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Testing Hecksher Ohlin Theory : Evidence From Singapore In 1991-2016

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Abstract

This research aims to test Hecksher Ohlin's theory with a capital-intensive country in Asia, namely Singapore with the research period 1991-2016. The time period was chosen to avoid a significant shock, namely the covid 19 that occurred in 2020. However, taking into account the effect of the Asian financial crisis in 1997, the 1991 - 2016 time period was chosen. The data used and obtained are from the World Bank. We examine the variables of labor, investment, consumer price index and export. This study uses VECM Modelling. According to Hecksher Ohlin's theory, a capital-intensive country like Singapore will export its goods and services which has a positive and significant relation with investment. The research's findings support the Hecksher-Ohlin Theory. However, employment is also positively related to investment in Singapore. This is very rational even though Singapore uses a capital-intensive system but still requires manpower. Likewise, the CPI is also significantly positive regarding investment in Singapore, proving that Singapore's production is not only for export orientation but also to meet domestic consumption.

Keyword : Hecksher Ohlin Model, employment, investment, consumer price index, export
JEL Classification : C01, E24, J24, P18

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Introduction

The theory of international trade first appeared when it was introduced by Swedish economist Eli Hecskher and also namely Bertil Ohlin, who explained theory of international trade which has been unable to be explained by comparative advantage theory (Lundahl, 2022). According Ricardo (1971), Comparative Advantage Theory recognize so it in finally absence of labor mobility, price differences encourage trade. The Classical Comparative advantage theory shows how international trade may emerge due to disparities in worker productivity (explicitly stated

production factors) between nations. However, this idea does not explain the root cause as for the difference in terms of productivity

In the Heckscher-Ohlin theory, the reason of productivity differences are caused by the number or proportion of factors of production possessed or endowment factors that each country has, resulting in different prices of the goods produced (Viphindrartin & Bawono, 2021). Thus, the modern theory of Heckscher-Ohlin or also known as 'The Proportional Factor Theory'. A country will focus in production and export its goods, if the factors of production are relatively large or cheap in producing them. Conversely, if the country has production factors that are relatively scarce or expensive to produce, the country will import certain goods (Brondino, 2021).

The Heckscher-Ohlin theorem explains that differences in endowment factors serve as another basis for international trade, whereby a country will have a comparative advantage in producing an abundance of products or services (Islam, Ghani, Othman, & Apandi, 2019). The Heckscher-Ohlin theorem explains that differences in endowment factors serve as another basis for international trade, whereby a country will have a comparative advantage in producing an abundance of products or services (Rahman, Fatima, & Rahman, 2020). The endowment factor is different in each country. Like the endowment factor owned by the State of Indonesia, Malaysia and Thailand in the form of natural resources (SDA), while the State of Singapore in terms of skilled labor. The difference in endowment factors causes differences in the comparative advantage of each country (Hill, 2018).

There is still much debate about the Heckscher Ohlin Theory as a modern international trade theory. Many experts support, but many also reject this theory (Islam, Ghani, Othman, & Apandi, 2019). Darwanto (2009) explains that the Hecksher Ohlin theory is not perfect. There are some criticisms of this theory, including if the number or proportion of production factors owned by each country is relatively the same, then the price of similar goods will be the same so that trade will be difficult to occur. Facts that exist in the real world explain that, although the proportion factor of each country is the same which has a relative effect on the price of the same goods, in fact international trade can still occur.

In a world where placement decisions are shaped by several different forces, the perspectives from Heckscher Ohlin are still relevant, even though only in certain nations apply Hecksher Ohlin proposition. although the model basically has a Heckscher-Ohlin structure (each location has a key factor that can be used in any of the constant-return industries), factoring and factor intensity not enough to predict production structural components or trade patterns (Venables & Limao, 2002). However, the Heckscher-Ohlin theory is no longer relevant to the trade carried out by Malaysia and its six main export destination countries. This does not mean applying the H-O theory at all, just proving that Linder's theory is superior in explaining Malaysia's trading partners than the H-O theory (Singh, Kumar, & Kumari, 2022). However, the pattern of carbon flow between China and its trading partners can be explained using the Heckscher-Ohlin-Vanek model. The economy that plays into its GVC is important for its EET, the change in direction of the carbon flow as it changes its position along the GVC. To predict the carbon flows pattern among China and its trading partners at the industrial and economic levels, the Heckscher-Ohlin-Vanek model proved to be accurate in predicting it. In a relatively carbon-rich economy, in addition to shrinking RCEA, positioning itself in the GVC, its net carbon outflow can be reduced

