**The effect of External Debt, Foreign Investment and Exports Toward Economic Growth in 16 Asian Countries**

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**Abstract**

This research is aimed at analyzing the effect of economic growth lag, external debt, foreign investment and exports toward economic grwoth in 16 Asain countries. The research used time series data 2010-2020, anda sectional series in 16 Asian countries. The tool of analisys which was used in this research is Dynamic panel data regression. The result shows that the model of *system generalized method of moment* as the best model, the based on eesult of analysis shows that economic growth lag has a positive significant influence, in a short and a long term the external debt has a negative significant influences, exports has positive significant influences towards economic growth, while foreign investment does not have a significant influence towards economic growth.

**Key words:** Economic growth, External debt, Foreign investment, Export, *system generalized method of moment*

**Introduction**

The topic of economic growth has been studied extensively from data which is derived from advanced, developed and underdeveloped countries, as the growth is a natural process which indicates evolution. However reaching a stable economic growth is a purpose which is stipulated in a priority agenda of all governments in the world. Finally, an economic growth generally could result a higher per capita income, more job opportunities as the rising of competition among economy agents, a directly higher foreign investment, the increasing of living standard as well as people welfare as a whole. However, when a question on the sustainability is considered, reaching and maintaining economic growth becomes a challenge. (Higgins, 2015). Then, the problems of economic growth comes up as it is dynamic, the former growth would ask the future one.

One of important sources of financing development and creating economic growth in many countries including in Asia is external debt. External debt has become an important financial source for most of developing countries, let alone , as a way to add a source of state income to reach development activities, (Manasseh, 2022). But most of external debt has a long term problem both economically and politically and it could be a burden as if it were an economic trap, as big number of external debt would be paid in the future (Suidarma, 2021).

Besides, foreign investment can also drive economic growth. According to the theory of foreign investment, that the investment has a positive impacts towards economic growth in a long term via technology transition, the increasing quality of human resources, management modernization and organization. Foreign investment shares a better living quality in the aspects of income, education, skills as well as product availability. In long term, it would create an aggregate demand and supply which will have an impact towards econoic growth. (Haris, 2018).

In an open economy, the role of foreign sector is really important in order to increase domectic production capacity, as export could extend markets and enable countries to acquire benefits and nation income, in turn it will generate economic growth. When a country could drive the growth of certain sectors which have export-base. So the its economic growth would rise faster. As such condition has a bigger multiplier effect to its economy.

This research is aimed at analyzing the effect of economic growth lag, external debt, foreign investment and export towards economic growth in 16 Asian countries. In this research would cover 16 Asian countries which represent Southeast Asia ; Indonesia, Thaland, Malaysia, Filipina, Kambodja dan Vietnam, 4 East Asia ; China, Taiwan, Japan, dan Korea and 2 Central Asia ; Kazakstan dan Uzbekistan, 3 South Asia ; Afghanistan, India and Pakistan and Azerbaijan represent Nort Asia.

**Research and Method**

Data used in this research is a secondary times series for the period of 2010-2020 and sectional series in 16 Asian countries, data used are economic growth, external debts, foreign investment, and exports which are derived from Asia Development Bank and World Bank.

In order to answer the purpose of this research , so dynamic panel data regression analysis is used by estimating two steps using software stata mp 17. Using such tool as there is still endogeneity problem, when it is estimated directly, it would result a bias and inconsistent estimator(Juanda & Junaidi, 2012). Therefore in this research , dynamic panel data is used as using estimation lag dependent variable , a produced estimation is not bias and consistent.

