and community-level data.

■ Definitions:

- **Elderly households**: households with heads aged 60 and above.
- **Peer households**: other elderly households within the same **community or village**.



Data and Empirical Strategy

Fixed effects model:

$$Y_{ijt} = \beta_0 + \beta_1 X_{ijt} + \beta_2 \text{Control}_{ijt} + u_j + v_t + \varepsilon_{it}$$

i, j : Household i and its corresponding community/village j .

Y_{it} : Household consumption expenditure level.

X_{ijt} : The key explanatory variable, representing the average consumption level of other households in the same community/village excluding household i .

Control_{ijt} : Control variables at the individual, household, and community levels.

u_j : Household fixed effects.

v_t : Year fixed effects



Descriptive Statistics

	Variable	N	Mean	SD	Min	Max
Explained variable	Total Consumption	59565	10.41	0.92	2.56	14.88
	Food Consumption	59565	9.53	1.07	0	14.04
	Clothing Consumption	59565	5	3.13	0	11.98
	Living Consumption	59565	7.73	1.57	0	14
	Houseitems Consumption	59565	7.11	1.81	0	13.59
	Transport Consumption	59565	7.12	2.08	0	14.15
	Education Consumption	59565	4.13	3.85	0	14.66
	Medical Consumption	59565	7.06	3.05	0	14.83
Explanatory variable	Peer Total Consumption	59565	10.66	0.52	8.78	12.96
	Peer Food Consumption	59565	9.68	0.51	7.33	11.12
	Peer Clothing Consumption	59565	5.97	1.05	0	9.33
	Peer Living Consumption	59565	7.96	0.73	0	10.63
	Peer Houseitems Consumption	59565	7.51	0.8	3.27	10.39
	Peer Transport Consumption	59565	7.84	0.77	4.13	12.45
	Peer Education Consumption	59565	5.19	1.73	0	11.1
	Peer HealthConsumption	59565	6.7	1.14	0	10.65
Individual-level control variable	Age of Household Head	59565	69.15	7.04	60	113
	Male of Household Head	59565	0.72	0.45	0	1
	Education of Household Head	59565	7.74	4.16	0	22
	Marriage of Household Head	59565	0.78	0.41	0	1
Household-level control variable	Household Size	59565	2.79	1.67	1	19
	Household Income	59565	10.27	1.45	0.01	17.98
	Household Asset	59565	12.41	1.92	0.69	20.73
	Household Debt	59565	1.69	3.85	0	18.22
Community-level control variable	Community Population	59565	7.94	1.12	0	11.51
	Community Per Capita Income	59565	7.73	3.26	0.05	13.66
	Community Bank Branches	59565	1.24	1.96	0	36

- The average age of household heads in elderly families is **69** years.
- Expenditure on **food** constitutes the largest share of total consumption.
- The greatest consumption variation occurs in **education and entertainment**.



Empirical results: Benchmark regression results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total	Food	Clothing	Living	Houseitems	Transport	Education	Health
Peer Total Consumption	0.240*** (10.163)							
Peer Food Consumption		0.258*** (9.205)						
Peer Clothing Consumption			0.337*** (12.549)					
Peer Living Consumption				0.401*** (11.039)				
Peer Houseitems Consumption					0.345*** (12.727)			
Peer Transport Consumption						0.254*** (8.985)		
Peer Education Consumption							0.459*** (22.614)	
Peer Health Consumption								0.298*** (11.212)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	59565	59565	59565	59565	59565	59565	59565	59565
R2	0.164	0.060	0.061	0.046	0.085	0.074	0.156	0.054

- Peer effects **positively influence** both total and category-specific consumption.
- The largest effect is on **education and entertainment**, followed by **living**.



Endogeneity analysis (reflection problem)

- **IV: Physical health**
- **Relevance condition:** Physical health directly affects the ability and frequency of social interactions; healthier elderly individuals engage more with peers and are more likely to be influenced by them.
- **Exclusion restriction:** An individual's health is unlikely to affect group-level consumption; after controlling for relevant variables, it is uncorrelated with individual consumption.

