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# Household Financial Decision Making Amidst the COVID-19 Pandemic

Pengpeng Yue <sup>a</sup>, Aslihan Gizem Korkmaz <sup>b</sup>, and Haigang Zhou <sup>c</sup>

<sup>a</sup>Department of Finance, Beijing Technology and Business University, Beijing, China; <sup>b</sup>Barowsky School of Business, Dominican University of California, San Rafael, CA, USA; <sup>c</sup>Department of Finance, Cleveland State University, Cleveland, OH, USA

## ABSTRACT

This paper investigates the impact of the COVID-19 pandemic on household investment decisions using a novel survey conducted by the Survey and Research Center for China Household Finance. We use linear probability and probit models to analyze the effects of COVID-19 at the household level. Our results show that households who know someone infected with COVID-19 lose confidence in the economy. They are more likely to change their risk behavior and become risk-averse. Further, COVID-19 increases the probability that a household will change its investment portfolio. More specifically, it causes a 9.15% decrease in the total investment amount.

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G50; I0

## 1. Introduction

The year 2020 has brought unprecedented events since a new coronavirus outbreak (COVID-19) emerged in Wuhan, China, and spread to the rest of the world. Despite countries' efforts to slow the spread of the virus, the pandemic has infected 6,194,533 people and caused 376,320 deaths worldwide as of June 2, 2020.<sup>1</sup> The outbreak has also dramatically impacted global financial markets, creating an environment of uncertainty and volatility. At the time of writing this article, the pandemic is still evolving rapidly. Governments, medical practitioners, and academics are working hard to understand its effects, devise solutions to counteract them, and hopefully learn from this experience.

As the pandemic runs its course, academic literature in this area has also begun to flourish. For example, Corbet, Larkin, and Lucey (2020) document the impact COVID-19 has had on the volatility of both Shanghai and Shenzhen stock exchanges in China and discuss the potential of gold and cryptocurrencies as alternative asset categories to deal with the volatility and achieve diversification. Akhtaruzzaman, Boubaker, and Sensoy (2020) analyze the financial contagion that has occurred

through listed firms between China and G7 countries. Ali, Alam, and Rizvi (2020) investigate the global financial market reaction to the pandemic as its epicenter moved from China to Europe, and the U.S. Zhang, Hu, and Ji (2020) map the general patterns of country-specific and systemic risks in the global financial markets.

While most of this early research has focused on financial markets, this is only one dimension of the pandemic's impact. Goodell (2020) posits that COVID-19 affects economies, financial markets, firm financing and cost of capital and industries such as banking and insurance, governments, and the public. Accordingly, Haroon and Rizvi (2020) and Corbet et al. (2020) focus on a different aspect of the pandemic by studying its psychological effects. In particular, the studies investigate sentiment generated by coronavirus-related news and reputational based contagion, that is the impact of the coronavirus outbreak on companies related to the term "corona", respectively. Additionally, Apergis and Apergis (2020), Fu and Shen (2020), Gil-Alana and Monge (2020), Liu, Wang, and Lee (2020), and Narayan (2020) examine the pandemic's impact on the energy industry to contribute to our understanding of this global phenomenon. Our paper contributes to this literature by analyzing COVID-19's effects at the household level and shows how households' investment portfolios changed in response to COVID-19 using a novel survey conducted by the Survey and Research Center for China Household Finance.

Studying the impact of a negative shock, such as a global pandemic at the micro level, is important because households are the key players in the economic system. Their perceptions and corresponding actions determine the extent of an outbreak's impact. Thus, we need more research in this area to attain a complete understanding of the household behavioral response to rare events.

Dietrich et al. (2020) and Knotek et al. (2020) present the results of a real-time survey conducted by Dietrich et al. (2020) of American households to inform policymakers and researchers about consumers' beliefs during the COVID-19 outbreak. Although they make significant contributions to the literature by presenting results from the U.S., our study contributes to the literature by presenting results from China, where the outbreak initiated.

According to the Centers for Disease Control and Prevention, the first confirmed case of COVID-19 in the U.S. came on January 21, 2020. According to the World Health Organization timeline, the novel coronavirus was identified on December 31, 2019.<sup>2</sup> But the South China Morning Post reported that the first confirmed case in China can be traced back to November 17, 2019.<sup>3</sup> The survey by Dietrich et al. (2020) started March 10, 2020.<sup>4</sup> The survey used in our paper started February 12, 2020. On one hand, both surveys have similarities that

offer grounds for comparisons between the beliefs and expectations of American and Chinese households in an effort to offer a complete picture of the impact of a worldwide pandemic, but on the other hand, the survey used in our study differs in several ways that strengthen the contribution of this study. Namely, the survey used in this study has detailed information on Chinese households, and we are able to merge this data with the latest data from the China Household Finance Survey conducted in 2019 to perform a more in-depth analysis. Additionally, Dietrich et al. (2020) and Knotek et al. (2020) posit that the extent of the outbreak was not clear in the U.S. when the survey began because there were only about 1,000 confirmed cases. But according to the Johns Hopkins University & Medicine Coronavirus Resource Center, there were 44,759 confirmed cases in China when the survey began. So, our final dataset offers more detailed insight as to the impact of a pandemic on households to better enable policymakers to design policies that respond to negative shocks.

We use linear probability and probit models to examine how COVID-19 affects household behavior. Our results show that the COVID-19 pandemic causes households to lose confidence in the economy and change their risk preference. More specifically, they become risk averse. Accordingly, they change the composition of their financial portfolios. While households continue to hold financial assets, they decrease the total amount invested.

