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Migrant Vulnerability and Consumer Financial Fraud in China: A Two-Stage Conceptual Approach

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Introduction

- Consumer financial fraud is **widespread** and negatively affects consumer wellbeing, confidence in the economic system, and marketplace function
- Existing literature is mostly in developed countries, with a wide range of findings on prevalence and risk factors
- **Little** is done in China until recently when survey data became available.
- Our team published several studies on consumer financial fraud in China
  - Developed a two-stage model separating fraud **exposure** from conditional **victimization**.
  - Consistently found **migrants** in China to face a higher risk.
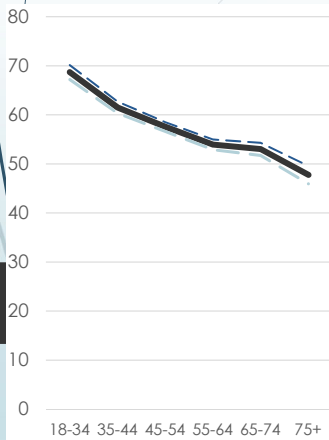
Introduction (cont.)

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In past studies, we estimated that:

1. **57.3%** of Chinese households exposed to consumer fraud in 2014-2015.

2. **3.7%** lost money to fraud.

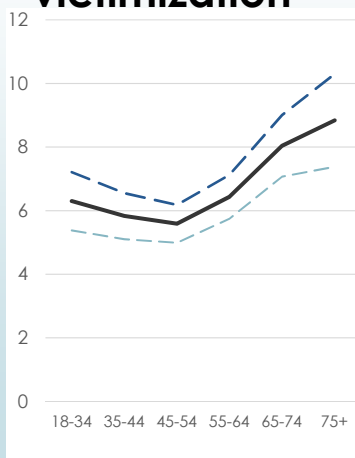3. **14 million** Chinese households fell victim to consumer fraud.

➡ In this study, we examine the association between migrant status and consumer financial fraud in more detail.
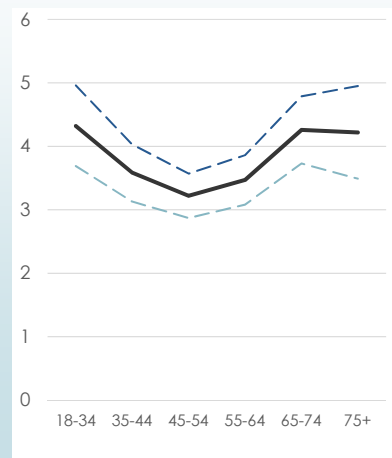

Age-related Patterns

Fraud exposure

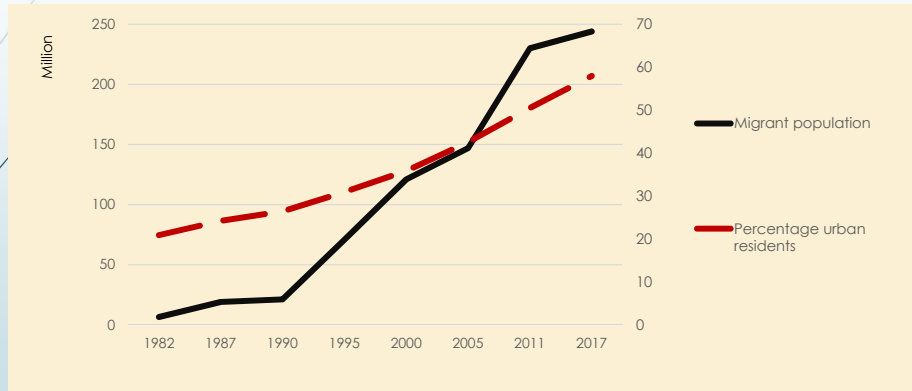**Conditional victimization**

Overall

Note: Dashed lines show 95% CI.