(Yan, Wang, Zheng, & Zhao, 2020). This study aims to test Hecksher Ohlin's theory with a capital-intensive country in Asia, namely Singapore

Literatur Review

The HO theorem was first published by Wassily Leontief in 1953. He was a Harvard professor who reviewed data of US trade from 1947 to determine whether the US, as theory suggests the most capitalized countries in the world at that time were importing labor-intensive goods and exporting capital-intensive goods (Marchionatti, 2021). Using the US import/export input/output table and import substitution, in order to determine the factor intensity of each manufactured good based on the factor intensity of its constituent elements, Leontief looked at 200 industries divided into 50 categories. Compared to imports, he discovered that exports required 30% more labor-intensive in 1947, deduce that specialization in labour-intensive, not capital-intensive production lines, served as the basis for America's participation in the global division of labor. Due to contradicts the HO theory, it is called the Leontief paradox in his findings (Clarke & Kulkarni, 2010).

Unemployment is caused as well as the emergence of trade because of the H-O/Heckscher-Ohlin comparative advantage (based on different proportions of factors) and/or Ricardian comparative advantage based on different relative technologies (Hadili, Al-Jafari, Gizelis, Bin, & Boukhris, 2021). Overall, there are differences in short-term and long-term unemployment responses to trade liberalization. Lastly, that proves to be weak and poor evidence for the Heckscher-Ohlin / H-O proportions that whether a nation has a lot of capital or a lot of labor will affect how trade policy deals with unemployment (Gachoki, 2022).

In content trading regardless of how content is zoomed in, the hecksher ohlin vanek trade is more important than the Ricardian trade in explaining this. Hecksher Ohlin Vanek's theory of factor content, an accurate theoretical description of the difference between waqf must describe the trade's factor content (Fahimifard, Karimzadeh, Falahi, & Seifi, 2020). Heckscher-Ohlin comparative statistical model estimation is a new approach to apply and gain general knowledge of production equilibrium and trade theory (Morrow, 2022).

China's and its trading partners' carbon flow patterns can be explained using the Heckscher-Ohlin-Vanek model. The economy that plays into its GVC is important for its EET, the change in direction of carbon flows as position changes along the GVC. To predict the pattern of carbon flows between China and its trading partners at the industrial and economic levels, the Heckscher-Ohlin-Vanek model proved to be accurate in predicting it. In a relatively carbon-rich economy, in addition to shrinking RCEA, positioning itself in the GVC, its net carbon outflow can be reduced (Yan, Wang, Zheng, & Zhao, 2020).

This factor-of-proportions model has played an important role in energy since the mid-20th century in the US economy. Excluding energy inputs not only creates theoretical misunderstandings, but also introduces variation bias in factor substitution. Current estimates are that capital and energy are substitutes, but there is a negative relationship in the general equilibrium between the price of one input and the price of another. Higher global energy prices and reduced use in the US economy are expected to hurt the workforce and manufacturing industry. It is too late to routinely include energy use in core economic models. Current factor-of-

proportions models should facilitate the inclusion of energy as a major factor in production. The applied model of economic growth, macroeconomics, and international trade will increase due to the opportunities provided by physical production capabilities (Thompson, 2014)

The Heckscher–Ohlin insight remains important, although the Heckscher–Ohlin proposition holds true only in some countries. although the model basically has a Heckscher-Ohlin structure (Venables & Limao, 2002). The Heckscher-Ohlin theory is no longer relevant to the trade carried out by Malaysia and its six main export destination countries. However, The H-O theory is correct because as a capital-intensive country, Singapore exports more capital-intensive commodities (Clarke & Kulkarni, 2010). To predict the carbon flow pattern between China and its trading partners at the industrial and economic levels, the Heckscher-Ohlin-Vanek model proved to be correct in predicting it. In a relatively carbon-rich economy, in addition to shrinking RCEA, positioning itself in the GVC, its net carbon outflow can be reduced (Yan, Wang, Zheng, & Zhao, 2020).

