Economic impact of world-wide coronavirus pandemic on SMEs in Cambodia: Preliminary analysis on real-time data from an accounting platform

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Abstract

I introduce a novel database and propose a method of real-time analysis using the database, in order to estimate the impact of coronavirus pandemic on Cambodian SMEs I obtain firm data from the cloud-based accounting software, managed by the Cambodian local company. The data allow us to investigate financial conditions, such as sales, expenses, and cash flows, of SMEs using the cloud-based accounting software. Our study revealed that wholesale and retail firms experienced an immediate drop in sales after January when corona pandemic started in China. Although our study is still preliminary in the sense that the analysis will be updated by expanding periods and firms, this present paper provides an insight from the policy-making perspective, and suggests that the data from private businesses could be useful and powerful for gauging the economic situation on a real-time basis.

1. Introduction

The coronavirus pandemic imposed serious damages on some economic activities by causing sudden stops in people movement and goods. In order to mitigate negative shocks on the economies, a government of each country tries to make prompt policy measures, such as providing financial aids to SMEs, and central banks try to increase liquidity in the financial markets by loosening monetary policy rate or quantitatively increasing monetary supply. However, these policy measures in turn pose risks of increasing other issues in the future, such as debt overhanging and forbearance lending for SMEs (Bircan et al., 2020). Debt overhang and forbearance lending could cause inefficiency and slow down the recovery of the economy from crisis. Furthermore, reckless provision of subsidies could also impose economic loss, in the case that the subsidized firms go default afterward. In that case, the injected subsidies could become waste of money for the economy. Furthermore, frauds in such financial subsidy policy appear to be also a problem in several

countries. In fact, there were several cases of fraudulent recipients of subsidies designed to support small businesses and self-employed people hit seriously by the pandemic are increasingly being found across Japan in 2020. This could be because government provided the subsidies without requiring detailed data of firm's financial conditions. Therefore, for policy makers, it is required to identify which firms and sectors are especially damaged by this crisis is required for addressing potential issues of debt overhanging for SMEs.

Although identifying the company which are affected significantly by coronavirus pandemic is crucial for making policy measures to mitigate negative impacts on the economy, there is always a limitation on the availability of data to investigate SMEs and negative impacts of coronavirus pandemic particularly in developing countries. In Cambodia, this is also the case, and there are almost no data to capture general trends of financial conditions of Cambodian SMEs. Data for SMEs are only publicly available in Economic Census 2011 and 2014. However, from the policy-making perspective in time of coronavirus pandemic spread, the frequency of data is not enough to capture the impact of economic shocks on firms and not appropriate to make prompt policy measures for governments to address shocks by coronavirus pandemic.

In this study, we propose an analysis of the economic impact of coronavirus pandemic on SMEs in Cambodia by employing novel data from an accounting platform company, Banhji.Ltd. The data allows us to investigate firm behavior in a real-time manner, and the detailed information of financial statements of SMEs is also available. As Chetty et al. (2020) argued, there is no guarantee that the statistics from such data sources capture total economic activity accurately. However, we believe they contain useful information because the shocks induced by major crises such as coronavirus pandemic are large relative to plausible biases due to non-representative sampling.

From our preliminary analysis on the Banhji's firm accounting data, we find that wholesale and retail firms experienced an immediate drop in sales after January when corona pandemic started in China. In addition, we further find that smaller firms have experienced large drop in their expenses and sales compare with larger firms, although the difference seems slight. Furthermore, firms operating with KHR currency are likely to be less damaged.

These findings shed insights on formulating policy measures in response to the corona pandemic. Firstly, the Cambodian firms might lack the secured sources of liquidity, and vulnerable to the temporal shocks in revenue. Secondly, our analysis suggests that the data from private businesses could be useful and powerful for gauging the economic situation on a real-time basis. However, this study is preliminary, since all the accounting data is not complete because of limitation on the accounting skills of firms, and there is still needed to examine the quality of data firm by firm to confirm whether results were driven by outliers.

The rest of the paper is organized as follow. In the section 2, we review the previous studies on the corona pandemic. In the section 3, we describe the situation of corona pandemic in Cambodia until recently. In the section 4, we provide the data description and empirical analysis. Section 5 concludes.

