A Study on the Mutual Effect between Small & Medium-sized Enterprises and Economic Growth: Evidence from Alibaba Group and City of Hangzhou

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Abstract

Purpose - From the advanced path of development and current situation, the development of enterprises plays a tremendous role in promoting national economic growth and raising the overall national strength. Therefore, this paper aims at examining the mutual effect between small & medium enterprises and economic growth.

Research design, data, and methodology - In order to address the operating mutual effect between the small & medium enterprises and economic growth more clearly, this paper sets Alibaba Group and Hangzhou as an example. Meanwhile, the annual data from 2000 to 2017 will be employed, and an empirical analysis will be performed under the vector error correction model.

Results - The findings display that the total revenue of Alibaba Group has a positive effect on economic growth in city of Hangzhou. However, the Granger Causality test implies that there is only a unidirectional causality between total revenue of Alibaba Group and economic growth in Hangzhou. More specifically, 1% increase in total revenue of Alibaba Group can result in 0.272% in economic growth of Hangzhou in the long run.

Conclusions - In summary, for the long run, the local governments should promulgate a series of policies to assist the small & medium enterprises like Alibaba Group to improve the local economic growth as seen in the city of Hangzhou.

Keywords: Total Revenue of Alibaba Group, City of Hangzhou, Small & Medium Enterprises.

JEL Classifications: B41, L29, L32.

1. Introduction

Alibaba Group is an electronic commercial enterprise founded in 1999. At present, it is one of the biggest enterprises that are located in the city of Hangzhou (Hangzhou, formerly romanized as Hangchow, is the capital and most populous city of Zhejiang Province in east China.). Even though Alibaba Group is a young one in e-commerce sector, its business income is surprising. According to its financial statement, its total business income has reached 158.2 billion RMB, and the Generally Accepted Accounting Principles (Generally Accepted Accounting Principles, also called GAAP or US GAAP, is the accounting standard adopted by the U.S. Securities and Exchange Commission (SEC). also has stated that its net income is also up to 57.9 billion RMB. This great achievement has left other electronic commercial enterprises too far behind to catch up. Alibaba Group contains quantities of subsidiaries. All of them will be shown in <Figure 1>.

Alibaba Group is a big family. It also invests in other enterprises such as Hulian supermarket (direct investment 18%) and NASQ: AMAP (indirect investment 72%) via direct and indirect modes. Due to its huge economic system, its business income makes a great contribution to Hangzhou's economic growth. Hangzhou Statistic Bureau states that the GDP of Hangzhou has been up to 1255.6 billion RMB. Its growth rate reaches 10.98%, which is greatly higher than that of the whole country. On the basis of Zhejiang province's GDP rank, Hangzhou ranks first. Its GDP is much bigger than that of the city of Ningbo[Ningbo, formerly written Ningpo, is a sub-provincial city in northeast Zhejiang province in China (whose GDP is 984.69 billion RMB)] which ranks second. If setting the whole country that has 661 cities (incomplete statistics) as a standard, Hangzhou also ranks tenth.

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Owing to the contribution of Alibaba Group to Hangzhou's GDP, this paper applies time series from 2000 to 2017 to conduct empirical analysis. The total revenue of Alibaba Group business income is treated as independent variable. Hangzhou's GDP is treated as dependent variable. For the purpose of making a mutual effect between of them, the vector error correction model will be used to explore how both of them interact with each other. In summary, this paper will be constructed as follows: Chapter I provides Introduction. Chapter II offers previous researches. Chapter III gives the theoretical framework. Chapter IV conducts an empirical analysis. Chapter V summarizes the main idea of this paper.
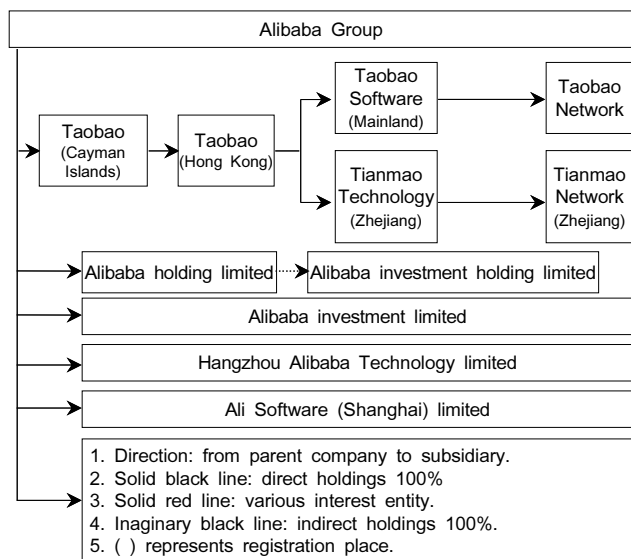

