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How Does COVID-19 Affect China's Insurance Market?

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ABSTRACT

The insurance market has been greatly impacted by the outbreak of the COVID-19 pandemic. We employ monthly provincial panel data and fixed-effects models to study how COVID-19 has impacted China's insurance market. The study finds that the commercial insurance premium income, the monthly year-on-year growth rate of premium, insurance density, and insurance depth have all decreased due to COVID-19. The negative impacts on property and personal insurances are both statistically significant. Raising the level of social security and digital insurance can alleviate the adverse impact of the pandemic on the insurance market.

KEYWORDS

COVID-19; adverse shock; fixed-effects model; insurance market; China

JEL CLASSIFICATION

G22; I18; H55

1. Introduction

The novel Coronavirus (COVID-19) had spread across 215 countries and territories in all 5 continents by May 12, 2020. On January 30, 2020, the unrelenting spread of COVID-19 prompted the World Health Organization to declare it a public health emergency, and on March 12, 2020 COVID-19 was declared a pandemic. This pandemic has caused great social and economic disruptions, leading to a decline in consumption, investment, services, and industrial production activities around the world. In particular, the insurance market in mainland China has been severely affected. The year-on-year (YOY) growth rate of gross premium in the first quarter of 2019 was 15.8%, while the rate was 6.27% in the first quarter of 2020, indicating a decrease of 9.53 percentage points in growth rate. In addition, the monthly YOY growth rates of premium in the first three months of 2020 were −12.53%, −21.35%, and 1.93%, respectively, showing a sharp decline compared to the rates of 23.97%, 10.19%, and 6.76%, respectively, in the same periods of the previous year.¹

While research on COVID-19 and equity markets globally is evolving (Ali, Alam, and Rizvi 2020; Haroon and Rizvi 2020), a literature has developed that examines the impact of pandemics on various energy issues (Apergis and Apergis 2020; Fu and Shen 2020; Gil-Alana and Monge 2020; Liu, Wang, and Lee 2020; Narayan 2020; Qin, Zhang, and Su 2020). In addition, there are

also studies on socioeconomic factors (Fang, Long, and Yang 2020; Qiu, Xi, and Wei 2020), pandemic mitigation (Chudik, Pesaran, and Alessandro 2020), and households' spending and consumption (Baker et al. 2020; Eichenbaum, Sergio, and Mathias 2020). However, there is no empirical study on the impact of the pandemic on the insurance market. The fundamental function of insurance is to protect people from risks. Encountering the catastrophic hazard of COVID-19 has highlighted the importance of a well-functioning insurance market. Thus, it is of great practical and policy value to study how the pandemic affects the insurance market.

In this empirical study, we employ monthly provincial-level panel data and fixed-effects models to study the impact of COVID-19 on China's insurance market. We find that COVID-19 had a significant adverse impact on the insurance market in the short term due to the limitation of insurance marketing channels and the suppression of household insurance demand. The development of social security and digital insurance could help alleviate the negative impact of COVID-19 on the insurance market. This study provides insights into the impacts of COVID-19 on the Chinese insurance market.

The rest of the article is organized as follows: [Section 2](#) introduces the data, defines the variables, along with the empirical models; [Section 3](#) reports the empirical results, and the last section concludes the study.

2. Materials and Methods

2.1. Data Sources and the Definition of Variables

We use data for 29 provinces, municipalities, and autonomous regions of mainland China, excluding Tibet Autonomous Region and Qinghai Province. We select data of the first quarters of 2018, 2019, and 2020 to construct the balanced panel data for the benchmark analysis for two reasons. First, a popular saying among the insurers is that “a good start means the full success in the year,” which is commonly known as “the auspicious start.” To achieve the sales target, the insurance companies typically launch various marketing activities, such as increasing publicity, holding wine parties, discounting premiums, launching new insurance products, training agents, using distribution channels, subsidizing commission for the agents and brokers, and providing salary incentives for the employers in the last few months of the previous year. Thus, the premium income in the first few months tends to be significantly higher than that of other months, and it is incomparable between different quarters. Second, we can only collect the data on premium income up to the first quarter of 2020, so that the data of the first quarter of 2018 and 2019 can be directly compared with that of 2020. In addition, we will use the monthly balanced panel data from January 2018 to March 2020 for the robustness test.