H1 : Heckscher-Ohlin-Vanek proved irrelevant

H2 : Heckscher-Ohlin-Vanek proved relevant

Research Method

This study aims to test Hecksher Ohlin's theory with a capital-intensive country in Asia, namely Singapore with the research period 1991-2016. The time period was chosen to avoid a significant shock, namely the covid 19 that occurred in 2020. However, taking into account the impact of the Asian financial crisis in 1997, the 1991 - 2016 time period was chosen. The data used and obtained are from the World Bank. We examine the variables of labor, investment, consumer price index and export. This study uses VECM Modelling. The equations are as follows.

$Em_t = \beta_0 + \beta_1 Iv_{t1} + \beta_2 CPI_{t2} + \beta_3 Ee_{t3} + e_t$

$Iv_t = \beta_0 + \beta_1 Em_{t1} + \beta_2 CPI_{t2} + \beta_3 Ee_{t3} + e_t$

$CPI_t = \beta_0 + \beta_1 Iv_{t1} + \beta_2 Em_{t2} + \beta_3 Ee_{t3} + e_t$

$Ee_t = \beta_0 + \beta_1 Iv_{t1} + \beta_2 CPI_{t2} + \beta_3 Em_{t3} + e_t$

Description :

Em = Employment

Iv = Investment

CPI = Consumer Price Index

Ec = Export

β = Constanta

e = Eror Term

t = Time Period

Variable descriptions of the variables used as indicators are displayed in table 1

Table 1. The Description of Variable

Variable	Description	Source	Unit of Analysis
Employment	According to the definition of employment, people of productive age who participated in any activity to produce products or offer services with profit or pay, whether at work or not at work because temporarily absence from a job, or a working schedule during the reference period. According to divisions 2-5 (ISIC 2) or (ISIC 3) categories C-F or (ISIC 4) categories B-F, the industry sector includes construction, quarrying, public utilities (gas, electricity, and water), manufacturing, and mining.	World Bank	Percent
Investment	Fixed assets, valuables, inventories, and nonproduced assets are all included in the government's net investment in nonfinancial assets. Non-financial assets serve as stores of value and generate advantages through the creation of goods and services, as well as through the generation of rental income and capital gains from holdings. Consumption of fixed capital is also included in net investment in nonfinancial assets.	World Bank	Percent
Consumer Price Index	The annual percent change in the mean consumer's cost of obtaining a range of products and services, which may be set or modified at prescribed intervals, example yearly, is reflected in inflation as measured using the consumer price index. Generally, the Laspeyres formula is employed.	World Bank	Percent
Export	The total value of all goods and also other market services provided to the entire world is reflected in exports of various goods and services. Included in them are the costs associated with goods, royalties, shipping, insurance, travel, license fees, and so many other services like government, business, financial, informational, personal, communication, construction, and building-related services. Employee compensation,	World Bank	Percent

	investment income or previously known as factor services, and also transfer payments are not included.		

Results And Discussion

The first test that can be carried out in VAR is the unit root test or data stationarity test. It is very important to do data stationarity when analyze data in the form of time series. To identify if it is stationary or otherwise, apply the ADF test. The following findings were discovered after the unit root test :

Table 2. ADF's Unit Root Test

Variable	Unit Root	Include in the examination Equation	Statistics for the ADF Test	5% Critical Value	Description
Employment (EM)	Level	Intercept	-0.543619	0.8663	
	First Diff	Intercept	-4.295739	0.0028	Stationer
Net investment (I)	Level	Intercept	-2.672795	0.0927	
	First Diff	Intercept	-5.711652	0.0001	Stationer
Consumer Price Index (CPI)	Level	Intercept	-3.173567	0.0338	Stationer
Export (EC)	Level	Intercept	-1.445839	0.5437	
	First Diff	Intercept	-5.288473	0.0003	Stationer

That stationary at that level is consumer price index. while the employment, Investment and Export variables show stationary in the 1 st difference. This is shown by Augmented Dickey-Fuller with results like, test -4.295739 with probability 0.0028, because the probability is less than 5%, in this situation, at first difference, it indicates that the data is stationary. Thus, the transformed data is suitable for use in VAR/ Vector Auto Regression or VECM/ Vector Error Correction Model analysis.

