

## Online Appendix

for “Mortgage Refinancing and Labor Supply” by Martina Rocchi and Xiao Yin

### I. Survey

#### 项目信息

您被邀请参加一个学术研究项目的调查。请花时间阅读以下信息。如果您想了解更多信息，请随时向我们询问。我们希望通过此项目了解代表性中国家庭的消费和工作行为，尤其是那些有房贷的家庭。本研究重点关注全职或兼职员工的中国消费者。

是否参加由您决定。如果您选择参加此项目，我们希望总共向您发送两份调查问卷。目前的调查应在 3 分钟内完成。此外，我们希望在 6 个月后向您发送一份后续调查问卷，完成时间不超过 3 分钟。

如果您选择参加调查，完成首次调查问卷您将获得 10 元人民币红包，完成第二次调查问卷您将获得 10 元人民币红包。我们恳请您在愿意完成第二次调查问卷的前提下选择参加本次调查。

此次研究与第三方研究机构合作进行。数据将仅用于科学研究目的，不会由本银行进行评估。我们不会以任何形式泄露参与者的个人信息。我们不会在任何程度上根据参与者的个人回答更改我们提供的金融服务类型，包括信用评分、信用额度、存款和贷款利率等。望您能根据您的真实想法回答调查问卷。

请确认您是否愿意参与问卷调查。

是/否

### **Information about this Project**

You are being invited to take a survey for an academic research project. Please take time to read the following information. Ask us if there is anything if you would like more information. We hope to use this project to understand representative Chinese households' consumption and working behaviors, especially those with mortgages. This study focuses on Chinese consumers who are full-time or part-time employees.

It's up to you to you to decide whether or not to take part. If you choose to take part in this project, we would like to send you two surveys in total. The current surveys should take around 3 minutes to complete. In addition, we would like to send you a follow-up survey 6 months later, which should take no more than 3 minutes to complete.

If you choose to take the survey, you will be awarded 10 CNY red pocket for the first surveys, and 10 CNY red pocket for the second survey. We kindly ask you to choose to take this survey only if you are willing to take the second.

This study is in collaboration with third-party research institutions. The data will only be analyzed for scientific research purposes and will not be evaluated by our bank. We will not disclose participants' personal information in any respect. We will not, to any extent, change the types of financial services we provide, including credit scores, credit limits, deposit and borrowing interesting rates, etc., based on the participants' personal answers. We hope you could answer the survey based on your true thoughts.

Please confirm if you would like to participate.

Yes/No

1. What is the total level of your households' wealth?

*Note: wealth includes checking/saving accounts, pensions/retirement, brokerage account, and other assets excluding real estates and cars.*

- a 0
- b 1–2500
- c 2500 – 5000
- d 5000 – 7500
- e 10000 – 25000
- f 25000 – 50000
- g 50000 – 75000
- h 75000 – 100000
- i 100000 – 250000
- j 500000 – 1000000
- k 1000000 – 2500000
- l 2500000 – 5000000
- m > 5000000

2. What is the total level of your households' liquid wealth?

*Note: consider the amount of money-equivalent assets that you can quickly transform to money, and spend if you have an emergent expenditure to pay for within one day.*

- a 0
- b 1–500
- c 500 – 1000
- d 1000 – 2500
- e 2500 – 5000
- f 5000 – 10000
- g 10000 – 25000
- h 25000 – 50000
- i 50000 – 75000
- j 75000–100000
- k 100000 – 250000
- l 250000 – 500000
- m 500000 – 750000
- n 750000 – 1000000
- o 1000000 – 2000000
- p > 2000000

3. How many hours do you usually work on average every week over the past 6 months?

4. How would you rate your level of stress at work?

*From 0 to 100, with 0 being no stress at all, and 100 being very stressful.*

5. How much income did you made over the past 6 months?

*Note: income includes wages, salaries, bonuses, commission, etc., excluding earnings from financial investment.*

6. How much income did you and other family members of your family made over the past 6 months?

*Note: income includes wages, salaries, bonuses, commission, etc., excluding earnings from financial investment.*

7. What was the total expenditure of your family on non-durable goods and services over the past 6 months.

*Note: non-durable goods and services include items that are consumed or used up in a short period such as food and beverages, personal care products, and entertainment services, etc. Do not include spending on durable goods that last for long periods, such as appliances, furniture, or cars.*

8. What was the total expenditure of your family on durable goods and services over the past 6 months.

*Note: durable goods and services include items that last for long periods, such as appliances, furniture, or cars. Do not include spending on non-durable goods or services.*

9. The next question is about the following problem. In questionnaires like ours, sometimes some participants do not carefully read the questions and just quickly click through the survey. This means that there are a lot of random answers which compromise the results of research studies. To show that you read our questions carefully, please type scarlet as your answer to the next question. What is your favorite color?

