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I have attached the Microsoft Word format of Title Page, Cover Letter, and Main Document (Main Manuscript) in this email.

Please address all correspondence regarding this manuscript through fitriakib@ung.ac.id.

Thank you for your consideration of this manuscript. Looking forward to hearing from the Editorial Board of IJEBMR soon.

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Dear Fitri Hadi Yulia Akib,

Thank you for submitting manuscript to International Journal of Economics, Business and Management Research. The submitted research paper has been sent to reviewer panel.

ANALYSIS OF ECONOMIC POTENTIALS AND CONTRIBUTING FACTORS OF RURAL POVERTY IN THE AREA OF TOMINI BAY, SULAWESI, INDONESIA

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Abstract

Tomini Bay area possesses several resources potentials, in addition to resource potentials, the heterogeneous community can serve as social capital for development. Nevertheless, this area has become one of the poverty enclaves in the eastern part of Indonesia. This research was conducted to analyze the economic factor of each region as the basis of developing the Tomini Bay area to reduce the rural poverty rate. The present work also analyzed the contributing factor of rural poverty in the area of Tomini Bay. It relied on an LQ and panel data regression analyses in 2011 - 2020 and covered ten regencies/cities of three provinces in the Tomini Bay area. Significant findings of this study were as follows: 1) per capita income, unemployment rate, average years of school, the productivity of female and primary sector laborers significantly cut down rural poverty rate; 2) the contribution of the agricultural sector, workers' education level, i.e., primary school, secondary school, and high school, and a number of family dependents impacted the increase in underprivileged people. It was because the distribution of laborers in the agricultural sector was still quite large. At the same time, farmers' land ownership was only 0.5 ha on average, not to mention the education level was relatively out of sync with the structure of the available jobs; 3) the contribution of the non-agricultural sector to the economy, access to high school education (net enrollment rate), university graduates, as well as laborers in secondary and tertiary sectors were not impactful on poverty.

Keywords: Economic Potentials, Poverty, and Tomini Bay

Introduction

As the largest bay in Indonesia with an area of more than 6,000,000 hectares (ha), the Tomini Bay covers three provinces, namely North Sulawesi, Central Sulawesi, and Gorontalo. According to Statistics Indonesia, the bay has approximately 90 islands, some of which are under the Gorontalo and Central Sulawesi Provincial Government. Tomini Bay is located on the equator and the boundary line of Asian flora and fauna distribution. Further, it is determined differently based on the types of flora and fauna, or majorly known as Wallace's Line. On top of that, Tomini Bay is one of the world's coral triangle areas (Pramudji, 2016).

Tomini Bay, as an area crossed by the equator, owns potentials for fishery resources, biodiversity of marine and land biota. It is also remarkable for its natural beauty, with 1,031 hectares of coral reef areas. Other potentials of marine biological

resources (fishery) that can be developed are extraction of bioactive compounds (natural products), such as squalence, omega-3, phycocolloids, biopolymers, and others from microalgae (phytoplankton), macroalgae (seaweed), microorganisms, and invertebrates for the use of healthy food, pharmaceuticals, cosmetics, and other biotechnology-based industries. There are also hundreds of world-class dive spots with apollo, pinnacles, towers, barracudas, colorful fish, and dolphins, making this area promoted as potentially the largest marine tourism in the world. Tomini Bay waters are unique as the wave is relatively small, which prompts a high opportunity for aquaculture development. With sloping coastal areas, The Tomini Bay has the potential for aquaculture (pond) spread over nearly all regencies in North Sulawesi, Gorontalo, and Central Sulawesi. However, such potential has not been optimally made use of.

The area of Tomini Bay socio-culturally has various cultures and customs, where multicultural people get a chance to progress quicker than homogeneous people. Heterogeneity (multiculturalism) can fundamentally bring forth a competitive ecosystem to reach progress and enrich national values. Heterogeneity is social capital that becomes the determining factor of economic progress. Since the 70s, social capital has served as a topical concept in economic development because physical capital (money and natural resources) is not enough to drive progress. Social capital contains social networks and norms that generate mutual understanding, trust, and reciprocity. They support cooperation and collective action for mutual benefits and create economic prosperity (Dinda, 2008).

Despite the fact that Tomini Bay possesses great economic potentials and social capital, it is in contrast to the lives of the community, as shown by the high poverty rate in 2020. Of three provinces covered by the bay, regions with high poverty are precisely displayed in figure 1.

Source: Statistics Indonesia, Processed Data (2021).

Figure 1. Poverty Rate of Three Provinces in Tomini Bay

In North Sulawesi Province, the highest poverty rate accounts for 12.77% of the South Bolaang Mongondow Regency and 12.30% of the Southeast Minahasa Regency. Both regions are directly opposite Tomini Bay. Meanwhile, the highest poverty rate in

Gorontalo Province takes place in Boalemo Regency, Pohuwato Regency, and Gorontalo Regency with 18.57%, 17.62%, and 17.56%, respectively. These regions are directly adjacent to the bay mentioned earlier. Lastly, Donggala Regency (17.39%), Tojo Una-Una Regency (16.39%), and Poso Regency (15.45%) are the regions with the highest poverty rate in Central Sulawesi. The waters of the last two regencies are in the Tomini Bay area.

These data illustrate that the potential of the agricultural sector in a broad sense in the site area with the community's well-being experiences a substantial gap. It raises the question of why regions with great resource potential still face a high rate of poverty. It is widely acknowledged in welfare states that poverty issues are due to the lack of economic resources (Mood and Jonsson, 2016). For this reason, resource economy potentials are not the sole factor that intersects extensively with the agricultural sector; there exist other aspects, including tourism. As found by Vanegas, *et al.* (2015), agriculture (statistically insignificant) improves poverty, yet tourism development negatively correlates with poverty. Although the impact of the tourism sector is more considerable in urban areas than that in rural areas, the tourism industry is on the side of the poor (Njoya and Seetaram, 2017). This empirical finding is quite contrary to the condition in Tomini Bay area, since the promising tourism potentials, e.g., world-class dive spot, marine tourism potential in Togean Island, Kadidiri Island, Biluhu Beach, Cinta Island, and Olele Marine Park, are yet to be impactful on poverty reduction.

Another factor inhibiting the improvement of rural poverty in potential areas is human resources quality measured by education level. This indicates that education level plays a crucial role in determining household welfare and that higher education level gets more benefits (Rolleston, 2011a). Regions with a high poverty rate factually have a relatively low quality of human resources in the area of Tomini Bay that is measured by HDI. For instance, South Bolaang Mongondow Regency in North Sulawesi and Tojo Una-Una Regency in Central Sulawesi have the lowest HDI with 65.00 and 64.59, respectively, among other regencies/cities in their respective provinces. This problem is exacerbated by inequality in access to education and economic opportunity for women; whereas, women's involvement in economic development will accelerate welfare improvement as they help earn a living for the family. Bandiera *et al.* (2017) reveal that rural women who are not susceptible to poverty are those with formal business, e,g., livestock farming, compared to women seasonal workers with low wages. Empirically, it is also proven that the general measures of individuals' economic strength, namely assets and education, do not merely contribute to poverty for women because they are burdened with house chores (Arora, 2015).

On that ground, the present study was conducted due to the following reasons: 1) there is a gap between a great potential of an area and the low well-being of rural communities in Tomini Bay; 2) empirical findings of the previous studies are different, leading the researchers to explore the contributing factors of rural poverty in the area of Tomini Bay. The purposes of this research are to 1) analyze economic potentials as a basis for formulating a more sustainable development acceleration plan, specifically in eliminating rural poverty; 2) analyze the contributing factor of rural poverty in the area of Tomini Bay so that the policy intervention is more focused and cost-efficient.

Literature Review

Statistics Indonesia (2018) defines poverty as an inability to fulfill basic needs (basic needs approach). Through this approach, poverty is viewed as an economic

incapacity to meet food and non-food needs measured from spending. One is considered poor if their food needs are less than 2,100 calories per capita per day (equivalent to rice with 320 kg/capita/year in rural areas and 480 kg/capita/year in urban areas). Also, they have minimum non-food needs that are calculated from the amount of money (in IDR) spent for fulfilling the minimum needs for housing, clothing, health, education, transportation, and the like. Statistics Indonesia annually determines the level of poverty line based on the results of the National Socioeconomic Survey (Susenas) of consumption module (detailed data) with different levels for each province, depending on their minimum cost of living.

Based on basic needs, the applied indicator is headcount index (HCI), i.e., total and percentage of underprivileged population under the poverty line (PL) calculated following per capita expenditure on food and non-food in the pre-determined reference group. PL is divided into the food poverty line (FPL) and non-food poverty line (NFPL). The limit of FPL is calculated by the minimum amount of calories needed, as explained earlier. Conversely, the limit of NFPL is calculated by the amount of money (in IDR) spent for non-food items that fulfill minimum needs, including housing, clothing, health, education, transportation, and others. These limits of both FPL and NFPL are constantly developing and undergoing adjustments because the adequacy standards in rural and urban areas are dissimilar. Therefore, the calculation of poverty percentage is divided into rural poverty and urban poverty.

Poverty in Indonesia is inextricably linked with rural socioeconomic conditions, in general, and the agricultural sector, in particular (Arham et al., 2020). The rural poverty rate is relatively high due to some factors, as follows: 1) the agricultural sector as the main contributor to the non-processed economy with low productivity levels; 2) a high economic growth in non-tradable sectors, resulting in disparities (the wealth of the middle class gets high, and the wealth of the lower class gets low); 3) culture and social factor inhibit the enthusiasm and lessen mindset changes; 4) low and uneven endowment factor (natural and human resources); 5) political issues and high level of rent-seeking behavior, resulting in the high price of people's needs (Arham dan Hatu, 2020).

Numerous factors empirically influence rural poverty, one of which is high consumption tendency. Income is spent more on consumptive needs, buying goods that do not support production activities (Senevirathne et al., 2016). Rasyid et al. (2020) discover that poor households allocate less income to essential basic needs, such as vegetables, meat, and fish. Another factor driving poverty is economic structure, in which productive sectors (non-agricultural) have more substantial impacts on lowering the poverty rate. In spite of this, every country goes through different situations, as Arndt et al. (2011) suggest in their study that the agricultural sector in Vietnam can naturally better economic growth, leading to rural poverty reduction; yet, in Mozambique, the impact is relatively insignificant. This finding resonates with a study by Loayza and Raddatz (2010), showing that economic growth is not the only measure to cut down the poverty rate, but also unskilled labor-intensive economic structures, such as the agricultural sector, construction, and manufacture.

Moreover, economic structures influence labor force structures that tend to impact new unemployment. This occurs because the availability of laborers does not match the economic structures (demand for laborers). It is necessary to mix economy-driver sectors as they are substantially important in decreasing poverty (Cervantes-Godoyi and Dewbrei, 2010). Sector mix intends not to rely on one sector as a job provider, meaning that acceleration of economic structure changes is required to shift labor force structures,

thus avoiding the increase in the unemployment rate. Unemployment is among the causal factors of poverty. In this context, the government should adjust the education curriculum with economic structures (Siyan, *et al*. 2016) to produce school and university graduates relevant to working lives. Apart from curriculum problems, far-reaching access to education should be enhanced. Rolleston (2011b) argues that a significant reduction in the poverty rate coincides with increased school participation. Bettering access to education to high school or university can overcome poverty by raising the social mobility of underprivileged families (Brown and James, 2020). Improved access to education will give implications for the increase in the average years of school. Average years of school affect poverty reduction; it is assumed that the longer they go to school, the better their skills and knowledge, and the more productive they will be. Average years of school are expected to be equivalent to high school level (at least) since a high level of education can significantly lower the poverty rate (Verner, 2004).

The problem is that improved access to education strongly depends on household economic capacity and total dependent family members. Nevertheless, this assumption is empirically distrusted by Lanjouw and Ravallion (1995) because the correlation between poverty and dependents (family size) is eliminated when the cost of living is low. However, other empirical findings have proven that a large family size (number of family dependents) becomes a crucial determinant in increasing poverty rate, compared to smaller family size (Serumaga-Zake and Naudé, 2010; Elmi and Alitabar, 2012; Anyanwu, 2014a, Libois and Somville, 2018a).

Family size is frequently linked with gender; households with more male family members are considered more likely to increase income compared to the ones with a majority of women. Such a standard view has implications for poverty alleviation policies that often disregard gender factors, especially in patriarchal countries; women are not only subordinated sexually but also in economic matters. In fact, many countries regard women as an essential agent in poverty alleviation (Gökovalı (2013). Nonetheless, the intervention of poverty alleviation policy should be specific in programs to empower women. Widiyanti, *et al*. (2018) claim that women's empowerment through microfinance programs is the right way to cope with poverty for women.

Method of Study

The data used in this work were secondary data obtained from the data publication of Statistics Indonesia. Methods included determining base sectors (economic potentials) employing LQ analysis and panel data to find out the contributing factor of rural poverty from 2011 to 2020 (ten years), involving ten regions in three provinces.

LQ Formula

Location quotient (LQ) analysis was used to determine the economic sectors/subsectors in the area of Tomini Bay. It also served as a guide to understand the economic sector activities in regencies/cities GRDP in the Tomini Bay area. A base sector significantly contributes to the economic growth of a region, thus optimally increasing the regional income. Accordingly, the value of the LQ calculation result was used to determine base sectors/subsectors. These sectors/subsectors were then able to promote the growth or development of other economic sectors/subsectors that would impact job creation. The formula to compare the roles between sector/subsector "i" of the site area (k) and the sector/subsector of the reference area (p) is as follows:

$$\text{LQ} = \frac{Eij/Ei}{Ein/En} \qquad (1)$$

Description: Eij: GRDP of the sector "i" in the site area. Ej: total GRDP in the site area. Ein: GDRP of the sector "i" in the province. En: total GDRP in the province

Regression Equation Model

Numerous factors are assumed to influence poverty reduction in the area of Tomini Bay, which consists of; a) economic factor measured by per capita income, economic structure, and unemployment rate based on education level; b) human resources factor measured by average years of school, level of access to education, and laborers' education level; c) welfare factor measured by total family dependents, female workers' productivity, and labor force structure. Provided below is the equation model of the present study.

$$Pov_{it} = \beta_{0+} \beta_1 Income_{it} + \beta_2 ShareAgri_{it} + \beta_3 SharenonAgri_{it} + \beta_4 Unemp_{it} +$$

$$\beta_5 AveSchool_{it} + \beta_6 EducSHS_{it} + \beta_7 EducLabPS_{it} + \beta_8 EducLabSS_{it} +$$

$$\beta_9 EducLabSH_{it} + \beta_{10} EducLabUniv_{it} + \beta_{11} Family_{it} + \beta_{12} ProdWoman_{it} +$$

$$\beta_{13} LabPrim_{it} + \beta_{14} LabSec_{it} + \beta_{15} LabTer_{it} + \varepsilon_{it} \tag{3}$$

Description; Poverty is the rural poverty rate (percent). Income, per capita income level (in IDR). ShareAgri, the contribution of the agricultural sector to the economic formation (percent). ShareNonAgri, contribution of non-agricultural sectors to economic formation (percent). Unemp, open unemployment rate (percent). Aveschool, average years of school. EducSHS, level of access to education measured by net enrollment rate of high school (percent). EduclabPS, laborer' education level of primary school graduates (percent). EduclabSS, laborers' education level of secondary school graduates (percent). EduclabSH, laborers' education level of high school graduates (percent). EduclabUniv, laborers' education level of university graduates (percent). Family, number of family dependents (person), Prodwoman, the productivity of female workers (in IDR). LabPrim, number of primary sector laborers (percent), LabSec, number of secondary sector laborers (percent), LabTer, number of tertiary sector laborers (percent).