This paper contributes to the newly emerging branch of literature concerning the impact of a large-scale pandemic on finance by being the first to provide empirical evidence on household financial decision making during COVID-19.

## **2. Research Methods**

### **2.1. Data and Variables**

#### **2.1.1. Data**

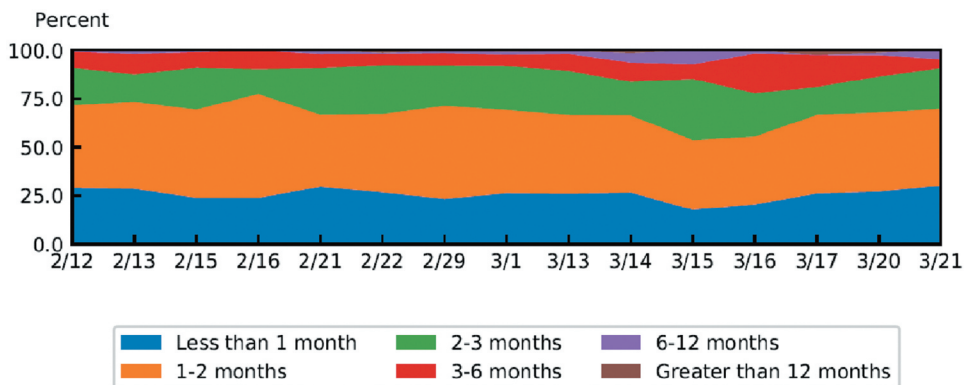
This study uses a novel dataset based on the results of a recent survey conducted by the Survey and Research Center for China Household Finance. The survey was conducted in two consecutive periods with different households. The total number of responses from the two periods is equal to 3,553. 88% of this total sample consists of people who were surveyed during the last wave of the China Household Finance Survey (CHFS) in 2019.<sup>5</sup> After we merge these two datasets and drop missing values, the total sample includes 2,595 households. The U.S. survey discussed in Dietrich et al. (2020) and Knotek et al. (2020) included 3,954 responses.

Using the survey data for China, we employ figures similar to Knotek et al. (2020) and Dietrich et al. (2020) to compare American and Chinese households. Knotek et al. (2020) posit that the U.S. survey obtains 50 to 208 survey responses daily. Thus, for a daily average to be included in our figures, we require at least 50 survey responses. Accordingly, daily intervals on the horizontal axes vary. On the other hand, we use all responses in our regression analyses. Figure 1 depicts Chinese household expectations for the duration of the COVID-19 outbreak. Nearly 42% of households expected the outbreak to last one to two months. On February 12, 2020, 99.38% of the households expected a less than six-month duration. This number dropped to 95.34% on March 21, 2020.

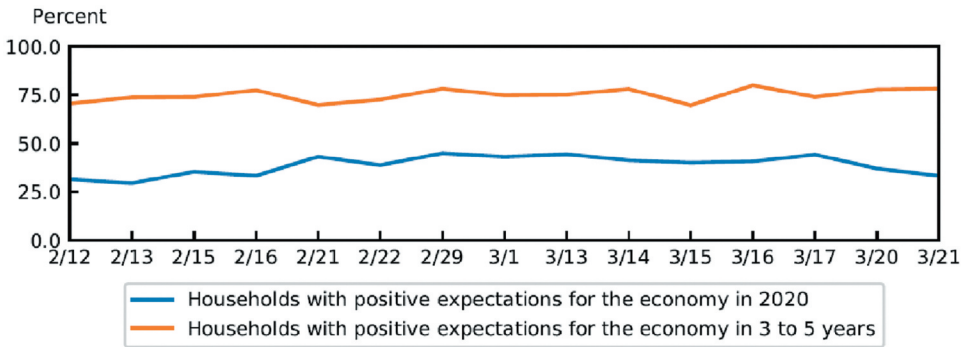
Knotek et al. (2020) report that more than half of American households expected the outbreak to last less than six months, but this number dropped to about 33% in April 2020.

Figure 2 portrays Chinese household expectations for the economy. About 39% of households have a positive or very positive outlook on China's economy this year. This number increases to 74.91% of households for the three to five-year period. Knotek et al. (2020) and Dietrich et al. (2020) document that U.S. households expect higher inflation and a decline in GDP growth over the one year period starting from the day the survey is conducted.

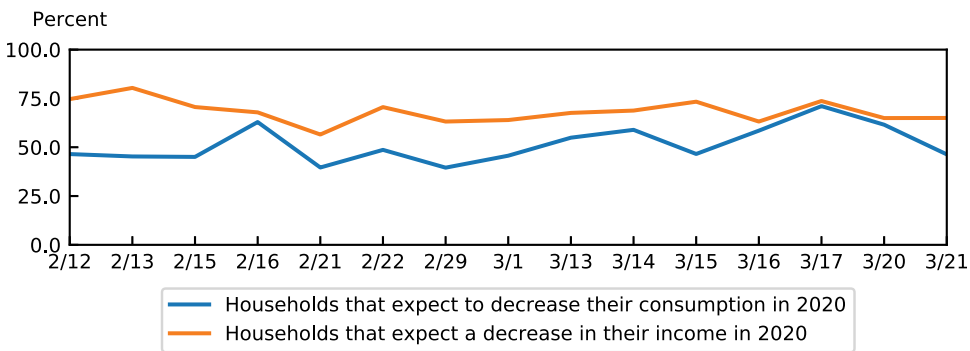
Next, we investigate the income and consumption expectations of Chinese households for 2020 compared to 2019. Figure 3 shows that, on average, 68.28% expect a decrease in their income. The highest percentage of negative expectations occurred on February 13, 2020, with 80.39% of households expecting a decrease in their income. Yet, this number falls to 65% on March 21, 2020. Dietrich et al. (2020) also show a negative expectation, with U.S. households becoming less pessimistic toward April 1, 2020. About 51.40%



**Figure 1.** Expected duration of the coronavirus outbreak. This figure is created by using household responses to the survey question on the expected duration of the COVID-19 outbreak. The vertical axis shows the percentages of daily averages, and the horizontal axis shows the survey days with at least 50 responses.