2. Studies on coronavirus pandemic and its economic impacts

Coronavirus pandemic have spread over the world, and prompted countries to restrict the population movement within and across countries. The non-pharmaceutical measures have posed serious economic downturns on both developed and developing countries, and its negative impacts are reflected as the decline in the recently released GDP growth in the first quarter and predictions (IMF, 2020).

One of the biggest challenges in decision of macroeconomic policy to address the impact of coronavirus pandemic is the limitation of data availability. Decision of policy making is basically based on data on the households and businesses collected through governments. Although such statistics are helpful to understand the troubles and challenges in the economy, such data are available with a significant lag, which is recognized clearly as limitation.

One of the possible ways to address such issue is to carry out interviews or to distribute questionnaires. After the world-wide coronavirus pandemic occurred, Beck et al. (2020) conducted a survey on about 500 listed firms in 10 emerging economies, and found that the majority of firms experienced the decline in investment and sales. Approximately half of firms have received or expected to receive government support. In addition, their study found that firms' reaction is focused on short-term demand of their stakeholders, and protecting their labor and long-term relationships. Most of Firms reacted to reduce the investment, while keeping or expanding employee benefits rather than cutting them. Furthermore, the firms acted quickly before government measures, and provided the donations to the society or shifted operations to fulfill pandemic needs.

However, questionnaire-based analysis could have problems of misreporting and biases toward nice answers. Chetty et al. (2020) addressed this issue by accessing to high-frequency real-time data from business, such as payroll data and credit and debit card spending. From high-frequency payroll data from the U.S., Chetty et al. showed that labor market impact of coronavirus pandemic in the US has been concentrated among lower income earners. By the September 2020, the job market for the top quantile of US workers recovered. In addition, from card spending data, Chetty et al. showed that consumer spending has reduced after the coronavirus pandemic, and the reduction mainly came from reduction in spending by high-income households. In the meantime, low-income households did not reduce their spending so much.

From the experiences of global financial crisis 2008, several studies confirm that the amount of cash holding matter to explain the performance of firms during and after the economic crisis. Joseph et al. (2020) investigated the historical data of financial statements of private firms in Europe, and found that cash-poor firms were likely to face serious problem by reduction in revenue, while cash-rich firms kept their performance during the crisis and even expand their business. The market shares obtained during the crisis period have persisted even after the crisis period. Thus, the authors concluded that pre-crisis cash holdings are an important predictor of investment and market share after a crisis. In the similar vein, using data of daily credit line drawdowns, Acharya & Srteffen (2020) examined firm's cash needs during corona pandemic. The authors found that the low-quality investment grade firms tended to draw credit line after pandemic started in US. In the meantime, high-quality investment grade firms issue bond to keep their liquidity.

3. Situation of coronavirus pandemic and government's responses

Measures taken by governments to address coronavirus pandemic vary across countries. Some countries took strict lockdown on the economies, such as Vietnam and Philippines, while others keep economies relatively open, such as Turkey. In Cambodia, the governments restricted the population movements from outside of Cambodia. Specifically, in April, government started imposing the PCR tests for every inbound travelers, and all the inbound travelers were isolated at least for two weeks after immigration. In the meantime, other non- pharmaceutical measures were not strict relative to other Asian countries. In March, the Cambodian government requested public people to refrain from going outside, while they did not strictly restrict the operations of firms and population movement. In the Cambodian law, the government were not allowed to pose lockdown on the economy, and required to revise the constitution to take such polices. It took weeks for the Cambodian government to revise the constitution, but eventually the government did not start lockdown.

Even though there were no serious lockdown in the economy, oversea coronavirus pandemic affected the exporting and importing in some goods for Cambodia. In turn, it affected the operation of the manufacturing sector. Also, the restricting measures on international travels seriously damaged the tourism sectors. Furthermore, even though there were no strict non-pharmaceutical measures taken by government, announcement to request general people to stop going outside had an impact on population movement in the countries. Those sectors are generally producing employment for low skilled workers, and there cold be serious impacts on such workers and relevant SMEs. In fact, it is reported by Cambodian Microfinance Association that the non-performing loans (NPLs) in the microfinance sector have increased since the third quarter of 2020, along with debt restructuring. Since micro loans are mainly extended to lower-income

households and SMEs, the increases in NPLs of MFIs might reflect the negative impact of oversea coronavirus pandemic on the Cambodian households and SMEs.

