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**Working Paper**

## Family business during the COVID-19 pandemic in Asia: Role of government financial aid and coping strategies

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## **ADB Working Paper Series**

### **FAMILY BUSINESS DURING THE COVID-19 PANDEMIC IN ASIA: ROLE OF GOVERNMENT FINANCIAL AID AND COPING STRATEGIES**

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**Asian Development Bank Institute**

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**Abstract**

The COVID-19 pandemic has badly affected economic activities. In emerging Asia, where small family businesses play central roles in their economies, previous studies found that the sector was hit particularly hard by the pandemic. However, little is known about how households have mitigated the negative shocks on their family business during the pandemic. Using datasets from representative household surveys in 17 Asian countries from the Association of Southeast Asian Nations (ASEAN) and the Central Asia Regional Economic Cooperation (CAREC) regions, this study investigates the role of coping strategies and government financial aid in mitigating the adverse impacts of the pandemic on family business conditions in the short run. We find that: (i) coping strategies such as “switch products,” “increase use of phone calls/sms,” and “reduce price/offer promotion” are associated with a lower probability of a decline in income from a family business and/or family business closure; and (ii) government financial aid is associated with a lower probability of a decline in family business income and a higher probability of adopting coping strategies. This study is one of the first to provide empirical evidence on mitigation mechanisms of business households in emerging Asia, which is important to encourage a recovery of the family business sector from the pandemic.

**Keywords:** COVID-19, family business, coping strategy, financial aid, Central Asia, Southeast Asia

**JEL Classification:** D1, H3, M2

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# 1. INTRODUCTION

In Asian developing economies, small family businesses or self-employed workers play central roles, accounting for a large share of the regional GDP and employment (cf., Bennedsen, Lu, and Mehrotra 2022; KPMG 2021), and their performances are important determinants of household welfare. However, small family businesses are particularly vulnerable to an economic crisis because they have limited financial and physical resources, supply chain networks, and access to formal financial markets (Caballero-Morales 2021; Kim and Vonortas 2014). During the COVID-19 pandemic, the family business sector was severely hit by the pandemic and related policy interventions such as lockdowns, facing sudden drops in sales and supply chain disruptions (KPMG 2021). The Future of Business Survey (Facebook, OECD, and World Bank 2020), which includes a monthly survey of SMEs from May 2020 (wave I) to October 2020 (wave IV), found a large percentage of SMEs were hit hard by the pandemic.<sup>1</sup> Although the wave IV survey confirmed a recovery from the crisis, its pace seems to be slow. In the East Asian and Pacific region, the closure rate as of October 2020 was still 14%, which is slightly lower than that of May 2020 (18%) but still high. Moreover, 54% of SMEs in the region reported a sales reduction compared to the same month of 2019, versus 61% in the May 2020 survey.

Despite a growing number of studies finding the profound impacts of the COVID-19 pandemic on family businesses (e.g., Bartik et al. 2020; Bundervoet, Dávalos, and Garcia 2022; Eckey and Memmel 2022; KPMG 2021; Kraus et al. 2020), little is known about how family business households mitigated the negative effects of the pandemic (Soluk, Kammerlander, and De Massis 2021), especially in the context of developing Asian countries. Understanding the mitigation mechanisms is important in identifying policies to encourage a recovery of the family business sector from the pandemic. This study aims to investigate the mitigation mechanisms of family businesses in Asian developing countries during the pandemic.

Two strands of literature are particularly important in understanding how family businesses in developing economies in Asia coped with the adverse effects of the pandemic. The *first* strand of literature emphasizes the importance of coping strategies as a response to economic crisis (e.g., Caballero-Morales 2021; Kraus et al. 2020; Laffranchini, Hadjimarcou, and Kim 2022; Soluk, Kammerlander, and De Massis 2021; Wenzel, Stanske, and Lieberman 2020). Family businesses can make rapid decisions due to their ownership structure (Carney 2005) and may respond more quickly to the pandemic than non-family businesses (KPMG 2021). Kraus et al. (2020), one of the first studies of this kind, found that family firms in six European countries quickly adopted “persevering” strategies to maintain their business operations, while only a few firms adopted “innovative” strategies that involve strategic renewal of the business models. Caballero-Morales (2021) introduced a research-supported new product (socks for diabetes) to a small family-owned enterprise in Mexico, which produces customized sport socks, as a case study. The study concludes that the adoption of “innovative” coping strategies is necessary for SMEs to survive during the pandemic.

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<sup>1</sup> We refer to the survey on SMEs because there are only a few representative surveys on family business and the COVID-19 pandemic. In general, family businesses refer to any business enterprises that are controlled by a family member(s) (Carney 2005), while SMEs refer to enterprises characterized by a small number of staff and/or a small turnover (Facebook, OECD, and World Bank 2020). This means that family business enterprises are not necessarily SMEs and vice versa. Yet in emerging economies, SMEs are largely owned and run by family members (Caballero-Morales 2021), and most family business enterprises are characterized as SMEs (KPMG 2021).

The *second* strand of literature focuses on quantifying the impact of government cash transfer programs (hereinafter, government financial aid) on household welfare during the pandemic (e.g., Baker et al. 2020; Bui et al. 2022; Christelis et al. 2020; Karger and Rajan 2020). Bui et al. (2022) found that government financial aid in Viet Nam and Thailand is associated with households' more positive consumer sentiment and increased spending on durable goods. Given the inseparability of household and family business financial objectives (cf., Kraus et al. 2020; Wenzel, Stanske, and Lieberman 2020), we hypothesize that government financial aid enhances households' financial capacity and may also benefit family business conditions. Moreover, as financial fragility is one of the central challenges for small family businesses in adapting to the pandemic (Bartik et al. 2020), government financial aid may also encourage family business households to adopt coping strategies, and hence indirectly benefit family business conditions.

Following these two aforementioned strands of literature, this study focuses on the role of coping strategies and government financial aid in mitigating the negative impacts of the COVID-19 pandemic on family businesses in Asian developing countries. Using the subsample of representative household survey datasets from seven Association of Southeast Asian Nations (ASEAN) countries, namely Cambodia, the Lao People's Democratic Republic (Lao PDR), Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam, and 10 Central Asia Regional Economic Cooperation (CAREC) countries, namely Afghanistan, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan, we investigate how the adoption of coping strategies and receiving government financial aid related to family business conditions during the pandemic.

Our data first confirm the adverse impacts of the pandemic: 58.7% of ASEAN and 41.4% of CAREC family business households experienced a decline in their business income, and 4.1% of ASEAN and 7.1% of CAREC households closed their business during the time of the pandemic (i.e., between January 2020 and December 2020). They also confirm that changes in family business conditions are strongly associated with household expenditure, implying the importance of family business as a determinant of household welfare. We then developed a conceptual framework that depicts the linkages among coping strategy, government financial aid, and family business conditions during the pandemic, and examine the hypotheses implied by the framework. Our results suggest that: (i) coping strategies relate to a 3.4 p.p. (percentage points) lower probability of a decline in family business income and a 6.1 p.p. lower probability of business closure; (ii) government financial aid relates to the former probability by 21.4 p.p.; and (iii) government financial aid also relates to a higher probability of adopting coping strategies, indirectly associated with reducing the probability of a decline in family business income.

In addition, we also investigate the heterogeneous effects across different coping strategies and different groups of family businesses. The results suggest that: (i) government financial aid is positively related to the probability of adopting coping strategies that seem beneficial for family business conditions such as "switch products" and "reduce price/offer promotion"; (ii) male-headed business households seem to have benefitted more from the aid than their female counterparts in terms of their family business conditions; (iii) government financial aid seems to have been more beneficial for family businesses in CAREC countries than those in ASEAN countries; and (iv) coping strategies and government financial aid seem to be particularly important for some sectors such as services and retail.

This study makes three important contributions to the literature on small family businesses during the COVID-19 pandemic. First, we quantitatively assessed the importance of adopting coping strategies in mitigating the negative impacts of the pandemic. Although previous studies emphasized the importance of coping strategies (Caballero-Morales 2021; Eckey and Memmel 2022; Wenzel, Stanske, and Lieberman 2020), quantitative research of their effects on family business conditions during the pandemic is scarce, particularly in the context of Asian developing countries. Second, we shed light on the role of government financial aid in mitigating the negative pandemic impacts on small family businesses, which has been overlooked in the literature. Our results imply that financial aid is associated with both a higher probability of adopting effective coping strategies and a lower probability of a decline in family business income. Last, we provide additional descriptive evidence on the family business conditions during the pandemic. A previous business-level survey found profound impacts of the pandemic on family businesses in Asian countries (KPMG 2021), and we add the evidence from household-level perspectives.

The remainder of this paper is organized as follows. Section 2 describes the context of this study. Section 3 presents survey data and stylized facts from the survey. Section 4 introduces hypotheses and an empirical framework to test them. Section 5 shows the results, and Section 6 concludes.

## 2. COVID-19 PANDEMIC IN ASEAN AND CAREC COUNTRIES

The first COVID-19 case was reported during the period from January to March of 2020 in most ASEAN and CAREC countries. This induced many governments in Asian countries to make a series of policy interventions such as lockdowns, school closures, and travel restrictions. Figure 1 shows changes in the number of monthly new cases per million population and the stringency index of the government's nonpharmaceutical policy measures<sup>2</sup> (monthly average) from January 2020 to March 2021 in our study countries. During 2020, the regions experienced their first rapid increase in cases, the "first wave." Similar trends are seen for the number of monthly deaths (cf., Mathieu et al. 2020). As a response, most governments introduced strict interventions in the first quarter of 2020, and slowly relaxed or retained their degree of stringency until the end of 2020. As we discuss later, this study focuses on changes in family business conditions in 2020, when governments were imposing stringent policy interventions.

