
Are There Effects of the Investment Spillover in Central Sulawesi?

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Abstract:

Purpose: This study analyzes the effect of FDI on the Gross Regional Domestic Product (GRDP) performance of provinces in Sulawesi Island during the 2014-2019 period.

Methodology/Approach: The time span of this research was chosen as a relative approach to the initiation of One Belt One Road (OBOR) Initiatives or now known as Belt and Road Initiatives (BRI) which invested heavily in Central Sulawesi Province. This proves that the presence of foreign investment in Sulawesi Island can be expected to advance the regional economy.

Findings: The estimation results of the Granger Causality Test (GCT) indicate that there is a spillover effect of economic growth in Central Sulawesi Province on the economic growth of other provinces in Sulawesi Island.

Originality: This research provides a strong signal that economic activity in Central Sulawesi Province may have implications for the dynamics and performance of the economy in the surrounding provinces.

Keywords: Foreign Direct Investment (FDI), Belt and Road Initiatives (BRI), Economic Growth, Spillover effect, Gross Regional Domestic Product (GDRP).

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Type of paper: Research paper.

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1. Introduction

In 2013 was a historic moment for the Xi Jinping Government. Under the leadership of President Xi Jinping, the Chinese Government initiated a new form of multilateral cooperation called One Belt, One Road (OBOR). President Xi Jinping's speech in Kazakhstan and Indonesia as the start of the OBOR initiative to be launched. In his speech in Kazakhstan, President Xi Jinping presented a plan for the "Silk Road Economic Belt", whose main objective is to connect China with Europe by land route. Meanwhile in Indonesia, President Xi Jinping delivered the initiative "21st Century Maritime Silk Road" with the main objective of connecting Asia, Africa and Europe through sea transportation routes. The two proposals are now referred to as the BRI (Belt and Road Initiative) (Kang *et al.*, 2018; Fu, Supriyadi, and Wang, 2018).

One Belt One Road (OBOR) is a signature project of the People's Republic of China to step into the broad field of inclusive globalization. In a world gradually moving towards a domestic orientation, China has proposals for a large number of the world's population to ensure individual achievement through collective efforts (Rahman, Nida, Rahman, and Mohd Nayyer, 2019). The OBOR direct to China's foreign direct investment (FDI) initiative causes mergers and acquisitions with total or majority ownership to significantly increase in belt road countries, especially countries along the continental route. Comparatively, the acquisition process is controlled by the Chinese state by controlling the infrastructure sector (Du and Zhang, 2017)

It is clear that the vision of the Chinese Government through *Belt and Road Initiative* (BRI) is a vision of building transcontinental connectivity through land and sea routes. Support for the realization of BRI is shown by providing opportunities for countries to get reciprocity through joint funding for infrastructure development across the areas mentioned above (Lim 2016; Pasierbiak 2015). The BRI can complement Japan's role as a catalyst for economic development in the Asian region in general and in Indonesia in particular (Negara and Suryadinata, 2019). More precisely, China's BRI may change the trend of trade and investment in Indonesia.

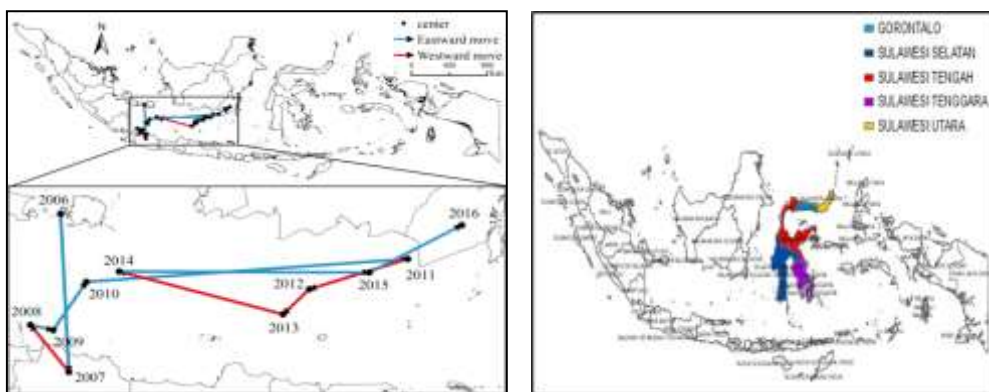
Indonesia has a unique position. According to Suzie Suparin, Chair of the UI Center for American Studies, Indonesia can be categorized as, rich in resources but tends to get into conflict. Rents from natural resources trigger conflict both at the domestic level and against foreign actors or other nations. Conflict can also be triggered both by weak state capacity (as well as of course the character of the resources).

