Digital Financial Inclusion and Intergenerational Consumption Mobility: A Framework Using China Family Panel Studies

Eswar Anguru

1. Introduction

Consumption expenditure is a key indicator of economic well-being, often reflecting living standards more accurately than income or wealth. As per the permanent income hypothesis, consumption aligns more with long-term economic prospects than with short-term income, making it a valuable measure of persistent welfare (Friedman, 1957).

While intergenerational income and wealth transmission have been widely studied, examining consumption correlations offers distinct insights into family welfare. A strong correlation suggests limited mobility and persistent inequality.

Building on Charles et al. (2014), who find a significant intergenerational correlation in consumption using PSID data, this essay explores factors beyond income that drive this persistence. It investigates whether digital financial inclusion can weaken intergenerational consumption links and enhance mobility. The central question is: **Can digital financial inclusion weaken intergenerational household consumption correlation, and what does this imply for household-level economic mobility in China?**

2. Intergenerational Correlation of Consumption Expenditures

Traditional studies on intergenerational mobility have mainly focused on income and wealth, but Charles, Danziger, Li, and Schoeni (2014) highlight intergenerational consumption expenditures as a crucial, yet less explored, factor reflecting household well-being. Using PSID data, the study finds a significant intergenerational correlation in consumption, comparable to income, indicating that, beyond income, family dynamics and behaviours play key roles in shaping economic mobility and the persistence of well-being across generations.

2.1 Description of the Paper's Model

The research paper by Charles, Danziger, Li, and Schoeni (2014) employs a linear regression model to estimate the intergenerational correlation of consumption expenditures.

Model Specification

The core model is:

$$\overline{C}_k = \alpha + \delta\, \overline{C}_p + X'_k\alpha_k + X'_p\alpha_p + \varepsilon_k,$$

Where:

- $\overline{C}_k$: Log of average consumption expenditure of adult child's household (2005-2009)
- $\overline{C}_p$: Log of average consumption expenditure of parents' household (2005-2009).
- X'_k, X'_p: Control variables for child and parent households
- α: Intercept
- δ: Intergenerational elasticity of expenditure

- ϵ_k: Error term

Variables

Dependent Variable:
$\overline{C}_k$ - measured three ways:

- Food expenditure (including food stamps)
- Imputed total expenditure (Skinner 1987 method using CE data)
- Measured total expenditure (from PSID)

Key Independent Variable:

$\overline{C}_p$ — using the same three measures.

Control Variables:

- Cubic in age
- Race dummy
- Marital status dummy
- Homeownership dummy
- Family size dummies
- Dummy for child being household head vs. spouse

Theoretical Assumptions

The model assumes a linear log-log form where child consumption proportionally depends on parent consumption, unaffected by reverse causality, with uncorrelated errors given controls.

2.2 Data Processing and Sample Construction

Charles et al. (2014) use data from the Panel Study of Income Dynamics (PSID), tracking U.S. families and their descendants since 1968. The study follows original members, their offspring, and adopted children. Adult children are linked to both parental households if separated, with each assigned half-weight. Only adult children and parents in PSID family units are included, excluding those still living with parents, enabling detailed intergenerational analysis of consumption and economic outcomes (Charles et al.,2014, p. 3).

Data Sources and Time Frame

- Primary Data Source: Panel Study of Income Dynamics (PSID).

- Time Frame: 2005, 2007, and 2009. These years are chosen because the PSID expenditure data collected since 2005 cover essentially all the expenditure categories captured by the CE.
- Sample Size: 5,000 households headed by adult children that can be linked to their parental households. Approximately 3,000 pairs of adult child and parent households participated in all three waves (2005, 2007, and 2009).

Data Cleaning and Transformation

Expenditure data were averaged across three waves, deflated to 2005 dollars, and log-log transformed. The sample includes only household heads or spouses, excludes outliers by age, and assigns equal weights to children linked to separated parental households.

2.3 Empirical Methods

The study uses Ordinary Least Squares (OLS) regression to estimate the intergenerational elasticity of consumption, testing different expenditure measures for robustness. It also constructs mobility matrices showing the probability of adult children falling into specific consumption quartiles, given their parents' quartiles, adjusting for age and family size differences.

2.4 Outcomes

Using PSID data, the study finds a significant intergenerational consumption elasticity of 0.275 for total observed expenditure, indicating persistent material well-being. Narrower measures yield lower correlations—0.153 for food, 0.120 for imputed consumption—while a percentile-based approach gives 0.289, reinforcing robustness. Income correlation is slightly lower at 0.264; controlling for both generations' incomes reduces consumption elasticity to 0.085, suggesting roles for preferences, credit, or transfers. Lifecycle mismatch (parents aged 64, children 38) may bias estimates. Mobility matrices show ~41% remain in the top or bottom quartiles, while <12% move from bottom to top.

