THE IMPACT OF FISCAL STIMULUS ON AGRICULTURE SECTOR IN BALI: INTERREGIONAL INPUT-OUTPUT ANALYSIS

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ABSTRACT
Due to the Covid-19 pandemic, Bali experiences the most negative economic impact, urging the government to provide fiscal incentives to the more resilient and potential sector, agriculture. Thus, this study aims to estimate the impact of the 2021 fiscal stimulus on the agriculture, forestry, and fishing sector in Bali at national and regional levels. This study utilizes secondary data from Bali Province Regional Fiscal Review year 2021 from the Regional Office of Directorate General of State Treasury of Bali Province and statistical data from BPS. The interregional input-output (IRIO) table is employed to determine the value of the economic impact on 17 business sectors in 34 provinces in Indonesia. This study found that the fiscal stimulus on the agriculture sector has a positive impact on Bali's economy resulting in two and a half times greater than the direct impact. Furthermore, the sector with the largest total impact was the construction, mining and quarrying, and agriculture, forestry, and fishing sectors in Bali. Furthermore, the fiscal stimulus on the agriculture sector resulted in a significant economic growth impact not only in Bali as the region receiving the stimulus but also in the neighboring regions. The implications of this research are related to stimulus allocation on certain sectors when negative shocks occurred such as a covid-19 pandemic, which can be used as input for evaluating government spending policies. In general, the Government of Indonesia was successful in carrying out fiscal stimulus since it produced an economic impact greater than the allocated incentives.
Keywords: fiscal stimulus, economic impact, IRIO, agriculture, forestry, and fishing sector

ABSTRAK
Akibat pandemi Covid-19, Bali mengalami dampak ekonomi paling negatif, yang mendorong pemerintah untuk memberikan insentif fiskal kepada sektor yang lebih tangguh dan potensial, yaitu pertanian. Oleh karena itu, penelitian ini bertujuan untuk mengestimasi dampak ekonomi stimulus fiskal pada sektor pertanian, kehutanan dan perikanan di Bali tahun 2021 di tingkat nasional dan daerah. Penelitian ini menggunakan data sekunder dari Kajian Fiskal Regional Provinsi Bali tahun 2021 dari Kanwil Ditjen Perbendaharaan Negara Provinsi Bali dan data statistik dari Badan Pusat Statistik. Model IRIO dimanfaatkan untuk menentukan nilai dampak ekonomi terhadap 17 sektor usaha di 34 provinsi di Indonesia. Studi ini menemukan bahwa stimulus fiskal pada sektor pertanian berdampak positif terhadap perekonomian Bali dengan dampak dua setengah kali lebih besar dibandingkan dampak langsungnya. Selanjutnya, sektor dengan total dampak terbesar adalah sektor konstruksi, sektor pertambangan dan penggalian dan sektor pertanian, kehutanan dan perikanan di Bali. Selain itu, stimulus fiskal pada sektor pertanian memberikan dampak pertumbuhan ekonomi yang signifikan tidak hanya di Bali sebagai daerah penerima stimulus, tetapi juga di daerah lainnya. Implikasi penelitian ini terkait dengan alokasi stimulus pada sektor tertentu saat terjadi *shock* negatif seperti pandemi covid-19, yang dapat dijadikan masukan untuk evaluasi kebijakan belanja pemerintah. Secara umum dapat disimpulkan bahwa Pemerintah Indonesia berhasil melakukan stimulus fiskal karena memberikan dampak ekonomi yang lebih besar dari insentif yang dialokasikan.
Kata Kunci: stimulus fiskal, dampak ekonomi, IRIO, sektor pertanian, kehutanan dan perikanan

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1. INTRODUCTION

1.1. Background Of The Study

The COVID-19 pandemic in Indonesia has not only had a negative impact on the health sector, but has also had an impact on the economy, where Indonesia's economic growth in 2020 contracted by 2.07% compared to the previous year (BPS, 2020). The COVID-19 pandemic forced the government to issue a Large-Scale Social Restriction (PSBB) policy to prevent the spread of COVID-19. This PSBB policy has limited community and economic activities (Saputra & Ariutama, 2021). Limited household consumption and the behavior of consumers who are reluctant to leave their homes due to the restrictions on mobility have declined aggregate demand. As a result, the activities of self-employed firms and workers decrease and/or stop, causing a diminution in aggregate supply. Compared to other provinces, Bali as the tourism-dependent region is the most affected province since tourism sector and its value chain industries are the most hardest-hit (Abbas et al., 2021) and are likely to experience much longer negative impact than other sectors due to the COVID-19 pandemic (Behsudi, 2020). Therefore, this study is focused on Bali province to estimate the impact of fiscal stimulus by the government, specifically in agriculture sector as a strategy to recover and develop a more sustainable economy.

