



# Determinants Comparative Advantage of Non-Oil Export 34 Provinces in Indonesia

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## Abstract

In spite of country's export activities constantly increase every year, based on latest report Indonesia still sit at number 28th in the world's top export countries, consider Indonesia as one of the most populated nations and its rich nature resources. There are so many research in literature about this issue, but to the author's knowledge, there are still lack of study that analyze performance of non-oil export comparative advantage between provinces in Indonesia instead of between its commodities. The purpose of this research are (1st) to compare non-oil exports comparative advantage between 34 provinces in Indonesia and (2nd) to prove affect of chosen factors which are foreign direct investment, local direct investment, inflation, interest rate, exchange rate, population, labor, minimum wage, education, income disparity, regional Gross domestic product (GDP), government expenditure, and GDP of importing country toward provinces comparative advantage of non-oil export. This research using provinces panel data year 2010-2019. The method of this study are Revealed Comparative Advantage (RCA) index and Trade Balance Index (TBI) to unveil non-oil export comparative advantage between 34 provinces in Indonesia and panel data regression to estimate the impact of determinant factors. The result of comparative advantage index estimation shows that 24 provinces have comparative advantage based on RCA index approach and 32 provinces have comparative advantage based on TBI approach on non-oil export activities year 2010-2019. Result of panel data regression, found that 9 out of 13 determinant variables had significant effect on RCA index namely foreign direct investment, local direct investment, exchange rate, population, labor, minimum wage, income disparity, regional GDP and government expenditure. Then 6 out of 13 determinant variables had significant effect on TBI which are local direct investment, interest rate, exchange rate, education, income disparity and regional GDP.

*Keywords:* non-oil export, revealed comparative advantage, trade balance index, Indonesia

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## 1. Introduction

Indonesia as one of the largest goods and services exporter in the world, based on the latest report, its non-oil export activities have been reached 90% in total national exports that already take a portion of  $\pm 20\%$  of total country's GDP in 2019 (BPS, 2020; Fadliansyah et al., 2021; Pusra et al., 2021; Suyatna, 2021). Indonesia's non-oil export activities have increased significantly from \$4.2 million in 1978 to \$154.9 million in 2019. But, although Indonesia's non-oil export performance continues to increase every year, Indonesia still ranked 28th in the world for non-oil export performance (CIA, 2020), while on the other hand Indonesia is ranked 4th in the world for population (Worldometers, 2020) and ranked 94th in the world which is above China (154th) and India (163th) in natural resource wealth index (Solability, 2020). This means country's human and natural resources still have many potential to improve Indonesia's competitiveness in the international market especially non-oil export activities.

Research about comparative advantage of exports in Indonesia has been carried out alot. Some of them such as study by Prasetyo and Marwanti (2017), which discusses comparative advantage of Indonesian crude palm oil in the international market using Revealed Comparative Advantage (RCA) analysis. Also study by Ervani (2013), who examined the export performance of Indonesian agricultural sector using comparative advantage approach Trade Balance Index (TBI). Then study by Hasibuan et al. (2012), on the analysis competitiveness of Indonesian cocoa in the international market using Revealed Comparative Advantage (RCA) and Trade Balance Index (TBI).

Likewise, several determinants of factors were also found to affect export performance. Felipe and Lanzafame (2020), Narayan and Bhattacharya (2019), and Hu et al. (2017), examines the effect of capital stock toward export activities. Uysal and Mohamoud (2018), studies the effect of inflation on export performance. Sonaglio et al. (2016),

examines the influence of monetary policy toward export. The effect of exchange rate on export activities has studied on (Goya, 2020; Álvarez-Díaz et al., 2018). The effect of population toward export has presented on (Memanova & Mylonidis, 2020; Lectard and Rougier, 2018; Sun and Li, 2018). The influence of labor on export performance has proposed on (Liu et al., 2020; Ni and Kurita, 2020, Narayan and Bhattacharya, 2019). Ni & Kurita (2020) examines the effect of minimum wage on export activities. Memanova & Mylonidis (2020), Lectard & Rougier (2018), and Osakwe et al. (2018), The effect of education toward export can be seen on refs (Memanova and Mylonidis, 2020; Lectard and Rougier, 2018; Osakwe et al., 2018). Ni & Kurita (2020). The effect of GDP exporting country on export performance (Sugiharti et al., 2020; Kuik et al., 2019 and Hu et al., 2017). Bournakis and Tsoukis (2016) studies the effect of government expenditure on export activities. The effect of GDP importing country toward export can be seen on (Kuik et al., 2019; Baiardi and Bianchi, 2019; Günçavdı and Kayam 2017).