2.5 Implications for Theory and Practice

The findings suggest that consumption, not just income or wealth, is a vital dimension of intergenerational mobility, reflecting material well-being more directly. The modest gap between consumption and income correlations implies limited intra-family risk-sharing. For policy, this points to the need for interventions beyond income support, such as improving credit access, financial literacy, and asset-building opportunities.

2.6 Limitations and Challenges

Key limitations include lifecycle mismatch between generations, which may bias estimates; measurement errors in self-reported PSID consumption data; unobservable non-income mechanisms like preferences or transfers; and limited generalizability, as findings from U.S. data may not extend to countries with different financial systems or social and economic structures.

3. Brief Descriptions of Related Research Papers

Two recent empirical studies are summarised, which highlight digital financial inclusion (DFI), household economic behaviour, and intergenerational outcomes, that serve as motivation for extension.

3.1 Liu, Zheng and Luo (2025): Digital Financial Inclusion, Population Structure, and Consumption Upgrades

This study examines how DFI affects consumption behaviour in China, using panel data from 248 prefecture-level cities (2013–2019). Our focus is on their first hypothesis: that DFI expands the scale of consumption.

Using a fixed-effects model, they regress the log of per capita total consumption on the log of the DFI index and various control variables. Results show a significant positive relationship: a 1% increase in DFI leads to a 0.113% rise in urban consumption and a 0.204% rise in rural consumption (Liu et al., 2025). The stronger rural effect suggests DFI helps alleviate liquidity constraints and improves financial access in underserved areas.

3.2 Yang, Zhang, Hong and Li(2024): Can Digital Financial Inclusion Facilitate Intergenerational Income Mobility?

This paper explores DFI's impact on intergenerational income mobility in China, using CFPS household survey data linked to province-level DFI indices. It finds that DFI significantly reduces intergenerational income elasticity (IGE): a one standard deviation increase in DFI lowers IGE by 0.04–0.05.

The analysis uses log income regressions with interaction terms between fathers' income and lagged DFI to capture moderation effects. Results indicate stronger DFI effects in rural and inland regions, where financial infrastructure is weaker. The study also highlights entrepreneurship as a key mechanism—DFI increases household business formation, which in turn enhances mobility (Yang et al., 2024).

The methodology—especially interacting parental outcomes with regional DFI—offers a useful approach for extending models of consumption transmission to include digital finance effects.

4. Extended Model

Charles et al. (2014) establish a significant intergenerational correlation in consumption, largely driven by income and unobserved factors. However, they leave open questions about mechanisms to reduce this persistence and enhance mobility. Digital financial inclusion (DFI), which provides underserved populations with access to financial services like credit and savings, could be a key pathway. By improving liquidity, consumption smoothing, and financial literacy, DFI may alter household financial behaviour and weaken the intergenerational correlation in consumption, which can be interpreted as an indicator of improved mobility and offering an extension to Charles et al.'s analysis of non-income channels in consumption persistence.

4.1 Data and Motivation for Dataset Selection

We use two complementary datasets: the China Family Panel Studies (CFPS), a nationally representative longitudinal survey tracking intergenerational household behaviour since 2010 for every 2 years, covering almost 95% of population (Xie et al., 2017), and the Peking University Digital Financial Inclusion Index of China (DFII), which captures province-level digital financial development from 2011–2018 (Guo et al.,2020). China's rapid digital finance expansion during this period, alongside historically low consumption rates (Liu et al.,2025), makes it an ideal context. Pairing CFPS and DFII allows us to test whether digital financial inclusion, by enhancing access to credit and smoothing consumption, weakens intergenerational consumption persistence.

4.2 Data Processing and Sample Construction

This study uses the 2010 and 2018 waves of the China Family Panel Studies (CFPS), and we construct a panel linking individuals' household status in 2010 (as dependents) and in 2018 (as adults heading or living in new households).

CFPS Structure and Sample Logic

Identifying Intergenerational Transitions

CFPS assigns permanent personal IDs (PID) and time-specific household IDs (FID), enabling us to track individuals across waves. Using 2018 retrospective variables (fid10 and fid18) in the crossyearid dataset of 2018 (CFPS,2018), we identify intergenerational transitions as follows:

- The individual had a different FID in 2018 to that of 2010, indicating household separation.
- They were unmarried in 2010 and married by 2018, suggesting life-cycle-driven household formation.
- Both 2010 and 2018 households report valid consumption data.

We treat 2010 household consumption as parental and 2018 consumption as that of the economically independent adult child. Though biological links are not explicit, this structure captures clean generational shifts. To reinforce independence, we exclude individuals who remain financially (co_a10_p) or residentially (tb6_a10_p) tied to their 2010 household (Wu et al., 2021).

co_a10_p: whether i was financially connected with fid10,

tb6_a10_p: whether i currently is a co-residing member of fid10.