Province of Bali, experiencing the most negative economic growth, negatively grew by 9.31% during 2020 (BPS, 2021). Bali's economy, with the tourism sector as the main contributor, has been adversely affected by the implementation of the PSBB policy. It is reflected in the deepest negative growth that occurred in the industries and sectors closely related to tourism, especially the transportation and storage sector by 31.79%, and the food and beverage service activities sector by 27.52% (Bappenas, 2021). From the expenditure aspect, all components contributing to GRDP, except for government consumption, experienced a decline. The biggest decrease occurred in foreign imports by 78.34%; followed by a decrease in foreign exports as much as 76.23%; and a decrease in Gross Fixed Capital Formation (investment) amounting to 12.21%.

The downturn of economic growth in the Province of Bali due to the COVID-19 pandemic has had a negative impact on indicators of society's welfare. Based on BPS data (2021), the poverty rate in Bali Province has noticeably risen by 0.92 in March 2021, from 3.61% in September 2019. Furthermore, an increase also occurred in the open unemployment rate from 1.57% in August 2019 to 5.42% in February 2021. As a matter of fact, this led to an increase in the income gap for the Province of Bali by 1% between 2019 and 2020 (from 0.366 to 0.369).

The central government and the regional governments in the Province of Bali should cooperatively carry out efforts to restore the economy as well as transform the economy (Bappenas, 2021). Economic recovery steps which are short term strategies are aimed to explicitly restore the economic activity, so as to be able to create jobs and restore the purchasing power of the Balinese people which have been depressed due to the PSBB policy. Meanwhile, economic transformation that has an impact on the medium to long term goals is carried out based on local wisdom, placing great emphasis on the harmony of nature,

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manners and culture to achieve prosperity and happiness. Thus, Bali's economy will grow more resilient in terms of self-reliance, competitiveness and persistence to shocks and stresses because it is based on local resources with multiplied added value and economic diversification with the intention of not too dependent only on the tourism sector. This economic transformation is also expected to develop Bali's economy to be greener and more sustainable.

The economic condition, which has shrunk significantly due to the COVID-19 pandemic, has revealed various problems and challenges faced by the Province of Bali in the future. The most significant problem and challenge for the Balinese economy is heavily dependent on the tourism sector which has made the economy vulnerable to various events that have caused upheaval in the tourism economy (ex: terror, volcanic eruptions, pandemics), and ultimately the Balinese economy as a whole. The shift from agricultural activities to tourism has brought Bali to slowly abandon the potential of its local resources. This is exacerbated by the declining area and massive conversion functions of agricultural land and agricultural workers who are dominated by farmers aged over 45 years (64.2%) (BPS, 2018) due to increased tourism. These facts pose a challenge to the attempts to diversify the economy, especially agricultural development in Bali.

Bali requires industrial and sectoral diversification to reduce its high dependency on tourism. In order to determine the priority industries to be advanced, it is necessary to identify leading sectors based on the available methods. Furthermore, economic diversification is needed to strengthen the tourism and non-tourism supply chains.

The primary sector (agriculture in a broad sense) is the upstream sector providing raw materials for the agro-based industrial sector and has an important role in the economy. Based on the added value generated in 2020, the primary sector is the second sector with the highest contribution to the Bali GRDP amounting to 15.1%, after the accommodation and food service activities sector as much as 18.4% (Bappenas, 2021). Furthermore, the livestock sub-sector significantly promotes to encourage the growth of other linked economic sectors and subsectors, contributes the highest GRDP contribution, and the highest proportion of labor absorption.

After identifying the most significant issues causing economic decline during COVID-19 pandemic, the government of Bali Province along with Indonesian Ministry of National Planning plan to reactivate non tourism economy sectors specifically agriculture and fishing. Furthermore, agriculture, forestry and fishing sector in 2021 absorbed the most employees in Bali amounting to around 534 thousand or around 21.9% of total workers in Bali Province. It is due to the fact that a total of 83 thousand workforce which was previously worked in the tourism supporting service sectors such as accommodation and food service activities moved to agricultural sector. Thus, to diversify and improve the agricultural sector in Bali, central government and Bali government cooperate to provide fiscal stimulus. The fiscal stimuli in the agriculture, forestry and fishing sector are agricultural, forestry and maritime infrastructure development, agricultural modernization, conservation of fishery areas and environment and animal provision as well as human resource capacity and competitiveness improvement through central and local government

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expenditure. Thus, this study attempts to measure the economic impact of fiscal stimuli in agriculture, forestry and fishing sector in 2021 using input output modeling.