However, to the best of the author's knowledge, most research has been carried out about comparative advantage of non-oil export in Indonesia was between commodities within the country or province. There are still very few study about non-oil exports comparative advantages between provinces, especially comparing all 34 provinces in Indonesia. Also there are still very few studies that try to analyze influence of determinant factors affecting country's non-oil export performance where the dependent variable are in form of Revealed Comparative Advantage (RCA) and Trade Balance Index (TBI). Therefore, the researcher tries to examine the comparative advantage and the influence of determinant factors based on several studies above in explaining the performance of non-oil export using data from 34 provinces in Indonesia year 2010-2019. It is hoped that this study can be a positive input for a better direction of Indonesia's foreign trade policy.

## 2. Materials and Methods

### 2.1. Materials

This study focuses on the identification of comparative advantage indices between provinces and the influence of determinant factors namely foreign direct investment, local direct investment, inflation, interest rate, exchange rate, population, labor, minimum wage, education, income disparity, GDP, government expenditure and GDP of importing country toward comparative advantage indices of non-oil export of 34 provinces in Indonesia year 2010-2019. The type of data used in this research are panel data for variables non-oil export, non-oil import, foreign direct investment, local direct investment, population, labor, minimum wages, education, income disparity, GDP and government expenditure which includes data from 34 provinces in Indonesia, and time-series data for variables interest rate, exchange rate and GDP of importing country.

### 2.2. Methods

#### 2.2.1. Revealed Comparative Advantage (RCA) Index

Revealed Comparative Advantage (RCA) index is used to determine whether a region is superior or not comparatively with other regions in non-oil export activities. The data used for the approach are the value of non-oil export from 34 provinces in Indonesia, the value of Indonesia's non-oil export and the value of world non-oil export. The formulation is as follows (Basri and Munandar, 2010):

$$RCA_{it} = \frac{X_{nit} / X_{nct}}{X_{nct} / X_{nwt}} \quad (1)$$

which are,

- $RCA_{it}$  = Revealed Comparative Advantage value of province  $i$  at year  $t$ ;
- $X_{nit}$  = Non-oil export value of province  $i$  at year  $t$ ;
- $X_{nct}$  = Total non-oil export value of 34 provinces in Indonesia at year  $t$ ;
- $X_{nct}$  = Non-oil export value of Indonesia at year  $t$ ;
- $X_{nwt}$  = Non-oil export value of world at year  $t$ ;

An index value greater than 1 (>1) indicates that province  $i$  has a comparative advantage on non-oil export in Indonesia at year  $t$ . On the other hand, index value smaller than 1 (<1) indicates that province  $i$  does not have a comparative advantage on non-oil export in Indonesia at year  $t$ .

### 2.2.2. Trade Balance Index (TBI)

Trade Balance Index (TBI) approach is used to determine whether the region is a net-exporter or a net-importer. The data used in this approach are the value of non-oil export and non-oil import from 34 provinces in Indonesia. The formulation is as follows (Ervani, 2013):

$$TBI_{it} = \frac{X_{it} - M_{it}}{X_{it} + M_{it}} \quad (2)$$

Which are,

- $TBI_{it}$  = Trade Balance Index value of province  $i$  at year  $t$   
 $X_{it}$  = Non-oil export value of province  $i$  at year  $t$   
 $M_{it}$  = Non-oil import value of province  $i$  at year  $t$

The index number is between -1 and +1. If the TBI index number is negative, it is said that province  $i$  is a net-importer at year  $t$  and if the TBI index number is positive, it is said that province  $i$  is a net-exporter at year  $t$ .