5   Chinese Migrants

- Since the 1979 Chinese economic reform: Rapid economic growth, urbanization, and growing migration

- There are more urban-Hukou migrants in recent years
- Integrating migrants into cities has become a national priority

6   Disadvantages of Chinese migrants in China

- The general social and economic **disadvantages** of Chinese **migrants** are well documented.
  - Hukou system **restricts** access to social services at destination locations
  - **Challenges** learning the new environment
  - **Lack** of social support and migrants are often **stigmatized** in urban China
  - **Bimodal** – skilled vs. unskilled
  - The **changing** sources of migrants
- The relationship between migrant status and consumer fraud victimization is not well understood but preliminary evidence shows that migrants face **higher risks**.

Literature on Migration and Consumer Financial Fraud

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- Migrant status has **NOT** been a research focus in consumer financial fraud literature so the literature is limited.
- Three US FTC surveys found Hispanics to be at higher risk of fraud victimization.
  - Hispanics have a high percentage of immigrants so there may be a link
- One qualitative study in China found rural migrants face numerous challenges, including being vulnerable consumers
- Important yet **unexplained differences** between the results of fraud-prevalence studies and laboratory experiments, e.g., whether financial knowledge is protective against fraud victimization

Other Risk Factors of Consumer Financial Fraud

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- Fraud exposure risk factors
  - Older, rural consumers -> lower risks
  - Poor health -> higher risks
  - More financial resources -> higher risks
- Conditional fraud victimization risk factors
  - lower human capital -> higher risks
 - Certain psychological characteristics -> higher risks

Our Research Questions

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1. How does migrant status affect consumer financial fraud risks?
2. Are there differences between Urban-Hukou migrants and Rural-Hukou migrants?
3. What are the risk factors contributing to the relationship between migrant status and consumer financial fraud risks?
4. Does market engagement help explain fraud exposure and victimization?

Conceptual Framework

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| Migrant status - Urban local residents - Urban-Hukou migrants - Rural-Hukou migrants - Rural local residents | Market engagement Financial resource | Fraud exposure risk | Overall consumer financial fraud victimization risk |
| Human capital Psychological characteristics | Fraud victimization risk once exposed |
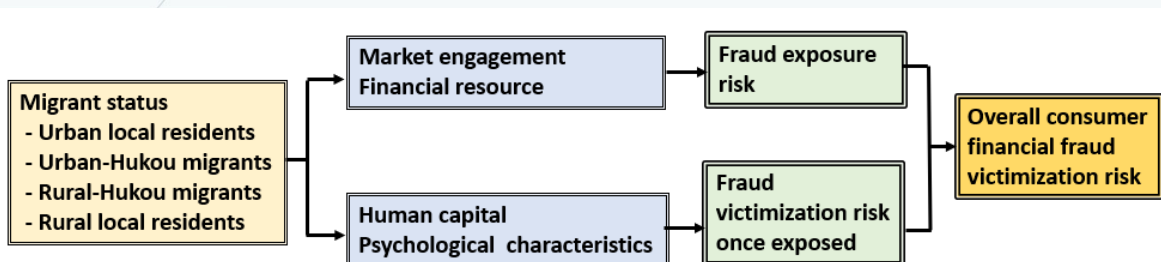
11 Hypotheses (Reference group: Urban Local Residents)

- Fraud exposure risk
  - Urban migrants: More market engagement, similar financial resources -> **higher risk**
  - Rural migrants: More market engagement. Less financial resources -> **unclear**
  - Recent movers: more market engagement -> **higher risk**
  - Rural local: less market engagement, less financial resources -> **lower risk**
  - Market and digital world engagement -> **higher risk**
- Conditional fraud victimization risk
  - Urban migrants: More risk-seeking, higher education -> **unclear**
  - Rural migrants: More risk-seeking, lower human capital -> **higher risk**
  - Recent movers: less destination-related human capital -> **higher risk**
  - Rural local: less human capital -> **higher risk**
  - Market and digital world engagement -> **unclear**

12 Data: China Household Finance Survey, CHFS 中国家庭金融调查

- Survey and Research Center for China Household Finance, Southwestern University of Finance and Economics, Chengdu, Sichuan, China

- Stratified three-stage PPS random sampling design - Nationally, provincially and sub-provincially representative in 2015