1.2. Literature Review

Government Spending Theory

Economic development is part of a development process with multidimensional stages involving changes in social, mental attitudes, national institutions, economic growth, and eliminating poverty gaps (Safitri et al., 2021). The government, based on Adam Smith's classical theory, has three important roles in economic development, specifically the role of allocation, distribution, and stability. To be able to carry out these three economic roles, the government should be able to generate maximum added value from every expenditure or investment made. Government spending reflects the government policy since government spending is a cost to be incurred by the government to implement policies in the procurement of goods and services for the purpose of the policy (Azwar, 2016).

The relationship between the role of government through government expenditure on the economy was put forward by Keynes in the early 20th century, which is commonly referred to Keynesian theory. The theory explains that government spending which is assumed as an exogenous macroeconomic variable (Keho, 2016) multiplies aggregate demand and output to increase national income and eases short-run economic fluctuations (Prasetyo et al., 2021; Yusri, 2022). Furthermore, According to Arestis et al. (2021), Keynesian theory emphasizes that the greater the government

expenditure, the better it is to accelerate economic growth throughout the consequence of fiscal multiplier, the role of investment-catalyst and job creation.

In addition to Keynesian theory, Musgrave and Rostow supported the utilization of government expenditure on behalf of the society to economic growth. Generally, government spending is employed to contribute to the public project financing, such as schools, hospitals, transportation facilities, clean water and waste management and irrigation and provide social assistance (Edame & Eturoma, 2014). Furthermore, the requirements for public facilities and services are expected to be higher than the citizens' income per capita, thus, government intervention is required.

Policies for Agricultural Sectors

Starting with closed economy until 1980s as shown in table 1, Indonesia started to liberalize its agricultural product by joining trade agreements. After more than thirty years, Indonesia started to prioritize food autonomy and diversification, competition, and farmers' prosperity by providing payments to producers for fertilizers and seeds. Currently, Indonesian policies on agriculture sector are regulated in the Law No. 18/2012 which stipulates the objectives of self-sufficiency and food-sovereignty on food specifically main and strategic products such as rice, soybean, maize, sugar and beef through input subsidies. Moreover, during Covid-19 pandemic, the government of Indonesia consistently continued the main elements of the agricultural policies implemented in 2012.

Policies and programs in agriculture and food systems whether it is from government or private is significant to improve food security and energy,

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eradicate poverty, and mitigate to climate change (Henderson & Lankoski, 2019). To generate sustainable benefits, the policies should hold strong potential to support the realization of the SDGs. Such investment can help address some of the world's most pressing challenges, including the achievement of sustainable food security, protection and regeneration of vital ecosystems, and the creation of decent work and livelihood opportunities for those who need them most. In terms of poverty, the most impacted sector has been the green sector, which includes forestry, agriculture, animal husbandry, and plantations. The numbers of vulnerable people also exceed the number of poor people, which means that extra attention should be paid to the vulnerable to keep them from falling below the poverty line. The agriculture, forestry and fishing sector has the highest poverty rate. It reaches 20%, while the percentage of vulnerable people in this sector is 27% (Halimatussadiah et al., 2020). The wages paid in this sector are also the lowest among sectors.

If the recovery is oriented only toward improving the output from each sector, any crisis in the future will only repeat the current problem, as the poor will remain vulnerable. Therefore, the recovery process in each sector should focus not only on boosting the value chain but also on making it inclusive. An inclusive value chain that focuses on both upstream and downstream sectors will speed up the recovery process while at the same time reducing the number of poor people through their increased participation in the value chain, potentially increasing their resilience to a similar crisis in the future. Due to the high increase in the number of poor people, agriculture might be one of the sectors that need to be prioritized since the recovery in these sectors theoretically should lead to the largest reduction in the number of poor people. Therefore, mechanisms that promote responsible intervention in agriculture and food systems are thus critical to addressing the systemic vulnerabilities and inefficiencies COVID-19 has exposed. Such mechanisms include targeted, well-designed incentives for sustainable investment, with a particular focus on small-scale producers and small- and medium-scale enterprises (Kementerian Pertanian (Ministry of Agriculture), 2020). However, considering differences in industry characteristics, the decision as to priority sector should be analyzed at the more detailed level, that is, at the province level (Halimatussadiah et al., 2020).