### 2.2.3. Determinant Factors of RCA Index

The regression equation is written as follows (Basri and Munandar, 2010):

$$RCA_{it} = \beta_0 + \beta_1 PMA_{it} + \beta_2 PMDN_{it} + \beta_3 INF_{it} + \beta_4 SKB_t + \beta_5 KURS_t + \beta_6 JP_{it} + \beta_7 JTK_{it} + \beta_8 UM_{it} + \beta_9 TP_{it} + \beta_{10} KP_{it} + \beta_{11} PDRB_{it} + \beta_{12} PP_{it} + \beta_{13} PDB_t + \varepsilon_i \quad (3)$$

Which are,

- $RCA$  = Revealed Comparative Advantage index value of 34 provinces in Indonesia  
 $PMA$  = foreign direct investment  
 $PMDN$  = local direct investment  
 $INF$  = inflation  
 $SKB$  = interest rate  
 $KURS$  = exchange rate  
 $JP$  = population  
 $JTK$  = labor  
 $UM$  = minimum wage  
 $TP$  = education  
 $KP$  = income disparity  
 $PDRB$  = regional GDP  
 $PP$  = government expenditure  
 $PDB$  = GDP of importing country  
 $i$  = province  $i$   
 $t$  = year  $t$   
 $\beta_0$  = constant  
 $\beta_1, \beta_2, \dots, \beta_{13}$  = estimated coefficient  
 $\varepsilon_i$  = error term

### 2.2.4. Determinant Factors of TBI

The regression equation is written as follows (Ervani, 2013):

$$TBI_{it} = \beta_0 + \beta_1 PMA_{it} + \beta_2 PMDN_{it} + \beta_3 INF_{it} + \beta_4 SKB_t + \beta_5 KURS_t + \beta_6 JP_{it} + \beta_7 JTK_{it} + \beta_8 UM_{it} + \beta_9 TP_{it} + \beta_{10} KP_{it} + \beta_{11} PDRB_{it} + \beta_{12} PP_{it} + \beta_{13} PDB_t + \varepsilon_i \quad (4)$$

Which are,

- $TBI$  = Trade Balance Index value of 34 provinces in Indonesia  
 $PMA$  = foreign direct investment  
 $PMDN$  = local direct investment  
 $INF$  = inflation  
 $SKB$  = interest rate  
 $KURS$  = exchange rate  
 $JP$  = population  
 $JTK$  = labor

$UM$	= minimum wage
$TP$	= education
$KP$	= income disparity
$PDRB$	= regional GDP
$PP$	= government expenditure
$PDB$	= GDP of importing country
$i$	= province $i$
$t$	= year $t$
$\beta_0$	= constant
$\beta_1, \beta_2, \dots, \beta_{13}$	= estimated coefficient
$\varepsilon_i$	= error term

### 3. Results and Discussion

#### 3.1. Analysis of the Comparative Advantage of Non-Oil Export 34 Provinces in Indonesia

##### 3.1.1. Analysis of Revealed Comparative Advantage (RCA) Index

All this time Indonesia has many provinces that are comparatively superior in non-oil export activities. Based on the RCA index approach, there are 24 out of 34 provinces that have a comparative advantage in non-oil export and 16 of them have a consistent superior performance throughout the 2010-2019 research year. There are even 8 provinces with a comparative advantage index reaching double digits which indicates high contribution of these provinces in national non-oil export activities.

The provinces that were found to be comparatively superior in non-oil export activities through RCA index approach during the period 2010-2019 were West Java, East Java, East Kalimantan, Riau, Banten, DKI Jakarta, Riau Islands, Central Java, North Sumatra, South Kalimantan, Central Sulawesi, South Sumatra, Lampung, Central Kalimantan, Southeast Sulawesi, West Kalimantan, South Sulawesi, Bangka Belitung, West Sumatra, Papua, Jambi, North Kalimantan, North Sulawesi and Southeast West Nusa. Meanwhile, the provinces found to be not comparatively superior were North Maluku, Bali, West Sulawesi, DIY Yogyakarta, Aceh, Bengkulu, Southeast East Nusa, West Papua, Maluku and Gorontalo.

Also among the 24 provinces that were found to have comparative advantages in non-oil export activities, provinces that consistently excelled throughout 2010-2019 were West Java, East Java, East Kalimantan, Riau, Banten, DKI Jakarta, Riau Islands, Central Java, North Sumatra, South Kalimantan, South Sumatra, Lampung, South Sulawesi, Bangka Belitung, West Sumatra and Papua. Furthermore, the provinces that have RCA index number reaching two digits are West Java, East Java, East Kalimantan, Riau, Banten, DKI Jakarta, Riau Islands and North Sumatra.

Based on the highest average winning index throughout 2010-2019, West Java is the province with the highest number which reach 27.99 points. Then followed by East Java (17.41), East Kalimantan (15.17), Riau (12.61) and DKI Jakarta (12.01) in the top five highest average index. On the other hand, the province with the lowest average superior index belongs to West Nusa Tenggara at 1.01 points. In the top five the lowest followed by Jambi (1.22), West Kalimantan (1.25), Central Sulawesi (1.29) and Central Kalimantan (1.33).