- **Our sample: 25,292 households (householders age 16-60) in 2015**

Measurements

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- **Fraud exposure:** Encountered any forms of consumer fraud and scams in the past year.
- **Fraud victimization:** Money lost to the fraud (Yes or No).
  - Conditional fraud victimization
  - Overall fraud victimization
- **Migrant status**: Urban local (ref.), Urban migrants, Rural migrants, Rural local
- **Process variables:**
  - **Demographics and education:** Age, Gender, Educational Attainment
  - **Proxies for market engagement:** % of food budget spent on FAFH, Health, Region, Shopped online last month, owning a smartphone
  - **Financial resources:** Income, Assets, Debt
  - **Human capital:** Financial literacy, Education, Social support, Health, Age, Gender
 - **Psychological characteristics**: Risk tolerance, Trust

Analytical Methods

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- Descriptive: Overall and by migrant status
- Multivariate: Sets of Logistic regressions for
  - Fraud exposure risk
  - Conditional fraud victimization risk
  - Overall fraud victimization risk
- Three sets of regression: 1. Migrant status, 2. Add demographics and education, 3. Include all covariates
- Simulations—using the characteristics of urban local residents and the coefficient estimates of migrant groups

15 Sample by Hukou/Migration Status

34%

50%

5%

11%

■ Urban local residents (%)
■ Urban-Hukou migrants (%)
■ Rural-Hukou migrants (%)
■ Rural local residents (%)
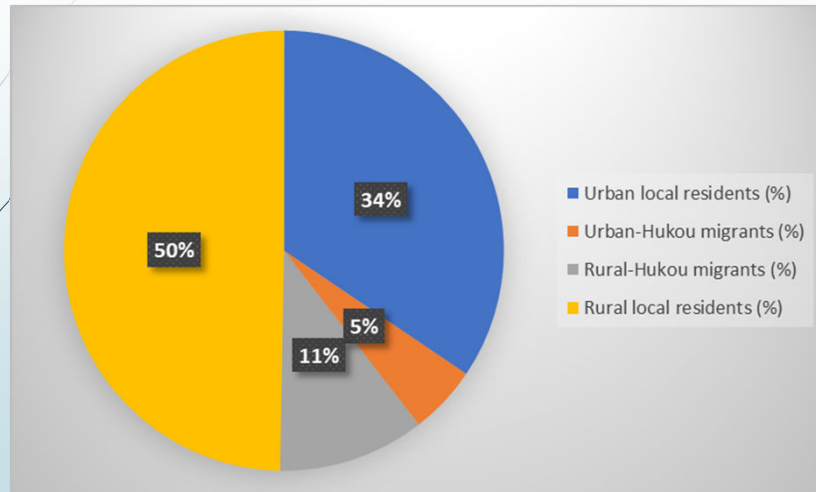
JF3
JF4

16 Weighted Descriptive

- **Similarities** between Urban and Rural migrants
  - Younger and healthier
  - More likely to live in the East region, live alone, and have moved in the past two years
  - Spend higher % food budget on food away from home
- **Differences** between Urban and Rural migrants
  - **Financial resources**: Urban migrants are similar to urban locals in income and assets, but have more debts. Rural migrants are slightly better than rural locals, but worse than both urban migrants and locals. Urban locals have the least amount of debt.
  - **Human capital**: Urban migrants are better educated and higher financial literacy scores than urban locals. Both are better educated than rural migrants and locals
  - **Risk tolerance**: Urban migrants—a very high level of risk tolerance. Rural migrants and locals are more likely to not know the meaning of risk.
  - **Rural migrants** have the **least amount of social support**. Urban migrants and Rural locals the most social support.

JF3 Please update table
Jessie Fan, 2022/6/30

JF4 Jessie Fan, 2022/7/8

17 ➤ Weighted Descriptive (%)

	Fraud exposure	**Conditional victimization**	**Overall victimization**
Total	59.9	5.7	3.4
Urban local residents	**70.1**	**4.5**	**3.2**
Urban-Hukou migrants	**76.8**	**6.4**	**4.9**
Rural-Hukou migrants	**69.6**	**7.6**	**5.3**
Rural local residents	**49.0**	**6.2**	**3.0**

18 ➤ Logistic Regression – **Fraud Exposure Risk**

➡ **Market participation proxies and financial resources:**

➡ **Higher risk:** % food budget on eating out, Income, Assets, Education, Chronic health condition

