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FISCAL TRANSFER REDISTRIBUTION AND REGIONAL INEQUALITY BETWEEN ISLAND AND NON-ISLAND PROVINCES IN INDONESIA

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Abstract

The allocation of fiscal transfer funds to archipelagic provinces is currently still smaller than non-archipelagic provinces in Indonesia. Its ocean area is larger than that of non-island provinces, and vice versa. Meanwhile, the allocation determination is still based on land area. This study aims to analyze the determinant variables of fiscal transfer disparities between the two groups of provinces, simulate island fiscal transfer funds (DTFK), and analyze their impact on regional inequality. This research uses a panel data model, involving 8 island provinces and 24 non-island provinces, during 2008-2017. This research period was adapted to the 2017 Islands Regional Bill. The results of the DTFK simulation contributed to increasing the DAU, DAK, and DBH of the island provinces. In effect, DAK and DBH reduce regional inequality, while DAU does not.

Keywords: Redistribution, Simulation, Fiscal Transfer, Regional Inequality

INTRODUCTION

Intergovernmental transfers are one of them the dominant source of revenue is at the subnational level of government in most developing countries (Litvack et al., 1998). This dependence on funding sources still occurs in the era of regional autonomy and fiscal decentralization. Although regional governments have been given authority by the central government to manage their own revenue sources. Regional governments are believed to be closer to the population and geography, and have knowledge of the options and cost conditions of each jurisdiction. (Oates, 1997), it is even seen as better in providing public services than the central government (Tiebout, 1956). This delegation of authority is accompanied by the provision of central to regional transfer funds, such as general-purpose transfers (GPT) and specific purpose transfers (SPT).

two types of fiscal transfers are balancing funds, which are regulated by Law (UU) no. 1 of 2021 (amendment to Law No.33/2004). The operations are regulated in Minister of Finance Regulation No. 121 of 2018. GPT includes: General Allocation Funds (DAU) and Profit-Sharing Funds (DBH). SPT includes Special Allocation Funds (DAK). Both originate from RI State Revenue and Expenditure Budget (APBN). GPT aim to meet regional needs in the context of implementing decentralization, meanwhile SPT funds special national priority programs in the regions, both physical and non-physical.

The fiscal transfer system in Indonesia is generally formula-based. Especially determining the feasibility of the recipient area. This method tends to ignore aspects of justice (Wibowo, Dendi, et al., 2011). Archipelagic areas with sea areas wider than land are allocated less funds than non-archipelagic areas whose land is wider than sea. The results of data calculations from the Central Statistics Agency for 2008-2017, the average area of 8 archipelagic provinces is 101,975 km^2, covers an area of sea, an average of 74,135 km^2, and land 27,842 km^2. Meanwhile, the average area of the 24 non-island provinces is 99,245 km^2. The average sea area is 32,578 km^2, and land area is 66,675 km^2. The allocation of fiscal transfer funds between the two groups of provinces appears very unequal. The average realization of DAU and DBH revenues per capita in island provinces is IDR. 3,158,414 and Rp. 810,026, while DAK per capita is only Rp. 623,633. Compared to the non-island province group, the average realization of DAU and DBH per capita is IDR. 6,186,232 and Rp. 4,118,008, while DAK per capita is Rp. 12,702, 560. The gap in DAU and DBH revenues

per capita is very large, namely Rp. 3,026,819 and Rp. 3,307,982. Meanwhile, the gap in DAK revenue per capita is Rp. 12.083.897 (www.bps.go.id).

One of the reasons for this difference is that the determination of central to regional transfer allocations is still oriented towards land areas. The normative formula for determining DAU allocation only uses the land-based area component as an indicator of regional fiscal need. Meanwhile, for DAK, the determination of the size of the allocation has not been maximized based on its specific criteria which prioritize island areas. DBH is no exception, the share of profits compared to the contribution of the maritime sector to the national economy is still far from the expectations of island regions. It is not surprising that the disparity in fiscal transfers between the two provinces is increasing. It even indirectly impacts regional inequality between the two regions. The results of the 2008-2017 Williamson Index calculation show that the average inequality in the island province group is 0.70 and in non-island provinces is 0.52.

The phenomenon of regional inequality is still a classic regional development problem that continues to emerge. Both due to differences in ownership of natural resources and geographical factors between regions (Capello, 2016), also due to differences in the allocation of development funds between regions (Sjafrizal, 2008). Such as differences in the allocation of fiscal transfer funds between the two groups of provinces. The results of empirical research in various countries reveal several variables that influence it. GDP per capita as an indicator of potential regional fiscal capacity turns out to have a significant effect on disparities in fiscal transfers between regions. Likewise, per capita regional income budget, regional fiscal dependence, and fiscal transfers in the previous period (Muñoz et al., 2016); (Huang & Chen, 2012); (Liu et al., 2014). This disparity effect also indicates a dependency on fiscal transfers is still high. However, it also depends on the accountability of the transfer system, top-down or bottom-up (Ding et al., 2020). Local revenue mobilization or positive effects on local revenue collection (Masaki, 2018).

The results of this research are different from other empirical findings, where regional government income per capita has a distributive effect. This means that more independent regions will receive less allocation of transfer funds. This phenomenon has the potential to strengthen the capabilities of local government in the development expenditure function. There are other variables too affecting fiscal transfers including population size and fiscal

deficit of the previous period, (Alm & Martinez-Vazquez, 2015); (Martinez-Vazquez & Timofeev, 2008). The effects vary, whether they are disparity or dependency, redistributive, or have no effect at all.

Fiscal transfer disparities also have implications on the dynamics of regional inequality between regions. Primarily influenced by fiscal decentralization variables: expenditure ratio and regional income ratio to total fiscal transfer (authority power). Likewise, the regional fiscal independence variable is the ratio of regional original income to regional revenue budget (autonomy power). The influence of the two fiscal decentralization variables worsens regional inequality, while fiscal independence has the opposite effect distributive, or reducing inequality (Song, 2013); (Liu et al., 2017). I agree that the influence of the two is not contradictory. Strengthening authority and regional autonomy capabilities should simultaneously reduce regional inequality. Some studies have found a similar phenomenon (Sepulveda & Martinez-Vazquez, 2011); (Amusa & Mabugu, 2016); (Lessmann, 2009); (Kessler & Lessmann, 2010); (Makreshanska-Mladenovska & Petrevski, 2019); (Muinelo-Gallo et al., 2016); (Zakaria, 2013); (Nugrahanto & Muhyiddin, 2008). Although not entirely the same. Partially, it can worsen or vice versa, or even have no effect at all on regional inequality.

In short, fiscal decentralization in general often gives rise to regional transfer disparities (Sudhipongpracha & Wongpredee, 2017). Including island and non-island provinces. In this regard, this research aims to: 1) examine the disparities and dependency in per capita fiscal transfers between groups of island and non-island provinces; 2) simulate fiscal transfer funds Island; 3) analyze the impact on regional inequality between the two groups of provinces.

REVIEW OF LITERATURE

Concept of Decentralization and Fiscal Transfer

Regional autonomy and fiscal decentralization are conceptually related to public finance theory. Especially related to the role of government in the economy due to market failure in providing public goods or services efficiently. The government in the economy carries out three main functions, namely: allocation, distribution, and stabilization functions (Musgrave & Musgrave, 1989). Meanwhile, fiscal decentralization is part of the general

definition of decentralization, including political decentralization, administrative decentralization, economic or market decentralization, and fiscal decentralization (Schläppi & Kalin, 2001).

Fiscal decentralization is the delegation of authority from the central government to the regions in managing budgets and providing public services. This authority is delegated because regional governments know more about what the people in the regions need than the central government. This is supported by theoretical and empirical arguments (Oates, 1997); (Ezcurra & Pascual, 2008); (Rodríguez-Pose & Ezcurra, 2010); (Tarzwell, 1998). Its economic impact on efficiency, fairness, and macroeconomic stability. This delegation of authority, apart from involving decision-making to the lowest level of government, is also to overcome externalities and economies of scale. Both of these will reflect local needs and preferences, increasing efficiency. However, decentralization of fiscal and political authority has the potential to create incentives for distortive behavior. If the incentive framework is not well structured, the scope for improving microeconomic efficiency, and even the goal of macroeconomic stability, may deteriorate (Rodden et al., 2003) .

In almost every country, decentralized fiscal policy decision-making has become a fact of life in government organizations. Lower-level jurisdictions, whether states or provinces, as well as counties and cities, are usually charged with providing some of the most basic public services. The efficiency of public service provision and targeted physical transfers appears to be quite significant (Boadway et al., 2000), and is also tailored to local preferences (Mochida, 2008). The results of empirical research related to this matter reveal various conditions. Its influence on gross domestic product (GDP) (Iimi, 2005), income distribution (Xie & Zhou, 2014), poverty levels, corruption, and income distribution are almost no different in most empirical studies. The effect sometimes magnifies income disparities or regional inequality (West & Wong, 1995); (Song, 2013).

Money follows function is a principle basis for fiscal decentralization (Sidik, 2003). This means that if authority is delegated to the regions, then the money to manage the authority must also be delegated to the regions. If the Regional Government carries out its functions and is given the freedom to make expenditure decisions in the public sector, it must receive support from the central government in the form of subsidies (fiscal transfers), or

loans from the center as well as adequate financial sources, both originating from Regional Original Income (PAD), Tax and Non-Tax Profit Sharing (Kharisma, 2013).

Intergovernmental fiscal transfers are one of the budget policies in the implementation of fiscal decentralization, including the transfer of tax and expenditure authority from the central government to the regions. This is included in the intergovernmental fiscal relations segment, which describes financial relations, including grants or fiscal transfers and revenue-sharing. This transfer design also plays a role in efficiency and equity (Kim, 2018); (Jain-Chandra et al., 2018), especially for the provision of public services and the fiscal health of local governments. Some countries compensate certain territories for the increased costs of providing public services, due to geographic and demographic conditions (Brenton, 2019). Against this interest, local political intervention is often needed to translate intergovernmental transfers into effective public spending (Acosta & Meneses, 2019).

