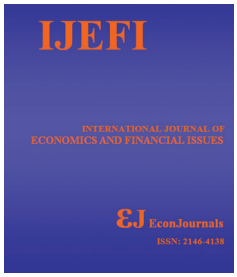

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The Transmission Mechanism of Bilateral Relationship Between Exports and Economic Growth in Vietnam

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ABSTRACT

This article uses the vector error correction model to analyze the transmission mechanism of bilateral relationship between exports and economic growth in Vietnam over the period 1999-2014. The results show that: (1) Existing bilateral relationship between exports and economic growth in Vietnam through the transmission channel in both short and long term, (2) exports growth has been the motivation for economic growth and the resource factors play an important role in the transmission of the effects of exports to economic growth of Vietnam, (3) economic growth also contribute to export growth by improving competitiveness in international trade through increasing productivity.

Keywords: Economic Growth, Export, The Virtuous Circle Model, Verdoorn's Law
JEL Classifications: A12, G01, F43

1. INTRODUCTION

The relationship between exports and growth is an important topic having been discussed during the past half century. Export is proved to be one of the important incentives of one country's economic growth. Besides, economic growth can also have a positive impact on exports because faster output growth will increase productivity through economies of scale, which will help enhance one country's competitive advantages and exports.

In recent years, both economic growth and export growth are objectives of the macro-regulation in Vietnam. The development of exports under the comparative advantage has resulted in many achievements along with economic growth in Vietnam. The authors of this article have used the vector error correction model (VECM) to estimate the dependent relationship between exports and economic growth with macroeconomic variables such as labor, capital and the real effective exchange rate of Vietnam. The results will clarify the transmission mechanism of bilateral relationship between exports and economic growth in Vietnam in the period 1999-2014.

2. THEORETICAL FRAMEWORK

2.1. Theoretical Basis

Through the development of the theory of trade and economic growth, exports have been identified as the motivation for economic growth of countries for a number of main reasons. First, the increase in export is one of the factors that can boost aggregate demand and will inevitably lead to increased production. Aggregate demand shifting to the changes in exports will have the amplified impact on the output through the multiplier effect, similar to the effects of investment to output growth. Second, export expansion can encourage specialization in the areas in which a country has comparative advantages, and lead to a reallocation of resources from the ineffective non-commercial sectors to more efficient export sectors (Herzer et al., 2006). Third, exports can ease tension on foreign exchange. This helps to increase the imports of inputs for production, machinery and equipment used for investment and thereby boost output growth (Giles and Williams, 2000). Besides, trade openness also helps promote technological progress, create more jobs, and the factors of production will shift from inefficient sectors to more effective sectors, thereby promoting increased economic growth (Thirlwall, 1979).

In reverse, economic growth could also have a positive impact on exports and exports through increasing productivity through economies of scale (Helpman and Krugman, 1985; Verdoorn, 1949). Productivity increase will help reduce labor costs in product prices if wages do not increase proportionally with productivity growth, thereby contributing to the decline in domestic commodity prices. This will help increase one country's competitive advantages and lead to increased exports. Moreover, economic growth will accelerate the formation of skills as well as technological progress, contribute to improving the efficiency of production, lead to increase competitive advantages for nations in the international market and from that help expand trade (Bhagwati, 1988).

Thus, exports and economic growth have interactive bilateral relationship in a continuous cyclic process over time. This process establishes a virtuous circle relationship between exports and economic growth. The virtuous circle model of the relationship between exports and economic growth indicates the open circle relationship in a positive direction between exports and economic growth (Figure 1). In the circle, the faster output growth increases productivity due to the economics of scale and promoting technological progress (Verdoorn's Law), resulting in drop of production costs and commodity prices. This will result in increasing real exchange rate, improving competitiveness in international trade and therefore promoting exports. The increase in exports will boost output growth through Keynesian multiplier effects, increasing consumer demand and stimulating investment. The cycle continues when the economy achieves higher productivity.

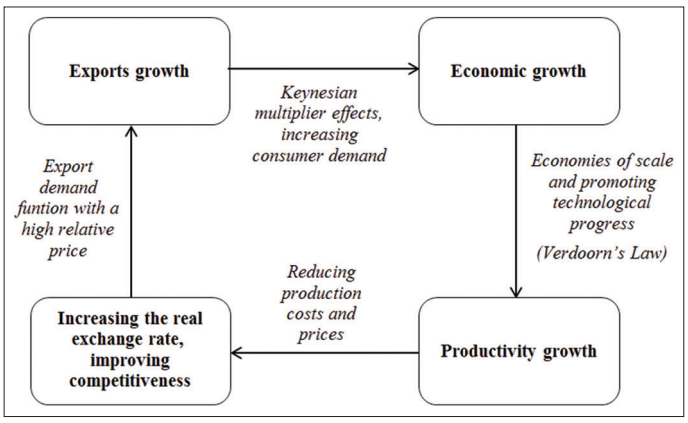
2.2. Research Model of the Transmission Mechanism of Bilateral Relationship Between Exports and Economic Growth in Vietnam

Based on the virtuous circle model, we propose the research model of the relationship between exports and economic growth in Vietnam with the paths described as Figure 2.