In response to the economic downturns, the government took various measures to rescue damaged households and firms by various policy measures in the early period of coronavirus pandemic.[1] For example, in April 2020, NBC requested financial institutions for debt restructuring of households and SMEs which experienced reduction in income directly and indirectly due to coronavirus pandemic. NBC also implemented the monetary-easing policies, such as reduction in the interest rates on the Liquidity-Providing Collateralised Operation (LPCO) and Negotiable Certificate of Deposits (NCD), reduction in reserve requirement (from 8% on local currency to 7%; from 12.5% on foreign currency to 7%), reduction in the liquidity coverage ratio (LCR) , and delay the implementation of the Capital Conservation Buffer (CCB) until next year. Ministry of Economic and Finance established loan guarantee program of USD 200 million, in which SME Bank, a state-owned bank, guarantees the loans in collaboration with other private financial institutions. Special financing plan of USD 50 millions were arranged. The funds are provided to SMEs through Rural Development Bank, also a state-owned bank,

However, there were challenges in such government policy measures. For example, monetary policy measures have loopholes in mitigating the impact of coronavirus pandemic. Specifically, the monetary policy could have direct impact only on households and firms which are covered by formal financial institutions. In Cambodia, the rate of financial inclusion is still lower for firms and households. According to the World Bank, there were only 50% of households having access to formal financial institution, and the rest of households still have no experience to borrow and open deposit account in formal financial institutions. The financial inclusion is actually worse for SMEs. Okuda and Aiba (2018) provided an estimation of financial inclusion for Cambodian firms from nation-representative data. According to their study, only 25% of firms have debts from formal financial institutions. Thus, the impact of monetary policy through financial institutions is supposed to be limited especially for lower-income and SMEs in Cambodia. Another supportive measure to reach unbanked households and SMEs are needed for mitigating the serious impact for them.

Furthermore, even though credit guarantee programs by SME Bank and direct lending programs by Rural Development Bank might reach unbanked customers, there could still be a risk of debt overhanging or zombie lending, which will in turn slow down the economic recovery in the country (Popov et al, 2018).

[1] The governmental measures taken to mitigate the economic downturn in Cambodia are comprehensively listed by ADB COVID-19 Policy Database (https://covid19policy.adb.org/).

4. Empirical Analysis

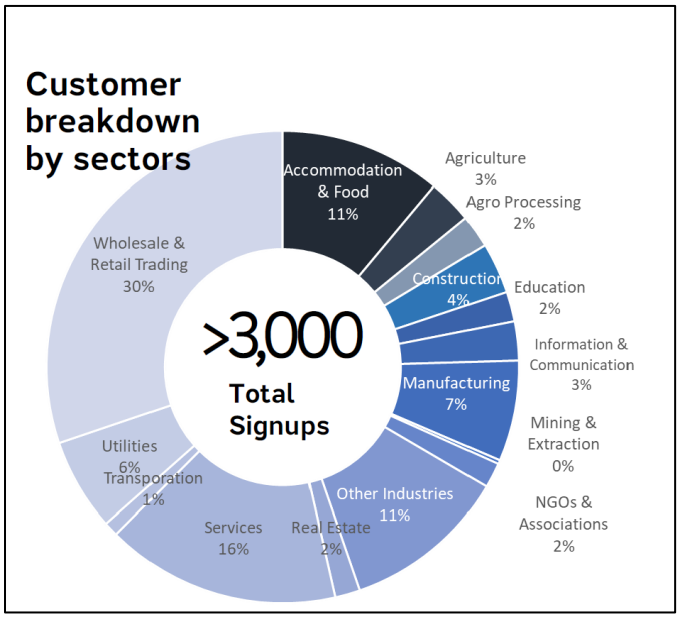
4.1 Data

Due to development of cloud services, the cost of managing large database became lower for private and public firms. One of the advantages of diffusion of such technologies is that the data of firms adopting the technologies can be collected in a centralized database. The cloud-based accounting software is one of the example of recent evolution of ICTs. This new technologies are now increasingly adopted by the firms in developed countries, such as New Zeeland, Australia and US. In the case of Japan, there is also a similar cloud-based accounting software, named “freee K.K.”, which can be used as a cloud service for automation of accounting operations, issuing invoice, and payment management. “freee K.K.” is now collaborating with regional banks, in order to reduce the information gap between banks and firms. For lending, regional banks can access to the data of financial statements of the firms.