In the CSIS research report (2019) entitled "Perception and Readiness of Indonesia Towards The Belt and Road Initiative" explained in the context of bilateral relations between Indonesia and China. China and Indonesia are among the most populous countries in the world. In 2016, China's population was 1.37 billion, while

Indonesia's population was 261 million. In total, the two countries' population constitutes about 23 percent of the global population. Therefore, China and Indonesia have a lot of potential, not only in the business and economic fields but also in other fields including technology, education, social and culture.

The existence of Indonesia is taken into account by the Chinese Government. This is indicated by the increasing realization of investment in Indonesia, which is in the top 3 countries investing in Indonesia. Data from the Indonesian Investment Coordinating Board (BKPM) for the first semester of 2020, Chinese investment ranks second under Singapore. Based on previous research, the spatial movement of Chinese investment experienced quite an interesting shift, namely in the 11 years from 2006 to 2016 it began to shift towards eastern Indonesia (Kang *et al.*, 2018; Fu, Supriyadi, and Wang, 2018), and based on the latest data shows the mining and gas sector is the dominant investment sector in Indonesia, especially in the island of Sulawesi.

Figure 1. China's OFDI spatial investment trend in 2006 – 2016 (spatial map source fu, Supriyadi and Wang, 2018 and Authors analysis)

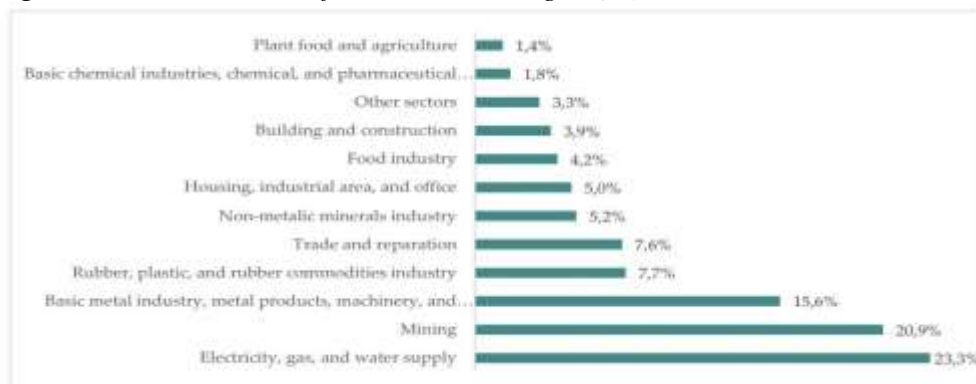


Source: Own study.

The allocation of sectors that are targeted for investment is also in line with the vision of the Belt and Road Initiative, namely the utility sector which includes electricity, gas and water supply by 23 percent, and the mining sector receiving 20 percent (Figure 1a).

One of the focuses of Chinese investment attention for the development of industrial estates in Indonesia is located in Morowali, Central Sulawesi. Starting from a bilateral meeting between Indonesian President Joko Widodo and Chinese President Xi Jinping related to increasing Indonesia-China economic cooperation at the Belt and Road Forum for International Cooperation in Beijing, China, May 2017. Furthermore, the signing of the two MOUs was carried out on the sidelines of the implementation of the China-Indonesia cooperation at the Forum, “Belt and Road Initiative and Global Maritime Fulcrum in Beijing, China, 16 June 2017”.

Figure 2. Sector Allocation for Investment Targets (%)



Source: Own study.