Integrating Digital Financial Inclusion Data

To measure DFI, we merge our sample with the Peking University Digital Financial Inclusion Index of China (DFII), available annually at the province level from 2011 to 2018. Because

DFII data are not available for 2010, we use the lagged 2017 DFII score to represent digital finance exposure for the adult child's 2018 household.

Cleaning, Controls, and Sample Restrictions

To ensure validity and comparability, we apply the following restrictions:

- Drop observations with missing or zero household consumption data.
- Convert nominal consumption to real values using provincial CPI deflated to a 2010 base.
- Retain only those provinces that appear in both CFPS and DFII datasets.
- Include controls for child and parent education, income, household size, and urban/rural status.

Assumptions:
Family and marital status changes reflect adulthood and independence. Household consumption proxies individual economic behaviour. Province-level DFII captures local digital finance environments. Lagged DFII (2017) is exogenous to 2018 consumption.

Limitations:
Parent-child ties are proxied by household structure. Excludes co-resident or unmarried individuals. Transfers are unobserved. DFII misses intra-provincial variations and is limited to the child's generation.

4.3 Empirical Model

We begin with a baseline model of intergenerational consumption elasticity (IGC),and then extend it by interacting parental household consumption with a measure of province-level lagged digital financial inclusion.

Baseline Model: Intergenerational Consumption Correlation (Equation 1)

$$\log(C_{ip2018}^{\text{child}}) = \alpha + \beta_1 \cdot \log(C_{ip2010}^{\text{parent}}) + X_{ip}'\gamma + \lambda_p + \epsilon_{ip2018}$$

Where:

log (C^{child}_{ip2018}) is the log of total household consumption in 2018 for the new household formed by individual i in province p, who was part of a parental household in 2010. This includes spending on food, housing, education, transport, clothing, and other living expenses. Consumption data is sourced from the 2018 CFPS famecon dataset and deflated to 2010 prices using province-level CPI indices (CFPS, 2018),

log (C^{parent}_{ip2010}) is the log of total household consumption of their parental household in 2010 (CFPS, 2010),

λ_p is a province fixed effect,

X'_{ip} vector of controls like age, education, household size, urban/rural,

ε_{ip2018} is the idiosyncratic error term.

The coefficient β_1 captures the intergenerational correlation of consumption. A higher β_1 indicates stronger persistence or correlation, while a lower value suggests greater intergenerational mobility.

Extended Model: Digital Financial Inclusion as a Moderator (Equation 2)

$$\log(C_{ip2018}^{\text{child}}) = \alpha + \beta_1 \cdot \log(C_{ip2010}^{\text{parent}}) + \beta_2 \cdot \text{DFI}_{p2017} + \beta_3 \cdot \left[\log(C_{ip2010}^{\text{parent}}) \times \text{DFI}_{p2017}\right] + \mathbf{X}_{ip}'\theta + \lambda_p + \epsilon_{ip2018}$$

Where:

DFI_{p2017} is the Digital Financial Inclusion Index lagged by 1 year for province p where i lives.

The interaction term [$\log(C^{parent}_{ip2010})$*$DFI_{p2017}$] tests whether the strength of the intergenerational link in consumption depends on the level of digital financial inclusion.

X'_{ip} is a vector of controls including gender, age, education, hukou status, health, internet use, father's age and education, family size, loans, net income, with province-level controls include loan-to-GDP ratio and per capita GDP (Yang et al.,2024).

λ_p - province-level fixed effects.

The coefficient of interest β_3 captures the DFI effect on the intergenerational correlation of consumption. A negative and significant β_3 suggests that DFI reduces the strength of intergenerational consumption persistence—i.e., digital financial development helps break the cycle of inherited consumption behaviour.

Identification and Interpretation

The key identification assumption is that DFI is exogenous to unobserved determinants of intergenerational consumption transmission. To strengthen causal interpretation:

- We use lagged DFI (from 2017) to mitigate simultaneity bias.

- We include province fixed effects to account for unobserved, time-invariant regional characteristics.

- We control for a rich set of household-level and regional covariates to absorb observable heterogeneity.

Nonetheless, potential omitted variable bias may remain—for example, due to cultural norms around savings or unobserved financial literacy differences across regions. While we do not employ an instrumental variable strategy, as done in Yang et al. (2024), our framework provides a clean first-step analysis based on fixed-effects and interaction modeling. Future work could incorporate IV or difference-in-differences designs for further causal identification.

Together, these models test our core hypothesis: **digital financial inclusion reduces the intergenerational correlation of household consumption**, thereby promoting greater economic mobility across generations in China's rapidly digitizing economy.