2.2. Descriptive Statistics

Since all the provinces in mainland China started first-level response to major public health emergencies and implemented strict social isolation and traffic control measures in the last few days of January, and the premium data are provided on a monthly basis, we regard the February and March of 2020 as posterior to the pandemic and other months as prior to the pandemic. Table 2 shows the prior and posterior mean-variance test results, where the monthly YOY growth rates of the gross premiums before and after the outbreak are 4.97% and −2.07%, respectively. The average YOY growth rates of property, personal,² life, and accident insurances after the outbreak are significantly lower than before, whereas the monthly YOY growth rate of health insurance premium increases, although the result is insignificant. This more-or-less coincides with our expectations. Since the outbreak, the entire insurance industry has been impacted adversely, and the monthly YOY growth rates of all insurance products have declined by varying degrees. COVID-19 also instigated consumers' potential demand for health care; hence, the health insurance premium continued to grow steadily after the outbreak.

2.3. Empirical Models

The fixed-effects model to analyze the impact of COVID-19 on China's insurance market is expressed as follows:

$$\begin{aligned} Ins_{i,t} = & \alpha_0 + \alpha_1 CoV_{i,t} + \alpha_2 CPI_{i,t} + \alpha_3 PPI_{i,t} + \alpha_4 \ln Income_{i,t} + \alpha_5 \ln GDP_{i,t} \\ & + \delta_i + \eta_t + \varepsilon_{it} \end{aligned} \quad (1)$$

Table 1. Definition of variables. This table reports the definition of variables and data sources. The commercial insurance products include property, personal, life, accident, and health insurances.

Variables		Measurement	Data source
Explained variables	Ln (premium)	Ln (gross premium income (CNY))	Official website of the China Banking and Insurance Regulatory Commission and the provincial offices
	YOY growth rate	(Monthly gross premium YOY gross premium last year)/YOY gross premium last year ×100%	
	Insurance density	Monthly gross premium (CNY)/resident population last year	
	Insurance depth	Monthly gross premium/monthly GDP	
Explanatory variables	Confirmed cases	Cumulative number of confirmed cases at end of the month/100	Official website of National Health Commission of China
	Confirmed ratio	Cumulative number of confirmed/ population (10,000 per unit)	
Control variables	CPI	Monthly CPI (using the same month in 2018 as basis)	Official website of the National and Provincial Bureau of Statistics of China
	PPI	Monthly PPI (using the same month in 2018 as basis)	
	Ln (PDI)	Ln (monthly per capita disposable income (CNY))	
	Ln (GDP)	Ln (monthly GDP (CNY))	

Table 2. Mean-variance tests. This table reports the results of the mean-variance test of the insurance development prior and posterior to the pandemic. The symbols ***, **, and * represent significance levels of 1%, 5%, and 10%, respectively.

Monthly YOY growth rate	Prior to the pandemic			Posterior to the pandemic			t-test
	obs	mean	variance	obs	mean	variance	Mean (post.)-mean (prior)
Commercial insurance	203	4.97%	0.0120	58	-2.07%	0.0179	-7.04%***
Property insurance	203	9.73%	0.0086	58	-4.55%	0.0222	-14.27%***
Personal insurance	203	4.64%	0.0143	58	-1.38%	0.0212	-6.01%**
Life insurance	203	1.52%	0.0144	58	-9.55%	0.0208	-11.07%***
Health insurance	202	26.32%	0.0287	58	33.75%	0.0615	7.44%
Accident insurance	193	16.08%	0.0260	56	-12.23%	0.0385	-28.31%***

Ins_{it} indicates the insurance market development of province i at time t . We use gross premium income, YOY growth rate, insurance density, and insurance depth to measure the insurance market development. Subscript i stands for each of the 29 provinces, municipalities, and autonomous regions in mainland China, excluding Tibet and Qinghai. The t stands for months, from January 2018 to March 2020. The $nCoV_{i,t}$ are variables that represent the severity of the pandemic, including the number of confirmed cases and ratio to the local resident population. The $CPI_{i,t}$ and $PPI_{i,t}$ are consumer and producer price indexes, respectively, using the same month in 2018 as the basis. $lnIncome_{i,t}$ is the logarithm of per capita disposable income, the $lnGDP_{i,t}$ is the logarithm of GDP per capita, the δ_i and η_t are the provincial and time fixed effects, respectively, and ε_{it} is the error term.