10. How many days to you go to the office to work.

- a 0 – 1
- b 2 – 3
- c 4 – 5
- d 6 – 7
- e My work type does not require an office

## II. Additional Results

Table 1a: Effects of Refinancing Notice on Economic Outcomes

|                          | (1)                | (2)                      | (3)                       | (4)                         | (5)                         |
|--------------------------|--------------------|--------------------------|---------------------------|-----------------------------|-----------------------------|
|                          | $\Delta \log C$    | $\Delta \log \text{Hrs}$ | $\Delta \log \text{Prod}$ | $\Delta \log \text{IndivY}$ | $\Delta \log \text{HouseY}$ |
| Panel A: ITT             |                    |                          |                           |                             |                             |
| Treatment                | 1.84***<br>(0.44)  | 1.39***<br>(0.47)        | 3.31***<br>(1.09)         | 4.57***<br>(1.11)           | 4.72***<br>(1.10)           |
| Control                  | No                 | No                       | No                        | No                          | No                          |
| N                        | 3491               | 3491                     | 3491                      | 3491                        | 3491                        |
| $R^2$                    | 0.00               | 0.00                     | 0.00                      | 0.00                        | 0.00                        |
| Panel B: 2SLS            |                    |                          |                           |                             |                             |
| $\Delta \log \text{Pay}$ | -0.12***<br>(0.03) | -0.09***<br>(0.03)       | -0.21***<br>(0.07)        | -0.29***<br>(0.07)          | -0.30***<br>(0.07)          |
| First-stage $F$          | 796.46             |                          |                           |                             |                             |
| Control                  | No                 | No                       | No                        | No                          | No                          |
| N                        | 3491               | 3491                     | 3491                      | 3491                        | 3491                        |

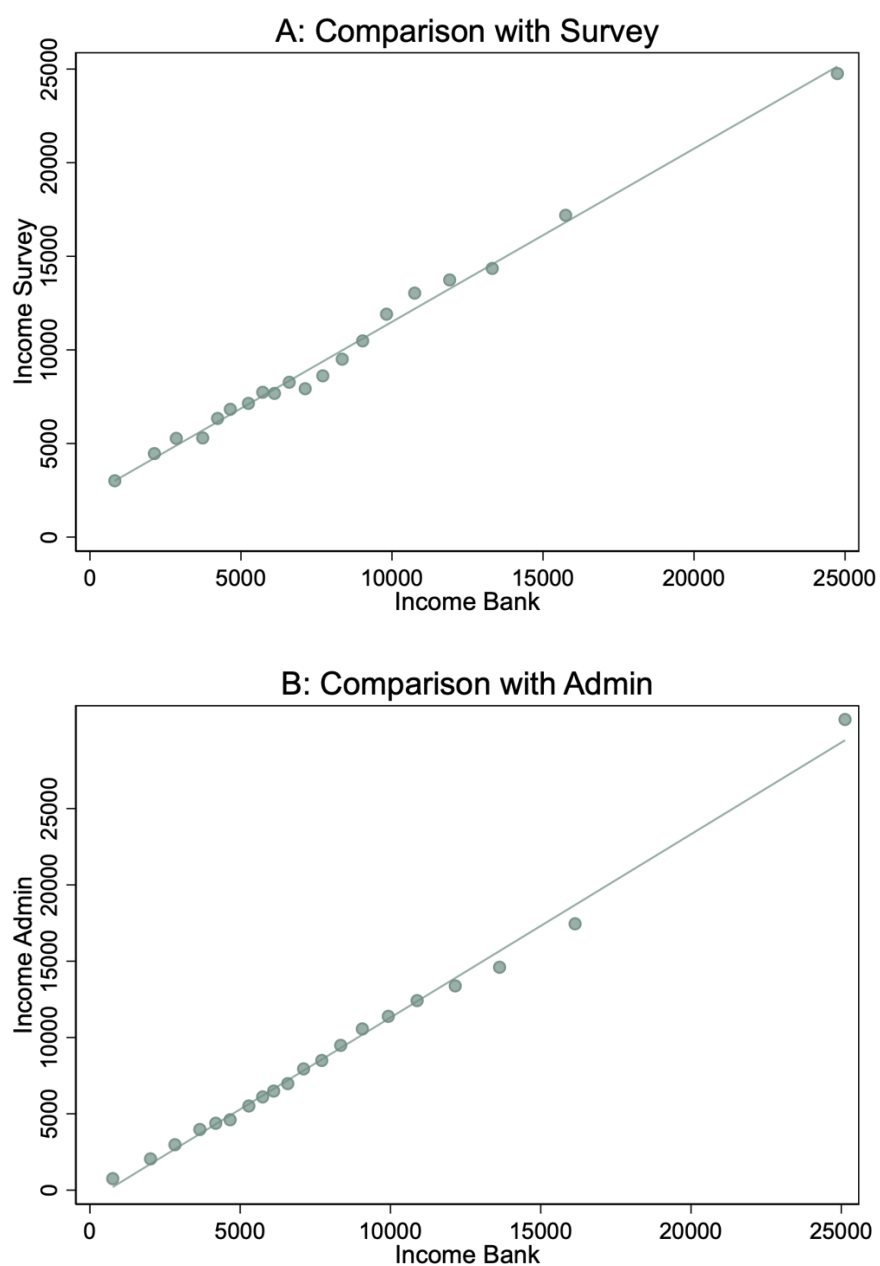
Note: The table reports the Intention-to-Treat (ITT) and IV 2SLS estimates of the effect of an exogenous reduction in monthly mortgage payments.  $\Delta \log C$  is the log changes in monthly consumption excluding payments on mortgage or car loans.  $\Delta \log \text{Hrs}$  is the log changes in weekly working hours.  $\Delta \log \text{IndivY}$  is the log changes in total monthly income, excluding capital gains, at the individual level, while  $\Delta \log \text{HouseY}$ , represent the log changes in total monthly income at the household level.  $\Delta \log \text{Prod}$  is the log changes in labor productivity, which is the ratio between  $\text{IndivY}$  and  $\text{Hrs}$ . Treatment is a dummy that equals to one if the participants received the notice.  $\Delta \log \text{Pay}$  is the log changes in monthly mortgage payments. All variables are winsorized at 1% -99% level. Robust standard errors are in parentheses. \*  $p < 0.10$  \*\*  $p < 0.05$  \*\*\*  $p < 0.01$ .