In this paper, we address the issues in decision of policy making using the firm’s accounting data from cloud-based accounting. Especially, we will examine the following questions. Is the firm affected by corona pandemic? How did the decline in revenue affected the SME operations? Which firms were particularly affected? How did firms manage to mitigate the impact?

We employ the data from accounting platform of Banhji Fintech Ltd., which covers a large number of small and medium firms. Banhji Fintech Ltd.is an IT platform company which provides an accounting application to SMEs in Cambodia. Data recorded by SMEs are kept and centralized at a cloud server, and allow for analyzing the trend in the entire SME clients of Banhji Fintech Ltd. Figure 1 shows the breakdown of the registered firms in Banhji Fintech Ltd.The customers are mainly from wholesale and retail companies.

Figure 1: Breakdown of Registered Firms in the Platform of Banhji Fintech Ltd.



Source: The figure is provided by Banhji Fintech Ltd. The data is as of December 2019.

Banhji Fintech Ltd. provide accounting software, which clients use for automation of keeping financial statements and use as Point of Sales. The price of using the software is ranged from 10 to 30 USD depending on options of the services and purposes of use. The clients can install the accounting software if they have personal computers. Due to its cheap costs and wide variation in the services, there are more than 3000 companies using the accounting software of Banhji Fintech Ltd., and the industry classifications the clients widely varies.

The advantage of using Banhji's data has two-folded. Firstly, we can observe firm's behavior on a weekly or monthly basis. This high-frequency data allows for analyzing short-term needs of finance. Generally, firm revenue fluctuates within a year, and firms face financial needs when the expenses exceeds cash holdings in each period. While the data on annual basis does not tell us how firm revenues cash inflows are volatile over the year, the high-frequency data from Banhji's platform could tell us this potential need for SME to borrow. The uncertainty in sales and cash flows are crucial for the firms in the developing countries, where revenues and expenses are paid mainly in cash.

Secondly, the data from Banhji's platform us updated on real time, and we can observe firm behavior in a timely manner. This real-time data allows the researchers to make an analysis and give a prompt feedback on a policy.

From the database of Banhji's accounting platform, we pick up 375 firms from March 2019 to May 2020 for the analysis in this paper. Because the technical constraints to transfer firm data into the analytical format, we could not use all the firms in the database. However, the firm data cover the period of corona pandemic.

Most of the firms in our sample are wholesales and retail services. Thus, there is a caveat to interpret the results of our analysis. Although the manufacturing and tourism sectors are most affected by corona pandemic, our analysis can not provide an implication for those sectors.

Furthermore, the number of firms which are actually used in the analysis were dependent on specifications of empirical models. Because some firms do not enter the data of some accounting items, there are missing values in some variables. In particular, the low-tier categories are less likely to be complete, and expenditure have more missing values than sales. The quality of data depends on the purpose of using Banhji's accounting tools. Some firms use the tool for tax payment, while others merely keep a record of sales for management purposes. Thus, out of 375, some firms does not accurately record their sales and expenses because they do not need to keep accurate accounting. And some firms have sales unregularly. For example, there are some firms which have revenue only once a year. So there is a need to identify whether sales and expenses are missing because of misreporting or not.

4.2 Firms performance after coronavirus spread

Firstly, we estimate time trends in the data to examine whether there is economic impact of coronavirus pandemic on the Cambodian firms. To do so, we explore the time trend in the firms' monthly data by estimating the following equation.

$$ln\ Sales_{it} = \alpha + f_i + f(time_t) + \epsilon_{it} \quad (1)$$

$$ln\ Expense_{it} = \alpha + f_i + f(time_t) + \epsilon_{it} \quad (2)$$

where subscript *i* represents firm, and *t* represents month. Dependent variable$ln\ Sales$ and $ln\ Expenses_{it}$ represents the logarithm of firm *i's* total sales and expenses in month t, respectively. $f(time_t)$ is the 4th order approximation of time trend for capturing the macroeconomic trend in the Cambodian firms. The model capture firm-fixed effects as f_i. ϵ_{it} is white noise. We estimate this model by using OLS with cluster-robust standard errors at firm level.