We augment Equation (1) to study the impact of the pandemic on China's insurance market for the robustness test:

$$Ins_{it} = \alpha_0 + \alpha_1 COVID_dummy_t + \alpha_2 CPI_{it} + \alpha_3 PPI_{it} + \alpha_4 lnIncome_{it} + \alpha_5 lnGDP_{it} + \delta_i + \varepsilon_{it} \quad (2)$$

The variable representing the effect of the pandemic is a dummy variable, $COVID_dummy_t$, which takes a value 1 if a province reports confirmed cases of COVID-19 on a monthly basis, and 0 otherwise. Since all provinces in the mainland had confirmed cases at the end of January 2020, the dummy variable is only valued in the time dimension. To eliminate complete collinearity, the monthly fixed effect will not be controlled in Equation (2).

3. Results

3.1. Using the Logarithm of Gross Premium as a Dependent Variable

To eliminate the effects of “an auspicious start” – a common feature of the Chinese insurance market – we use the data of various provinces from the first quarters of 2018, 2019, and 2020 to study the impact of COVID-19 on the insurance market based on the fixed-effects model. The confirmed ratio, which is the number of confirmed cases divided by the gross permanent resident

population, is used to measure the severity of COVID-19. One unit of the confirmed ratio equals one confirmed case in every 10,000 people in a province. We use the logarithm of premium income, monthly YOY growth rate, monthly insurance density, and depth to proxy the development of the insurance market. First, COVID-19 may be detrimental to China's insurance market because it restricts insurance sales channels. Owing to the outbreak, individual agencies' businesses were largely suspended, banking channels restricted, and telemarketing businesses suspended because of their centralized office business-style, and direct sales business was greatly restricted.

As offline selling remains the main source of commercial insurance premium income in China, the proportion of online insurance premium income is very low. Therefore, the strict lockdown and social distancing measures are likely to have severe effects on the premium income and its growth. Second, COVID-19 may lead to rising unemployment rates and declining household incomes and may significantly restrict household demand for commercial insurance and intensify the negative impact of COVID-19 on the insurance market.

Table 3 reports the benchmark estimation results. First, Columns 1–2 show that COVID-19 has significantly reduced the gross premiums and monthly YOY growth rates of insurance premiums. For every unit increase in the confirmed ratio, the gross premiums and monthly YOY growth rate fall by 2.03% and 3.54%, respectively. Second, Columns 3–4 show that COVID-19 has significantly reduced the insurance density and depth. For every unit increase in the confirmed ratio, the monthly per capita premium income and proportion of premium to GDP fall by 13.21 yuan and 0.44%, respectively. The results further show that COVID-19 has significantly and negatively impacted the premium income, monthly premium YOY growth rate,

Table 3. Benchmark estimates of COVID-19's impact on the insurance market in China. This table reports the benchmark estimation results of COVID-19's impact on the insurance market in China based on Model (1). The symbols ***, **, and * represent significance levels of 1%, 5%, and 10%, respectively. The robust standard error of clustering at the provincial level is shown in parentheses.