Quoting the Press Release of the Ministry of Industry of the Republic of Indonesia (Jakarta, 17 June 2017) this commitment was realized through the signing of an MOU between Tsingshan Group and Delong Group and PT Indonesia Morowali Industrial Park regarding cooperation in building a carbon steel factory in the Morowali industrial area, Central Sulawesi with a capacity of up to 3,5 million tons per year and a total investment value of USD 980 million. In addition, an MOU was also signed between Tsingshan Group and Bintang Delapan Group and PT Indonesia Morowali Industrial Park regarding cooperation in the construction of a power plant in the Morowali industrial area, Central Sulawesi with a capacity of 700MW and a total investment value of USD 650 million.

Central Sulawesi Province, which is located between 2° North Latitude - 3° South Latitude and 119°-124° East Longitude, is a land area that is bordered by North Sulawesi Province to the north, to the east by the Maluku Sea, to the south with South Sulawesi and Southeast Sulawesi Provinces, and in the west by the Makassar Strait. Central Sulawesi Province has an area of 63,689 square kilometers.

Based on the development of the strong economic linkages between China and Indonesia, in this case, China's direct investment in Morowali, Central Sulawesi. Referring to the growth spillover theory which states that if there is economic growth in an area, there will also be an increase in economic growth in the surrounding area. This study aims to (i) estimate the determinants of economic growth in six provinces on the island of Sulawesi; (ii) estimate the causality between economic growth and macroeconomic indicators in six provinces in Sulawesi Island; and (iii) investigate the relationship between macroeconomic indicators of Central Sulawesi Province and the economic growth of 5 provinces in Sulawesi Island.

2. Research Methodology

The empirical model to be used is in accordance with the form of the function as

follows: $Y = f(L, K)$ where Y is the growth of GDP, L and K are the amount of labor and investment, respectively. Investment is categorized into domestic and foreign investment. Regional economies can be linked to several macroeconomic indicators such as inflation (INF), unemployment (TP) and the number of poor people (JK). This economy can also be related to the regional fiscal capacity which is reflected in the regional original income (PAD). Thus, the equations that form the basis of the empirical model are as follows: $Y = f(L, K, INF, TP, JK, PAD)$
This equation will be formulated into the panel equation as follows:

$$PDRBP_{it} = \alpha_0 + \beta_1 JTK_{it} + \beta_2 IDN_{it} + \beta_3 IA_{it} + \beta_4 INF_{it} + \beta_5 TP_{it} + \beta_6 JK_{it} + \beta_7 PAD_{it} + \varepsilon_{it} \quad (1)$$

PDRBP is economic growth rate in units of%, JTK is the number of workers in units of people, IDN is domestic investment in units of million rupiah, IA is foreign investment in units of thousand USD, INF is the rate of inflation in units of%, TP is the rate of unemployment in units of% , JK is the number of poor people in people, and PAD is local revenue in units of rupiah. The letter "i" describes the six provinces in Sulawesi Island, the letter "t" is the period 2014:q1 - 2019:q2, α indicates the intercept / constant, while β and ε are the parameter / slope and error term, respectively.

There are several stages of estimation that will be carried out to provide answers and explanations for the study objectives, as follows:

1. Estimation of panel data in the form of statistical data panels on empirical models:

$$PDRBP_{it} = \alpha_0 + \beta_1 JTK_{it} + \beta_2 IDN_{it} + \beta_3 IA_{it} + \beta_4 INF_{it} + \beta_5 TP_{it} + \beta_6 JK_{it} + \beta_7 PAD_{it} + \varepsilon_{it} \quad (2)$$

Conceptually, Gujarati (2003, 636-655) explains that panel models can be grouped into three types of methods, namely: Pooled OLS (common effects), fixed effects and random effects. Furthermore, the selection of the best method for the three choices of panel methods can use several tests, namely: Chow, Hausman or BP LM tests. The Chow test is used to select the common effects or fixed effects method, the Hausman test is used to select the fixed effects or random effects method, while the BP LM Test is used to select the common effects or random effects method.