##### 3.1.2. Analysis of Trade Balance Index (TBI)

Based on the TBI approach, it was found that the majority of provinces were more inclined towards non-oil export activities. All provinces except DKI Jakarta and West Papua have a comparative advantage in non-oil export and there are 21 out of 34 provinces that have consistent superior performance throughout year 2010-2019.

The provinces that were found to be consistently superior in comparative of non-oil export activities throughout year 2010-2019 based on TBI approach were West Java, East Kalimantan, Riau, Banten, North Sumatra, South Kalimantan, South Sumatra, Lampung, Central Kalimantan, West Kalimantan, South Sulawesi, Bangka Belitung, West Sumatra, Papua, Jambi, North Kalimantan, North Sulawesi, Bali, DIY Yogyakarta, Southeast West Nusa and Bengkulu.

Then based on the highest average superior index throughout 2010-2019, Bangka Belitung is the province with the highest score of 0.94 points. Then followed by South Kalimantan (0.88), Central Kalimantan (0.81), Riau (0.80) and West Sumatra (0.79) in the top five highest average index. On the other hand, the province with the lowest average superior index belongs to Riau Islands at 0.03 points. In the top five the lowest followed by East Nusa Tenggara (0.05), North Maluku (0.06), East Java (0.07) and Banten (0.12).

### 3.2. Estimation Result of Determinant Factors of Non-Oil Export Comparative Advantage Indices 34 Provinces in Indonesia

#### 3.2.1. Estimation Results of Determinants Revealed Comparative Advantage (RCA) Index

In panel data regression, the first step that must be done is to determine the model that fits the research data. In this study, two tests were conducted to determine the best model which are Chow test and Hausman test. The results of Chow test shows probability value is 0.0000 ( $<0.05$ ) indicates that between common and fixed effect, fixed effect is the best method. Furthermore, Hausman test resulting probability value is 1.0000 ( $>0.05$ ) which indicates that between fixed and random effect, random effect is the best final method for estimating model data.

**Table 1.** Estimation Results of Panel Data Regression with Random Effects Method of Determinants Revealed Comparative Advantage (RCA) Index

Variable	Coefficient	Prob.
C	-1.872112	0.0985
Foreign_Direct_Investment	0.000358	0.0133
Local_Direct_Investment	-3.91E-05	0.0384
Inflation	0.033907	0.2577
Interest_Rate	-0.067901	0.5744
Exchange_Rate	0.000218	0.0649
Population	7.55E-07	0.0000
Labor	-9.95E-07	0.0044
Minimum_Wages	-7.18E-07	0.0126
Education	0.017941	0.8705
Income Disparity	5.980114	0.0074
Regional GDP	5.24E-06	0.0001
Government Expenditure	-7.44E-11	0.0779
GDP of Importing Country	-3.66E-05	0.7022
R-squared	0.367428	
Adjusted R-squared	0.342203	
F-statistic	14.56590	
Prob(F-statistic)	0.000000	

Source: Eviews 9

The estimation results shows that 9 out of 13 selected independent variables have a significant effect toward dependent variable RCA index. These variables are foreign direct investment, local direct investment, exchange rate, population, labor, minimum wage, income disparity, regional GDP and government expenditure. The simultaneous effect of independent variables based on the results shows that probability value of the F-statistics is 0.000 ( $<0.05$ ) which indicating that the selected independent variables together have a significant effect on the RCA index. Furthermore, the value obtained of  $R^2$  is 0.367 which indicates that the variation of the RCA index value explained by the independent variables is 36.7%. The estimation results of panel data regression with random effects method of determinants Revealed Comparative Advantage (RCA) Index can be seen in Table 1.

#### 3.2.2. Estimation Results of Determinants Trade Balance Index (TBI)

Same as estimation of determinants Revealed Comparative Advantage (RCA) index, the first step that must be done also to determine the model that fits the research data. The results of Chow test shows probability value is 0.0000 ( $<0.05$ ) indicates that fixed effect is the best method. Furthermore, Hausman test resulting probability value is 1.0000 ( $>0.05$ ) which indicates that random effect is the best final method for estimating model data.

