Impact of Foreign Direct Investment (FDI) on Housing Affordability Index: Vector Autoregressive Model

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Abstract - **This paper aims to investigate the short and long term association between Foreign Direct Investment (FDI) and overall consumer affordability in Malaysia Real Estate Sector using Vector Autoregressive model. Sample period used is 2009:Q1 to 2017:Q4. FDI is scapegoated as the leading cause of decreasing affordability in real estate. In most cases, FDI on real estate contributes to the rising income of the country. Increasing income promotes demand to a higher threshold level. Thus, theoretically will cause housing price to increase. Through this study, evidence of no cointegration and absence of Granger causality converge towards deficiency of relationship among FDI and Housing Affordability Index (HAI). Findings pointed out FDI is not the cause of decreasing HAI.**

Keywords - *Foreign Direct Investment, real esate, Vector Autoregressive, Granger Causality*

l.   Introduction

Venturing into high profit and high impact proficient global, Malaysia is qualified as one of the urbanized countries aligning with the stable increase of the country population (World Bank 2015). With a total of 4 percentages total population growth annually, Malaysia is one of the fastest growing and urbanizing countries from South East Asia, with an increment of 10.2 to 15 million. One of the main concerns of the policymaker and the consumers in Malaysia is the appreciation of one of the basic needs, shelter. And the manifestation of the shelter, is through the housing sector. Increasing housing market price causing affordability of consumer in Malaysia to decrease. Last few years, there are incremental changes to house prices between 20% and 80%, whether in big cities or small towns and depending on the specific area (Yee, 2012). Mostly, the house near the city is a bit pricey because of the high demand and the facilities provided. According to Expat Focus (2012), the market trend for property prices moves downward and this was reported as the lowest move since 2010 and the market was expected to be slower in 2013. Since the pre-Asia crisis, Malaysia has the lowest house prices compared to other Asian countries and Kuala Lumpur was affected as there is a fall in prices after the crisis happens. The inflexible lending criteria had caused the housing market to slow down. Property in Malaysia, however, is still considered very cheap compared to other Asian countries. The rising prices of the house had caused some Malaysian not able to afford to purchase the house. This paper aims to investigate the effect of

foreign direct investment on real estate. Young buyers demand the quality of the living lifestyle and characteristics around the housing area. Quality of the housing area is one of the factor or consideration that house buyers refer to during their purchase of a new house (Ang, 2012)

Foreign Direct Investment or in other words, is defined as an overseas contribution in terms of capital into domestic business entities (Graham & Spaulding, 2005). Throughout history and past researches, Foreign Direct Investment plays a unique role in global business. It provides strong new markets and marketing channels, more affordable infrastructure, higher accessibility to more advanced technologies, human capital and financial support to sustain the development of the firm. Foreign Direct Investment can provide new job opportunities to increase the household income of that specific country. In this situation, we will investigate the case of Malaysia. As much as the job opportunity is provided, the situation still doesn't solve the residents' affordability issue in Malaysia. As stated in most previous literature, housing affordability is the main concern of Malaysia residents. Based on past research, Foreign Direct Investment (FDI) through technology transfer, human resource development, global market amalgamation, intensifying competition, business development and organizational restructuring impact the economic growth of beneficiary countries. Experience shows that Foreign Direct Investment is considered for piloting economic growth to the host country. However, there is evidence that Foreign Direct Investment is the cause of adverse effects. Considering these results' ambivalence characteristic, this study reviews the existing theoretical and empirical literature on the subject and clarifies the main differences. The authorities should consider the impacts and conditions to mitigate the adverse effects of Foreign Direct Investment.
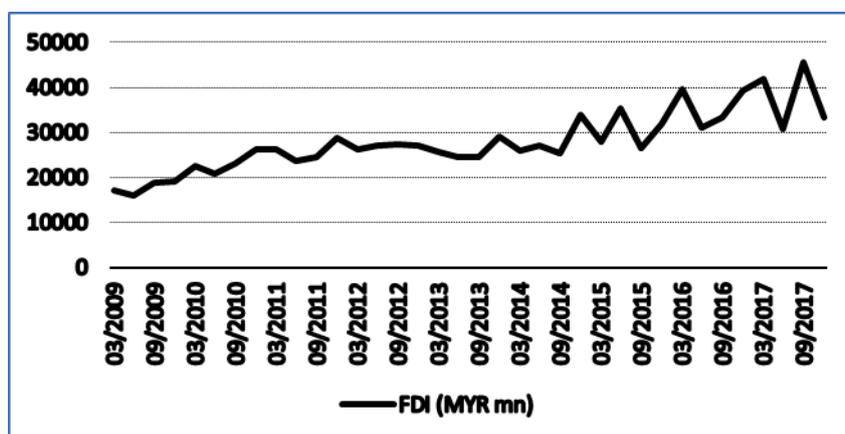
Figure 1: Total Foreign Direct Investment Inflow