**Figure 2.** Household expectations for Chinese economy. This figure is created by using household responses to the survey question on household opinions about the Chinese economy in the short term, that is, the current year 2020, and in the long term, that is in 3 to 5 years. The vertical axis shows the percentages of daily averages, and the horizontal axis shows the survey days with at least 50 responses.



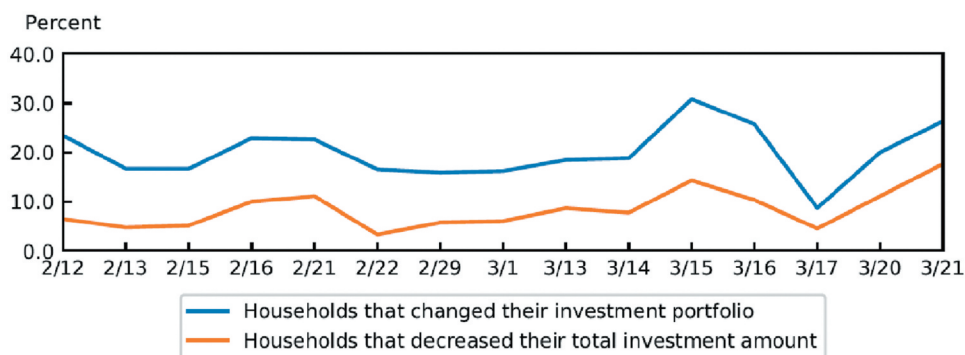
**Figure 3.** Household income and consumption expectations. This figure is created by using household responses to the survey question on income and consumption expectations of Chinese households for 2020 in comparison to the previous year 2019. The vertical axis shows the percentages of daily averages, and the horizontal axis shows the survey days with at least 50 responses.

of households expected to decrease their consumption. Dietrich et al. (2020) report that 70% of American households refrained from planning larger purchases.

Finally, we focus on household financial decision making in Figure 4. During our sample period, 19.97% of households changed their investment portfolio due to the COVID-19 outbreak and 8.47% of households decreased their total investment amount. Dietrich et al. (2020) report that 61% of American households changed their financial planning due to the outbreak.

### 2.1.2. Variables

Our first variable of interest is *COVID-19*, a dummy variable, which takes the value of 1 if the respondent has a family member, colleague, fellow



**Figure 4.** Household financial behavior. This figure is created by using household responses to the survey question on whether the household has or will change their investment portfolio due to the pandemic. The vertical axis shows the percentages of daily averages, and the horizontal axis shows the survey days with at least 50 responses.

student, friend, or acquaintance in the same community or village who has the virus. Next, we create two dummy variables to analyze household expectations of the economy in the short term, 2020, and in the long term, three to five-years.  $ST\_Econ\_Confidence_i$  and  $LT\_Econ\_Confidence_i$  are dummy variables that take the value of 1 if the respondent has a very positive or positive outlook. The variables take the value of 0 if the respondent expects the economic growth to remain the same as the current year or has a negative or very negative outlook. Then, we create two dummy variables to study the impact of the pandemic on household risk behavior. The first variable  $Risk\_Behavior\_Chg_i$  takes the value of 1 if the respondent chooses one of the four investment alternatives due to the pandemic: high risk & high return, average risk & average return, low risk & low return, avoid risk altogether. The variable takes the value of 0 if the respondent's choice of investment alternative is not influenced by the pandemic. The second variable  $Risk\_Seeking_i$  takes the value of 1 if the respondent chooses high risk & high return investment alternatives. Finally, we create two dummy variables to investigate the impact of COVID-19 on household financial decision making. The first variable  $Inv\_Portfolio\_Chg_i$  takes the value of 1 if the respondent changes the portfolio composition or the total amount invested. The variable takes the value of 0 if the respondent keeps her portfolio the same. The second variable  $Investment_i$  takes the value of 1 if the respondent maintains the same portfolio and 0 if she decreases the total investment amount. Figure 4 shows that 19.97% of households changed their investment portfolio due to COVID-19, and 8.47% of households decreased their total investment amount. Dietrich et al. (2020) report that 61% of U.S. households changed their financial planning due to the outbreak.