Prior to applying the panel data analysis, the Hausman test was carried out. To determine the suitable model, the current research relied on the fix effect model (FEM) and random effect model (REM). Next, the classical assumption test was performed firstly before the statistical testing. The classical assumption test comprised: 1) multicollinearity test to measure the level of relationship/effect between independent variables through the correlation coefficient (r); 2) heteroscedasticity test to observe whether or not, in multiple regression equation, the variance of the residuals from one observation with another is the same; 3) autocorrelation test, a good regression equation does not have autocorrelation issues. If autocorrelation occurs, the equation is not suitable for prediction. Durbin-Watson (DW) test is able to find out whether or not the autocorrelation issues take place. The subsequent testing was observing the value of R^2. If it is close to one, the applied model is pretty good because the change variations of the dependent variable can be explained by the change variations of the independent variables and vice versa. Additionally, the F-test was employed to see the simultaneous significance of independent variables towards the dependent variable, along with the goodness of fit of the model. Lastly, the t-test (partial test) intended to examine whether or not independent variables significantly contributed to the dependent variable.
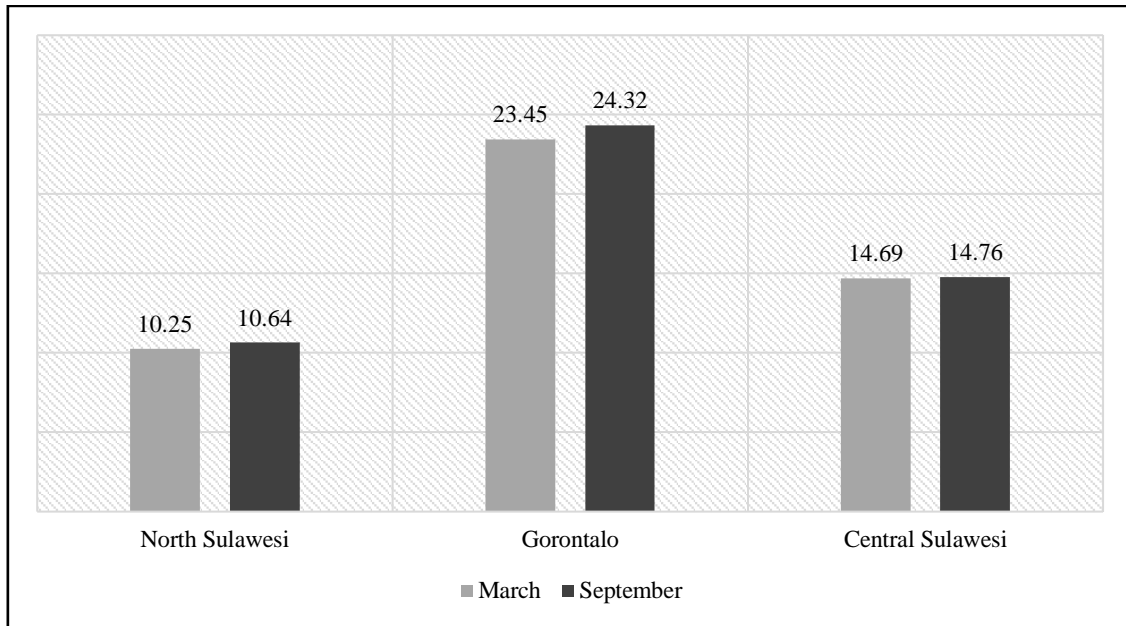
Results and Discussion

The economic potentials of a region are varied. Therefore, planning economic development requires commodities suitable for the potentials to be promoted. This is carried out to create specialization rather than developing commodities that do not match the region's potentials. The commonly used method of measuring economic potentials is the location quotient (LQ). Regardless of the simplicity of this method, it is able to describe a region's base sectors to be developed as comparative excellence, which then serving as the basis for development planning. The results of the LQ calculation in the area of Tomini Bay display the development of potentials or base sectors of each regency/city in the following table 1.

Table 1.Base Sectors of Each Regency/City in Tomini Bay Area

Regency/City	Base Sector 1	Base Sector 2	Base Sector 3	Base Sector 4
South Bolaang Mongondow	Agriculture	Water Supply	Government Service	Education Service
Bone Bolango	Electricity and Gas Supply	Health Service and Social Activity	Government Service	Agriculture
Gorontalo City	Trading	Government Service	Health Service and Social Activity	Company Service
Gorontalo	Agriculture	Mining and Excavation	Electricity and Gas Supply	Construction
Boalemo	Agriculture	Processing Industry	-	-
Pohuwato	Mining and Excavation	Electricity and Gas Supply	Transportation and Warehousing	Agriculture
Parigi Moutong	Trading	Transportation and Warehousing	Agriculture	Accommodation Provision
Poso	Education Service	Transportation and Warehousing	Accommodation Provision	Housing
Tojo Una-Una	Housing	Health Service and Social Activity	Education Service	Agriculture
Banggai	Mining and Excavation	Housing	Financial and Insurance Services	

Source: Processed Results (2021)

The above excellent sectors can be promoted to accelerate the development in the area of Tomini Bay. It is expected that every region optimizes its potentials to fulfill needs and to increase people's income, thus cutting down the poverty rate. Generally, the agricultural sector of regions in the Tomini Bay area is a base sector that is identical to rural lives. The rural poverty rate in this area is relatively high, as illustrated in figure 2, except North Sulawesi Province has low rural poverty, and there is only one region being analyzed.

Source: Statistics Indonesia, Processed Data (2021).

Figure 2. Rural Poverty in Tomini Bay Area, March and September 2020

Many factors contribute to the poverty rate in the area of this bay, including income, agricultural and non-agricultural sectors contribution, unemployment rate, average years of school, high school education level, laborers' education level, dependent family members, female workers' productivity, and laborer distribution in primary, secondary, and tertiary sectors. Those variables are assumed to have a strong correlation in decreasing the poverty rate in the Tomini Bay area.

In the statistical testing, the variables used as estimators have a probability value > z of 0.08119 greater than the probability value of 0.05. Hence, the data are typically distributed and suitable to predict the extent to which each variable impacts rural poverty. In order for the developed model to describe reality and minimize confounding factors, a classical assumption test is essential. The results suggest that there is no multicollinearity, heteroscedasticity, and autocorrelation. The model developed in the present work is a panel data approach so that testing to determine the processing types (FEM or REM) is required. The values of Wald $Chi^2 = 1033.46$ and LR $Chi^2 = 102.82$, or Wald $Chi^2 >$ LR Chi^2, implying that the best model is RE GLS. The simultaneous statistical testing (F-test) arrives at 15.75, meaning that all variables influence rural poverty in the site area. Meanwhile, the partial test (t-test) results show that only ten out of 15 variables are significant, namely income, agricultural sector contribution, unemployment rate, laborers' education level of primary school, secondary school, and high school, number of family dependents, female workers' productivity, and laborers in the primary sector. The details are provided in the following table 2.

**Tabel 2. Model Estimasi GLS Fix Effect Model dan Random Effect Model**

	(2) Ipoverty	(3) Ipoverty
lincome	-0.0443 (-0.95)	-0.249*** (-4.52)
Ishareagri	-0.210 (-1.23)	0.671*** (6.51)
Isharenona-i	-0.699 (-1.79)	0.192 (1.23)
Lunemp	0.0141 (0.80)	-0.161*** (4.05)
Lavesch	-0.819*** (-4.62)	-0.431* (-2.32)
Leducshs	0.0175 (0.39)	0.0114 (0.12)
Leduclabps	-0.0324 (-0.67)	0.240* (2.23)
leduclabss	0.0470 (1.18)	0.243** (3.05)
leduclabhs	0.00462 (0.29)	0.129*** (3.75)
Leduclabuniv	0.0158 (0.86)	-0.0463 (-1.17)
Ifamily	-0.0166 (-0.70)	0.108 (1.89)
Iprodwoman	0.0141 (1.58)	-0.0446* (-2.37)
Ilabprimer	0.0564 (1.16)	-0.268*** (-3.54)
Ilabsecunder	0.0115 (0.72)	0.0300 (0.88)
Ilabtersier	-0.0138 (-0.80)	-0.0528 (-1.51)
_cons	7.972*** (4.32)	2.550** (2.72)
N	100	100
R-sqared: within between overall	0.2837 0.9791 0.9248	Obs per group: min 10 avg 10 max 10 Wald chi(15) 1033.46
corr(u_i, X) = 0 (assumed)		Prob > chi2 0

Hasil Olahana (2021).

* p<0.1, ** p<0.05, *** p<0.01

Data processing results point out that the variable of per capita income has a strong effect on the rural poverty rate; the same finding is also found by Fosu (2017; Sillah (2012). However, the income of rural communities has tended to be increasingly unequal. Apergis, *et al.* (2011) have empirically proven that income inequality positively affects poverty. Policies that encourage economic improvement do not automatically better the income of people who are susceptible to poverty. For such a reason, increasing per capita income must coincide with income inequality improvement, not merely chasing growth. The starting point for poverty alleviation is implementing development strategies that address inequality (Kay, 2006). This needs inclusive sectors as a source of growth, having a significant impact on society, and relying on more than one sector to support the economy.

In general, regions in the area Tomini Bay strongly depend on the agricultural sector as a source of economic growth, except Gorontalo City, as displayed in the following figure 3.
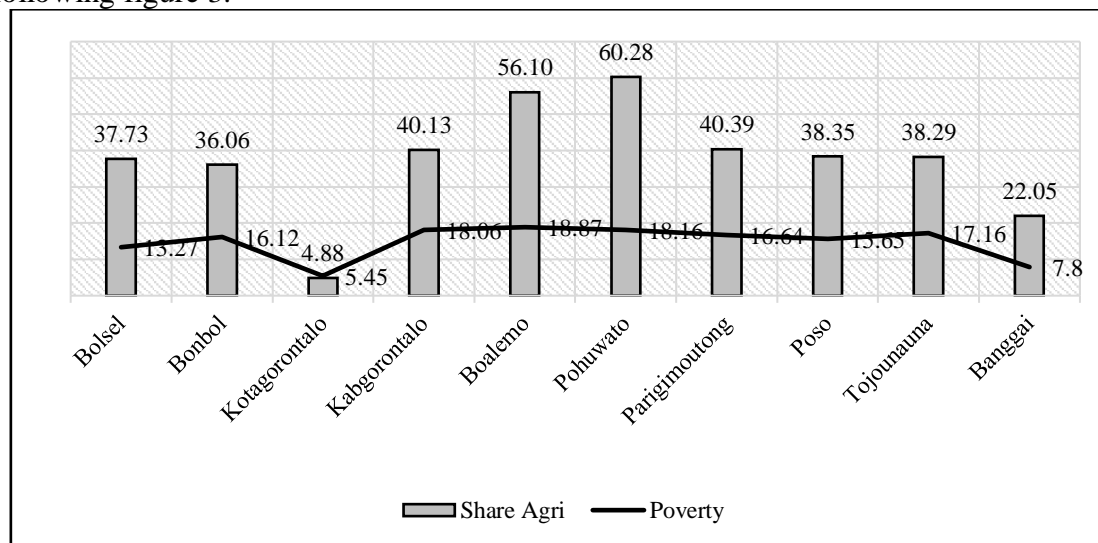
Source: Processed Data (2021)

Figure 3. Relation Between Share of Agricultural Sector and Poverty

Dependence on one sector of economic formation, at risk, can worsen welfare, let alone relying on agricultural products which are susceptible to climate change. Regions that become poverty enclaves are seen to highly depend on the agricultural sector. The estimation result strengthens this idea, in which the contribution of the agricultural sector is impactful on the increase in rural poverty, as shown in table 2. The more the agricultural sector's contribution enhances the economic formation in the Tomini Bay area, the more the number of the poor increases (see figure 3). This is contrary to previous studies which have suggested that agriculture significantly reduces poverty (Ahluwalia, 2007; Christiansen, *et al.*, 2011). The agricultural sector has a positive influence on poverty because there is an enormous number of laborers in this sector, of which 29.75% in North Sulawesi, 32.08% in Gorontalo, and 43.07% in Central Sulawesi (see figure 4). Yet, land ownership is an average of 0.5 ha. Government support to the agricultural sector is often mistargeted because those who plan to get agricultural subsidies should own land. Meanwhile, the workers in the agricultural sector (farmers) usually are sharecroppers who are not eligible for subsidies.
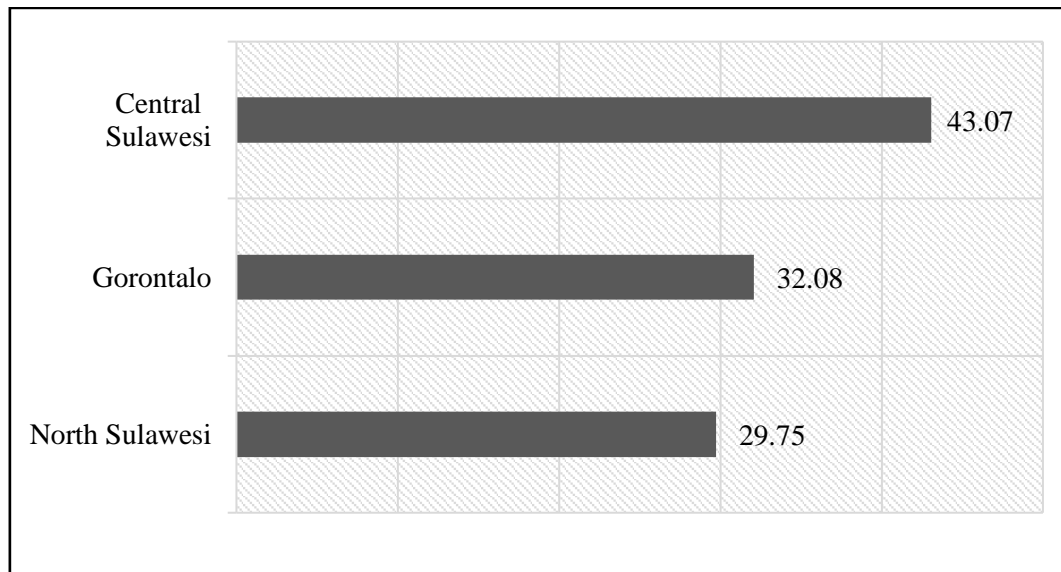
Figure 4. Populations of North Sulawesi, Gorontalo, and Central Sulawesi Working in the Agricultural Sector, 2020.