Figure 1: Description of Alibaba Group

2. Literature Review

It is said that small & medium enterprises have a mutual effect on economic growth. To this day, broad literature has concerned this proposition in the world. Even so, most of them have not reached consensus on this topic. To justify the need of present research, following literature has been reviewed.

Gebremariam, Gebremedhin, and Jackson (2004) set West Virginia as an example to evaluate the vital roles of small-sized businesses in terms of economic growth and poverty alleviation. Via OLS and 2SLS regression analysis, there is a positive relationship between small businesses and economic growth. Their results establish the linkage between small businesses and economic growth. Baptiste-Cornelis and Long (2009) set Trinidad and Tobago as an example to explore how and to what extent small and mdeium enterprises affect macro-economic phenomenon such as employment and productivity. Their processes

mainly focus on accessing small & medium enterprises' impact on non-petroleum economy of Trinidad & Tobago, especially as it involves the economic diversification. Their findings provide that small & medium enterprises conduct a vital role in the economy of Trinidad and Tobago. Nelson and Johnson (1997) treat entrepreneurship education as a strategic way to economic growth in Kenya. Their results are in accordance with those of Baptiste-Cornelis and Long (2009).

Akingunola (2011) empirically examines small and medium scale enterprises and economic growth of Nigeria from 1970 – 2012. The benefits of small and medium-sized enterprises to any economy are easily significant. These include: job creating, providing a vehicle for decreasing income disparities, promoting the output of goods and services which is produced in the economy and so on. The main objective of his paper was to examine the effect of small and medium-sized enterprises on economic growth in Nigeria. In order to achieve this objective, his study polled 84 small and medium-sized enterprises for primary data collection and statistical records from 1975 to 2012 as secondary data. The ordinary least square, cointegration and error correction model were employed to estimate the data collected during the period of his study. The variables which were used include Gross Domestic Product, treated as the dependent variable and Finance Available to Small and Medium-sized Enterprises, Interest rate and Inflation rate, treated as the independent variables. His result shows that Finance Available to small and medium-sized enterprises show a positive relationship with economic growth when Interest rate and Inflation rate show a negative and positive effect on economic growth respectively. Thus, it can be concluded that the independent variables play a vital role in determining the effect of Small and Medium-sized Enterprises on economic growth in Nigeria. Based on this, it is suggested that the Nigerian Government should organize a national enterprise forum, which will focus on the contributions of small and medium-sized enterprises in national development objectives; that Federal or State Ministries of Industry in collaboration with the National Association of small and medium-sized enterprises should work out strategies for an annual report of small and medium-sized enterprises operating in Nigeria, and that the government should take policy measures to keep a favorably low commercial banking lending rate as this will promote high investment in Small and Medium-sized businesses and subsequently in the long-run contribute notably to economic growth. Caner (2010) studies the position of Small and Medium-sized enterprises in economic development. There is a little difference when compared with Akingunola's.

Onkoya, Fasanya, and Abdulrahman (2013) examine the impact of financing small-sized enterprises on economic growth in Nigeria by using quarterly data from 1992 to 2009. Their study combines several econometric estimation techniques. Their findings show that loan to small-sized

entrepreneurs have a positive effect on the economic performance when interest rate has a negative effect on economic growth. Their study thereby concludes that the greatest or worst problem facing Small and Medium-sized enterprises in Nigeria is managerial capacity. Access to capital or finance is necessary but not a sufficient condition for successful entrepreneurial development. Mcintyre (2001) studies the position of small and medium-sized enterprises in transition based economic growth and entrepreneurship. His result reveal the short-run relationship of two of them. Before that, Barr (1995) also studies this proposition. He mainly focuses on the long-run relationship.