Concerning assistance to agriculture sector, the government of Indonesia mostly focuses on the market price support to producers, in line with the government focus on food sovereignty and self-sufficiency, with programs aimed at achieving autonomy in a number of staple products (rice, maize, soybeans, sugar and beef) (OECD, 2021). Additionally, Indonesia utilizes domestic policy measures including minimum purchase prices for rice and sugar; considerable number of budgetary allocations for inputs; and provision of services to the agricultural sector as a whole, in particular related to irrigation, research and development, and marketing and promotion.

Roughly all producer supports from the government are likely most-distorting, mainly market price support (including negative price support for palm oil), but also input subsidies (OECD, 2021). Thus, prices received by farmers were generally 25% higher than world prices, with large variances among commodities, specifically sugar, maize, poultry and rice which had the highest

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shares of single-commodity transfers in gross farm receipts, all near or above 30%. On the other hand, general expenditures on the sector (GSSE) revolve mainly around infrastructure and public property, and are comparatively smaller than producer support, representing 6.1% of the Total Support Estimate (OECD, 2021). Expenditures for GSSE relative to agricultural value-added were 1.3%, well below the OECD average. Total support to agriculture as a share of GDP increased in the last two decades from 1.3% to 2.5%, mainly driven by additional support to individual producers (PSE).

During Covid-19 pandemic, Bali experienced its deepest economic decline and recovered the slowest compared to other provinces in Indonesia. One of the strategies to recover Bali economy, Bali Province government provided incentives to non-tourism sector specifically agriculture. By using budgets from related ministries/agencies, village funds and Special Physical Allocation Fund (DAK Fisik), the agricultural stimuli are directed to the development and restoration of irrigation and water resources, development of supporting agricultural facilities, and research and development (Kanwil Ditjen Perbendaharaan Provinsi Bali, 2022).

General Equilibrium Model and Input Output

The general equilibrium model that is comprehensive and applicable is the equilibrium introduced by Leontief acknowledged as the input output model (Prasetyo et al., 2021). The input output model by Leontief described by Miller and Blair (2009) has five basic concepts in its application. First, the structure of the economy consists of several sectors interacting with each other in buying and selling transactions. Second, the output produced by a sector is sold to other sectors and consumed to meet the final demand. Third, the input of a sector is obtained from other sectors such as households (in the form of labor), government (taxes), depreciation, business surplus and imports from other regions. Fourth, the relationship between output and input is linear and the total input in an analysis period (one year) equals the total output. Fifth, a sector is composed of one or several companies, where each sector only produces one output with one level of technology.

2. METHODOLOGY

This research employs quantitative methods. The secondary data for this research are in the form of Interregional Input-Output tables for Indonesian Domestic Transactions on the Basis of Producer Prices According to 34 Provinces and 17 Business Fields year 2016 which was published on June 3, 2021 issued by the Central Bureau of Statistics (2021), and data on government spending in providing stimulus to the agriculture, forestry and fisheries sector in relation to deal with the Covid-19 pandemic from the Kajian Fiskal Regional Provinsi Bali Tahun 2021 as shown in table 2 (Kanwil Ditjen Perbendaharaan Provinsi Bali, 2022). Furthermore, agriculture sector in this study refers to farming, plantation, fishing and forestry industries.

The input output model employed is a matrix calculation and the result will form the Leontief coefficient whose calculation method is referred to in the book by Miller and Blair (2009). In its basic form, this model describes the distribution of products from various industries in an economy. Sectors in an

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economy carry out activities of producing goods/services (output) as well as consuming goods/services from other sectors (input). It is described that an industry (sector) besides acting as a producer, also acts as a consumer for other sectors. The Final Demand column describes the final market demand, which consists of various parties, including end consumers, both personal and by the government. The Value-Added row represents inputs from non-industry, for example labor, depreciation, and taxes. The basic equation of the input-output analysis is as follows:

$$xi = zi_1 + \cdots + z_{ij} + \cdots + z_{in} + f_i = \sum_{j=1}^{n} 1 z_{ij} + f_i \quad (i)$$

Where x_i is the total output of sector i, f_i is the total final demand from sector i, while z_{ij} is the sale of sector i output to sector j, or it is usually called intra-industry sales. In an economy there are many sectors, so the equation will be for each sector, as the equation below:

$$x_1 = z_{11} + \cdots + z_{1j} + \cdots + z_{1n} + f_1 \quad (ii.a)$$
$$x_i = z_{i1} + \cdots + z_{ij} + \cdots + z_{in} + f_i \quad (ii.b)$$
$$x_n = z_{n1} + \cdots + z_{nj} + \cdots + z_{nn} + f_n \quad (ii.b)$$