Generally, intergovernmental transfers consist of two types: 1) General Revenue Sharing, which is a type of Block Grant. The source comes from central government revenues, such as tax revenues from the regions. Its use is to meet the needs of the community and local government; 2) Incentives (Categorical Grants and Matching Grants), as a way for the central government to influence regional government programs (Stiglitz & Rosengard, 2015). Two other transfer classifications are 1) General Purpose Transfers (GPT), which are the authority of regional governments. Providing GPT to increase regional government budgets, because it increases the recipient's resources (income effect); 2) Specific Purpose Transfers (SPT), a special type of transfer based on central government regulations, which has the nature of generating an income effect and substitution effect (Shah, 2007); (Wingender, 2018); (Huang et al., 2018). If the purpose of the grant is to encourage certain types of expenditure in local government, then SPT is more appropriate. If the goal is to transfer lower levels of purchasing power to the government, then the GPT type is more appropriate, both aim to support the implementation of regional government authority (Sirait & Handra, 2020).

Some Fiscal Transfer Regulations

The implementation of fiscal decentralization in Indonesia uses the concept of balanced Inter-central and regional finance, or fiscal transfers to regions, including DAU,

DAK, and DBH. The regulations are regulated in Law No. 1 of 2021. Normatively and operationally, all regulations have not fully accommodated the need for allocation of fiscal transfer funds to the archipelagic regions. Both aspects of equality or justice archipelago geography. UU No. 23/2014 even mandates the regional authority of island provinces to manage natural resources in the sea with a maximum sea boundary of 12 miles. Measured from the coastline towards the open sea or island waters.

The determination of fiscal transfer allocations for island provinces has not been accommodated, as in the DAU formulation which is still continental-based. It can be seen from the area component in regional fiscal needs that it turns out that it is only based on land area. Meanwhile, DAK has also not yet maximally prioritized the specificities of archipelagic areas as one of the criteria for determining the amount of its allocation. Likewise, the DBH allocation is still smaller than in non-island areas. Even though the contribution of the maritime sector to state revenue is quite large. This difference gives rise to recommendations in the Batam Declaration of 2018, to include sea area in determining the allocation of fiscal transfers to island regions. This recommendation is a continuation of the Ambon Declaration on 10 August 2005 which involved seven island provinces (Leatemia, 2011).

This problem has been accommodated in Bill No. 4 of 2017 concerning Island Regions (RUU-DK). Especially regulating the Islands Special Fund (DKK), in addition to DAU, DAK, and DBH transfer funds. DKK is prioritized to fund the development of priority maritime economic sectors and the construction of sea, land, and air facilities and infrastructure according to the characteristics of the Archipelagic Region. The targets use assumptions, namely: 1) so that the average income of island regions increases to at least the same as non-island regions; 2) DKK is proposed at a minimum of 5% of the DTU ceiling or 6% of the DAU ceiling; 3) This provision ensures that the DKK value is greater than the special autonomy funds (Otsus) for the Papua and Aceh regions. The reason is that the coverage of the island area is much wider than the Special Autonomy area. Based on this assumption, the proposed DKK amount uses a simulation scenario of the DKK amount of a 5% ceiling times DTU and a 6% ceiling times national DAU (APBN). This DKK is divided evenly: 30% portion for island provinces and 70% for island districts/cities. This distribution will have an impact on increasing the regional income budget for the islands. Apart from that,

there are also transfer funds to regions, state spending, and the APBN deficit (not exceeding 3% of GDP), following State Finance Law No. 17/2003.

Some Empirical Research

Empirical research on fiscal transfer disparities and regional inequality has been carried out in various countries. Specifically, not yet examined the effects caused by geographical differences between island and non-island areas. One of the empirical findings is related to the equalizing effect of three types of transfers in China (Huang & Chen, 2012), namely: Tax Rebates (TR), General-Purpose Transfers (GPT), and specific-purpose transfers (SPT). This study found that previous period transfers had a significant positive effect on the three fiscal transfers. This means that the current allocation of fiscal transfer funds is very much influenced by the allocation from the previous period. This kind of system has not created equality or fairness between regions. Regions will continue to receive large transfer allocations if those received in the previous period were also large. The dependency effects are different from formula-based DAU, as well as DAK and DBH. The allocation does not depend on the size of last year's revenues, because it is regulated in law. Although differences in transfer allocation also depend heavily on top-down and bottom-up accountability mechanisms (Ding et al., 2020), and also have the impact of increasing local revenue mobilization (Masaki, 2018).

In addition, GDP per capita, revenue budget area per capita, and the burden of regional fiscal dependency in the previous period were also found to have a significant positive effect on the three transfers. These three variables cause disparity or dependency effects on TR, GPT, and SPT. Although the equalization effect predominantly comes from GPT, because it is formula-based. Different from SPT, because of the authority of the central government, the disparity effect is greater. The influence of political factors is one of the causes. This research also found shares Primary industry in the economy also has the previous three variables, especially towards GPT. On the other hand, on TR, the effect is significantly negative, so it has a redistributive impact. These findings are identical to other studies in China (Liu et al., 2014). In particular, the influence of GRDP per capita on TR, but not other variables. like the previous period's fiscal deficit, it had a redistributive impact.

This finding implies that the progress and economic development of a region does not always give rise to disparities or dependence on fiscal transfers. It could be the opposite,

namely creating regional fiscal equality or independence. Depending on the purpose of the transfer, if it is to encourage local government spending on public goods and services, then SPT is more appropriate to use. If it is to strengthen the transfer of purchasing power, then GPT is more relevant (Shah, 2007). However, fiscal transfer allocation is also influenced by population variables. The effect is redistributive, as found in Latin American countries and South Africa (Muñoz et al., 2016); (Alm & Martinez-Vazquez, 2015). This kind of transfer system is not population-based. Unlike DAU, the determination is also population-based, so the dependency effect will be high in areas with large populations.

Implementation of an intergovernmental transfer system based on revenue capacity and expenditure needs can improve the goals of redistribution and justice between regions (Ahmad et al., 2004), however Often the effect of physical consolidation with reduced intergovernmental transfers has the effect of reducing local government spending on public investment. Sometimes it has the potential to reduce public investment spending in response to reduced transfer allocations (Chiades et al., 2019). As a result, the goal of redistribution and strengthening regional fiscal independence generally becomes a dilemma for the central government. Both sometimes have no implications at all. This often results in disparities in transfers and income between regions. This transfer design has conceptual weaknesses.

Several cases in other countries, apart from showing similarities with previous findings, also have differences. Like Latin American countries, the influence of GRDP per capita as an indicator of potential regional fiscal capacity also has a significant positive effect on fiscal transfers. This means that the inter-regional transfer system in this country also does not take into account the potential regional fiscal capacity. As a result, dependence on central transfers is very high. Except in Russia and a few other countries, the effect is not significant at all (Alexeev & Mamedov, 2017); (Ahmad et al., 2004). In addition, the pattern of providing transfers to regions is often found to be uneven, judging from the level of regional expenditure needs. Ideally, regions with high levels of expenditure need to receive greater support from transfer funds, not the other way around. High regional expenditure needs are often not symmetrical with the transfer allocations received. This results in higher dependence on fiscal transfers.

Even though the main aim of fiscal decentralization is regional independence, the opposite often happens. Sometimes it even indirectly influences regional inequality between

regions. This phenomenon reveals the influence of authority power and autonomy power variables on fiscal decentralization in China (Song, 2013). The first variable as an indicator of decentralization of expenditure and revenue was found to have a positive and significant effect, thereby exacerbating regional inequality. On the other hand, the second variable as an indicator of regional fiscal independence has a negative and significant effect, giving rise to a corrective effect on regional inequality. These findings are similar to other studies in China, South Africa, and several other developing and developed countries. In particular, the expenditure decentralization variable (Liu et al., 2017); (Sepulveda & Martinez-Vazquez, 2011). Meanwhile, revenue decentralization, tax decentralization, and regional fiscal dependence have a negative and significant influence, or are corrective, on regional income inequality (Amusa & Mabugu, 2016). Different overall in OECD countries. The fiscal decentralization variable has a redistributive effect, while fiscal transfers between regions have the effect of exacerbating regional inequality (Lessmann, 2009); (Kessler & Lessmann, 2010).

Various empirical findings related to fiscal decentralization appear to have varying implications. Most of the economically developed countries have the impact of triggering a reduction in inequality between regions and some other countries do not. Except in Eastern and Central European countries. The effect tends to be insignificant (Makreshanska-Mladenovska & Petrevski, 2019). This phenomenon was also found in Uruguay and some cases in Indonesia (Muinelo-Gallo et al., 2016); (Zakaria, 2013). However, several other cases found that the effect of fiscal decentralization significantly reduced regional inequality in Indonesia (Talitha et al., 2020); (Siburian, 2020); (Nursini & Tawakkal, 2019). These various empirical findings are also strongly influenced by other variables, such as real GD P per capita, the share of secondary industry in total GRDP, the share of BUMN output in total industrial output, urbanization, and trade openness (Liu et al., 2017). Even in different cases, it was also found that the effect of DAK transfers on poverty alleviation, economic growth, unemployment, and several other specific indicators did not meet the desired conditions in Indonesia (Wibowo, Muljarijadi, et al., 2011); (Putra, 2017); (Arellano-Yanguas, 2019). The allocation of these fiscal transfers to public investment programs does not appear capable of meeting long-term economic development goals.

In this regard, the phenomenon of intergovernmental transfers also has an impact on government spending. Especially for local capital expenditure, so special transfer allocation is very important for local infrastructure spending. The impact is very effective in correcting potential regional disparities. For example, DAK for road infrastructure was found to have a negative and significant effect, thus playing a role in correcting the inequality in per capita income between provinces in Indonesia. This fact also explains the level of effectiveness of the implementation of fiscal decentralization which has various effects. Some phenomena show an equalizing effect on regional inequality in Indonesia. However, for others, the opposite is true and even has no impact at all. This phenomenon would be interesting if studied specifically from the perspective of geographical differences between archipelagic and non-archipelagic regions in Indonesia.

RESEARCH METHOD

This research uses panel data regression methods and simulates the equal distribution of fiscal transfer funds for groups of island provinces. The number of provinces used is 32 units, including 8 island provinces and 24 non-island provinces. Excludes DKI Jakarta and North Kalimantan Provinces. DKI Jakarta Province does not receive an allocation for DAU and DAK transfers, because it is an independent province category. North Kalimantan was only expanded in 2012, so data availability is limited. The classification of the eight island provinces in this research is based on the results of the 2018 Batam Declaration. The reason is that currently there are no statutory regulations that classify the number of archipelagic regions/provinces in Indonesia. The eight archipelago provinces include Riau Islands (Kepri), Maluku, North Maluku (Malut), East Nusa Tenggara (NTT), West Nusa Tenggara (NTB), Bangka Belitung (Babel), North Sulawesi (Sulut) and Southeast Sulawesi (Sultra).