Following the household financial decision making and household welfare literature, we control for gender (e.g., Atella, Brunetti, and Maestas 2012; Gao, Liu, and Shi 2020; Heimer, Myrseth, and Schoenle 2019), age (e.g., Atella, Brunetti, and Maestas 2012; Berkowitz and Qiu 2006; Cardak and Wilkins 2009; Gao, Liu, and Shi 2020; Heimer, Myrseth, and Schoenle 2019; Rosen and Wu 2004), education (e.g., Atella, Brunetti, and Maestas 2012; Berkowitz and Qiu 2006; Cardak and Wilkins 2009; Gallagher and Hartley 2017; Gao, Liu, and Shi 2020; Heimer, Myrseth, and Schoenle 2019; Rosen and Wu 2004), marital status (e.g., Atella, Brunetti, and Maestas 2012), health status (e.g., Atella, Brunetti, and Maestas 2012; Berkowitz and Qiu 2006; Cardak and Wilkins 2009; Rosen and Wu 2004) government employment status (e.g., Gao, Liu, and Shi 2020), children (e.g., Cardak and Wilkins 2009; Rosen and Wu 2004), self-employment status (e.g. Cardak and Wilkins 2009; Gao, Liu, and Shi 2020), home ownership (e.g., Cardak and Wilkins 2009; Gao, Liu, and Shi 2020), family size (e.g., Atella, Brunetti, and Maestas 2012; Gao, Liu, and Shi 2020), whether the household has more than one working member (e.g. Cardak and Wilkins 2009; Gao, Liu, and Shi 2020), wealth (e.g., Atella, Brunetti, and Maestas 2012; Cardak and Wilkins 2009; Gao, Liu, and Shi 2020; Rosen and Wu 2004), income (e.g., Atella, Brunetti, and Maestas 2012; Berkowitz and Qiu 2006; Cardak and Wilkins 2009; Gallagher and Hartley 2017; Gao, Liu, and Shi 2020; Heimer, Myrseth, and Schoenle 2019; Rosen and Wu 2004), and rural residence (e.g., Karim 2018). Additionally, since the survey was conducted in two consecutive periods, we also include a dummy variable to control for the period.

**Table 1.** Summary statistics.

Variables	Obs	Mean/%	Std.	Min	Max
COVID-19	2,595	2.31%		0	1
ST_Econ_Confidence	2,171	40.21%		0	1
LT_Econ_Confidence	2,294	75.24%		0	1
Risk_Behavior_Chg	847	68.71%		0	1
Risk_Seeking	847	2.60%		0	1
Inv_Portfolio_Chg	1,249	18.73%		0	1
Investment	1,031	92.43%		0	1
Age	2,595	46.23	13.13	18	84
Education	2,595	12.51	3.67	0	22
Married	2,595	83.01%		0	1
Male	2,595	57.42%		0	1
Health	2,595	52.60%		0	1
Self_Employed	2,595	9.06%		0	1
Gov_Employee	2,595	7.36%		0	1
Multiple_Workers	2,595	62.50%		0	1
Children	2,595	38.54%		0	1
Family_Size	2,595	3.26	1.35	1	15
Homeowner	2,595	92.10%		0	1
ln(Netwealth)	2,595	1,458,524.10	1,998,225.72	1	9,548,500.00
ln(Income)	2,595	177,586.47	141,415.50	1	663,017.30
Rural	2,595	32.52%		0	1
Period	2,595	1.40	0.49	1	2

This table details the summary statistics. The table presents the percentages for categorical variables and means for continuous variables.



Table 1 presents summary statistics. A typical household consists of three members with 1,458,524 yuans of net wealth and 177,586 yuans of total household income.

## 2.2. Models

Caudill (1988) discusses the advantages of using the linear probability model (LPM), a special case of the ordinary least squares (OLS) regression method over logit and probit models. Similarly, Angrist (2001), and Angrist and Pischke (2008) give examples of research questions where the use of an LPM model is appropriate. Deke (2014) and Dovì (2019) use LPM models to estimate binary outcomes. Thus, we follow prior literature and use LPM models in our main analyses. In several tests, we also use probit models. In LPM models,  $X_i$  represents the vector of controls, and  $\mu_i$  is the error term.

Using Equations (1a), (1b), (2a), and (2b), we investigate how the COVID-19 outbreak affects Chinese households' outlook on the economy.

$$ST\_Econ\_Confidence_i = \alpha + \beta COVID - 19_i + X_i\gamma + \mu_i \quad (1a)$$

$$Prob(ST\_Econ\_Confidence_i = 1|X_i) = Prob(\alpha + \beta COVID - 19_i + X_i\gamma > 0|X_i) \quad (1b)$$

$$LT\_Econ\_Confidence_i = \alpha + \beta COVID - 19_i + X_i\gamma + \mu_i \quad (2a)$$

$$Prob(LT\_Econ\_Confidence_i = 1|X_i) = Prob(\alpha + \beta COVID - 19_i + X_i\gamma > 0|X_i) \quad (2b)$$

We use Equations (3) and (4) to study the impact of the COVID-19 outbreak on households' risk behavior.

$$Risk\_Behavior\_Chg_i = \alpha + \beta COVID - 19_i + X_i\gamma + \mu_i \quad (3)$$

$$Risk\_Seeking_i = \alpha + \beta COVID - 19_i + X_i\gamma + \mu_i \quad (4)$$

Using Equations (5a), (5b), (6a), and (6b), we study the impact of the COVID-19 outbreak on households' financial decision making.

$$Inv\_Portfolio\_Chg_i = \alpha + \beta COVID - 19_i + X_i\gamma + \mu_i \quad (5a)$$

$$Prob(Inv\_Portfolio\_Chg_i = 1|X_i) = Prob(\alpha + \beta COVID - 19_i + X_i\gamma > 0|X_i) \quad (5b)$$

$$Investment_i = \alpha + \beta COVID - 19_i + X_i\gamma + \mu_i \quad (6a)$$

$$Prob(Investment_i = 1|X_i) = Prob(\alpha + \beta COVID - 19_i + X_i\gamma > 0|X_i) \quad (6b)$$

### 3. Results

#### 3.1. Confidence in the Economy

Table 2 presents the results using Equations (1a), (1b), (2a), and (2b). In all columns, having a family member, colleague, fellow student, friend, or acquaintance in the same community or village who has COVID-19 has a negative impact on a household's outlook on the economy. However, these results are only significant for long-term expectations. In Columns (3) and (4), knowing someone with the virus decreases long-term confidence in the economy by 13.46% and 13.07%, respectively.