The caveat in analyzing firm data is that there are entries and exits of firms over the time. In other words, there are attritions in the data, and the analysis needs to take into account such biases. Thus, even though

the simple sample average of each period shows there is decline in sales after the coronavirus pandemic, it might reflect a drop of some firms with high sales. The abovementioned model could reduce this bias by including firm-fixed effects. The abovementioned model will capture the macroeconomic trend which affects all the firms in the economy, and will separate firm-specific factors from macroeconomic factors.

We plotted the estimated macroeconomic trend to confirm the impact of corona pandemic on firm outcome in Figure 2. As shown in Figure 2, the estimated macroeconomic trend in revenues has declined in February 2020. China started restricting the business on January 23 in response to increasing infections of COVID-19, and then Chinese business started refrain exporting and movement of people abroad for tourism are also restricted in the sample period. The data also tells us that the Cambodian SMEs also started decreasing revenues in this period. Therefore, the Banhji's data can represent the general trend in Cambodia SMEs' operation, in particular, in terms of the impact of COVID-19.

We further divided firm sample into large and small depending on amounts of sales. We define firms as large firms if the sales are larger than median value of sales in the sample, and otherwise define firms as small firms. The estimation for different time trend for large and small is done by using the following equation.

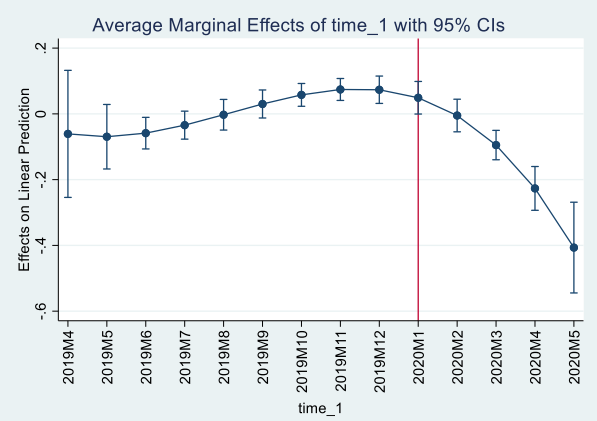
$$ln\ Sales_{it} = \alpha + f_i + f(time_t) + Large_i * f(time_t) + \epsilon_{it} \quad (3)$$

$$ln\ Expense_{it} = \alpha + f_i + f(time_t) + Large_i * f(time_t) + \epsilon_{it} \quad (4)$$

We found that decline in revenue and expenses are slightly larger for small companies, suggesting that smaller firms seem to be more affected by the coronal pandemic. In addition, estimated macroeconomic trend in sales is generally fluctuating higher in small firms than in large firms before the pandemic period. It suggests that the sales of small firms are unstable even in normal periods.

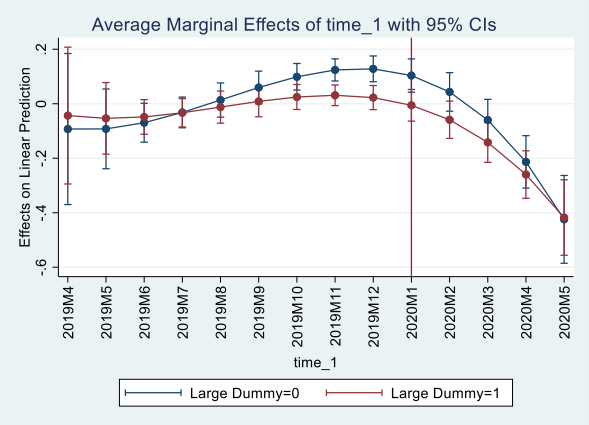
Figure 2: Plotting estimated time effects ($f(time_t)$)

Sales



(a) All Firms

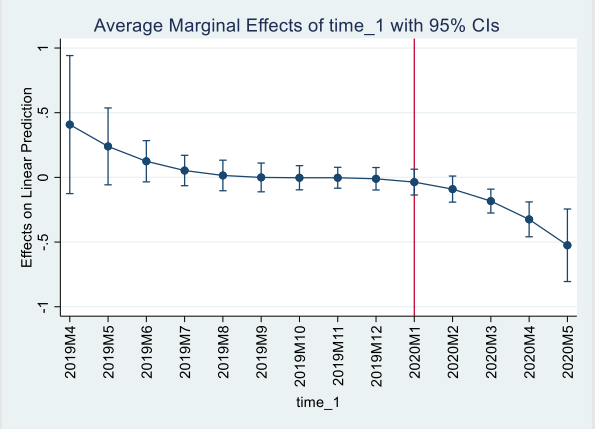
Note: The number of observations in the estimation is 1833. And adjusted R-squared is 0.850.