This research data uses secondary data for the years 2008 - 2017, sourced from the website of the B and P Center for Statistics (BPS). The selection of the research period was adjusted to the Archipelago Regional Law Draft No. 4 of 2017. This research uses estimation models and simulation formulas, namely: 1) fiscal transfer model, which is a combination of several previous empirical research models (Huang & Chen, 2012); (Liu et al., 2014); (Fumey, 2018). 2) Simulation formula, referring to the estimation results of the first model and the simulation method of the Draft Academic Paper version of the UU-DK (NARUU-

DK, 2017). 3) regional inequality model, which is a combination of several previous empirical research models (Song, 2013); (Liu et al., 2017); (Hao et al., 2021). Second The estimation model is adjusted or modified in line with the research objectives. The specifications of the first research model are:

$$LTF_{it} = \alpha_0 + \alpha_1 LPDRB_{it} + \alpha_2 LPD_{it} + \alpha_3 LBKF_{it} + LX_{it}\gamma + \varepsilon_{it} \quad (1)$$

where, L as log notation; i = 1, 2, 3, . . . , 32 are island and non-island provincial units; t = 1, 2, 3, ...10 is the time unit, 2008-2017 ; $TF_{it}$are fiscal transfers (DA U, DAK, and DBH per capita); GRDP is real Gross Regional Domestic Product per capita; PD is the regional income budget per capita; and BKF is the regional fiscal dependency burden (proxied by the ratio of the number of Civil Servants to total regional income); X it is the control variable (r ratio between provincial population and national population -RPOPit; s share of primary sector in real GDP per capita -PRIM it; Regional Fiscal Capacity Index -IKFD it); εit is the error term .

Model (1) is estimated separately for the three types of fiscal transfers (DAU, DAK, and DBH), and also for both groups of provinces. The estimation results serve as a guide for the simulation of Island Fiscal Transfer Funds (DTFK). Especially the GRDP it and PD it variables. The reason is because: 1) GRDP per capita is an indicator of potential fiscal capacity used in several empirical studies. Apart from that, this variable is also one of the fiscal need components in the DAU formula. An increase in this variable will increase the need for fiscal transfer funds from the center, especially DAU; 2) regional revenue budget is an indicator of regional fiscal capacity. Its dependence on central fiscal transfers is related to the income effect. This effect will encourage increased regional spending, resulting in greater dependence on fiscal transfers. Other variables are not used as core simulation variables, because apart from the two reasons above, it is also to avoid the multicollinearity trap. In addition, some of these variables are proxy variables that have the potential to produce inconsistent estimates.

The DTFK simulation is based on the dependent effect of PDRB it and PD it on fiscal transfers. It is indicated by the regression coefficient of both variables being positive and significant. However, otherwise, the simulation is irrelevant. If it is assumed that these two variables want to be increased to reduce the level of regional income disparity between the

two groups of provinces, then it is necessary to increase the allocation of fiscal transfer funds, especially for the group of island provinces. The magnitude is estimated from the regression coefficient values of GRDP it and PD it. This method is different from the simulation method in the Draft Academic Draft Draft-DK version. This simulation does not aim to find a new formula but only estimates the amount of additional DTFK allocation. The provisions are not to exceed the APBN deficit of 3% of GDP, following the State Finance Law of the Republic of Indonesia No. 17 of 2013. This simulation method was developed using the following formula:

$$DTFK_{DP} = \Omega_i (\beta_{1;2}) = \delta(DP_{Kep}) \quad (2)$$

Where $DTFK_{DP}$ is the size of D TFK from the DAU, DAK, and DBH ceilings; DP_{Kep} is the total of DAU, DAK, and DBH; $\beta_{1;2}$ is the regression coefficient for the $_{GRDP}$ variable and PD_{it} from the fiscal transfer mode (DAU, DAK, and DBH); Ω_i is the percentage size of the regression coefficient δ is the percentage of DTFK from the DAU, DAK and DBH ceilings. This amount is a percentage increase in fiscal transfer funds per capita for the island province group. This simulation will produce an average DTFK, an increase in transfer funds to regions, total state spending, and the APBN deficit. Apart from adding DTFK to the three types of transfer, it is also used to estimate its impact on regional inequality between the two groups of provinces. The fiscal decentralization variable used is the ratio of DAU, DAK, and DBH transfers to direct regional spending. S model specifications (3) are as follows:

$$IW_{it} = \beta_0 + \beta_1 RTF_{it}^{*} + \beta_1 RPAD_{it} + X_{it} \Psi + u_{it} \quad (3)$$

Where *i* = 1, 2, 3, . . . , 32 are provincial units; t = 1, 2, 3, ...10 is the time unit during 2008-2017); IW_{it} is the Williamson Index (Sjafrizal, 2008); (Kuncoro, 2013); (Gluschenko, 2018) ; RTF_{it} * is the ratio of DAU, DAK, and DBH to direct regional expenditure after the DTFK simulation; $RPAD_{it}$ is the Ratio of Regional Original Income with regional expenditure, and $X_{it}$is a control variable, including P real DRB per capita; overseas capital investment ($PMLN_{it}$), which is proxied as regional economic openness; labor ratio in the manufacturing industrial sector ($TKRIM_{it}$), which is proxied by the number of people aged 15 years and over who worked last week in the industrial sector; and error terms (u_{it}).

This model is estimated in two ways: 1) estimation of conditions before and after DTFK simulation; And 2) partial model estimation in both provincial groups. Regression coefficient _ RTF $_{it}$ * is expected to have a negative and significant sign so that it will have an impact on reducing regional inequality between the two groups of provinces. Overall, the estimation of models (1) and (3) begins with model specification tests, namely the Chow Test, Lagrange Multiplier (LM) Test, and Hausman Test. As well as classical assumption tests (Gujarati & Porter, 2009); (Greene, 2003); (Wooldridge, 2013); (Baltagi, 2005).

RESULTS AND DISCUSSION

Test Results and Model Estimation

Starting with the results of the Chow test, Lagrange Multiplier (LM) test, and Hausman test of the three estimation models separately, conclude appropriate model specification in the form of a fixed-effect model (FE M). All three models have passed the diagnostic test results but after the application of the Cochrane-Orcutt method (Wooldridge, 2013) for the treatment of autocorrelation. All models also meet goodness of fit criteria. Shown by the Adj. R- R-squared coefficient meets the criteria and the F-statistic value is significant at the 5% confidence level (see Table 1). The same estimation and test results were also found in the non-island province group model.

The partial regression results of the three fiscal transfer models for the island province group show that real GDP per capita only has a positive and significant effect on DAU transfers at a confidence level of 5%. Meanwhile, DAK and DBH transfers per capita have no effect. The regression coefficient is 2.7034, so if this variable increases by 1%, then DAU transfers per capita will increase by 3%. And vice versa. The same effect was found in the non-island province group, especially on DAU and DBH transfers per capita. T does not affect DAK transfers per capita. The regression coefficients are 1.6618 and 11.2174 respectively, so if there is an increase of 1%, then DAU transfers per capita will increase by 2% and 11.2% respectively, or vice versa. All estimation results are presented in Table 1.

Table 1
Estimation Results of the Fiscal Transfer Model for Island and Non-Island Provinces

Island	Fixed-Effect Model (FEM)		
	DAU model	DAK model	DBH model

Variables	Coefficient	Coefficient	Coefficient
C	-5.8701*	-9.5086**	-3.1387
LPDRB $_{it}$	2.7034*	0.6949	0.2410
LPD $_{it}$	-0.0341	2.4196*	1.1847*
LBKF $_{it}$	0.0114	1.7993**	1.0403*
LRPOP $_{it}$	1.3793**	0.3102	0.3046
LPRIM $_{it}$	1.4060*	-1.6191*	-5.8951*
LIKFD $_{it}$	-0.0043	-0.2731	0.0619
Adj. R-squared	0.7152	0.6327	0.7895
F-stat.	56.7645*	2.8101*	45.7760*
Prob(F-stat.)	0.0000	0.0171	0.0000
DW.stat	1.9919	1.4467	1.9129
NT	72	72	72
Non-Island			
Variables	Coefficient	Coefficient	Coefficient
C	-0.8303	-3.6802*	-41.0972*
LPDRB $_{it*}$	1.6618*	0.2275	11.2174*
LPD $_{it}$	0.1783*	1.1541**	3.1220*
LBKF $_{it}$	0.0604	1.0359	3.3712*
LRPOP $_{it}$	0.5864	-0.2185	1.4215*
LPRIM $_{it}$	1.0174**	-1.6723*	-3.6101
LIKFD $_{it}$	-0.0178	0.0761	0.1267
Adj. R-squared	0.6819	0.7882	0.6571
F-stat.	53.4381*	73.3675*	5.1182*
DW.stat	1.6669	2.1076	1.7384
NT	216	216	216

Note: The significance level used is *) 5%, and **) 10%, NT (Total Panel Observations).
Source: Data processing results, using the Eviews program.

The results of the next regression, the variable regional income budget per capita (LPD $_{it}$) for both provincial groups were found to have a positive effect on DAK and DBH transfers per capita on *levels* significance 5%. T does not affect DAU transfers per capita. The magnitude of the regression coefficient appears to be different between the two provincial groups. For the island province group respectively 2.4196 and 1.1847, and in the non-island province group, respectively 1.1541 and 3.1220. These findings explain that if the regional income budget per capita increases by 1%, the DA K and DBH transfers per capita for the island province group will increase by 2.4% and 1.2% respectively. Meanwhile, the non-island province group is 1.2% and 3.1%.

The variable regional fiscal dependency burden (BKF $_{it}$) was found to have a positive and significant effect on both groups of provinces. Especially in the DAK and DBH per capita

transfer models, with significance levels of 5% and 10% respectively. On the other hand, it does not affect the per capita DAU transfer model. The regression coefficients for the island province group are 1.7993 and 1.0403 respectively. Meanwhile, the non-island province groups were 1,0359 and 3,3712 respectively. This figure explains that if the regional fiscal dependency burden increases by 1%, DAK and DBH transfers per capita will increase respectively by 1.80% and 1.04% for the island province group, and 1.04% and 3.40% for the non-island province group.