Oduntan (2014) undertakes a survey of policies and programs embarked upon by various governments to promote small and medium-sized enterprises in Nigeria since the early 1980s. He discusses conceptual issues of definition, structure and role of small and medium scale enterprises by idealizing its operational working under a market economy. In the process, both the successes and the failures are highlighted. His study ends with a bold suggestion that government should dissipate less energy in the promotion of foreign direct investment. Rather, policies that promote and sustain small and medium scale enterprises should be formulated and implemented for economic sustenance and self reliance. Naudé (2014) presents an overview of the situation of the art of the intersection of development economics and entrepreneurship. Lock and Lawton (2016) explore the challenges facing female entrepreneurs in Kenya. Their paper draws on elementary research preformed through face-to-face surveys with female entrepreneurs in Kenya in a huge range of sectors, all of them having their own micro enterprises. It draws on the framework of Bates (2007) and Baughn (2006) to see the entrepreneurship landscape in Kenya and the barriers and limitation faced by women entrepreneurs as well as the support and opportunities available. It is found that female entrepreneurs in Kenya face quite fewer barriers to beginning micro–enterprises now than ever before and that it is testifying to be a greatly successful model for them to raise up themselves and their families without poverty. However, there are a lot of barriers to growth within the micro-enterprise sector. Based these, the paper discusses that, in order for female entrepreneurship to get a greater influence on economic growth in Kenya, the country needs to have more effective policies, regulation of the informal sector and further supporting of women entrepreneurs via business training, mentioning and financial support, to name a few. The paper provides original research on the increasing phenomenon of female entrepreneurship in Kenya as an approach to alleviating poverty. It figures how this trend is related to the increasing availability of micro-finance.

Okhankhuele (2017) treats small & medium enterprises as a source of economic growth in Nigeria. His study identifies small & medium enterprises' contribution to Nigeria's Gross Domestic Product (GDP) from 1982 to 2012, and carries out analysis on the effect of small & medium enterprises on economic growth in Nigeria, within the same period. Secondary data were collected from CBN Statistical Bulletin (2002, 2013, 2015), Central Bank of Nigeria, Annual Report and Statement of Accounts (2011, 2012), and National Bureau of Statistics –Job Creation and Employment Surveys (2012). Data are analyzed by using Pearson Product-Moment Correlation Coefficient. His study discloses that there is a notable and positive relationship between small & medium enterprises' contribution to Nigeria's Gross Domestic Product and Nigeria's GDP from 1982 to 2012. His paper recommended that the government makes good policies and carry out concerted effort towards the development of small & medium enterprises in order to make them serve as the source of economic growth in Nigeria. Kaur (2017) finds that Micro, Small & Medium enterprises (MSMEs) have played a crucial role in the overall economic development of every developing economy in the world. In India, MSMEs have helped in creating a favorable environment of growth by serving as ancillary units to large scale industries. They not only create huge employment opportunities for the public but also address other challenges like poverty and removing regional imbalances faced by the economy. Keeping in view the crucial role of MSMEs in the economy, the paper attempts to analyze the definition of MSMEs, the role and performance of MSMEs in Indian economy and government policies towards MSMEs as well as the various challenges and opportunities associated with MSMEs in India. The study reveals that over a period of time, a notable growth has been shown by the MSME sector which has been a leading contributor to export, employment and gross domestic product in India. Therefore, some sincere action plan and its proper implementation is a must for the encouragement of the MSMEs in the Indian economy. Ayandibu and Houghton (2017) explore importance of small & medium enterprises in a given economy. They show the reason why small & medium enterprises should be given full concentration and the existing small & medium enterprises encouraging more to start up. The contribution of the Small & Medium Enterprises to the Local Economic Development (LED) of a nation is well recognized. In developing countries, the contribution of small & medium enterprises towards employment generation is significant. Jilenga (2017) finds that social enterprises are essential for economic growth and play a significant contribution in local economies via job creation, improvement of quality of life for the local people and provision of valuable social services.

3. Research Method

3.1. Granger Representation Theorem

Granger Representation Theorem was firstly put forward by Engle and Granger in 1987. This theory focuses on

solving the problem of whether the relationship between variables can be represented by the error correction model or not. In fact, it is not always true, but the error correction model has many significant advantages. For example, the first-order difference eliminates the tendency which may exist among variables so that the spurious regression can be avoided. Additionally, it can also remove the possibility of multicollinearity in the model. Moreover, the introduction of error correction term ensures that the information of variable level values will not be ignored. Due to the stationarity of the error correction item, itself, the model can be estimated by the classical regression method, especially as the difference item in the model can be selected by using t test and P test.