The COVID-19 pandemic and policy interventions resulted in falls in demand and supply, and severely affected households. Many studies found profound impacts of the policy interventions on economic activities, and hence business outcomes and household welfare (e.g., Azhgaliyeva et al. 2022a; Bartik et al. 2020; Bundervoet, Lu, and Mehrotr 2022; Eckey and Memmel 2022; and Morgan & Trinh 2021). Morgan and Trinh (2021) and Azhgaliyeva et al. (2022b) reported that 55% of ASEAN households and 76% of CAREC households experienced financial difficulties during the pandemic, of which 83% and 68%, respectively, had to reduce their consumption to cope with such difficulties. The Global Family Business survey found that 69% of global and 75%

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<sup>2</sup> The stringency index was developed by a team at the University of Oxford and estimates the strictness of nine policy interventions, namely: "school closures; workplace closures; cancelation of public events; restrictions on public gatherings; closures of public transport; stay-at-home requirements; public information campaigns; restrictions on internal movements; and international travel controls" (Hale et al. 2021).

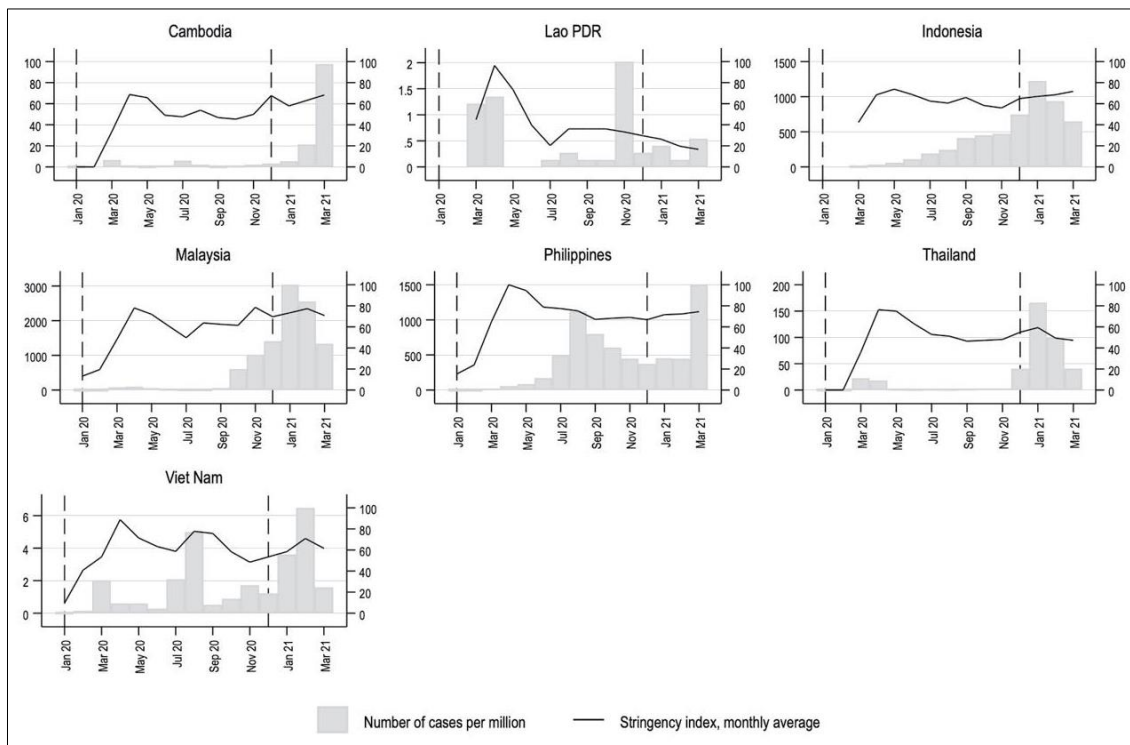


of Asia and the Pacific households experienced a reduction in the revenue from their family business after the outbreak of COVID-19 (KPMG 2021).

To mitigate the negative effects of the pandemic and related policy interventions, most governments provided financial and/or nonfinancial aid to vulnerable households during the pandemic.<sup>3</sup> Most cash transfer programs targeted low-income households and/or those who were particularly hard hit by the pandemic (see Appendix Table A1 for a summary of each country's aid packages adopted in 2020). Although most of the previous studies examine the effects of government financial aid on household expenditure (e.g., Baker et al. 2020; Bui et al. 2022; Christelis et al. 2020; Karger and Rajan 2020), as discussed, we hypothesize that government financial aid played an important role in mitigating the adverse effects of the pandemic on family businesses in Asian developing countries, along with coping strategies.

**Figure 1: Monthly New COVID-19 Cases and Stringency Index of the Government Intervention Measures from January 2020 to March 2021, ASEAN and CAREC Countries**

**(a) ASEAN**

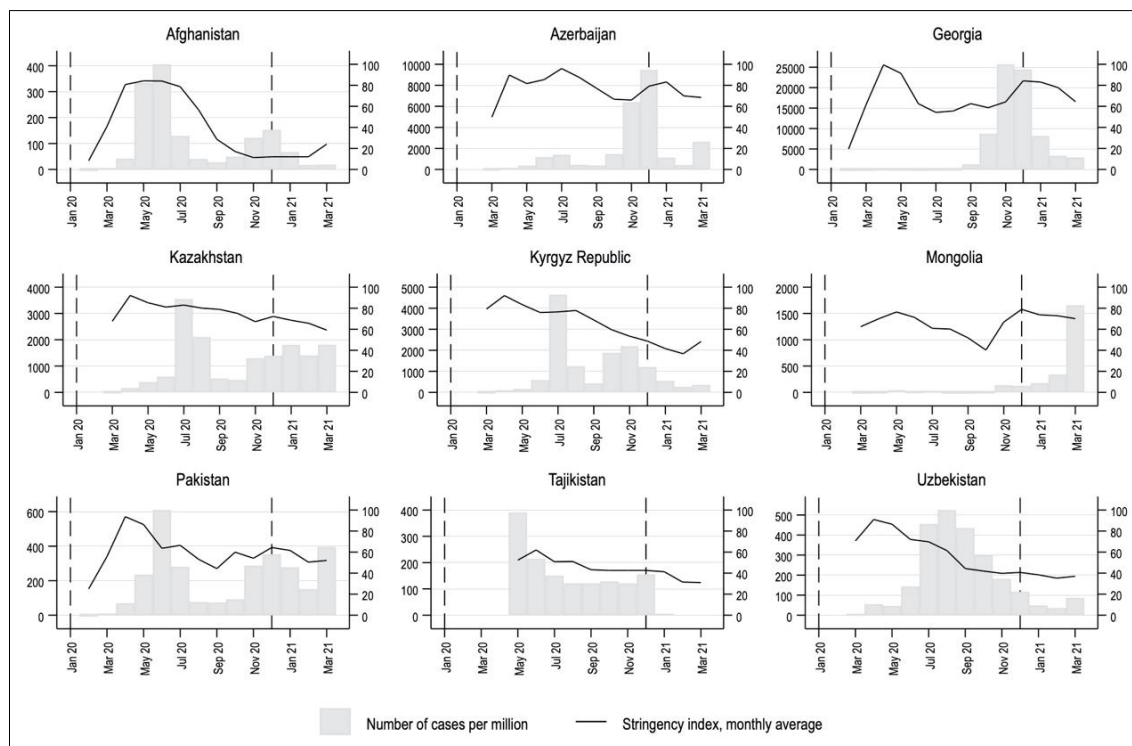


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<sup>3</sup> In addition to cash transfer programs, many governments introduced tax-related measures such as tax deferrals, reliefs, and temporary reductions or exemption to help households' financial conditions (cf., IMF 2022).

Figure 1 *continued*

## (b) CAREC



Notes: Vertical dashed lines denote the focus period in our survey (January 2020 – December 2020). Cases and stringency index for Turkmenistan are not shown due to the absence of data.

Source: Authors' own elaboration using data from Mathieu et al. (2020) and Hale et al. (2021)

### 3. DATA AND STYLIZED FACTS

In 2021, we conducted household surveys in seven ASEAN and 10 CAREC countries (cf., Introduction) with a view to understanding the impacts of the COVID-19 pandemic on households and identifying appropriate policy responses. Computer-assisted telephone interviews (CATIs) were carried out on randomly selected representative samples of more than 1,000 households in each country, as face-to-face interviews were not practical under the pandemic conditions. The survey periods were from January to February 2021 and May to August 2021 for ASEAN and CAREC countries, respectively. Households were asked about their socioeconomic status, employment, family business (if any), financial conditions, household expenditure, and child education during 2020 (see Morgan, Trinh, and Kim (2022) and Azhgaliyeva et al. (2022b) for further details).

In this study, we use a subsample of the 2021 survey from the 17 ASEAN and CAREC countries. Specifically, we restrict the samples to households whose head is engaged in the family business or self-employed. This leaves a subsample of 4,915 households, equivalent to around 28% of the original dataset. For each country, the regional and household income (quantile) distributions of the subsample are within five p.p. deviations from the original sample, confirming the representativeness of the dataset used in this study (see Appendix Table A2 for comparisons between households with and without a family business).

### 3.1 Stylized Facts

Figure 2 presents the changes in family business conditions and household expenditure, the coping strategies adopted, and the relative amount of government financial aid received during the pandemic in 2020.