In which:

- Exports affect economic growth through forming and attracting the resources for economic growth.

Figure 1: The virtuous circle model of the relationship between exports and economic growth



Source: Blecker (2009)

- Export growth helps create jobs for employees, especially for the countries with abundant labor force and high proportion of exporting labor-intensive products such as Vietnam. Exports boost economy using more and more efficient the existing factors of production, including labor (Ngo and Phan, 2008). Besides, export expansion will also promote the increased labor and skilled manpower for the economy, thereby creating important resources for growth in the long-term.
- Export is one of the great sources of additional capital for the economy, creating a significant foreign exchange earnings for the country, providing foreign exchange to allow increasing imports of technology, capital goods and intermediate goods necessary for the development of industries, increasing productive potential of the country (Awokuse, 2003). For a developing country like Vietnam, continuous export growth has become an important source of capital accumulation for industrialization, promoting economic growth.
- Exports affect economic growth through affecting total factor productivity by allocating resources optimally through promoting comparative advantage and exploiting economies of scale (Awokuse, 2003). Besides, exports help promote technological progress through the effect of positive technology externality, and motivate increasing competitiveness to help accumulate experience and knowledge, thereby increasing labor productivity and leading to economic growth (Grossman and Helpman, 1991b; Romer, 1990).

- Economic growth affects exports through improved competitiveness

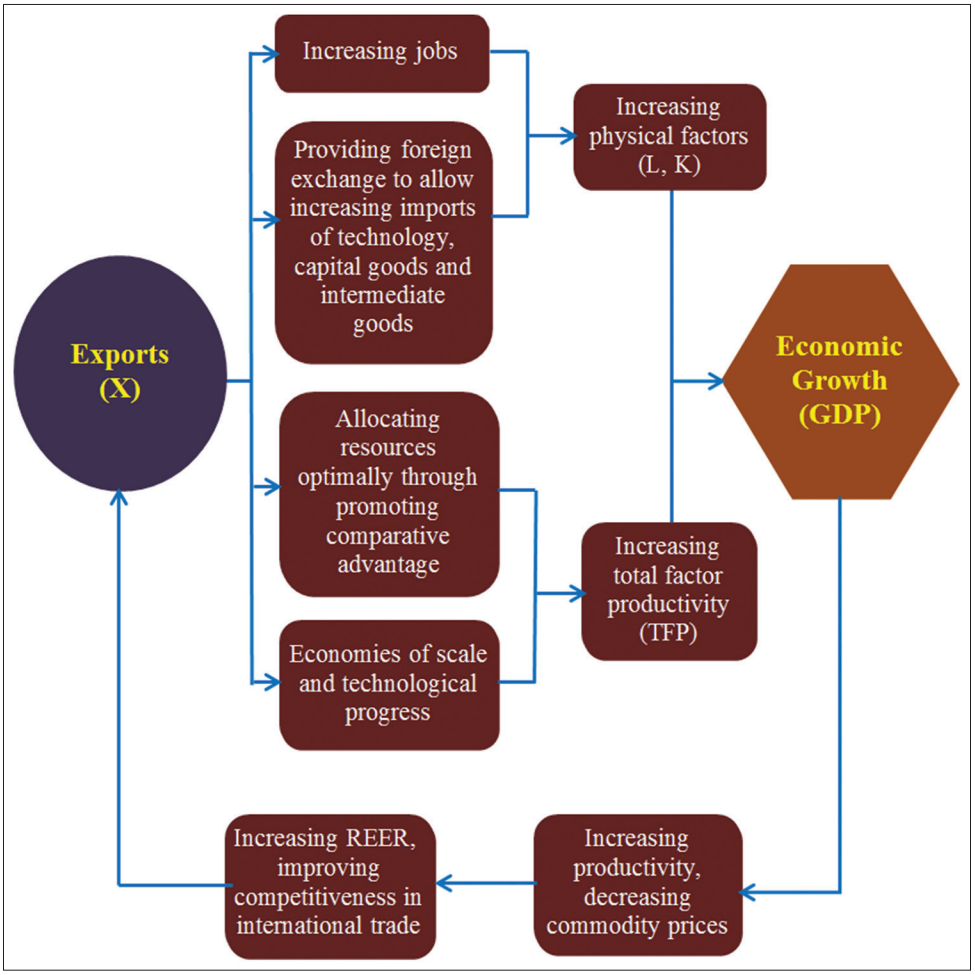
  Economic growth leads to increased productivity through economies of scale and technological progress. The increased productivity will help reduce labor costs in product price if salary does not increase proportionally with productivity growth, thereby contributing to decrease domestic commodity prices. In theory, since the relation between real effective exchange rate (REER) and domestic prices is negative, when productivity growth makes prices fall, it will lead to increased REER, improving competitiveness in international trade and therefore promoted exports. This point is also shown in the studies of Blecker (2009), Sahni and Atri (2012), and Tanjung (2012).