**Table 2.** Household confidence in the economy.

	Short-term Confidence		Long-term Confidence	
	(1) LPM	(2) Probit	(3) LPM	(4) Probit
COVID-19	-0.0507 (0.0663)	-0.0545 (0.0716)	-0.1346** (0.0660)	-0.1307** (0.0572)
Age	-0.0055 (0.0056)	-0.0053 (0.0057)	-0.0096** (0.0047)	-0.0114** (0.0051)
Age_sq/100	0.0119** (0.0059)	0.0116* (0.0060)	0.0146*** (0.0048)	0.0170*** (0.0055)
Education	-0.0039 (0.0035)	-0.0041 (0.0036)	-0.0018 (0.0029)	-0.0016 (0.0030)
Married	-0.0318 (0.0352)	-0.0317 (0.0364)	-0.0148 (0.0309)	-0.0157 (0.0312)
Male	-0.0413* (0.0217)	-0.0422* (0.0222)	-0.0309* (0.0186)	-0.0312* (0.0187)
Health	0.0231 (0.0218)	0.0245 (0.0225)	0.0071 (0.0191)	0.0064 (0.0190)
Self_Employed	-0.0490 (0.0364)	-0.0529 (0.0393)	0.0119 (0.0332)	0.0136 (0.0318)
Gov_Employee	0.0905** (0.0421)	0.0926** (0.0422)	0.1012*** (0.0329)	0.1099*** (0.0374)
Multiple_Workers	-0.0075 (0.0264)	-0.0082 (0.0269)	0.0083 (0.0223)	0.0095 (0.0220)
Children	-0.0184 (0.0272)	-0.0204 (0.0281)	0.0129 (0.0237)	0.0173 (0.0234)
Family_Size	0.0176* (0.0104)	0.0184* (0.0105)	0.0036 (0.0085)	0.0035 (0.0087)
Homeowner	-0.0498 (0.0434)	-0.0509 (0.0439)	0.0452 (0.0358)	0.0471 (0.0358)
ln(Netwealth)	-0.0087 (0.0053)	-0.0090* (0.0053)	-0.0115*** (0.0038)	-0.0126*** (0.0048)
ln(Income)	-0.0025 (0.0080)	-0.0026 (0.0081)	0.0083 (0.0076)	0.0079 (0.0068)
Rural	-0.0115 (0.0231)	-0.0122 (0.0238)	0.0074 (0.0199)	0.0084 (0.0199)
Prov	Yes	Yes	Yes	Yes
Period	Yes	Yes	Yes	Yes
N	2,171	2,171	2,294	2,294
Adj. R-sq/Pseudo R-sq	0.0268	0.0355	0.0161	0.0334

This table shows how COVID-19 outbreak affects household confidence in the economy in the current year 2020, and in the next 3 to 5 year period. \*\*\* indicates significance at the 1% level, \*\* at the 5% level, and \* at the 10% level.

### 3.2. Household Risk Behavior

In Table 3, we use Equations (3) and (4). Column (1) shows that knowing someone infected with COVID-19 changes a household's risk preference. The possibility that households will change their risk preference is 21.51%. In Column (2), the negative coefficient of the COVID-19 outbreak indicates that the possibility of becoming risk seeking will decrease by 3.19%.

### 3.3. Household Portfolio Decisions

In Table 4, we use Equations (5a), (5b), (6a), and (6b). Columns (1) and (2) show that knowing someone who has COVID-19 increases the probability of

**Table 3.** Household risk behavior.

	Risk Behavior Change		Risk-Seeking	
	(1) LPM		(2) LPM	
COVID-19	0.2151***	(0.0629)	-0.0319*	(0.0168)
Age	0.0152*	(0.0086)	0.0049	(0.0030)
Age_sq/100	-0.0200**	(0.0091)	-0.0049	(0.0031)
Education	-0.0089*	(0.0054)	0.0025	(0.0019)
Married	-0.0166	(0.0556)	-0.0491**	(0.0249)
Male	0.0144	(0.0330)	0.0043	(0.0110)
Health	-0.0165	(0.0330)	0.0200*	(0.0104)
Self_Employed	0.0509	(0.0549)	-0.0240	(0.0158)
Gov_Employee	-0.0863	(0.0728)	-0.0292	(0.0187)
Multiple_Workers	-0.0484	(0.0410)	0.0056	(0.0141)
Children	-0.0183	(0.0425)	0.0100	(0.0163)
Family_Size	0.0173	(0.0152)	0.0127	(0.0089)
Homeowner	-0.0671	(0.0616)	0.0169*	(0.0093)
ln(Netwealth)	0.0173**	(0.0075)	0.0029**	(0.0012)
ln(Income)	0.0044	(0.0111)	-0.0072	(0.0060)
Rural	-0.0214	(0.0344)	-0.0062	(0.0106)
Prov	Yes		Yes	
Period	Yes		Yes	
N	847		847	
Adj. R-sq/Pseudo R-sq	0.0449		0.0065	

This table shows the relationship between COVID-19 outbreak and household risk behavior. \*\*\* indicates significance at the 1% level, \*\* at the 5% level, and \* at the 10% level.