There two approaches in dynamic panel data; *First Different* *GMM* and *System* *GMM,* Blundel and Bond in (Baltagi,2005) state that when sample is small, estimator of *First Different* *GMM* (FD GMM)could be bias and in accurate. Blundel and bond suggest that using *System Generalized Method of Moment* (*SYS* GMM) model is more efficient when using short *time series data*. In this research, the best model is used, general model of *First Different* *GMM* dan model *System* GMM as follow(Baltagi 2005):

$Y\_{it}=δY\_{it-1}+ β\_{1} X\_{it}+ e\_{it}$ (1)

The model of estimation equation FD GMM and SYS GMM be altered to be as follows:

1. Equation Estimation Model in two steps in short terms :

$PE\_{it}=β\_{0}+β\_{1}PE\_{it-1}+β\_{2}LNDEBT\_{2it}+β\_{3}LNFDI\_{3it}+β\_{4}LNEXP\_{4it}+e\_{it}$ (2)

1. Equation Estimation Model in two steps in long terms :

$PE\_{it}= β\_{1}LNDEBT\_{1it}+β\_{2}LFDI\_{2it}+β\_{3}LNEXP\_{3it}+e\_{it}$ (3)

Notes :

PE : Economic growth

PE-1 : Lagof Economic growth

LNDEBT : Logaritma of natural external debt

LNFDI : Logaritma of natural foreign investment

LNEXP : Logaritma of natural exspor

β0 : Konstanta

β1, β2, β3 : Coeficient of regression

i : person (1,2,3…n)

t : times (1,2,3…n)

ei : *Error term*

**Spesification Model Test**

*The Selection of Best Model*

This step is needed to know the best model between the two model in the dynamic panel data model to be used. This can be seen from the model whether its estimator is bias or inaccurate, if a model is bias so other model is the best and accurate to use.

In order to see the unbias estimator, it couls be seen from the value of dependent lag coeficient variabel at model FD GMM or SYS GMM, by comparing the value of the value of coeficient of *lag* dependent variable lag at model SYS GMM, unbias model is when the value of *lag* dependentvariable lag at model FD GMM or SYS GMM stays between *lag* variable FEM model and PLS model .

 *Sargan Test*

Sargan test is conducted to haves a look and make sure that instrument variabel is valid in which the numbers are bigger than estimated parameter (overidentifying). The testing is by comparing the value probability of chi-square or p-value with alpha = 5%, if p-value > alpha, so it is concluded that insturment variabel is valid and if p-value < alpha so instrument variable is not valid.

*Arellano-bond Test*

Uji arellano-bond is conducted to see estimation result consistent or inconsistent, by doing so, he correlation between residual component towards other residual compinent cound be seen at GMM model System. This test is done by comparing rpbability value or p-value second ordo with alpha =5%, if p-value > alpha so there is no auto correlation and if p-value < alpha so there is autocorrelation which indicates the estimation is unconsistent.

*Z test*

Z test is aimed at seeing the effect of independent variable individually towards dependent variable. The test is done by comparing prob z with alpha used (in this research uses alpha 0.05). if prob z < alpha, so independent variable has significant effect toward dependent variable, and on the other hand. (Gujarati, 2012).

*Wald Test*

 Wald test is done to see whether there is the effect of independent variable simultanuously towards dependent variable . If the value of prob chi-square or p-value < alpha, so independent variable simultanuously has significant effect towards dependent variable and vise versa.

**Result and Discussion**

**Descriptive Statistic**

Based in macro economic aspect, the rate of economic growth during 2011-2020 in 16 Asian countries is 4,11% in average, with the highest one was 10,9% in Afghanistan in 2012, while the lowest was -9,5% in Filipina in 2020.

**Table 1.** DescriptiveStatistic

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Maximum | Minimum | Mean | Median |
| Economic growth | 10,9 | -9,5 | 4,11 | 4,95 |
| External debt | 4778,87 | 2,43 | 441,27 | 7,25 |
| Foreign investment | 290,92 | 12,97\* | 23,78 | 142,07 |
| Exports | 2590,64 | 305,79\* | 314,78 | 168,31 |

