Rebuilding or Retreating:

The Impact of Natural Disasters on Entrepreneurship

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Abstract

Using a large-scale longitudinal survey of Chinese households, we study how natural disaster affects household's entrepreneurial choices. We find that households in disaster-affected cities are less likely to be entrepreneurs. The effects are more pronounced in households with weaker intra-household risk-sharing, in regions with a lower bank credit supply, and in households facing high uncertainties regarding career prospects. Overall, the results suggest that a natural disaster amplifies household members' risk aversion, discouraging entrepreneurship.

1. Introduction

Entrepreneurship is crucial for economic growth, job creation, and wealth equality (Schumpeter, 1934, Decker, Haltiwanger, Jarmin, and Miranda, 2014; Herranz, Krasa, and Villamil, 2015). A vast literature has focused on the determinants of individual entrepreneurial decisions. For example, previous studies show that liquidity constraints, personal wealth, government regulation, tax policy, and banking systems significantly affect entrepreneurial entry barriers (e.g., Evans and Jovanovic, 1989; Gentry and Hubbard, 2000; Hurst and Lusardi, 2004; Klapper et al., 2006; Cagetti and de Nardi, 2006; Aghion et al., 2007; Manso 2011). This paper investigates whether and how disasters alter households' risk preferences and make a difference in their entrepreneurial activities and outcomes.

Natural disasters have become more frequent and widespread globally (Thomas and López, 2013), and there is burgeoning literature investigating their economic effects (e.g., Barone and Mocetti, 2014). For example, between 1989 and 2018, natural disasters in China caused 195,820 deaths and direct physical losses of approximately 1.6% of China's GDP compared to 0.57% lost to natural disasters in the U.S and 0.5–1.00% globally (Stern, 2007; Nordhaus, 2010; Zyck, 2013; Feyen et al., 2020). Tackling the economic fallout from natural disasters is a significant issue as it can have knock-on effects on a wide range of economic decisions. Moreover, climate change, a causative factor for the more frequent natural disasters (Webster et al., 2005), inflicts social and economic losses disproportionately on vulnerable populations and motivates policymakers, business owners, and individuals to draw up contingency plans and responses to minimize its impact. We focus on how natural disasters affect households' entrepreneurial activities and outcomes. Using large-scale household-level longitudinal Chinese data we investigate these significant and timely issues of the economic fallout of natural disasters. In this study, we propose

to add to prior work by investigating the role of personal experience in shaping individual risk attitudes and entrepreneurial choices. Answering these questions using evidence from one of the most significant emerging markets can have policy implications and demonstrate the increased resilience of institutions developed through increasingly frequent experiences with such disasters.

A priori, it is uncertain how experiencing a natural disaster affects entrepreneurship within households. On the one hand, families affected by a natural disaster might pursue entrepreneurship, seeking greater risk in an attempt to compensate for their losses and recover from the disaster's impact. Conversely, households impacted by a natural disaster may experience cognitive biases when faced with risky decisions. As a result, experiencing a natural disaster might alter such households' risk preferences, leading them to avoid entrepreneurship. The experimental perspective on entrepreneurship suggests that risk preference, or tolerance for failure, is a key driver in deciding to pursue entrepreneurship (e.g. Kanbur (1979); Kihlstrom and Laffont (1979); Hvide and Panos (2014); Manso (2016); Dillon and Stanton (2017)), and it is dynamic, changing in response to major external life events (Chetty and Szeidl (2007); Kettlewell (2019)). Therefore, the way in which experiencing a natural disaster influences household-level risk preference and its subsequent impact on household labor market decisions remains an empirical question that this paper seeks to address.

Using large-scale longitudinal household data, we examine the relation between China's natural disaster and entrepreneurial choices. First, we find that households in provinces more affected by natural disasters have a 4.5 percent lower likelihood of having a household member who works as an entrepreneur (i.e., a person who reports to be self-employed) relative to families in less affected provinces. The natural disaster had a statistically and economically significant effect on reducing entrepreneurship.

We conduct multiple robustness tests to validate our findings on the impact of natural disasters on entrepreneurship. First, we use alternative definitions of entrepreneurship and show that in disaster-affected provinces, the likelihood of households having a serious entrepreneurial member decreased. We also examine occupational changes, revealing both a decline in becoming entrepreneurs and an increase in quitting entrepreneurship in affected households. Additionally, a robustness check using propensity score matching confirmed that the decrease in entrepreneurship is directly attributable to the disaster, reinforcing the main findings.

Our baseline results indicate that experiencing a natural disaster shifts household members' risk preferences to a degree that discourages entrepreneurship. We propose several channels through which this change in risk preference significantly influences entrepreneurial choices: intra-household risk sharing, uncertainty about career prospects and local credit supply channels.

First, the intra-household risk-sharing channel suggests that major life events, such as experiencing a natural disaster, can intensify biases in risk preferences when risks are not collectively managed within the household. We investigate this channel by examining the impact of income source diversity on household-level entrepreneurship in the context of experiencing a natural disaster. Our findings indicate that households with either a fewer number of income earners or a high concentration of income within a few members are less likely to engage in entrepreneurial activities after experiencing a natural disaster compared to families with more evenly distributed income. This suggests that risk sharing among family members plays an essential role in household-level entrepreneurial decisions in the aftermath of a natural disaster.

For the second channel, we argue that the relative benefit of entrepreneurship decreases due to uncertainty about career risk in the aftermath of a natural disaster, while the benefit of being employed does not decrease significantly. Households with different risk tolerances will perceive

this uncertainty differently. Risk-seeking households may see uncertainty as an entrepreneurial opportunity, while risk-averse households view it as a deterrent. We investigate this hypothesis by analyzing the industry risk associated with the household members' occupation and the impact of natural disasters on entrepreneurial decisions. We measure industry riskiness based on the average survival rate of firms in a given industry over the next two subsequent years. We find that, in provinces more affected by natural disasters, families with a household head in a risky industry are less likely to engage in entrepreneurship. Hence, when there is more uncertainty about career prospects post-disaster, families tend to prefer stable employment over entrepreneurial ventures.

Lastly, we examine the influence of local banks' post-disaster lending activities in affected areas on the relationship between natural disasters and entrepreneurial activity. We merge the banking data from Bankscope with disaster information from EM-DAT, calculating province-year level aggregate bank data based on their headquarters locations, following the method of Bermpei, Kalyvas, and Leonida (2021). We then explore whether a reduction in credit from local lenders amplifies the negative effects of natural disasters on entrepreneurial activity by using subsamples based on local bank credit and performance. We find that natural disasters lead to a decrease in entrepreneurial activities in provinces with lower bank loan growth or poorer bank performance. Notably, households affected by natural disasters experience a 5.3 percent drop in the likelihood of having an entrepreneurial member if local bank loan growth is below the sample's median. These findings highlight the critical role of bank credit supply in exacerbating the adverse effects of natural disasters on entrepreneurial endeavors.