2.3. Variables and Measurement

- Gross domestic production (GDP): Measured by real GDP of Vietnam, units of billion Dong and calculated at constant prices of 1994.
- Export (X): Is the exports value of goods of Vietnam, units of billion Dong and standardized in 1994 prices.
- Capital (K): Is the real capital, units of billion Dong and standardized in 1994 prices. As in Vietnam, there is no data on this indicator so we used GDP in 1990 as the initial K (K_0). From the initial K and gross capital formation (I_t), we calculated the capital over time based on a formula:

$$K_t = (1-\delta)K_{t-1} + I_t \quad (1)$$

Figure 2: The transmission mechanism of bilateral relations between exports and economic growth in Vietnam



In it, δ = 5% is depreciation rate. The depreciation rate is selected based on Tran et al. (2010).

- Labor (L): Labor used in research is the labor force in the working age who are working in Vietnam's economy.
- The REER is an indication of the multilateral real exchange rate of Vietnam Dong against the currencies of major trading partners. Based on the total export and import value of goods of Vietnam to trade partners in the world, 10 major trading partners with the biggest proportion of exports and imports with Vietnam are selected include Taiwan, Germany, South Korea, the United States of America, Japan, France, Singapore, Thailand, China and Australia.
- The nominal effective exchange rate (NEER) is an indication of the nominal exchange rate of Vietnam Dong against the currencies of major trading partners. NEER calculation is determined similarly to the REER.

2.4. Data Sources

Data's of GDP, investment, employment and exports are collected from the Vietnam General Statistics Office. Data sources used to calculate REER and NEER are collected from the database of the International Monetary Fund, including International Financial Statistics and Direction of Trade Statistics. Taiwan's data are collected from the web site of Taiwan Statistical Agencies (http://eng.stat.gov.tw).

2.5. Research Methods

We used the VECM to estimate the dependence relationship between exports and economic growth with macroeconomic variables such as labor, capital and the real effective exchange rates of Vietnam with a quarterly frequency. Moreover, the variables, were turned logarithm and remove seasonal factors, will be tested the stationary through Augmented Dickey Fuller (ADF) unit root tests. Then, co-integration test was carried out through Johansen procedures. If variables were stationary and had co-integration relationship, the VECM model would be estimated. Also, we estimated the impulse response function of variables to endogenous shocks and decomposed variance to test hypotheses about the relationship between exports and economic growth under the paths. Optimal lags of variables were selected according to the criteria as LR (sequential modified LR test statistic), final prediction error (FPE), Akaike information criterion (AIC), Schwarz information criterion and Hannan - Quinn information criterion.

VECM model is the dynamic equation system including all the mutual relationships over time between economic variables in models (endogenous variables), but does not require too detailed indications about the structure of the economy. This allows us to evaluate the dependent relationship between exports and economic growth and mediate elements of the paths.

3. ESTIMATION OF THE TRANSMISSION MECHANISM OF BILATERAL RELATIONSHIP BETWEEN EXPORTS AND ECONOMIC GROWTH IN VIETNAM

The data series used in the study include: GDP (LNGDPSA), capital (LNKSA), labor (LNLSA), the real effective exchange rate (LNREERSA) and exports of goods (LNXSA). In it, the symbol LN is logarithm, SA is the symbol reflects data series were adjusted for seasonal factors. The data series used with quarterly frequency for the period of 1999-2014, including 64 observers.

For stationary testing, we performed unit root tests by the ADF test with the assumption that the series had coefficient and trend, and the lag was selected according to the AIC standards. Test results indicated that all the series are stationary at the first differences with 1% significance level (Table 1).

The next step was to determine the optimal lag of variables. The results in Table 2 show that, by the criteria LR, FPE and AIC, the optimal lag order selected for the variables in the model is 3.