	(1) First Stage	(2) Second Stage
Physical Health	0.057*** (16.414)	
Peer Consumption		0.193* (1.754)
Controls	Yes	Yes
Year FE	Yes	Yes
Household FE	Yes	Yes
Observations	59,565	59,565
R2		0.464
First-stage F-stat	269.41	



Robustness

	(1)	(2)
	Consumption	Consumption
County-level Peer Effects	0.165*** (3.752)	
Community-level Peer Effects (Alternative Definition)		0.231*** (6.244)
Controls	Yes	Yes
Year FE	Yes	Yes
Household FE	Yes	Yes
Observations	59310	23746
R2	0.159	0.096

- **County-level peer effects:** Replace the independent variable with the average consumption of other households within the **same county**.
- **Alternative definition of elderly households:** Redefine as households in which **all members** are aged 60 and above.



Robustness

➤ Test of peer interaction hypothesis: **Stronger ties lead to stronger peer effects.**

	(1)	(2)	(3)	(4)
	High Elderly Share	Low Elderly Share	High Elderly Services	Low Elderly Services
Peer Consumption	0.128	0.193***	0.447***	0.211***
	(1.439)	(4.509)	(5.412)	(7.313)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes
Observations	9169	19896	7494	43573
R2	0.183	0.165	0.211	0.160

➤ **Peer group size: Smaller** groups show greater effects.

➤ **Community elderly care capacity: More services**, stronger effects.



Robustness

- Test of peer interaction hypothesis: **Stronger ties lead to stronger peer effects.**

	(1) Long Lockdown (Inbound)	(2) Short Lockdown (Inbound)	(3) Long Lockdown (Outbound)	(4) Short Lockdown (Outbound)
Peer Consumption	0.574*** (8.991)	0.365*** (5.440)	0.501*** (5.936)	0.329*** (4.471)
Controls	Yes	Yes	Yes	Yes
Year FE	No	No	No	No
Household FE	Yes	Yes	Yes	Yes
Observations	1135	1169	784	928
R2	0.396	0.379	0.360	0.375

- **2020 lockdowns:** (1) Inbound restrictions — no entry of non-residents;
(2) Outbound restrictions — no exit from the community.
- **Longer lockdown** duration strengthens peer effects.



Mechanism analysis: Social Learning

	(1)	(2)	(3)	(4)
	Healthcare Consumption	Healthcare Consumption	Cigarette and Alcohol	Exercise
Peer Medical Consumption	0.060** (2.270)	0.056** (2.120)	-0.161*** (-6.335)	0.014 (1.030)
Controls	No	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	No
Household FE	Yes	Yes	Yes	Yes
Observations	48814	48814	40884	1432
R2	0.034	0.035	0.004	0.017

- Observing peers' higher **medical** spending, elderly households **increase** preventive **health spending**, **reduce** cigarette and **alcohol** use, and engage **more** in **exercise**.
- Peer effects reflect active **social learning** and conscious decision-making.



Mechanism analysis: Social Norms

	(1) Dominant Surname Community	(2) Non-Dominant Surname Community
Peer Consumption	0.212*** (5.477)	0.064 (0.575)
Controls	Yes	Yes
Year FE	Yes	Yes
Household FE	Yes	Yes
Observations	19488	5720
R2	0.162	0.197

- Using rural samples, the number of dominant surnames serves as a proxy.
- Communities with **dominant surnames** show **significant** peer effects.



Heterogeneity analysis

	(1)	(2)	(3)	(4)	(5)	(6)
	Female	Male	Rural	Urban	Do Not Use Fintech or Mobile	Use Fintech or Mobile
Peer Consumption	0.265*** (4.092)	0.230*** (8.864)	0.216*** (5.937)	0.199*** (5.786)	0.219*** (6.377)	0.204*** (4.081)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16433	43132	34319	25246	29335	22322
R2	0.139	0.165	0.173	0.161	0.132	0.153

- Peer effects are **stronger** in households where the head is **female**, resides in **rural** areas, and **does not uses fintech or mobilephones**.



Conclusion

- Peer effects **positively** influence consumption behavior in elderly households, with a stronger impact on **education and entertainment**.
- Peer effects operate through **social learning** and **social norms** mechanisms.
- The impact of peer effects varies: it is stronger in households with **female** heads, **rural** residence, and **no use** of fintech or smartphones.

**Welcome feedback and
criticism, thanks!**

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