Panel (a) shows that 58.7% and 41.4% of ASEAN and CAREC households, respectively, experienced a decline in income from their family business as of December 2020 compared to January 2020. When it comes to business closure, Panel (b) shows that 13.3% and 23.7% of ASEAN and CAREC households, respectively, either permanently or temporarily closed their household business as of December 2020. Comparing ASEAN and CAREC regions, a larger share of family business households in ASEAN countries faced a decline in family business income, while those in CAREC countries had a higher probability of closing their family business. Overall, our data confirm the profound impacts of the pandemic on family business conditions in ASEAN and CAREC countries.

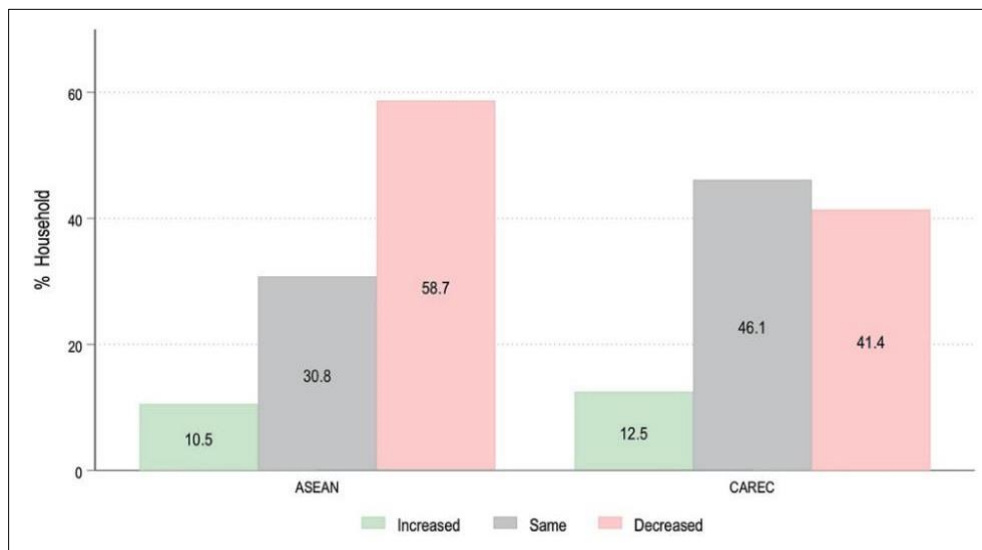
Panels (c) and (d) clearly show that family business conditions relate to changes in households' expenditure between June 2020 and December 2020. As much as 36.1% of those who experienced a decline in family business income reduced their expenditure, while the proportion is only 17.3% for those who had a higher or constant family business income during 2020. Closure of family business is also associated with a sharp decline in household expenditure: 18.8% of those who closed their business reduced their expenditure by more than 25%, which is much larger than the proportion for those who kept operating their family business (11.9%). These figures show the importance of family business conditions as a determinant of household welfare.

Panel (e) shows the coping strategies adopted during the pandemic. In ASEAN and CAREC countries, 30.8% and 41.0% of family business households, respectively, adopted at least one coping strategy during the pandemic. Increased use of digital technologies like phone calls/short message service (sms) and Internet/social media has been the most popular strategy, perhaps because these technologies allow business operators to communicate remotely with suppliers and customers and do not require high fixed costs for their adoption. "Switch products" and "provide home delivery" are strategies that may completely or partially transform their business models ("innovative" coping strategies). "Price reduction/offer promotion," one of the popular coping strategies, may attract customers and contribute to recovering business sales ("persevering" strategy).

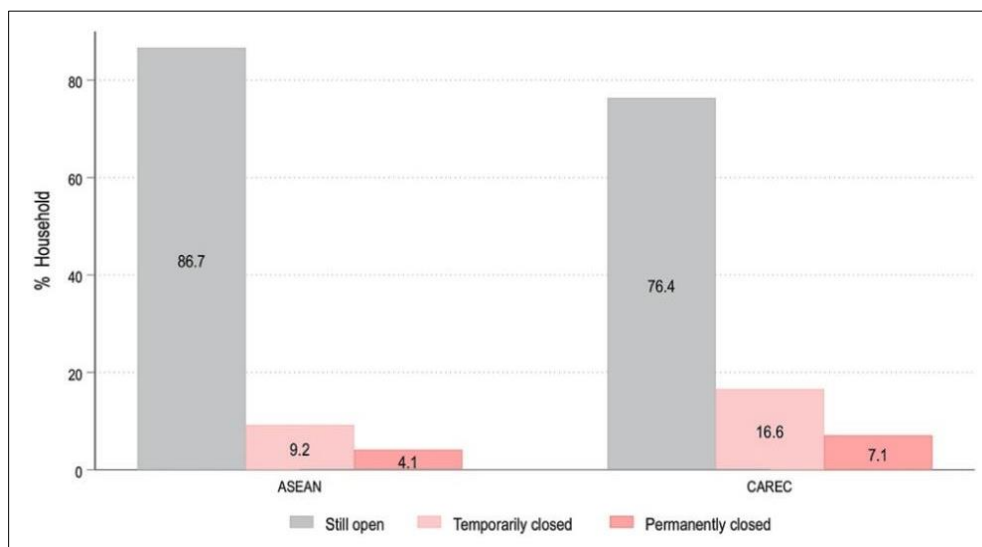
Panel (f) shows the relative amount of government financial aid received during the pandemic compared to monthly household income. The figure suggests that the amounts were large enough to improve the financial capacity of most households with a family business. In ASEAN, 43.4% of family business households received government financial aid, which is a similar number to the study for Thailand and Viet Nam (Bui et al. 2022), while in CAREC only 28.9% received such aid.

**Figure 2: Change in Family Business Condition and Household Expenditure, Coping Strategies, and Government Financial Aid during the COVID-19 Pandemic**

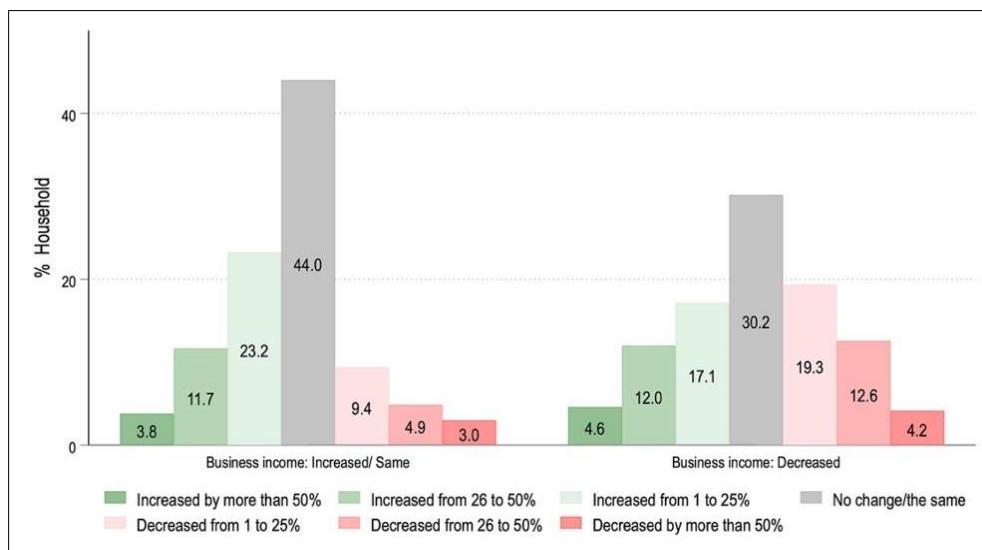
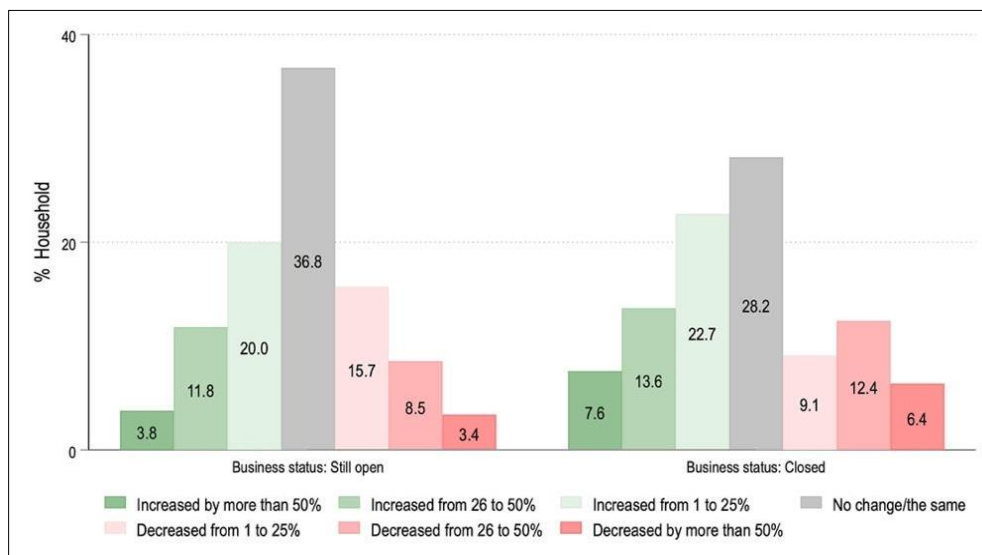
**(a) Change in income from family business by region**