The large ratio of laborers in the agricultural sector yet limited land ownership results in a lack of productivity. Some of them even become part-time workers (hidden unemployment). In spite of that, part-time workers are able to lower the number of rural poor; it is better than not working at all. Moreover, jobs in rural areas are minimal and only dominated by the minimum value-added agricultural sector. To lessen the risk of hidden unemployment, the government needs to make a policy so that that rural commodity products can be available in the market aside from processing industries. It is expected that the labor force structure can be gradually shifted to secondary and tertiary sectors. Such a work shift can determine the increase in household income (Goh, *et al.*, 2009).

In terms of education level, laborers in the area of Tomini Bay are mostly primary school graduates or even have no formal schooling. A low level of education contributes to weak productivity. Consequently, the government should pay close attention to the education sector; the 9-year compulsory education program is insufficient. Even the policy of the mandatory 12-year education program should be applied by all local governments. Not only formal education, but the government should also concern about non-formal education for laborers that lack skills. It is on the ground of the estimation result showing that average years of the school effectively lower the poverty rate. This result is consistent with previous research by Sudaryati *et al.* (2021) that average years of school depict one's education level. The longer a person takes education, the better the level of education, leading to increased productivity. The field school is one of the non-formal educations for laborers. This program is believed to improve skills and mastery over technology. The presence of field schools will be worthwhile for underprivileged farmers if they directly participate in the program rather than indirectly receiving knowledge (Phillips, *et al.,* 2013).

Besides the average years of school, school enrollment also takes part in bettering people's well-being. Studies conducted by Rollenston (2011), Lekobane and Seleka (2016) conclude that education level is of paramount importance in defining household welfare, and higher education level has a more significant benefit in increasing income.

In this context, it is expected that the high school enrollment rate rises. Although the estimation result indicates that high school enrollment does not help the poor, the minimum effect of high school enrollment reduces poverty. This is assumed to be due to a discrepancy between curriculum outputs and the structure of available jobs. The finding asserts the common assumption that education matters at high school and university levels are not that necessary to grow the economy of poor and developing countries. On this ground, such levels of education are not included in the agenda of poverty alleviation in multiple poor countries and international donor organizations (Tilak, 2007).

The common assumption mentioned earlier is in line with the estimation result of the education level of laborers graduating from secondary and high schools. It is signified that this variable contributes to the new poverty, compared to primary school education level. This also implies that the higher the education level of laborers, the more likely it is to worsen rural poverty. Similarly, university graduates also have less impact on lowering the poverty rate due to the unrelated and unmatched profile of the secondary school, high school, and university graduates with the region's economic structure. On the other hand, Bonal (2007) states that the efforts to cut down poverty frequently fail because education level is assumed to impact poverty. The majority of experts and policymakers underestimate the inverse relationship, i.e., the impact of poverty on education.

Another fact affecting rural poverty is the number of family dependents. The estimation result elaborates that the increase in dependent family members also increases the poverty rate. This finding strengthens previous studies by Anyanwu (2014b), Sekhampu (2017), Liboisa and Somville (2018b) that family size, or in this case having more children (family dependents), will contribute to household poverty. Awareness of the importance of limiting the number of children in one family in Tomini Bay has been relatively proper, as shown by the average family members with four people. They have two kids as recommended by the government program.

Several policies are established by the government in dealing with poverty. Still, the policies of poverty reduction mostly focus on men, which have widened the gap in productivity and income between men and women, and increased gender inequality. The present paper attempts to include the factor of female workers' productivity. Following the estimation result, this factor shows reasonable indications to alleviate poverty by increasing the participation and productivity of female workers. The more women involved in the working process with productivity, the more effective the action of reducing the rural poverty rate. As a consequence, Gu and Nie (2021) explain in their research that women's empowerment should be optimized as it is impactful on poverty alleviation. Women have contributed to bettering the household income and standard of living. The intervention of women's empowerment comprises training, cooperative (association), and credit assistance. In addition to empowerment strengthening, it is also vital to be attentive to female workers in formal sectors regarding wage discrimination. Discrimination against women is influential in today's poverty rate (Gradin, *et al.*, 2010).

Compared to secondary and tertiary sectors, the primary sector (agriculture) effectively lowers rural poverty. This notion depicts the weak changes in economic structure in the area of Tomini Bay. The roles of secondary and tertiary sectors have not been enhanced yet, thus slowing down the changes in labor force structure. Lin (2019) confirms that structural changes will usually be accompanied by new technologies and job opportunities that will help people increase their income.

Conclusion and Suggestion

Various empirical evidence becomes the factors contributing to rural poverty. Nevertheless, the present study divides them into three important factors with a number of aspects, namely economic, human resources, and welfare factors. It is discovered that not all of the capable-considered variables have been proven to reduce the poverty rate; some of them are not in accordance with theories. Significant findings of this research are as follows: 1) per capita income, average years of school, the productivity of female and primary sector laborers quite significantly cut down rural poverty rate; 2) the contribution of the agricultural sector, laborers' education level, i.e., primary school, secondary school, and high school, and dependent family members have a positive correlation. Besides, the increase in agricultural sector contribution and laborers' education level impact the rise in underprivileged people. It is because the distribution of laborers in the agricultural sector is still relatively large. At the same time, farmers' land ownership is only 0.5 ha on average, not to mention the education level is relatively out of sync with the structure of the available jobs. For such reasons, laborers solely dominate the agricultural sector; 3) the contribution of non-agricultural sectors to the economy, access to high school education (net enrollment rate), university graduates, as well as labor force structure in secondary and tertiary sectors are not impactful on poverty. This gives us the idea that the slow process of economic structural changes in the Tomini Bay area will weaken the shift of labor force structure to productive sectors. Drawing upon the conclusions, the findings of this study have the following recommendations: 1) the government should design a policy that focuses on job creation by optimizing the region's potentials. The agricultural sector production should also be improved with value-added commodities. This is done by involving women in managing agricultural resources and products by providing training, mentoring, and credit assistance; 2) it is essential to design curriculum and education model development that comply with the region's economic structure. Hence, educational institution graduates are able to better the region's potentials with their skills and knowledge; 3) Tomini Bay area owns natural resource potentials and social capital. Accordingly, the acceleration of structural changes is required by strengthening non-primary sectors, including the development of the tourism sector and the processing of agricultural commodities and services according to the region's characteristics to speed up poverty rate reduction.

References:

Ahluwalia, M. S. (2007). Rural Poverty and Agricultural Performance in India, *The Journal of Development Studies, 14* (3), 298 – 323. https://doi.org/10.1080/00220387808421677.

Anyanwu, J. C. (2014). Marital Status, Household Size and Poverty in Nigeria: Evidence from the 2009/2010 Survey Data. *African Development Review, 26* (1), 118 – 137. https://doi.org/10.1111/1467-8268.12069.

Apergis, N., Dincer, O. & Payne, J.E. (2011). On The Dynamics of Poverty and Income Inequality In US States. *Journal of Economic Studies,* 38 (2), 132 - 143. https://doi.org/10.1108/01443581111128370.

Arham, M. A. & Hatu, R. (2020). Does Village Fund Transfer Address the Issue of Inequality and Poverty? A Lesson from Indonesia, *The Journal of Asian Finance, Economics and Business,* 7 (10), 433 – 442. https://doi.org/10.13106/jafeb.

Arham, M. A., Fadhli, A. & Dai, S. I. (2020). Does Agricultural Performance Contribute to Rural Poverty Reduction in Indonesia?, *JEJAK, Jurnal Ekonomi dan Kebijakan, 13* (1), 69 – 83. https://doi.org/10.15294/jejak.v13i1.20178.

Arndt, C., Garcia, A., Tarp, F. & Thurlow, J. (2011). Poverty Reduction and Economic Structure: Comparative Path Analysis for Mozambique and Vietnam. *The Review of Income and Wealth, 58 (*4), 742 – 763. https://doi.org/10.1111/1467-9361.00096.

Arora, D. (2015) Gender Differences in Time-Poverty in Rural Mozambique, *Review of Social Economy, 73* (2), 196 – 221. http://doi: 10.1080/00346764.2015.1035909.

Bandiera, O., Burgess, R., Das, N., Gulesci, S., Rasul, I. & Sulaiman, M. (2017). Labor Markets and Poverty in Village Economies. *The Quarterly Journal of Economics*, *132* (2), 811 – 870. https://doi.org/10.1093/qje/qjx003.

Bonal, X. (2007). On Global Absences: Reflections On The Failings In The Education and Poverty Relationship in Latin America, *International Journal of Educational Development, 27* (1), 86 – 100. https://doi.org/10.1016/j.ijedudev.2006.05.003.

Brown, P. & James, D. (2020). Educational Expansion, Poverty Reduction and Social Mobility: Reframing the Debate. International Journal of Educational Research 100. http://doi.org/10.1016/j.ijer.2020.101537.

Cervantes-Godoy, D. & Dewbre, J. (2010), Economic Importance of Agriculture for Poverty Reduction", OECD Food, Agriculture and Fisheries Papers, No. 23, OECD Publishing, Paris. http://dx.doi.org/10.1787/5kmmv9s20944-en.

Christiansen, L., Demery, L. & Kuhl, J. (2011). The (Evolving) Role of Agriculture In Poverty Reduction—An Empirical Perspective, *Journal of Development Economics, 96* (2), 239 – 254. https://doi.org/10.1016/j.jdeveco.2010.10.006.

Dinda, S. (2008). Social Capital In The Creation of Human Capital and Economic Growth: A Productive Consumption Approach, *The Journal of Socio-Economics, 37* (5), 2020 – 2033. https://doi.org/10.1016/j.socec.2007.06.014.

Elmi Z, & Alitabar, F. (2012). The Effect of Education and Household Size on Poverty in Urban Areas of Iran, *Social Welfare Quarterly, 12* (46), 93 – 159. http://refahj.uswr.ac.ir/article-1-971-en.html.

Fosu, A. K. (2017). Growth, Inequality, and Poverty Reduction In Developing Countries: *Recent Global Evidence Research in Economics, 71* (2), 306 – 336. https://doi.org/10.1016/j.rie.2016.05.005.

Goh, C-C., Luo, X. & Zhu, N. (2009). Income Growth, Inequality and Poverty Reduction: A Case Study of Eight Provinces In China, *China Economic Review, 20* (30), 485 – 496.

Gökovalı, U. (2013). Everyone's Own Poverty: Gendering Poverty Alleviation Policies in Turkey. *Women's Studies International Forum, 41* (1), 65 – 75. https://doi.org/10.1016/j.wsif.2013.01.014.

Gradín, C., del Río , C. & Cantó, O. (2010). Gender Wage Discrimination and Poverty in the EU, *Feminist Economics, 16* (2), 73 - 109 https://doi.org/10.1080/13545701003731831.

Gu, R. & Nie, F. (2021). Does Empowering Women Benefit Poverty Reduction? Evidence From A Multi-Component Program In The Inner Mongolia Autonomous Region of China, *Journal of Integrative Agriculture, 20* (4), 1092 – 1106. https://doi.org/10.1016/S2095-3119(20)63436-0.

Kay, C. (2006). Rural Poverty and Development Strategies in Latin America, *Journal of Agrarian Change, 6* (4), 455 – 508. https://doi.org/10.1111/j.1471-0366.2006.00132.x.

Lanjouw, P. & Ravallion, M. (1995). Poverty and Household Size, *The Economic Journal, 105* (433), 1415 – 1434. https://doi.org/10.2307/2235108.

Lekobane, K. R. & Seleka, T. B. (2016). Determinants of Household Welfare and Poverty in Botswana, *Journal of Poverty, 21* (1), 42-60. https://doi.org/10.1080/10875549.2016.1141381.

Liboisa, F. & Somville, V. (2018). Fertility, Household Size and Poverty In Nepal, *World Development, 103* (3), 311 – 322. https://doi.org/10.1016/j.worlddev.2017.11.005.

Lin, J.Y. (2019), .Structural Change and Poverty Elimination. *China Agricultural Economic Review, 11* (30, 452 - 459. https://doi.org/10.1108/CAER-08-2018-0169.

Loayza, N. V. & Raddatz, C. (2010). The Composition of Growth Matters for Poverty Alleviation, *Journal of Development Economics, 93* (1), 137 – 151. http://hdl.handle.net/10986/4720.

Mood, C. & Jonsson, J. O. (2016). The Social Consequences of Poverty: An Empirical Test on Longitudinal Data, *Social Indicators Research, 127,* 633 – 652. http://doi.org/10.1007/s11205-015-0983-9.

Njoya, E. T. & Seetaram, N. (2017). Tourism Contribution to Poverty Alleviation in Kenya: A Dynamic Computable General Equilibrium Analysis, *Journal of Travel Research, 57* (4), 513 – 524. https://doi.org/10.1177/0047287517700317.

Phillips, D., Waddington, H. & White, H. (2014). Better Targeting of Farmers As A Channel for Poverty Reduction: A Systematic Review of Farmer Field Schools Targeting, *Development Studies Research, 1* (1), 113 - 136, http://doi.org/10.1080/21665095.2014.924841

Pramudji (2018). Kondisi Umum Perairan Teluk Tomini, LIPI, Jakarta.

Rasyid, M., Kristina, A., Sutikno, Sunaryati & Yuliani, T. (2020). Poverty Conditions and Patterns of Consumption: An Engel Function Analysis in East Java and Bali, Indonesia, *Asian Economic and Financial Review, 10* (10), 1062 – 1076. http://doi.org/10.18488/journal.aefr.2020.1010.1062.1076

Rolleston, C. (2011). Educational Access and Poverty Reduction: The Case of Ghana 1991–2006, *International Journal of Educational Development, 31* (4), 338 – 349. http://doi.org/10.1016/j.ijedudev.2011.01.002.

Rolleston, C. (2011). Educational Access and Poverty Reduction: The Case of Ghana 1991–2006, *International Journal of Educational Development, 31* (4), 338 – 349. http://doi.org/10.1016/j.ijedudev.2011.01.002.

Sekhampu, T. J. (2017). Determinants of Poverty in a South African Township, *Journal of Social Sciences, 34* (2), 145 – 153. https://doi.org/10.1080/09718923.2013.11893126.

Senevirathne, H. M., Rajasinghe, N. A. & Perera, D. A. M. (2016). Conspicuous Consumption and Rural Poverty in Farming Community: An Empirical Investigation based on Two DS Divisions in Kurunegala District in Sri Lanka, Procedia Food Science, 6, 73 – 77. https://doi.org/10.1016/j.profoo.2016.02.015.

Serumaga-Zake, P & Naudé, W. The Determinants of Rural and Urban Household Poverty In The North West Province of South Africa, *Development Southern Africa, 19* (4), 561 - 572. https://doi.org/10.1080/0376835022000019392.

Sillah, B. M. S. (2012). Governance and Income Determinants of Poverty Reduction: A Cross-Country Analysis of Sub-Saharan African Countries, *African Journal Business Management, 6* (3), 756 – 761. https://doi.org/10.5897/AJBM10.1446.

Siyan, P. & Adegoriola, A. E. & Adolphus, J. A. (2016): Unemployment and Inflation: Implication on Poverty Level in Nigeria. *Journal of Development and Society , 3* (4), 17 - 45. https://mpra.ub.uni-muenchen.de/id/eprint/79765.