Source: CEIC Data; Department of Statistic, Valuation and Property Services Department, Ministry of Finance, Malaysia.
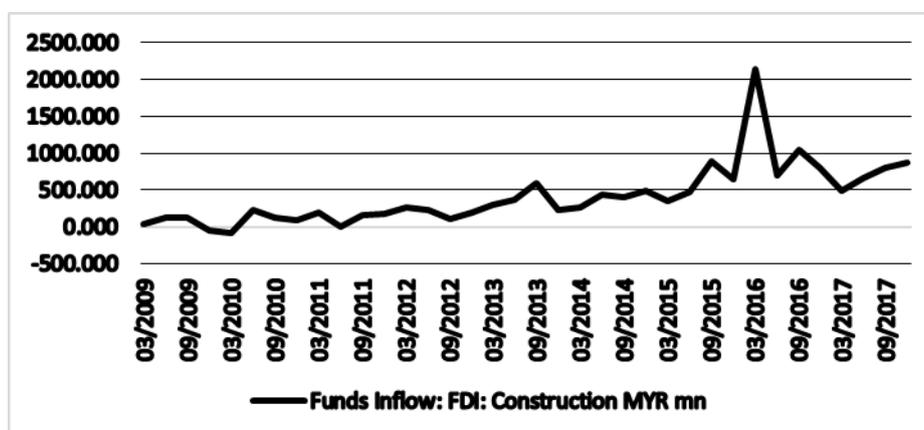
Figure: 2: Foreign Direct Investment Inflow in Construction Sector

Source: CEIC Data; Department of Statistic, Valuation and Property Services Department, Ministry of Finance, Malaysia.

Foreign Direct Investment in real estate increases market competitiveness. By inviting Foreign Direct Investment, the market can eliminate the local companies' monopoly and benefit the customers because they can avail quality products. Moreover, it will force the companies to chart out the business strategy and deliver customer-centric services. While setting up offices, multinational corporations bring in cutting-edge technologies that help boost the business and increase employment level. The nation receiving Foreign Direct Investment benefits from the technology transfer of the foreign company. Based on the data shown on the figure above, we can see that property price increment will cause a decrease in housing affordability. The inconsistency between Housing Affordability Index caused by various factors is to be considered in the study of the property market. As time goes by, population becomes one of the main factors contributing to the increment in property price. Due to the attractiveness of developing countries' economies, growth rate can be seen through the increment in GDP (Gross Domestic Products). Equipped with investor friendly policy, the situation enables more investor to make investment onto the field targeted on Malaysia. Positive effect that exist among level of foreign investment and housing price caused the price level to increase beyond the point of the affordability of the median income level household. As being said, increasing house price will cause the monthly payment to increase. Thus, it will cause the housing affordability index to decrease. Based on the data above, we can see that the median income level shows a rather stable increase. Due to the inflation rage outgrowing wage growth rate, the cost of living and living wages over Malaysia increased. Reducing overall disposable income and reducing the consumer's ability to purchase shelter. This is one of the main contributors to the supply overhang of the country's housing property.

The increasing trend of HAI denotes that the consumer's affordability towards the house price is slowly adjusting by the change of the income and constant increase in housing price. The graph below shows the AHP and Mean Income of the consumer. The overall FDI fund inflow into construction is positive as it can be seen on the graph. Only December 2009 and March 2010 show a negative value. This phenomenon happens due to the after effect of the global financial crisis, which centre on United States' real estate sector. This cause consumer and buyer to lose confidence in real estate sector. With the shock towards Malaysian housing sector, the impact only lasted for 2 quarters.
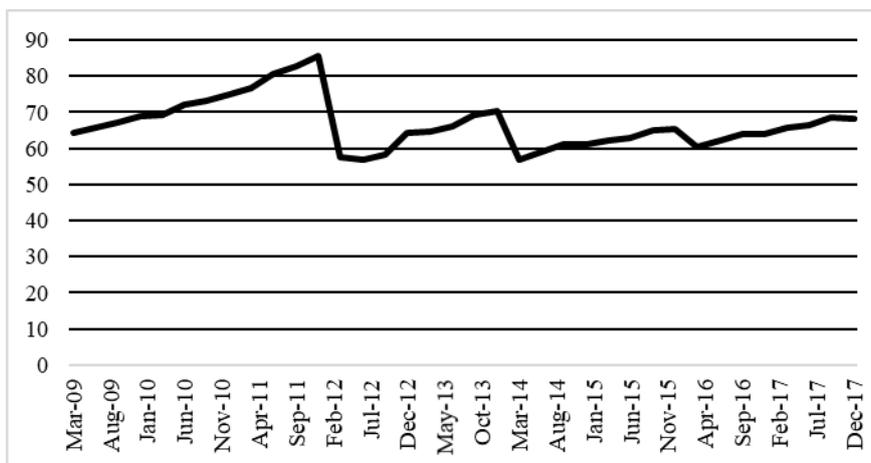
Figure 3: Quarterly HAI from Q1 2009 to Q4 2017