This paper significantly contributes to the literature on the economic impacts of natural disasters on household outcomes (e.g., Sawada and Shimizutani (2008); Hsueh (2019); Cho and Bharath (2023)). For example, Hsueh (2019) examines the impact of household social capital on

post-disaster recovery in Japan, demonstrating that strong community ties and networks significantly aided households in their recovery process after disasters. Recently, Cho and Bharath (2023) document that natural disaster experiences lead households to adopt more risk-averse investment strategies, persistently avoiding stock market participation and riskier assets even after relocating to safer areas. We extend this literature to explore the under-investigated effects of natural disasters on household labor market decisions and entrepreneurship as the real impact of natural disasters. Our finding provides important implications for post-disaster government interventions on labor market and innovation dynamics.

Moreover, the paper extends behavioral economics literature by examining life events and family interactions as determinants of risk preferences (e.g., Lindquist et al. (2013); Roussanov and Savor (2014); Alan and Ertac (2017); Black et al. (2017); Cronqvist and Yu (2017); Becker and Shabani (2018); Liu et al. (2023)) For example, being single (Roussanov and Savor, 2014) and experiencing the loss of family members (Liu et al., 2023) have been shown to impact managers' risk-taking behaviors in investments. Additionally, Alan and Ertac (2017) and Lindquist et al. (2013) underscore the influence of parental attitudes, especially in entrepreneurship and women's financial behavior, demonstrating that risk tolerance can be inherited or molded by family experiences and values. By showing that natural disasters are a crucial factor influencing household risk preferences and subsequent entrepreneurial decisions and by exploring the mechanisms of how these events interact with household risk management and bank credit supply, this paper broadens our understanding of how such events shape economic and social behaviors.

The structure of the paper is as follows. In Section 2, we provide detailed information about the longitudinal survey data of households in China. In Section 3, we present empirical tests. In Section 4, we discuss potential channels. We conclude in Section 5.

2. Data

We obtain natural disaster data from the Emergency Events Database (EM-DAT), which includes over 22,000 major disaster events globally since 1900.[1] EM-DAT provides the damage and location of all kinds of disasters (e.g., earthquake, storm, flood, wildfire, epidemic), and we measure city-level disaster intensity based on the total number of natural disasters that substantially damage a city, i.e., the estimated economic damages are above 1 billion U.S. dollars. For entrepreneurial data, we obtain longitudinal household datasets from China Family Panel Studies (CFPS) from 2012-2018, designed and surveyed bi-annually by the Institute of Social Science Survey (ISSS). This dataset contains rich household-level information, including self-employed or not, sources of family incomes, family size, type of property ownership, asset size, occupation industry, etc. We aim to explore how disasters influence household entrepreneurship, focusing on an underlying mechanism based on altered risk attitudes. We merge our household-level data with province-level macro data from the National Bureau of Statistics of China. As a result, our final dataset includes 44,110 household-year observations for 13,180 unique households, covering 26 provinces in China over the period from 2012 to 2018. Additionally, we incorporate data from China's Yearbook, which provides province-level metrics such as total GDP, GDP growth rates, unemployment rates, and population growth rates, especially in the context of how natural disasters affect these household dynamics. We provide more comprehensive variable definitions and CFPS database descriptions in Appendices A and B.

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[1] EM-DAT database (http://emdat.be/) is constructed by the Centre of Research on the Epidemiology of Disasters (CRED) at the Universite Catholique de Louvain in Brussels, Belgium under the support of WHO and Belgium government. (Horvath, 2021). Any disaster event which meets one of the following criteria is recorded in the EM-DAT: 1) The disaster event caused ten or more people deaths, 2) The disaster event caused 100 or more people affected/ injured/ homeless, 3) Declaration by the country of a state of emergency and/ or an appeal for international assistance.

Table 2 presents summary statistics of our main dataset consisting of 44,110 household-year observations, corresponding to 26 provinces over our sample period of 8 years. Reflecting the impact of natural disasters, as indicated by the number of residents in each household, we observe that many families have been affected by these events.[2] A household in our sample experiences, on average, 1.05 disasters every two years with an estimated 142 lives lost and an economic loss of 4.5 billion USD per disaster, highlighting both the prevalence of natural disasters and their substantial economic impacts. *Entrepreneurship* is an indicator variable set to 1 if a household includes a member who reports being self-employed. With the mean likelihood of having an entrepreneurial member at 0.10, it appears that most families opt to work as wage earners.

3. Empirical Results

3.1. Empirical specification

We aim to establish the effect of the natural disaster on entrepreneurial choices. More specifically, we estimate the following specifications:

$$Entrepreneur_{i,j,t} = \alpha_0 + \alpha_1\ Disaster\ Intensity_{j,t} + \beta X_{i,j,t} + \delta_i + \theta_j + \eta_t + \varepsilon_{i,j,t}$$

where *i* represents the household, *j* represents the province, and *t* represents the year. The dependent variable, *Entrepreneur_{i,j,t}*, is an indicator variable that is set to one if a household *i* in province *j* has a family member who is self-employed in year *t*, and zero otherwise. Our key independent variable, *Disaster Intensity_{j,t}* represents the province-level disaster intensity in year *t*. Given that the survey is conducted biennially, this is measured as the average number of disasters over the past two years that had a substantial economic impact, specifically those where the

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[2] The number of natural disasters has been steadily becoming more frequent (Celil et al. (2022)). The number of natural disasters in China, with estimated economic damages of over 100 million U.S. dollars, also demonstrates an increasing trend.

estimated economic damages exceeded 1 billion U.S. dollars. $X_{i,j,t}$ comprises a set of control variables, including household-level factors that might influence entrepreneurial decisions. These factors include household financial conditions, such as housing mortgage loans, net equity house value, family expenditure, government subsidy, and household demographic conditions, including family size, number of children, marital status, education level, and an urban indicator based on the Census Bureau's definition. Additionally, we include province-level controls, such as total provincial GDP, GDP growth rate, unemployment rate, and population growth rate.

Although our regression model includes numerous control variables, analyzing the effects of natural disasters on entrepreneurial activities is challenging due to endogeneity issues. There is a concern of potential endogeneity, as households' decisions to engage in entrepreneurial activities may correlate with their region's proneness to disasters, especially in areas with under-exploited economic opportunities. This correlation could create a bias toward a negative relationship between natural disasters and entrepreneurship. Additionally, as shown in Panel A of Table 1, locations where disasters recur tend to be geographically concentrated, suggesting potential sources of endogeneity. Ideally, to test this, we would compare the entrepreneurial activities of two households that are similar in all observable and unobservable aspects but have experienced differing numbers of disasters.

To mitigate endogeneity concerns, we include household fixed effects (δ_i) in all specifications and utilize within-household variation of entrepreneurial choices to estimate the economic impact of disasters. The identifying assumption is that any household-level unobservable factors, which might simultaneously affect households' entrepreneurial choices and their experiences with disasters, are relatively time-invariant. These household fixed effects can capture any household-specific, time-invariant, unobservable characteristics (e.g., family

tradition). We also include province-fixed effects (θ_j) and year-fixed effects (η_t) to control for unobserved, time-invariant province-level factors (such as industry composition) and common time trends.

To further mitigate the selection issue, we use a propensity score matching (PSM) approach, in which we match treatment households with control households that are similar in many observable aspects and have a similar predicted probability of experiencing natural disasters. By identifying matched households that differ only in the actual incidence of a natural disaster, we aim to address concerns related to omitted variables, such as unobservable economic conditions, disaster proneness, or industry differences across provinces, which could confound our results. We provide a detailed PSM analysis in Section 3.2.