Sudaryati, S., Ahmad, A. A., & Suprapto, (2021). The Effect of Average Length of Schooling, Life Expectancy and Economic Growth on Poverty in Banjarnegara Regency 2005-2019, *Eko-Regional; Jurnal Pembangunan Ekonomi Wilayah, 16* (1), 29 – 35. https://doi.org/10.20884/1.erjpe.2021.16.1.1677.

Tilak, J. B. G. (2007). Post-elementary Education, Poverty and Development in India, *International Journal of Educational Development, 27* (4), 435 – 445. https://doi.org/10.1016/j.ijedudev.2006.09.018.

Vanegas, M., Gartner, S.W. & Senauer, B. (2015). Tourism and Poverty Reduction: An Economic Sector Analysis for Costa Rica and Nicaragua. *Tourism Economic, 21* (1), 159 – 182. http://doi.org/10.5367/te.2014.0442.

Verner, D. (2004). Education and its Poverty-Reducing Effects: The Case of Paraíba, Brazil, Policy Research Working Papers, Work Bank Group. https://doi.org/10.1596/1813-9450-3321.

Widiyanti, E., Pudjihardjo & Saputra, P. M. A. (2018). Tackling Poverty through Women Empowerment: The Role of Social Capital in Indonesian Women's Cooperative. *Jurnal Ekonomi dan Studi Pembangunan, 10* (1), 44 – 55. http://dx.doi.org/10.17977/um002v10i12018p044.

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ANALYSIS OF ECONOMIC POTENTIALS AND CONTRIBUTING FACTORS OF RURAL POVERTY IN THE AREA OF TOMINI BAY, SULAWESI, INDONESIA

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Abstract

Tomini Bay area possesses several resources potentials, in addition to resource potentials, the heterogeneous community can serve as social capital for development. Nevertheless, this area has become one of the poverty enclaves in the eastern part of Indonesia. This research was conducted to analyze the economic factor of each region as the basis of developing the Tomini Bay area to reduce the rural poverty rate. The present work also analyzed the contributing factor of rural poverty in the area of Tomini Bay. It relied on an LQ and panel data regression analyses in 2011 - 2020 and covered ten regencies/cities of three provinces in the Tomini Bay area. Significant findings of this study were as follows: 1) per capita income, unemployment rate, average years of school, the productivity of female and primary sector laborers significantly cut down rural poverty rate; 2) the contribution of the agricultural sector, workers' education level, i.e., primary school, secondary school, and high school, and a number of family dependents impacted the increase in underprivileged people. It was because the distribution of laborers in the agricultural sector was still quite large. At the same time, farmers' land ownership was only 0.5 ha on average, not to mention the education level was relatively out of sync with the structure of the available jobs; 3) the contribution of the non-agricultural sector to the economy, access to high school education (net enrollment rate), university graduates, as well as laborers in secondary and tertiary sectors were not impactful on poverty.

Keywords: Economic Potentials, Poverty, and Tomini Bay
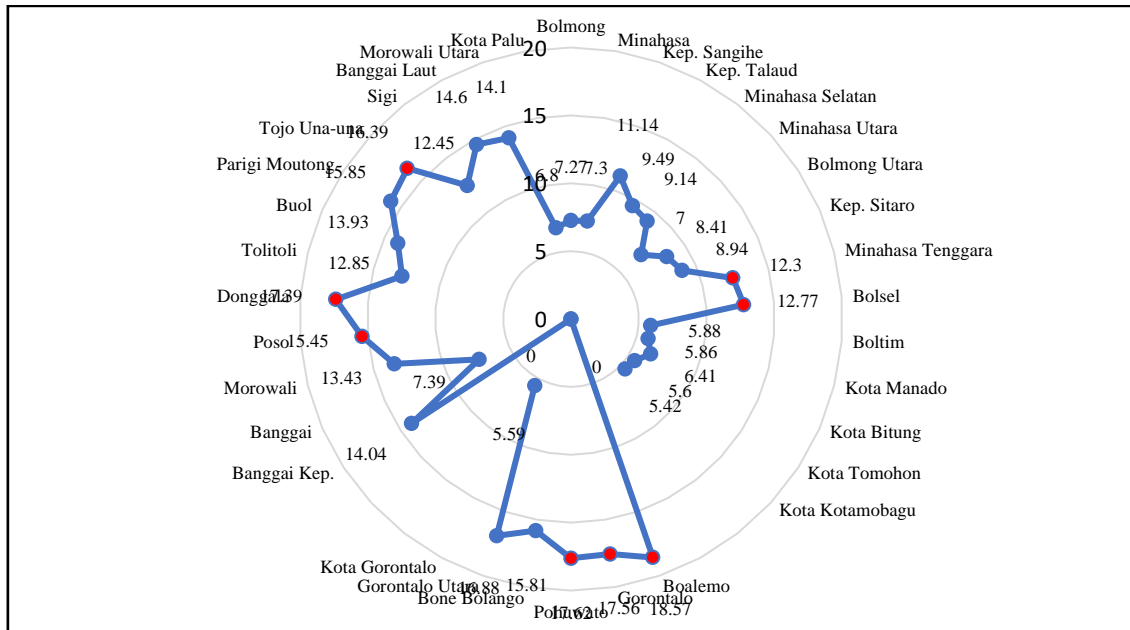
Introduction

As the largest bay in Indonesia with an area of more than 6,000,000 hectares (ha), the Tomini Bay covers three provinces, namely North Sulawesi, Central Sulawesi, and Gorontalo. According to Statistics Indonesia, the bay has approximately 90 islands, some of which are under the Gorontalo and Central Sulawesi Provincial Government. Tomini

Bay is located on the equator and the boundary line of Asian flora and fauna distribution. Further, it is determined differently based on the types of flora and fauna, or majorly known as Wallace's Line. On top of that, Tomini Bay is one of the world's coral triangle areas (Pramudji, 2016).

Tomini Bay, as an area crossed by the equator, owns potentials for fishery resources, biodiversity of marine and land biota. It is also remarkable for its natural beauty, with 1,031 hectares of coral reef areas. Other potentials of marine biological resources (fishery) that can be developed are extraction of bioactive compounds (natural products), such as squalence, omega-3, phycocolloids, biopolymers, and others from microalgae (phytoplankton), macroalgae (seaweed), microorganisms, and invertebrates for the use of healthy food, pharmaceuticals, cosmetics, and other biotechnology-based industries. There are also hundreds of world-class dive spots with apollo, pinnacles, towers, barracudas, colorful fish, and dolphins, making this area promoted as potentially the largest marine tourism in the world. Tomini Bay waters are unique as the wave is relatively small, which prompts a high opportunity for aquaculture development. With sloping coastal areas, The Tomini Bay has the potential for aquaculture (pond) spread over nearly all regencies in North Sulawesi, Gorontalo, and Central Sulawesi. However, such potential has not been optimally made use of.

The area of Tomini Bay socio-culturally has various cultures and customs, where multicultural people get a chance to progress quicker than homogeneous people. Heterogeneity (multiculturalism) can fundamentally bring forth a competitive ecosystem to reach progress and enrich national values. Heterogeneity is social capital that becomes the determining factor of economic progress. Since the 70s, social capital has served as a topical concept in economic development because physical capital (money and natural resources) is not enough to drive progress. Social capital contains social networks and norms that generate mutual understanding, trust, and reciprocity. They support cooperation and collective action for mutual benefits and create economic prosperity (Dinda, 2008).

Despite the fact that Tomini Bay possesses great economic potentials and social capital, it is in contrast to the lives of the community, as shown by the high poverty rate in 2020. Of three provinces covered by the bay, regions with high poverty are precisely displayed in figure 1.

Source: Statistics Indonesia, Processed Data (2021).

Figure 1. Poverty Rate of Three Provinces in Tomini Bay

In North Sulawesi Province, the highest poverty rate accounts for 12.77% of the South Bolaang Mongondow Regency and 12.30% of the Southeast Minahasa Regency. Both regions are directly opposite Tomini Bay. Meanwhile, the highest poverty rate in Gorontalo Province takes place in Boalemo Regency, Pohuwato Regency, and Gorontalo Regency with 18.57%, 17.62%, and 17.56%, respectively. These regions are directly adjacent to the bay mentioned earlier. Lastly, Donggala Regency (17.39%), Tojo Una-Una Regency (16.39%), and Poso Regency (15.45%) are the regions with the highest poverty rate in Central Sulawesi. The waters of the last two regencies are in the Tomini Bay area.

These data illustrate that the potential of the agricultural sector in a broad sense in the site area with the community's well-being experiences a substantial gap. It raises the question of why regions with great resource potential still face a high rate of poverty. It is widely acknowledged in welfare states that poverty issues are due to the lack of economic resources (Mood and Jonsson, 2016). For this reason, resource economy potentials are not the sole factor that intersects extensively with the agricultural sector; there exist other aspects, including tourism. As found by Vanegas, *et al.* (2015), agriculture (statistically insignificant) improves poverty, yet tourism development negatively correlates with poverty. Although the impact of the tourism sector is more considerable in urban areas than that in rural areas, the tourism industry is on the side of the poor (Njoya and Seetaram, 2017). This empirical finding is quite contrary to the condition in Tomini Bay area, since the promising tourism potentials, e.g., world-class dive spot, marine tourism potential in Togean Island, Kadidiri Island, Biluhu Beach, Cinta Island, and Olele Marine Park, are yet to be impactful on poverty reduction.

Another factor inhibiting the improvement of rural poverty in potential areas is human resources quality measured by education level. This indicates that education level plays a crucial role in determining household welfare and that higher education level gets more benefits (Rolleston, 2011a). Regions with a high poverty rate factually have a relatively low quality of human resources in the area of Tomini Bay that is measured by HDI. For instance, South Bolaang Mongondow Regency in North Sulawesi and Tojo

Una-Una Regency in Central Sulawesi have the lowest HDI with 65.00 and 64.59, respectively, among other regencies/cities in their respective provinces. This problem is exacerbated by inequality in access to education and economic opportunity for women; whereas, women's involvement in economic development will accelerate welfare improvement as they help earn a living for the family. Bandiera *et al.* (2017) reveal that rural women who are not susceptible to poverty are those with formal business, e,g., livestock farming, compared to women seasonal workers with low wages. Empirically, it is also proven that the general measures of individuals' economic strength, namely assets and education, do not merely contribute to poverty for women because they are burdened with house chores (Arora, 2015).

On that ground, the present study was conducted due to the following reasons: 1) there is a gap between a great potential of an area and the low well-being of rural communities in Tomini Bay; 2) empirical findings of the previous studies are different, leading the researchers to explore the contributing factors of rural poverty in the area of Tomini Bay. The purposes of this research are to 1) analyze economic potentials as a basis for formulating a more sustainable development acceleration plan, specifically in eliminating rural poverty; 2) analyze the contributing factor of rural poverty in the area of Tomini Bay so that the policy intervention is more focused and cost-efficient.

Literature Review

Statistics Indonesia (2018) defines poverty as an inability to fulfill basic needs (basic needs approach). Through this approach, poverty is viewed as an economic incapacity to meet food and non-food needs measured from spending. One is considered poor if their food needs are less than 2,100 calories per capita per day (equivalent to rice with 320 kg/capita/year in rural areas and 480 kg/capita/year in urban areas). Also, they have minimum non-food needs that are calculated from the amount of money (in IDR) spent for fulfilling the minimum needs for housing, clothing, health, education, transportation, and the like. Statistics Indonesia annually determines the level of poverty line based on the results of the National Socioeconomic Survey (Susenas) of consumption module (detailed data) with different levels for each province, depending on their minimum cost of living.

Based on basic needs, the applied indicator is headcount index (HCI), i.e., total and percentage of underprivileged population under the poverty line (PL) calculated following per capita expenditure on food and non-food in the pre-determined reference group. PL is divided into the food poverty line (FPL) and non-food poverty line (NFPL). The limit of FPL is calculated by the minimum amount of calories needed, as explained earlier. Conversely, the limit of NFPL is calculated by the amount of money (in IDR) spent for non-food items that fulfill minimum needs, including housing, clothing, health, education, transportation, and others. These limits of both FPL and NFPL are constantly developing and undergoing adjustments because the adequacy standards in rural and urban areas are dissimilar. Therefore, the calculation of poverty percentage is divided into rural poverty and urban poverty.

Poverty in Indonesia is inextricably linked with rural socioeconomic conditions, in general, and the agricultural sector, in particular (Arham *et al.*, 2020). The rural poverty rate is relatively high due to some factors, as follows: 1) the agricultural sector as the main contributor to the non-processed economy with low productivity levels; 2) a high economic growth in non-tradable sectors, resulting in disparities (the wealth of the middle class gets high, and the wealth of the lower class gets low); 3) culture and social factor

inhibit the enthusiasm and lessen mindset changes; 4) low and uneven endowment factor (natural and human resources); 5) political issues and high level of rent-seeking behavior, resulting in the high price of people's needs (Arham dan Hatu, 2020).

Numerous factors empirically influence rural poverty, one of which is high consumption tendency. Income is spent more on consumptive needs, buying goods that do not support production activities (Senevirathne et al., 2016). Rasyid *et al.* (2020) discover that poor households allocate less income to essential basic needs, such as vegetables, meat, and fish. Another factor driving poverty is economic structure, in which productive sectors (non-agricultural) have more substantial impacts on lowering the poverty rate. In spite of this, every country goes through different situations, as Arndt *et al.* (2011) suggest in their study that the agricultural sector in Vietnam can naturally better economic growth, leading to rural poverty reduction; yet, in Mozambique, the impact is relatively insignificant. This finding resonates with a study by Loayza and Raddatz (2010), showing that economic growth is not the only measure to cut down the poverty rate, but also unskilled labor-intensive economic structures, such as the agricultural sector, construction, and manufacture.

Moreover, economic structures influence labor force structures that tend to impact new unemployment. This occurs because the availability of laborers does not match the economic structures (demand for laborers). It is necessary to mix economy-driver sectors as they are substantially important in decreasing poverty (Cervantes-Godoyi and Dewbrei, 2010). Sector mix intends not to rely on one sector as a job provider, meaning that acceleration of economic structure changes is required to shift labor force structures, thus avoiding the increase in the unemployment rate. Unemployment is among the causal factors of poverty. In this context, the government should adjust the education curriculum with economic structures (Siyan, *et al*. 2016) to produce school and university graduates relevant to working lives. Apart from curriculum problems, far-reaching access to education should be enhanced. Rolleston (2011b) argues that a significant reduction in the poverty rate coincides with increased school participation. Bettering access to education to high school or university can overcome poverty by raising the social mobility of underprivileged families (Brown and James, 2020). Improved access to education will give implications for the increase in the average years of school. Average years of school affect poverty reduction; it is assumed that the longer they go to school, the better their skills and knowledge, and the more productive they will be. Average years of school are expected to be equivalent to high school level (at least) since a high level of education can significantly lower the poverty rate (Verner, 2004).

The problem is that improved access to education strongly depends on household economic capacity and total dependent family members. Nevertheless, this assumption is empirically distrusted by Lanjouw and Ravallion (1995) because the correlation between poverty and dependents (family size) is eliminated when the cost of living is low. However, other empirical findings have proven that a large family size (number of family dependents) becomes a crucial determinant in increasing poverty rate, compared to smaller family size (Serumaga-Zake and Naudé, 2010; Elmi and Alitabar, 2012; Anyanwu, 2014a, Libois and Somville, 2018a).