**Table 4.** Household portfolio change.

	Investment Portfolio Change		Investment	
	(1) LPM	(2) Probit	(3) LPM	(4) Probit
COVID-19	0.1912** (0.0919)	0.1603** (0.0641)	-0.1565* (0.0853)	-0.0915** (0.0356)
Age	-0.0011 (0.0057)	0.0017 (0.0058)	-0.0018 (0.0041)	-0.0031 (0.0037)
Age_sq/100	-0.0012 (0.0057)	-0.0043 (0.0061)	0.0030 (0.0041)	0.0045 (0.0041)
Education	0.0061 (0.0038)	0.0066* (0.0040)	-0.0012 (0.0030)	-0.0017 (0.0026)
Married	-0.0416 (0.0429)	-0.0486 (0.0386)	0.0351 (0.0348)	0.0339 (0.0255)
Male	-0.0336 (0.0228)	-0.0367* (0.0220)	0.0071 (0.0166)	0.0072 (0.0132)
Health	-0.0377* (0.0226)	-0.0385* (0.0224)	0.0046 (0.0162)	0.0057 (0.0130)
Self_Employed	0.1636*** (0.0504)	0.1363*** (0.0375)	-0.1703*** (0.0465)	-0.0929*** (0.0204)
Gov_Employee	-0.0085 (0.0424)	-0.0088 (0.0396)	0.0359 (0.0270)	0.0313 (0.0264)
Multiple_Workers	0.0165 (0.0281)	0.0183 (0.0280)	-0.0126 (0.0207)	-0.0109 (0.0171)
Children	0.0372 (0.0301)	0.0392 (0.0278)	-0.0025 (0.0227)	-0.0058 (0.0162)
Family_Size	-0.0073 (0.0116)	-0.0063 (0.0111)	-0.0015 (0.0085)	-0.0012 (0.0062)
Homeowner	0.0028 (0.0475)	0.0009 (0.0459)	-0.0165 (0.0296)	-0.0136 (0.0270)
ln(Netwealth)	0.0005 (0.0074)	0.0012 (0.0073)	-0.0041 (0.0063)	-0.0027 (0.0067)
ln(Income)	0.0015 (0.0093)	0.0004 (0.0096)	-0.0028 (0.0073)	-0.0024 (0.0072)
Rural	-0.0060 (0.0255)	-0.0071 (0.0238)	0.0043 (0.0197)	0.0003 (0.0138)
Prov	Yes	Yes	Yes	Yes
Period	Yes	Yes	Yes	Yes
N	1,249	1,249	1,031	1,031
Adj. R-sq/Pseudo R-sq	0.0348	0.0732	0.0450	0.0877

This table shows the impact of the COVID-19 outbreak on household financial decision making. \*\*\* indicates significance at the 1% level, \*\* at the 5% level, and \* at the 10% level.

changing portfolios by 19.12% and 16.03%, respectively. In Columns (3) and (4), the coefficient of COVID-19 shows that knowing someone with COVID-19 causes a 15.65% and 9.15% decrease in the total amount invested.

#### 4. Robustness Tests

Tables 5 and 6 report the results of our robustness tests using Equations (5a), (5b), (6a) and (6b). In these tests, we exclude households older than 65, and households with already poor health from our sample and reinvestigate household portfolios. The results of these tests are similar to our main results.

**Table 5.** Robustness test: excluding households older than 65.

	Investment Portfolio Change		Investment	
	(1) LPM	(2) Probit	(3) LPM	(4) Probit
COVID-19	0.1987** (0.0976)	0.1708** (0.0707)	-0.1356 (0.0856)	-0.0768* (0.0403)
Age	-0.0016 (0.0078)	0.0003 (0.0077)	-0.0066 (0.0056)	-0.0086 (0.0053)
Age_sq/100	-0.0009 (0.0086)	-0.0032 (0.0089)	0.0093 (0.0062)	0.0120* (0.0063)
Education	0.0073* (0.0042)	0.0075* (0.0044)	-0.0010 (0.0033)	-0.0016 (0.0029)
Married	-0.0252 (0.0455)	-0.0299 (0.0420)	0.0275 (0.0371)	0.0257 (0.0286)
Male	-0.0344 (0.0243)	-0.0375 (0.0237)	0.0040 (0.0177)	0.0042 (0.0148)
Health	-0.0368 (0.0242)	-0.0372 (0.0240)	0.0033 (0.0176)	0.0007 (0.0146)
Self_Employed	0.1746*** (0.0520)	0.1484*** (0.0395)	-0.1749*** (0.0482)	-0.0998*** (0.0222)
Gov_Employee	-0.0027 (0.0434)	-0.0030 (0.0415)	0.0318 (0.0279)	0.0282 (0.0288)
Multiple_Workers	0.0159 (0.0301)	0.0206 (0.0300)	-0.0067 (0.0223)	-0.0076 (0.0193)
Children	0.0353 (0.0314)	0.0378 (0.0298)	0.0042 (0.0235)	0.0047 (0.0182)
Family_Size	-0.0098 (0.0123)	-0.0092 (0.0120)	0.0010 (0.0090)	0.0013 (0.0072)
Homeowner	-0.0088 (0.0505)	-0.0114 (0.0488)	-0.0154 (0.0324)	-0.0146 (0.0310)
ln(Netwealth)	0.0001 (0.0078)	0.0007 (0.0078)	-0.0034 (0.0066)	-0.0019 (0.0069)
ln(Income)	-0.0001 (0.0106)	-0.0015 (0.0102)	-0.0017 (0.0085)	-0.0007 (0.0073)
Rural	-0.0039 (0.0271)	-0.0060 (0.0254)	-0.0013 (0.0214)	-0.0056 (0.0154)
Prov	Yes	Yes	Yes	Yes
Period	Yes	Yes	Yes	Yes
N	1,133	1,133	926	896
Adj. R-sq/Pseudo R-sq	0.0337	0.0735	0.0473	0.139

This table shows the impact of the COVID-19 outbreak on household financial decision making after excluding households older than 65. \*\*\* indicates significance at the 1% level, \*\* at the 5% level, and \* at the 10% level.