As mentioned above, the data series are stationary at the first differences. Therefore, co-integration test is conducted through Johansen procedure, test results are shown in Table 3. The Trace test results indicate that at least three co-integration relationships are observed at significance level 5%. This also means that there is a causal relationship between the variables in the long run. With this information, the next step we estimate VECM model to determine the relationship between exports and economic growth in Vietnam.

Table 1: Stationary test results

Variable	ADF value (lag)	Critical value (1% significance level)
LNGDPSA	ADF (6) = −0.948567	−4,127338
D (LNGDPSA)	ADF (2) = −14,61496***	−4,118444
LNXSA	ADF (4) = −2.680148	−4.121303
D (LNXSA)	ADF (0) = −8.312645***	−4.113017
LNLSA	ADF (1) = −1.437527	−4.113017
D (LNLSA)	ADF (0) = −11.61905***	−4.113017
LNKSA	ADF (6) = 0.176143	−4.127338
D (LNKSA)	ADF (0) = −6.630104***	−4.113017
LNREERSA	ADF (1) = −2.357176	−4.113017
D (LNREERSA)	ADF (0) = −6.366474***	−4.113017

***is statistically significant at 1%. Source: Results from modeling estimates, ADF: Augmented Dickey Fuller

The VECM model is estimated with 3 lags in each variable, and the general model takes the following form:

$$D(LNGDPSA)= \sigma_1+\sum_{i=1}^{3}(\alpha_{1i}D(LNGDPSA(-i))+\beta_{1i}D(LNKSA(-i))+\gamma_{1i}D(LNLSA(-i))+\rho_{1i}D(LNREERSA(-i))+\theta_{1i}D(LNXSA(-i)))+\sum_{i=1}^{3}\lambda_{1i}EC_i(-1)+e_1 \quad (2)$$

$$D(LNKSA)= \sigma_2+\sum_{i=1}^{3}(\alpha_{2i}D(LNGDPSA(-i))+\beta_{2i}D(LNKSA(-i))+\gamma_{2i}D(LNLSA(-i))+\rho_{2i}D(LNREERSA(-i)))+\theta_{2i}D(LNXSA(-i))+\sum_{i=1}^{3}\lambda_{2i}EC_i(-1)+e_2 \quad (3)$$

$$D(LNLSA)= \sigma_3+\sum_{i=1}^{3}(\alpha_{3i}D(LNGDPSA(-i))+\beta_{3i}D(LNKSA(-i))+\gamma_{3i}D(LNLSA(-i))+\rho_{3i}D(LNREERSA(-i))+\theta_{3i}D(LNXSA(-i)))+\sum_{i=1}^{3}\lambda_{3i}EC_i(-1)+e_3 \quad (4)$$

$$D(LNREERSA)= \sigma_4+\sum_{i=1}^{3}(\alpha_{4i}D(LNGDPSA(-i))+\beta_{4i}D(LNKSA(-i))+\gamma_{4i}D(LNLSA(-i))+\rho_4D(LNREERSA(-i))+\theta_{4i}D(LNXSA(-i)))+\sum_{i=1}^{3}\lambda_{4i}EC_i(-1)+e_4 \quad (5)$$

$$D(LNXSA)= \sigma_5+\sum_{i=1}^{3}(\alpha_{5i}D(LNGDPSA(-i))+\beta_{5i}D(LNKSA(-i))+\gamma_{5i}D(LNLSA(-i))+\rho_{5i}D(LNREERSA(-i))+\theta_{5i}D(LNXSA(-i)))+\sum_{i=1}^{3}\lambda_{5i}EC_i(-1)+e_5 \quad (6)$$

Table 2: Results of optimal lag testing

Lag order selection criteria for models						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	749.1838	NA	4.93e-18	−25.66151	−25.48388	−25.59232
1	788.2465	70.04348	3.05e-18	−26.14643	−25.08068	−25.73130
2	870.3321	133.0353	4.34e-19	−28.11490	−26.16103*	−27.35383*
3	903.8677	48.56888*	3.40e-19*	−28.40923*	−25.56724	−27.30222
4	927.1077	29.65095	3.99e-19	−28.34854	−24.61843	−26.89559

*Indicates lag order selected by the criterion. Source: Results from modeling estimates, FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan - Quinn

Where: $EC_i(-1)$ is the disequilibrium error from the previous period.

Summaries of the estimated results shown in Table 4 shows: In the 2nd co-integration relationship, the coefficients of error correction variables are significant except the coefficient of LNLSA. However, in the 3rd co-integration relationship, these coefficients were found to be statistically significant. Therefore, error correction mechanism exists for all variables in the model. According to Granger (1988), when the coefficient of error correction is statistical significant, there will exist Granger causal relationship between these variables in the long term. The estimation results also show that in the short term exports have a causal impact on labor; capital and labor have a causal impact on economic growth; economic growth has a causal impact on the real effective exchange rate and exports.