\*million USD

For the position of Foreign loan, the biggest one was in Japan in 2020, it was 4778,87 billion USD, while the lowest one belong to Afghanistan in 2010 with 2,43 billion USD, the average number of external debt in those 16 Asian countries was 441,27 billion USD. While the highest foreign investment during 2010-2020 belonged to China with 290,92 billion USD in 2013, while the lowest foreign investment in 2020 with 12,97 billion USD belonged to Afghanistan, the average of foreign investment was 23,78 billion USD. The high number of foreign investment (mainly direct foreign investment) in China among those other 16 countries was caused by the strong positive attraction power and China had high economic growth during 2010-2020 with 7,18% in average, even the early Pandemic Covid-19 2020, China’s economy grew at 2,3% (ADB, 2021). This condition are different with Japan, South Korea, Indonesia, India and Thailand which had negative economic growth. High number of population with quick adaptation ability and high working spirit have become the main driving and leverage power for China economy to be more developed.

 Then , the highest exports belonged to China in 2020 with 2590,64 billion USD, the lowest one belong to Afghanistan in 2012 with 305,79 million USD, the avarage of export was 314,78 billion USD. Such big number of China’s export was caused by the the openess of its economic system ang the high demand of their products as they provide the products with low prices ang Chinas’s understanding over the needs of other nations..It measns that China has a good market research. The price of China’s products are cheaper and variative has driven the demand of their products higher. Investment expansion has also driven China’s export become bigger.

*Specification model test*

In this research would search the best model between the two dynamic panel data model. In order to know, it could be seen from its estimator model whether having bias or inaccurate, if a model has bias, so another model woukd be the best and accurate to use. The result of estimation model FEM, FD GMM, SYS GMM, PLS can be seen at table 2.

**Tabel 2.** Estimasi model FEM, FD GMM, SYS GMM, dan PLS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | FEM | FD GMM | SYS GMM | PLS |
| C  | 54,139249 | 52,766339 | 14,866376 | 2,7003296 |
| PEt-1 | 0,24601218 | 0,12504509 | 0,43490177 | 0,61262045 |
| LNDEBT | -5,2049875 | -6,5876903 | -40,641912 | -0,43348081 |
| LNFDI | 0,52640911 | 0,32906475 | 0,26475088 | 0,36197778 |
| LNEXP | 0,40641026 | 2,18777448 | 3,1312062 | 0,14813575 |

*Source : processed data , 2022*

Based on table 2, the value of coefisient lag variabel dependent model FEM is 0,24601218, while the value of lag variable dependent model FD GMM was 0,12504509, lag variabel dependent model SYS GMM is 0,43490177, and the value of coefisient lag variabel dependen model PLS is 0,61262045. it means that the value of lag variabel dependent model FD GMM is under the value of lag variabel dependent model FEM which indicates that estimation derided from model FD GMM is bias ans inaccurate.

Then the vakue of coefisient lag variabel dependen is 0,43490177, This indicates the coefisient lag variabel dependen model SYS GMM is lying between the value of coefisien lag variabel dependen model FEM and PLS, it means that result of estimation of model SYS GMM is accurate and no bias. Therefore the best model to be used in this reseacrh is SYS GMM model (System Generalized Method of Moment).

*Sargan test*

In order to make sure the instrument variable to used is valid, so the test is applied. The resut is shown at table 3.

**Table 3. S**argan test

|  |  |
| --- | --- |
| Chi-Square | Prob. |
| 13.74336 | 1,0000 |

*Source : processed data, 2022*

Based on Sargan test , prob Chi-square is 1,000 bigger than alpha 0.05, so is concluded that instrument variable has no correlation with error, it means thatinstrument variable is valid.

*Arellano-bond test*

In using dynamic panel regression must be consistent, in order to know it, arrelano-bond test mjust be done. The result is at table 4.

**Tabel 4.** Arellano-bond test

|  |  |  |
| --- | --- | --- |
| Order | z-Statistik | Prob. |
| 1 | -1.8901 | 0,0587 |
| 2 | 1,1063 | 0,2686 |

*Source : processed data, 2022*

Reffering to table 4, the value of prob z in orde 2 is 0,2686, it can be seen that prob z is bigger than alpha (5%), it means that there is no autocorrelation at *error first difference* di ordo -2, so it means that the estimation is consistent.