This shows that the proportion between the coefficients of the two sectors is fixed. Next, based on the equation (ii) and by grouping the variable x on the left side of the equation, the equation can take the following form:

$$x_1 - a_{11}x_1 - \cdots - a_{1i}x_i - \cdots - a_{1n}x_n = f_1 \quad (iii.a)$$
$$x_i - a_{i1}x_1 - \cdots - a_{ii}x_i - \cdots - a_{in}x_n = f_i \quad (iii.b)$$
$$x_n - a_{n1}x_1 - \cdots - a_{ni}x_i - \cdots - a_{nn}x_n = f_n \quad (iii.c)$$

Further grouping, on the variable x, produces the equation:

$$(1 - a_{11})x_1 - \cdots - a_{1i}x_i - \cdots - a_{1n}x_n = f_1 \quad (iv.a)$$
$$a_{i1}x_1 - \cdots + (1 - a_{ii})x_i - \cdots - a_{in}x_n = f_i \quad (iv.b)$$
$$-a_{n1}x_1 - \cdots - a_{ni}x_i - \cdots + (1 - a_{nn})x_n = f_n \quad (iv.c)$$

In matrix form, with I as the following identity matrix:

$$I = \begin{pmatrix} 1 & \cdots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \cdots & 1 \end{pmatrix} \quad (v)$$

Then, matrix I is reduced by the following matrix A

$$I - A = \begin{bmatrix} (1 - a_{11}) & -a_{12} & \cdots & -a_{1n} \\ -a_{21} & (1 - a_{22}) & \cdots & -a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ -a_{n1} & -a_{n2} & \cdots & (1 - a_{nn}) \end{bmatrix} \quad (vi)$$

In matrix form, the technical coefficient matrix of a sector is as follows:

$$(\mathbf{1} - \mathbf{A})\mathbf{x} = \mathbf{f} \quad (vii)$$

When inverted, the equation becomes:

$$x = (\mathbf{1} - \mathbf{A})^{-1}\mathbf{f} = \mathbf{L}\mathbf{f} \quad (viii)$$

where $(\mathbf{1} - \mathbf{A})^{-1} = \mathbf{L} = (l_{ii})$ or identified as Leontief inverse. We can obtain the output multiplier

$$m(o)_j = \sum_{j=1}^{n} 1 l_{ij}$$

This indicator explains the direct and indirect impact of variations in the final demand of a particular sector can affect the economy as a whole. Models

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based on monetary data (Miller & Blair, 2009) are represented in matrix form:

$$x' = i'Z + v' \quad \text{(ix)}$$

where x´, i´, v´ sequentially are the total output row, one output sector row, added value row from expenditure per sector. If we express x´ as a diagonalized matrix the total output can be replaced by the following equation:

$$i' = i'A + v'_c \quad \text{(x)}$$

3. RESULTS AND DISCUSSION

Regional Economic Structure Analysis

The input structure between sector x describes the composition of output from sectors other than sector x which is needed by sector x to produce output value. Changes in the total output of sector x will affect the total demand for output from other sectors that are used as input for sector x. Therefore, the intermediate input structure is an analysis of the demand side and has links with other structures or backwards linkage (Prasetyo et al., 2021). Intermediate input structure analysis is used to determine the sensitivity of a sector to changes in value in other sectors. Calculations based on the total input of a particular sector against the total input of the sector being analyzed are presented in a percentage capable of illustrating the impact of changes in the price of the input sector on the sector being analyzed. With the matrix in the IRIO table, sector input structure analysis can also be based on region. Thus, the IRIO model analysis will be employed to interpret the relationship between a sector and the

dependency of a region with other sectors in other regions.

The structure of the intermediate inputs reviewed in this study focuses on the sectors supported due to negative impacts of Covid-19 pandemic in Bali. The two sectors are the agriculture, forestry and fishing sector as the main sector receiving the fiscal stimulus related to the Covid-19 pandemic and the construction sector which is the main supporting sector for the development and rehabilitation of infrastructure and facilities for the agricultural sector in Bali. The result of intermediate input analysis of the two sectors in Bali province can be seen in table 3 (in million rupiah).