Table 3: Johansen co-integration test

Hypothesized number of CE (s)	Eigen value	Trace statistic	0.05 critical value	P**
Unrestricted cointegration rank test (trace)				
None*	0.606499	133.6574	88.80380	0.0000
At most 1*	0.384177	77.69706	63.87610	0.0022
At most 2*	0.335847	48.60936	42.91525	0.0122
At most 3	0.292687	24.05478	25.87211	0.0828
At most 4	0.053166	3.277902	12.51798	0.8420
Unrestricted cointegration rank test (maximum eigenvalue)				
None*	0.606499	55.96035	38.33101	0.0002
At most 1	0.384177	29.08771	32.11832	0.1122
At most 2	0.335847	24.55458	25.82321	0.0728
At most 3*	0.292687	20.77688	19.38704	0.0313
At most 4	0.053166	3.277902	12.51798	0.8420

*denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) P values, Source: Results from modeling estimates

We continue to consider the impact of various shocks to the dependent variables of the paths by estimating the impulse response function. The first is the impact of the shocks by the path of exports led economic growth (Figure 3). Cholesky ordering of endogenous variables in the model is implemented in the order of variables in the path, respectively LNX, LNK, LNL, LNGDP, LNREER. Accordingly, labor has instant response to export shock in 1st quarter, then decline. Capital and GDP response instantly and positively to export shocks, the response level of capital is increasing in long-term, while GDP responses strongest and fullest in the 2nd quarter. For shocks of capital, GDP has the strongest response in the 6th quarter. Meanwhile, with the labor shocks, GDP responses positively in the 2nd, 4th and 8th quarter.

As for the impact of the shocks by the path of economic growth led exports, Cholesky ordering of endogenous variables in the model is respectively LNGDP, LNREER, LNX, LNK, LNL (Figure 4). When shocks of GDP occur, REER increases in the first two quarters, then declines. Again, exports response strongly and positively to the shocks of REER, the strongest and fullest response is in the 4th quarter. Similarly, exports also response strongly and positively to GDP shocks.

Results of variance decomposition in Table 5 show that, in the first three quarters, the values in the past explain mainly to the changes of capital, labor and GDP with average explanation rate