Table 2a: Effects of Refinancing Notice for Non-Surveyed Sample

|                          | (1)                | (2)                    | (3)                      | (4)                         |
|--------------------------|--------------------|------------------------|--------------------------|-----------------------------|
|                          | $\Delta r$         | $\Delta \text{Pay}$    | $\Delta \log \text{Pay}$ | $\Delta \log \text{IndivY}$ |
| Panel A: ITT             |                    |                        |                          |                             |
| Treatment                | -1.20***<br>(0.05) | -494.96***<br>(41.44)  | -0.16***<br>(0.01)       | 0.05 **<br>(0.02)           |
| Control                  | Yes                | Yes                    | Yes                      | Yes                         |
| N                        | 1449               | 1449                   | 1449                     | 1449                        |
| $R^2$                    | 0.28               | 0.43                   | 0.29                     | 0.02                        |
| Panel B: 2SLS            |                    |                        |                          |                             |
| $\Delta \log \text{Pay}$ | 7.57***<br>(0.16)  | 3123.59***<br>(224.09) | 1.00***<br>(0.00)        | -0.31***<br>(0.12)          |
| First-stage $F$          | 403.13             |                        |                          |                             |
| Control                  | Yes                | Yes                    | Yes                      | Yes                         |
| N                        | 1449               | 1449                   | 1449                     | 1449                        |

Note: The table reports the Intention-to-Treat (ITT) and IV 2SLS estimates of the effect of an exogenous reduction in monthly mortgage payments.  $\Delta r$  represents the change in mortgage APR (Annual Percentage Rate) expressed as a percentage.  $\Delta \text{Pay}$  and  $\Delta \log \text{Pay}$  denote respectively the change and the log change in monthly mortgage payments in CNY.  $\Delta \log \text{IndivY}$  is the log changes in total monthly income, excluding capital gains. Controls are pre-experiment and include gender, age is below median, at least college degree, liquid wealth level, credit limit, debt, and stress level at work. All variables are winsorized at 1% -99% level. Robust standard errors are in parentheses. \*  $p < 0.10$  \*\*  $p < 0.05$  \*\*\*  $p < 0.01$ .

Figure 1a: Comparing Bank Income Data with Survey Answers and Registry-based Income



Note: Panel A presents a binned scatter plot comparing consumer responses to survey question 6 with the income measure calculated by the bank, using transaction-level data and the methodology outlined in Section III of the paper. Panel B compares the income values derived from bank data with those reported by the same consumers to the Chinese tax authority, obtained through a one-to-one match of individual tax identifiers.