The regression results of the control variables show that the population ratio (LRPOP $_{it}$) has a positive effect only on DAU transfers per capita for the island province group, at the level significance of 10%. Meanwhile, the non-island province group has an influence only on DAU transfers and DBH per capita, with levels of significance of 5% and 10%. The regression coefficient is 1.3795 for the archipelago province group, then 0.5864 and 1.4215 for the non-island province group. If the population ratio increases by 1%, then DAU transfers per capita for the island province group will increase by 1.4%, while for the non-island province group, it will increase by 0.60% and 1.42% respectively.

The next control variable is primary sector share (LPRIM $_{it}$), found to have a positive effect on level significance 5% and 10%. Especially in the per capita DAU transfer model for the two provincial groups. Meanwhile, it hurts levels of 5% significance in the DAK and DBH per capita transfer model for the island province group. Meanwhile, the non-island province group has a negative and significant effect only in the DAK per capita transfer model. The regression coefficients in the DAU per capita model are 1.4060 and 1.0174, respectively. Then in the DAK and DBH per capita transfer model -1.6191 -5.8951, and -1.5825 for the DAK per capita transfer model for the non-island province group. These findings explain that if the contribution of the primary sector to real GRDP increases by 1%, then dependence on DAU transfers per capita for the two provincial groups increases by 1.41% and 1.02%. Meanwhile, for DAK and DBH transfers per capita, there was a decrease in dependence on the island province group by 1.62% and 5.90%. Likewise for the non-island province group, especially the decrease in dependence on DAK transfers per capita, namely 1.58%.

The regional fiscal capacity index variable (LIKFD $_{it}$) is a control variable that was found to have no effect in the three models for both provincial groups. Furthermore, overall,

the regression results found that the intercept coefficient in the DAU and DAK per capita transfer model was negative and significant in the island province group at the 5% and 10% levels. Meanwhile, the non-island province group only influences the DAK transfer model and DBH per capita levels significance of 5%. There are significant differences in DAU and DAK transfers per capita between island provinces. Meanwhile, in non-island provinces, there is a significant difference between DAK and DBH transfers per capita.

Fiscal Transfer Redistribution: A Simulation

The estimation results of the fiscal transfer model have explained that the dependence of regional fiscal needs on DAU is still quite high. Likewise, the regional revenue budget for DAK and DBH. Especially the group of island provinces. Disparities in fiscal transfers also appear to occur between the two groups of provinces. If fiscal transfer redistribution is carried out through the DTFK simulation, from the DAU ceiling, it is estimated that the allocation will only be 3% of the DAU ceiling, or 3% of 2.7304. The size of the DTFK allocation is estimated to be equivalent to 8.1% of the total DAU of the island province group (see Table 2).

The 2008 simulation results show that the DTFK size of the DAU ceiling is estimated at IDR. 315.51 billion, while in 2017 it was IDR. 891.04 billion. This figure is close DKK group of island provinces. If the simulation scenario uses ceiling quantities of 4% to 10%, then the DTFK allocation in 2017 is expected to exceed the DKK amount. There are even concerns that it will be a burden APBN deficit exceeds 3% of GDP. This is contrary to the provisions of Law No. 17/2013.

Table 2
Simulation Results of DTFK Amounts from the Island Province DAU Ceiling

Scenario	%Increase (LGRDP)		%Increase (LDAU)	DAU	DTFK from DAU ceiling (Billion Rp)			
					2008	2011	2014	2017
	2.7034		δ	(DAU)	228.54	292.13	477.13	7,604.54
1	1%	(2.7304)	2.70%	(DAU)	105.84	130.87	204.02	297.01
2	2%	(2.7304)	5.41%	(DAU)	211.67	261.74	408.04	594.03
3*	**3%**	**(2.7304)**	**8.11%**	**(DAU)**	**317.51**	**392.61**	**612.05**	**891.04**
4	4%	(2.7304)	10.81%	(DAU)	423.34	523.49	816.07	1,188.06
5	5%	(2.7304)	13.52%	(DAU)	529.18	654.36	1,020.09	1,485.07
6	6%	(2.7304)	16.22%	(DAU)	635.01	785.23	1,224.11	1,782.09

7	7%	(2.7304)	18.92%	(DAU)	740.85	916.10	1,428.13	2,079.10
8	8%	(2.7304)	21.63%	(DAU)	846.68	1,046.97	1,632.15	2,376.12
9	9%	(2.7304)	24.33%	(DAU)	952.52	1,177.84	1,836.16	2,673.13
10	10%	(2.7304)	27.03%	(DAU)	1,058.35	1,308.71	2,040.18	2,970.14

Source: Data processing results.

Furthermore, the simulation results show that if it is estimated that the regional income budget per capita for the island province group is increased to 5% of the DAK ceiling, then the D TFK allocation is expected to rise by 5% from 2.4196. The size of the DTFK allocation is estimated to be equivalent to 12.10% of the total DAK for the island province group (see Table 3).

Table 3
Simulation Results of DTFK Amounts from the Island Province DAK Ceiling

Scenario	%Increase (LPD)		%Increase (LDAK)	DAK	DTFK from DAK ceiling (Billion Rp)			
					2008	2011	2014	2017
	2.4196		Δ	(DAK)	228.54	292.13	477.13	7,604.54
1	1%	(2.4196)	2.42%	(DAK)	5.53	7.07	11.54	184.00
2	2%	(2.4196)	4.84%	(DAK)	11.06	14.14	23.09	368.00
3	3%	(2.4196)	7.26%	(DAK)	16.59	21.21	34.63	552.00
4	4%	(2.4196)	9.68%	(DAK)	22.12	28.27	46.18	736.01
5*	**5%**	**(2.4196)**	**12.10%**	**(DAK)**	**27.65**	**35.34**	**57.72**	**920.01**
6	6%	(2.4196)	14.52%	(DAK)	33.18	42.41	69.27	1,104.01
7	7%	(2.4196)	16.94%	(DAK)	38.71	49.48	80.81	1,288.01
8	8%	(2.4196)	19.36%	(DAK)	44.24	56.55	92.36	1,472.01
9	9%	(2.4196)	21.78%	(DAK)	49.77	63.62	103.90	1,656.01
10	10%	(2.4196)	24.20%	(DAK)	55.30	70.69	115.45	1,840.01

Source: Authors' Calculation Results.

The 2008 simulation results estimated that the DTFK size of the DAK ceiling was IDR. 27.65 billion, then in 2017 it was IDR. 920.01 billion. This figure is close DKK group of island provinces. If the ceiling amount is increased by 6% to 10%, then the DTFK allocation in 2017 will exceed the DKK amount. Apart from that, there are concerns that it will burden the APBN deficit.

Furthermore, the following simulation results show that the per capita regional income budget for the island province group is estimated to increase by up to the maximum ceiling amount is 5% of the total DBH of island provinces, then an additional per capita DBH transfer of 5 % of 1 is required. 1847. The size of the DTFK allocation from the total DBH

ceiling is estimated to be equivalent to 5.92% of the total DBH for the group of island provinces. Estimated additional transfer funds from DTFK to the DBH allocation is IDR. 69.84 billion in 2008 and Rp. 89.64 billion in 2017 (see Table 4). Compared to DKK, this figure is lower.

If it's an allocation scenario DTFK raised higher than the 5% ceiling, or if you want to get closer to the DKK benchmark then will exceed the figure above the 10% ceiling. This will be less realistic. It is even feared that the APBN deficit will exceed 3% of GDP.

Table 4
Simulation results of DTFK amounts from the DBH ceiling for Island Province

Scenario	%Increase (LPD)		%Increase (LDBH)	DBH	DTFK from DBH ceiling (Billion Rp)			
					2008	2011	2014	2017
	1.1847		Δ	(DBH)	1,178.96	1,622.92	1,746.19	1,513.35
1	1%	(1.1847)	1.18%	(DBH)	13.97	19.23	20.69	17.93
2	2%	(1.1847)	2.37%	(DBH)	27.93	38.45	41.37	35.86
3	3%	(1.1847)	3.55%	(DBH)	41.90	57.68	62.06	53.79
4	4%	(1.1847)	4.74%	(DBH)	55.87	76.91	82.75	71.71
5*	**5%**	**(1.1847)**	**5.92%**	**(DBH)**	**69.84**	**96.13**	**103.44**	**89.64**
6	6%	(1.1847)	7.11%	(DBH)	83.80	115.36	124.12	107.57
7	7%	(1.1847)	8.29%	(DBH)	97.77	134.59	144.81	125.50
8	8%	(1.1847)	9.48%	(DBH)	111.74	153.81	165.50	143.43
9	9%	(1.1847)	10.66%	(DBH)	125.70	173.04	186.18	161.36
10	10%	(1.1847)	11.85%	(DBH)	139.67	192.27	206.87	179.29

Source: Authors' Calculation Results.

The results of the DTFK simulation were then divided evenly among the eight island provinces. The average total DTFK of the DAU ceiling during 2008-2017 was IDR. 533.87 billion per year. On average, each province receives DTFK per year Rp. 66.73 billion. Then the average total DTFK of the DAK ceiling for the same period is IDR. 193.16 billion per year. Each province is allocated Rp. 24.14 billion per year. Meanwhile, the average total DTFK from the DBH ceiling is IDR. 91.35 billion per year. Each province receives Rp. 11.42 billion per year (see Table 5).

Table 5
Estimated DTFK Allocation Per Island Province

Archipelagic Fiscal Transfer Fund (DTFK), Billion Rp						
No	**DTFK allocation**	**2008**	**2011**	**2014**	**2017**	**Average**

1.	Total DTFK of the DAU ceiling	317.51	392.61	612.05	891.04	533.87
	Provincial Average	39.69	49.08	76.51	111.38	66.73
2.	Total DTFK of the DAK ceiling	27.65	35.34	57.72	920.01	193.16
	Provincial Average	3.46	4.42	7.22	115.00	24.14
3.	Total DTFK of the DBH ceiling	69.84	96.13	103.44	89.64	91.35
	Provincial Average	8.73	12.02	12.93	11.21	11.42
4.	Total TDTFK	414.99	524.09	773.21	1,900.69	818.38
	Provincial Average	51.87	65.51	96.65	237.59	102.30

Source: Data Processing Results

Overall, Total Fiscal Transfer Funds to regions (TD T FK) averages Rp. 818.38 billion per year. This figure is divided evenly among the eight archipelagic provinces so that each province received Rp. 102.30 billion.