The estimation results showed that 6 of the 13 selected independent variables had a significant effect toward TBI. These variables are local direct investment, interest rate, exchange rate, education, income disparity and regional GDP. Simultaneous effect of the independent variables according to the value of probability F-statistic obtained is 0.003 ( $<0.05$ ) which indicating that the independent variables together have a significant effect on TBI. Furthermore, the value of  $R^2$  obtained is 0.91 which shows that the variation in TBI value is explained by the independent variables 91%. The estimation results of panel data regression with random effects method of determinants Trade Balance Index (TBI) can be seen in Table 2.

**Table 2.** Estimation Results of Panel Data Regression with Random Effects Method of Determinants Trade Balance Index (TBI)

Variable	Coefficient	Prob.
C	-0.428770	0.0014
Foreign_Direct_Investment	-2.60E-05	0.1551
Local_Direct_Investment	7.79E-06	0.0081
Inflation	-0.012181	0.1722
Interest_Rate	-0.030583	0.0031
Exchange_Rate	3.37E-05	0.0402
Population	3.06E-09	0.9005
Labor	2.86E-09	0.9562
Minimum_Wages	-7.67E-08	0.1676
Education	0.051260	0.0262
Income Disparity	1.367119	0.0184
Regional GDP	-5.28E-07	0.0000
Government Expenditure	3.81E-12	0.4430
GDP of Importing Country	-3.66E-05	0.7022
R-squared	0.091081	
Adjusted R-squared	0.054836	
F-statistic	2.512906	
Prob(F-statistic)	0.002705	

Source: Eviews 9

### 3.2.3. Analysis of the Estimation Result of Determinants Comparative Advantage Indices of Non-Oil Export 34 Provinces in Indonesia

Foreign investment was found to have a positive and significant effect on the RCA index but no significant effect on TBI. But several previous studies are in line with this finding, such as study by Ni and Kurita (2020) in Indonesia, Memanova and Mylonidis (2020) in 125 countries, Baliamoune-Lutz (2019) in 78 developing countries, Bierut and Kuziemska-Pawlak (2017) in Central Europe and Eastern Europe, Yang et al. (2017) in Japan who found that foreign investment had a positive and significant effect on exports. Local direct investment was also found to have a significant effect on both comparative advantage indices RCA and TBI, but the direction of estimated coefficients was found to be different. The direction of the influence of local direct investment on RCA index was found to be negative while toward TBI was found to be positive. However, this is in line with several findings in previous research such as study by Felipe and Lanzafame (2020) in China, Rodríguez-Pose et al. (2013) in Indonesia which found that investment had a positive and significant effect on exports. On the other hand, a study by Narayan and Bhattacharya (2019) in India, Hu et al. (2017) in China found that investment had a negative and significant effect on exports.

Inflation was found to have no significant effect on the two comparative advantage indices RCA and TBI. The researcher's assumption that inflation variable is not significant toward two comparative advantage indices because the increase in domestic prices has not exceeded the price level of the international market so exporters still get incentives from selling their products to the world market. Likewise, the stock of goods in the domestic market is maintained so exporters still have a sufficient surplus of goods to be sold to the international market. On the other hand, interest rates were found not to have a significant effect on the RCA index but have a negative and significant effect on TBI. This is in line with study by Sonaglio et al. (2016) in Brazil which found that the expansion of monetary policy (a reduction of central bank interest rates) had a significant effect on increasing export activity.

Exchange rate which is the main independent variable in this study was found to have a positive and significant effect on both comparative advantage indices RCA and TBI. Several previous studies are also in line with this finding, such as the study by Goya (2020) in 100 countries, Tan et al. (2020) in Indonesia, Uysal & Mohamoud (2018) in East Africa, Álvarez-Díaz et al. (2018) in Spain, Khalighi and Fadaei (2017) in Iran, Karagöz (2016) in Turkey who found the exchange rate have a positive and significant effect on exports.

Population was found not significant toward TBI but have a positive and significant effect on RCA index. This finding is in line with previous research such as the study by Sun and Li (2018) in China, Tsekeris (2017) in Greece which found that population has a positive and significant effect on exports. On the other hand, labor was also found to have no significant effect on TBI but have a significant effect on RCA index. However, coefficient of the estimation results obtained in this study is against theory which is negative. The same finding was also obtained by Narayan and Bhattacharya (2019) in their study in India which also found labor had a negative and significant effect on exports. The researcher suspects that there is a high possibility of surplus in the number of labors compared to the

availability of capital so it will have a negative effect in total on the productivity of companies in producing goods, including goods for export. Then, minimum wage was also found to have no significant effect on TBI but have significant effect on RCA index. In a study by Ni and Kurita (2020) also in Indonesia it was found that the minimum wage has a positive and significant effect on exports but in this study it found to have a negative effect. The researcher's assumption about this finding which inconsistent according to the theory due to the producers reaction in Indonesia that the higher the minimum wage, the higher the cost of the company and causing a decrease in the number of goods produced, including goods for export.