Optimum Lag Test is useful to choose the best lag length before carrying out a causality test or test VAR due to optimal lag has high sensitivity to causality test and VAR test. The ideal lag duration is determined by looking at the lowest or smallest Akaike Information Criteria (AIC) value in this research. The selection of the lag number in the VAR model is chosen by that of the information criteria suggested by the lowest score of Final Prediction Error/ FPE, Akaike Information Criterion/ AIC, Schwarz Criterion/ SC, and Hannan-Quinn/ HQ. Using a Eviews program there is an asterisk for the lag that is set as the optimum lag.

Table 3. Optimum Lag Result

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-197.3804	NA	1049.486	18.30731	18.50568*	18.35404

1	-188.5677	13.61976	2082.866	18.96070	19.95255	19.19435
2	-176.0763	14.76249	3400.172	19.27967	21.06501	19.70024
3	-140.6242	29.00632*	958.1455*	17.51129*	20.09011	18.11878*

The optimum lag test outcomes in table 3 indicates that asterisks are very much in lag 3. Therefore, lag 3 would be established as the optimum lag. and then used at all sections in the later VAR model.

Table 4. Stability Test Result

Root	Modulus
0.249489 - 0.885929i	0.920388
0.249489 + 0.885929i	0.920388
-0.208555 - 0.831438i	0.857195
-0.208555 + 0.831438i	0.857195
-0.650359 - 0.548254i	0.850616
-0.650359 + 0.548254i	0.850616
0.640147 - 0.483002i	0.801922
0.640147 + 0.483002i	0.801922
-0.687708 - 0.344971i	0.769381
-0.687708 + 0.344971i	0.769381
0.697126	0.697126
0.336938	0.336938
No root lies outside the unit circle	
VAR satisfies the stability condition.	

The optimal lag length has been obtained from previous tests. After that, a stability test could be conducted to identify whether the lag was the maximum stable VAR lag. When all of a VAR system's roots are situated inside the unit circle and have a modulus lower than one, the system is considered to be stationary. The modulus value seen in the table 4 above on the model ranges from 0.336938 - 0.920388. The result from these findings is that the VAR model is stable at each interval length so that the FEDV test can be carried out on this model which produces a valid

output. Granger causality can be interpreted as testing whether there is a causal relationship between two variables or a reciprocal relation by examining whether there is a two-way effect or between them there is a reciprocal, one-way relation, or maybe no influence at all.

Tabel 5. Granger Causality Test Result

Null Hypothesis:	Obs	F-Statistic	Prob.
D(IV) does not Granger Cause D(EM)	22	0.58571	0.6336
D(EM) does not Granger Cause D(IV)		1.58336	0.2350
D(CPI) does not Granger Cause D(EM)	22	0.13733	0.9362
D(EM) does not Granger Cause D(CPI)		0.46478	0.7111
D(EC) does not Granger Cause D(EM)	22	0.29946	0.8253
D(EM) does not Granger Cause D(EC)		1.48983	0.2576
D(CPI) does not Granger Cause D(IV)	22	0.72669	0.5518
D(IV) does not Granger Cause D(CPI)		0.94917	0.4418
D(EC) does not Granger Cause D(IV)	22	0.66140	0.5885
D(IV) does not Granger Cause D(EC)		0.95704	0.4384
D(EC) does not Granger Cause D(CPI)	22	0.71408	0.5587
D(CPI) does not Granger Cause D(EC)		0.49494	0.6912

From the test results, there is no variable that has a one-way relationship or a two-way relationship marked by a probability value greater than 0.05. It can be seen that the first Granger causality test between investment and employment variables indicate that investment does not cause employment and employment does not cause investment. Thus there is no causality between investment and employment. The second Granger causality test between the CPI and employment variables shows that CPI does not grangerly cause employment and employment does not grangerly cause CPI. Thus, there is no causality between CPI and employment. The third Granger causality test between export and employment variables shows that exports do not grangerly cause employment and employment does not grangerly cause exports. Thus there is no causality between exports and employment. The fourth Granger causality test between the CPI and investment variables shows that CPI does not cause investment and investment does not cause CPI. Thus there is no causality between CPI and investment. The fourth Granger causality test between export and investment variables shows that exports do not cause investment and investment does not cause exports. Thus there is no causality between exports and investment.

The fifth Granger causality test between export and CPI variables shows that exports do not cause CPI and CPI does not cause exports. Thus there is no causality between exports and CPI. The variables in the VECM model must have a cointegration connection, which is one of the differences between the VECM model and the VAR model.