The intermediate output structure interprets the output of a sector on other sectors in terms of the overall value of the economy. Changes in total output in a sector will have an impact on changes in the availability of inputs that can be used by other sectors that make the sector's output as input for their sector. Therefore, the intermediate output analysis is an analysis of the supply side of the input-output analysis, or better known as forward linkage analysis (Prasetyo et al., 2021). The structure of the intermediate output is also reviewed based on the sectors receiving fiscal incentive due to Covid-19 pandemic in the Bali region. The results of the intermediate output analysis are in table 4 (in million rupiah).

Based on table 3 and table 4, it can be concluded that intermediate input and output structures in Bali Province are dominated by sectors in Bali Province. In other words, most of the economic turnover in Bali originates from Bali and most of the output produced is also used as input for sectors in the domestic area of Bali. This structure indicates that if there is a change in inputs in the Bali region it will have a bigger impact on the

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domestic area of Bali or the spillover effect is relatively small.

Output Multiplier Analysis

The output multiplier is a description of the estimated chain effect of the economic impact of exogenous changes, namely changes in sector output, income earned by households due to changes in sector output, employment opportunities generated as a result of changes in output, added value generated by each sector due to changes in output (Miller & Blair, 2009). Given the economic shock from government spending in the form of fiscal stimulus to the agriculture, forestry and fishing sector that generates an economic impact, it is important to look at the value of the regional and sectoral output multiplier for impact analysis with the IRIO model. An output multiplier with a value of more than 1 indicates that the addition of output in that sector will provide positive growth in that sector. Table 5 presents the five sectors with the biggest output multiplier in the Province of Bali.

Table 5 demonstrates the magnitude of the impact resulting from changes in inputs in these sectors. With the existence of an economic shock in the form of government stimulus, it will promote the positive economic impact and growth in these sectors. The largest sector that gets an economic shock also has a large output multiplier value indicating that the chain effect of the economic shock input produces a significant economic impact. To illustrate, every 1,000-rupiah government spending on the construction sector will result in 2,849-rupiah economic impact.

Economic Impact Analysis

The calculation of impact analysis of fiscal stimulus on agriculture sector in Bali will result in direct and indirect impacts on the sectors experiencing changes due to government intervention. A summary of the resulting economic impact is also displayed in the province receiving incentives and spillover effects on the economic sectors in provinces not receiving incentives which is displayed in table 6.

Based on the summary of economic impacts, the government's stimulus in Bali on the agricultural, forestry and fishing sector in 2021 concerning the Covid-19 pandemic has had a positive impact on economic growth with a direct impact value of around IDR 1.036 trillion and an indirect impact of IDR 2.858 trillion. The direct impact on economic shock from the implementation of this activity has a multiplied chain effect so that the indirect impact reaches more than 2 times the direct impact as shown in table 6. Economic stimuli originating from ministry/agency budgets, Physical Special Allocation Funds (DAK Fisik) and Village Funds in the Agricultural sector, Forestry and Fishing and Construction sectors produced an economic impact of around 88.59% in Bali as the stimulus recipient area and 11.41% in other regions. This percentage confirms that the circulation and structure of the economy in the Bali province is more dependent on the domestic economy of the Bali region. This is also reinforced by the top five sectors and regions obtaining the greatest economic impact are in the province of Bali, specifically Construction sector, Mining and Quarrying sector, Agriculture, Forestry and Fishing sector, Business Activities sector and Manufacturing sector as listed in the table 7. The budget allocation policy for the implementation

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of this activity also has a major influence on the percentage of impact on the stimulus recipient region, namely Bali.

Agriculture sector including forestry and fishing is one of the economic sectors experiencing the adverse effect of covid-19 pandemic. The most impacted sector due to the pandemic in terms of poverty is agriculture, forestry and fishing. Therefore, Hepburn et al. (2020) suggested that middle-income countries should provide more stimulus to villages, specifically sectors connected with agriculture and ecological restoration. To further, the agriculture sector in Bali is also considered as one of the potential sectors with the second highest contribution on PDRB. Thus, the central government and Bali Province decided to provide fiscal stimulus to this sector amounting to IDR 1.036 trillion. Furthermore, the Bali province also emphasizes the attention to develop non-tourism sector for the purpose of economic diversification.

The policy to provide fiscal stimulus to agriculture sector is confirmed in this study since the economic impact of the stimulus multiplied more than 100%. Meaning that when the government, whether central government or local government expends the budget in this sector, the impact will aggregate to more than 100% since the output multiplier of agriculture, forestry and fishing and construction sectors are 1.304 and 2.849 respectively. As a matter of fact, the agriculture sector through government intervention such as modernizing agriculture, developing organic agriculture, and strengthening linkages between the agricultural sector and the downstream sector will result in the sectoral growth up to 5.4% (Bappenas, 2021). In conclusion, the government policy to support agriculture

sector in Bali is in line with the Bali' economic recovery strategy framework number six, that is non-tourism economic reactivation.