If X and Y are cointegrated, the short-term non-equilibrium relationship between them can always be expressed by an error correction model.

$$\triangle Y_t = la, a, aed(\triangle Y, \triangle X) - \lambda \mu_t + \varepsilon_t \qquad (1)$$

Where μ_1 is non-equilibrium error term or a long term equilibrium bias; λ is a short term adjustment parameter. For the ADL(1, 1) [ADL(1, 1) model: $Y_t = \alpha_0 + \alpha_1 y_{t-1} + \beta_1 x_t + \beta_2 x_{t-1} + \mu_t$. Where y_1 and x_1 are stationary variables. μ_1 is a white noise.], if Y_1 and X_1 belong to $I(1)$, $\triangle Y_1$ and $\triangle X_1$ will belong to $I(0)$, Therefore, only if X and Y are cointegrated, $\triangle X_1$ will be a process of $I(0)$.

In sum, when establishing an error correction model, the cointegration analysis should be conducted first to confirm whether the cointegration relationship, long-run equilibrium relationship, between variables exists or not. Based on this relationship, the error correction term will be built. Then, the error correction term will be considered as an explanatory variable. And along with other explanatory variables reflecting short-term fluctuations will be used to establish the short-term model, also namely, error correction model.

3.2. Modeling

Based on the research of He (2018), we can assume that X and Y have a long-run equilibrium relationship, and their function gives:

$$Y_t = \alpha_1 + \alpha_1 X_t + \mu_1 \qquad (2)$$

Since X and Y are rarely in the equilibrium point in the real economy, the actual observation is only the short-term or non-equilibrium relationship between X and Y. If they are satisfied with ADL(1,1), the Y value of t period is not only related to the change in X, but also related to the state value of X and Y of $t-1$ period. Because variables may be non-stationary, the ordinary least squares method cannot be applied directly.

Rewriting ADL(1,1) gives:

$$Y_t = \beta_0 + \beta_1 X_t + \beta_2 x X_{t-1} + Y_t + \varepsilon_t L \qquad (3)$$

Where $\lambda = 1 - \mu$. if we regard that the parameter of D is equal to relative parameter of $Y_t = \alpha_0 + \alpha_1 X_t + \mu_1$, D will be the non-equilibrium error correction term of $t-1$ period. D indicates that the change of Y depends on the change of X and the non-equilibrium of the previous period. Meanwhile, D can also make up for the shortage of the simple difference model $(\triangle Y_t = \triangle X_t + vt)$. The reason is that this formula contains the initial non-equilibrium of X and Y levels. Therefore, the value of Y has been corrected for the previous non-equilibrium. D is often called as the first-order error correction model. D can be written as ecm. Due to ADL (1,1), it can be known that in general $|\mu|$ is less than 1. Furthermore, it can also be known that $0 < \lambda < 1$. Based on this, the function of ecm can be analyzed from two aspects. One is that if the value of Y in $t-1$ period is greater than its solution $\alpha_1 + \alpha_1 X$, the ecm will be positive. Then, $-\lambda ecm$ will be negative, which will let $\triangle Y_1$ decrease. Another is that if the value of Y in $t-1$ period is less than its solution $\alpha_1 + \alpha_1 X$, the ecm will be negative. Then, $-\lambda ecm$ will be positive, which will let $\triangle Y_1$ increase.

The main reason is that the difference of the logarithm of the v ariable is approximately equal to the rate of change of the variable, and the rate of change of the economic variable is usually a stable sequence, making it suitable for being contained in the classical regression equation.

4. Empirical Analysis

4.1. Variables Description

The time span of this study will start from year 2000 up to year 2017. The GDP of Hangzhou represents the economic growth, which is treated as a dependent variable. The source of it is from Hangzhou Statistical Information Net. The total revenue of Alibaba group is treated as an independent variable. The source of it is from accounting department of Alibaba group. Both of them will be in logs so as to remove the outliers and heterocedasticity. The log forms and sources will be displayed in <Table 1>.