2. Granger causality test (GCT) for macroeconomic indicators in Sulawesi Island with the following estimation models:

$$PDRBP_{it} = \alpha_0 + \beta_1 JTK_{it} + \beta_2 IDN_{it} + \beta_3 IA_{it} + \beta_4 INF_{it} + \beta_5 TP_{it} + \beta_6 JK_{it} + \beta_7 PAD_{it} + \varepsilon_{it} \quad (3)$$

$$JTK_{it} = \alpha_0 + \beta_1 PDRBP_{it} + \beta_2 IDN_{it} + \beta_3 IA_{it} + \beta_4 INF_{it} + \beta_5 TP_{it} + \beta_6 JK_{it} + \beta_7 PAD_{it} + \varepsilon_{it} \quad (4)$$

$$IDN_{it} = \alpha_0 + \beta_1 JTK_{it} + \beta_2 PDRBP_{it} + \beta_3 IA_{it} + \beta_4 INF_{it} + \beta_5 TP_{it} + \beta_6 JK_{it} + \beta_7 PAD_{it} + \varepsilon_{it} \quad (5)$$

$$IA_{it} = \alpha_0 + \beta_1 JTK_{it} + \beta_2 IDN_{it} + \beta_3 PDRBP_{it} + \beta_4 INF_{it} + \beta_5 TP_{it} + \beta_6 JK_{it} + \beta_7 PAD_{it} + \varepsilon_{it} \quad (6)$$

$$INF_{it} = \alpha_0 + \beta_1 JTK_{it} + \beta_2 IDN_{it} + \beta_3 IA_{it} + \beta_4 PDRBP_{it} + \beta_5 TP_{it} + \beta_6 JK_{it} + \beta_7 PAD_{it} + \varepsilon_{it} \quad (7)$$

$$TP_{it} = \alpha_0 + \beta_1 JTK_{it} + \beta_2 IDN_{it} + \beta_3 IA_{it} + \beta_4 INF_{it} + \beta_5 PDRBP_{it} + \beta_6 JK_{it} + \beta_7 PAD_{it} + \varepsilon_{it} \quad (8)$$

$$JK_{it} = \alpha_0 + \beta_1 JTK_{it} + \beta_2 IDN_{it} + \beta_3 IA_{it} + \beta_4 INF_{it} + \beta_5 TP_{it} + \beta_6 PDRBP_{it} + \beta_7 PAD_{it} + \varepsilon_{it} \quad (9)$$

$$PAD_{it} = \alpha_0 + \beta_1 JTK_{it} + \beta_2 IDN_{it} + \beta_3 IA_{it} + \beta_4 INF_{it} + \beta_5 TP_{it} + \beta_6 JK_{it} + \beta_7 PDRBP_{it} + \varepsilon_{it} \quad (10)$$

GCT is described by Gujarati (2003, 696-701). This method is an a-theoretic approach that explains the relationship between variables without basing on standard economic theory. There are three kinds of causality information that can be obtained from the GCT estimation, namely: unidirectional causality and bidirectional causality.

3. OLS estimates in the empirical model for each province in Sulawesi Island are as follows:

$$PDRBP_t = \alpha_0 + \beta_1 JTK_t + \beta_2 IDN_t + \beta_3 IA_t + \beta_4 INF_t + \beta_5 TP_t + \beta_6 JK_t + \beta_7 PAD_t + \varepsilon_t \quad (11)$$

This OLS model is a time series estimation which can be found in the OLS estimation concept by Gujarati (2003, 341-560). This empirical model will be used to estimate the determinants of economic growth in each province on the island of Sulawesi. The results will provide an explanation of the effect of explanatory variables on economic growth in each province.