## 5. Conclusion

This paper uses a new survey conducted by the Survey and Research Center for China Household Finance between February 12, 2020, and March 22, 2020. Combining this survey with the 2019 wave of the China Household Finance Survey, we investigate the impact of COVID-19 on household financial decision making. COVID-19 changes households' outlook on the economy. The households who lose confidence in the economy are more likely to change their risk preference to risk averse. The probability that a household will change its investment portfolio is 16.03%. Namely, having a family member, colleague, fellow student, friend, or acquaintance in the same community or village with COVID-19 causes a 9.15% decrease in the total investment amount.

**Table 6.** Robustness test: excluding households with already poor health.

	Investment Portfolio Change		Investment	
	(1) LPM	(2) Probit	(3) LPM	(4) Probit
COVID-19	0.1725 (0.1169)	0.1367* (0.0776)	-0.1418 (0.1060)	-0.1009** (0.0489)
Age	-0.0100 (0.0074)	-0.0059 (0.0075)	0.0095** (0.0046)	0.0082* (0.0044)
Age_sq/100	0.0066 (0.0075)	0.0021 (0.0081)	-0.0077* (0.0046)	-0.0062 (0.0050)
Education	0.0106* (0.0054)	0.0111* (0.0058)	-0.0039 (0.0041)	-0.0039 (0.0034)
Married	0.0567 (0.0604)	0.0379 (0.0555)	-0.0539 (0.0466)	-0.0415 (0.0418)
Male	-0.0108 (0.0316)	-0.0180 (0.0292)	-0.0173 (0.0230)	-0.0099 (0.0184)
Self_Employed	0.1617** (0.0662)	0.1374*** (0.0490)	-0.2035*** (0.0602)	-0.1206*** (0.0280)
Gov_Employee	0.0027 (0.0546)	0.0108 (0.0490)	0.0595* (0.0330)	0.0676* (0.0381)
Multiple_Workers	-0.0016 (0.0385)	-0.0031 (0.0376)	-0.0439 (0.0292)	-0.0411 (0.0262)
Children	0.0588 (0.0399)	0.0544 (0.0362)	-0.0217 (0.0312)	-0.0205 (0.0237)
Family_Size	-0.0250 (0.0157)	-0.0195 (0.0158)	0.0203 (0.0125)	0.0140 (0.0112)
Homeowner	-0.0071 (0.0649)	-0.0287 (0.0648)	-0.0218 (0.0364)	-0.0312 (0.0543)
ln(Netwealth)	0.0075 (0.0077)	0.0157 (0.0139)	-0.0066 (0.0062)	-0.0071 (0.0091)
ln(Income)	-0.0063 (0.0140)	-0.0080 (0.0114)	0.0054 (0.0114)	0.0039 (0.0061)
Rural	-0.0074 (0.0338)	-0.0100 (0.0314)	-0.0087 (0.0264)	-0.0132 (0.0191)
Prov	Yes	Yes	Yes	Yes
Period	Yes	Yes	Yes	Yes
N	696	696	584	523
Adj. R-sq/Pseudo R-sq	0.0285	0.0969	0.0587	0.192

This table shows the impact of the COVID-19 outbreak on household financial decision making after excluding households with already poor health. \*\*\* indicates significance at the 1% level, \*\* at the 5% level, and \* at the 10% level.

## Notes

1. Accessed on June 2, 2020. <https://covid19.who.int>
2. Accessed on May 6, 2020. <https://www.who.int/news-room/detail/27-04-2020-who-timeline—covid-19>
3. Accessed on May 6, 2020. <https://www.scmp.com/news/china/society/article/3074991/coronaviru-chinas-first-confirmed-covid-19-case-traced-back>
4. Accessed on May 6, 2020. <https://www.cdc.gov/mmwr/volumes/69/wr/mm6918e2.htm>
5. Survey and Research Center for China Household Finance. China Household Finance Survey. <https://chfs.swufe.edu.cn/>