Table 1: Variable Description

Variable	Log form	Source
GDP of Hangzhou	$\log hzadp$	Hangzhou Statistical Information Net
Total revenue of Alibaba Group	$\log tr$	Accounting Department of Alibaba Group

4.2. Unit Root Test

An econometric analysis often begins with univariate analysis for variables contained in the model before empirical analysis. The ADF test will be employed to confirm

the stationarity of variables. Based on the research of He (2018), the ADF unit root test is undertaken via the equation as following:

$$\triangle y_t = \alpha + \beta t + (\rho - 1)y_{t-1} + \sum_{t=1}^{a} \gamma_t \triangle y_{t-1} + \varepsilon \qquad (4)$$

Where y_t will be replaced by each of the variables in the model, t refers to trend and j refers to the no. of lags. The null hypothesis of ADF test is $\beta = 0$ and $\rho = 0$ indicating a non-stationary variable. If the absolute ADF test statistic exceeds the absolute Mackinnon critical values. Then the null hypothesis is rejected indicating that the variable is stationary. The ADF unit root test's results rea shown in <Table 2>.

Table 2: Results of Unit Root Test

Variable	t-Statistic	5% Test critical values	Prob.*	Result
$\log hzadp$	-2.156	-3.052	0.228	Non-rejected
$\log tr$	-1.316	-3.052	0.597	Non-rejected
$\triangle \log hzadp$	-4.826	-3.099	0.003	Rejected
$\triangle \log tr$	-3.703	-3.066	0.015	Rejected

Note: $\triangle$ represents the first difference operator.

<Table 2> indicates the results of ADF unit root test. The t-statistic values of the time series $\log hzadp$ and $\log tr$ are both above the 5% test critical values under the significance level of 5%. Therefore, the null hypothesis with one unit root will not be refused. Namely, both of them are non-stationary series. However, both will become stationary series after performing the first order difference.

So, it is can be concluded that both of them are the process of $I(1)$. Then, the cointegration relationship between $\log hzadp$ and $\log tr$ should be tested.

4.3. Engle–Granger Two-step Method

If x_t and y_t are non-stationary and cointegrated, then a linear combination of them must be stationary. Namely:

$$y_t - \beta x_t = \mu_t \qquad (5)$$

where μ_t is stationary.

If we knew μ_t, we could only verify it for stationarity with some approaches like a Dickey–Fuller test and Phillips–Perron test. But because we don't know μ_t, we must estimate this first, generally by using the ordinary least squares, and then running our stationarity test on the estimated μ_t series, often denoted $\bar{\mu}_t$.

As for the second regression, we should run on the variables after taking the first difference from the first regression. Then, the lagged residuals $\bar{\mu}_{t-1}$ are treated as a regressor.

Table 3: Estimation of the Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$\log tr$	0.272	0.065	4.185	0.000
C	3.213	0.227	14.154	0.000
$R-souared = 0.991$		$Adiusted\,R-souared = 0.991$		$D.W. = 2.490$

<Table 3> indicates that $R-souared = 0.991$, which means that the independent variable has a good explanation to the dependent variable. Meanwhile, $D.W. = 2.490$ indicates that the autocorrelation does not exist. In order to avoid spurious regression, the residual of the model should be tested. If the residual is stationary, the regression is not spurious. Conversely, if the residual is non-stationary, the regression may be spurious. The testing result is shown in <Table 4>.

Table 4: Unit Root Test of Residual of the Model

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.349	0.022
Test critical values:	1% level	-2.708	
	5% level	-1.963	
	10% level	-1.606	

Note: *MacKinnon (1996) one-sided-values.

<Table 4> shows the original hypothesis that the unit root exists is rejected under 5% significant level. Namely, the estimated model is steady. So we can conclude that there is a long-run relationship between $\log hzadp$ and $\log tr$.

The long-run estimated equation gives:

$$\log hzadp = 0.272 \log tr + 3.213 \qquad (6)$$

Equation (6) indicates the long-run relationship between $\log hzadp$ and $\log tr$. The total revenue of Alibaba group has a positive effect on GDP of Hangzhou in the long run. Specifically, 1% increase in the total revenue of Alibaba group will result in 0.272% increase in GDP of Hangzhou.