Sources: Department of Statistics, Malaysia.
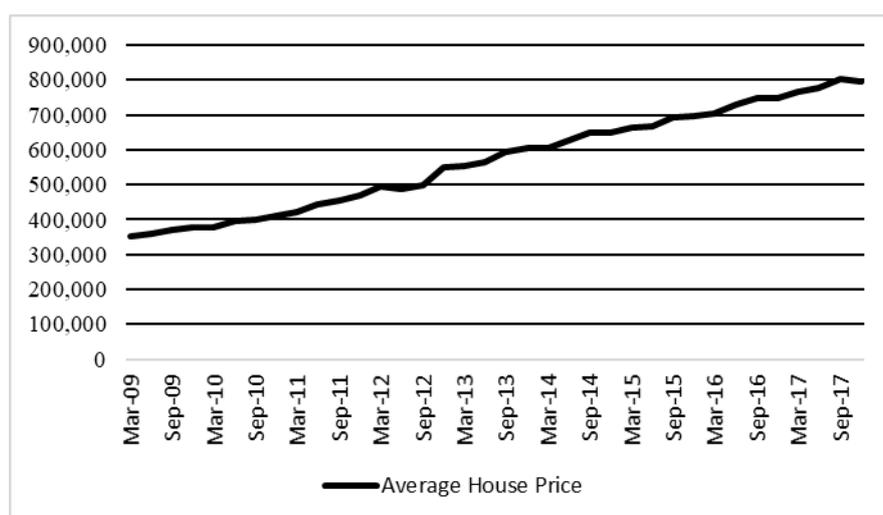
Figure 4: Average House Price (2009 – 2017: Quarterly Data)

Sources: Department of Statistics, Malaysia.

This research will examine the effect of real estate Foreign Direct Investment on the changes in the price of housing property in Malaysia throughout 2009-2017 compounded quarterly. The result and findings of this research may assist policymakers and participants of the economy in understanding the direction of the flow of Foreign Direct Investment in the economy, specifically on real estate. Based on the current situation of Malaysia's property market, this study provides enough information and knowledge that can help find the effects of property price in Malaysia. People can have a better understanding of how Foreign Direct Investment can affect Malaysian house prices. This research provides information that shows the effects of property price in a more understandable way and can help people make strategies wisely.

II. Literature Review

The previous study uses hedonic pricing method to estimate the average housing price, which includes various potential factors to study the impact, which includes various potential factors to study the impact on the real estate market. This allow the researcher to estimate more clearly the housing price. Generally, and theoretically indicates that, commodity price, land price, rental rate, long term interest rate, consumer demand, housing supply, GDP of the country, unemployment rate, machinery rental rate, machinery purchasing price, labour hourly wage rate, skilled labour salary rate and insurance fees have a direct and significant impact towards real estate market price. But in this study, those variables are exempted, as this study focused entirely on whether FDI impacts whether it is significant or insignificant towards HAI. Modern study on HAI can be elaborated in uses of new perspective such as Human Capital (Agiomirgianakis, et al, 2003; Kottaridi & Stengos, 2007; Noorbakhsh, Paloni, & Youssef, 2001), Market Potential (Carstense & Toubal, 2004; Noorbakhsh, et al, 2001; Shukurov, 2016), Trade openness and Economy Stability (Ahmad, et al, 2014; Bishnu, 2012; Jamesa 2016), and Agglomeration Impact (Agiomirgianakis, et al, 2003; Shukurov, 2016). Agglomeration impact is seen as the positive externalities that increase the investor's confidence level. As more investment is being made in the host country, this phenomenon will increase the overall confidence level of the decision maker of foreign MNE (Multinational Enterprise). Human capital plays a role in the decision making of FDI as skilled labour is one of the main concerns of foreign investors and cheap unskilled labour. High market potential and trade openness allow foreign investors to expand their profit as more demand for the service and product of the firms is equivalent to higher profit gain. From the variables explained above, there are less paper that focussed entirely on the impact of FDI in real estate. Study by Bayraktar, 2013; Huang, Hwang, and Lo 2014; Georgieva, 2017; Masron & Kepili, 2017; Masron & Md Nor, 2016; Liu, 2011, explain the impact of FDI on real estate through single variable time series study with exception of study by Masron and Md Nor (2016) and Masron and Kepili (2017), where panel data is used to investigate the impact of Foreign Investment in Real Estate. The paper mention about the isolating the impact of FDI by the implying causality of other variable such as Long-Term Interest Rate, Wage, and Supply Gap. In their study, they focused on the indirect impact of FDI in Affordability. The study shows a positive relation of FDI towards Affordability.