Table 6
Estimated Increase in DAU, DAK and DBH for Island Province from DTFK Supplement

Increase in DAU, DAK and DBH for the Archipelago Province after the addition of DTFK (Billion Rp)						
Fiscal Transfers		**2008**	**2011**	**2014**	**2017**	**Average**
1	DAU	3,914.9	4,841.0	7,546.7	10,986.7	6,582.7
	DAU*	4,232.4	5,233.6	8,158.8	11,877.7	7,116.6
	Increase (%)			7.5		
2	DAK	228.54	292.13	477.13	7,604.54	1,596.58
	DAK*	256.19	327.47	534.86	8,524.55	1,789.74
	Increase (%)			10.8		
3	DBH	1,178.96	1,622.92	1,746.19	1,513.35	1,542.13
	DBH*	1,248.79	1,719.05	1,849.63	1,602.99	1,633.48
	Increase (%)			5.6		

Description: Sign (*) is after the DTFK addition.
Source: Authors' Calculation Results

The simulation results predict an increase in DAU, DAK and DBH transfer funds, after the addition of DTFK (Table 6). Total DAU has increased (DAU*) average 7.5% per year, or around Rp. 7.1 trillion. Total DAK has increased (DAK*) average of 10.8% per year, or Rp. 1.8 trillion. In the same period the total DBH will increase (DBH*) average of 5.6% per year, or Rp. 1.6 trillion.

Table 7
Increase in Island Province Regional Revenue Budget from Additional DTFK

No	Local Revenue	Billion Rp				
		2008	2011	2014	2017	Average
1	TPD	7,595.32	10,813.86	18,155.02	27,645.73	15,468.59
2	TPD*	23,200.94	32,965.68	55,238.26	84,837.89	47,224.16
3	Increase (%)	67.26	67.20	67.13	67.41	67.23

Note: TPD* is Total Regional Income after adding Total DTFK.
Source: Data Processing Results

Apart from that, the addition of DTFK will result in an increase in regional income during 2008 - 2017 (see Table 7). Average increase (TPD*) of Rp. 47.22 trillion per year, or an increase of 67.23%. This increase will have an impact on regional direct expenditure (TBLD). The increase in direct regional expenditure (TBLD*) is obtained from multiplying the proportion figure each year with the increase in regional income (TPD*) after additional DTFK in the same year. The average TLBD* figure per year is estimated at IDR. 14.87 trillion, or an increase of 50% per year (see Table 8).

Table 8
Increase in Regional Direct Expenditures in Island Province

No	Direct Shopping	Billion Rp				
		2008	2011	2014	2017	Average
1	TBLD	3,776.62	5,649.01	8,731.94	12,148.22	7,370.17
2	TBLD*	7,601.71	11,366.69	17,541.38	24,740.11	14,872.57
3	Increase (%)	50	50	50	51	50

Note: TBLD* is Total Regional Direct Expenditure after adding DTFK.
Source: Data Processing Results

The total additional DTFK from the three simulation scenarios causes an increase in total transfer funds to regions (TFD) and state spending in the APBN (BN). Likewise, with the APBN (DA) deficit (see Table 9). The 2017 APBN (DA*) deficit increased from 2008 to Rp. 342.461 billion or 2.52% of GDP. During 2008-2017 the average increase per year was 1.82% of GDP. This increase is still below 3% of GDP, according to Law no. 17 of 2013.

Table 9
The Impact of DTFK on the APBN

	Before Addition of DTFK	Billion Rp				
		2008	2011	2014	2017	Average
1	TFD	292,433	411,325	573,703	682,226	487,286
2	PN	981,609	1,210,600	1,550,491	1,666,376	1,309,407
3	B.N	985,731	1,294,999	1,777,183	2,007,352	1,485,753
4	GDP	4,427,634	6,795,886	10,569,705	13,587,213	8,640,081
5	DA	(4.121)	(84,400)	(226,692)	(340,976)	(176,346)
	Percent	-0.09%	-1.24%	-2.14%	-2.51%	-1.81%
	After Addition of DTFK					
1	TFD*	292,963	411,979	574,723	683,711	488,175
	Increase	0.18%	0.16%	0.18%	0.22%	0.18%
2	BN*	986,260	1,295,654	1,778,203	2,008,837	1,486,643
	Increase	0.05%	0.05%	0.06%	0.07%	0.06%
3	DA*	(4,650)	(85,054)	(227,712)	(342,461)	(177,236)
	Increase	-0.11%	-1.25%	-2.15%	-2.52%	-1.82%

Note: (*) is an increase; TFD is Fiscal Transfer to Regions in the APBN; PN is State Revenue + Grants in the APBN; BN is State Expenditure in the APBN ; DA is APBN Deficit.
Source: Data Processing Results.

Impact on Regional Inequality

The results of regional per capita income inequality model specification tests (Model-01, Model-02, and Model-03) through the Chow test, LM test and Hausman test , conclude that the FE M form is more appropriate to use as an estimation model. Both in the two provincial groups and before and after the DTFK simulation. Diagnostic test results also concluded that the three models passed the multicollinearity, heteroscedasticity and autocorrelation tests. The regression results of the three models are presented in Table 10.

Before the addition of DTFK (before simulation), the regression results of the three models met the goodness of fit criteria. Coefficient Adj. R-squared each model is above 0.70 and the F-statistic value is significant at the 5% confidence level (see Table 9). The influence of the RDAK and RDBH variables on regional income inequality per capita (IW) in island provinces is negative and significant at the 10% confidence level, both before and after the addition of DTFK. Likewise in the non-island province group. On the other hand, the RDAU variable is not significant. For the island province group, the regression coefficients of RDAK and RDBH before adding DTFK are - 0.0590 and - 0.0355. After additional DTFK, it is -

0.2184 and - 0.1082. Compared with non-island province group, regression coefficient the two variables are - 0.2260 and - 0.3252 respectively.

Table 10
Regional Income Inequality Estimation Results Per Capita

Dependent Variable: IW $_{it}$			
Before Simulation	**Archipelagic Province**		
	FEM-01	**FEM-02**	**FEM-03**
Variables	Coefficient.	Coefficient.	Coefficient.
C	-1.3464	-1.2717	-1.3906
RDAU $_{it}$	-0.0073		
RDAK $_{it}$		-0.0590*	
RDBH $_{it}$			-0.0355**
RPAD $_{it}$	0.1191	0.1212	0.0940
LPDRB $_{it}$	0.6475*	0.5797*	0.6041*
LPMLN $_{it}$	-0.2176**	-0.2192**	-0.2201**
TCRIM $_{it}$	0.3898**	0.3850**	0.3656**
Adj. R-squared	0.7843	0.7965	0.7038
F-stat.	46.2266*	52.2669*	56.5894*
DW.stat	1.8569	1.8144	1.8176
NT	72	72	72
After Simulation	**FEM-01**	**FEM-02**	**FEM-03**
Variables	Coefficient.	Coefficient.	Coefficient.
C	-1.3462	-1.2910	-1.3967
RDAU $_{it}$	-0.0217		
RDAK $_{it}$		-0.2184**	
RDBH $_{it}$			-0.1082**
RPAD $_{it}$	0.1193	0.1193	0.0931
LPDRB $_{it}$	0.6474*	0.5910*	0.6067*
LPMLN $_{it}$	-0.2176**	-0.2190**	-0.2201**
TCRIM $_{it}$	0.3901**	0.3852**	0.3643**
Adj. R-squared	0.7843	0.7952	0.7037
F-stat.	46.24082*	51.5595*	56.5507*
DW.stat	1.8567	1.8155	1.8205
NT	72	72	72
Variables	**Non-Archipelagic Province**		
	FEM-01	**FEM-02**	**FEM-03**
	Coefficient.	Coefficient.	Coefficient.
C	0.4352	0.4271	0.5429
RDAU $_{it}$	-0.0038		
RDAK $_{it}$		-0.2260**	
RDBH $_{it}$			-0.3253**
RPAD $_{it}$	-0.0129	-0.0178	-0.0201
LPDRB $_{it}$	-0.0775**	-0.0651**	-0.0990**

LPMLN $_{it}$	-0.2338*	-0.2247*	-0.2165**
TCRIM $_{it}$	-0.3684*	-0.3770*	-0.3958*
Adj. R-squared	0.7927	0.7809	0.7770
F-stat.	45.4428*	48.5211*	55.7628*
DW.stat	2.0750	2.0433	1.9518
NT	216	216	216

Note: The level of significance used is *) 5%; and **) 10%; NT is the total panel of observations.
Source: Results of data processing using the Eviews 10 program.

The regression results for the RPAD variable have no effect. Meanwhile, the control variables of GRDP per capita and the TKRIM variable have a positive and significant effect at the 5% significance level. The results are consistent before and after DTFK simulation. Compared to the influence of the two variables in the non-island province group, it is actually significantly negative. Negative influence is also obtained from the PMLN variable, both conditions before and after adding DTFK. This finding is also not much different from the non-island province group.

Discussion

The results of this research show that real GDP per capita influences the increase in DAU allocation in the island province group. Compared to non-island province groups, the influence is greater the same thing happens not only to DAU, but also DBH. These findings indicate that disparities and dependence on General Transfer Funds (DTU) resulting from potential increases in regional fiscal capacity and needs between provinces are still quite high. Both in the island and non-island province groups. This finding is identical to the results of research on this phenomenon in several other countries (Huang & Chen, 2012); (Liu et al., 2014); (Muñoz et al., 2016).

Another interpretation of this phenomenon is that the current implementation of the fiscal transfer system in Indonesia tends not to take into account the potential regional fiscal capacity, if GDP per capita is identified as an indicator of potential regional fiscal capacity (Muñoz et al., 2016). Apart from that, this phenomenon also shows that efforts to increase regional fiscal capacity are still very dependent on the allocation of transfer funds from the center. These findings indicate that provinces with large potential fiscal capacity tend to receive larger DTU allocations. Even though I deal, the opposite should happen. On the other hand, if this variable is interpreted as one of the components of fiscal need in the DAU

formula, then the increase in regional fiscal need in the two groups of provinces turns out to still depend on funding sources from the DAU.