Figure 3: Response of labor, capital and gross domestic production to shocks

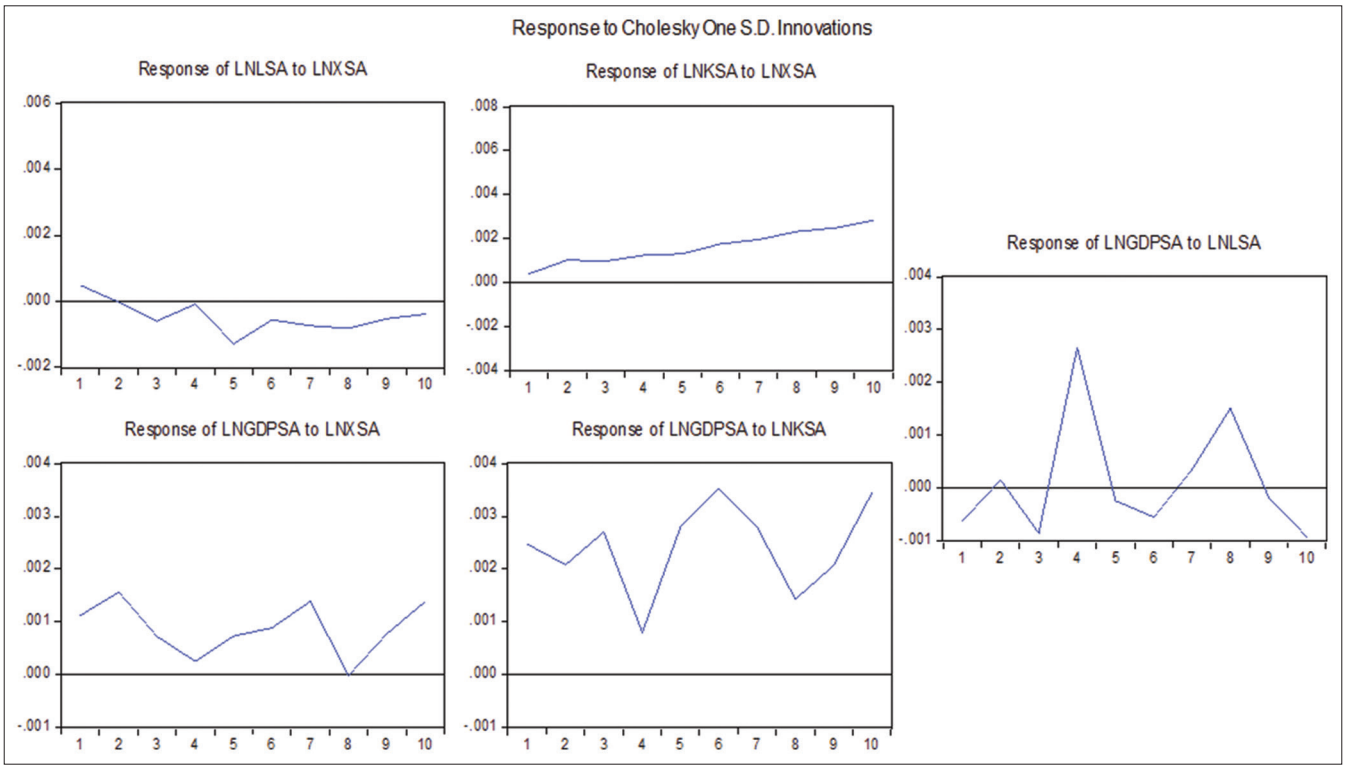


Table 4: VECM estimation results

Error correction	D (LNGDPSA)	D (LNKSA)	D (LNLSA)	D (LNREERSA)	D (LNXSA)
$EC_1(-1)$	0.220393	0.344***	0.467***	−0.6979	4.512***
	[0.83332]	[4.33177]	[4.67472]	[−1.43244]	[3.70838]
$EC_2(-1)$	−0.160**	−0.02566	−0.026633	0.343***	−0.743**
	[−2.44913]	[−1.30264]	[−1.07534]	[2.84990]	[−2.46825]
$EC_3(-1)$	0.155749	−0.272***	−0.396***	−0.133007	−2.851***
	[0.75464]	[−4.38585]	[−5.07971]	[−0.34980]	[−3.00260]
D (LNGDPSA(−1))	−0.795***	−0.194***	−0.302***	0.69650*	−2.785***
	[−3.42250]	[−2.78646]	[−3.43668]	[1.62715]	[−2.60524]
D (LNGDPSA(−2))	−1.087***	−0.173***	−0.262***	0.5971**	−2.163***
	[−7.61003]	[−4.04117]	[−4.85005]	[2.26852]	[−3.29072]
D (LNGDPSA(−3))	−0.737***	−0.028483	−0.07992	0.36522	−0.558781
	[−5.25853]	[−0.67507]	[−1.50677]	[1.41390]	[−0.86614]
D (LNKSA(−1))	0.392775	−0.2275*	−0.3431**	−0.425833	−3.41283*
	[0.87123]	[−1.67745]	[−2.01164]	[−0.51270]	[−1.64520]
D (LNKSA(−2))	0.9273**	−0.028110	−0.579***	0.944081	−2.025687
	[2.01445]	[−0.20291]	[−3.33005]	[1.11317]	[−0.95632]
D (LNKSA(−3))	−0.339212	−0.361***	−0.675***	0.555224	−1.601056
	[−0.71882]	[−2.54369]	[−3.78372]	[0.63863]	[−0.73734]
D (LNLSA(−1))	−0.097940	0.057041	−0.23151*	−0.080363	4.0333**
	[−0.25716]	[0.49769]	[−1.60665]	[−0.11453]	[2.30153]
D (LNLSA(−2))	−0.336203	0.114760	0.19174	0.182313	1.997509
	[−0.86390]	[0.97991]	[1.30222]	[0.25428]	[1.11549]
D (LNLSA(−3))	0.60732*	0.137032	0.380***	0.520546	3.7118**
	[1.63448]	[1.22551]	[2.70726]	[0.76042]	[2.17100]
D (LNREERSA(−1))	0.059630	0.100***	0.0708**	0.064814	−0.470008
	[0.66443]	[3.70603]	[2.08517]	[0.39200]	[−1.13816]
D (LNREERSA(−2))	0.064703	0.0585**	0.05083	0.142285	0.464112
	[0.73816]	[2.22126]	[1.53283]	[0.88108]	[1.15069]
D (LNREERSA(−3))	0.091337	0.03473	−0.026624	−0.22961*	0.206677
	[1.19092]	[1.50485]	[−0.91752]	[−1.62505]	[0.58566]
D (LNXSA(−1))	0.003768	−0.004851	0.009230	0.011812	0.141219
	[0.11992]	[−0.51311]	[0.77654]	[0.20408]	[0.97689]
D (LNXSA(−2))	−0.002006	−0.008597	0.001623	−0.038639	0.088276
	[−0.07196]	[−1.02499]	[0.15395]	[−0.75251]	[0.68836]
D (LNXSA(−3))	−0.011654	−0.003237	0.0210**	0.040013	0.110551
	[−0.46133]	[−0.42580]	[2.20668]	[0.85973]	[0.95106]