4.4. Granger Causality Test

Granger causality test will be conducted to examine the direction of the relationship between $\log hzadp$ and $\log tr$. The intuition of this test is to investigate if $\log hzadp$ Granger causes $\log tr$, then the past values of $\log hzada$ can be used to predict changes in $\log tr$. On the other hand, if $\log tr$ Granger causes $\log hzadp$, then the past values of $\log tr$ can be used to predict changes in $\log hzadp$. The results of Granger causality is shown in <Table 5>.

Table 5: Parwise Causality Tests

Null Hypothesis	Obs	F-statistic	Prob.
$\log tr$ does not Granger Cause $\log hzadp$	16	5.671	0.020
$\log hzadp$ does not Granger Cause $\log tr$		0.571	0.581

<Table 5> indicates the causality between $\log hzadp$ and $\log tr$. The null hypothesis that $\log tr$ does not Granger Cause $\log hzadp$ is rejected under 5% significant level. However, the null hypothesis that $\log hzadp$ does not Granger Cause $\log tr$ is non-rejected under 5% significant level. Namely, there is an unilateral causality between $\log hzadp$ and $\log tr$. Therefore, it can be concluded that the total revenue of alibaba group is a reason that can promote the economic growth in Hangzhou.

4.5. Vector Error Correction Model

Since the cointegration between $\log hzadp$ and $\log tr$ exists, the vector error correction model can be estimated. According to the research of He (2018), the general model gives:

$$\triangle \log hzadp_t = \alpha + \beta \triangle \log tr_{t-1} + \delta \triangle \log hzgdp_{t-1} + \varepsilon_t \qquad (7)$$

where ecm is the lagged error correction term; ε_t is the white noise; α is constant; β and ρ are coefficients of the short-run dynamics, while δ measures the speed of adjustment to long-run equilibrium.

Conducting an estimation gives:

$$\triangle \log hzadp_t = -0.047 \triangle \log tr_{t-1} + 0.545 \triangle \log hzgdp_{t-1} + 0.184 ecm_{t-1} + 0.017 \qquad (8)$$

Equation (8) shows the short-run relationship between $\log hzadp$ and $\log tr$. The total revenue of Alibaba group has a negative effect on GDP of Hangzhou in the short run. Meanwhile, the GDP of Hangzhou has a positive effect on itself. Concretely speaking, one percent in total revenue of Alibaba group in $t-1$ period will result in 0.047% decrease in GDP of Hangzhou in t period. 1% increase in GDP of Hangzhou in $t-1$ period will lead to 0.545% increase in GDP of Hangzhou in t period. The coefficient of ecm_{t-1} is 0.184, which means that there is positive adjustment term when system is derived from the long-run equilibrium in the short run. More specifically, while the system is derived from long-run equilibrium, in the long run, the system will be back to the equilibrium by 0.184% in the long run.

4.6. Impulse Response Function

An impulse-response function illustrates the evolution of the variable of interest along a specified time horizon after a shock in a given moment. More generally, an impulse response is the reaction of any dynamic system in response to some external change. The impulse response depicts the reaction of the system which is treated as a function of time, In other words, it is also possibly treated as a function of some other independent variables which parameterize the dynamic behaviors of the system. Taking the research of He (2018), the results of impulse response function is shown in <Figure 2>.
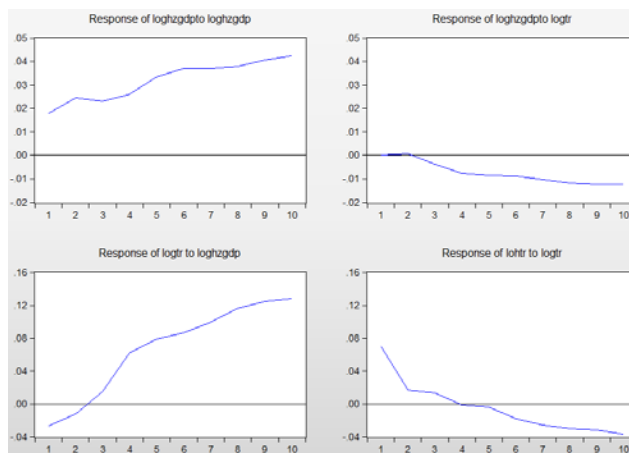