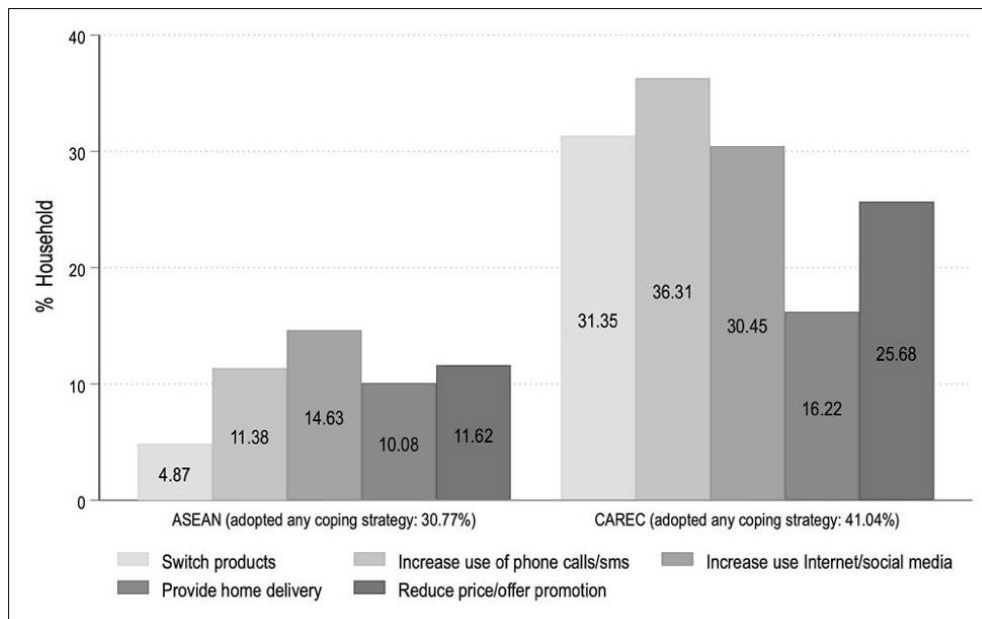
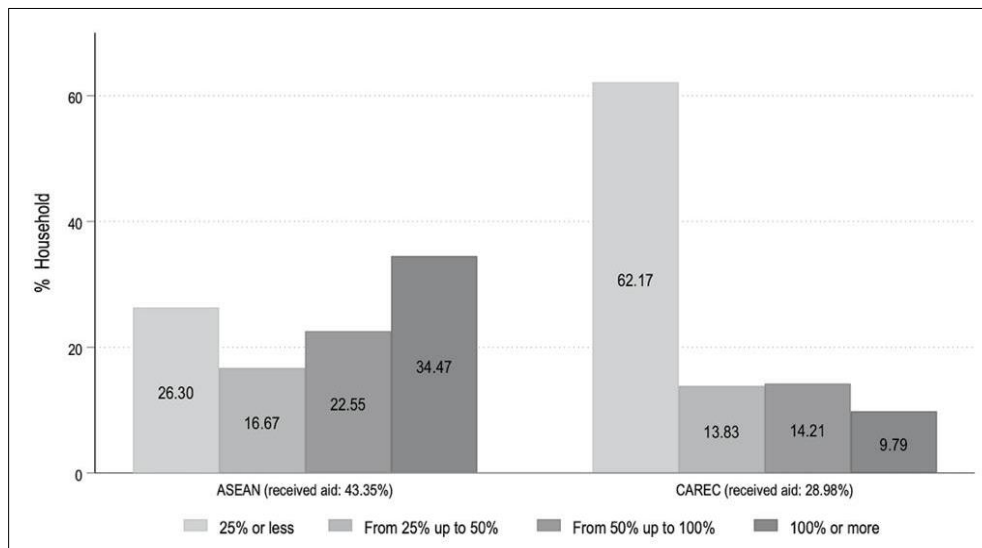


**(b) Change in family business status by region**



*continued on next page*

**Figure 2 continued****(c) Change in household expenditure by business income change****(d) Change in household expenditure by business status***continued on next page*

**Figure 2 continued****(e) Coping strategies adopted by region****(f) Government financial aid as share of monthly income of recipients by region**

Notes: Detailed descriptions of each variable are as follows: Panel (a) shows the change in income from the family business as of December 2020 since the beginning of the year 2020; Panel (b) shows the status of family business in December 2020; Panels (c) and (d) show the change in household expenditure in December 2020 compared with that in June 2020; Panel (e) shows the adopted coping strategy or business adjustment from January 2020 to December 2020; and Panel (f) shows the amount of government financial aid received from the beginning of the pandemic to the end of December 2020, as a share of average monthly household income from January 2020 to December 2020.

Source: Authors' own calculation.

### 3.2 Variables of Interest

This study aims to investigate the role of coping strategies and government financial aid in mitigating the negative impacts of the pandemic. As outcome variables that represent the negative effects of the pandemic, we use two dummy variables: (i) whether or not a household experienced a decline in income from their family business ( $dincome_{hc}$ ) and (ii) whether or not a household either temporarily or permanently closed their family business ( $close_{hc}$ ) during the pandemic, where  $hc$  denotes household  $h$  in country  $c$ . As explanatory variables, we focus on (i) whether a household adopted any coping strategy ( $CopStr_{hc}$ ) and (ii) whether a household received government financial aid ( $Aid_{hc}$ ) during the pandemic.

There are dispersions in family business conditions during the pandemic across ASEAN and CAREC countries. More than 80% of family business households in Cambodia and Pakistan experienced a decline in their family business income, while the number is lower in the Kyrgyz Republic and Uzbekistan (34.1% and 28.6%, respectively). With regard to business closure, the largest fraction of households in Kazakhstan (44.4%) closed their family business during the pandemic, followed by Pakistan and Tajikistan (both around 33%). In contrast, only 4.5%, 6.5%, and 9.9% of households in Viet Nam, the Lao PDR, and Indonesia, respectively, closed their family business.

The probability of adopting coping strategies also varies across countries, ranging from 9.1% (Cambodia) to 72.0% (Azerbaijan). The same is true for government financial aid. More than 90% of family business households in Mongolia and Pakistan received government financial aid, while less than 10% received aid in Cambodia, the Lao PDR, Afghanistan, the Kyrgyz Republic, Tajikistan, and Uzbekistan.

## 4. MODEL

To investigate how family business households mitigate the negative impacts of the pandemic, we construct a conceptual framework that depicts the effect of adopting coping strategies and taking advantage of government financial aid. Based on the conceptual framework, we outline econometric models to test the null hypotheses that correspond to our predictions.

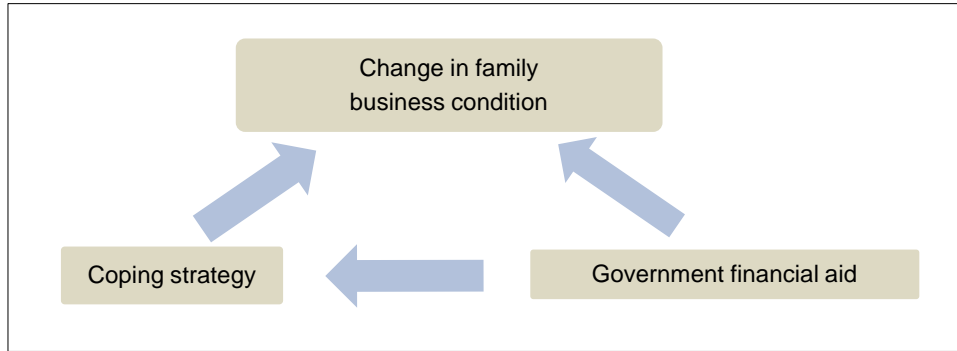
### 4.1 Conceptual Framework

Figure 3 shows our conceptual model based on findings from previous studies. The figure presents the following three predictions. First, we expect that adopting coping strategies will help to mitigate the adverse effects of the pandemic on family business conditions. Many studies suggest that coping strategies are key in dealing with the negative effects of the pandemic (e.g., Caballero-Morales 2021; Kraus et al. 2020; Soluk, Kammerlander, and De Massis 2021; Wenzel, Stanske, and Lieberman 2020). Wenzel, Stanske, and Lieberman (2020) suggest four different types of coping strategies: *Retrenchment*, *Persevering*, *Innovating*, and *Exit* strategies. *Retrenchment* is a cost-cutting measure and may benefit firms' operations; *Persevering* aims to help maintain the business operations; *Innovating* is a "strategic renewal of the business" model; and *Exit* is the last measure to take if there is no other option. In this study, we focus on *Persevering* and *Innovating* strategies because of data availability and because these strategies may help improve or maintain family business performances during the pandemic.

Second, we argue that government financial aid also mitigates the negative effects of the pandemic by improving the financial capacity of business households. A survey among SMEs in several Asian countries revealed that a lack of operational cash flow is one of the key challenges during the pandemic (AMTC 2020). In general, financial objectives as a household and those as a business enterprise are not separable in family businesses (cf., Kraus et al. 2020; Wenzel, Stanske, and Lieberman 2020). In improving the tight financial capacity of business households, government financial aid may be either directly or indirectly utilized for the business operations. For instance, the aid may be used for households' expenditures on necessities and allow them to keep their budget for business operations. Another possible mechanism to justify the role of government financial aid is that, as implied in Bartik et al. (2020) and Bui et al. (2022), government financial aid reshapes a household's perceptions of the negative effect of the pandemic, and, as a result, it may encourage them to operate their business and take appropriate investment including the adoption of effective coping strategies.

Last, we also argue that the aid could be utilized for the adoption of effective coping strategies that incur some adoption costs by facilitating the financial capacity of business households and/or reshaping households' expectations regarding the effects of the pandemic.

**Figure 3: Linkages among Coping Strategy, Financial Aid, and Family Business Conditions during the Pandemic**



Source: Authors' own elaboration.

## 4.2 Empirical Framework

We empirically test the following three null hypotheses that correspond to our predictions in the empirical framework:

- H1: Adopting coping strategies is not related to the probability of a decline in income from family business and business closure.
- H2: Receiving government financial aid is not related to the probability of a decline in income from family business and business closure.
- H3: Receiving government financial aid is not related to the probability of adopting coping strategies.