Table 2 presents the baseline estimates of the impact of natural disasters on household entrepreneurship. All specifications include province and year-fixed effects to control for any economic shocks in the provinces. Columns (1)–(2), both without and with controls, report similar estimates for the coefficient on *Disaster Intensity*, significant at the 5 percent level. Our findings remain robust in Columns (3) and (4), even after including household fixed effects. These results suggest that household entrepreneurship significantly decreases following disasters compared to pre-disaster years. In Column (2), a one-standard-deviation increase in *Disaster Intensity* leads to a 4.5 percent decrease in entrepreneurial activity (= 0.006 × 0.75/0.10) or a 0.45 percentage point decrease in such activity (= 0.006 × 0.75). Considering the average and standard deviation of entrepreneurial activity at 10 percent and 30 percent, respectively, the 0.45 percentage point decrease represents a significant drop in entrepreneurship.[3] Our empirical evidence suggests that

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[3] Among the control variables, family size is significantly and positively associated with an increase in entrepreneurial activities, indicating that, after accounting for the independent effect of the natural disaster, larger families tend to support more entrepreneurial ventures. We will analyze the role of intra-household risk sharing as a mechanism in Section 4.1.

the need to maintain a stable income source to manage the aftermath of the disaster outweighs the drive to seek higher financial returns through entrepreneurship. Overall, these results suggest that in response to the unexpected shock of natural disasters, entrepreneurial activities decrease.

3.2. Robustness Checks

In addition to our main results, we conducted various robustness tests to ensure that our findings remain statistically significant across different specifications.

First, in Table 4, we employ alternative definitions of entrepreneurship, focusing on serious entrepreneurs who contribute a substantial portion of labor income to their families, as opposed to those engaged in small, short-term projects. In Columns (1) and (2), we redefine our outcome variable to include whether a family has a member who is self-employed and generates positive business income from their entrepreneurial activities. Our findings indicate that families in provinces more affected by natural disasters show a decrease of 2.2-3.7 percent in the likelihood of having an entrepreneurial member, according to this revised definition, compared to similar families in less affected provinces. In Columns (3) and (4), we further refine the outcome variable to assess whether a family has an entrepreneur who earns at least 20% of the total family income. Here, we observe that affected families experience a greater reduction in the likelihood of having an entrepreneurial member by 3-4.5 percent, based on this new definition, compared to unaffected families. These results suggest that the effects of disaster response policies remain significantly negative on serious entrepreneurship, reinforcing our initial findings.

Second, in Table 5, we separately examine the effects of natural disasters on the direction of occupational changes: becoming an entrepreneur and quitting entrepreneurship. In Columns (1) and (2), the dependent variable, Δ*Entrepreneur (Becoming Entrepreneur)*, is set to one if the

household did not include any self-employed family member in the previous survey but starts a business in the current survey. In Columns (3) and (4), the dependent variable, Δ*Entrepreneur (Becoming Non-entrepreneur)*, is set to one if the household included an entrepreneur in the previous survey but quit entrepreneurial activities in the current survey. We find that households experiencing natural disasters show both a decrease in becoming entrepreneurs and an increase in quitting entrepreneurial activities. The statistical and economic significance of these estimates are similar to those in Table 3. This finding suggests that policy interventions should not only promote new entrepreneurial ventures but also support existing entrepreneurs in disaster-stricken areas. Such policies could include financial aid and business resilience training to address the multifaceted challenges faced by entrepreneurs post-disaster. Fostering a supportive ecosystem for entrepreneurship, especially in vulnerable regions, is crucial for sustaining economic growth and community resilience in the face of natural disasters.

Third, we conducted a robustness check by matching the characteristics of our treatment group, which consists of households living in provinces more affected by the natural disaster, with those of our control group, comprising households in provinces less affected by the disaster, using the nearest neighbor propensity score matching technique. If our results hold in such a sample of matched households, then it reinforces our interpretation that the observed decrease in entrepreneurship is attributable to the disaster rather than to alternative explanations. To construct the matched sample, we first divided households based on *Disaster Intensity* and defined the treatment and control groups. Specifically, households that experienced greater disaster intensity in the previous two years than the sample median were included in the treatment group (i.e., *High Disaster Intensity*=1), while the rest were included in the control group (i.e., *High Disaster Intensity*=0). We then estimate the probability of a household being affected by the disaster using

the household-level controls presented in Table 3 with province and year matching, as well as province-level characteristics. Utilizing this predicted probability, we match a household from the affected area with a control household in the same year that has the closest propensity score, without replacement, using a caliper of 0.01. In Panel A of Table 6, we compare pre-disaster conditions between the treated and control groups and confirm that the mean values of the matching variables in the pre-disaster period are not significantly different between the two groups. Table 6 Panel B presents robust results: we find that households in disaster-affected provinces experience a significant decline in the likelihood of having an entrepreneurial member, compared to households in non-affected provinces. Importantly, the magnitude of the effect on entrepreneurial choice for the matched sample is quite comparable to that observed in the main sample in Table 3. Therefore, by focusing on affected households and their comparable control households, our results cannot be attributed to differences in household characteristics across provinces.

4. Mechanisms and Alternative Explanations

4.1. Intra-household Risk Sharing

The first channel involves risk sharing at the household level: we propose that being an entrepreneur may become more challenging in response to natural disasters if the risk is not adequately shared within households. To explore this, we examine whether the effects are more pronounced in households whose labor income sources are not well-diversified. Specifically, we divide the sample into subsamples based on income concentration, as shown in Columns (1) and (2). Households are classified under the *High Income Concentration* subsample if the maximum income ratio to the total family income exceeds 80%. Similarly, in Columns (3) and (4), we

categorize the sample based on the number of income earners, identifying families as having a *High Number of Income Earners* if more than one member earns positive labor income. We then test whether households with greater income concentration or a limited number of income earners can maintain their risk preference level for engaging in entrepreneurial activities following a natural disaster.

Table 7 shows that entrepreneurial activities decreased only for households with higher income concentration and fewer members contributing to household income in areas affected by the disaster. The economic magnitudes are double those of the baseline results in Table 3. In Column (1), households with higher income concentration in provinces more affected by the natural disaster show a decrease of 9.7 percent in the likelihood of having an entrepreneurial member. In contrast, households with low-income concentration, which implies better risk sharing within the family, did not exhibit any differential entrepreneurial choices after experiencing a natural disaster. This suggests that the lack of intra-household risk sharing plays a vital role in amplifying the negative effects of natural disasters.

These results concerning risk-sharing within a family align with findings in the literature on intra-household risk-sharing in labor markets. Specifically, Ortigueira and Siassi (2013) discovered that the labor supply increases for one spouse if the other spouse becomes unemployed, particularly among families with low levels of wealth. Similarly, Shore (2010) identified counter-cyclical risk-sharing benefits of marriage due to diversified labor income risks, which can be particularly relevant in situations of economic instability triggered by natural disasters. Additionally, Wang (2019) documented an added-worker effect, where a worker's job search intensity increases upon their spouse's unemployment, a situation that can be common after a disaster. In this context, our research contributes to the understanding that entrepreneurship

represents another dimension of labor market choices where family member risk-sharing is crucial, especially in the aftermath of natural disasters.