III. Data and Methodology

This study investigates the connection of Foreign Direct Investment (FDI) and Housing Affordability Index (HAI). In the calculation of HAI, the data of mean income and average house price that is being used in this study is the data specifically in Kuala Lumpur, Malaysia. Whereas the FDI fund inflow used is total inflow in construction. The reason for the usage of Kuala Lumpur data as a representative is that Kuala Lumpur is the fastest growing city in Malaysia. It is widely known that FDI is one of the main components in a long run that affect property price. FDI increase domestic job opportunities, household income, and standard of living of the resident in Malaysia. The trend regarding to HAI shows characteristic of ups and downs along the period, the trend can be evaluated as a change in the behaviour of the consumer based on the amount of income in relation to the property price. When income increases, it takes a short amount of period, usually around a year or two, to adjust to the housing price consumption. Since the calculation of HAI is taken from Mean Income over Average House Price. Given with

$$HAI = Y/AHP$$

HAI refers to Housing affordability index, Y refers to Mean income and AHP refers to Average Housing Price

This study is based on a Vector Autoregressive model, where the all the variable in the series is tested with unit root test to determine the Order of Integration of the individual variable. The selected period of study is dated from 2009 First Quarter March until 2017 Fourth Quarter December. The main objective of this study is to investigate the cointegration and short-term causality among FDI and HAI. The specific objective of the study is to identify the existence of (1) cointegration, (2) Short run causality of FDI towards HAI and (3) period of adjustment for HAI reacting to FDI shock. As stated, Masron and Md Nor (2016) and Masron and Kepili (2017) use similar variables as those used in this study, but with different approaches. The model equation can be expressed as follow:

$$HAI_t = \alpha_t + \alpha_1 HAI_{t-1} + \alpha_2 HAI_{t-2} + \alpha_3 FDI_{t-1} + \alpha_4 FDI_{t-2} + \alpha_5 IR_{t-1} + \alpha_6 IR_{t-2} + \varepsilon_t$$
(1)

HAI refers to Housing affordability index, FDI refers to Foreign Direct Investment, IR refers to long term interest rate and ε refers to error term for time series model

Based on the equation above, the calculation of HAI is based on 2 sets of data, the consumer's mean income, and Average Housing Price. Both sets of data used in this study is in the region Kuala Lumpur. Reason for this data collection is that Kuala Lumpur is currently ranked as Malaysia most developed region. If the result of the data collected is rendered insignificant, similar result will be obtained throughout Malaysia. Inclusion of IR data is due to the availability of the data in most of the country studied. Interest rate plays an important role in real estate as the main determinant of the real estate market price. Short run fluctuation of housing price by interest rate is examined by Wong, Hui and Seabrook (2003) and Gupta and Kabundi (2009). Although the impact of interest rate is weak as the result of the study due to the portion represented by the interest rate is small in compare to commodity and land.

Econometric Approach

Prior to examining the relationship between the parameters of interest, it is important to test the stationarity of the time series variables under the unit root test. There are three types of unit root tests performed. First is Augmented-Dickey Fuller (ADF) Unit Root Test. Under ADF test, the negativity of the test statistic determines the magnitude of the rejection on the null hypothesis of the unit root's presence. Rejection of null hypothesis indicates that the variable has no unit root presence. Trend-stationary characteristic is presence when the variable with no unit root under ADF. Second type is the Phillips-Perron (PP) Unit Root Test where under PP test, an order 1 integration by controlling serial correlation while testing for unit root presence. Under PP test, the serial correlating portion is isolated from the asymptotic distribution of the test distribution. But the asymptotic distribution of the t-ratio for PP test is like that of the ADF test. The third type is Kwaitkowski, Phillips, Schmidt, & Shin (KPSS) Unit Root where the difference of KPSS from PP and ADF is that KPSS test for the stationarity of the series. Under KPSS, stationarity does not necessary show by the absenteeism of unit root. under certain circumstances, the collected data may be non-stationary, with no unit-root yet be trend stationary. In time series modelling, the presence of shock has different impact towards data with trend

stationarity processes and data with unit root processes. Trend stationary time series will exhibit Ornstein-Uhlenbeck process characteristic, or in simpler terms be mean-reverting. As in to say, the time series will tend towards mean over a period. A variable with unit root will cause permanent changes in the mean.