To test the first two null hypotheses (H1 and H2), we estimate the following equation:

$$\Pr(\Delta FBC_{hc} = 1) = \alpha + \tau_1 CopStr_{hc} + \tau_2 Aid_{hc} + X'_{hc}\beta + \gamma_c + \varepsilon_{hc}, \quad (1)$$



where  $\Delta FBC_{hc} \in \{dincome_{hc}, close_{hc}\}$  is a set of dummy variables that represent a negative change in family business conditions during the pandemic;  $CopStr_{hc}$  is a dummy variable that represents whether the household adopted any coping strategy;  $Aid_{hc}$  is a dummy variable that represents whether the household received government financial aid during the pandemic;  $X_{hc}$  is a set of household characteristics including household head's gender and education background, household's income quantile, business sector, area of residence (rural vs. urban), whether the household experienced lockdown, etc.;  $\gamma_c$  is country fixed effect; and  $\varepsilon_{hc}$  is an error term. Because outcomes are dummy variables, we employ a probit model to estimate the parameters in Equation (1). If  $\tau_1$  and  $\tau_2$  are found to be significantly different from zero, the null hypotheses for H1 and H2 are rejected.

Although the outcome variables in Equation (1) refer to dynamics of the business conditions, there are concerns about the possible endogeneity of the aid variable. In particular, households whose family business is heavily affected by the pandemic are more likely to receive government financial aid (reverse causality) because (i) cash transfer programs typically target such households (cf., IMF 2022) and (ii) such households have higher incentives to apply for the cash transfer programs. To alleviate the endogeneity concerns, we use the instrumental variable approach, using the fraction of households within the same district/region who received government financial aid as an instrument.<sup>4</sup> This instrument originates from the findings of peer effects and social learning literature (cf., Conley and Christopher 2001; Munshi 2004), and is frequently used in empirical analysis (e.g., Maggio, Mastrorillo, and Sitko 2021; Lin et al. 2022). In our context, this instrumental variable is suitable for the following two reasons. First, as in the empirical literature, those households who belong to a community where the majority apply for government financial aid are more likely to apply ("peer effect"). In addition, the application process for government financial aid differs across districts/regions, which is likely to be exogenously determined, and such differences affect the probability of receiving the financial aid. In our data, 10.6% of those who applied for the aid did not receive it because of the complicated application process. We employ the control function approach in the probit model to estimate the parameters in Equation (1).<sup>5</sup>

We further test the third null hypothesis (H3) by estimating the following equation:

$$Pr(CopStr_{hc} = 1) = \alpha + \tau_3 Aid_{hc} + X'_{hc}\beta + \gamma_c + \varepsilon_{hc}. \quad (2)$$

Given the endogeneity concerns about the variable of interest ( $Aid_{hc}$ ), we apply the control function approach to estimate the probit model in Equation (2), as in the estimations of Equation (1). We reject the null hypothesis of no impact if  $\tau_3$  is found to be significantly different from zero. To quantify the relative importance of this indirect effect of government financial aid, we apply standard mediation analysis (cf., Baron and Kenny 1986) to estimate the ratio of the indirect effect over the total effect of the aid.

<sup>4</sup> In our data, there are around 15–30 observations in each district, and we used district-level variations to quantify the IV for most countries. However, in some countries where there are many regions (e.g., 29 regions in Afghanistan) and a limited number of observations in the same district, we used regional-level variations.

<sup>5</sup> In a nonlinear parametric model, including the probit model, a control function approach or two-stage residual inclusion (2SRI) method gives more consistent estimators than the two-stage least squared (2SLS) method (Terza, Basu, and Rathouz 2008).

## 5. RESULTS

The results of the first-stage regression suggest that the instrumental variable has strong explanatory power for the probability of receiving government financial aid (cf., Table A3 in Appendix). We use the residual from this first-stage regression in our control function approach to estimate the probit models of Equations (1) and (2).

### 5.1 Coping Strategy, Government Financial Aid, and Family Business Conditions

Table 1 shows the results of marginal effects of adopting a coping strategy and receiving government financial aid. The estimated coefficients of the probit models are presented in Appendix Table A4. In regard to the coping strategy and family business conditions (first hypothesis), our results suggest that adopting a coping strategy is associated with a lower probability of a decline in family business income by 3.4 p.p. (Column 1) and a lower probability of business closure by 6.1 p.p. (Column 1). Evaluating at the mean value, these associations are interpreted as a 6.2% and 33.3% reduced probability of business income decline and business closure, respectively. These results support our first hypothesis and confirm the importance of adopting coping strategies during the pandemic.

In terms of the relationship between government financial aid and family business conditions (second hypothesis), receipt of aid is associated with a lower probability of a decline in family business income by 21.4 p.p. (Column 1). This is equivalent to as much as a 42.6% decrease in the probability of income decline, revealing the important role of financial aid for family business conditions, which have been overlooked in the literature. However, we did not find any significant association with the probability of business closure (Column 2).

The estimated linkage between government financial aid and coping strategy, which corresponds to the third hypothesis, is shown in Column (3): The aid is correlated with a higher probability of adopting a coping strategy by 24.8 p.p. or 62.2% (evaluated at the mean). Yet this effect is trivial because of the modest linkage between coping strategy and the probability of business income decline. Standard mediation analysis suggests that this indirect effect of government financial aid on the probability of adopting a coping strategy accounts for only 3.8% of the total effect.

In addition to the main regressions, we included the interaction term between coping strategy and government financial aid to estimate their joint effects on family business conditions. The results show that the interaction term is significantly correlated with the probability of a decline in family business income but not with the probability of business closure (see Columns (1b) and (2b) in Appendix Table A4 for more details). Nevertheless, the estimated (total) marginal effects of coping strategy and government financial aid in this regression are quite similar to those shown in Columns (1) and (2) in Table 1.<sup>6</sup>

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<sup>6</sup> While the interaction term is statistically significant, potential endogeneity may warrant further investigation. In our control function approach, we control for endogeneity of the government financial aid variable but not for endogeneity of the interaction term.

Overall, our results support the three hypotheses, revealing the vital role of coping strategy and government financial aid played in mitigating the adverse effects of the COVID-19 pandemic on family business conditions in ASEAN and CAREC countries. The former is particularly important for keeping the family business operations, while the latter substantially contributed to mitigating the adverse effects on family business income.

**Table 1: Linkages among Coping Strategy, Government Financial Aid, and Family Business Conditions during the COVID-19 Pandemic. Marginal Effects, Probit Model**

	(1)	(2)	(3)
Outcome variable	Decline in Income from Family Business	Closed Family Business	Coping Strategy
Related hypothesis	H1 and H2	H1 and H2	H3
Adopted coping strategy	−0.034** (0.016)	−0.061*** (0.012)	–
Received financial aid	−0.214** (0.087)	0.079 (0.072)	0.248*** (0.066)
Residual	0.231** (0.089)	−0.073 (0.074)	−0.211** (0.070)
Country fixed effect	Yes	Yes	Yes
Household and business characteristics	Yes	Yes	Yes
Observations	4,915	4,915	4,915

Notes: Asterisks (\*, \*\*, and \*\*\*) denote significance at the 10%, 5%, and 1% levels, respectively. Bootstrapped standard errors of estimated coefficients are in parentheses.

## 5.2 Heterogeneous Effects of Different Coping Strategies

We now investigate the heterogeneous effects of different coping strategies. In our main analysis, we do not distinguish the different coping strategies. Nevertheless, as suggested by Kraus et al. (2020), each coping strategy has different requirements for adoption and different effects on family business performance. For example, “switch products” could be an effective strategy to gain additional income but may require relatively high adoption costs. To understand the heterogeneous relationships between different coping strategies and family business conditions (H1), we first regress different types of coping strategies ( $CopStr_{hc}^1, CopStr_{hc}^2, CopStr_{hc}^3, \dots$ ) and government financial aid ( $Aid_{hc}$ ) on the probability of negative changes in family business conditions,  $Pr(\Delta FBC_{hc} = 1)$ , employing the probit model with a control function approach. This regression is equivalent to the estimation of Equation (1), but we now consider different types of coping strategies. We also regress government financial aid ( $Aid_{hc}$ ) on each coping strategy ( $CopStr_{hc}^1, CopStr_{hc}^2, CopStr_{hc}^3, \dots$ ), employing the probit model with a control function approach to investigate the heterogeneous relationships between government financial aid and different coping strategies (H3). These regressions are equivalent to Equation (3), but with distinctions of different coping strategies. The results are presented in Figure 4.