	(1)	(2)	(3)	(4)
	Ln (premium)	YOY growth rate	Insurance density	Insurance depth
Confirmed ratio	−0.0203*** (0.0064)	−0.0354** (0.0145)	−13.2077*** (2.9774)	−0.0044*** (0.0012)
CPI	0.0208 (0.0180)	−0.0375 (0.0233)	−14.1398 (16.6924)	−0.0015 (0.0024)
PPI	0.0004 (0.0041)	0.0156 (0.0102)	3.2223 (2.5371)	−0.0002 (0.0005)
Ln(PDI)	0.6876*** (0.2165)	1.9311*** (0.4950)	463.1236** (219.9032)	−0.0022 (0.0336)
Ln(GDP)	−0.3735** (0.1596)	−1.2580*** (0.4004)	−415.1421*** (98.2027)	−0.1617*** (0.0311)
Prov FE	Y	Y	Y	Y
Month FE	Y	Y	Y	Y
N	261	261	261	261
Adj R-sq	0.9455	0.5319	0.7925	0.8727

insurance density, and depth in China's insurance market. Therefore, a quick and effective containment of COVID-19 would be helpful to the insurance market, while the laissez-faire approach to COVID-19 may have profound negative impacts on the development of the insurance market.

Additionally, Table 3 shows that per capita disposable income has a significant positive impact on the insurance market. The growth of disposable income increases the household demand for commercial insurance and promotes the growth of the insurance market. It also indicates that GDP influences the insurance market negatively. One possible reason is that households' income growth lags behind economic growth, and both the primary distribution and redistribution of national income show that the ratio of resident income decreases, and the ratio of corporate and government income rises in China (Zhang and Zhao 2014). Thus, it will directly inhibit household demand for commercial insurance. In addition, the duration for the data used in this study is too short to reflect the positive effect of GDP growth on the insurance market in the medium to long term.

3.2. Separate Regression Results for Property and Personal Insurances

In this sub-section, we analyze how COVID-19 has affected the property insurance and personal insurance markets separately. In China's insurance market, premium income mainly comes from personal insurance, and the proportion of property insurance is relatively low. The premium income of life insurance accounts for about 80% of personal insurance, while both health and accident insurances account for about 20%. The premium income of automobile insurance accounts for more than 60% of the property insurance premium income. The impact of COVID-19 on property and personal insurances may vary with the structures of insurance markets.

Table 4 displays the estimated results. First, Columns 1–2 show that COVID-19 affects the premium income of property insurance more severely than that of personal insurance. The increase in the confirmed ratio by one unit reduces the gross property insurance premium income by 3.86% and personal insurance premium income by 1.4%. Second, Columns 3–4 show that COVID-19 exerted almost the same negative impacts on property and personal insurances in terms of monthly YOY growth rate of the premiums. A unit increase in the confirmed ratio leads to a decrease of 3.08% and 3.33% in the monthly YOY growth rate of insurance premiums for property and personal insurances, respectively. Finally, Columns 5–8 indicate that COVID-19 has significantly reduced the insurance density and depth of property and personal insurances; however, the negative impact on personal insurance is greater than that on property insurance. For example, a unit increase in the confirmed ratio would result in a drop of 0.07% in the depth

Table 4. Regression results for property and personal insurances separately. This table reports the regression results of COVID-19's impact on the property and personal insurances based on Model (1). The symbols ***, **, and * represent significance levels of 1%, 5%, and 10%, respectively. The standard error of clustering at the provincial level is shown in parentheses.

	Insurance premium		YOY growth rate		Insurance density		Insurance depth	
	(1)property	(2)person	(3)property	(4)person	(5)property	(6)person	(7)property	(8)person
Confirmed ratio	-0.0386*** (0.0048)	-0.0140* (0.0079)	-0.0308*** (0.0067)	-0.0333** (0.0153)	-1.9347*** (0.2743)	-11.3693*** (2.9097)	-0.0007*** (0.0001)	-0.0038*** (0.0011)
CPI	0.0012 (0.0169)	0.0373* (0.0214)	-0.0084 (0.0326)	-0.0309 (0.0286)	-4.4289 (4.1158)	-9.3266 (13.6512)	-0.0002 (0.0003)	-0.0012 (0.0024)
PPI	-0.0032 (0.0054)	0.0012 (0.0046)	-0.0023 (0.0086)	0.0173 (0.0111)	0.3524 (0.5911)	2.8082 (2.1027)	-0.0000 (0.0001)	-0.0002 (0.0005)
Ln(PDI)	-0.0987 (0.4128)	0.8315*** (0.2809)	0.7498 (0.5791)	2.0763*** (0.5572)	-17.0055 (30.6251)	484.7728** (225.4813)	-0.0046 (0.0080)	0.0035 (0.0317)
Ln(GDP)	-0.3494** (0.1563)	-0.3020 (0.2173)	-0.4584** (0.2140)	-1.3375*** (0.4443)	-20.7263* (11.5761)	-397.1439*** (96.2648)	-0.0209*** (0.0038)	-0.1418*** (0.0290)
Prov FE	Y	Y	Y	Y	Y	Y	Y	Y
Month FE	Y	Y	Y	Y	Y	Y	Y	Y
N	261	261	261	261	261	261	261	261
Adj R-sq	0.9213	0.9348	0.4887	0.5097	0.7054	0.7883	0.8647	0.8496