In order to determine the presence of long run relationship, the time series will undergo a procedure of cointegration test, as proposed by Johansen and Juselius (1990). The reason JJ test is used in this study is because, JJ test is built on the foundation of VAR setting. Under VAR, the time series is expected to absenteeism of cointegration. A VAR is the model that consist of a collection of random variables, used to apprehend the linear interconnectivity among various time series data. Allowing existence of more than one ever changing variables in VAR model give the ability to generalize univariate Autoregressive estimation (AR). Stationarity and cointegration of the variable determine the Order for Integration of the estimation of VAR in econometric.

Subsequently, this study further looks into the dynamic aspect with variance decomposition and impulse response approaches. Variance Decomposition is the indication of the magnitude of the long-term response to a unit of shock that impacted the targeted variable. Generalized variance decomposition measures the importance of the independent variable is to the dependent variable. Aligned with that issue, determine the proportion of the single independent variable's impact on the dependent variable. taking the econometric model, the dependent variable can be separated into parts directly affected by the targeted independent variable and the part isolated from the targeted variable. The period used in this study to estimate the impact of a unit shock is 50 periods (1 period = 1 quarter). Cumulative impact of GVDC is obtain and calculated to understand the percentage of impact towards the dependent variable. from the estimation of GVDC, the percentage of causality can be calculated. Meanwhile, impulse response is defined as a system's response when meeting a sudden change in the factor that is directly or indirectly involved in the system. It also implies the impact of the targeted variable towards other variable in the system. This study investigates the impact of 3 variables, FDI HAI and IR where they interconnected with each other. Listed under macroeconomics analytics, impulse response function is considered a tool to investigate and explain how economics revolve over a certain period against exogenous shock based on the VAR model context. The shocks that are involved in the process are often exogenous variable and in exchange of response of the shock are of endogenous variable.

IV. Empirical Results

This section study about the analysis of the long-run relationship, unit root test variance decomposition, cumulative impact, exogeneity and endogeneity of the variable, analyses using vector autoregression model (VAR). Based on the unit root test analysed, the variable involved in this study comprises both $I(0)$ and $I(1)$ variable. Summarizing the result, there is no long-run relationship exist based on JJ cointegration test. Only short-run can be observed through variable IR and HAI. In this section, starts the analyzation of the result of the estimation. As shown in the table below. Based on first differences, and intercept, FDI does not exhibit the presence of unit root. Thus, FDI are stationary at the order of integration $I(1)$. Similar results can be obtained with variable HAI where, as HAI have unit root at first difference, no unit root is present at $I(1)$. Similar to FDI, HAI exhibit $I(1)$ variable characteristic. Differ from the rest of the variable, IR shows no unit root at level. Therefore, exhibit $I(0)$ characteristic.

Table 1: Unit Root and Stationarity Test

	Test Statistics					
	ADFμ	**ADFτ**	**PPμ**	**PPτ**	**KPSSμ**	**KPSSτ**
A: Level						
FDI	-2.981(9)	-3.595(9)	-2.948(3) *	-3.544(2) *	0.463(4) *	0.146(2)
HAI	-2.948(0)	-3.544 (0)	-2.948 (3)	-3.544(4)	0.463(3)	0.146(3)
IR	-2.948(0) *	-	-2.948(2) *	-	0.463(3)	-
B: First Differences						
D(FDI)	-2.951(0) *	-3.595(8) *	-2.951(4) *	-3.548(4) *	0.463(6) *	0.146(6)
D(HAI)	-2.951(0) *	-3.458(0) *	-2.951(12) *	-3.548(12) *	0.463(13) *	0.146(13) *
D(IR)	-	-	-	-	-	-

Notes: Asterisks (*) indicate statistically significant at 5 percent level. The subscript μ in the model allows a drift term while τ allows for a drift and deterministic trend. Figures in parentheses are the lag lengths. Both the ADF and PP test examine the null hypothesis of a unit root against the stationary alternative. KPSS tests the null hypothesis that the series is stationary against the alternative hypothesis of a unit root. D () denotes first difference operator.