Family size is frequently linked with gender; households with more male family members are considered more likely to increase income compared to the ones with a majority of women. Such a standard view has implications for poverty alleviation policies that often disregard gender factors, especially in patriarchal countries; women are not only subordinated sexually but also in economic matters. In fact, many countries regard

women as an essential agent in poverty alleviation (Gökovalı (2013). Nonetheless, the intervention of poverty alleviation policy should be specific in programs to empower women. Widiyanti, *et al.* (2018) claim that women's empowerment through microfinance programs is the right way to cope with poverty for women.

Method of Study

The data used in this work were secondary data obtained from the data publication of Statistics Indonesia. Methods included determining base sectors (economic potentials) employing LQ analysis and panel data to find out the contributing factor of rural poverty from 2011 to 2020 (ten years), involving ten regions in three provinces.

LQ Formula

Location quotient (LQ) analysis was used to determine the economic sectors/subsectors in the area of Tomini Bay. It also served as a guide to understand the economic sector activities in regencies/cities GRDP in the Tomini Bay area. A base sector significantly contributes to the economic growth of a region, thus optimally increasing the regional income. Accordingly, the value of the LQ calculation result was used to determine base sectors/subsectors. These sectors/subsectors were then able to promote the growth or development of other economic sectors/subsectors that would impact job creation. The formula to compare the roles between sector/subsector "i" of the site area (k) and the sector/subsector of the reference area (p) is as follows:

$$LQ = \frac{Eij/Ei}{Ein/En} \tag{1}$$

Description: Eij: GRDP of the sector "i" in the site area. Ej: total GRDP in the site area. Ein: GDRP of the sector "i" in the province. En: total GDRP in the province

Regression Equation Model

Numerous factors are assumed to influence poverty reduction in the area of Tomini Bay, which consists of; a) economic factor measured by per capita income, economic structure, and unemployment rate based on education level; b) human resources factor measured by average years of school, level of access to education, and laborers' education level; c) welfare factor measured by total family dependents, female workers' productivity, and labor force structure. Provided below is the equation model of the present study.

$$Pov_{it} = \beta_{0+} \beta_1 Income_{it} + \beta_2 ShareAgri_{it} + \beta_3 SharenonAgri_{it} + \beta_4 Unemp_{it} +$$
$$\beta_5 AveSchool_{it} + \beta_6 EducSHS_{it} + \beta_7 EducLabPS_{it} + \beta_8 EducLabSS_{it} +$$
$$\beta_9 EducLabSH_{it} + \beta_{10} EducLabUniv_{it} + \beta_{11} Family_{it} + \beta_{12} ProdWoman_{it} +$$
$$\beta_{13} LabPrim_{it} + \beta_{14} LabSec_{it} + \beta_{15} LabTer_{it} + \varepsilon_{it} \tag{3}$$

Description; Poverty is the rural poverty rate (percent). Income, per capita income level (in IDR). ShareAgri, the contribution of the agricultural sector to the economic formation (percent). ShareNonAgri, contribution of non-agricultural sectors to economic formation (percent). Unemp, open unemployment rate (percent). Aveschool, average years of school. EducSHS, level of access to education measured by net enrollment rate of high school (percent). EduclabPS, laborer' education level of primary school graduates (percent). EduclabSS, laborers' education level of secondary school graduates (percent). EduclabSH, laborers' education level of high school graduates (percent). EduclabUniv,

laborers' education level of university graduates (percent). Family, number of family dependents (person), Prodwoman, the productivity of female workers (in IDR). LabPrim, number of primary sector laborers (percent), LabSec, number of secondary sector laborers (percent), LabTer, number of tertiary sector laborers (percent).

Prior to applying the panel data analysis, the Hausman test was carried out. To determine the suitable model, the current research relied on the fix effect model (FEM) and random effect model (REM). Next, the classical assumption test was performed firstly before the statistical testing. The classical assumption test comprised: 1) multicollinearity test to measure the level of relationship/effect between independent variables through the correlation coefficient (r); 2) heteroscedasticity test to observe whether or not, in multiple regression equation, the variance of the residuals from one observation with another is the same; 3) autocorrelation test, a good regression equation does not have autocorrelation issues. If autocorrelation occurs, the equation is not suitable for prediction. Durbin-Watson (DW) test is able to find out whether or not the autocorrelation issues take place. The subsequent testing was observing the value of R^2. If it is close to one, the applied model is pretty good because the change variations of the dependent variable can be explained by the change variations of the independent variables and vice versa. Additionally, the F-test was employed to see the simultaneous significance of independent variables towards the dependent variable, along with the goodness of fit of the model. Lastly, the t-test (partial test) intended to examine whether or not independent variables significantly contributed to the dependent variable.

Results and Discussion

The economic potentials of a region are varied. Therefore, planning economic development requires commodities suitable for the potentials to be promoted. This is carried out to create specialization rather than developing commodities that do not match the region's potentials. The commonly used method of measuring economic potentials is the location quotient (LQ). Regardless of the simplicity of this method, it is able to describe a region's base sectors to be developed as comparative excellence, which then serving as the basis for development planning. The results of the LQ calculation in the area of Tomini Bay display the development of potentials or base sectors of each regency/city in the following table 1.
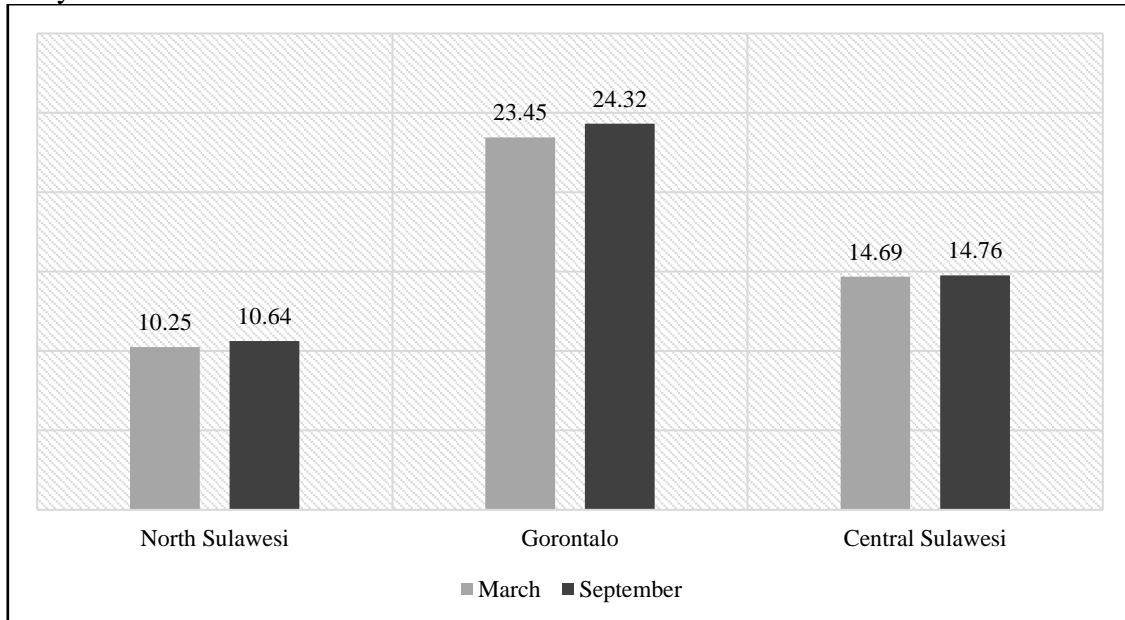
Table 1. Base Sectors of Each Regency/City in Tomini Bay Area

Regency/City	Base Sector 1	Base Sector 2	Base Sector 3	Base Sector 4
South Bolaang Mongondow	Agriculture	Water Supply	Government Service	Education Service
Bone Bolango	Electricity and Gas Supply	Health Service and Social Activity	Government Service	Agriculture
Gorontalo City	Trading	Government Service	Health Service and Social Activity	Company Service
Gorontalo	Agriculture	Mining and Excavation	Electricity and Gas Supply	Construction
Boalemo	Agriculture	Processing Industry	-	-
Pohuwato	Mining and Excavation	Electricity and Gas Supply	Transportation and Warehousing	Agriculture

Parigi Moutong	Trading	Transportation and Warehousing	Agriculture	Accommodation Provision
Poso	Education Service	Transportation and Warehousing	Accommodation Provision	Housing
Tojo Una-Una	Housing	Health Service and Social Activity	Education Service	Agriculture
Banggai	Mining and Excavation	Housing	Financial and Insurance Services	

Source: Processed Results (2021)

The above excellent sectors can be promoted to accelerate the development in the area of Tomini Bay. It is expected that every region optimizes its potentials to fulfill needs and to increase people's income, thus cutting down the poverty rate. Generally, the agricultural sector of regions in the Tomini Bay area is a base sector that is identical to rural lives. The rural poverty rate in this area is relatively high, as illustrated in figure 2, except North Sulawesi Province has low rural poverty, and there is only one region being analyzed.

Source: Statistics Indonesia, Processed Data (2021).

Figure 2. Rural Poverty in Tomini Bay Area, March and September 2020

Many factors contribute to the poverty rate in the area of this bay, including income, agricultural and non-agricultural sectors contribution, unemployment rate, average years of school, high school education level, laborers' education level, dependent family members, female workers' productivity, and laborer distribution in primary, secondary, and tertiary sectors. Those variables are assumed to have a strong correlation in decreasing the poverty rate in the Tomini Bay area.

In the statistical testing, the variables used as estimators have a probability value > z of 0.08119 greater than the probability value of 0.05. Hence, the data are typically distributed and suitable to predict the extent to which each variable impacts rural poverty. In order for the developed model to describe reality and minimize confounding factors, a classical assumption test is essential. The results suggest that there is no multicollinearity,

heteroscedasticity, and autocorrelation. The model developed in the present work is a panel data approach so that testing to determine the processing types (FEM or REM) is required. The values of Wald Chi^2 = 1033.46 and LR Chi^2 = 102.82, or Wald Chi^2 > LR Chi^2, implying that the best model is RE GLS (see table 2).

Table 2. Alternatives for Selection of GLS VS Fixed Effect Random Effect Models

lpoverty	Coef.	Std. Err	z	p>[z]	[95% c 2onf.	Interval]
Liconme	-.2493495	.0552009	-4.52	0.000	-.3575414	-.1411577
Lshareagri	.6711031	.1031156	6.51	0.000	.4690002	.8732061
Lsharenoagri	.1922836	.1564359	1.23	0.219	-.1143251	.4988923
Lunemp	-.161161	.0397537	-4.05	0.000	-.2390768	-.0832452
Lavesch	-.4306089	.1852732	-2.32	0.020	-.7937376	-.0674802
Leducshs	.0114297	.0972188	0.12	0.906	-.1791155	.201975
Leduclabps	.2399965	.107578	2.23	0.026	.0291476	.4508455
Leduclabss	.2427088	.0794601	3.05	0.002	.0869698	.3984477
Leduclabhs	.12919	.0344293	3.75	0.000	.0617098	.1966701
Leduclabuniv	-.0463199	.0297165	-1.17	0.244	-.1241627	.315229
Lfamily	.107622	.0570065	1.89	0.059	-.0041087	.2193528
Lprodwoman	-.0445686	.0188412	-2.37	0.018	-.0814967	-.0076405
Llabprimer	-.2681475	.0757438	-3.54	0.000	-.4166026	-.1196925
Llabsecunder	.0299817	.0342576	0.88	0.381	-.037162	.0971254
Llabtersier	-.0528033	.349882	-1.51	0.131	-.121397	.0157724
_cons	2.549621	.9385465	2.72	0.007	.7101037	4.389138
Sigma_u	0					
Sigma_e	.04546792					
rho	0	(Fraction of variance due to u_i)				

Sources: Processed, (2021).

The simultaneous statistical testing (F-test) arrives at 15.75, meaning that all variables influence rural poverty in the site area. Meanwhile, the partial test (t-test) results show that only ten out of 15 variables are significant, namely income, agricultural sector contribution, unemployment rate, laborers' education level of primary school, secondary school, and high school, number of family dependents, female workers' productivity, and laborers in the primary sector. The details are provided in the following table 3.

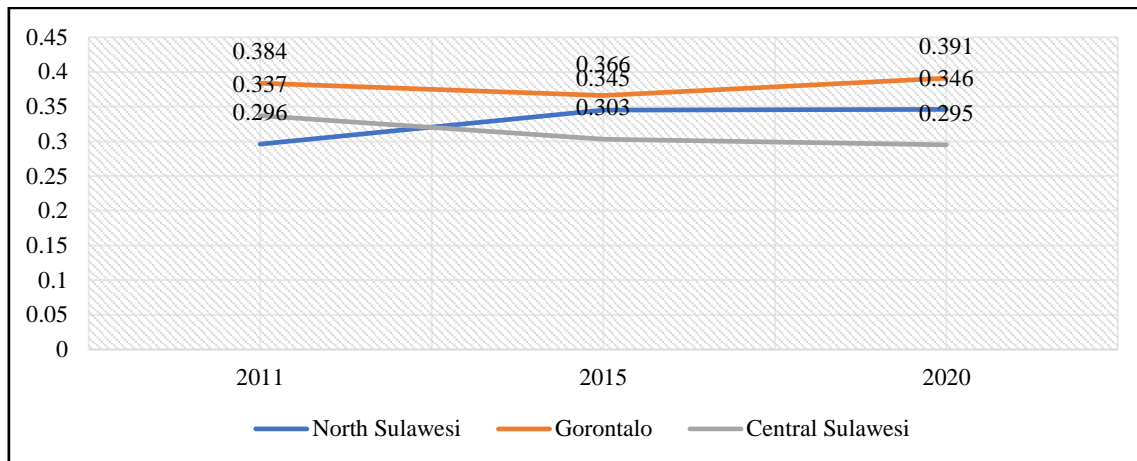**Tabel 3. Model Estimasi GLS Fix Effect Model dan Random Effect Model**

	(2) Ipoverty	(3) Ipoverty
lincome	-0.0443 (-0.95)	-0.249*** (-4.52)
Ishareagri	-0.210 (-1.23)	0.671*** (6.51)
Isharenona-i	-0.699 (-1.79)	0.192 (1.23)
Lunemp	0.0141 (0.80)	-0.161*** (4.05)
Lavesch	-0.819*** (-4.62)	-0.431* (-2.32)

Leducshs	0.0175 (0.39)	0.0114 (0.12)
Leduclabps	-0.0324 (-0.67)	0.240* (2.23)
leduclabss	0.0470 (1.18)	0.243** (3.05)
leduclabhs	0.00462 (0.29)	0.129*** (3.75)
Leduclabuniv	0.0158 (0.86)	-0.0463 (-1.17)
Ifamily	-0.0166 (-0.70)	0.108 (1.89)
Iprodwoman	0.0141 (1.58)	-0.0446* (-2.37)
Ilabprimer	0.0564 (1.16)	-0.268*** (-3.54)
Ilabsecunder	0.0115 (0.72)	0.0300 (0.88)
Ilabtersier	-0.0138 (-0.80)	-0.0528 (-1.51)
_cons	7.972*** (4.32)	2.550** (2.72)
N	100	100

R-sqared: within between overall	0.2837 0.9791 0.9248	Obs per group: min avg max Wald chi(15)	10 10 10 1033.46
corr(u_i, X) = 0 (assumed)		Prob > chi2	0

Sources: Processed (2021).
* p<0.1, ** p<0.05, *** p<0.01

Data processing results point out that the variable of per capita income has a strong effect on the rural poverty rate; the same finding is also found by Fosu (2017; Sillah (2012). The problem is that the incomes of rural people in North Sulawesi and Gorontalo have recently tended to experience inequality, as shown in Figure 3. However, the income of rural communities has tended to be increasingly unequal. Apergis, *et al.* (2011) have empirically proven that income inequality positively affects poverty. Policies that encourage economic improvement do not automatically better the income of people who are susceptible to poverty. For such a reason, increasing per capita income must coincide with income inequality improvement, not merely chasing growth. The starting point for poverty alleviation is implementing development strategies that address inequality (Kay, 2006). This needs inclusive sectors as a source of growth, having a significant impact on society, and relying on more than one sector to support the economy.