- a) **Different coping strategies and family business conditions:** Panel (a) shows that some but not all of the coping strategies seem to be beneficial for family business performance. “Switch products” and “increase use of phone call/sms (to communicate with suppliers and customers)” are related to a reduced probability of a decline in family business income. Indeed, family

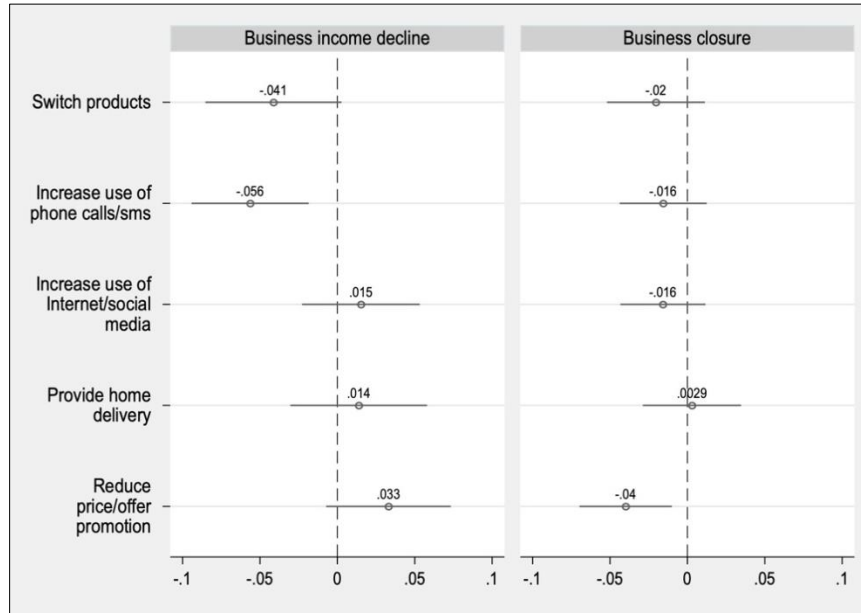
business households have had to deal with supply chain disruptions and sudden drops in sales during the pandemic (cf., KPMG 2021), and these two coping strategies, as “innovative” strategies, seem to be effective in tackling such challenges. “Reduce price/offer promotion,” which can be considered a “persevering” strategy, is the only coping strategy that relates to a reduced probability of business closure. With this strategy, business households may sustain their business sales and business operations.

- b) Government financial aid and adoption of different coping strategies:** Panel (b) shows that government financial aid is related to an increased probability of adopting “switch products” and “reduce price/offer promotion.” These strategies seem effective in mitigating the negative pandemic effects (Panel (a)) but require some fixed or variable costs. On the other hand, another effective strategy, “increase use of phone calls/sms,” does not require much cost because typical households in our surveyed countries have cellular phones.

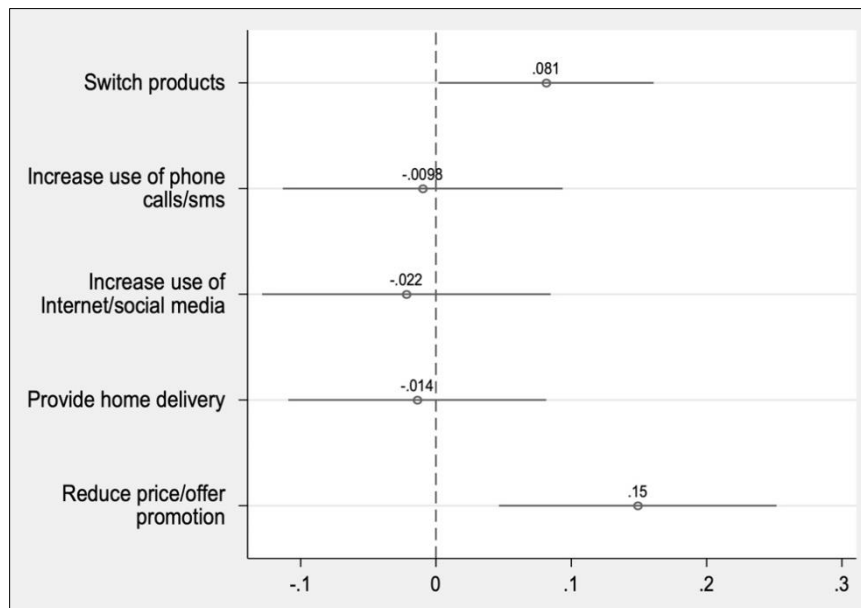
Our results suggest that some of the coping strategies were particularly important in mitigating the negative effects of the pandemic, and government financial aid encouraged the adoption of some of these strategies. However, we do not have detailed information on each coping strategy, including their adoption/investment costs. Future studies may investigate the cost-effectiveness of different coping strategies in family business during the pandemic.

**Figure 4: Heterogeneous Role of Different Coping Strategies**

**(a) Different coping strategies and family business conditions**



*continued on next page*

Figure 4 *continued***(b) Government financial aid and adoption of different coping strategies**

Note: This figure reports point estimates and the 90% confidence interval of the marginal effects.

### 5.3 Heterogeneous Role of Coping Strategies and Government Financial Aid

We also investigate the heterogeneous role of coping strategies and government financial aid across different household groups. Using the same estimation methods as in the main analysis, we divided our samples into several groups to estimate the parameters in Equations (1)–(3) for each group. Specifically, we compare the heterogeneity across the following household groups: (a) male-headed and female-headed family business households; (b) family business households in ASEAN and CAREC countries; and (c) family business households belonging to different business sectors. The results are presented in Figure 5.

- a) Male-headed vs. female-headed households:** Panel (a) reveals some heterogeneities between male-headed and female-headed family business households. On average, male-headed households seem to have better utilized government financial aid for their family businesses: Receiving the aid relates to a higher probability of adopting coping strategies for male-headed households than for female-headed households. This heterogeneous relationship of financial aid with coping strategy may partly explain the observed gaps in the probability of business income decline (61% vs. 54%) and that of adopting a coping strategy (37% vs. 31%). Female-headed households have usually had more limited financial capacity than male-headed households during the pandemic (Flor et al. 2022) and thus have not been able to take advantage of the financial aid for their family business like their male counterparts. Nevertheless, other factors, such as gender-based discrimination in the debt market (Hewa-Wellalage et al. 2022) and increased time spent on domestic tasks (Facebook, OECD, and World Bank 2020), could explain more about the gender gaps in changes in family business income and the adoption of effective coping strategies during the pandemic.

- b) ASEAN vs. CAREC:** Panel (b) shows differences across ASEAN and CAREC family business households. Interestingly, government financial aid is associated with better family business conditions and the adoption of coping strategies only for CAREC households. For ASEAN countries, the aid is not significantly associated with the probability of a decline in family business income and the probability of adopting a coping strategy. These heterogeneous effects are perhaps related to different structures of family businesses. In general, family businesses in Asian developing countries are small scale and operated only by family members, while in some ASEAN countries their scale has been expanding with increasing competitiveness (Bennedsen, Lu, and Mehrotra 2022; KPMG 2021). As government financial aid in most countries targets households, the relative importance of the aid in terms of family business will decrease as the scale of the family business increases and the financial objective of the household and that of the family business become separate.
- c) Different family business sectors:** Panel (c) shows the heterogeneous relationships across four different business sectors: agriculture (including fishery), manufacturing (including construction and industry), retail, and services (including transportation, restaurants, hotels, cafes, and education). As presented in the figure, the adoption of a coping strategy seems to be important for all the business sectors but particularly for retail and service sectors. In these sectors, government financial aid is significantly associated with both the probability of a business income decline and that of adopting coping strategies. In general, these sectors have more flexibility in their business models than other sectors, which may perhaps explain the heterogeneous linkages across different sectors.

Our results show some interesting heterogeneities across different groups of family business households. Specifically, male-headed business households seem to have benefitted more from government financial aid than their female-headed counterparts in terms of their family business conditions. The same is true for some business sectors (retail and services) compared to others (agriculture and manufacturing). These heterogeneous effects of government financial aid on business performance need to be further investigated in order to design better recovery policies.

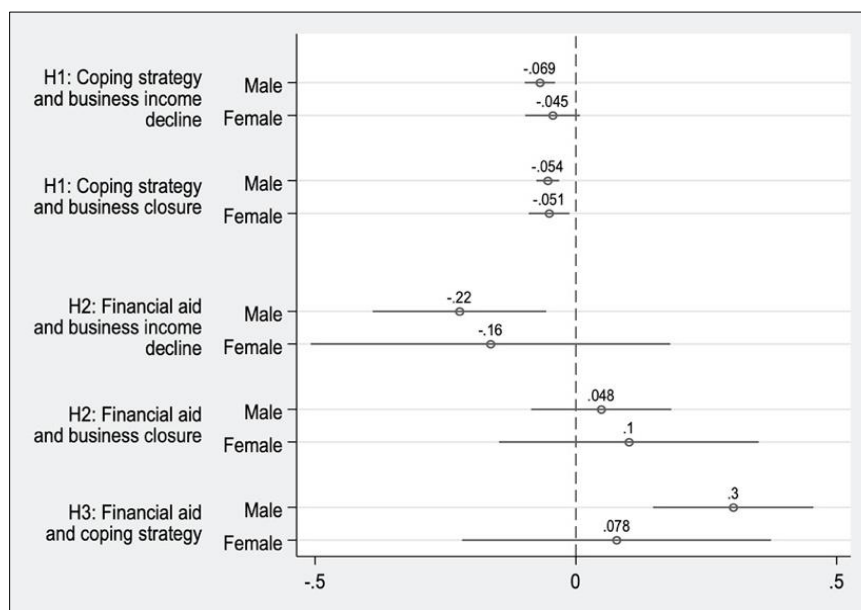
## 5.4 Limitations

Although our empirical analysis revealed the important roles of coping strategies and government financial aid for family business conditions during the pandemic, we would like to highlight two limitations. First, even though we estimated the impacts of coping strategies on changes in family business conditions during 2020, there are some endogeneity concerns, particularly for the business closure regression. This is because once households have closed their family business, they are unlikely to adopt any coping strategy, raising concerns about possible reverse causality. Second, our dataset does not provide any information about the usage of government financial aid by family business households. Therefore, this study does not provide clear evidence showing that households utilized government financial aid for their family business (either directly or indirectly). For instance, it could be that those family business households that received aid were more likely to apply for and enjoy other benefits such as tax exemptions and debt deferrals. Although we argue that the estimation biases arising from such concerns are limited due to the use of instrumental variables and a control function approach, and government aid is fungible, such concerns are not fully