➡ **Additional variables:**

➡ **Higher risk**: Lack social support, More risk tolerant, Living in Central China

➡ **Lower risk**: Male, Trust professionals, Living in Northeast China

➡ **Insignificant:**

➡ Age, Debt, Living alone, Recent movers

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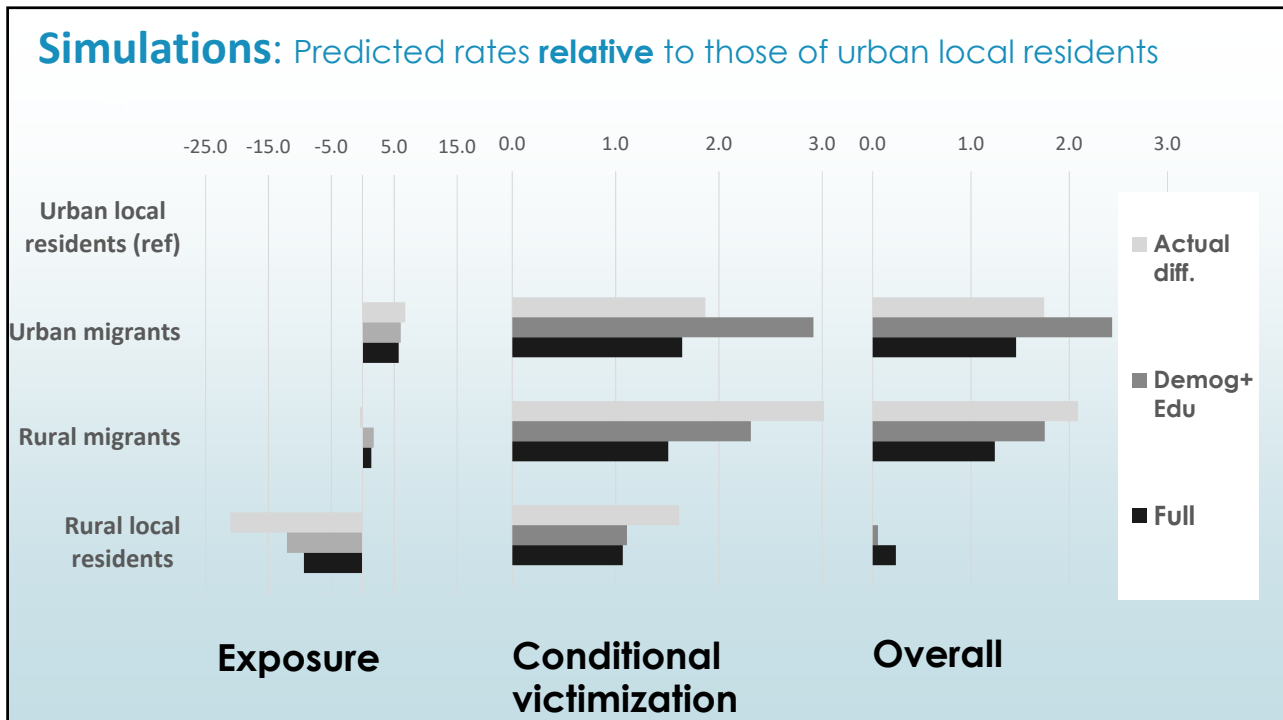## Logistic Regression – **Conditional Fraud Victimization**

➡ **Human capital and psychological characteristics:**

➡ **Higher risk:** Recent mover, Less-than-middle-school education, More debt, Not understanding risk, Higher financial literacy score (**counterintuitive**)

➡ **Insignificant:**

➡ Gender, Age, College educated, Chronic health condition, High to medium risk tolerance, Lack social support, Living alone

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Logistic Regression Simulations

	Fraud exposure	Conditional victimization	Overall victimization
Urban local residents	70.1	4.5	3.2
Urban-Hukou migrants	75.5 (76.8)	6.3(6.4)	4.7(4.9)
Rural-Hukou migrants	72.4 (69.6)	6.1(7.6)	4.5(5.3)
Rural local residents	61.8(49.0)	5.2(6.2)	3.5(3.4)