Figure 3: Gini Ratio Perdesaan di Kawaan Teluk Tomini, 2011, 2015 dan 2020

In general, regions in the area Tomini Bay strongly depend on the agricultural sector as a source of economic growth, except Gorontalo City, as displayed in the following figure 4. In evidence, Boalemo Regency and Pohuwato Regency contributed more than 50 percent of the agricultural sector, where both regions are pockets of poverty in Gorontalo Province. Dependence on one sector of economic formation, at risk, can worsen welfare, let alone relying on agricultural products which are susceptible to climate change.

Figure 4. Relation Between Share of Agricultural Sector and Poverty

Regions that become poverty enclaves are seen to highly depend on the agricultural sector. The estimation result strengthens this idea, in which the contribution of the agricultural sector is impactful on the increase in rural poverty, as shown in table 3. The more the agricultural sector's contribution enhances the economic formation in the Tomini Bay area, the more the number of the poor increases (see figure 3). This is contrary to previous studies which have suggested that agriculture significantly reduces poverty (Ahluwalia, 2007; Christiansen, *et al*., 2011). The agricultural sector has a positive influence on poverty because there is an enormous number of laborers in this sector, of which 29.75% in North Sulawesi, 32.08% in Gorontalo, and 43.07% in Central Sulawesi

(see figure 5). Yet, land ownership is an average of 0.5 ha. Government support to the agricultural sector is often mistargeted because those who plan to get agricultural subsidies should own land. Meanwhile, the workers in the agricultural sector (farmers) usually are sharecroppers who are not eligible for subsidies.

Source: Processed Data (2021).

Figure 5. Populations of North Sulawesi, Gorontalo, and Central Sulawesi Working in the Agricultural Sector, 2020.

The large ratio of laborers in the agricultural sector yet limited land ownership results in a lack of productivity. Some of them even become part-time workers (hidden unemployment). In spite of that, part-time workers are able to lower the number of rural poor; it is better than not working at all. Moreover, jobs in rural areas are minimal and only dominated by the minimum value-added agricultural sector. To lessen the risk of hidden unemployment, the government needs to make a policy so that that rural commodity products can be available in the market aside from processing industries. It is expected that the labor force structure can be gradually shifted to secondary and tertiary sectors. Such a work shift can determine the increase in household income (Goh, *et al.*, 2009).

In terms of education level, laborers in the area Tomini Bay are mostly or dominated by junior high school graduates (SMP) and below, in North Sulawesi in 2020 the laborers who only completed junior high school was 994,666 laborers of a total of 1,931,636 wolaboreres. In Gorontalo Province, of the total laborers of 893.745 junior high school graduates and below, 596,962 laborers, while in Central Sulawesi there were 2,269,144 laborers, junior high school graduates and below reached 1,372,077 laborers. Even though in terms of education level, laborers in the area of Tomini Bay are mostly primary school graduates or even have no formal schooling. A low level of education contributes to weak productivity. Consequently, the government should pay close attention to the education sector; the 9-year compulsory education program is insufficient. Even the policy of the mandatory 12-year education program should be applied by all local governments. Not only formal education, but the government should also concern about non-formal education for laborers that lack skills. It is on the ground of the estimation result showing that average years of the school effectively lower the poverty rate. This result is consistent with previous research by Sudaryati *et al.* (2021) that average years of school depict one's education level. The longer a person takes education, the better the level of education, leading to increased productivity. The field school is one of the non-formal educations for laborers. This program is believed to improve skills and mastery over technology. The presence of field schools will be worthwhile for

underprivileged farmers if they directly participate in the program rather than indirectly receiving knowledge (Phillips, *et al.,* 2013).

Besides the average years of school, school enrollment also takes part in bettering people's well-being. Studies conducted by Rollenston (2011), Lekobane and Seleka (2016) conclude that education level is of paramount importance in defining household welfare, and higher education level has a more significant benefit in increasing income. In this context, it is expected that the high school enrollment rate rises. Although the estimation result indicates that high school enrollment does not help the poor, the minimum effect of high school enrollment reduces poverty. This is assumed to be due to a discrepancy between curriculum outputs and the structure of available jobs. The finding asserts the common assumption that education matters at high school and university levels are not that necessary to grow the economy of poor and developing countries. On this ground, such levels of education are not included in the agenda of poverty alleviation in multiple poor countries and international donor organizations (Tilak, 2007).

The common assumption mentioned earlier is in line with the estimation result of the education level of laborers graduating from secondary and high schools. It is signified that this variable contributes to the new poverty, compared to primary school education level. This also implies that the higher the education level of laborers, the more likely it is to worsen rural poverty. Similarly, university graduates also have less impact on lowering the poverty rate due to the unrelated and unmatched profile of the secondary school, high school, and university graduates with the region's economic structure. On the other hand, Bonal (2007) states that the efforts to cut down poverty frequently fail because education level is assumed to impact poverty. The majority of experts and policymakers underestimate the inverse relationship, i.e., the impact of poverty on education.

Another fact affecting rural poverty is the number of family dependents. The estimation result elaborates that the increase in dependent family members also increases the poverty rate. This finding strengthens previous studies by Anyanwu (2014b), Sekhampu (2017), Liboisa and Somville (2018b) that family size, or in this case having more children (family dependents), will contribute to household poverty. Awareness of the importance of limiting the number of children in one family in Tomini Bay has been relatively proper, as shown by the average family members with four people. They have two kids as recommended by the government program.

Several policies are established by the government in dealing with poverty. Still, the policies of poverty reduction mostly focus on men, which have widened the gap in productivity and income between men and women, and increased gender inequality. The present paper attempts to include the factor of female workers' productivity. Following the estimation result, this factor shows reasonable indications to alleviate poverty by increasing the participation and productivity of female workers. The more women involved in the working process with productivity, the more effective the action of reducing the rural poverty rate. As a consequence, Gu and Nie (2021) explain in their research that women's empowerment should be optimized as it is impactful on poverty alleviation. Women have contributed to bettering the household income and standard of living. The intervention of women's empowerment comprises training, cooperative (association), and credit assistance. In addition to empowerment strengthening, it is also vital to be attentive to female workers in formal sectors regarding wage discrimination. Discrimination against women is influential in today's poverty rate (Gradin, *et al.,* 2010).

Compared to secondary and tertiary sectors, the primary sector (agriculture) effectively lowers rural poverty. This notion depicts the weak changes in economic structure in the area of Tomini Bay. The roles of secondary and tertiary sectors have not been enhanced yet, thus slowing down the changes in labor force structure. Lin (2019) confirms that structural changes will usually be accompanied by new technologies and job opportunities that will help people increase their income.

Conclusion and Suggestion

Various empirical evidence becomes the factors contributing to rural poverty. Nevertheless, the present study divides them into three important factors with a number of aspects, namely economic, human resources, and welfare factors. It is discovered that not all of the capable-considered variables have been proven to reduce the poverty rate; some of them are not in accordance with theories. Significant findings of this research are as follows: 1) per capita income, average years of school, the productivity of female and primary sector laborers quite significantly cut down rural poverty rate; 2) the contribution of the agricultural sector, laborers' education level, i.e., primary school, secondary school, and high school, and dependent family members have a positive correlation. Besides, the increase in agricultural sector contribution and laborers' education level impact the rise in underprivileged people. It is because the distribution of laborers in the agricultural sector is still relatively large. At the same time, farmers' land ownership is only 0.5 ha on average, not to mention the education level is relatively out of sync with the structure of the available jobs. For such reasons, laborers solely dominate the agricultural sector; 3) the contribution of non-agricultural sectors to the economy, access to high school education (net enrollment rate), university graduates, as well as labor force structure in secondary and tertiary sectors are not impactful on poverty. This gives us the idea that the slow process of economic structural changes in the Tomini Bay area will weaken the shift of labor force structure to productive sectors. Drawing upon the conclusions, the findings of this study have the following recommendations: 1) the government should design a policy that focuses on job creation by optimizing the region's potentials. The agricultural sector production should also be improved with value-added commodities. This is done by involving women in managing agricultural resources and products by providing training, mentoring, and credit assistance; 2) it is essential to design curriculum and education model development that comply with the region's economic structure. Hence, educational institution graduates are able to better the region's potentials with their skills and knowledge; 3) Tomini Bay area owns natural resource potentials and social capital. Accordingly, the acceleration of structural changes is required by strengthening non-primary sectors, including the development of the tourism sector and the processing of agricultural commodities and services according to the region's characteristics to speed up poverty rate reduction.

References:

Ahluwalia, M. S. (2007). Rural Poverty and Agricultural Performance in India, *The Journal of Development Studies, 14* (3), 298 – 323. https://doi.org/10.1080/00220387808421677.

Anyanwu, J. C. (2014). Marital Status, Household Size and Poverty in Nigeria: Evidence from the 2009/2010 Survey Data. *African Development Review, 26* (1), 118 – 137. https://doi.org/10.1111/1467-8268.12069.

Apergis, N., Dincer, O. & Payne, J.E. (2011). On The Dynamics of Poverty and Income Inequality In US States. *Journal of Economic Studies,* 38 (2), 132 - 143. https://doi.org/10.1108/01443581111128370.

Arham, M. A. & Hatu, R. (2020). Does Village Fund Transfer Address the Issue of Inequality and Poverty? A Lesson from Indonesia, *The Journal of Asian Finance, Economics and Business, 7* (10), 433 – 442. https://doi.org/10.13106/jafeb.

Arham, M. A., Fadhli, A. & Dai, S. I. (2020). Does Agricultural Performance Contribute to Rural Poverty Reduction in Indonesia?, *JEJAK, Jurnal Ekonomi dan Kebijakan, 13* (1), 69 – 83. https://doi.org/10.15294/jejak.v13i1.20178.

Arndt, C., Garcia, A., Tarp, F. & Thurlow, J. (2011). Poverty Reduction and Economic Structure: Comparative Path Analysis for Mozambique and Vietnam. *The Review of Income and Wealth, 58 (*4), 742 – 763. https://doi.org/10.1111/1467-9361.00096.

Arora, D. (2015) Gender Differences in Time-Poverty in Rural Mozambique, *Review of Social Economy, 73* (2), 196 – 221. http://doi: 10.1080/00346764.2015.1035909.

Bandiera, O., Burgess, R., Das, N., Gulesci, S., Rasul, I. & Sulaiman, M. (2017). Labor Markets and Poverty in Village Economies. *The Quarterly Journal of Economics*, *132* (2), 811 – 870. https://doi.org/10.1093/qje/qjx003.

Bonal, X. (2007). On Global Absences: Reflections On The Failings In The Education and Poverty Relationship in Latin America, *International Journal of Educational Development, 27* (1), 86 – 100. https://doi.org/10.1016/j.ijedudev.2006.05.003.

Brown, P. & James, D. (2020). Educational Expansion, Poverty Reduction and Social Mobility: Reframing the Debate. International Journal of Educational Research 100. http://doi.org/10.1016/j.ijer.2020.101537.

Cervantes-Godoy, D. & Dewbre, J. (2010), Economic Importance of Agriculture for Poverty Reduction", OECD Food, Agriculture and Fisheries Papers, No. 23, OECD Publishing, Paris. http://dx.doi.org/10.1787/5kmmv9s20944-en.

Christiansen, L., Demery, L. & Kuhl, J. (2011). The (Evolving) Role of Agriculture In Poverty Reduction—An Empirical Perspective, *Journal of Development Economics, 96* (2), 239 – 254. https://doi.org/10.1016/j.jdeveco.2010.10.006.

Dinda, S. (2008). Social Capital In The Creation of Human Capital and Economic Growth: A Productive Consumption Approach, *The Journal of Socio-Economics, 37* (5), 2020 – 2033. https://doi.org/10.1016/j.socec.2007.06.014.

Elmi Z, & Alitabar, F. (2012). The Effect of Education and Household Size on Poverty in Urban Areas of Iran, *Social Welfare Quarterly, 12* (46), 93 – 159. http://refahj.uswr.ac.ir/article-1-971-en.html.

Fosu, A. K. (2017). Growth, Inequality, and Poverty Reduction In Developing Countries: *Recent Global Evidence Research in Economics, 71* (2), 306 – 336. https://doi.org/10.1016/j.rie.2016.05.005.

Goh, C-C., Luo, X. & Zhu, N. (2009). Income Growth, Inequality and Poverty Reduction: A Case Study of Eight Provinces In China, *China Economic Review, 20* (30), 485 – 496.

Gökovalı, U. (2013). Everyone's Own Poverty: Gendering Poverty Alleviation Policies in Turkey. *Women's Studies International Forum, 41* (1), 65 – 75. https://doi.org/10.1016/j.wsif.2013.01.014.

Gradín, C., del Río , C. & Cantó, O. (2010). Gender Wage Discrimination and Poverty in the EU, *Feminist Economics, 16* (2), 73 - 109 https://doi.org/10.1080/13545701003731831.

Gu, R. & Nie, F. (2021). Does Empowering Women Benefit Poverty Reduction? Evidence From A Multi-Component Program In The Inner Mongolia Autonomous Region of China, *Journal of Integrative Agriculture, 20* (4), 1092 – 1106. https://doi.org/10.1016/S2095-3119(20)63436-0.

Kay, C. (2006). Rural Poverty and Development Strategies in Latin America, *Journal of Agrarian Change, 6* (4), 455 – 508. https://doi.org/10.1111/j.1471-0366.2006.00132.x.

Lanjouw, P. & Ravallion, M. (1995). Poverty and Household Size, *The Economic Journal, 105* (433), 1415 – 1434. https://doi.org/10.2307/2235108.

Lekobane, K. R. & Seleka, T. B. (2016). Determinants of Household Welfare and Poverty in Botswana, *Journal of Poverty, 21* (1), 42-60. https://doi.org/10.1080/10875549.2016.1141381.

Liboisa, F. & Somville, V. (2018). Fertility, Household Size and Poverty In Nepal, *World Development, 103* (3), 311 – 322. https://doi.org/10.1016/j.worlddev.2017.11.005.