Table 6. Cointegration Test Results between export, employment, investment and CPI

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.996202	171.7911	47.85613	0.0000
At most 1 *	0.839958	54.75154	29.79707	0.0000
At most 2 *	0.341960	16.27289	15.49471	0.0381
At most 3 *	0.299814	7.484608	3.841465	0.0062
Trace test indicates 4 cointegrating eqn(s) at the 0.05 level				

Evidenced by cointegration below shows that this study contains Four equations that are co-integrated at a 5 % level. This is seen when the value of the trace statistic is greater than the critical value of the cointegrated model. Using the Johansen Co-Integration Test, cointegration testing reveals that on the four variables namely employment, investment, consumer price index and exports in Singapore for the 1991-2016 period, indicates that there is a cointegration or long term relationship. From the findings co-integration's test, it will be continued by using the VECM (Vector Error Correction Model).

Table 7. Results of VECM

Error Correction:	D(EC)	D(EM)	D(IV)	D(CPI)
CointEq1	-0.125258	0.000663	-0.071176	0.001336
	(0.13407)	(0.00854)	(0.01581)	(0.01974)
	[-0.93428]	[0.07759]	[-4.50197]	[0.06769]
D(EC)	0.287382	-0.017472	0.068003	-0.025680
	(0.36694)	(0.02339)	(0.04327)	(0.05401)
	[0.78318]	[-0.74712]	[1.57153]	[-0.47542]
D(EM)	1.628045	0.040175	0.749964	0.417697

	(4.43177)	(0.28245)	(0.52262)	(0.65236)
	[0.36736]	[0.14224]	[1.43502]	[0.64029]
D(IV)	-2.044840	0.021877	-0.173728	-0.404978
	(1.62558)	(0.10360)	(0.19170)	(0.23929)
	[-1.25791]	[0.21116]	[-0.90626]	[-1.69243]
D(CPI)	-1.867522	0.033431	1.089061	-0.561514
	(3.25532)	(0.20747)	(0.38388)	(0.47919)
	[-0.57368]	[0.16113]	[2.83695]	[-1.17180]
C	7.192354	-0.980597	1.526451	0.711717
	(5.48131)	(0.34934)	(0.64638)	(0.80686)
	[1.31216]	[-2.80698]	[2.36152]	[0.88209]

Based on the estimation results in table 7. Export (EC) has a significant positive relationship to Investment (IV) and Employment (EM) has a significant positive relationship to Investment. CPI has a significant positive relationship with investment. According to Hecksher Ohlin's theory, a capital-intensive country such as Singapore will export its goods and services which has a significant positive relationship with investment. Based on what was found from the estimation results in table 7, this supports the Hecksher Ohlin Theory. However, employment is also positively related to investment in Singapore. This is very rational even though Singapore uses a capital-intensive system but still requires manpower. Likewise, the CPI is also significantly positive related to investment in Singapore, proving that Singapore's production is not only for export orientation but also to meet domestic consumption.

IRF analysis is required to determine the shock effect of a variable on the variable in question as well as other variables in the system. In order to determine how long a variable's shock or shocks will be felt by other variables, as well as which variable will react to the shock the most strongly, IRF explains how to predict the influence of a variable's shock on other variables.