4.4 Expected Results: Intergenerational Consumption Correlation and Its Implications for Mobility

Based on theoretical mechanisms, data structure, and prior research, we outline our expectations regarding the role of digital financial inclusion (DFI) in shaping intergenerational consumption patterns in China.

Expected Sign of Core Coefficient

In our extended model, the key parameter of interest is the interaction coefficient β_3, which captures whether DFI moderates the relationship between parental and child household consumption. We expect β_3 to be negative, indicating that higher digital financial inclusion weakens intergenerational consumption correlation, thereby enhancing economic mobility.

In provinces with more advanced digital financial ecosystems, the consumption level of newly formed households is expected to depend less on their parents' consumption, signalling greater financial independence.

Theoretical Justification

- Chinese households have historically exhibited high savings rates and conservative consumption behaviour (Liu et al., 2025).
- The rapid rise of digital finance—via mobile payments, online credit, and wealth platforms—has improved credit access and reduced liquidity constraints, especially for young and rural consumers. This expansion has altered both the scale and preferences of household consumption. (Liu et al.,2025)
- Moreover, Yang et al. (2024) demonstrated that DFI reduced intergenerational income elasticity by 0.04–0.05, especially in rural and inland provinces. This suggests that digital finance helps break inherited economic dependence, a mechanism likely to extend to consumption as well.

What We Expect to See Empirically

Given the mechanisms outlined above, we expect the following empirical patterns:

Hypothesis	**Expected Sign**	**Explanation**
β_1: Parental consumption → Child consumption	Positive	Reflects persistence due to habits, education, and preferences.

β_2: DFI → Child consumption	Positive	DFI directly boosts household consumption through improved access.
β_3: DFI × Parental consumption	Negative	In high-DFI regions, the parent-child consumption link is weaker, indicating higher mobility.

Heterogeneity Expectations

Although not central to our model, we expect DFI effects to be stronger in:

- Rural regions, where traditional financial access is limited.
- Lower-income households, where liquidity improvements are more impactful.
- Households with low parental consumption, where upward consumption mobility is more likely.

Implications of Expected Findings

If the expected negative interaction is confirmed empirically, it would suggest that:

- Digital financial tools can enhance mobility by weakening intergenerational dependence.
- Policymakers should view DFI as a lever for economic inclusion, not just innovation.
- Household consumption behaviour is malleable, especially when financial constraints are lifted.

These findings would strengthen the case for investment in digital infrastructure, financial literacy, and inclusive fintech, particularly in disadvantaged and underserved regions.

Future empirical work would incorporate robustness checks, including alternative consumption measures, different lags of DFI, fixed effects variations, and subgroup analysis, to test the stability and generalizability of results.

5. Conclusion

This paper builds on Charles et al. (2014) to examine whether digital financial inclusion (DFI) reduces intergenerational consumption persistence in China. Using CFPS and DFII data, we model how DFI, by easing liquidity constraints, helps younger households break from inherited consumption patterns. Our findings have two key implications: academically, they highlight DFI as a non-income driver of mobility; and for policy, they support expanding inclusive digital finance and financial literacy, especially in underserved regions. Future work should explore causal channels and whether DFI also enhances mobility in wealth, education, and health as digital tools continue to evolve.

References

Charles, K. K., Danziger, S., Li, G., & Schoeni, R. (2014). The intergenerational correlation of consumption expenditures. *American Economic Review*, *104*(5), 136–140. https://doi.org/10.1257/aer.104.5.136

Guo Feng, Wang Jingyi, Wang Fang, KONG Tao, Zhang Xun, Cheng Zhiyun, 2019, "Measuring China's Digital Financial Inclusion: Index Compilation and Spatial Characteristics", Working paper, Institute of Digital Finance, Peking University.

Institute of Social Science Survey, Peking University, 2015, "China Family Panel Studies (CFPS)", https://doi.org/10.18170/DVN/45LCSO, Peking University Open Research Data Platform, V44

Liu, Q., Zheng, J., & Luo, S. (2025). Digital Financial Inclusion, population structure, and consumption upgrades: Evidence from China. *PLOS ONE*, *20*(1). https://doi.org/10.1371/journal.pone.0316823

Yang, X., Zhang, L., Hong, X., & Li, W. (2024). Can digital financial inclusion facilitate intergenerational income mobility? evidence from China. *Journal of Comparative Economics*, *52*(4), 951–962. https://doi.org/10.1016/j.jce.2024.09.001

Yu Xie, Xiaobo Zhang, Ping Tu, Qiang Ren, Yan Sun, Ping Lv, Hua Ding, Jingwei Hu, & Qiong Wu. (2017,). User's Manual (3rd edition). China Family Panel Studies (CFPS), Institute of Social Science Survey, Peking University

Wu, Q., Dai, L., Zhen, Q., Gu, L., & Wang, Y. (2021). User guide for China Family Panel Studies 2018. Institute of Social Science Survey, Peking University.