Lin, J.Y. (2019), .Structural Change and Poverty Elimination. *China Agricultural Economic Review, 11* (30, 452 - 459. https://doi.org/10.1108/CAER-08-2018-0169.

Loayza, N. V. & Raddatz, C. (2010). The Composition of Growth Matters for Poverty Alleviation, *Journal of Development Economics, 93* (1), 137 – 151. http://hdl.handle.net/10986/4720.

Mood, C. & Jonsson, J. O. (2016). The Social Consequences of Poverty: An Empirical Test on Longitudinal Data, *Social Indicators Research, 127,* 633 – 652. http://doi.org/10.1007/s11205-015-0983-9.

Njoya, E. T. & Seetaram, N. (2017). Tourism Contribution to Poverty Alleviation in Kenya: A Dynamic Computable General Equilibrium Analysis, *Journal of Travel Research, 57* (4), 513 – 524. https://doi.org/10.1177/0047287517700317.

Phillips, D., Waddington, H. & White, H. (2014). Better Targeting of Farmers As A Channel for Poverty Reduction: A Systematic Review of Farmer Field Schools Targeting, *Development Studies Research, 1* (1), 113 - 136, http://doi.org/10.1080/21665095.2014.924841

Pramudji (2018). Kondisi Umum Perairan Teluk Tomini, LIPI, Jakarta.

Rasyid, M., Kristina, A., Sutikno, Sunaryati & Yuliani, T. (2020). Poverty Conditions and Patterns of Consumption: An Engel Function Analysis in East Java and Bali, Indonesia, *Asian Economic and Financial Review, 10* (10), 1062 – 1076. http://doi.org/10.18488/journal.aefr.2020.1010.1062.1076

Rolleston, C. (2011). Educational Access and Poverty Reduction: The Case of Ghana 1991–2006, *International Journal of Educational Development, 31* (4), 338 – 349. http://doi.org/10.1016/j.ijedudev.2011.01.002.

Rolleston, C. (2011). Educational Access and Poverty Reduction: The Case of Ghana 1991–2006, *International Journal of Educational Development, 31* (4), 338 – 349. http://doi.org/10.1016/j.ijedudev.2011.01.002.

Sekhampu, T. J. (2017). Determinants of Poverty in a South African Township, *Journal of Social Sciences, 34* (2), 145 – 153. https://doi.org/10.1080/09718923.2013.11893126.

Senevirathne, H. M., Rajasinghe, N. A. & Perera, D. A. M. (2016). Conspicuous Consumption and Rural Poverty in Farming Community: An Empirical Investigation based on Two DS Divisions in Kurunegala District in Sri Lanka, Procedia Food Science, 6, 73 – 77. https://doi.org/10.1016/j.profoo.2016.02.015.

Serumaga-Zake, P & Naudé, W. The Determinants of Rural and Urban Household Poverty In The North West Province of South Africa, *Development Southern Africa, 19* (4), 561 - 572. https://doi.org/10.1080/0376835022000019392.

Sillah, B. M. S. (2012). Governance and Income Determinants of Poverty Reduction: A Cross-Country Analysis of Sub-Saharan African Countries, *African Journal Business Management, 6* (3), 756 – 761. https://doi.org/10.5897/AJBM10.1446.

Siyan, P. & Adegoriola, A. E. & Adolphus, J. A. (2016): Unemployment and Inflation: Implication on Poverty Level in Nigeria. *Journal of Development and Society , 3* (4), 17 - 45. https://mpra.ub.uni-muenchen.de/id/eprint/79765.

Sudaryati, S., Ahmad, A. A., & Suprapto, (2021). The Effect of Average Length of Schooling, Life Expectancy and Economic Growth on Poverty in Banjarnegara Regency 2005-2019, *Eko-Regional; Jurnal Pembangunan Ekonomi Wilayah, 16* (1), 29 – 35. https://doi.org/10.20884/1.erjpe.2021.16.1.1677.

Tilak, J. B. G. (2007). Post-elementary Education, Poverty and Development in India, *International Journal of Educational Development, 27* (4), 435 – 445. https://doi.org/10.1016/j.ijedudev.2006.09.018.

Vanegas, M., Gartner, S.W. & Senauer, B. (2015). Tourism and Poverty Reduction: An Economic Sector Analysis for Costa Rica and Nicaragua. *Tourism Economic, 21* (1), 159 – 182. http://doi.org/10.5367/te.2014.0442.

Verner, D. (2004). Education and its Poverty-Reducing Effects: The Case of Paraíba, Brazil, Policy Research Working Papers, Work Bank Group. https://doi.org/10.1596/1813-9450-3321.

Widiyanti, E., Pudjihardjo & Saputra, P. M. A. (2018). Tackling Poverty through Women Empowerment: The Role of Social Capital in Indonesian Women's Cooperative. *Jurnal Ekonomi dan Studi Pembangunan, 10* (1), 44 – 55. http://dx.doi.org/10.17977/um002v10i12018p044.

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ANALYSIS OF ECONOMIC POTENTIALS AND CONTRIBUTING FACTORS OF RURAL POVERTY IN THE AREA OF TOMINI BAY, SULAWESI, INDONESIA

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Abstract

Tomini Bay area possesses several resources potentials, in addition to resource potentials, the heterogeneous community can serve as social capital for development. Nevertheless, this area has become one of the poverty enclaves in the eastern part of Indonesia. This research was conducted to analyze the economic factor of each region as the basis of developing the Tomini Bay area to reduce the rural poverty rate. The present work also analyzed the contributing factor of rural poverty in the area of Tomini Bay. It relied on an LQ and panel data regression analyses in 2011 - 2020 and covered ten regencies/cities of three provinces in the Tomini Bay area. Significant findings of this study were as follows: 1) per capita income, unemployment rate, average years of school, the productivity of female and primary sector laborers significantly cut down rural poverty rate; 2) the contribution of the agricultural sector, workers' education level, i.e., primary school, secondary school, and high school, and a number of family dependents impacted the increase in underprivileged people. It was because the distribution of laborers in the agricultural sector was still quite large. At the same time, farmers' land ownership was only 0.5 ha on average, not to mention the education level was relatively out of sync with the structure of the available jobs; 3) the contribution of the non-agricultural sector to the economy, access to high school education (net enrollment rate), university graduates, as well as laborers in secondary and tertiary sectors were not impactful on poverty.

Keywords: Economic Potentials, Poverty, and Tomini Bay

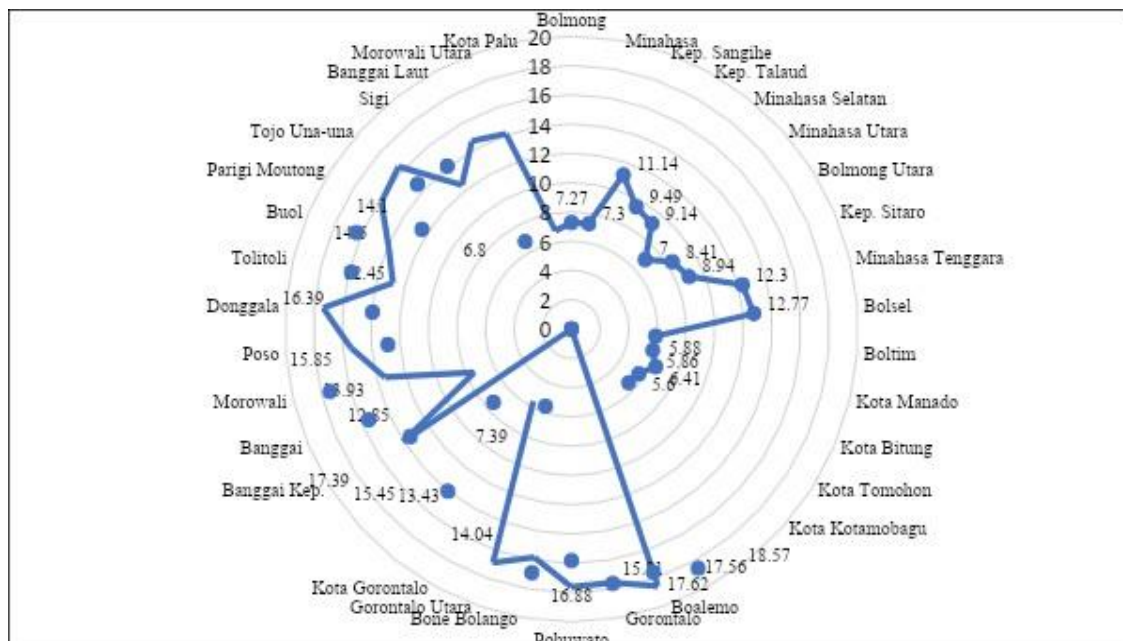**JEL Classification:** R11, R12, I3.

Introduction

As the largest bay in Indonesia with an area of more than 6,000,000 hectares (ha), the Tomini Bay covers three provinces, namely North Sulawesi, Central Sulawesi, and Gorontalo. According to Statistics Indonesia, the bay has approximately 90 islands, some of which are under the Gorontalo and Central Sulawesi Provincial Government. Tomini Bay is located on the

equator and the boundary line of Asian flora and fauna distribution. Further, it is determined differently based on the types of flora and fauna, or majorly known as Wallace's Line. On top of that, Tomini Bay is one of the world's coral triangle areas (Pramudji, 2016).

Tomini Bay, as an area crossed by the equator, owns potentials for fishery resources, biodiversity of marine and land biota. It is also remarkable for its natural beauty, with 1,031 hectares of coral reef areas. Other potentials of marine biological resources (fishery) that can be developed are extraction of bioactive compounds (natural products), such as squalence, omega-3, phycocolloids, biopolymers, and others from microalgae (phytoplankton), macroalgae (seaweed), microorganisms, and invertebrates for the use of healthy food, pharmaceuticals, cosmetics, and other biotechnology-based industries. There are also hundreds of world-class dive spots with apollo, pinnacles, towers, barracudas, colorful fish, and dolphins, making this area promoted as potentially the largest marine tourism in the world. Tomini Bay waters are unique as the wave is relatively small, which prompts a high opportunity for aquaculture development. With sloping coastal areas, The Tomini Bay has the potential for aquaculture (pond) spread over nearly all regencies in North Sulawesi, Gorontalo, and Central Sulawesi. However, such potential has not been optimally made use of.

The area of Tomini Bay socio-culturally has various cultures and customs, where multicultural people get a chance to progress quicker than homogeneous people. Heterogeneity (multiculturalism) can fundamentally bring forth a competitive ecosystem to reach progress and enrich national values. Heterogeneity is social capital that becomes the determining factor of economic progress. Since the 70s, social capital has served as a topical concept in economic development because physical capital (money and natural resources) is not enough to drive progress. Social capital contains social networks and norms that generate mutual understanding, trust, and reciprocity. They support cooperation and collective action for mutual benefits and create economic prosperity (Dinda, 2008).

Despite the fact that Tomini Bay possesses great economic potentials and social capital, it is in contrast to the lives of the community, as shown by the high poverty rate in 2020. Of three provinces covered by the bay, regions with high poverty are precisely displayed in figure 1.

Source: Statistics Indonesia, Processed Data (2021).

Figure 1. Poverty Rate of Three Provinces in Tomini Bay

In North Sulawesi Province, the highest poverty rate accounts for 12.77% of the South Bolaang Mongondow Regency and 12.30% of the Southeast Minahasa Regency. Both regions are directly opposite Tomini Bay. Meanwhile, the highest poverty rate in Gorontalo Province takes place in Boalemo Regency, Pohuwato Regency, and Gorontalo Regency with 18.57%, 17.62%, and 17.56%, respectively. These regions are directly adjacent to the bay mentioned earlier. Lastly, Donggala Regency (17.39%), Tojo Una-Una Regency (16.39%), and Poso Regency (15.45%) are the regions with the highest poverty rate in Central Sulawesi. The waters of the last two regencies are in the Tomini Bay area.

These data illustrate that the potential of the agricultural sector in a broad sense in the site area with the community's well-being experiences a substantial gap. It raises the question of why regions with great resource potential still face a high rate of poverty. It is widely acknowledged in welfare states that poverty issues are due to the lack of economic resources (Mood and Jonsson, 2016). For this reason, resource economy potentials are not the sole factor that intersects extensively with the agricultural sector; there exist other aspects, including tourism. As found by Vanegas, et al. (2015), agriculture (statistically insignificant) improves poverty, yet tourism development negatively correlates with poverty. Although the impact of the tourism sector is more considerable in urban areas than that in rural areas, the tourism industry is on the side of the poor (Njoya and Seetaram, 2017). This empirical finding is quite contrary to the condition in Tomini Bay area, since the promising tourism potentials, e.g., world-class dive spot, marine tourism potential in Togean Island, Kadidiri Island, Biluhu Beach, Cinta Island, and Olele Marine Park, are yet to be impactful on poverty reduction.

Another factor inhibiting the improvement of rural poverty in potential areas is human resources quality measured by education level. This indicates that education level plays a crucial role in determining household welfare and that higher education level gets more benefits (Rolleston, 2011a). Regions with a high poverty rate factually have a relatively low quality of human resources in the area of Tomini Bay that is measured by HDI. For instance, South Bolaang Mongondow Regency in North Sulawesi and Tojo Una-Una Regency in Central Sulawesi have the lowest HDI with

65.00 and 64.59, respectively, among other regencies/cities in their respective provinces. This problem is exacerbated by inequality in access to education and economic opportunity for women; whereas, women's involvement in economic development will accelerate welfare improvement as they help earn a living for the family. Bandiera et al. (2017) reveal that rural women who are not susceptible to poverty are those with formal business, e,g., livestock farming, compared to women seasonal workers with low wages. Empirically, it is also proven that the general measures of individuals' economic strength, namely assets and education, do not merely contribute to poverty for women because they are burdened with house chores (Arora, 2015).

On that ground, the present study was conducted due to the following reasons:
1) There is a gap between a great potential of an area and the low well-being of rural communities in Tomini Bay; 2) empirical findings of the previous studies are different, leading the researchers to explore the contributing factors of rural poverty in the area of Tomini Bay. The purposes of this research are to 1) analyze economic potentials as a basis for formulating a more sustainable development acceleration plan, specifically in eliminating rural poverty; 2) analyze the contributing factor of rural poverty in the area of Tomini Bay so that the policy intervention is more focused and cost-efficient.

Literature Review
Statistics Indonesia (2018) defines poverty as an inability to fulfill basic needs (basic needs approach). Through this approach, poverty is viewed as an economic incapacity to meet food and non-food needs measured from spending. One is considered poor if their food needs are less than 2,100 calories per capita per day (equivalent to rice with 320 kg/capita/year in rural areas and 480 kg/capita/year in urban areas). Also, they have minimum non-food needs that are calculated from the amount of money (in IDR) spent for fulfilling the minimum needs for housing, clothing, health, education, transportation, and the like. Statistics Indonesia annually determines the level of poverty line based on the results of the National Socioeconomic Survey (Susenas) of consumption module (detailed data) with different levels for each province, depending on their minimum cost of living.
Based on basic needs, the applied indicator is headcount index (HCI), i.e., total and percentage of underprivileged population under the poverty line (PL) calculated following per capita expenditure on food and non-food in the pre-determined reference group. PL is divided into the food poverty line (FPL) and non-food poverty line (NFPL). The limit of FPL is calculated by the minimum amount of calories needed, as explained earlier. Conversely, the limit of NFPL is calculated by the amount of money (in IDR) spent for non-food items that fulfill minimum

needs, including housing, clothing, health, education, transportation, and others. These limits of both FPL and NFPL are constantly developing and undergoing adjustments because the adequacy standards in rural and urban areas are dissimilar. Therefore, the calculation of poverty percentage is divided into rural poverty and urban poverty.