➡ Control variables only explained a small portion of the differences

Simulations: Predicted rates **relative** to those of urban local residents

Exposure | Conditional victimization | Overall

Legend: Actual diff. | Demog+ Edu | Full

Categories: Urban local residents (ref), Urban migrants, Rural migrants, Rural local residents

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Discussion – Revisiting our hypotheses

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- **Fraud exposure risk**
  - Urban migrants: higher risk – **Yes. Process variables provide partial explanations**
  - Rural migrants: unclear – **Higher risk after controls**
  - Rural local: lower risk – **Yes**
  - Recent movers: higher risk - **No**
  - Higher level of market engagement : **higher risk**

- **Conditional fraud victimization risk**
  - Urban migrants: unclear – **Higher risk after controls**
  - Rural migrants: higher risk – **Yes. Process variables provide partial explanations**
  - Rural local: higher risk – **Yes. Process variables provide partial explanations**
  - Recent movers: higher risk – **Yes**
  - Higher level of market engagement: **not significant**

Key findings:

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- After controlling for covariates, both urban and rural migrants face higher risk of fraud exposure and fraud victimization, compared to urban local residents. The overall victimization rates are **substantially higher**.
- Urban local and rural local have similar overall victimization risks, but have **very different levels** of risks at the two stages.
- Our control variables only explain a small proportion of variations in risks. Our proxies for **market engagement** and **human capital** are limited. Potential variables we are not capturing:
  - Market participation: Online purchase, Social media accounts, Financial market participation
  - Human capital: Culture: Rural culture – less complex environment, more trusting of each other, more face-to-face interaction. Better financial knowledge measure

Implications

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- Consumer protection:
  - Few significant variables in our models are modifiable, but more at the fraud exposure stage than the conditional victimization rate.
  - Destination social support may be helpful for migrants.
- Consumer education:
  - Education on trusting and using professionals may be helpful.
- Future research:
  - Better measures of market participation and human capital are needed
  - The counterintuitive effect of financial knowledge needs further investigation
  - The amount of fraud loss: a higher probability of fraud loss does not equal to a higher amount of fraud loss. Policy relevance.

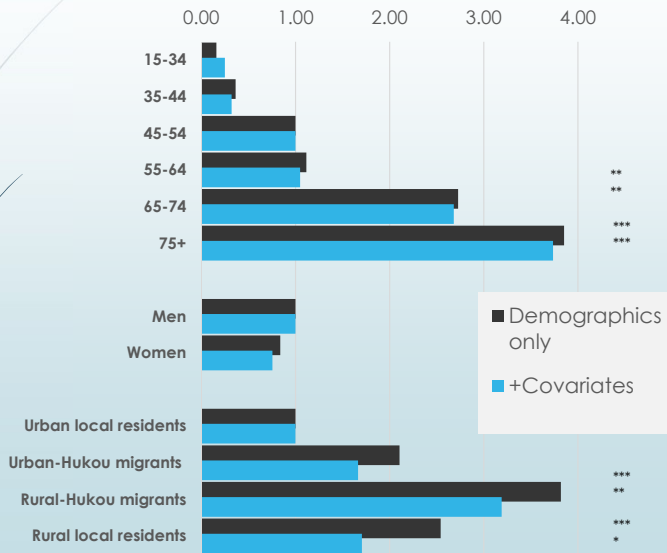# Annual monetary loss to consumer fraud by age

(yuan)
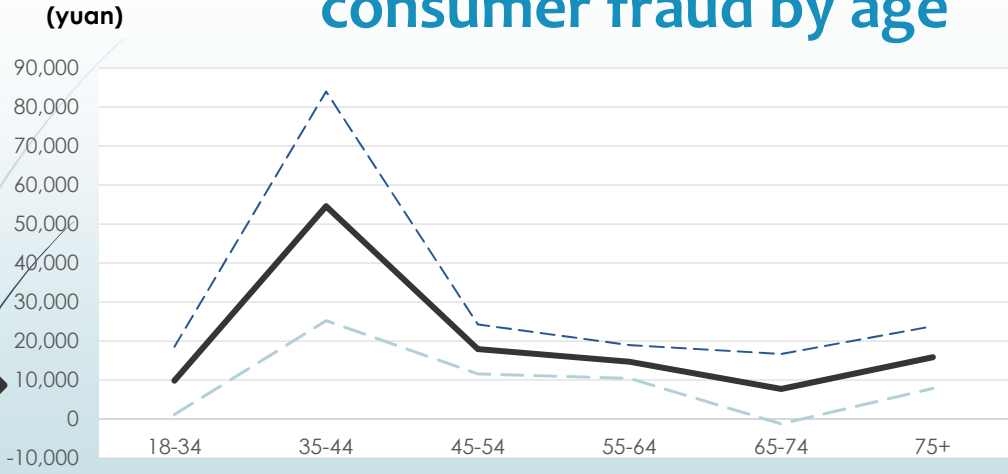
Note: Dashed lines show 95% CI. Only report those who lost money to consumer fraud.