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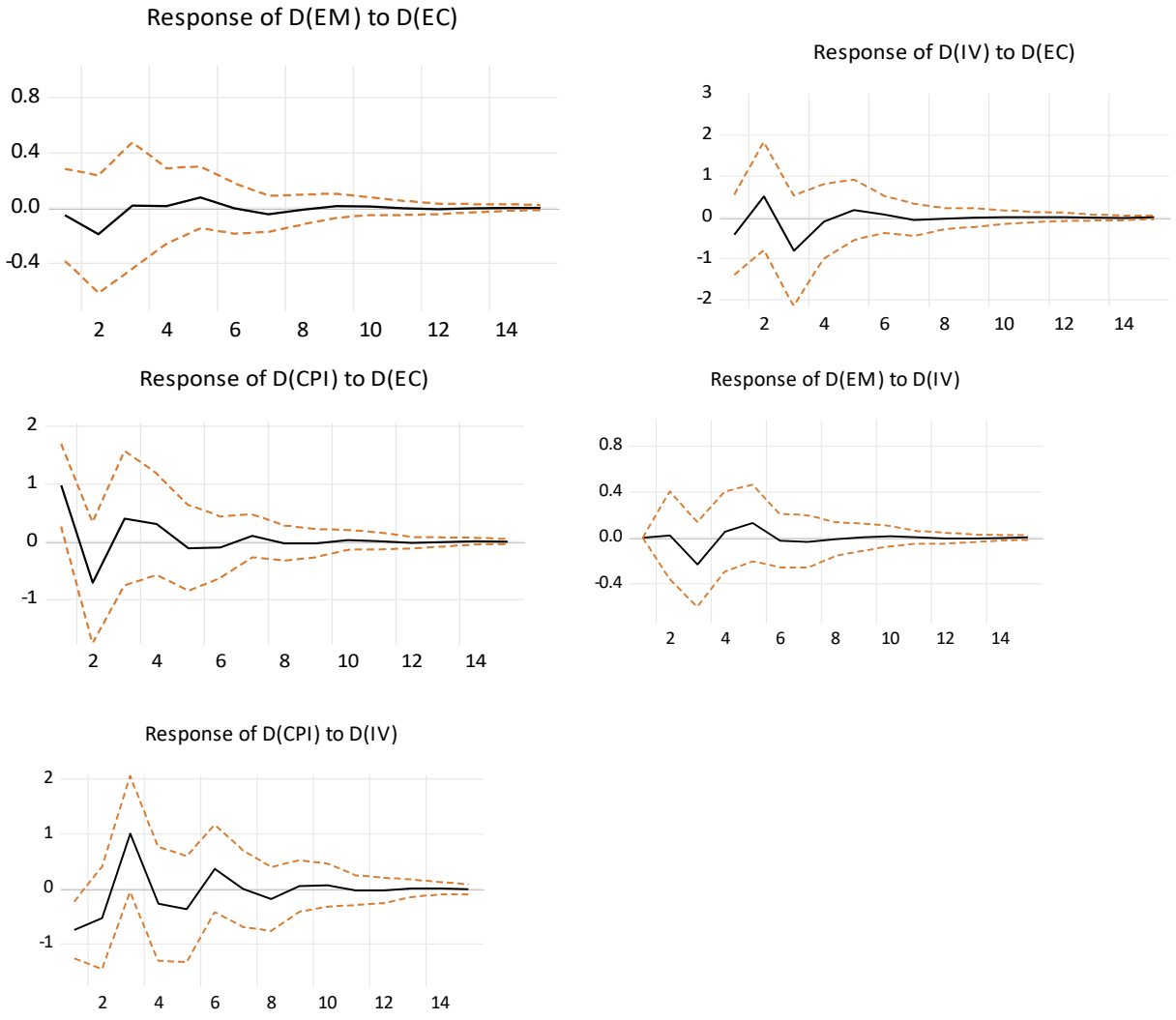

Figure 1. Impulse Response Function (IRF)

In Figure 1 it can be seen that the impact of shocks that occur on the inflation variable on the employment variable on exports. Based on the IRF above, it can be seen that, at the beginning of the period up to the 8th period, the employment response to exports was still fluctuating or fluctuating, since the shock occurred in exports. Furthermore, after a period of 8 fluctuations began to shrink and show stability, employment was no longer volatile compared to the previous period. Based on the IRF above, it can be seen that, at the beginning of the period up to period 10, the investment response to exports was still fluctuating or fluctuating, since the shock or shock to exports occurred. Furthermore, after a period of 10 fluctuations began to decrease and show stability, investment was no longer volatile compared to the previous period. Based on the IRF above, it can be seen that, at the beginning of the period up to period 12, the response of the consumer price index to exports was still fluctuating or up and down, since the shock occurred in

exports. Furthermore, after a period of 12 fluctuations began to shrink and show stability, investment was no longer volatile compared to the previous period.

Based on the IRF above, it can be seen that, at the beginning of the period up to period 8, the employment response to investment was still very volatile or up and down, since the shock occurred in investment. Furthermore, after a period of 8 fluctuations began to shrink and show stability, employment was no longer volatile compared to the previous period. Based on the IRF above, it can be seen that, beginning with period 1 and ending with period 11, the consumer price index response to investment was still very volatile or up and down, since the shock or shock to investment occurred. Furthermore, after a period of 11 fluctuations began to decrease and show stability, the consumer price index was no longer volatile compared to the previous period. A component of the VECM analysis that supports the findings of the earlier analysis is variance decomposition (VD). A variable's estimated contribution to changes in both the variable and other variables across a number of future periods is presented by the variance distribution (VD). Accordingly, it will be able to identify the variables that are estimated to contribute the most to a given variable.