**Result of Model Estimation SYS GMM in Short Term**

Based on the processed data, the effect estimation of lag economic growth, external debt, foreign investment and exports toward economic growth in short terms can be seen at table 5.

**Tabel 5.** Short-term SYS GMM model estimation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Coefficient | Std.Error | z-Statistik | Prob. |
| C | 14,86638 | 7.60263 | 1.96 | 0.051 |
| PEt-1 | 0,4151542 | 0,1702968 | 2,44 | 0,015 |
| LNDEBT | -4,349018 | 0,8243694 | -5.28 | 0,005 |
| LNFDI | 0,2647509 | 0,2764704 | 0,96 | 0,338 |
| LNEXP | 3,131206 | 0,4771675 | 6.56 | 0,000 |

*Source : processed data , 2022*

*Z test*

Z test is done in order to know the effect of independent variable individually towards dependent variable. Based on table 5, the variable of lag economic growth was 0,4151542, prob z statistic is 0,015 < 0,05(alpha), it means that economic growth at former period had positive and significant effect towards economic growt individually in 16 Asian countries. The value of coefisient variable of external debt is -4,349018, prob z statistik is 0,000 < 0,05, so it is concluded that in short term external debt individually has negative and significant effect on economic growt in 16 Asian countries. While the foreign invesment variable with 0,2647509, prob z statistik with 0,338 > 0,05, so it is concluded that in short term foreign investment has no significant effect on econoic growth in 16 Asian countries. Export Variabel with regression coefisient 2,75848, prob z statistik with 0,048 < 0,05, means that in short term export individually has positive and sigenificant effect on economic growth in 16 Asian countries.

*Wald test*

This test is used in order to know the effect of over all independet variable on dependent variable. The result is shown at table 6.

**Tabel. 6**  Wald test

|  |  |
| --- | --- |
| Chi-Square | Prob. |
| 318.34 | 0,0000 |

*Source : processed data , 2022*

Based on table 6, the value of pro chi-square is 0,000 < alpha (0,05), means that the earlier economic growth, external debt, foreign investment and export simultaneously have significant effects on economic growth.

**Result of Model Estimation SYS GMM in Long Term**

Based on processed data, the estimation of the effect of external debt, foreign investmen and export on economic growth in long term , as swhon in table 7.

**Tabel 7.** Long-term SYS GMM model estimation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Coefficient | Std.Error | z-Statistik | Prob. |
| LNDEBT | -7.436179 | 1,147957 | -6,48 | 0,000 |
| LNFDI | 0,4526849 | 0,5374551 | 0,84 | 0,400 |
| LNEXP | 5,353901 | 1,270854 | 4.21 | 0,000 |

*Source: processed data , 2022*

 *Z test*

Z test is to know the effect of independent variable individually on dependent variable. Based on table 7 cooficient of external debt is -7.436179, prob z with 0,000 < 0,05, it means that in long external debt has negative and significant effect on economic growth. For the variable of foreign nvestment , with 0,4526849, prob z with 0,400 > 0,05, means that in long term foreign investmet individually does not have significant effect on economic growth. While exsport variable with coefisient 5,353901, prob z with 0,000 < 0,05, means that in long term export individually has positive and significant effect on ecnomic growth.

**Discussion**

*The effect of lag economic growth on economic growth*

Based on processed data of earlier economic growth or economic growth had positive and significant effect on economic growth in 16 Asian countries. This is in line with Keynes theory that if economic growth occured at the time of aggregate demand bigger than its supplies so “the lack of production” would happen, and in turn there would be the increasing of price for the next output or even itu would happen simjultanuously(Mankiw, 2007). By the increasing of output, itu would increase ecomonic growth in long term.

The economic growth happened as the increasing of production, the increasing of production would absor more job so in turn the income would also rise and would stimulate society’s purchasing power and finally it would incerase production and economic growth in long term. (Prawoto, 2019).