Education was found to have no significant effect on RCA index but have a positive and significant effect on TBI. This finding is in line with several previous studies such as the study by Memanova and Mylonidis (2020) in 125 countries, Erkan and Yildirimci (2015) in Turkey, Rodríguez-Pose et al. (2013) in Indonesia which found that education had a positive and significant effect toward exports. Then, income disparity was found to have a significant effect on both comparative advantage indices RCA and TBI. In line with the study by Ni and Kurita (2020) in Indonesia which found that the gini ratio index had a positive and significant effect on exports, in this study also found that the coefficient value of the estimation results was positive.

Regional GDP was found to have a significant effect on both comparative advantage indices RCA and TBI. However, the direction of the influence obtained is different. Regional GDP toward RCA index obtained a positive coefficient value while toward TBI was negative. Nevertheless, this is in line with several previous studies such as the study by Sugiharti et al. (2020) in Indonesia, Memanova and Mylonidis (2020) in 125 countries, Felipe and Lanzafame (2020) in China, Narayan & Bhattacharya (2019) in India, Pérez-Mesa et al. (2019) in Spain who found Regional GDP has a positive and significant effect on exports. Similarly, studies by Ni and Kurita (2020) in Indonesia, Yang et al. (2017) in Japan, Karagöz (2016) in Turkey found that Regional GDP had a negative and significant effect on exports. Then, government expenditure was found to have a significant effect on RCA index but no significant effect on TBI. However, the estimated coefficient was found to be negative. In a previous study by Bournakis and Tsoukis (2016) in 18 OECD member countries it was found that government expenditure had a positive and significant effect on exports. The researcher's assumption that the coefficients of the estimation results are not in accordance with the theory because at the same time the negative effect of taxation by the government on companies is greater than the effectiveness of government expenditure to increase company productivity so that it appears to have a negative effect in total toward export activity. On the other hand, The GDP of importing country was found to have no significant effect on the both comparative advantage indices RCA and TBI. The researcher's assumption is that the GDP of importing country used in this study to represent world demand is only the GDP of one country, which is China, so it is not able to bring out the overall influence of world market demand for exported goods from Indonesia that are spread almost to all countries. Additional data from several other countries is needed to see the significance of their influence on national export activities.

#### 4. Conclusion

This study focuses on the analysis determinants comparative advantage of non-oil exports 34 provinces in Indonesia year 2010-2019. The results of estimation comparative advantage indices shows that 24 provinces are comparatively superior based on RCA index approach and 32 provinces are comparatively superior based on TBI approach in non-oil export activities in 2010-2019. The results of panel data regression, simultaneously found that the determinant variables together had a significant effect on both RCA and TBI indices. Partially, 9 out of 13 determinant variables have a significant effect on RCA index namely foreign direct investment, local direct investment, exchange rate, population, labor, minimum wage, income disparity, regional GDP and government spending. The variables of foreign direct investment, exchange rate, population, income disparity and regional GDP were found to have a positive effect on RCA index, while the variables of local direct investment, labor and government expenditure were found to have a negative effect on RCA index. Then 6 out of 13 determinant variables have a significant effect on TBI namely local direct investment, interest rate, exchange rate, education, income disparity and regional GDP. Variables Local direct investment, exchange rate, education and income disparity were found to have a positive effect on TBI, while interest rate and regional GDP variables were found to have a negative effect on TBI.

As it was found in this study that most of provinces in Indonesia have a comparative advantage in non-oil export activities, the next step that needs to be taken, especially by policy makers, is to create a conducive production and trade environment for export destination goods, strong infrastructure support, sustainable innovation, as well as ensuring that policies aimed at encouraging non-oil export activities do not result in crowding out (ineffectiveness of a policy due to other policies). Likewise, political and economic stability in general so that Indonesia's current strong competitiveness in the international market, especially non-oil products, can be maintained.

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