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## ORCID

Pengpeng Yue  <http://orcid.org/0000-0002-5210-4309>

Aslihan Gizem Korkmaz  <http://orcid.org/0000-0002-9151-0692>

Haigang Zhou  <http://orcid.org/0000-0002-8201-5032>

## References

- Akhtaruzzaman, M. D., S. Boubaker, and A. Sensoy. 2020. Financial contagion during COVID-19 crisis. *Finance Research Letters* 101604. doi:10.1016/j.frl.2020.101604.
- Ali, M., N. Alam, and S. A. R. Rizvi. 2020. Coronavirus (COVID-19) – An epidemic or pandemic for financial markets. *Journal of Behavioral and Experimental Finance* 27:100341. doi:10.1016/j.jbef.2020.100341.
- Angrist, J. D. 2001. Estimation of limited dependent variable models with dummy endogenous regressors: Simple strategies for empirical practice. *Journal of Business & Economic Statistics* 19 (1):2–28. doi:10.1198/07350010152472571.
- Angrist, J. D., and J. S. Pischke. 2008. *Mostly harmless econometrics: An empiricist's companion*. Princeton, NJ: Princeton University Press.
- Apergis, N., and E. Apergis. 2020. Can the COVID-19 pandemic and oil prices drive the US Partisan conflict index. *Energy Research Letters*, 1 (1), 13144. doi:10.46557/001c.13144.
- Atella, V., M. Brunetti, and N. Maestas. 2012. Household portfolio choices, health status and health care systems: A cross-country analysis based on share. *Journal of Banking & Finance* 36 (5):1320–35. doi:10.1016/j.jbankfin.2011.11.025.
- Berkowitz, M. K., and J. Qiu. 2006. A further look at household portfolio choice and health status. *Journal of Banking & Finance* 30 (4):1201–17. doi:10.1016/j.jbankfin.2005.05.006.
- Cardak, B. A., and R. Wilkins. 2009. The determinants of household risky asset holdings: Australian evidence on background risk and other factors. *Journal of Banking & Finance* 33 (5):850–60. doi:10.1016/j.jbankfin.2008.09.021.
- Caudill, S. B. 1988. Practitioners corner: An advantage of the linear probability model over probit or logit. *Oxford Bulletin of Economics and Statistics* 50 (4):425–27. doi:10.1111/j.1468-0084.1988.mp50004005.x.
- Corbet, S., C. Larkin, and B. Lucey. 2020. The contagion effects of the COVID-19 pandemic: Evidence from gold and cryptocurrencies. *Finance Research Letters* 101554. doi:10.1016/j.frl.2020.101554.
- Corbet, S., Y. Hou, Y. Hu, B. Lucey, and L. Oxley. 2020. Aye Corona! The contagion effects of being named Corona during the COVID-19 Pandemic. *Finance Research Letters* 101591. doi:10.1016/j.frl.2020.101591.
- Deke, J. 2014. Using the linear probability model to estimate impacts on binary outcomes in randomized controlled trials. *Working paper*.
- Dietrich, A., K. Keuster, G. J. Muller, and R. Schoenle. 2020. News and uncertainty about Covid-19: Survey evidence and short-run economic impact. *Working paper*.
- Dovi, M. S. 2019. Does higher language proficiency decrease the probability of unemployment? Evidence from China. *China Economic Review* 54:1–11. doi:10.1016/j.chieco.2018.09.009.
- Fu, M., and H. Shen. 2020. COVID-19 and corporate performance in the energy industry. *Energy Research Letters*, 1 (1), 12967. doi:10.46557/001c.12967.
- Gallagher, J., and D. Hartley. 2017. Household finance after a natural disaster: The case of hurricane Katrina. *American Economic Journal: Economic Policy* 9:199–228.
- Gao, M., Y. J. Liu, and Y. Shi. 2020. Do people feel less at risk? Evidence from disaster experience. *Journal of Financial Economics*, in press. doi:doi:10.1016/j.jfineco.2020.06.010.

- Gil-Alana, L. A., and M. Monge. 2020. Crude oil prices and COVID-19: Persistence of the shock. *Energy Research Letters*, 1 (1), 13200. doi:10.46557/001c.13200.
- Goodell, J. W. 2020. COVID-19 and finance: Agendas for future research. *Finance Research Letters* 101512. doi:10.1016/j.frl.2020.101512.
- Haroon, O., and S. A. R. Rizvi. 2020. COVID-19: Media coverage and financial markets behavior – A sectoral inquiry. *Journal of Behavioral and Experimental Finance* 27:100343. doi:10.1016/j.jbef.2020.100343.
- Heimer, R. Z., K. O. R. Myrseth, and R. S. Schoenle. 2019. Yolo: Mortality beliefs and household finance puzzles. *The Journal of Finance* 74 (6):2957–96. doi:10.1111/jofi.12828.
- Karim, A. 2018. The household response to persistent natural disasters: Evidence from Bangladesh. *World Development* 103:40–59. doi:10.1016/j.worlddev.2017.10.026.
- Knotek, E. S., II, R. Schoenle, A. M. Dietrich, K. Kuester, G. J. Muller, K. O. R. Myrseth, and M. Weber. 2020. Consumers and Covid-19: A real-time survey. *Economic Commentary* (Federal Reserve Bank of Cleveland). doi:10.26509/frbc-ec-202008.
- Liu, L., E.-Z. Wang, and C. C. Lee. 2020. Impact of the COVID-19 pandemic on the crude oil and stock markets in the US: A time-varying analysis. *Energy Research Letters*, 1 (1), 13154. doi:10.46557/001c.13154.
- Narayan, P. K. 2020. Oil price news and COVID-19—is there any connection? *Energy Research Letters*, 1 (1), 13176. doi:10.46557/001c.13176.
- Rosen, H. S., and S. Wu. 2004. Portfolio choice and health status. *Journal of Financial Economics* 72 (3):457–84. doi:10.1016/S0304-405X(03)00178-8.
- Survey and Research Center for China Household Finance. *China household finance survey*. <http://www.chfsdata.org/>.
- Zhang, D., M. Hu, and Q. Ji. 2020. Financial market under the global pandemic of COVID-19. *Finance Research Letters* 101528. doi:10.1016/j.frl.2020.101528.