Estimated fraud loss based selected variables
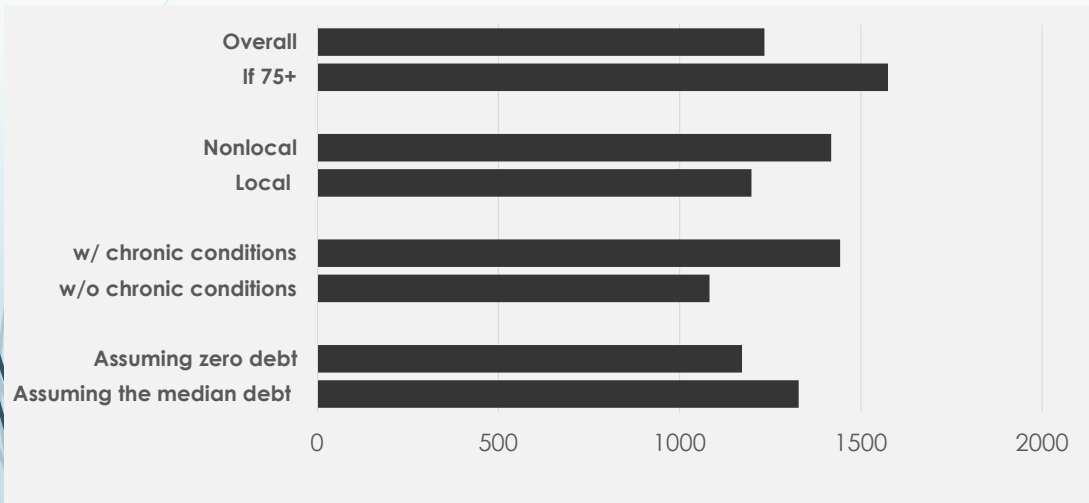
Relative fraud loss amount by demographic groups

Thank You!

Questions and Comments?

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2015 CHFS questions on fraud

4.Fraud

Notice for interviewers: all frauds the respondent encountered shall be included, no matter whether actual losses incurred.

【E3016】 Over the past year, which of the following has your household encountered? (multiple choice)
1. Telephone Fraud
2. SMS fraud
3. QQ, Wechat and other online fraud Phishing
4. Phishing
5. Acquaintances/Face to face fraud (pyramid or improper commodity trading)
6. Others (please specify) _____
7. No (skip to 【F1001a】)

【E3018】 Has your household suffered losses as a result of fraud?
1. Yes
2. No (skip to 【F1001a】)

Notice for interviewers: if the respondent sufferd more than one case of frauds, ask about the case that involved the most money.

【E3018a】 Which of the following acts of fraud have actually caused you to lose money?
1. False lottery winning information
2. Fradulent QQ friends' phones and other communication tools
3. People deceptively acting as staff of public security organs, financial institution or hospital
4. Online shopping fraud
5. Improper commodity trading (face to face)
6. "Get rich quickly" schemes
7. Tax fraud
8. Donation or fund-raising fraud
9. Pursuing false employment/internship fraud
10. Remittance fraud for no reason
11. Others (please specify) _____

【E3019】 How much money did your household lose? (Unit:yuan)
(ask 【E3019it】 if the respondent does not know or does not answer)

【E3019it】 Which range below is the amount of money your household lost within?
1. Less than 5000
2. 5000-10,000
3. 10,000-20,000
4. 20,000-50,000