Judging from the magnitude of the influence of real GDP per capita, it appears that the dependence of the island province group on DAU is higher. In contrast, in the non-island province group, dependence is greater on DBH. This dependency is related to the functional aspect of the transfer type. DAU and DBH are types of formula-based general transfer funds (DTU) regulated in Law No. 1/2021 and PMK. No. 121/2018. The DAU formula is based on a number of components that determine the amount of revenue allocation for each region, and its management is the authority of the region. The main objective of this fiscal transfer is to overcome horizontal fiscal gaps between regions so that the allocation aims to reduce the fiscal gap. However, in fact, regions that are potentially relatively advanced with larger GDP per capita indicators still depend on DAU sources of revenue. Especially in increasing budget capacity and meeting regional fiscal needs. This matter has the potential to exacerbate disparities in fiscal transfers between the two groups of provinces.

Different from DBH transfer as sharing income between the center and regions from sharing of natural resources (SDA) and taxes. This profit sharing pattern is carried out with a certain percentage based on the producing area (Sidik, 2002). The aim is to overcome the vertical fiscal gap between the center and regions. This profit-sharing pattern means that non-island provinces which are rich in natural resources (Papua, Kalimantan and Sumatra), will receive a larger DBH allocation than other provinces. As a result, the disparity in DBH per capita between natural resource rich and natural resource poor areas is widening.

This research also found that the per capita regional income budgets of the two provincial groups had the effect of increasing DAK and DBH per capita. The influence on DAK is greater in the island province group, meanwhile on DBH is greater in the non-island province group. Explicitly, these findings indicate that disparities in the two types of fiscal transfers between provinces are strongly influenced by regional revenue budgets. Likewise, its dependence on DAK and DBH. The increase in regional revenue budgets in island and non-island provinces is still very dependent on DAK and DBH allocations. Dependence on DAK is greater from the group of island provinces. On the other hand, the DBH is greater than the non-island province group. This finding is similar to the results of previous studies (Huang & Chen, 2012), especially on special types of transfers.

The still high dependence of the island province group on DAK is confirmed by the fact that the total DAK allocation is still lower than that of non-island provinces during 2008-2017. In terms of geographical conditions, the two regions are very different. The group of non-island provinces, which have sea areas wider than land, should ideally be a priority for DAK allocation based on the regional specificity criteria inherent in the DAK function. Theoretically, special types of transfers such as DAK , as well as general transfers (DAU and DBH) have an income effect on the revenue side of the regional revenue budget (Shah, 2007). This income effect has the potential to encourage increased regional spending. The higher the regional spending needs, the greater the efforts to increase the regional revenue budget. Meanwhile, the limited sources of original regional revenue in financing regional spending needs will encourage an increase in regional income from other sources of revenue, especially from central government transfers. This situation causes dependency on DTK and DTU so it gets higher.

This research also found that the variable regional fiscal dependency burden had a very significant effect on increasing the allocation of DAK and DBH per capita in the two groups of provinces. This finding is similar to the results of previous studies (Huang & Chen, 2012). The effect of dependence on both types of fiscal transfers may be due to the allocation of non-physical DAK and DBH in the education and health sectors, because they are a priority for the central government. The population ratio is a variable The control in this study also had the same effect, but only increased the DAU allocation for the island province group. Meanwhile, in the non-island province group, the influence is not only on DAU, but also on DBH. Similar results were also found in several previous studies (Huang & Chen, 2012); (Liu et al., 2014); (Muñoz et al., 2016); (Alm & Martinez-Vazquez, 2015). This situation illustrates the implementation of a transfer system that tends to be population-based, not taking into account potential regional fiscal capacity. Like the formula-based DAU, with the population component as one of the major determinants of the allocation of funds, it certainly provides greater opportunities for revenue for regions that have a larger population. Vice versa. These findings are confirmed by the fact that the regional fiscal capacity index has no effect on all types of fiscal transfers.

The share of the primary sector on GRDP is a control variable which also has the effect of increasing the allocation of DAU revenues per capita in both groups of provinces.

However, the effect is the opposite This also occurs in the allocation of DAK and DBH revenues per capita, specifically for the island province group. Meanwhile, the non-island province group is specifically subject to DAK. These findings reveal that the higher the role of the primary sector in the regional economy in island and non-island provinces, the smaller the dependence on DAK and DBH per capita. However, if the opposite happens, there will be greater dependence on DAU. This case is relatively different from previous research (Huang & Chen, 2012). This finding also expresses the equalization effect of the primary sector's share is very large in DAK and DBH. Likewise, the disparity effect on DAU is also very large. This means that this variable has the potential to reduce transfer disparities between island and non-island provinces.

Overall, the results of the analysis found that the intercept coefficient in the DAU and DAK per capita transfer models was negative and significant in the island province group. Meanwhile, for the non-island province group, the same effect occurs on DAK and DBH. This reveals that there are significant differences in allocation DAU and DAK revenues per capita in eight island provinces. Meanwhile, in the non-island province group, there are differences on DAK and DBH. The overall results of this research reveal that the disparity in the three types of fiscal transfers between the two groups of provinces is still high. Likewise, dependence on the three types of transfers, especially the group of island provinces. This dependence is due to the low potential fiscal capacity and increasingly high regional fiscal needs. Meanwhile, sources of revenue from original regional income cannot yet be relied upon to support regional budget needs. Additional funding allocations are needed from DAU, DAK, and DBH in the form of island fiscal transfer funds (DTFK). This additional fund aims, apart from meeting regional revenue budget needs, also to equalize or redistribute fiscal transfer funds between groups of island and non-island provinces.

The simulation results of additional fiscal transfer funds from the DAU size of island provinces produce an average DTFK allocation per year of IDR. 533.87 billion, for 2008-2017. Then for DAK and DBH, the same simulation results produce an average DTFK per year, each Rp. 193.16 billion and 91.35 billion. The total DTFK on average is IDR. 818.38 billion per year. This figure excludes DAU, DAK, and DBH allocations. Based on this allocation figure, it is estimated that the average increase in DAU allocation will be IDR. 7.12 trillion, DAK to Rp. 1.79 trillion, and DBH to Rp. 1.63 trillion. This increase in

allocation contributes to the regional income and expenditure budget, each amounting to Rp. 47.22 trillion and Rp. 14.88 trillion. Likewise, there was an increase in state spending, Rp. 1.49 trillion. Meanwhile, the overall impact of the DTFK allocation only burdens the APBN deficit by an average of 1.87% or Rp. 177.24 billion. This figure does not exceed the deficit requirement of 3% of GDP according to Law No. 17 of 2003.

The addition of DTFK to DAU, DAK and DBH also indirectly has implications for regional income inequality in island provinces. Especially through the ratio of the three types of transfers to direct regional expenditure (RDAU, RDAK and RDBH). These three variables also represent indicators of fiscal decentralization. The results of the analysis found that the impact on reducing regional inequality in the group of island provinces after adding DTFK to DAK was greater than DBH. The addition of DTFK to DAU has no impact at all. These findings are different from the results of previous research in several countries (Song, 2013); (Liu et al., 2017); (Sepulveda & Martinez-Vazquez, 2011); (Amusa & Mabugu, 2016). Especially the decentralization of spending. The impact actually worsens regional inequality. Meanwhile in Indonesia, the phenomena are varied. Some empirical findings show that there is no impact (Zakaria, 2013), while other research found that the impact on reducing inequality between regions was very large. Specifically, it comes from DAU and physical DAK types (Wardhana et al., 2013).

Although fiscal decentralization is generally seen as beneficial for regional economic development (Timushev, 2019) , the empirical phenomenon illustrates , in countries that have relatively high levels of regional fiscal independence, the effects of spending decentralization tend to exacerbate regional inequality (Hailemariam & Dzhumashev, 2019). In some countries, it even has no effect at all (Muinelo-Gallo et al., 2016); (Cont et al., 2017); (Makreshanska-Mladenovska & Petrevski, 2019); (Lessmann, 2009). However, it is different from OECD countries. The effect of decentralization actually reducing regional disparities (Kessler & Lessmann, 2010).

This research also explains that regional fiscal autonomy or independence has no influence dynamics of regional income inequality in island provinces. Even after the addition of DTFK on fiscal transfers. Likewise in non-island provinces. The reason is because PAD sources still contribute relatively little to regional spending. However, some research results in other countries explain otherwise. Its effect is to reduce inequality (Song, 2013); (Liu et

al., 2017). This fact shows that the ability of autonomy in countries with a high level of fiscal independence will have a redistributive effect on the dynamics of regional inequality. On the other hand, countries with low autonomy capabilities will make things worse, or have no impact at all.

The three control variables in this research also influence the dynamics of regional inequality. Two of these variables are GDP per capita and employment in the manufacturing industry sector. Both have the effect of exacerbating regional inequality island province group, before and after DTFK simulation. The results of this study are identical to previous findings (Song, 2013); (Liu et al., 2017). This phenomenon explains that economic progress and industrialization in this area have not been able to shift the economic structure significantly, so that it has not had an impact on reducing regional income inequality in the island provinces. This empirical fact seems to annul the Kuznets hypothesis which suggests the opposite phenomenon (Todaro & Smith, 2012); (Ota, 2017); (Kuncoro, 2004). This condition is different from the non-island province group. Second influence the variable actually reduces inequality between provinces quite significantly. This difference expresses that economic progress and industrialization between the two groups of provinces has different implications. Conditions like this are often triggered by labor migration between sectors. Like outflow of rural labor to urban areas (Chakraborty & Garg, 2019), or consequences Unemployment disparities between sectors and geographical inequality (Marukawa, 2017).

Apart from the influence of the two control variables above, foreign investment as another control variable also greatly influences the dynamics of regional inequality. As a proxy for regional economic openness, its influence actually reduces regional income inequality in the two groups of provinces. However, the effect of reducing regional inequality in the island province group was much greater after the addition of DTFK compared to non-island provinces. This finding annuls several findings from previous research (Song, 2013); (Liu et al., 2017), by revealing the fact that increasing foreign investment will have an impact on reducing regional per capita income inequality in island provinces. The greater the foreign investment that enters this region, the greater the reduction in regional inequality between regions. Especially if priority is given to infrastructure in productive areas (Blouri & Ehrlich, 2020), and accompanied by the absorption of domestic investment. Of course, this will result

in an increasingly real redistribution of regional inequality between the two groups of provinces.