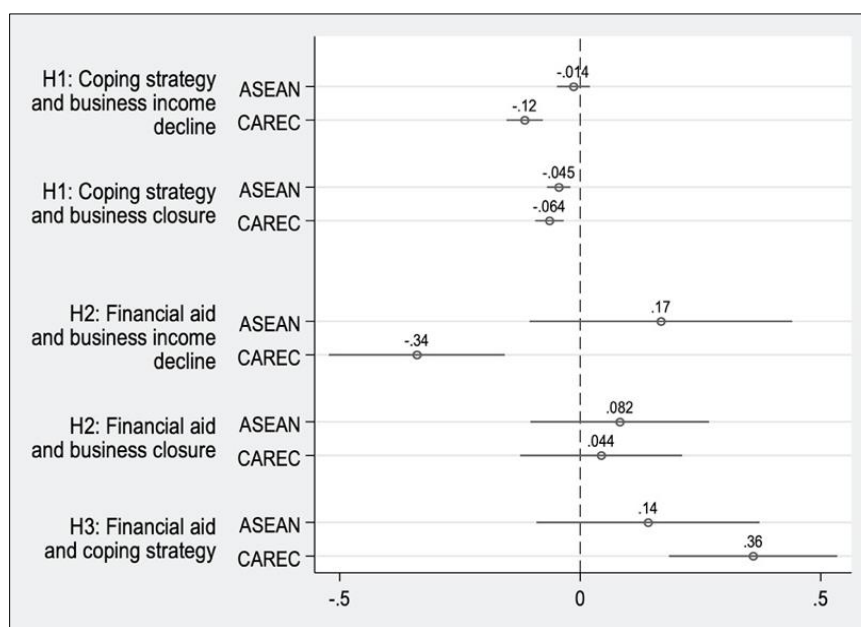
eliminated in this study.<sup>7</sup> Overall, our results should be interpreted only as associations rather than causalities.

**Figure 5: Heterogeneous Effects among Different Household Groups**

**(a) Male-headed vs. female-headed household**

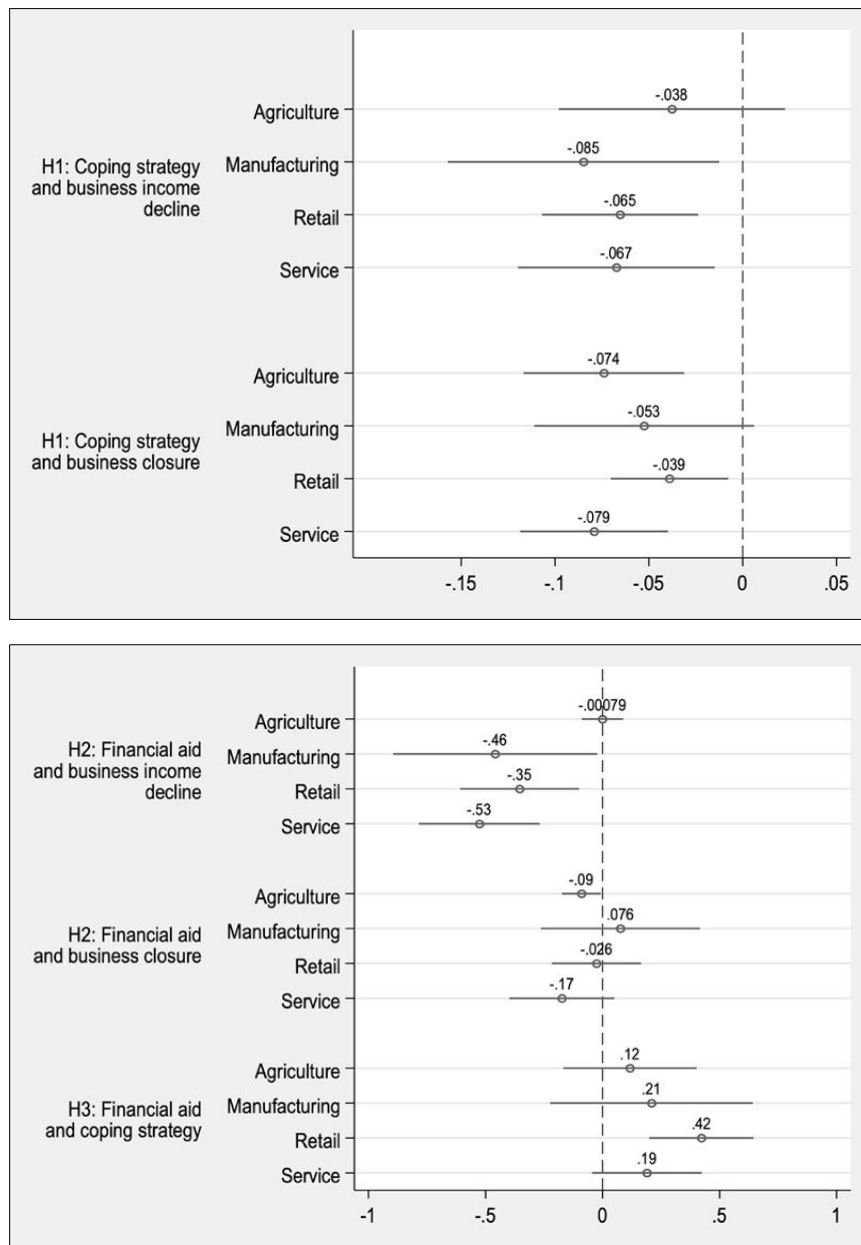


**(b) ASEAN vs. CAREC**



*continued on next page*

<sup>7</sup> One may criticize the fact that the instrumental variable we use captures district/region heterogeneity, which may be correlated to business conditions. However, the exclusion restriction in instrumental variable regression cannot be directly tested.

**Figure 4 continued****(c) Agricultural/fishery, manufacturing, retail, and service sector**

Note: This figure reports point estimates and the 90% confidence interval of the marginal effects.

## 6. CONCLUSION

In this study, we investigate the role of coping strategies and government financial aid in mitigating the negative impacts of the COVID-19 pandemic on family businesses in developing Asia. Using the subsample of representative household survey datasets from 17 ASEAN and CAREC countries, we first confirm that family business households were negatively affected by the pandemic and related policy interventions. During the study period (i.e., between January 2020 and December 2020), 58.7% of ASEAN and 41.4% of CAREC family business households experienced a decline in



their business income, and 4.1% of ASEAN and 7.1% of CAREC households closed their business. We also find associations between changes in family business conditions and changes in household expenditures, implying the importance of family business conditions as a determinant of household welfare.

Following the conceptual framework, we investigated the roles of a coping strategy and government financial aid by testing the three null hypotheses: (H1) Adopting coping strategies is not related to the probability of a decline in income from family business and business closure; (H2) Receiving government financial aid is not related to the probability of a decline in income from family business and business closure; and (H3) Receiving government financial aid is not related to the probability of adopting coping strategies. We find that adopting coping strategies is related to a lower probability of a decline in family business income by 3.4 p.p. and that of business closure by 6.1 p.p. We also find that government financial aid is associated with a reduced former probability by 21.4 p.p., but do not find any significant linkage with the latter probability. This relationship reveals the important role of government financial aid in terms of family business conditions. Last, we find that financial aid is related to a reduced probability of business income decline, partly through being related to a higher probability of adopting coping strategies, of which indirect effects account for only 3.8% of the total effect. In addition to these results, we also find some interesting heterogeneous linkages among coping strategies, government financial aid, and family business conditions across different types of coping strategies and different groups of households.

Overall, this paper revealed the important roles of a coping strategy and government financial aid played in mitigating the adverse impacts of the COVID-19 pandemic on family business conditions during the pandemic. To better design policies for the recovery of family businesses from the pandemic, further investigations on the mitigation mechanisms and heterogeneities across household groups and business sectors are promising avenues for future studies.

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## APPENDIX

**Table A1: Government Financial Aid Program Introduced during the COVID-19 Pandemic in 2020, Selected ASEAN and CAREC Countries**

<b>ASEAN Countries</b>	
Cambodia	Monthly cash transfer program for poor and vulnerable households
Indonesia	Conditional cash transfer to low-income households
Lao PDR	Compensation of 60% of workers' salary, those who (1) participated in the social security scheme and (2) had their work suspended during May and June 2020
Malaysia	Cash transfers to low-income households
Philippines	Cash aid program for 18 million low-income households (PHP10,000–16,000 aid); assistance for vulnerable workers and SMEs
Thailand	Cash transfer (THB15,000) to about 14 million nonfarm workers and 10 million farmers
Viet Nam	Cash transfer package of VND36 trillion (0.5% of GDP) for affected workers and households with monthly cash transfers
<b>CAREC Countries</b>	
Afghanistan	Cash and in-kind aid (equivalent to USD 100) to poor households in urban area; and in-kind aid (equivalent to USD 100) to those in rural area
Azerbaijan	Financial supports for the affected businesses and individuals; An additional cash transfer of AzN 190 unemployed and low-income people who lost earnings because of the special quarantine regime
Georgia	Financial supports for individuals and businesses amounted GEL 1.86 billion (3.8% of GDP)
Kazakhstan	Cash payments to the unemployed and self-employed individuals; additional cash transfers to individuals who lost their jobs due to the quarantine
Kyrgyz Republic	Food security support program to the vulnerable groups
Mongolia	Increase of child allowance and unemployment benefits; increase of food stamp allowance
Pakistan	Cash transfers to 6.2 million daily wage workers; cash transfers to more than 12 million low-income families
Tajikistan	Cash transfers equivalent to minimum wage to vulnerable households and other socially disadvantaged groups
Turkmenistan	NA
Uzbekistan	Financial assistance to families with children and low-income families receiving social benefits

Source: Authors' own elaboration based on IMF (2022).