4. Granger causality test (GCT) for macroeconomic indicators of Central Sulawesi Province with macroeconomic indicators for other provinces in Sulawesi Island according to the following empirical model:

$$PDRBPSTE_t = \alpha_0 + \beta_1 JTKSTE_t + \beta_2 IDNSTE_t + \beta_3 IASTE_t + \beta_4 PDRBPSB_t + \beta_5 PDRBPSTR_t + \beta_6 PDRBPG_t + \beta_7 PDRBPSU_t + \beta_8 PDRBPSS_t + \varepsilon_t \quad (12)$$

$$JTKSTE_t = \alpha_0 + \beta_1 PDRBPSTE_t + \beta_2 IDNSTE_t + \beta_3 IASTE_t + \beta_4 PDRBPSB_t + \beta_5 PDRBPSTR_t + \beta_6 PDRBPG_t + \beta_7 PDRBPSU_t + \beta_8 PDRBPSS_t + \varepsilon_t \quad (13)$$

$$IDNSTE_t = \alpha_0 + \beta_1 JTKSTE_t + \beta_2 PDRBPSTE_t + \beta_3 IASTE_t + \beta_4 PDRBPSB_t + \beta_5 PDRBPSTR_t + \beta_6 PDRBPG_t + \beta_7 PDRBPSU_t + \beta_8 PDRBPSS_t + \varepsilon_t \quad (14)$$

$$IASTE_t = \alpha_0 + \beta_1 JTKSTE_t + \beta_2 IDNSTE_t + \beta_3 PDRBPSTE_t + \beta_4 PDRBPSB_t + \beta_5 PDRBPSTR_t + \beta_6 PDRBPG_t + \beta_7 PDRBPSU_t + \beta_8 PDRBPSS_t + \varepsilon_t \quad (15)$$

$$PDRBPSB_t = \alpha_0 + \beta_1 JTKSTE_t + \beta_2 IDNSTE_t + \beta_3 IASTE_t + \beta_4 PDRBPSTE_t + \beta_5 PDRBPSTR_t + \beta_6 PDRBPG_t + \beta_7 PDRBPSU_t + \beta_8 PDRBPSS_t + \varepsilon_t \quad (16)$$

$$PDRBPSTR_t = \alpha_0 + \beta_1 JTKSTE_t + \beta_2 IDNSTE_t + \beta_3 IASTE_t + \beta_4 PDRBPSB_t + \beta_5 PDRBPSTE_t + \beta_6 PDRBPG_t + \beta_7 PDRBPSU_t + \beta_8 PDRBPSS_t + \varepsilon_t \quad (17)$$

$$PDRBPG_t = \alpha_0 + \beta_1 JTKSTE_t + \beta_2 IDNSTE_t + \beta_3 IASTE_t + \beta_4 PDRBPSB_t + \beta_5 PDRBPSTR_t + \beta_6 PDRBPSTE_t + \beta_7 PDRBPSU_t + \beta_8 PDRBPSS_t + \varepsilon_t \quad (18)$$

$$PDRBPSU_t = \alpha_0 + \beta_1 JTKSTE_t + \beta_2 IDNSTE_t + \beta_3 IASTE_t + \beta_4 PDRBPSB_t + \beta_5 PDRBPSTR_t + \beta_6 PDRBPG_t + \beta_7 PDRBPSTE_t + \beta_8 PDRBPSS_t + \varepsilon_t \quad (19)$$

$$PDRBPSS_t = \alpha_0 + \beta_1 JTKSTE_t + \beta_2 IDNSTE_t + \beta_3 IASTE_t + \beta_4 PDRBPSB_t + \beta_5 PDRBPSTR_t + \beta_6 PDRBPG_t + \beta_7 PDRBPSU_t + \beta_8 PDRBPSTE_t + \varepsilon_t \quad (20)$$

3. Estimation Results

3.1 Determinants of Economic Growth in Sulawesi Island

Table 1 provides the estimation results of the static panel determinants of economic growth in six provinces on the island of Sulawesi. The results of the fixed effects-period and random effects-period estimates describe that economic growth in Sulawesi Island is determined by foreign investment, the unemployment rate, and the amount of poverty. Furthermore, random effects are the right method based on the results of the BPLM test.