of property insurance, compared to a significant drop of 0.38% in the depth of personal insurance.

The above-mentioned discrepancies between property and personal insurances may be attributed to the following factors. More than 60% of the property insurance premium income comes from auto insurance. During the outbreak, the sales of new cars dropped sharply or even to zero leading to the exact same decline in the premium income from new cars. Furthermore, many families do not renew their car insurances immediately upon expiry because they use them sparingly or not at all during the pandemic. Therefore, we can infer that COVID-19 has had the most severe impact on the auto insurance market, resulting in a larger decline in gross property insurance premiums than in personal insurance. At the same time, because property insurance accounts for a small share of China's insurance market, even though the premium income of property insurance itself has fallen greatly, changes in commercial insurance density and depth are still small.

3.3. Robustness Test

For the robustness test, we use the number of confirmed cases and the dummy variable of whether COVID-19 has broken out, to measure the severity of COVID-19. First, the more confirmed cases in a region, the more serious the pandemic and the more likely its negative impact on the insurance market. Second, the dummy variable can be used to directly compare the differences between the insurance markets before and after the COVID-19, to identify the impact of the pandemic on insurance market. As stated in [Equation \(2\)](#), we only control for the provincial fixed effect in the regression. [Table 5](#) displays the estimated results; the alternative indicators of COVID-19 have the same results as that obtained in the benchmark regression, making the benchmark results robust.

We also employ monthly data for all 27 months in 29 provinces from January 2018 to March 2020 for the robustness test. [Table 6](#) reports the estimated results; they show the robustness of our conclusion that the confirmed ratio has a significantly negative impact on the gross premium income, monthly premium YOY growth rate, insurance density, and insurance depth. However, considering that there are only first quarter data in 2020, it is impossible to compare the data with the full year data in 2018 and 2019. To exclude the effects of an auspicious start, we still use the estimated results of the 9 months' data in 29 provinces as the benchmark.

3.4. Heterogeneity Analysis

We further discuss whether COVID-19 had a heterogeneous impact on insurance market. First, considering that social security provides a means for

Table 5. Robust estimation results using other COVID-19 indicators. We use Model (1) to estimate Panel A, except using the confirmed cases to measure the $nCoV_{it}$. We control for the CPI, PPI, PDI, GDP, and provincial and monthly fixed effects in Panel A.; Meanwhile, we use Model (2) to estimate Panel B and do not control for the fixed effects of months. Owing to the limited space, not all the results of control variables are reported. The symbols ***, **, and * represent the significance levels of 1%, 5%, and 10%, respectively. The robust standard error of clustering at the provincial level is shown in parentheses.

	Ln (Premium)	YOY growth rate	Insurance density	Insurance depth
Panel A	(1)	(2)	(3)	(4)
<i>Confirmed cases</i>	−0.0003*** (0.0001)	−0.0006** (0.0003)	−0.2175*** (0.0522)	−0.0001*** (0.0000)
<i>N</i>	261	261	261	261
<i>Adj R-sq</i>	0.9455	0.5330	0.7924	0.8726
Panel B	(5)	(6)	(7)	(8)
<i>COVID_dummy</i>	−0.4931*** (0.0388)	−0.1021*** (0.0256)	−205.3983*** (26.7046)	−0.0430*** (0.0041)
<i>N</i>	261	261	261	261
<i>Adj R-sq</i>	0.2920	0.1838	0.3101	0.3262

Table 6. Robust estimation results using the monthly data from January 2018 to March 2020. This table reports the robust estimation results using monthly data from January 2018 to March 2020 based on Model (1). The symbols ***, **, and * represent significance levels of 1%, 5%, and 10%, respectively. The standard error of clustering at the provincial level is shown in parentheses.