Table 2. Weighted logistic regression results for consumer financial fraud exposure, conditional victimization, and overall victimization

Model	I			II			III		
	(1) Fraud exposure	(2) Conditional victimization	(3) Overall victimization	(4) Fraud exposure	(5) Conditional victimization	(6) Overall victimization	(7) Fraud exposure	(8) Conditional victimization	(9) Overall victimization
Migrant status (Ref.: Urban local residents)									
Urban migrants	1.422** (3.24)	1.421 (1.50)	1.557 (1.90)	1.300* (2.41)	1.401 (0.91)	1.491 (1.17)	1.282* (2.21)	1.227 (0.84)	1.302 (1.09)
Rural migrants	0.982 (-0.25)	1.699*** (3.39)	1.673*** (3.33)	1.097 (2.08)	1.527* (2.21)	1.566** (2.54)	1.201* (2.27)	1.453* (2.32)	1.548* (2.73)
Rural local residents	0.412*** (-20.18)	1.361** (2.69)	0.936 (-0.59)	0.576*** (-11.06)	1.189 (1.31)	0.944 (-0.43)	0.618*** (-9.51)	1.255 (1.72)	1.030 (0.22)
Age group (Ref.: 45-54)									
16-34				1.074 (1.04)	1.066 (0.40)	1.082 (0.50)	1.012 (0.17)	1.028 (0.16)	1.023 (0.13)
35-44				1.000 (0.00)	1.017 (0.12)	1.020 (0.15)	0.980 (-0.09)	1.011 (0.09)	1.015 (0.12)
55-60				0.964 (-0.69)	0.983 (-0.11)	0.943 (-0.39)	0.980 (-0.37)	0.983 (-0.12)	0.958 (-0.28)
Gender (Ref.: Female)									
Male				0.869** (-2.83)	0.821 (-1.67)	0.792* (-1.97)	0.867** (-2.89)	0.816 (-1.72)	0.791* (-1.89)
Education (Ref.: Middle or high school)									
College or higher				1.479*** (3.46)	0.830 (-1.30)	0.890 (-0.81)	1.170* (2.39)	0.790 (-1.64)	0.831 (-1.28)
Less than Middle School				0.638*** (-6.77)	1.369* (2.07)	1.106 (0.69)	0.733*** (-6.03)	1.369* (2.15)	1.140 (0.88)
Household economic condition (logged)									
Total income							1.025** (2.75)	0.866 (-1.63)	0.976 (-1.12)
Asset							1.148*** (9.41)	0.993 (-0.17)	1.046 (1.08)
Debt							0.997 (-0.77)	1.051*** (5.12)	1.047** (4.7)
Region (Ref.: Eastern region)									
West							1.007 (0.13)	0.903 (-0.77)	0.901 (-0.78)
Central							1.139* (2.49)	0.943 (-0.43)	0.996 (-0.03)
Northeast							0.743*** (-4.87)	0.968 (-0.18)	0.858 (-0.88)
Mobility (Ref.: Those who did not move in the last two years)									
Recent movers							0.975 (-0.35)	1.560** (2.73)	1.529* (2.63)
Market engagement									
% food budget spent out of home							1.330** (3.18)	1.309 (1.18)	1.422 (1.59)
Financial knowledge									
Objective financial knowledge (0-6)							1.071*** (3.74)	1.122* (2.42)	1.152* (2.92)
Risk tolerance (Ref.: Low)									
High							1.331*** (4.02)	1.153 (0.82)	1.251 (1.30)
Moderate							1.338*** (6.15)	1.122 (0.89)	1.244 (1.69)
Nonresponse							0.857* (-2.01)	1.605* (2.19)	1.413 (1.60)
Trust									
Trust professionals (0-4)							0.930*** (-4.77)	0.943 (-1.36)	0.920* (-2.00)
Social support (Ref.: Having social support)									
Lack of social support							1.112** (2.63)	1.049 (0.46)	1.086 (0.80)
Health (Ref.: No chronic conditions)									
Chronic conditions							1.292*** (5.68)	1.222 (1.77)	1.337* (2.59)
Pseudo R2	0.0499	0.0106	0.0127	0.0623	0.019	0.0184	0.0709	0.0265	0.0278