4.2. Bank Credit Supply

As a second channel, we examine how post-disaster lending activities of local banks in affected areas influence the relationship between natural disasters and entrepreneurial activity. We utilize banking data from Bankscope, a widely recognized source of bank balance sheet information in existing literature. Following the data processing methods of Thibaut and Mathias (2015), we obtain data on Chinese banks, comprising 1,328 bank-years (236 unique banks) from 2012 to 2018. This dataset specifically excludes special-purpose banks like central and investment banks, as well as micro-financing institutions, focusing mainly on commercial banks (1,282 bank-years, 228 unique banks), cooperative banks (33 bank-years, 6 unique banks), and savings banks (13 bank-years, 2 unique banks). We integrated this bank data with disaster data from EM-DAT, calculating province-year level bank data based on the headquarters locations of the banks, a method similar to that used by Bermpei, Kalyvas, and Leonida (2021) in their loan trend analysis. Our hypothesis posits that a reduction in credit from local lenders exacerbates the negative impact of natural disasters on entrepreneurial activity.

We merge the bank data and disaster data from EM-DAT by calculating the province-year level bank data based on the headquarters location of banks following Bermpei, Kalyvas, and Leonida (2021), who follow a similar strategy in investigating loan trends. We examine our hypothesis that the reduction in credit from local lenders will amplify the negative effect of natural disasters on entrepreneurial activity. In exploring a second channel, our study investigates how the post-disaster lending activities of local banks in affected areas influence the relationship between

natural disasters and entrepreneurial activity. We utilized banking data from Bankscope, a widely recognized source of bank balance sheet information in existing literature. Following the data processing methods of Thibaut and Mathias (2015), we compiled data on Chinese banks, comprising 1,328 bank-years (236 unique banks) from 2012 to 2018.

Table 8 provides the results from the OLS regression analyses testing the impact of disaster intensity on household entrepreneurial choices, with a focus on subsamples based on local bank credit and performance. We analyze subsamples of households in Columns (1) and (2) based on bank loan growth, and in Columns (3) and (4) based on the bank performance, measured by bank ROA. The results are consistent with our hypothesis, indicating that natural disasters lead to a decrease in entrepreneurial activities only in households located in provinces with lower bank loan growth or poorer bank performance. Specifically, Column (1) shows that households impacted by natural disasters experience a 5.3 percent drop in the likelihood of having an entrepreneurial member if the growth in local bank loans is below the sample's median. Conversely, Column (2) indicates that households in provinces with high loan growth do not exhibit a significant decrease in entrepreneurial activity post-disaster. This pattern is further supported by the results in Columns (3) and (4), which indicate a notable decline in entrepreneurial activities following a disaster only in areas where local bank performance is below the sample median. These findings underscore the crucial role of bank credit supply in exacerbating the adverse effects of natural disasters on entrepreneurial endeavors.

4.3. Career Uncertainty

The next channel proposes that the relative benefit of being an entrepreneur compared to being employed decreases significantly in the aftermath of a natural disaster if there is higher uncertainty

in household-level career prospects. Household-level career prospects involve the combined income levels of all working household members and the potential for future income growth based on career advancements. This also includes the likelihood of continued employment for all working members, considering factors like job security in their respective fields and the impact of economic fluctuations. High uncertainty in career prospects can be either a positive or negative factor, depending on the household's risk tolerance. Risk-seeking households may view high uncertainty as an opportunity for entrepreneurship (i.e., high real option value of experimentation), while risk-averse households might see it as a deterrent. For this channel, we test whether households respond differently to natural disasters when they face varying degrees of uncertainty in their career prospects. To measure uncertainty in career prospects, following the approach of Gottlieb et al. (2022), we calculate the income-weighted average of the industry failure rates for the occupations of household members for that year based on the two-digit NAICS codes. The industry-specific failure rate in a given year is obtained from Bureau van Dijk's Orbis database and is calculated by the proportion of Chinese firms that survive over the next two years.

Table 9 presents the results. Columns (1)-(2) show that entrepreneurial activities decreased only for households working in industries with higher failure rates (above the median industry failure rate) among families affected by natural disasters. Hence, the risk aversion of entrepreneurs relative to wage earners amplifies in the face of potential disaster when they work in an industry with a high chance of failure, leading to a lower likelihood of entrepreneurship.

5. Conclusion

Our study, utilizing extensive datasets from EM-DAT, China Family Panel Studies (CFPS), and various other sources, provides a comprehensive analysis of the impact of natural disasters on

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household entrepreneurship in China from 2012 to 2018. The data encompasses 44,110 household-year observations across 26 provinces, offering a unique perspective on how natural disasters influence entrepreneurial decisions at the household level. The key finding of our research is the significant decrease in entrepreneurial activities following natural disasters. This trend is evidenced by the decrease in households with self-employed members post-disaster, as shown in our empirical results. Our study reveals that the stability and predictability offered by wage employment often outweigh the potential high returns of entrepreneurship in the wake of such uncertain and disruptive events.

We explored several channels through which natural disasters impact entrepreneurship. First, intra-household risk sharing emerged as a critical factor. Households with higher income concentration and fewer income earners were more negatively impacted in their entrepreneurial activities post-disaster. This finding underscores the importance of diversified income sources within households for maintaining entrepreneurial ventures during times of crisis. Second, the availability of bank credit was another significant factor. Our analysis showed that households in provinces with lower bank loan growth or poorer bank performance experienced a more pronounced decrease in entrepreneurial activities following disasters. This highlights the role of financial institutions in providing the necessary support to sustain and grow entrepreneurial ventures, especially in times of crisis. Third, the channel of career uncertainty played a crucial role. Households working in industries with higher failure rates showed a considerable decrease in entrepreneurial activities when faced with natural disasters. This suggests that risk aversion intensifies in uncertain times, especially in sectors with a higher likelihood of failure.

Our research contributes to the understanding of entrepreneurship in the context of natural disasters. It highlights the importance of stable income sources, diversified income strategies, the

role of financial institutions, and the need to consider industry-specific risks when making entrepreneurial decisions. Additionally, our findings have policy implications. They suggest that support for entrepreneurship in disaster-stricken areas should not only focus on promoting new ventures but also on supporting existing small businesses through financial aid and resilience training. This approach could foster a more robust entrepreneurial ecosystem capable of withstanding the challenges posed by natural disasters. In conclusion, while natural disasters present significant challenges to entrepreneurship, understanding the various channels through which they impact household-level entrepreneurial decisions can help in formulating effective policies and support mechanisms. Such efforts can enhance the resilience and adaptability of entrepreneurs, contributing to sustainable economic growth and community development in the face of adversity.

Appendix A. Variable definition

This appendix provides detailed descriptions of all of the independent variables used in the tables.