Table 1. Static Panel Estimation Results

	Pooled OLS	FE-Cross Section	FE-Period	RE-Period
C	6.45 (17.28)***	6.46 (5.33)***	6.26 (12.77)***	6.45 (16.84)***
JTK	0.00 (1.69)*	0.00 (1.199)	0.00 (1.32)	0.00 (1.65)
IDN	-0.00 (-0.45)	-0.00 (-1.05)	-0.00 (-0.00)	-0.00 (-0.44)
IA	0.00 (3.94)***	-0.00 (-0.31)	0.00 (3.44)***	0.00 (3.84)***
PAD	0.00 (1.39)	0.00 (0.50)	0.00 (1.51)	0.00 (1.36)
TP	-0.20 (-2.50)**	-0.09 (-0.45)	-0.25 (-2.91)***	-0.20 (-2.43)**
JK	0.00 (4.73)***	0.00 (3.74)***	0.00 (2.91)***	0.00 (4.61)***
INF	0.01 (0.05)	-0.02 (-0.18)	0.13 (0.69)	0.01 (0.05)
Adjusted R-square	0.2698	0.4062	0.2313	0.2698
F-statistics	8.49***	9.10***	2.42**	8.49***
Observations	143	143	143	143
Source: Secondary data (processed)				
Note: () denotes t-statistics; ***, ** and * are significant at 1%, 5% and 10%, respectively.				
Hausman Test = 9.49 and BP LM Test = 16.41***				

The increase in foreign investment will have significant implications for increasing economic growth in Sulawesi Island. This proves that the presence of foreign investment in Sulawesi Island can be expected to advance the regional economy. This finding is reinforced by the negative implications of the unemployment rate

for economic growth. This means that if the regional economy increases as a result of increased foreign investment it is expected that the unemployment rate will decrease. Of course, increased investment will expand job creation. However, the amount of poverty can lead to increased economic growth in the same or positive direction. This empirical finding deserves the attention of all local governments, both provincial and district/city, on the island of Sulawesi.

3.2 Causality of Macroeconomic Indicators in Sulawesi Island

This study also estimates the causality among macroeconomic indicators in Sulawesi Island. The estimation results of the Granger Causality Test with panel data are described in Table 2. Several important findings indicate that: (1) economic growth can encourage foreign investment, (2) labor can encourage domestic and foreign investment, (3) local revenue contributes to investment vice versa, and (4) investment becomes the driver of inflation.

Table 2. Panel-Granger Causality Test Estimation Result

Null Hypothesis:	Obs	F-Statistic	Prob.	Findings
IA does not Granger Cause PDRBP PDRBP does not Granger Cause IA	138	0.7075 9.37824	0.4018 0.0027	Economic growth is cause of foreign investment
TI does not Granger Cause JTK JTK does not Granger Cause TI	138	0.42101 5.01343	0.5175 0.0268	Labor is cause total investment
IDN does not Granger Cause JTK JTK does not Granger Cause IDN	138	0.4452 4.50121	0.5058 0.0357	Labor is cause domestic investment
PAD does not Granger Cause JTK JTK does not Granger Cause PAD	138	0.39968 16.7542	0.5283 7.00E-05	Labor is cause locally generated revenue
PAD does not Granger Cause TI TI does not Granger Cause PAD	138	12.1642 2.91562	0.0007 0.09	Locally generated revenue and total investment have two way causal
JK does not Granger Cause TI TI does not Granger Cause JK	138	9.44856 5.74687	0.0026 0.0179	Poverty and total investment have two way causal
INF does not Granger Cause TI TI does not Granger Cause INF	136	1.62235 2.80075	0.205 0.0966	Total investment is cause inflation
PAD does not Granger Cause IDN IDN does not Granger Cause PAD	138	11.7823 2.16079	0.0008 0.1439	Locally generated revenue is cause domestic investment
JK does not Granger Cause IDN IDN does not Granger Cause JK	138	10.9283 5.37782	0.0012 0.0219	Poverty and domestic investment have two way causal
INF does not Granger Cause IDN IDN does not Granger Cause INF	136	1.61599 3.24965	0.2059 0.0737	Domestic investment is cause inflation
INF does not Granger Cause JK JK does not Granger Cause INF	136	0.643 4.57216	0.4241 0.0343	Poverty is cause inflation