	(1)	(3)	(4)	(5)
	Ln (Premium)	YOY growth rate	Insurance density	Insurance depth
<i>Confirmed ratio</i>	−0.0101** (0.0049)	−0.0153*** (0.0040)	−4.1961* (2.2452)	−0.0023*** (0.0008)
<i>CPI</i>	0.0062 (0.0101)	−0.0150* (0.0073)	1.7837 (3.8504)	0.0004 (0.0010)
<i>PPI</i>	0.0034 (0.0024)	0.0028 (0.0027)	0.7832 (0.7262)	0.0002 (0.0002)
<i>Ln(PDI)</i>	−0.0896 (0.0797)	−0.0386 (0.0250)	40.0601 (58.0648)	−0.0099* (0.0049)
<i>Ln(GDP)</i>	−0.0912 (0.1334)	−0.0181 (0.1074)	−105.6219* (56.0006)	−0.1071*** (0.0227)
<i>Prov FE</i>	Y	Y	Y	Y
<i>Month FE</i>	Y	Y	Y	Y
<i>N</i>	783	783	783	783
<i>Adj R-sq</i>	0.9322	0.4420	0.8025	0.8927

households to cope with risks, and remarkable differences exist in the development of social security among provinces, we conduct a heterogeneous analysis based on social security. Second, with the rapid development of digital technology and financial technology in recent years in China, online sales have become an important channel for households to buy daily necessities, including commercial insurance. When the Chinese government enforced powerful lockdown measures to control the spread of the virus, the traditional offline insurance marketing channel was limited, whereas the online channel worked well. Therefore, we conduct heterogeneous analysis based on the degree of digital insurance development.

Specifically, we adopt the participation rate of unemployment insurance (UI), the participation rate of urban medical insurance (UMI), per capita spending of local finance on social security and employment, and local finance health-care expenditures to measure the development of social security. The larger the value of these indicators, the higher the degree of social security in the province. According to the results in Table 7, COVID-19 has a smaller negative impact on commercial insurance in regions with higher degree of social security; in contrast, it has significantly reduced the commercial insurance in regions with a low degree of social security. This is mainly because social security systems provide households with a risk management mechanism, helping them to manage the shocks such as unemployment and medical expenditures effectively during the pandemic, and to avoid the adverse effects on the demand for commercial insurance. The lack of social security coverage means poor ability to manage the pandemic-related risks, which has a significant negative impact on their demand for insurance.

We use the sub-index of insurance business in the digital inclusive financial index produced by the Digital Finance Research Center of Peking University to measure the development of digital insurance. A higher index value, the mean value of which is used to conduct group analysis, indicates a more digitalized insurance market. Table 7 shows that COVID-19 had a small negative impact on commercial insurance in regions with a high degree of digital insurance, while it significantly reduced the growth of commercial insurance in regions with a low degree of digital insurance. The offline channels, such as insurance agents and bank-insurance, were unable to carry out marketing activities effectively during the outbreak. In regions with a high degree of digital insurance, online marketing, to some extent, circumvented the inconvenience caused by the lockdown as experienced by the offline channels. However, in regions with a low level of digital insurance, online insurance marketing business was not effective enough to offset the significant negative impact of COVID-19 on the insurance market.

Heterogeneous analysis shows that improving the construction and coverage of social security system can reduce the adverse impacts of COVID-19 and other major public health emergencies on the insurance market by strengthening the risk management capacity of households. At the same time, with the rapid development of Fintech, digital insurance can be a beneficial supplement to traditional insurance marketing, and thus helps the insurance market cope with the adverse impact of major public health events such as COVID-19.