The result of researc done by Kalan and Gokasar (2020) showed that *lag* economic growth had positive and significant effect on economic growth in Turkey. But it is different from other researches in East Africa as proven by Mekannon (2017) which showed that lag economic growth had no significant effect on economic growth in East Africa.

*The effect of external debt on economic growth*

Based on processed data that external debt has negative and significant effect on economic groth both short and long term, it means that external debt has slowed economic growth in area of research. This condition is in line with the theory of loan based on classical view that external debt is a burden and tends to endanger capital accumulation, their present and future consumption would equalize debt and tax in the future and has negative connotation in a country(Yapo, 2002). oin future it would be a burden to pay and pay off the debts beside itu would decrease proportion of a state’s expenditures.

This result is in line with a reseach done by Masaseh (2022) which showed that external debt had a nagative and significant impact on economic growth in Afrika Sub-Sahara. Then the same research done by Hassan (2016) which also showed that in long term external debt in long term had a nagative and significant impact on economic growth . but this is different from research in another country in Nigeria, done by Sulaiman & Azeez (2012) which showed that external debt has positve and not significant impact on economic growth.

*The effect of foreign investmnet on economic growth*

 Based on processed data that foregin investment has positive but not significant on economic growth both in short ang long term. This describes that foreign investmet in 16 Asian countries has no impact on economic growth. As foreign investment would bring original products from their countries, this conditioh has caused the original domestic product in the country has no more market, this make condition worsened for domestic industries (2021), therefore foreign investmet has no significant impact on the ouput of the country and economic growth.

This research is in line with Zhang’s reseach (2020) which showed that foreig investment has an impact but not signeificant on economic growth,the same result also in Nigeria, which was done by Udeaja and Onyebuchi (2015) which showed that foreign investment had no signoificant impact on economic growth. But it is different with reasearh in westv Balkant, which was done by Fetai (2017) which showed that foreign investment had positive and significant effect on economic growth in west Balkan countries.

*The effect of export on economic growth*

Based on processed data that export has positive and significant effect on economic growth both in short and long term. In the theory of *endogenous economic* *growth*  which is applied by Romer dnd Lucas desribe that international trade in term of export activities has a positive impact on output and economic growth. The theory of endogen economic formulated that the decreasing of barriers in international trade would accelerate econoic growth in the future. Salvatore (2014) confirmed thatr export is one of important factor in increasing output and driving economic grothw in the developing countries.

Result of this research implies that asian countries continue to move toward gloablisation and international trade. By export it could strengthen their economic sectors which have comparative advantages, specilization as well as manpower productivities. Export has much assisted many countries to take advantages of their economic scales.

Then export would drive and increase capital investment both from domestic and foreign countries. This happens as there is a market extension as the effect of export sector. In long term, export progress would pave the way of innovation and technology, industries would be supported to import new kind of technology from abroad in facing foreign competiton. By doing so, the product woul be more produced in order to fulfill the demand of international trade.

Result of this research suites with research done by Tiwari (2011) which was done in 23 Asian countries which showed that export had positive and significant impacts on economic growth in those 23 Asian countries. The same result of research done by Batrancea (2021) in 34 African countries in where exports had positive and significant impacts on economic growth in those 34 African countries. But this research is different from those in Central and East European countries which was done by Ioan (2020).

**Conclusion**

Based on result of analysis, lag economic growth has positive and significant effects on economic growth. Then in both short and long term, External debt has negative and significant , export has positive while foreign investment has no significant effects on economic growth in16 Asian countries.

 Based on this research, the recommendation is that 1) governments in those 16 Asian countries must be able to ensure the stability of politic and economic condition in order to enjoy the benefits of external debt and minimize the burden of their loans.2) Governments must develop theri commodities which so far do not have camparative and competitive advantages in order to have competition power and able to come and compete in international market , then the governments should also diversify their basic export products.

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