4. CONLUSION

The government, in collaboration with the society and private sector, has a significant responsibility in dealing with the issues of the negative effect of the COVID-19 pandemic. A dynamic, responsive, and comprehensive policy is required to be advantageous not only in the short run but also in the long run. Bali's economy dominated by the tourism sector makes it extremely vulnerable to domestic and global shocks. The downturn in the Balinese economy due to the policy of limiting people's mobility caused economic activities to decline during the COVID-19 Pandemic and it was quite challenging to recover due to the vulnerable structure of the Balinese economy. Thus, it requires immediate government intervention to reorganize the Balinese economy through economic transformation.

The central government and Bali Province provided fiscal stimuli to agriculture, forestry and fishing sector as a form of supporting non-tourism economic activities which include agricultural infrastructure development, increasing activity in the agricultural, fisheries and industrial sectors, and improving the quality of the workforce in Bali. Government stimulus on agriculture in 2021 became an economic shock and was able to have a positive economic impact which was greater than the Indonesian government's spending, especially the Bali province and other regions with economic ties to the Bali. Government intervention through the fiscal stimulus indicates that this research is in line with Keynesian theory through

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aggregate demand which is the sum of household, private sector and government spending. The sector with the largest total impact is the construction sector, mining and quarrying and agriculture, forestry and fishing sectors. The Interregional Input-Output (IRIO) model is able to estimate the comprehensive economic impact that occurs from the provision of incentive in accordance with Keynes' theory that government spending affects economic growth.

Meanwhile, the distribution of impacts to the region reflects that economic flows through the inputs and outputs provided to the region (Bali) are more dominant in the region (Bali) itself because the geographical area is an island that is separate from other regions, as well as economic ties that are dominant within the Bali region. The regional economic impact (Bali) shows the strength of the regional economy (Bali) not too dependent on other regions. On the other hand, the economic shock in the form of fiscal stimulus to agriculture sector in Bali has not been able to have a significant impact on economic growth for other regional areas. From this study, it is recommended that providing fiscal stimulus to certain provinces due to negative economic shocks such as Covid-19 pandemic should consider the multiplier effect and the spillover effect of the sectors receiving the stimulus. Arranging fiscal stimulus to sectors with multiplier effect more than one and minimum cross-provinces spillover is likely guarantee better economic impact to the region.

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6. Lampiran 1: Ilustrasi Tabel dan Grafik

Table 1. Agricultural policy trends in Indonesia

Period	Broader Framework	Changes in Agricultural Policies
1960s – 1980s	Closed economy Production expansion to avoid social unrest, rise in oil prices and green revolution	• Establishing Food Logistics Agency (BULOG) and expanding its role in marketing • Providing subsidies on production inputs such as fertilizers, pesticides and credits to farmers • Spending a significant amount of budget on infrastructure • Increasing import tariff rates • Implementing quantitative restrictions on international trade • Taxing export on palm oil and its byproducts
1980s - 1996	Trade liberalization	• Abolishing tariffs, general tariffs reduction program • Joining trade agreements (URAA, AFTA, APEC) • Enforcing new regulation in 1994 regarding export taxes on crude palm oil and its byproducts • Discontinuing input subsidies
1997 - 1999	Market reform Asian financial crisis	• Reducing BULOG's monopoly powers in rice market • Decreasing fertilizer subsidy • Introducing targeted rice distribution program (OPK/Raskin) • Replacing Tariffs on import licensing arrangements for sugar • Abolishing domestic content obligations for dairy and soybeans • Removing temporarily the export taxes on palm oil and its byproducts
2000 - 2012	Measures to revitalize the agricultural sector in response to poor productivity	• Reestablishing fertilizer subsidy • Increasing spendings on extension services Research and Development and irrigation • Increasing tariffs on rice and sugar • Employing quantitative trade controls in rice, sugar and beef • Implementing stricter non-tariff measures • Implementing variable export tax on palm oil and its derivatives, and on cocoa
2012 - present	2012 Food Law, policy focus on self-sufficiency of staple food (rice, maize, soybeans, sugar and beef)	• Enhancing the role of BULOG in rice imports and domestic market • Allocating and modifying policy regarding rice provision at low prices, from Raskin to Rastra and eventually Non-Cash Food Assistance (BPNT) program. • Providing more input subsidies for fertilizers, seeds and credit. • Granting machineries to targeted farmers' groups • Introducing new initiative on food estate
Covid-19 Pandemic	Food availability from domestic production	• Granting seed, livestock breed, machineries, and extension services • Developing food estate in Central Kalimantan (165.000 ha) and new rice planting areas in deficit areas (250.000 ha) • Providing credit scheme (KUR) to agro-food enterprises at subsidized interest rate • Implementing cash for work (padat karya) to rehabilitate rural infrastructures such as irrigation canals, land improvement, and retention basin (Rafani & Sudaryanto, 2021)