CONCLUSION

Regional fiscal needs have a big influence on increasing the allocation of DAU and DBH revenues for non-island provinces. This influence expresses disparities and dependence on general transfer funds is still high. However, the level of dependency is greater in the island province group. Likewise, the dependence of fiscal capacity and regional independence on DAK and DBH. Dependence on DAK is higher in the group of island provinces, whereas on DBH it occurs in the group of non-island provinces.

Fiscal transfer redistribution scenario through DTFK simulation of the DAU, DAK, and DBH ceilings, contribute to increasing the allocation of the three types of fiscal transfers, regional income and expenditure budgets. This includes contributing to the ratio of the three types of transfers to direct spending, thus influencing the dynamics of regional inequality between provinces. However, the addition of DTFK to the ratio of DAU to direct expenditure has no impact on reducing regional disparities between the two groups of provinces. Meanwhile, the DAK and DBH ratio actually reduces regional inequality. However, the DTFK's effect on reducing regional inequality is greater from increasing the ratio of DAK to direct expenditure in island provinces.

Based on these findings, it is necessary to redistribute fiscal transfer funds between island and non-island provinces. The fairly wide differences in maritime areas of the archipelagic province group must be considered in determining the allocation of fiscal transfer funds to regions, because this will have an impact on disparities in fiscal capacity between regions. Likewise, it will worsen regional disparities between archipelagic and non-archipelagic-based regions in Indonesia.

These findings have implications for fiscal decentralization policy. First, determining the allocation of fiscal transfer funds based on land area, to create fairness between regions, has apparently not been achieved. This research actually found that there were disparities and injustice in the allocation of fiscal transfer funds between groups of island and non-island provinces. One of the reasons is that the size of the sea area and the characteristics of the archipelagic areas have not yet been taken into concrete consideration in determining the

allocation of fiscal transfer funds to the regions. Second, the implementation of fiscal decentralization will indirectly reduce regional inequality between regions, but apparently this is not entirely the case. Most of the results of empirical studies in various countries show the opposite fact. However, the results of this study found that the effect was only on DAK and DBH alloxy. That is even if there is additional allocation for both types of transfers, thus reducing the difference in allocation with non-island provinces. The reason is because the priority allocation for the two transfers, apart from not maximally prioritizing the specific criteria for archipelagic areas, also does not proportionally take into account the contribution of the maritime sector.

In relation to these two implications, it is recommended to determine the marine area component in addition to the land area component as a basis for calculating the amount of fiscal transfer fund allocation to the regions. If the formulation and provisions for the allocation of transfer funds to regions do not need to be reformulated, then it is necessary to allocate special and/or affirmative archipelagic fiscal transfer funds. Either in addition to existing transfer funds, or required separately, such as special island transfer funds.

This research seeks to reveal a number of empirical facts about fiscal disparities and dependence, as well as regional disparities between archipelagic and non-archipelagic provinces. The aim is to equalize differences in fiscal transfers in the two regions through the allocation of archipelagic fiscal transfer funds. However, the scope of the research only covers 32 provinces in Indonesia. It has not yet reached all districts/cities. Including village fund allocations which are also part of the type of transfer funds to regions. Of course, the results will be more representative if there is further research that can bridge the limitations of this research.

REFERENCES

Acosta, A. M., & Meneses, K. (2019). Who benefits? Intergovernmental transfers, subnational politics and local spending in Ecuador. *Regional and Federal Studies* , *29* (2), 219–247. https://doi.org/10.1080/13597566.2018.1556644

Ahmad, E., Singh, R., & Fortuna, M. (2004). Toward More Effective Redistribution: Reform Options for Intergovernmental Transfers in China. *IMF Working Papers* , *04* (98), 1. https://doi.org/10.5089/9781451852172.001

Alexeev, M., & Chernyavskiy, A. (2018). A tale of two crises: Federal transfers and regional

economies in Russia in 2009 and 2014–2015. *Economic Systems* , *42* (2), 175–185. https://doi.org/10.1016/j.ecosys.2017.07.002

Alexeev, M., & Mamedov, A. (2017). Factors determining intra-regional fiscal decentralization in Russia and the US. *Russian Journal of Economics* , *3* (4), 425–444. https://doi.org/10.1016/j.ruje.2017.12.007

Alm, J., & Martinez-Vazquez, J. (2015). Re-designing Equalization Transfers: An Application to South Africa's Provincial Equitable Share. *The Journal of Developing Areas* , *49* (1), 1–22. https://doi.org/10.1353/jda.2015.0020

Amusa, H., & Mabugu, R. (2016). The contribution of fiscal decentralization to regional inequality: Empirical results for South African municipalities. *Economic Research Southern Africa (ERSA) Is ...* , *April* . https://econrsa.org/system/files/publications/working_papers/working_paper_597.pdf

Arellano-Yanguas, J. (2019). Extractive industries and regional development: Lessons from Peru on the limitations of revenue devolution to producing regions. *Regional and Federal Studies* , *29* (2), 249–273. https://doi.org/10.1080/13597566.2018.1493461

Aritenang, AF (2020). The effect of intergovernmental transfers on infrastructure spending in Indonesia. *Journal of the Asia Pacific Economy* , *25* (3), 571–590. https://doi.org/10.1080/13547860.2019.1675352

Baltagi, B. H. (2005). *Econometric Analysis of Panel Data* (3rd ed.). John Wiley & Sons Ltd,.

Blouri, Y., & Ehrlich, M. V. (2020). On the optimal design of place-based policies: A structural evaluation of EU regional transfers. *Journal of International Economics* , *125* , 103319. https://doi.org/10.1016/j.jinteco.2020.103319

Boadway, R. W., Hobson, P. A. R., & Mochida, N. (2000). Fiscal Equalization in Japan: Assessment and Recommendations. *CIRJE, Faculty of Economics, University of Tokyo, CIRJE F-Series* .

Brenton, S. (2019). The price of federation: Comparing fiscal equalization in Australia, Canada, Germany and Switzerland. *Regional and Federal Studies* , *0* (0), 1–19. https://doi.org/10.1080/13597566.2019.1658082

Capello, R. (2016). *Regional Economics* (2nd ed.). Routledge.

Chakraborty, P., & Garg, S. (2019). Fiscal Pressure of Migration and Horizontal Fiscal Inequality: Evidence from Indian Experience. *International Migration* , *57* (4), 269–290. https://doi.org/10.1111/imig.12536

Chiades, P., Greco, L., Mengotto, V., Moretti, L., & Valbonesi, P. (2019). Fiscal consolidation by intergovernmental transfers cuts? The unpleasant effect on expenditure arrears. *Economic Modelling* , *77* , 266–275. https://doi.org/10.1016/j.econmod.2018.09.008

Cont, W., Porto, A., & Juarros, P. (2017). Regional income redistribution and risk-sharing: lessons from Argentina. *Journal of Applied Economics* , *20* (2), 241–269. https://doi.org/10.1016/S1514-0326(17)30011-9

Ding, Y., Lu, F., & Ye, X. (2020). Intergovernmental transfers under heterogeneous accountability: The effects of the 2006 Chinese Education Finance Reform. *Economics of Education Review* , *77* (August). https://doi.org/10.1016/j.econedurev.2020.101985

Ezcurra, R., & Pascual, P. (2008). Fiscal decentralization and regional disparities: Evidence from several European Union countries. *Environment and Planning A* , *40* (5), 1185–1201. https://doi.org/10.1068/a39195

Fumey, A. (2018). Intergovernmental fiscal transfers and tactical political maneuverings Evidence from Ghana's District Assemblies Common Fund. *WIDER Working Paper 2018/31* , *February* , 1–19.

Gluschenko, K. (2018). Measuring regional inequality: to weight or not to weight? *Spatial Economic Analysis* , *13* (1), 36–59. https://doi.org/10.1080/17421772.2017.1343491

Greene, H. W. (2003). *Econometric Analysis* (5th ed.). Pearson Education, Inc.

Gujarati, D. N., & Porter, D. C. (2009). *Basic Econometrics* (5th ed.). McGraw-Hill/Irwin.

Hailemariam, A., & Dzhumashev, R. (2019). Fiscal equalization and composition of subnational government spending: implications for regional convergence. *Regional Studies* , *53* (4), 587–601. https://doi.org/10.1080/00343404.2018.1481287

Hao, Y., Liu, J., Lu, Z. N., Shi, R., & Wu, H. (2021). Impact of income inequality and fiscal decentralization on public health: Evidence from China. *Economic Modeling* , *94* (February), 934–944. https://doi.org/10.1016/j.econmod.2020.02.034

Huang, B., & Chen, K. (2012). Are intergovernmental transfers in China equalizing? *China Economic Review* , *23* (3), 534–551. https://doi.org/10.1016/j.chieco.2012.01.001

Huang, B., Dong, Y., Miao, J., & Xu, C. (2018). Intergovernmental Fiscal Transfers and County-Level Education Expenditure in China. *ECNU Review of Education* , *1* (3), 116–142. https://doi.org/10.30926/ecnuroe2018010306

Iimi, A. (2005). Decentralization and economic growth revisited: An empirical note. *Journal of Urban Economics* , *57* (3), 449–461. https://doi.org/10.1016/j.jue.2004.12.007

Jain-Chandra, S., Khor, N., Mano, R., Schauer, J., Wingender, P., & Zhuang, J. (2018). Inequality in China – Trends, Drivers and Policy Remedies. *IMF Working Papers* , *18* (127). https://doi.org/10.5089/9781484357538.001

Kessler, A.S., & Lessmann, C. (2010). Interregional Redistribution and Regional Disparities: How Equalization Does (Not) Work. *Political Economy: Government Expenditures \& Related Policies EJournal* .

Kharisma, B. (2013). Fiscal Decentralization and Economic Growth: Before and After the Era of Fiscal Decentralization in Indonesia. *Journal of Economics and Development Studies* , *14* (2), 101–119.