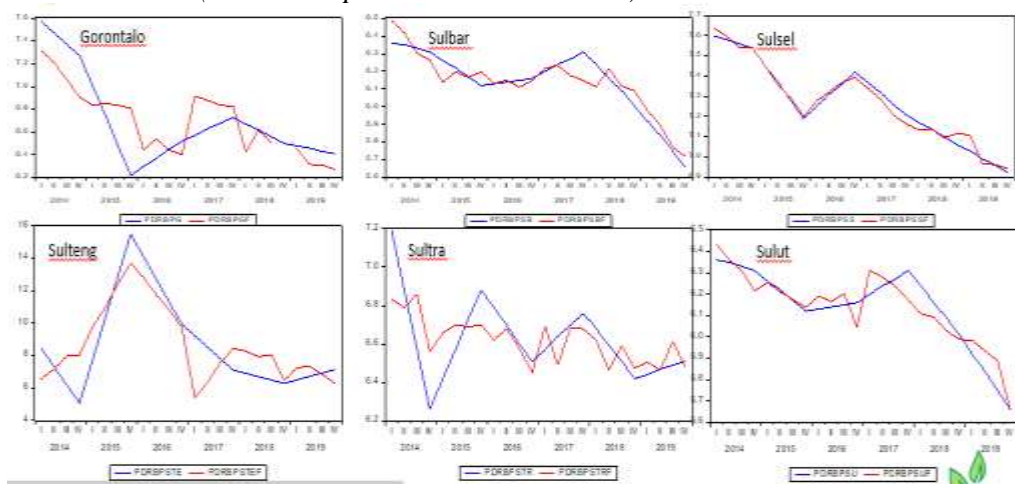
Source: Output Eviews Estimation 9, author elaboration.

The empirical findings of the Granger Causality Test suggest that investment and economic growth can become instruments for regional economic development. In addition, local governments can optimize revenue from locally generated revenue (PAD) from investments. Local governments can provide facilities and supervision for investments that enter the Sulawesi Island region in order to increase PAD. However, local governments also need to be aware of inflationary pressures on investment activities. Therefore, the Regional Inflation Control Team (TPID) can be utilized and optimized to supervise and control the impact of investment on regional inflation rates.

3.3 Findings of Spillover Effect on Macroeconomic Indicators of Central Sulawesi Province

This study estimates the linkage of economic growth in Central Sulawesi Province with macroeconomic indicators for other provinces in Sulawesi Island. This estimate is carried out to identify the spillover effect of the economy of Central Sulawesi Province on its surrounding provinces. Figure 3 illustrates the results of the estimated economic growth equations in six provinces in Sulawesi Island. The blue line is the estimate of the economic growth equation while the red line is the fitted value as a result of the estimated economic growth. These findings provide an indication that the regional economy is not only determined by the amount of labor and investment but also by the unemployment rate, the number of poor people, local own income and inflation. Therefore, regional macroeconomic policies that are relevant to issues of economic development, increasing investment, controlling unemployment, poverty and inflation are integrated and cross-province policies.

Figure 3. Economic Growth (PDRBP) and Fitted Value of PDRBP Provinces in Sulawesi Island (Source: Output Eviews Estimation 9)



Source: Own study.

Furthermore, the estimation results of the Granger Causality Test (GCT) indicate that there is a spillover effect of economic growth in Central Sulawesi Province on the economic growth of other provinces in Sulawesi Island (Table 3). These findings provide a strong signal that economic activity in Central Sulawesi Province may have implications for the dynamics and performance of the economy in the surrounding provinces. Specifically, the GCT findings are supported by the results of correlation calculations (Table 4). For example, the correlation between the economic growth of Central Sulawesi Province and the economic growth of Southeast Sulawesi Province is 0.47. This means that an increase in the economic growth of Central Sulawesi Province will have positive implications for the economic growth of Southeast Sulawesi Province at a moderate level.