Variable	Definition
Entrepreneur (indicator)	An indicator variable that equals one if a surveyed respondent's household includes an entrepreneurial member who reports to be self-employed in a given year
Disaster Intensity	Province-level disaster intensity, measured as the average number of disasters in the past two years with a substantial economic impact, i.e., when the estimated economic damages are above 1 billion U.S. dollars
Log (1+Mortgage)	Log of the value of a mortgage in case a surveyed household has a mortgage
Log (House Ownership Value)	Log of the value of a house in case a surveyed household owns a house, i.e., Log (1+Home Value*1(Home Ownership))
Log (1+Gov Subsidy)	Log of the value of the sum of any government subsidies a surveyed household has received, including minimum living allowance, subsidy for low-income families, reforestation subsidy, agricultural subsidy, work injury subsidy, and disaster relief
Urban (indicator)	An indicator variable that equals one if a surveyed household's residence is in an urban area and equal to zero if the residence is in a rural area
Log (Family Members)	Log of the total number of family members in a surveyed household
Log (1+Number of Children)	Log of the total number of family members in a surveyed household below age 5
Log (1+Family Expenditure)	Log of the value of the family's total expenditure, including daily expenses (clothing, food, housing, transportation), education, medical care, cultural entertainment, and gifts for social relations
Marital Status (indicator)	An indicator variable that equals one if a surveyed household has any family member who is aged over 20 and married
High Education (indicator)	An indicator variable that equals one if the highest degree of education attained by any member of a surveyed household is beyond high school
GDP Growth Rate (%)	Yearly GDP growth rate at the province level
Log (Province GDP)	Log of the yearly total GDP value at the provincial level
Unemployment Rate (%)	Unemployment rate in a given year at the province level
Population Growth Rate	Yearly population growth rate at the province level

Appendix B. Database Description for China Family Panel Studies

The China Family Panel Studies (CFPS), a longitudinal survey conducted by the Institute of Social Science Survey at Peking University, is funded by the Chinese government. Its primary objective is to accumulate data on Chinese communities, families, and individuals, encompassing both economic and non-economic facets of their lives.

Initiated in 2010 and conducted biennially, the CFPS monitors longitudinal changes in areas such as economic activities, educational outcomes, family structures, health, and social interactions. The survey covers a broad geographic spectrum, including both urban and rural areas across various Chinese provinces, thus providing a comprehensive overview of the experiences of Chinese citizens. In the baseline survey of 2010, approximately 15,000 families and 30,000 individuals were interviewed, yielding a response rate of about 79%. These respondents are subject to annual follow-up surveys, ensuring continuous data collection and depth.

The initial survey stage involved oversampling in five provinces, targeting 1,600 families in each, to enable regional comparisons. The larger sample, comprising 8,000 families from other provinces, was designed to ensure national representation through a weighted approach. The 2010 baseline survey employed a multi-stage probability sampling method with implicit stratification, aimed at cost-effectiveness and the examination of social contexts. This sampling involved three stages: county, village, and household. The CFPS uses computer-assisted personal interviewing (CAPI) technology from the University of Michigan's Survey Research Center, facilitating the creation of detailed and individualized interview schedules, thus reducing measurement errors and allowing for meticulous quality control in the field.

Data collection methods in the CFPS include face-to-face interviews, self-administered questionnaires, and some web-based surveys, enabling a diverse approach to data collection and encompassing various dimensions of life in China. A distinctive feature of the CFPS is its comprehensive coverage: all individuals over the age of 9 in sampled households are interviewed and regarded as core members of the study, with children included in this group. Core members remain in the study until their death, with annual follow-ups conducted for all.

The data from the CFPS is utilized by researchers and policymakers to analyze various dimensions of Chinese society, including family structure dynamics, income inequality, social mobility, demographic shifts, health, and education. The survey's findings contribute valuable

insights into the changing dynamics of Chinese society and are instrumental in informing policy decisions and academic research.

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Table 1. Annual Average Intensity of Natural Disaster By Province

The table presents the annual average intensity of natural disasters by province for the sample period from 2012 to 2018. Natural disasters include geophysical (e.g., earthquake), meteorological (e.g., storm, extreme temperature), hydrological (e.g., flood, landslide), and climatological (e.g., drought).

Province	Average Number of Disasters	Average Number of Disasters with above $1bn USD Economic Damage	Average Number of Deaths
Beijing	1.14	0.43	112.71
Tianjin	0.43	0.14	60.29
Hebei	2.43	0.57	97.43
Shanxi	2.29	0.71	110.57
Inner Mongolia	2.57	0.86	108.43
Liaoning	2.14	0.71	126.00
Jilin	2.43	1.14	128.71
Heilongjiang	2.43	1.00	112.29
Shanghai	1.00	0.57	36.86
Jiangsu	3.86	0.86	175.57
Zhejiang	4.71	1.57	133.57
Anhui	4.29	1.57	167.29
Fujian	6.57	1.57	158.57
Jiangxi	6.57	1.43	234.00
Shandong	3.14	0.71	116.00
Henan	3.71	0.71	177.57
Hubei	6.86	1.29	237.29
Hunan	7.14	1.71	248.86
Guangdong	7.14	1.57	177.43
Guangxi	7.29	1.71	213.57
Hainan	3.29	1.00	78.57
Chongqing	5.43	1.29	240.29
Sichuan	8.71	2.00	430.86
Guizhou	8.57	1.57	382.29
Yunnan	5.71	0.86	184.57
Tibet	0.43	0.00	30.14
Shaanxi	4.00	1.00	114.43
Gansu	3.14	1.00	102.57
Qinghai	1.57	0.14	44.29
Ningxia	1.29	0.43	29.57
Xinjiang	2.14	0.14	59.43

Table 2. Summary Statistics

The table presents summary statistics for our main sample. The sample consists of 44,110 household-year observations (13,180 unique households) from the CFPS database for the sample period from 2012 to 2018. *Entrepreneur* is an indicator variable of whether a surveyed respondent's household includes an entrepreneurial member who reports to be self-employed in a given year. *Disaster Intensity* is the province-level disaster intensity, measured as the average number of disasters in the past two years with a substantial economic impact. Detailed descriptions of all other variables are available in Appendix A.

	Mean	Std.Dev.	Min	Median	Max	Obs.
Entrepreneur (indicator)	0.10	0.30	0.00	0.00	1.00	44,110
Disaster Intensity	1.05	0.75	0.00	1.00	4.00	44,110
Log (1+Mortgage)	0.09	0.39	0.00	0.00	8.99	44,110
Log (House Ownership Value)	2.08	1.57	0.00	2.30	9.21	44,110
Log (1+Gov Subsidy)	0.06	0.15	0.00	0.00	2.66	44,110
Urban (indicator)	0.37	1.09	-9.00	0.00	1.00	44,110
Log (Family Members)	1.18	0.49	0.00	1.10	1.95	44,110
Log (1+Number of Children)	0.19	0.34	0.00	0.00	1.79	44,110
Log (1+Family Expenditure)	1.67	0.72	0.00	1.61	6.25	44,110
Marital Status (indicator)	0.91	0.29	0.00	1.00	1.00	44,110
High Education (indicator)	0.53	0.50	0.00	1.00	1.00	44,110
GDP Growth Rate (%)	8.10	2.08	-2.50	7.80	13.60	44,110
Log (Province GDP)	10.05	0.74	8.59	10.07	11.51	44,110
Unemployment Rate (%)	3.24	0.57	1.31	3.30	4.47	44,110
Population Growth Rate	0.00	0.01	-0.00	0.00	0.02	44,110