Values in brackets [] is t-statistical; ***.**.* statistical significant at 1%, 5% and 10%. Source: Results from modeling estimates, VECM: Vector error correction model

Figure 4: The response of exports and the real exchange rate shocks

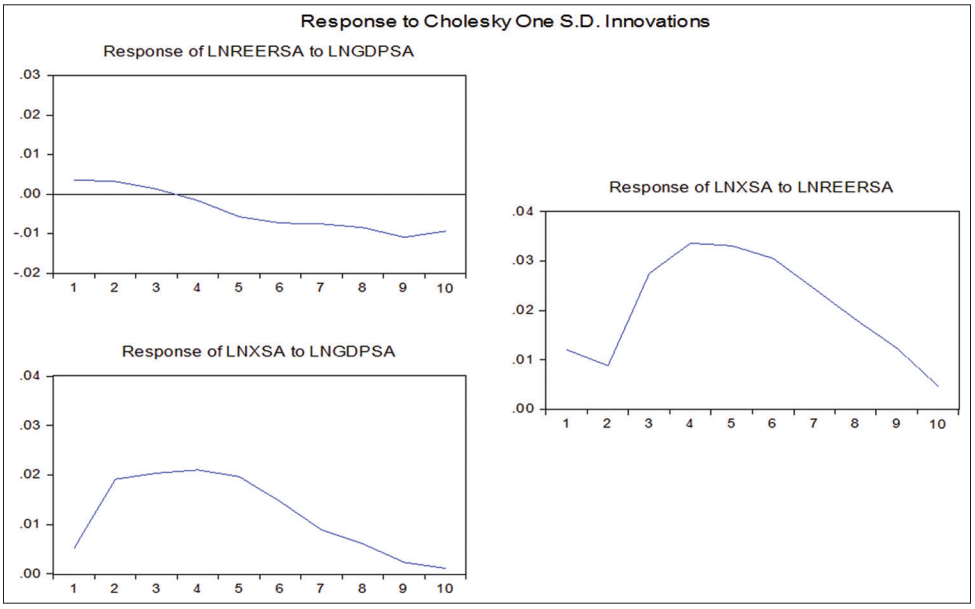


Table 5: Variance decomposition of capital, labor and GDP

Variance decomposition of LNKSA						
Period	S.E	LNGDPSA	LNKSA	LNLSA	LNREERSA	LNXSA
1	0.011452	0.000000	98.58360	0.000000	0.000000	1.416396
2	0.013183	12.25841	76.00733	3.488215	3.696478	4.549570
3	0.014294	17.07174	69.16247	3.460496	5.540624	4.764663
4	0.016012	26.24986	56.62923	4.810073	7.298216	5.012623
5	0.020339	28.89177	53.88467	5.129580	7.203933	4.890037
6	0.022064	32.57296	49.06109	6.218962	6.978140	5.168850
7	0.022620	35.18134	45.98101	6.320898	7.192353	5.324402
8	0.023501	38.55650	41.59869	6.668445	7.743283	5.433079
9	0.026679	40.71244	38.62928	6.502202	8.753888	5.402186
10	0.028169	42.46080	35.93293	6.409315	9.804893	5.392057
Variance decomposition of LNLSA						
1	0.003446	0.000000	0.525442	98.24468	0.000000	1.229876
2	0.005167	14.54728	2.234550	80.58290	1.735301	0.899968
3	0.006732	14.03168	7.485405	74.73007	2.176444	1.576403
4	0.008596	15.81725	12.26082	67.91808	2.842926	1.160924
5	0.010520	18.48210	11.24931	63.57490	2.988153	3.705532
6	0.012835	21.32640	11.40007	60.62268	2.929116	3.721733
7	0.015243	23.49116	10.77618	59.19024	2.578836	3.963584
8	0.018073	29.21964	9.829410	54.20128	2.541959	4.207712
9	0.021051	32.58217	8.754097	51.77796	2.894117	3.991655
10	0.024336	35.84200	7.867564	49.11899	3.454726	3.716721
Variance decomposition of LNGDPSA						
1	0.004333	94.08964	4.640105	0.305901	0.000000	0.964355
2	0.005078	86.32960	5.998606	0.243172	5.301821	2.126803
3	0.006124	73.43712	8.671466	0.571086	15.25766	2.062671
4	0.007180	63.37712	7.157137	3.211907	24.58632	1.667508
5	0.007837	72.92110	6.328566	2.005424	17.58432	1.160588
6	0.008342	70.99616	7.938707	1.767651	18.14993	1.147546
7	0.008897	67.72381	9.074954	1.704959	20.02706	1.469223
8	0.009517	65.53098	8.776537	1.991031	22.34032	1.361131
9	0.010126	71.30564	7.413599	1.549760	18.59074	1.140270
10	0.010691	71.23273	8.145242	1.500805	17.85817	1.263061