Johansen and Juselius Procedure of Cointegration Analysis

JJ test is being used to investigate the presence of long-run relationships among the variable, exclusively on FDI on HAI in this case. After running cointegration test, it clearly shows that there was no long run relationship perceived in between HAI and FDI. As FDI's role in the determination of HAI is small, the impact of identified are insufficient to pose a threat.

Table 2: Cointegration test

Null	Alternative	k=2, r=0			
		Max eigenvalue		Trace eigenvalue	
		Unadjusted	95% CV	Unadjusted	95% CV
r=0	r=1	10.542	21.131	21.467	29.797
r≤1	r=2	8.9974	14.264	10.924	15.494
r≤2	r=3	1.927	3.841	1.927	3.841

Notes: Asterisk * indicate statistically significant at 5% level. Lag length used is one to one.

Since within the model specification, 2 out of 3 variable exhibit I (1) characteristic. The model is analysed using VAR model. Through the usage of VAR model, the data obtained can be utilized to provide 50-period-ahead forecasting. Analysed quarterly starting from 2009 March First Quarter until 2017 December Fourth Quarter. The estimation result does not show any cointegration. Thus, there is no long run relationship.

Pairwise Granger Causality Test

Under granger causality testing using VAR model, interpretation of Pairwise Granger Causality Test show inexistence of short-run relationship between all 3 variables. The result shown is consistent with the research done by Selvaraja, Goh, Biglari, Tan, and Lee (2018) where the influence of IR with respect to HAI is insignificant. However, it is being proved in opposition from the research undertaken by Masron and Md Nor (2016), as the impact of FDI towards HAI, done in this research shows no significant impact towards housing affordability.

Table 3: Pairwise Granger Causality Test

Dependent Variable	HAI	FDI	IR
		χ^2-statistics	
HAI	-	0.67(0.52)	0.49(0.62)
FDI	0.04(0.96)	-	0.32(0.73)
IR	0.62(0.54)	0.58 (0.57)	-

Notes: Asterisks (*) indicate statistically significant at 5 percent level. Figures in parentheses are *p*-value. Value outside of the parentheses indicates the *F*-statistics of that variable.

Theoretically speaking, the variable with higher value of cumulative impact frequency, tends to be more endogenous than another variable. The cumulative impact of the 3 variable is arranged in descending order. As the variable with the highest cumulative is HAI, with the value of 73.87%., with IR taking large portion out from the total impact on HAI, which is 71.27%, a lot higher than the impact of FDI which is only 2.60%. Based on the result collected, as the portion of FDI only takes up to 3% of HAI's total impact. The obtained result is proven to be in consistence with the theory that states that FDI is considered as the scapegoat on the function HAI. Despite media attention on FDI as the main contributor of HAI, the result of the study proved otherwise.

Variance Decomposition

Table 4: Variance Decomposition

Variance Decomposition of HAI:					
Period (Quarterly)	HAI	FDI	IR	CI	Total
1	100	0	0	0	100
10	60.374	2.039	37.586	39.625	100
20	42.476	1.608	55.915	57.523	100
30	34.041	1.980	63.977	65.958	100
40	29.218	2.339	68.442	70.781	100
50	26.133	2.598	71.268	73.866	100

Variance Decomposition of FDI:				
1	3.746	**96.253**	0	3.746	100
10	7.363	**89.889**	2.747	10.110	100
20	7.056	**87.764**	5.179	12.235	100
30	6.975	**85.768**	7.256	14.231	100
40	7.017	**83.868**	9.113	16.131	100
50	7.087	**82.108**	10.804	17.891	100
Variance Decomposition of IR:				
1	1.090	2.423	**96.486**	3.513	100
10	11.791	1.529	**86.679**	13.320	100
20	11.641	2.262	**86.095**	13.904	100
30	11.378	2.722	**85.898**	14.101	100
40	11.208	2.994	**85.796**	14.203	100
50	11.099	3.166	**85.734**	14.265	100
Cholesky Ordering: HAI FDI IR				

Notes: CI = Cumulative Impact.