Table 3. Effects of Natural Disasters on Entrepreneurship: Full Sample

This table presents results from the OLS regressions that test the effects of the disaster intensity on household's entrepreneurial choices. The sample consists of 44,110 household-year observations (13,180 unique households) from the CFPS database for the sample period from 2012 to 2018. *Entrepreneur*, our main dependent variable, is an indicator variable of whether a surveyed respondent's household includes an entrepreneurial member who reports to be self-employed in a given year. *Disaster Intensity* is the province-level disaster intensity, measured as the average number of disasters in the past two years with a substantial economic impact. Detailed descriptions of all other variables are available in Appendix A. Robust standard errors double-clustered by province and year are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| Independent Variable | Dependent Variable: *Entrepreneur (indicator)* | | | |
	(1)	(2)	(3)	(4)
Disaster Intensity	-0.004**	-0.006**	-0.002*	-0.004**
	(0.002)	(0.002)	(0.001)	(0.002)
Log (1+Mortgage)		0.021***		0.005
		(0.006)		(0.005)
Log (House Ownership Value)		0.005***		0.002
		(0.001)		(0.001)
Log (1+Gov Subsidy)		-0.020*		0.015
		(0.011)		(0.011)
Urban (indicator)		0.003*		-0.001
		(0.002)		(0.002)
Log (Family Members)		0.010***		0.017***
		(0.004)		(0.005)
Log (1+Number of Children)		0.013***		0.005
		(0.005)		(0.006)
Log (1+Family Expenditure)		0.080***		0.035***
		(0.004)		(0.004)
Marital Status (indicator)		0.002		0.006
		(0.005)		(0.007)
High Education (indicator)		0.007**		-0.003
		(0.003)		(0.005)
GDP Growth Rate		0.000		0.000
		(0.001)		(0.001)
Log (Province GDP)		-0.022		0.014
		(0.022)		(0.019)
Unemployment Rate		0.018**		0.019***
		(0.008)		(0.007)
Population Growth Rate		1.633**		1.939***
		(0.809)		(0.674)
Household Fixed Effects	No	No	Yes	Yes
Province Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	44,110	44,110	44,110	44,110
Adjusted R-squared	0.009	0.054	0.473	0.478

Table 4. Alternative Definition of Entrepreneurship

This table presents results from the OLS regressions that test the effects of the disaster intensity on a household's entrepreneurial choices using alternative definitions of entrepreneurship. The sample consists of 44,110 household-year observations (13,180 unique households) from the CFPS database for the sample period from 2012 to 2018. In Columns (1) and (2), the dependent variable is whether a household includes an entrepreneur who has non-zero business income. In Columns (3) and (4), the dependent variable is whether a household includes an entrepreneur who makes more than 20% of family income from entrepreneurship. *Disaster Intensity* is the province-level disaster intensity, measured as the average number of disasters in the past two years with a substantial economic impact. Detailed descriptions of all other variables are available in Appendix A. Robust standard errors double-clustered by province and year are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable: *Entrepreneur (indicator)*			
	Self-employed & Non-zero Business Income		Self-employed & Business Income ≥ 20% Family Income	
Independent Variable	(1)	(2)	(3)	(4)
Disaster Intensity	-0.005**	-0.003*	-0.006**	-0.004*
	(0.002)	(0.002)	(0.002)	(0.002)
Log (1+Mortgage)	0.018***	0.003	0.016***	0.002
	(0.006)	(0.005)	(0.006)	(0.005)
Log (House Ownership Value)	0.004***	0.001	0.004***	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Log (1+Gov Subsidy)	-0.017	0.015	-0.016	0.014
	(0.010)	(0.011)	(0.010)	(0.011)
Urban (indicator)	0.003**	-0.001	0.002	-0.001
	(0.001)	(0.001)	(0.001)	(0.002)
Log (Family Members)	0.010***	0.018***	0.006*	0.010**
	(0.004)	(0.005)	(0.004)	(0.004)
Log (1+Number of Children)	0.012**	0.003	0.012***	0.004
	(0.005)	(0.006)	(0.004)	(0.006)
Log (1+Family Expenditure)	0.074***	0.032***	0.071***	0.031***
	(0.004)	(0.003)	(0.004)	(0.003)
Marital Status (indicator)	-0.000	0.001	0.001	0.002
	(0.004)	(0.007)	(0.005)	(0.007)
High Education (indicator)	0.008**	-0.003	0.007**	-0.005
	(0.003)	(0.005)	(0.003)	(0.005)
GDP Growth Rate	-0.000	-0.000	0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Log (Province GDP)	-0.017	0.016	-0.015	0.020
	(0.024)	(0.020)	(0.022)	(0.020)
Unemployment Rate	0.009	0.010	0.009	0.010
	(0.007)	(0.007)	(0.007)	(0.006)
Population Growth Rate	1.071	1.447**	1.119	1.394**
	(0.828)	(0.657)	(0.752)	(0.619)
Household Fixed Effects	No	Yes	No	Yes
Province Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes

Observations	44,110	44,110	44,110	44,110
Adjusted R-squared	0.049	0.470	0.047	0.448

Table 5. Effects of Natural Disasters on Entrepreneurship: Occupation Changes

This table presents results from the OLS regressions that test the effects of the disaster intensity on a household's entrepreneurial choices. The sample consists of 44,110 household-year observations (13,180 unique households) from the CFPS database for the sample period from 2012 to 2018. In Columns (1) and (2), the dependent variable, ΔEntrepreneur (Becoming Entrepreneur), is one if the household does not include any self-employed family member in the previous survey but starts a business in the current survey. In Columns (3) and (4), the dependent variable, ΔEntrepreneur (Becoming Non-entrepreneur), is one if the household includes an entrepreneur in the previous survey but quits entrepreneurial activities in the current survey. *Disaster Intensity* is the province-level disaster intensity, measured as the average number of disasters in the past two years with a substantial economic impact. Detailed descriptions of all other variables are available in Appendix A. Robust standard errors double-clustered by province and year are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| | Dependent Variable: Δ*Entrepreneur (indicator)* | | | |
| | Become Entrepreneur | | Quit Entrepreneur | |
Independent Variable	(1)	(2)	(3)	(4)
Disaster Intensity	-0.005*	-0.005*	0.005**	0.005*
	(0.003)	(0.003)	(0.002)	(0.003)
Log (1+Mortgage)	0.010**	0.006	0.003	0.002
	(0.005)	(0.005)	(0.003)	(0.004)
Log (House Ownership Value)	0.002**	0.001	0.001	-0.002*
	(0.001)	(0.001)	(0.001)	(0.001)
Log (1+Gov Subsidy)	0.009	0.020*	-0.020***	-0.011
	(0.009)	(0.011)	(0.006)	(0.009)
Urban (Indicator)	-0.002**	-0.003**	-0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Log (Family Members)	0.006*	0.000	-0.005*	-0.013***
	(0.003)	(0.005)	(0.003)	(0.005)
Log (1+Number of Children)	0.015***	0.011*	0.014***	0.013**
	(0.004)	(0.005)	(0.004)	(0.006)
Log (1+Family Expenditure)	0.035***	0.024***	0.013***	-0.008***
	(0.003)	(0.003)	(0.002)	(0.003)
Marital Status (indicator)	-0.006*	-0.004	0.005	0.012
	(0.003)	(0.006)	(0.004)	(0.008)
High Education (indicator)	0.001	-0.006	0.009***	0.002
	(0.002)	(0.005)	(0.002)	(0.004)
GDP Growth Rate	0.000	-0.000	0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.002)
Log (Province GDP)	-0.052***	-0.041**	0.052***	0.068***
	(0.019)	(0.020)	(0.020)	(0.023)
Unemployment Rate	0.013**	0.014**	-0.004	-0.002
	(0.006)	(0.006)	(0.005)	(0.006)
Population Growth Rate	1.413*	1.482*	-1.188**	-1.558**
	(0.777)	(0.779)	(0.516)	(0.646)
Household Fixed Effects	No	Yes	No	Yes
Province Fixed Effects	Yes	Yes	Yes	Yes

Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	44,110	44,110	44,110	44,110
Adjusted R-squared	0.021	0.019	0.006	0.017

Table 6. Effects of Natural Disaster on Entrepreneurship: Propensity-score Matched Sample

This table presents results from the OLS regressions that test the effects of the disaster intensity on entrepreneurship using a propensity-score (nearest neighborhood) matched sample. The sample consists of 11,460 household-year (bi-annual) observations during our sample period from 2010 to 2018. In Panel A, the table presents descriptive statistics for the propensity score-matched (PSM) sample. To construct the matched sample, we first divided households based on *Disaster Intensity* and defined the treatment and control groups: households that experienced greater disaster intensity in the previous 2 years than the sample median were included in the treatment group (i.e., High Disaster Intensity=1), while the rest were included in the control group (i.e., High Disaster Intensity=0). We then estimate the probability of a household being affected by the disaster using the household-level controls presented in Table 3. Utilizing this predicted probability, we match a household from the affected area with a control household in the same year that has the closest propensity score, without replacement, using a caliper of 0.01. The F-statistic is reported at the bottom and is based upon a Multinomial ANOVA (MANOVA) test. In Panel B, the dependent variable is *Entrepreneur*$_{i,j,t}$ equals to one if household i living in the province j has a family member who reported as self-employed and makes positive business income from entrepreneurship in year t, and zero otherwise. *Disaster Intensity* is the province-level disaster intensity during in the previous two years, measured as the total number of disasters with a substantial economic impact, i.e., when the estimated economic damages are above 1 billion U.S. dollars. *High Disaster Intensity* is an indicator that takes the value of one if *Disaster Intensity* is greater than the sample median and zero otherwise. The detailed descriptions of other variables are available in Appendix A. Robust standard errors clustered by cities are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Descriptive Statistics for Propensity Score-Matched (PSM) Sample

	High Disaster Intensity (n=5,730)		Low Disaster Intensity (n=5,730)			
	Mean	Median	Mean	Median	Mean Diff.	t-stat
Log (1+Mortgage)	0.11	0.00	0.10	0.00	-0.01	-1.34
Log (House Ownership Value)	2.09	2.40	2.12	2.40	0.03	1.06
Log (1+Gov Subsidy)	0.05	0.00	0.06	0.00	0.00	1.32
Urban (Indicator)	0.36	0.00	0.36	0.00	0.00	0.10
Log (Family Members)	1.10	1.10	1.12	1.10	0.01	1.34
Log (1+Number of Children)	0.16	0.00	0.16	0.00	-0.01	-0.97
Log (1+Family Expenditure)	1.67	1.68	1.66	1.60	-0.01	-0.58
Marital Status	0.90	1.00	0.90	1.00	0.01	1.28
High Education (indicator)	0.50	0.00	0.52	1.00	0.02**	1.96
Joint test for the significance of t-values	Statistics				F-value	p-value
Lawley-Hotelling trace	0.0013				1.61	0.11

Panel B. Regression for PSM Sample

	Dependent Variable: *Entrepreneur* (indicator)	
Independent Variable	(1)	(2)
Disaster Intensity	-0.004**	-0.006**
	(0.002)	(0.002)
Log (1+Mortgage)		0.021***
		(0.006)
Log (House Ownership Value)		0.005***
		(0.001)
Log (1+Gov Subsidy)		-0.020*
		(0.011)
Urban (Indicator)		0.003*
		(0.002)

Log (Family Members)		0.010***
		(0.004)
Log (1+Number of Children)		0.013***
		(0.005)
Log (1+Family Expenditure)		0.080***
		(0.004)
Marital Status (Indicator)		0.002
		(0.005)
High Education (indicator)		0.007**
		(0.003)
GDP Growth Rate		0.000
		(0.001)
Log (Province GDP)		-0.022
		(0.022)
Unemployment Rate		0.018**
		(0.008)
Population Growth Rate		1.633**
		(0.809)
Household Fixed Effects	Yes	Yes
Province Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	11,460	11,460
Adjusted R-squared	0.505	0.509

Table 7. Mechanisms: Intra-Household Risk Sharing

This table presents results from the OLS regressions testing the effects of disaster intensity on households' entrepreneurial choices, focusing on subsamples based on intra-household risk sharing. The sample consists of 44,110 household-year observations (13,180 unique households) from the CFPS database for the sample period from 2012 to 2018. *Entrepreneur*, our main dependent variable, is an indicator variable of whether a surveyed respondent's household includes an entrepreneurial member who reports to be self-employed in a given year. We analyze subsamples of households in Columns (1) and (2) based on income concentrations, and in Columns (3) and (4) based on the number of income earners. *High Income Concentration* equals one if the maximum income ratio to the total family income exceeds 80% and zero otherwise; *Low Income Concentration* equals one if it is below 80% and zero otherwise. *High Number of Income Earners* equals one if a family has more than one member earning positive labor income and zero otherwise; *Low Number of Income Earners* equals one if only one member earns positive labor income and zero otherwise. *Disaster Intensity* is the province-level disaster intensity, measured as the average number of disasters in the past two years with a substantial economic impact. Detailed descriptions of all other variables are available in Appendix A. Robust standard errors double-clustered by province and year are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	Dependent Variable: *Entrepreneur (Indicator)*			
	Income Concentration		Number of Income Earners	
	(1) High	(2) Low	(3) High	(4) Low
Disaster Intensity	-0.013**	-0.004	-0.009***	-0.006
	(0.006)	(0.003)	(0.003)	(0.007)
Log (1+Mortgage)	0.001	0.008	0.011	-0.003
	(0.010)	(0.007)	(0.007)	(0.011)
Log (House Ownership Value)	0.001	0.002	0.003**	-0.004
	(0.004)	(0.002)	(0.002)	(0.003)
Log (1+Gov Subsidy)	0.055	0.012	0.007	0.040
	(0.041)	(0.016)	(0.015)	(0.045)
Urban (Indicator)	0.004	-0.002	0.001	-0.001
	(0.004)	(0.002)	(0.002)	(0.004)
Log (Family Members)	0.030**	0.021***	0.019***	0.011
	(0.012)	(0.007)	(0.007)	(0.013)
Log (1+Number of Children)	-0.014	0.007	0.000	0.012
	(0.015)	(0.009)	(0.010)	(0.015)
Log (1+Family Expenditure)	0.044***	0.031***	0.032***	0.038***
	(0.008)	(0.005)	(0.005)	(0.008)
Marital Status (indicator)	0.002	0.004	0.005	0.010
	(0.018)	(0.012)	(0.009)	(0.027)
High Education (indicator)	-0.017	0.006	-0.003	0.000
	(0.012)	(0.007)	(0.006)	(0.014)
GDP Growth Rate	-0.002	0.001	0.000	0.002
	(0.003)	(0.002)	(0.002)	(0.004)
Log (Province GDP)	0.070	-0.007	-0.021	0.008
	(0.056)	(0.030)	(0.030)	(0.058)
Unemployment Rate	0.015	0.019**	0.015	0.031
	(0.018)	(0.008)	(0.009)	(0.020)
Population Growth Rate	1.733	1.884**	1.337	3.067*
	(2.643)	(0.746)	(1.221)	(1.710)
Household Fixed Effects	Yes	Yes	Yes	Yes
Province Fixed Effects	Yes	Yes	Yes	Yes

Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	16166	27944	29253	14857
Adjusted R-squared	0.427	0.506	0.511	0.502

Table 8. Mechanisms: Bank Credit and Performance

This table presents results from the OLS regressions testing the effects of disaster intensity on households' entrepreneurial choices, focusing on subsamples based on local bank credit and performance. The sample consists of 39,418 household-year observations (13,105 unique households) from the CFPS database for the sample period from 2012 to 2018. *Entrepreneur*, our main dependent variable, is an indicator variable of whether a surveyed respondent's household includes an entrepreneurial member who reports to be self-employed in a given year. We analyze subsamples of households in Columns (1) and (2) based on bank loan growth, and in Columns (3) and (4) based on the bank performance. *High (Low) Bank Loan Growth* equals one if the average bank loan growth in the province in a given year is greater (lower) than the sample median and zero otherwise. *High (Low) Bank ROA* equals one if the average return on assets of the banks in the province in a given year is greater (lower) than the sample median and zero otherwise. *Disaster Intensity* is the province-level disaster intensity, measured as the average number of disasters in the past two years with a substantial economic impact. Detailed descriptions of all other variables are available in Appendix A. Robust standard errors double-clustered by province and year are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| | Dependent Variable: *Entrepreneur (indicator)* | | | |
| | Bank Loan Growth | | Bank ROA | |
Independent Variable	(1) High	(2) Low	(3) High	(4) High
Disaster Intensity	-0.007**	-0.002	-0.009**	-0.009
	(0.003)	(0.004)	(0.003)	(0.006)
Log (1+Mortgage)	0.017**	0.007	0.017**	0.003
	(0.007)	(0.012)	(0.008)	(0.011)
Log (House Ownership Value)	0.001	0.005	0.001	0.002
	(0.002)	(0.003)	(0.003)	(0.002)
Log (1+Gov Subsidy)	0.007	0.043	0.009	0.024
	(0.018)	(0.028)	(0.018)	(0.025)
Urban (Indicator)	-0.000	-0.000	0.000	-0.003
	(0.003)	(0.003)	(0.003)	(0.003)
Log (Family Members)	0.023**	0.027**	-0.004	0.039***
	(0.011)	(0.010)	(0.012)	(0.012)
Log (1+Number of Children)	0.001	-0.003	0.010	-0.011
	(0.015)	(0.017)	(0.015)	(0.019)
Log (1+Family Expenditure)	0.022***	0.034***	0.028***	0.031***
	(0.006)	(0.007)	(0.008)	(0.006)
Marital Status (indicator)	-0.006	-0.006	-0.004	-0.013
	(0.014)	(0.011)	(0.016)	(0.017)
High Education (indicator)	-0.007	0.003	0.006	-0.007
	(0.009)	(0.011)	(0.016)	(0.009)
GDP Growth Rate	-0.000	0.001	-0.000	0.003
	(0.002)	(0.002)	(0.003)	(0.002)
Log (Province GDP)	-0.003	-0.043	-0.005	-0.040
	(0.046)	(0.044)	(0.041)	(0.099)
Unemployment Rate	0.026***	-0.023	0.030***	0.026
	(0.007)	(0.028)	(0.010)	(0.022)
Population Growth Rate	2.481***	-0.135	1.129	4.388**
	(0.710)	(4.060)	(1.114)	(1.953)
Household Fixed Effects	Yes	Yes	Yes	Yes
Province Fixed Effects	Yes	Yes	Yes	Yes

Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	19985	19433	19482	19936
Adjusted R-squared	0.507	0.493	0.523	0.510

Table 9. Mechanisms: Career Risk and Risk Preference

This table presents results from the OLS regressions testing the effects of disaster intensity on households' entrepreneurial choices, focusing on subsamples based on uncertainty about career prospects. The sample consists of 23,034 household-year observations (10,559 unique households) from the CFPS database for the sample period from 2012 to 2018. *Entrepreneur*, our main dependent variable, is an indicator variable of whether a surveyed respondent's household includes an entrepreneurial member who reports to be self-employed in a given year. We analyze subsamples of households in Columns (1) and (2) based on industry failure risk. *High (Low) Industry Failure Risk* equals one if household industry failure risk in a given year is greater (lower) than the sample median and zero otherwise. *Industry Failure Risk* denotes the rate of failure within industries at the household level, based on the occupations of household members. The industry-specific failure rate in a given year is obtained from the Orbis dataset and is calculated by the proportion of Chinese firms that survive over the next two years. Then, we calculate the income-weighted average of the industry failure rates for the occupations of household members for that year. *Disaster Intensity* is the province-level disaster intensity, measured as the average number of disasters in the past two years with a substantial economic impact. Detailed descriptions of all other variables are available in Appendix A. Robust standard errors double-clustered by province and year are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| | Dependent Variable: *Entrepreneur (indicator)* | |
| | Industry Failure Rate | |
Independent Variable	(1) High	(2) Low
Disaster Intensity	-0.007**	-0.002
	(0.003)	(0.004)
Log (1+Mortgage)	0.017**	0.007
	(0.007)	(0.012)
Log (House Ownership Value)	0.001	0.005
	(0.002)	(0.003)
Log (1+Gov Subsidy)	0.007	0.043
	(0.018)	(0.028)
Urban (Indicator)	-0.000	-0.000
	(0.003)	(0.003)
Log (Family Members)	0.023**	0.027**
	(0.011)	(0.010)
Log (1+Number of Children)	0.001	-0.003
	(0.015)	(0.017)
Log (1+Family Expenditure)	0.022***	0.034***
	(0.006)	(0.007)
Marital Status (indicator)	-0.006	-0.006
	(0.014)	(0.011)
High Education (indicator)	-0.007	0.003
	(0.009)	(0.011)
GDP Growth Rate	-0.000	0.001
	(0.002)	(0.002)
Log (Province GDP)	-0.003	-0.043
	(0.046)	(0.044)
Unemployment Rate	0.026***	-0.023
	(0.007)	(0.028)
Population Growth Rate	2.481***	-0.135
	(0.710)	(4.060)
Household Fixed Effects	Yes	Yes

Province Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	13,085	9,949
Adjusted R-squared	0.489	0.502