Cholesky ordering: LNXSA LNKSA LNLSA LNGDPSA LNREERSA. Source: Results from modeling estimates, SE: Standard error

Table 6: Variance decomposition of the real effective exchange rate and exports

Variance decomposition of LNREERSA						
Period	S.E	LNGDPSA	LNKSA	LNLSA	LNREERSA	LNXSA
1	0.011452	2.886175	0.000000	0.000000	97.11383	0.000000
2	0.013183	2.675024	0.014174	0.097297	95.94875	1.264754
3	0.014294	1.845606	2.032586	0.072236	92.15269	3.896883
4	0.016012	1.702892	6.070046	0.079619	88.43027	3.717176
5	0.020339	3.304423	9.197008	0.347032	83.42362	3.727913
6	0.022064	5.902939	10.34617	0.848060	79.38461	3.518220
7	0.022620	8.466837	10.81480	1.357081	75.91960	3.441684
8	0.023501	11.12068	11.02770	2.828193	71.50861	3.514822
9	0.026679	14.95093	10.96051	4.049707	66.22760	3.811258
10	0.028169	16.99396	10.73272	5.415149	62.62767	4.230507
Variance decomposition of LNXSA						
1	0.003446	0.964355	0.000000	0.000000	5.219290	93.81635
2	0.005167	10.47055	4.829325	0.681661	5.922290	78.09618
3	0.006732	15.99108	6.027915	0.523715	19.37975	58.07754
4	0.008596	18.66229	4.737279	0.893209	31,52082	44.18639
5	0.010520	19.22413	4.227026	1.034676	37.66112	37.85305
6	0.012835	18.25895	5.942924	1.198402	40.85580	33.74392
7	0.015243	17.35035	7.673217	1.256160	42.58606	31.13421
8	0.018073	16.59898	9.302511	1.816019	42.77382	29.50868
9	0.021051	16.19875	10.06151	2.123355	42.89060	28.72579
10	0.024336	15.97778	10.64874	2.454738	42.45746	28.46128

Cholesky ordering: LNGDPSA LNREERSA LNXSA LNKSA LNLSA. Source: Results from modeling estimates, SE: Standard error

of about 85%. Then, the changes of capital and labor are mainly explained by the shock of GDP with explanation rates of 42.5% and 35.8% respectively in the 10th quarter. Meanwhile, the changes of GDP are influenced mainly by the shocks generated by itself,

with average explanation rate of about 75%. The factors that have major explanation rate to the changes of GDP are the real effective exchange rate and capital. Table 6 shows that, the changes of the real effective exchange rate are also influenced by the shocks generated by itself, with average explanation rate of about 80%, followed by the impact of GDP and capital. Meanwhile, the value in the past only plays a significant role for the changes of exports in the first three quarters. Then, the changes of this indicator are explained mainly by the real effective exchange rate and GDP, in which, the real effective exchange rate has the highest explanation rate, about 40%, while GDP is about 17%.

4. CONCLUSION AND RECOMMENDATION

Through qualitative and quantitative analyses about the relationship between exports and economic growth in Vietnam, research results show that:

- There exists a bilateral relationship between exports and economic growth in Vietnam through the paths in both short-term and long-term.
- Export growth has been the motivation for economic growth, and the resource factors have played an important role in transmitting the impact of exports to economic growth in Vietnam. Export growth has had the positive impact on forming and attracting the resources for economic growth in Vietnam in recent years. Export growth will not only helps increase productivity by promoting economies of scale, but also contribute to create more jobs and stimulate investment, increasing to accumulate capital, thereby promoting economic growth.
- Economic growth has also contributed to promoting exports growth through increasing productivity and competitiveness in international trade. Accordingly, economic growth will lead to increasing productivity through economies of scale and technological progress. Productivity increases will help reduce production costs, thereby contributing to the decrease in commodity prices in the country. This will have an impact on increasing the real effective exchange rate, improving competitiveness in international trade and therefore having the effect to promote exports.

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