As for FDI, the cumulative impact is 17.89%, second to HAI. IR in this case, take up larger portion of FDI than HAI, which is 10.80% and 7.09% respectively. Under IR, HAI takes up a larger portion out of the cumulative impact of 14.27%, standing with 11.10%, rather than FDI with 3.17%. Under both cases, FDI does not cause significant impact to both IR and HAI. In this case HAI, is the most endogenous. Thus, the variable is more likely to be dependent towards another variable. IR is most Exogenous than another variable in the model. IR is highly independent, and another variable does not easily influence it. Derived from most of the studies done by past researchers, variance decomposition and impulse response served as the platform for them to elaborate and make rough prediction over the trend of certain variable in respect to economic shocks. Variance decomposition of this study are used merely for the indication of endogenous and exogenous variable. The previous section indicates Pairwise Granger Causality Test and JJ Test show the inexistence of short-run and long-run relationships among all variables used in this research.

Impulse Response
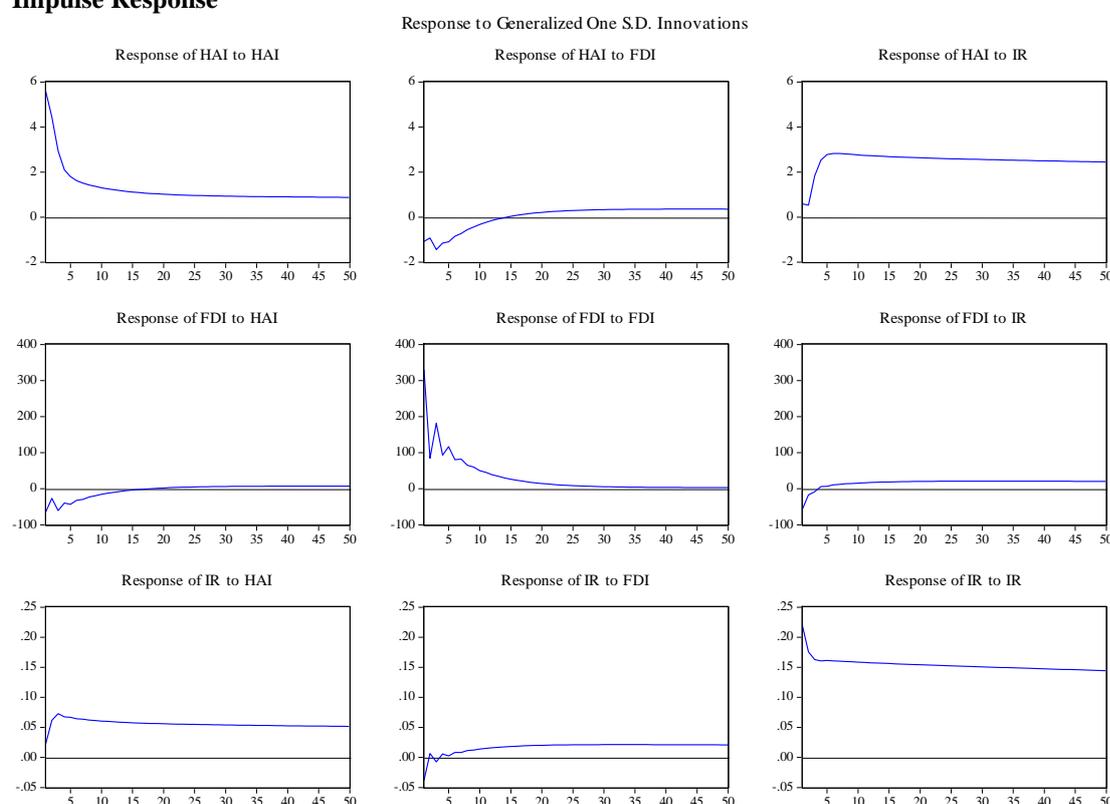
Figure 7: Impulse Response