(b) Smaller vs Larger Firms

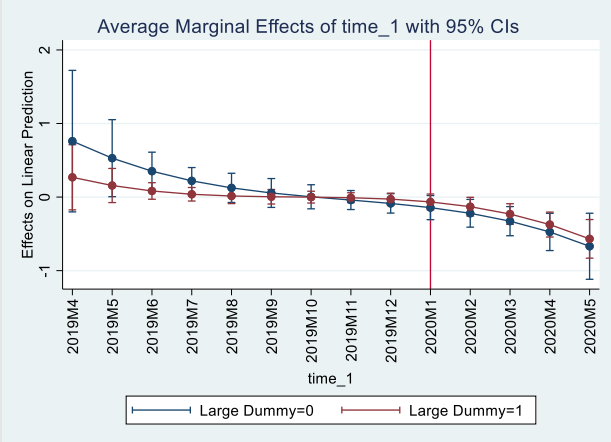
Note: The estimation for different time trend for large and small is done by using the following equation. $ln\ Sales_{it} = \alpha + f_i + f(time_t) + Large_i * f(time_t) + \epsilon_{it}$. The number of observations in the estimation is 1833. And adjusted R-squared is 0.833.

Expenditure



(c) All Firms

Note: The number of observations in the estimation is 828. And adjusted R-squared is 0.702.



(d) Smaller vs Larger Firms

Note: The number of observations in the estimation is 828. And adjusted R-squared is 0.702.

4.3 Firm characteristics and impact of corona pandemic

From the above analysis, we found that there were decline in the sales and expenses of firms after the corona pandemic. Now we address questions of which firms are particularly affected during this unprecedented pandemic-induced economic downturn. There could be several factors which mitigate the firm performance. First, the availability of internal funds is the important predictor whether firms can survive the economic downturn.

We examine which firm characteristics are correlated to the decline of firm expense and sales when corona pandemic occurred, by estimating the following equations.

$$ln\ Sales_{it} = \alpha + \beta * Corona_t * Firm\ Characteristics_i + f_i + \psi_t + \epsilon_{it} \quad (5)$$

$$ln\ Expense_{it} = \alpha + \beta * Corona_t * Firm\ Characteristics_i + f_i + \psi_t + \epsilon_{it} \quad (6)$$

where subscript *i* represents firm, and *t* represents month. Dependent variable$n\ Sales$ and $ln\ Expenses_{it}$ represents the logarithm of firm *I's* total sales and expenses in month t, respectively. The model capture firm-fixed effects as f_i, and time-fixed effects as ψ_t. ϵ_{it} is white noise. $Corona_t$ is the dummy variable which takes one after the corona pandemic started. $Firm\ Characteristics_i$ is the vector to represent firm characteristics. By examining the interaction terms of corona pandemic period dummy and firm characteristics, we examine what factors of firms can mitigate the negative effect of corona pandemic.