**Table A2: Descriptive Statistics of Household Characteristics and Government Financial Aid, Household With Vs. Without Family Business**

	(1)	(2)	(3)	(4)	(5)	(6)
	ASEAN			CAREC		
	With Business	Without Business	Diff.	With Business	Without Business	Diff.
Characteristics of household head						
Male household head	0.680 (0.467)	0.724 (0.447)	−0.044*** (0.011)	0.872 (0.334)	0.776 (0.417)	0.097*** (0.009)
Age	44.81 (11.88)	45.21 (12.89)	−0.398 (0.316)	43.87 (12.25)	46.40 (14.08)	−2.522*** (0.306)
Secondary school	0.169 (0.375)	0.195 (0.396)	−0.026** (0.009)	0.064 (0.244)	0.069 (0.254)	−0.006 (0.006)
High school	0.386 (0.487)	0.330 (0.470)	0.057*** (0.012)	0.351 (0.477)	0.343 (0.475)	0.009 (0.011)
College graduate	0.217 (0.413)	0.206 (0.405)	0.011 (0.010)	0.495 (0.500)	0.463 (0.499)	0.031** (0.011)
Characteristics of household						
Household size	4.734 (1.912)	4.508 (1.955)	0.226*** (0.047)	5.667 (3.375)	5.655 (3.734)	0.012 (0.082)
First income quantile	0.238 (0.426)	0.302 (0.459)	−0.064*** (0.011)	0.245 (0.430)	0.312 (0.463)	−0.067*** (0.010)
Second income quantile	0.254 (0.435)	0.285 (0.452)	−0.032** (0.011)	0.224 (0.417)	0.237 (0.425)	−0.013 (0.009)
Third income quantile	0.228 (0.420)	0.218 (0.413)	0.010 (0.010)	0.213 (0.410)	0.218 (0.413)	−0.005 (0.009)
Fourth income quantile	0.280 (0.449)	0.193 (0.395)	0.087*** (0.010)	0.255 (0.436)	0.173 (0.378)	0.082*** (0.009)
Experienced lockdown	0.364 (0.481)	0.371 (0.483)	−0.007 (0.012)	0.635 (0.482)	0.506 (0.500)	0.129*** (0.011)
Urban area	0.446 (0.497)	0.424 (0.494)	0.022 (0.012)	0.463 (0.499)	0.473 (0.499)	−0.010 (0.011)
Government financial aid						
Received financial aid from government	0.330 (0.470)	0.370 (0.483)	−0.040 (0.032)	0.246 (0.431)	0.253 (0.435)	−0.007 (0.010)
Amount of aid (USD)	111.9 (283.2)	108.7 (227.0)	3.143 (6.082)	100.9 (284.0)	69.85 (222.9)	31.07*** (5.561)
Amount of aid (USD), those who received	331.9 (406.2)	288.3 (291.3)	43.59** (13.84)	411.33 (448.70)	276.61 (373.7)	134.7*** (18.33)
Observations	2,857	4,232		2,705	7,547	

Note: Asterisks (\*, \*\*, and \*\*\*) denote significance at the 10%, 5%, and 1% levels, respectively, in mean differences between households with and without a family business.

**Table A3: Determinants of Receiving Government Financial Aid during the COVID-19 Pandemic, Probit Model (First-Stage Regression)**

	(1)	(2)	(3)
	ALL	ASEAN	CAREC
HH income quantile 1 (poorest)	0.352*** (0.043)	0.418*** (0.060)	0.244*** (0.063)
HH income quantile 2	0.203*** (0.043)	0.250*** (0.058)	0.116* (0.066)
HH income quantile 3	0.187*** (0.044)	0.273*** (0.060)	0.063 (0.065)
HH income increased	0.104** (0.047)	0.201*** (0.066)	0.003 (0.068)
HH income decreased, 26%–50%	0.083** (0.041)	0.147*** (0.054)	–0.008 (0.064)
HH income decreased, > 50%	0.074 (0.052)	0.115* (0.068)	0.035 (0.079)
Female head	0.039 (0.032)	0.061 (0.044)	0.017 (0.049)
High school graduate	0.025 (0.040)	0.010 (0.047)	0.212** (0.090)
College graduate	–0.101** (0.044)	–0.208*** (0.057)	0.143 (0.090)
Experienced lockdown	0.164*** (0.035)	0.115** (0.049)	0.205*** (0.050)
Rural area	–0.076** (0.030)	–0.062 (0.040)	–0.089** (0.045)
Instrument	3.437*** (0.202)	2.833*** (0.382)	3.666*** (0.241)
Constant	–2.253*** (0.095)	–2.337*** (0.104)	–2.257*** (0.120)
Country fixed effect	Yes	Yes	Yes
F statistics	312.2***	199.0 ***	235.4***
Observations	4,915	2,846	2,069

Notes: Asterisks (\*, \*\*, and \*\*\*) denote significance at the 10%, 5%, and 1% levels, respectively. Standard errors of estimated coefficients are in parentheses.

**Table A4: Linkages among Coping Strategy, Government Financial Aid, and Family Business Conditions during the COVID-19 Pandemic, Probit Model**

	(1)	(1a)	(1b)	(2)	(2a)	(2b)	(3)
Outcome Variable	Decline in Income from Family Business			Closed Family Business			Coping Strategy
Adopted coping strategy	−0.092* (0.047)		−0.145*** (0.049)	−0.263*** (0.061)		−0.276*** (0.066)	
Received financial aid	−0.588** (0.231)	−0.610** (0.255)	−0.683*** (0.237)	0.339 (0.321)	0.259 (0.339)	0.321 (0.271)	0.815*** (0.252)
Coping strategy × financial aid			−0.677*** (0.238)			0.079 (0.276)	
Residual	0.633*** (0.225)	0.652** (0.267)	0.661*** (0.233)	−0.314 (0.345)	−0.245 (0.351)	−0.311 (0.282)	−0.694*** (0.261)
HH income quantile 1 (poorest)	0.246*** (0.065)	0.248*** (0.071)	0.248*** (0.052)	0.107** (0.052)	0.114* (0.065)	0.107 (0.069)	−0.117* (0.065)
HH income quantile 2	0.227*** (0.051)	0.230*** (0.065)	0.226*** (0.059)	−0.089 (0.070)	−0.080 (0.075)	−0.090 (0.061)	−0.127* (0.065)
HH income quantile 3	0.181*** (0.051)	0.179*** (0.066)	0.186*** (0.061)	−0.108* (0.061)	−0.112* (0.067)	−0.107* (0.062)	0.066 (0.049)
Female head	0.080** (0.041)	0.082* (0.047)	0.078 (0.055)	0.027 (0.050)	0.035 (0.053)	0.027 (0.055)	−0.088** (0.043)
High school graduate	0.095* (0.051)	0.092** (0.045)	0.094** (0.042)	0.021 (0.052)	0.015 (0.060)	0.020 (0.061)	0.123** (0.051)
College school graduate	0.146** (0.065)	0.135** (0.067)	0.145** (0.056)	0.041 (0.071)	0.012 (0.075)	0.041 (0.067)	0.374*** (0.061)
Lockdown area	0.182*** (0.052)	0.174*** (0.046)	0.185*** (0.045)	0.024 (0.060)	0.003 (0.059)	0.024 (0.061)	0.282*** (0.054)
Rural area	−0.084** (0.035)	−0.083* (0.049)	−0.084* (0.044)	−0.048 (0.054)	−0.043 (0.049)	−0.048 (0.046)	−0.027 (0.036)
Agriculture/fishery	−0.268*** (0.095)	−0.271*** (0.085)	−0.267*** (0.086)	−0.172* (0.097)	−0.183* (0.096)	−0.172 (0.120)	0.101 (0.090)
Industry/manufacturing	0.149 (0.098)	0.143 (0.105)	0.149 (0.092)	0.040 (0.118)	0.017 (0.120)	0.040 (0.117)	0.195** (0.094)
Construction	0.126 (0.117)	0.123 (0.127)	0.126 (0.113)	0.145 (0.154)	0.135 (0.151)	0.145 (0.139)	0.090 (0.133)
Retail	0.055 (0.078)	0.053 (0.084)	0.053 (0.077)	0.047 (0.100)	0.038 (0.094)	0.046 (0.113)	0.041 (0.068)
Transportation	0.194* (0.115)	0.192 (0.140)	0.191 (0.135)	0.086 (0.143)	0.076 (0.141)	0.085 (0.136)	0.039 (0.119)
Restaurants, hotels, cafes	0.112 (0.094)	0.105 (0.090)	0.110 (0.100)	0.238** (0.120)	0.213* (0.123)	0.237** (0.112)	0.239** (0.101)
Health and education	−0.040 (0.130)	−0.055 (0.147)	−0.037 (0.123)	0.140 (0.157)	0.094 (0.140)	0.141 (0.174)	0.469*** (0.140)
Personal services	−0.030 (0.089)	−0.030 (0.096)	−0.033 (0.099)	0.014 (0.121)	0.013 (0.127)	0.014 (0.139)	−0.074 (0.089)
Constant	0.641*** (0.111)	0.636*** (0.137)	0.649*** (0.110)	−1.098*** (0.128)	−1.111*** (0.122)	−1.097*** (0.142)	−1.447*** (0.112)
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,915	4,915	4,915	4,915	4,915	4,915	4,915

Notes: Asterisks (\*, \*\*, and \*\*\*) denote significance at the 10%, 5%, and 1% levels, respectively. Bootstrapped standard errors of estimated coefficients are in parentheses.