The result above shows stable fluctuation of the impact of the shock towards all the variables, depending on the other variables. In this research, HAI is regarded as the dependent variable and independent variable is FDI inflow towards construction and IR. The impact of IR is greater towards HAI and FDI shock impact is at minimum as FDI is also dependent on the DDI changes involved in construction. Based on the graphical representation shown below, shock in FDI have negative impact on HAI before period 15. The negative impact only perceives in a short run. This changes mainly caused by increasing housing development competition, causing shift of consumer expectation and taste aligning with the mind-set of thinking foreign product performed better than domestic product. Foreign MNE often raises the competition barrier with higher technological advancement and higher productivity as the result of higher efficiency can be seen clearly by the consumer, since the transparency of foreign companies is higher than the domestic firms. Aligned with the increase in local competition, the FDI cause a short-term increment in the supply of housing. Thus, driving the real estate sector market price to increase. As time increases, the demand slowly adjusted towards equilibrium at period of 15 Quarters. This adjustment is the limitation of Foreign Investment that the government is being set to prevent Malaysia from being over-populated by foreign investment that takes away domestic investors' opportunity. After a short period of time, as domestic investor builds up their threshold and raise their competitiveness, HAI slowly increase. Centralization of the impact by FDI and DDI (Domestic Direct Investments), the impact creates more job opportunities to increase consumers' overall income. Over period 15, positive impact may be observed as the total income of the consumer is expected to increase. Thus, increasing the purchasing power of the demand side. The FDI's impact is insignificant as only slight increase in the equilibrium of the response of HAI to FDI. As response of HAI to IR increment at first and decrement after period 5. Increase in interest rate will cause property price to decrease, as the availability of fund decreases. As capital availability is tight, it will cause producers to impose lower loan value on the property value ratio. For instance, the value of loan will decrease with respect to the value of property. As most of the determinant of property price is governed by the supply and demand towards housing price. As the property is expected to decrease, supply decrease, demand increases. In short run, there is a spike increase of HAI, more people will seek to buy houses. When the demand is satisfied after period 5, the HAI slowly decrease as more producer emerged and government policy slowly adjusted towards the demand perceived in the market. Emergence of low-cost housing in the market to satisfy with the low loan value. As the construction of houses takes time, the equilibrium adjustment takes more than 50 periods to reach equilibrium.

As HAI decrease, demand for houses will decrease accordingly. When foreign investors investigate the customer expectation for housing, they will decrease their investment because decreasing demand is equivalent to decreasing in return on investment. As the market progressed overtime, supply shortage might happen causing demand to outrun supply, causing the price to increase accordingly. Foreign investor gains back confidence in the market and proceed with increasing investment after period 20. Through the graphical representation, FDI slowly increase over time. From the starting point of the shock, FDI shows negative value, due to the increasing commodity price as the direct impact of Interest Rate imposed in the market. It takes a short amount of time for the foreign investor to make decision as they investigate the increment of the price in real estate. The phenomenon is caused by increase in IR. Therefore, encouraging them to make investments. Through the study done by past researcher, Impact of interest rate towards Foreign Direct Investment is insignificant. (Kiplagat, 2016). Positive impact can be observed, as IR tends to cause increment towards the return of investment. (Siddiqui & Aumeboonsuke, 2014). Thus, this phenomenon will increase FDI towards Malaysia from period 5 onwards as the FDI shows positive values. A study by Siddiqui and Aumeboonsuke (2014), while examining Malaysia's case, IR is proven to have no or minimum impact towards FDI in which the result is consistent with the statement made by Kiplagat (2016) stating insignificant relationship between both variables. Theoretically, high interest rate promotes saving as it provides a secure environment towards the investors.

V. Conclusion

This paper intends to investigate the short and long term relationship of Foreign Direct Investment (FDI) on consumer affordability in Malaysia Real Estate sector. Considering the cumulative impact of both variable, IR and FDI, the proportion of the FDI is insignificant compared to IR. The result is further supported by the Granger Causality test which indicate there is no short run relationship among FDI and HAI. Interest rate is said to have insignificant impact on housing affordability, as interest rate only observe merely as expectation of the consumer regarding to the price of the property in the market. Aligning with past research by Selvaraja, et al. (2018), the housing price's main determinant is mostly based on expectation, and expectations of housing price are independent on interest rate. Low interest rate cause housing loan value to depreciate are mostly influence by the fluctuation of consumer expectation over the price. As short run relationship is observed through direct relationship between variable, interest rate shows indirect method of connecting with housing affordability.

This issue can be observed through lagged characteristic perceived in the changes in housing price after several periods that the adjustment is made in interest rate. The negative impact existed in the housing sector is influential by the shifting of housing development pace, by the foreign MNE raising competition barrier through more advanced technology and higher quality maintenance and productivity. Limitation imposed by local government give a breathing space for the competition by foreign MNE to impose positive motivation towards domestic enterprise. Allowing domestic MNE to catch up and thus create a more efficient allocation of housing wille a more efficient allocation of housing units and resources at a much affordable price. Interconnectivity among FDI and DDI should be managed with care to induce robust development in real estate sector. As reflected through the rising per capita income and increment of overall aggregate demand of the country. Creating a suitable environment to attract foreign investors may be 2-sided swords. Ineffective allocation of the capital may result in negative impact to the economy. As being stated in the result of the research, FDI are unable to stand alone in creating positive impact over the contribution towards the country GDP. Instead of focusing on creating high amount of foreign investment, the policy maker should create spaces for the domestic investors to invest in the nation's market. This allows the government to maximize the capital coverage over a wider field range, creating opportunity for development in the specific field. As the foreign investors mostly target high-valued industry.

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