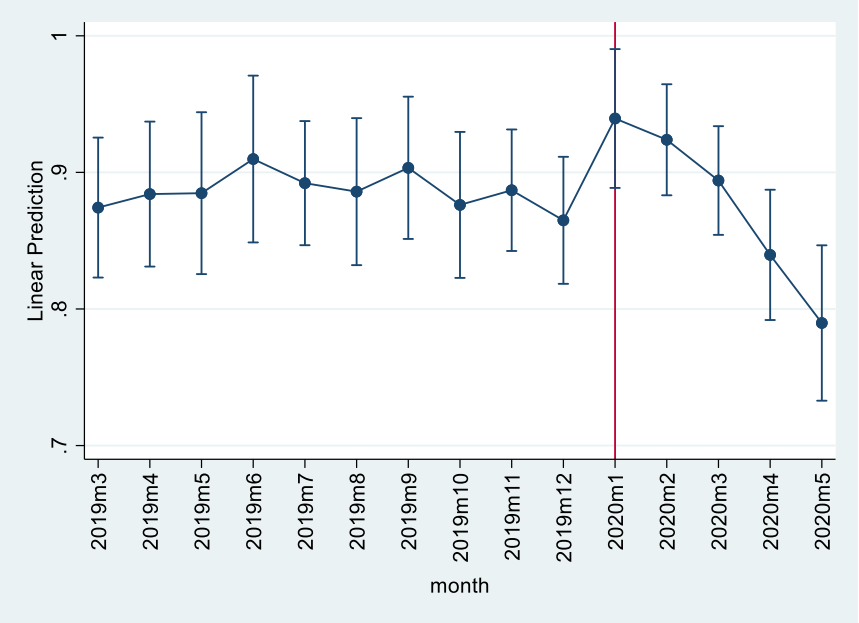
For the firm characteristics, we examine the effect of availability of internal funds to mitigate the negative impact of coronavirus pandemic. The availability of internal funds is the important predictor whether firms can survive the economic downturn (Joseph et al, 2020; Acharya & Srteffen, 2020). We define the indicators for gauging the availability of internal funds as average of cash flow before the corona pandemic ($Cash\ Rich\ Indicator_i = \Sigma_{t=2019M4}^{2020M1} CashFlow_{it}$). Figure 3 shows the estimated time trends of cash flow within our sample. Again, we estimated the average time trend in the cash flow using the following equation.

$$\text{Cash Flow}_{it} = \alpha + f_i + \psi_t + \epsilon_{it} \quad (7)$$

Cash Flow_{it} is defined as the net cash & cash equivalent in month *t* for firm *i*. We estimated this equation using fixed-effect OLS estimation. It is found that there is declining trend after the January 2020, suggesting

that firms have also experienced the decline in the cash flow as well as sales and expenses. We examine whether Cambodian firms successfully managed the decline in the cash flows.

Figure 3: Trend in Cash Flow



KHR dummy represents whether firms choose KHR as accounting unit in the Banhji's software. If firms use KHR as the accounting unit, the firms might be likely to receive and spend KHR currency. Firms use KHR could have more clients in local areas, while firms use USD are likely to deal with importing goods.

We also include the Large Dummy in the regression to examine whether larger firms experience more severe damages during the corona pandemic, since larger firms are likely to locate in Phnom Penh and to deal with importing goods. Thus, stop in population movement and trades of goods might affect larger firms more seriously.

Table 1 shows the results of regression. We estimated this model by using OLS with cluster-robust standard errors at firm level. In column 1 and 2, we show We found that the interaction terms of large dummy and corona period are negatively estimated in column 1 and 2. The results suggest that larger firms experienced larger decline in their business during the corona pandemic.

We also found that KHR dummy was negatively associated with decline after January 2020 at statistical significance in column 2-4. The firms using KHR currency as unit of accounting are likely to have local clients, while the firms using USD are likely to deal with exporting or importing goods and have a foreign

customers. Thus, the results may suggest that the firms operating mainly local clients are less likely to be damaged by corona pandemic.

Lastly, the interaction terms of corona pandemic dummy and cash-rich indicator were not estimated as significant in all of the specification in Table 1. Thus, we did not find the evidence that cash-rich firms can mitigate the decline in performance. However, in the current analysis, the sample size is small because of missing values of cash flow for certain firms, and the accuracy of the data of cash flow might be low. Thus, the results might reflect such biases in the data.

In the meantime, we found that coefficient of single term of cash-rich indicator is significantly positive in column 1 meaning that cash-rich firms are likely to have higher sales during the normal period. In the meantime.