Table 8. Variance Decomposition Export

Period	S.E.	D(EC)	D(EM)	D(IV)	D(CPI)
1	12.94205	100.0000	0.000000	0.000000	0.000000
2	13.94268	86.16610	2.044691	3.145888	8.643318
3	15.78817	71.01415	8.227113	14.01615	6.742585
4	15.90749	70.19369	8.124509	15.01747	6.664333
5	16.03221	69.28956	8.063848	16.08544	6.561151
6	16.10700	68.65392	8.013766	16.80985	6.522461
7	16.14162	68.57611	8.148427	16.74040	6.535058
8	16.14988	68.50744	8.154162	16.77588	6.562512
9	16.15844	68.44182	8.214892	16.78644	6.556848
10	16.15933	68.43429	8.214002	16.78458	6.567122
11	16.16065	68.42314	8.222608	16.78753	6.566719
12	16.16098	68.42036	8.225745	16.78691	6.566989
13	16.16126	68.41819	8.226313	16.78828	6.567222
14	16.16142	68.41686	8.227797	16.78825	6.567091
15	16.16151	68.41620	8.227714	16.78897	6.567119

On the basis of the Variance Decomposition analysis's findings, the export variable shows that the variable predicted to contribute most to the exports in the next fifteen years is export itself, followed by Investment, employment, and CPI. Shown in the table that initially the level of exports was still strongly influenced by the level of exports itself, which was 100% where employment, investment, CPI had no effect at all. However, as the period increases, other variables begin to influence, although the magnitude is not as large as the influence of exports itself. Investment has the second largest influence after the export variable, where the initial effect period is 3.145888 and continues to increase until the end of the period the effect is 16.78897 on exports. The smallest effect is given by the CPI variable on exports of 6.567119 percent at the end of the period, As for the employment variable seen from the Variance Decomposition test, it is in the third place, its effect on exports is 8.227714 percent at the end of the period.

Table 9. Variance Decomposition investment

Period	S.E.	D(EC)	D(EM)	D(IV)	D(CPI)
1	2.363404	3.162343	0.384441	96.45322	0.000000
2	2.588834	6.627369	5.187106	88.07323	0.112299
3	2.830182	13.72749	5.081125	79.32970	1.861692
4	2.862210	13.53488	5.410737	78.94018	2.114202
5	2.904698	13.53443	7.422932	76.65546	2.387178
6	2.909473	13.55901	7.402190	76.42689	2.611909
7	2.917729	13.52280	7.843812	76.01668	2.616713
8	2.920117	13.51390	7.939989	75.89825	2.647860
9	2.921394	13.50245	7.997670	75.85422	2.645661
10	2.922823	13.48950	8.070524	75.79518	2.644796
11	2.923086	13.48821	8.069471	75.79740	2.644925
12	2.923487	13.48600	8.085108	75.78464	2.644250
13	2.923624	13.48534	8.087306	75.78282	2.644538
14	2.923681	13.48636	8.087713	75.78148	2.644447
15	2.923732	13.48595	8.089971	75.77940	2.644676

The VD analysis of the investment variable shows that the variable that is expected to have the greatest contribution to investment in the next fifteen years is investment itself, followed by

exports, employment and CPI. In the first period, it was influenced by the export variable by 100 percent. Furthermore, the second highest influence is exports, which at the beginning of the period of influence is 3.162343 and at the end of the period the effect is 13.48595 on investment. The CPI variable has a smaller contribution than the others where at the end of the period the effect is 2.644676 on investment. While other variables, employment in its contribution to influence investment, is in third place, which has an effect on investment of 8.089971 at the end of the time period.

Conclusion

According to Hecksher Ohlin's theory, a capital-intensive country like Singapore will export its goods and services which have a significant positive relationship with investment. The findings in this research support the Hecksher-Ohlin Theory. However, employment is also positively related to investment in Singapore. This is very rational even though Singapore uses a capital-intensive system but still requires manpower. Likewise, the CPI is also significantly positive regarding investment in Singapore, proving that Singapore's production is not only for export orientation but also to meet domestic consumption.

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