Table 3. Estimation Results of the Granger Causality Test for Economic Growth in Central Sulawesi Province

Null Hypothesis:	Obs	F-Statistic	Prob.	Findings
PDRBPSU does not Granger Cause	23	0.00585	0.9398	Central Sulawesi's GDRP is the cause of North Sulawesi's GDRP
PDRBPSTE does not Granger Cause		10.574	0.004	
PDRBPSB does not Granger Cause	23	0.00585	0.9398	Central Sulawesi's GDRP is the cause of West Sulawesi's GDRP
PDRBPSTE does not Granger Cause		10.574	0.004	
PDRBPSS does not Granger Cause	23	0.01294	0.9106	Central Sulawesi's GDRP is the cause of South Sulawesi's GDRP
PDRBPSTE does not Granger Cause		9.88747	0.0051	
PDRBPSTR does not Granger Cause	23	5.38463	0.031	GDRP of Central Sulawesi and GDRP of South East Sulawesi have two way causal
PDRBPSTE does not Granger Cause		5.06642	0.0358	
PDRBPGF does not Granger Cause	21	8.46597	0.0093	Gorontalo's Fitted of GDRP is the cause of Fitted of Central Sulawesi's GDRP
PDRBPSTEF does not Granger Cause		0.17854	0.6776	
PDRBPSUF does not Granger Cause	23	5.08933	0.0354	South Sulawesi's Fitted of GDRP is the cause of Fitted of Central Sulawesi's GDRP
PDRBPSTEF does not Granger Cause		1.64315	0.2146	
PDRBPSSF does not Granger Cause	23	1.94145	0.1788	Central Sulawesi's Fitted of GDRP is the cause of Fitted of West Sulawesi's GDRP
PDRBPSTEF does not Granger Cause		3.03755	0.0967	
PDRBPSSF does not Granger Cause	23	1.38228	0.2535	Central Sulawesi's Fitted of GDRP is the cause of Fitted of South Sulawesi's GDRP
PDRBPSTEF does not Granger Cause		4.70999	0.0422	

Source: Output Eviews Estimation 9.

Meanwhile, the correlation of economic growth in provinces other than Central Sulawesi Province is positive and high. This suggests that the economy of Central Sulawesi Province can be pushed more strongly to have positive implications for improving the economy in the surrounding provinces.

Table 4. Correlation of Economic Growth in Central Sulawesi Province

	PDRBPSTE	PDRBPG	PDRBPSU	PDRBPSB	PDRBPSS	PDRBPSTR
PDRBPSTE	1	-0.45933	0.076052	0.0760522	0.108463	0.466341
PDRBPG	-0.45933	1	0.627886	0.6278862	0.747945	0.228377
PDRBPSU	0.076052	0.627886	1	1	0.85035	0.403602
PDRBPSB	0.076052	0.627886	1	1	0.85035	0.403602
PDRBPSS	0.108463	0.747945	0.85035	0.8503499	1	0.323164
PDRBPSTR	0.466341	0.228377	0.403602	0.403602	0.323164	1

Source: Output Eviews Estimation 9.

4. Conclusion

The increase in foreign investment will have significant implications for increasing economic growth in Sulawesi Island, including empirical findings in Central Sulawesi. This proves that the presence of foreign investment in Sulawesi Island can be expected to advance the regional economy. This finding is reinforced by the negative implications of the unemployment rate on economic growth, meaning that if the regional economy increases as a result of increased foreign investment it is expected that the unemployment rate will decrease.

The empirical findings of the Granger Causality Test (GCT) suggest that investment and economic growth can become instruments for regional economic development. In addition, local governments can optimize revenue from local revenue (PAD) from investments.

The estimation results of the Granger Causality Test (GCT) indicate that there is a spillover effect of economic growth in Central Sulawesi Province on the economic growth of other provinces in Sulawesi Island. These findings provide a strong signal that economic activity in Central Sulawesi Province may have implications for the dynamics and performance of the economy in the surrounding provinces.

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