Table 1: Results of Estimation

	(1)	(2)	(3)	(4)
	ln Sales	ln Expenses	ln Sales	ln Expenses
	OLS	OLS	OLS	OLS
KHR_dummy	-0.146	-3.130***		
	[0.180]	[0.580]		
Large Dummy	2.652***	2.531***		
	[0.169]	[0.304]		
Cash rich indicator	0.009***	0.005		
	[0.003]	[0.005]		
KHR Dummy X Corona Period	0.178	2.280***	0.420**	1.311***
	[0.135]	[0.717]	[0.164]	[0.226]
Cash rich indicator X Corona Period	0.001	0.002	0.001	-0.001
	[0.002]	[0.005]	[0.002]	[0.003]
Large Dummy X Corona Period	-0.807***	-0.831***	-0.247	0.029
	[0.160]	[0.178]	[0.165]	[0.478]
Time Dummies	No	No	Yes	Yes
Firm Dummies	No	No	Yes	Yes
Constant	7.767***	7.096***	17.687***	10.488***
	[0.140]	[0.240]	[0.067]	[0.325]
F_value				
Number of Firms	170	106	170	106
Adj-R-squared	0.496	0.307	0.804	0.702
Observations	1611	736	1611	736

Note: The estimation is conducted by OLS method with fixed effects. The estimated coefficients of each model are presented in the table. Standard errors of estimated coefficients are also presented in each parentheses. We calculated cluster-robust standard errors at firm-level.The asterisks *, **, and *** represent the statistical significance at 10%, 5%, and 1%, respectively.

6. Conclusion and policy implications

Our study proposed an alternative approach for policy makers to capture the economic situation during an economic crisis period. Particularly, by using the emerging local cloud-based accounting platform managed by Banhji, we propose an analytical methodology of the impact of coronavirus pandemic on Cambodian firms.

However, this study is preliminary and there are several challenges to be addressed. From the view of data generation process, firms in the accounting platform is not necessarily the representative for general Cambodian firms. The firms in the data are in its nature limited to the firms using Banhji's accounting software. Currently, those firms are likely to be in populated areas of the country. However, as we mentioned in the introduction section, although there is bias in the data, the shocks in unprecedented economic crisis could be much larger than such biases. Therefore, it is still worth to use data from business sectors.

In addition, there could be seasonality in the data, apart from impact of coronavirus pandemic. Concerns of seasonality is not specific to the Banhji's data. However, to identify the firms which were really affected by the coronavirus pandemic, it is needed to mitigate this bias. One of the possible ways to address this bias is to prepare the data in longer time span, so that we could estimate the seasonality in the past years. Thus, in the future, the database of the business should be developed to store longer-term data. It is also recommended for government to invest or facilitate the investment to develop such database in the business sector.

Furthermore, there are also challenges in the Cambodian firms' capacity. Currently, the data we analyzed is not complete in the sense that there are many missing values in some variables. It could be mainly because of limitation on the accounting skills of firms. Some of the Cambodian firms do not have accountants, and sometimes the manager does not know how to keep accounting. This is especially the case for the smaller firms. In addition, firms use this accounting software for various purposes. Some of them use the software to make complete financial statement for tax payment and borrowing from formal financial institutions, while others use it to keep records of sales and expenses for better management. From those reasons, the quality of data is different from firm to firm, and we cannot merely apply traditional econometric models which is used for analyzing financial statements of listed firms. In other words, it is needed to focus on some variables in the accounting data. To address these issues, the identification of quality of data by firms is needed for mitigating the burden in data cleaning and reducing the noises in the analysis. Furthermore, it

is also required for governments and development agencies to facilitate the skills of firm's management in terms of accounting skills.

Even though there are still several challenges, we believe that our study provides new insights for economic analysis in developing countries, where availability of decent data are limited. Due to development of cloud services, the cost of managing large database became lower for private and public firms. Advantages of diffusion of such technologies are that the data of firms adopting the technologies can be collected in a centralized database. The cloud-based accounting software is one of the example of recent evolution of ICTs. This new technologies are now increasingly adopted by the firms in developed countries, such as New Zeeland and US. Recently, this technology also appeared in developing countries. In the Cambodian context, Banhji Ltd. is the first company to develop this technology for Cambodian SMEs and microenterprises. And as shown in this present paper, the database can capture the very recent trend in the performance of firms. Even though there are still challenges in using the privately managed database for decision of policy making, the analysis using the database can provide valid insight for decision on a real time basis. It is particularly beneficial for the developing countries due to the lack of publicly available comprehensive data.

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Appendix. Table: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ln_expense (USD)	828	8.686	2.389	-.7124	13.283
ln_revenue (USD)	1,833	9.302	2.323	3.295	18.416
Cash Rich Indicator (1000USD)	2,046	13.342	42.380	-22.199	400