Kim, J. (2018). Fiscal decentralization and inclusive growth: An overview. In J. Kim & S. Dougherty (Eds.), *Fiscal decentralization and inclusive growth* (pp. 13–23). OECD Fiscal Federalism Studies Fiscal. https://doi.org/10.1787/9789264302488-3-en

Kuncoro, M. (2004). *Regional Autonomy and Development: Reform, Planning, Strategy and Opportunities* . Erlangga.

Kuncoro, M. (2013). *Easy to Understand & Analyze Economic Indicators* . UPP STIM YKPN.

Leatemia, J. (2011). Substance of Archipelagic Regional Legal Regulations. *Journal of Law & Development* , *41* (2), 277. https://doi.org/10.21143/jhp.vol41.no2.247

Lessmann, C. (2009). Fiscal decentralization and regional disparities: Evidence from cross-section and panel data. *Environment and Planning A* , *41* (10), 2455–2473. https://doi.org/10.1068/a41296

Litvack, J., Ahmad, J., & Bird, R. (1998). Fiscal Decentralization in Developing Countries. In *Fiscal Decentralization in Developing Countries* . The International Bank for Reconstruction and Development / The World Bank. https://doi.org/10.1017/cbo9780511559815

Liu, Y., Martinez-Vazquez, J., & Wu, A. M. (2014). International Center for Public Policy: Working paper 05-13. *International Center for Public Policy, Working Paper* , *14 – 32* , 1–24.

Liu, Y., Martinez-Vazquez, J., & Wu, A. M. (2017). Fiscal decentralization, equalization, and intra-provincial inequality in China. *International Tax and Public Finance* , *24* (2), 248–281. https://doi.org/10.1007/s10797-016-9416-1

Makreshanska-Mladenovska, S., & Petrevski, G. (2019). Decentralization and income inequality in Central and Eastern European countries. *Post-Communist Economies* , *31* (1), 123–136. https://doi.org/10.1080/14631377.2018.1461526

Martinez-Vazquez, J., & Timofeev, A. (2008). Regional-local dimensions of Russia's fiscal equalization. *Journal of Comparative Economics* , *36* (1), 157–176. https://doi.org/10.1016/j.jce.2007.04.004

Marukawa, T. (2017). Regional unemployment disparities in China. *Economic Systems* , *41* (2), 203–214. https://doi.org/10.1016/j.ecosys.2016.11.002

Masaki, T. (2018). The impact of intergovernmental transfers on local revenue generation in Sub-Saharan Africa: Evidence from Tanzania. *World Development* , *106* , 173–186. https://doi.org/10.1016/j.worlddev.2018.01.026

Mochida, N. (2008). *Fiscal Decentralization and Local Public Finance in Japan* (1st ed.).

London.

Muflihin, M. (2020). Perekonomian di Masa Dinasti Umayyah: Sebuah Kajian Moneter dan Fiskal. *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)*, *3*(1), 58-69. https://doi.org/10.31538/iijse.v3i1.462

Muinelo-Gallo, L., Rodríguez-Miranda, A., & Castro-Scavone, P. (2016). Intergovernmental transfers and regional income inequalities: An empirical analysis of Uruguay. *Hacienda Publica Espanola / Review of Public Economics* , *219* (4), 9–34. https://doi.org/10.7866/HPE-RPE.16.4.1

Muñoz, A. F., Radics, G. A., & Bone, C. (2016). Subnational fiscal disparities and intergovernmental transfers in LAC. *Hacienda Publica Espanola / Review of Public Economics* , *219* (4), 35–66. https://doi.org/10.7866/HPE-RPE.16.4.2

Musgrave, R., & Musgrave, P. (1989). *Public Finance* (5th ed.). McGraw-Hill Book Co.

NARUU-DK. (2017). *Academic Text of the Draft Law of the Republic of Indonesia concerning Archipelagic Regions 2017* .

Nugrahanto, AS, & Muhyiddin. (2008). Fiscal Decentralization and Regional Inequality in Indonesia 2001-2004. *Journal of Development Planning* , *1* (14), 1–19.

Nursini, N., & Tawakkal. (2019). Poverty alleviation in the context of fiscal decentralization in Indonesia. *Economics and Sociology* , *12* (1), 270–285. https://doi.org/10.14254/2071-789X.2019/12-1/16

Oates, W.E. (1997). On the Welfare Gains from Fiscal Decentralization. *Journal of Public Finance and Public Choice* , *15* (2–3), 83-92(10).

Ota, T. (2017). Economic growth, income inequality and environment: assessing the applicability of the Kuznets hypothesis to Asia. *Palgrave Communications* , *3* (1), 1–23. https://doi.org/10.1057/palcomms.2017.69

Putra, HS (2017). The Linkage of Intergovernmental Transfer and Poverty in Indonesia. *Journal of Civil Development* , *9* (1), 29–40. https://doi.org/10.21787/jbp.09.2017.29-40

Rodden, J., Eskeland, G.S., & Litvack, J. (2003). Fiscal Decentralization and the Challenge of Hard Budget Constraints. In J. Rodden, G.S. Eskeland, & J. Litvack (Eds.), *Fiscal Decentralization and the Challenge of Hard Budget Constraints* . The MIT Press.

Rodríguez-Pose, A., & Ezcurra, R. (2010). Does decentralization matter for regional disparities? A cross-country analysis. *Journal of Economic Geography* , *10* (5), 619–644. https://doi.org/10.1093/jeg/lbp049

Schläppi, E., & Kälin, W. (2001). *Guide to decentralization* . Swiss Agency for Development and Cooperation SDC.

Sepulveda, C.F., & Martinez-Vazquez, J. (2011). The consequences of fiscal decentralization

on poverty and income equality. *Environment and Planning C: Government and Policy* , *29* (2), 321–343. https://doi.org/10.1068/c1033r

Shah, A. (2007). Intergovernmental Fiscal Transfers. In R. Boadway & A. Shah (Eds.), *Intergovernmental Fiscal Transfers, Principle and Practice* (pp. 1–53). The International Bank for Reconstruction and Development / The World Bank. https://doi.org/10.1596/978-0-8213-6492-5

Siburian, M.E. (2020). Fiscal decentralization and regional income inequality: evidence from Indonesia. *Applied Economics Letters* , *27* (17), 1383–1386. https://doi.org/10.1080/13504851.2019.1683139

Sidik, M. (2002). Format of Central and Regional Government Financial Relations Referring to Achieving National Goals. *National Seminar Paper "Public Sector Scorecard,"* 1–26.

Sidik, M. (2003). Regional Financial Management Reform and the Implications of the 2003 State Finance Law on Financial and Institutional Relations Between the Central and Regional Governments. *Paper Presented at the National Seminar on Regional Financial Reform: Theory and Implementation. Master of Development Economics, UGM.*

Sirait, N., & Handra, H. (2020). Analysis of Intergovernmental Transfer and Interregional Basic Services Inequality in Indonesia. *International Journal of Economics and Financial Issues* , *10* (2), 30–36.

Sjafrizal. (2008). *Regional Economics, Theory and Applications* . Baduose.

Song, Y. (2013). Rising Chinese regional income inequality: The role of fiscal decentralization. *China Economic Review* , *27* , 294–309. https://doi.org/10.1016/j.chieco.2013.02.001

Stiglitz, J. E., & Rosengard, J. K. (2015). *Stiglitz* (4th ed.). WW Norton Company, Inc.

Sudhipongpracha, T., & Wongpredee, A. (2017). Fiscal Decentralization in Comparative Perspective: Analysis of the Intergovernmental Grant Systems in Indonesia and Thailand. *Journal of Comparative Policy Analysis: Research and Practice* , *19* (3), 245–261. https://doi.org/10.1080/13876988.2016.1138659

Talitha, T., Firman, T., & Hudalah, D. (2020). Welcoming twenty decades of decentralization in Indonesia: a regional development perspective. *Territory, Politics, Governance* , *8* (5), 690–708. https://doi.org/10.1080/21622671.2019.1601595

Tarzwell, G. D. M. (1998). Decentralization and public sector growth. *Applied Economics Letters* , *5* (5), 281–285. https://doi.org/10.1080/758524401

Tiebout, C. M. (1956). A Pure Theory of Local Expenditures. *The Journal of Political Economy* , *64* (5), 416–424. http://www.jstor.org/stable/1826343

Timushev, E.N. (2019). Federal Intergovernmental Transfers and the Level of Intraregional

Fiscal Decentralization in Russia. *Financial Journal* , *6* , 27–42. https://doi.org/10.31107/2075-1990-2019-6-27-42

Todaro, M. P., & Smith, S. C. (2012). *Economic Development* (11th ed.). Pearson Education, Inc.

Wardhana, A., Juanda, B., Siregar, H., & Wibowo, K. (2013). The Impact of Central Government Transfers on Reducing Income Inequality in Indonesia. *Sosiohumaniora , 15* (2), 111. https://doi.org/10.24198/sosiohumaniora.v15i2.5737

West, L. A., & Wong, C. P. W. (1995). Fiscal Decentralization and Growing Regional Disparities in Rural China: Some Evidence in the Provision of Social Services. *Oxford Review of Economic Policy, Oxford University Press , 11* (4), 70–84.

Wibowo, K., Dendi, A., & Hanif, Z. (2011). Is a Specific Grant Really "Specific"?: Case of Indonesian Provinces, 2003-2010. *Working Papers in Economics and Development Studies , 201109* , 1–24.

Wibowo, K., Muljarijadi, B., & Rinaldi, R. (2011). Allocation Mechanism Of Equalization Fund In Indonesia: Current Condition And Alternative Proposals Of Specific Grant At Sub National Level Rullan Rinaldi Center for Economics and Development Studies (C. *Working Paper in Economics and Development Studies , 201108* , 1–52.

Wingender, P. (2018). Intergovernmental Fiscal Reform in China. *International Monetary Fund* , *88* , 1–28.

Wooldridge, J. M. (2013). *Introductory Econometrics: A Modern Approach* (5th ed.). South-Western, Cengage Learning.

Xie, Y., & Zhou, X. (2014). Income inequality in today's China. *Proceedings of the National Academy of Sciences of the United States of America* , *111* (19), 6928–6933. https://doi.org/10.1073/pnas.1403158111

Zakaria, S. (2013). The Impact of Fiscal Decentralization toward Regional Inequalities in the Eastern Region of Indonesia. *Journal of Economics and Sustainable Development , 4* (10), 74–85.