4. Conclusions

The outbreak of the COVID-19 pandemic has adversely affected global social and economic activities. This has attracted a growing literature on

Table 7. Heterogeneity estimation results of COVID-19's impact on insurance markets in different regions. This table reports the heterogeneity estimation results in different regions based on Model (1). The model controls for CPI, PPI, GDP, and the fixed effects of provinces and months. Owing to the limited space, all the control variable results are not reported. The symbols ***, **, and * represent the significance levels of 1%, 5%, and 10%, respectively. The standard error of clustering at the provincial level is shown in parentheses.

YOY growth rate		Higher participation rate of UI			Lower participation rate of UI		
		(1) gross prem.	(2) prop. prem.	(3) person. prem.	(4) gross prem.	(5) prop. Prem.	(6) person. prem.
<i>Confirmed ratio</i>		0.5565 (0.5535)	-0.7430 (0.5117)	1.0434 (0.6352)	-0.0216** (0.0088)	-0.0264*** (0.0062)	-0.0175* (0.0085)
N		81	81	81	180	180	180
<i>Confirmed ratio</i>		0.5994 (0.4499)	-0.0604 (0.4223)	0.8367 (0.5324)	-0.0279** (0.0121)	-0.0294*** (0.0064)	-0.0250* (0.0128)
N		126	126	126	135	135	135
<i>Confirmed ratio</i>		0.1937 (0.3148)	-1.1798*** (0.3467)	0.5120 (0.3084)	-0.0144*** (0.0047)	-0.0242*** (0.0031)	-0.0108* (0.0052)
N		99	99	99	162	162	162
<i>Confirmed ratio</i>		0.8012* (0.3700)	0.1106 (0.4459)	0.9257* (0.4505)	-0.0246** (0.0091)	-0.0290*** (0.0065)	-0.0206** (0.0088)
N		108	108	108	153	153	153
<i>Confirmed ratio</i>		0.1207 (0.4421)	-0.7350 (0.4248)	0.3012 (0.3112)	-0.0228** (0.0086)	-0.0275*** (0.0068)	-0.0184** (0.0081)
N		63	63	63	198	198	198

the effects of COVID-19. This empirical study examines the impact of COVID-19 on the insurance market in mainland China using the provincial level panel data and the fixed-effects model. The findings reveal that COVID-19 has had a significant negative impact on China's insurance market in the short term due to the limitation of insurance marketing channels and the suppression of household insurance demand. One new confirmed case per 10,000 people decreases the gross commercial insurance premium income, monthly YOY growth rate of premium, insurance density, and insurance depth by 2.03%, 3.54%, 13.21 yuan, and 0.44%, respectively. While COVID-19 has adversely impacted both the property and personal insurances, the negative impact on personal insurance is greater than that on property insurance from the perspective of insurance density and depth.

In addition, the study finds that the development of social security and digital insurance helps alleviate the negative impact of COVID-19 on the insurance market. This is because social security helps households cope with the impact of the pandemic on their work and income, and digital insurance helps to overcome the restrictions of offline insurance marketing against the backdrop of COVID-19.

This study makes the following policy recommendations to minimize the impact of severe health emergencies in general and on the insurance market in particular. First, resolute, effective, and quick measures should be taken to contain COVID-19 before it adversely affects the insurance market and other social and economic activities. Second, the social security system and income distribution should be optimized because they play an important role in enhancing the resilience of the regions against the outbreak of severe public health emergencies. Third, with the development of Fintech, the insurance market should be further digitalized to enhance its resilience against serious public health emergencies.

It should be cautioned that the study only sheds light on the short-term effect of COVID-19. Whether COVID-19 will have a long-term impact on the development of China's insurance market remains for future studies.

Notes

1. The insurance data come from the official website of China Banking and Insurance Regulatory Commission and the provincial offices.
2. In China's insurance market, life and personal insurances are statistically different from the concepts in the Western insurance markets. Life insurance includes universal life, unit-linked, participating life, and variable life, and endowment insurance, and excludes annuities, health insurance, and accident insurance, while personal insurance includes life insurance, annuities, health insurance, and accident insurance.

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