Figure 2: Response to Cholesky One S.D. Innovations

The short-run dynamics between total revenue of Alibaba group and GDP of Hangzhou can be examined by estimating a vector error correction model and interpreting it via impulse response function. Impulse response function is reported for ten periods in Fig.2. As for the response of $\log hzadp$ to $\log hzadp$, $\log hzadp$ increases slightly in response to one standard deviation shock in itself in second period. Then, the effect of the shock becomes stronger as time goes by. As for the response of $\log hzadp$ to $\log tr$, $\log tr$ decreases slightly in response to one standard deviation shock in $\log hzadp$ in the second period. Then, the effect of the shock dampens out and fades away by ninth period. As for the response of $\log tr$ to $\log hzadp$, $\log tr$ increases greatly in response to one standard deviation shock in $\log hzadp$ in the first period. Then, the effect of the shock will keep enlarging. As for the response of $\log tr$ to $\log tr$, $\log tr$ decreases fiercely in response to one standard deviation shock in itself in the first period. Then, the effect of shock will remain expanded. This result matches the long-run result that found positive relationship between total revenue of Alibaba group and GDP of Hangzhou.

4.7. Variance Decomposition

The variance decomposition demonstrates the amount of information each variable contributes to the other variables. It determines how much of the forecast error variance of each of the variables can be explained by exogenous shocks to the other variables.

Regarding the variance decomposition, Fig.3 reports the variance decomposition for ten periods of forecast of $\log hzadp$ in which 93% of the forecast variance is attributed to itself's shocks, while 7% to $\log tr$. On the other hand, ten periods forecasted of variance decomposition of $\log tr$, indicates that 12% of the forecast variance is attributed to itself's shocks, while 88% to $\log hzadp$. The results of variance decomposition support both the impulse response function and granger Causality test results.
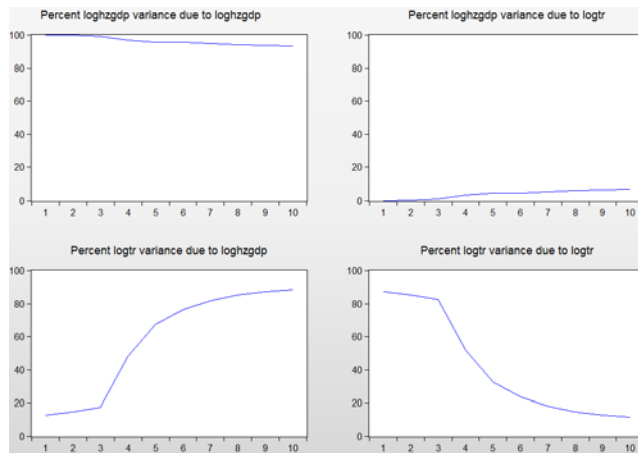
Figure 3: Variance Decomposition

5. Conclusion

Known as the most active economic cells, Small and Medium-sized Enterprises are of great importance to the development of economy and social stabilization. The economic strength and quality of small and medium enterprises, which have been the important part of China's national economies, have improved greatly after more than twenty years-old history of development. This paper sets Alibaba Group and Hangzhou city as an example to examine the dynamic relationship between Small & Medium-sized Enterprises and economic growth. The annual data from 2000 to 2017 has been employed to conduct an empirical analysis under vector error correction model. In order to hunt for a most precise results, a series of econometric methods have been adopted to explore the mutual effect between total revenue of Alibaba Group and Hangzhou' economic growth.

The result of Engle–Granger two-step method shows that there is a long-run relationship between both of them. Specifically speaking, 1% increase in the total revenue of Alibaba Group will result in 0.272% increase in GDP of Hangzhou. The result of Granger Casuality Test indicates that a unidirectional causality from total revenue of Alibaba Group to Hangzhou' economic growth. In other word, it means that the total revenue of Alibaba Group is a major reason that affects Hangzhou' economic growth. The result of vector error correction model displays that there is a short-run relationship for both of them. Namely, 1% increase in the total revenue of Alibaba Group will result in 0.047% decrease in GDP of Hangzhou. Meanwhile, when the system is derived from the long-run equilibrium, there exists a error correction term, which can make the system return to long-run equilibrium by 0.814%.

In summary, this paper gives countermeasures of fund-raising Small and Medium-sized enterprises with the development of marketing economy and reform of economic instruction. Therefore, the local government of Hanzgzhou city should introduce some good policies to encourage the Small and Medium-sized enterprises like Aliliba Group to have a better development so as to promote regional economic growth.

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