Source: modified from OECD (2021)

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Table 2. Government spending on Agriculture, Forestry and Fishing in 2021

No	Category	Source	Budget Realization	Sector
1.	Irrigation • Water resources and irrigation infrastructure • Irrigation network rehabilitation	Ministry/Institution spending Special Physical Allocation Fund (DAK Fisik)	931,476,849,685 37,744,654,526	Construction Construction
2.	Agriculture • Product development research • Channel reservoir, retention basin, farm road, barn, and water gate	Ministry/Institution spending Special Physical Allocation Fund (DAK Fisik)	94,263,500 14,770,018,280	Agriculture Agriculture
3.	Fishing • Animal provision and ecosystem conservation • Provision of fishing tools and rehabilitation of fish ponds	Ministry/Institution spending Special Physical Allocation Fund (DAK Fisik)	22,173,938,573 7,918,025,756	Agriculture Agriculture
4.	Forestry • Forestry infrastructure • Forestry facilities Training and reforestation	Ministry/Institution spending Special Physical Allocation Fund (DAK Fisik) Village fund	5,699,109,274 12,005,171,601 4,971,159,025	Construction Agriculture Agriculture
			Rp1,036,853,190,220	

Source: Kanwil Ditjen Perbendaharaan Provinsi Bali (2022)

Table 3. Intermediate Input Structure

Sector	Province_Intermediate Input Sector	Value (million rupiah)	%
Agriculture, Forestry and Fishing	Bali_ Agriculture, Forestry and Fishing	1,706,888.51	27.78
	East java_Manufacturing	759,380.93	12.36
	Bali_ Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	577,958.53	9.41
Construction	Bali_Manufacturing	3,239,597	12.71
	Bali_ Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	2,551,640	10.01
	Bali_Mining and Quarrying	1,919,818	7.53

Source: processed by authors

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Table 4. Intermediate Output Structure

Sector	Province_Intermediate Output Sector	Value (million rupiah)	%
Agriculture, Forestry and Fishing	Bali_Accomodation and Food Service Activities	5,329,033	39.32
	Bali_Manufacturing	4,793,259	35.37
	Bali_Agriculture, Forestry, and Fishing	1,706,889	12.60
Construction	Bali_Real Estate	1,152,627	46.78
	Bali_Construction	776,551	31.52
	Bali_Jasa Keuangan dan Asuransi	117,773	4.78

Source: processed by authors

Table 5. Top five sectoral output multiplier in Bali

Ranking	Sectors	Output Multiplier
1	Accommodation and Food Service Activities	2.992
2	Electricity and Gas	2.881
3	Construction	2.849
4	Transportation and Storage	2.294
5	Manufacturing	2.012

Source: processed by authors

Table 6. Summary of Economic Impacts based on regions (in million rupiah)

Input-Impacted Regions	Direct Impact	Indirect Impact	Total Impact	% to Total Impact
Bali	1,036.853.19	2,414,217.11	3,451,070.30	88.59%
Central Sulawesi	0	96,770.32	96,770.32	2.48%
DI Yogyakarta	0	58,307.61	58,307.61	1.50%
Rest of the Provinces	0	289,253.49	289,253.49	7.43%
TOTAL	1,036,853.19	2,858,548.52	3,895,401.71	100%

Source: processed by authors

Table 7. Summary of Economic Impacts based on Regions and Sectors (in million rupiah)

Region_Sector	Direct Impact	Indirect Impact	Total Impact
Bali_Construction	974,920.61	995,214.00	1,970,134.62
Bali_Mining and Quarrying	0	670,899.74	670,899.74
Bali_Agriculture, Forestry and Fishing	61,932.58	102,516.94	164,449.51
Bali_Business Activities	0	141,243.61	141,243.61
Bali_Manufacturing	0	117,957.28	117,957.28

Source: processed by authors