Poverty in Indonesia is inextricably linked with rural socioeconomic conditions, in general, and the agricultural sector, in particular (Arham et al., 2020). The rural poverty rate is relatively high due to some factors, as follows: 1) the agricultural sector as the main contributor to the non-processed economy with low productivity levels; 2) a high economic growth in non-tradable sectors, resulting in disparities (the wealth of the middle class gets high, and the wealth of the lower class gets low); 3) culture and social factor inhibit the enthusiasm and lessen mindset changes; 4) low and uneven endowment factor (natural and human resources); 5) political issues and high level of rent-seeking behavior, resulting in the high price of people's needs (Arham dan Hatu, 2020).

Numerous factors empirically influence rural poverty, one of which is high consumption tendency. Income is spent more on consumptive needs, buying goods that do not support production activities (Senevirathne et al., 2016). Rasyid et al. (2020) discover that poor households allocate less income to essential basic needs, such as vegetables, meat, and fish. Another factor driving poverty is economic structure, in which productive sectors (non-agricultural) have more substantial impacts on lowering the poverty rate. In spite of this, every country goes through different situations, as Arndt et al. (2011) suggest in their study that the agricultural sector in Vietnam can naturally better economic growth, leading to rural poverty reduction; yet, in Mozambique, the impact is relatively insignificant. This finding resonates with a study by Loayza and Raddatz (2010), showing that economic growth is not the only measure to cut down the poverty rate, but also unskilled labor-intensive economic structures, such as the agricultural sector, construction, and manufacture.

Moreover, economic structures influence labor force structures that tend to impact new unemployment. This occurs because the availability of laborers does not match the economic structures (demand for laborers). It is necessary to mix economy-driver sectors as they are substantially important in decreasing poverty (Cervantes-Godoyi and Dewbrei, 2010). Sector mix intends not to rely on one sector as a job provider, meaning that acceleration of economic structure changes is required to shift labor force structures, thus avoiding the increase in the unemployment rate. Unemployment is among the causal factors of poverty. In this context, the government should adjust the education curriculum with economic structures (Siyan, et al. 2016) to produce school and university graduates relevant to working lives. Apart from curriculum problems, far-reaching access to education should be enhanced. Rolleston (2011b) argues that a significant reduction in the poverty rate coincides with increased school participation. Bettering access to education to high school or university can overcome poverty by raising the social mobility of underprivileged families (Brown and James, 2020). Improved access to education will give implications for the increase in the average years of school. Average years of school affect poverty reduction; it is assumed that the longer they go to school, the better their skills and knowledge, and the more productive they will be. Average years of school are expected to be

equivalent to high school level (at least) since a high level of education can significantly lower the poverty rate (Verner, 2004).

The problem is that improved access to education strongly depends on household economic capacity and total dependent family members. Nevertheless, this assumption is empirically distrusted by Lanjouw and Ravallion (1995) because the correlation between poverty and dependents (family size) is eliminated when the cost of living is low. However, other empirical findings have proven that a large family size (number of family dependents) becomes a crucial determinant in increasing poverty rate, compared to smaller family size (Serumaga-Zake and Naudé, 2010; Elmi and Alitabar, 2012; Anyanwu, 2014a, Libois and Somville, 2018a).

Family size is frequently linked with gender; households with more male family members are considered more likely to increase income compared to the ones with a majority of women. Such a standard view has implications for poverty alleviation policies that often disregard gender factors, especially in patriarchal countries; women are not only subordinated sexually but also in economic matters. In fact, many countries regard women as an essential agent in poverty alleviation (Gökovalı (2013). Nonetheless, the intervention of poverty alleviation policy should be specific in programs to empower women. Widiyanti, et al. (2018) claim that women's empowerment through microfinance programs is the right way to cope with poverty for women.

Method of Study
The data used in this work were secondary data obtained from the data publication of Statistics Indonesia. Methods included determining base sectors (economic potentials) employing LQ analysis and panel data to find out the contributing factor of rural poverty from 2011 to 2020 (ten years), involving ten regions in three provinces.

LQ Formula
Location quotient (LQ) analysis was used to determine the economic sectors/subsectors in the area of Tomini Bay. It also served as a guide to understand the economic sector activities in regencies/cities GRDP in the Tomini Bay area. A base sector significantly contributes to the economic growth of a region, thus optimally increasing the regional income. Accordingly, the value of the LQ calculation result was used to determine base sectors/subsectors. These sectors/subsectors were then able to promote the growth or development of other economic sectors/subsectors that would impact job creation. The formula to compare the roles between sector/subsector "i" of the site area (k) and the sector/subsector of the reference area (p) is as follows:

$$LQ = \frac{\frac{E_{ij}}{E_i}}{\frac{E_{in}}{E_n}}$$

(1)

Description: Eij: GRDP of the sector "i" in the site area. Ej: total GRDP in the site area. Ein: GDRP of the sector "i" in the province. En: total GDRP in the province

Regression Equation Model

Numerous factors are assumed to influence poverty reduction in the area of Tomini Bay, which consists of; a) economic factor measured by per capita income, economic structure, and unemployment rate based on education level; b) human resources factor measured by average years of school, level of access to education, and laborers' education level; c) welfare factor measured by total family dependents, female workers' productivity, and labor force structure. Provided below is the equation model of the present study.

$$Pov_{it} = \beta_0 + \beta_1 Income_{it} + \beta_2 ShareAgri_{it} + \beta_3 SharenonAgri_{it} + \beta_4 Unemp_{it} + \beta_5 AveSchoo \tag{3}$$

Description; Poverty is the rural poverty rate (percent). Income, per capita income level (in IDR). ShareAgri, the contribution of the agricultural sector to the economic formation (percent). ShareNonAgri, contribution of non-agricultural sectors to economic formation (percent). Unemp, open unemployment rate (percent). Aveschool, average years of school. EducSHS, level of access to education measured by net enrollment rate of high school (percent). EduclabPS, laborer' education level of primary school graduates (percent). EduclabSS, laborers' education level of secondary school graduates (percent). EduclabSH, laborers' education level of high school graduates (percent). EduclabUniv, laborers' education level of university graduates (percent). Family, number of family dependents (person), Prodwoman, the productivity of female workers (in IDR). LabPrim, number of primary sector laborers (percent), LabSec, number of secondary sector laborers (percent), LabTer, number of tertiary sector laborers (percent).

Prior to applying the panel data analysis, the Hausman test was carried out. To determine the suitable model, the current research relied on the fix effect model (FEM) and random effect model (REM). Next, the classical assumption test was performed firstly before the statistical testing. The classical assumption test comprised: 1) multicollinearity test to measure the level of relationship/effect between independent variables through the correlation coefficient (r); 2) heteroscedasticity test to observe whether or not, in multiple regression equation, the variance of the residuals from one observation with another is the same; 3) autocorrelation test, a good regression equation does not have autocorrelation issues. If autocorrelation occurs, the equation is not suitable for prediction. Durbin-Watson (DW) test is able to find out whether or not the autocorrelation issues take place. The subsequent testing was observing the value of R^2. If it is close to one, the applied model is pretty good because the change variations of the dependent variable can be explained by the change variations of the independent variables and vice versa. Additionally, the F-test was employed to see the simultaneous significance of independent variables towards the dependent variable, along with the goodness of fit of the model. Lastly, the t-test (partial test) intended to examine whether or not independent variables significantly contributed to the dependent variable.

Results and Discussion

The economic potentials of a region are varied. Therefore, planning economic development requires commodities suitable for the potentials to be promoted. This is carried out to create specialization rather than developing commodities that do not match the region's potentials. The commonly used method of measuring economic potentials is the location quotient (LQ). Regardless of the simplicity of this method, it is able to describe a region's base sectors to be developed as comparative excellence, which then serving as the basis for development planning. The results of the LQ calculation in the area of Tomini Bay display the development of potentials or base sectors of each regency/city in the following table 1.
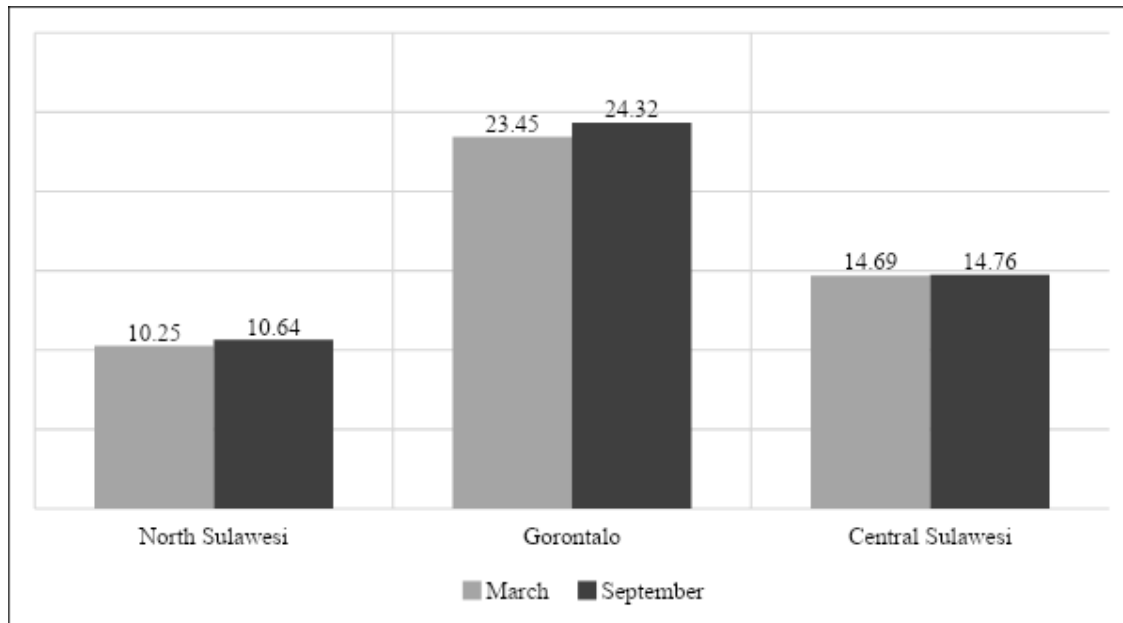
Table 1. Base Sectors of Each Regency/City in Tomini Bay Area

Regency/City	Base Sector 1	Base Sector 2	Base Sector 3	Base Sector 4
South Bolaang Mongondow	Agriculture	Water Supply	Government Service	Education Service
Bone Bolango	Electricity and Gas Suppy	Health Service and Social Activity	Government Service	Agriculture
Gorontalo City	Trading	Government Service Service	Health Service and Social	Company Service
Gorontalo	Agriculture	Mining and Excavation	Electricity and Gas Supply	Construction
Boalemo	Agriculture	Processing Industry	-	-
Pohuwato	Mining and Excavation	Electricity and Gas Supply	Transportation and Warehousing	Agriculture
Parigi Moutong	Trading	Transportation and Warehousing	Agriculture	Accommodation Provision
Poso	Education Service	Transportation and Warehousing	Accommodation Provision	Housing
Tojo Una-Una	Housing	Health Service And SocialActivity	Education Service	Agriculture
Banggai	Mining and Excavation	Housing	Financial and Insurance Services	

Source: Processed Results (2021)

The above excellent sectors can be promoted to accelerate the development in the area of Tomini Bay. It is expected that every region optimizes its potentials to fulfill needs and to increase people's income, thus cutting down the poverty rate. Generally, the agricultural sector of regions in the Tomini Bay area is a base sector that is identical to rural lives. The rural poverty rate in

this area is relatively high, as illustrated in figure 2, except North Sulawesi Province has low rural poverty, and there is only one region being analyzed.

Source: Statistics Indonesia, Processed Data (2021).

Figure 2. Rural Poverty in Tomini Bay Area, March and September 2020

Many factors contribute to the poverty rate in the area of this bay, including income, agricultural and non-agricultural sectors contribution, unemployment rate, average years of school, high school education level, laborers' education level, dependent family members, female workers' productivity, and laborer distribution in primary, secondary, and tertiary sectors. Those variables are assumed to have a strong correlation in decreasing the poverty rate in the Tomini Bay area.

In the statistical testing, the variables used as estimators have a probability value

> z of 0.08119 greater than the probability value of 0.05. Hence, the data are typically distributed and suitable to predict the extent to which each variable impacts rural poverty. In order for the developed model to describe reality and minimize confounding factors, a classical assumption test is essential. The results suggest that there is no multicollinearity, heteroscedasticity, and autocorrelation. The model developed in the present work is a panel data approach so that testing to determine the processing types (FEM or REM) is required. The values of Wald Chi2 = 1033.46 and LR Chi2 = 102.82, or Wald Chi2 > LR Chi2, implying that the best model is RE GLS (see table 2).

Table 2. Alternatives for Selection of GLS VS Fixed Effect Random Effect Models

lpoverty	Coef.	Std. Err	z	p>[z]	[95% c 2onf.	Interval]
Liconme	-.2493495	.0552009	-4.52	0.000	-.3575414	-.1411577
Lshareagri	.6711031	.1031156	6.51	0.000	.4690002	.8732061
Lsharenoagri	.1922836	.1564359	1.23	0.219	-.1143251	.4988923
Lunemp	-.161161	.0397537	4.05	0.000	-.2390768	-.0832452
Lavesch	-.4306089	.1852732	-2.32	0.020	-.7937376	-.0674802
Leducshs	.0114297	.0972188	0.12	0.906	-.1791155	.201975
Leduclabps	.2399965	.107578	2.23	0.026	.0291476	.4508455
Leduclabss	.2427088	.0794601	3.05	0.002	.0869698	.3984477
Leduclabhs	.12919	.0344293	3.75	0.000	.0617098	.1966701
Leduclabuniv	-.0463199	.0297165	-1.17	0.244	-.1241627	.315229
Lfamily	.107622	.0570065	1.89	0.059	-.0041087	.2193528
Lprodwoman	-.0445686	.0188412	-2.37	0.018	-.0814967	-.0076405
Llabprimer	-.2681475	.0757438	-3.54	0.000	-.4166026	-.1196925
Llabsecunder	.0299817	.0342576	0.88	0.381	-.037162	.0971254
Llabtersier	-.0528033	.349882	-1.51	0.131	-.121397	.0157724
_cons	2.549621	.9385465	2.72	0.007	.7101037	4.389138
Sigma_u	0					
Sigma_e	.04546792					
rho	0	(Fraction of variance due to u_i)				

Sources: Processed, (2021).

The simultaneous statistical testing (F-test) arrives at 15.75, meaning that all variables influence rural poverty in the site area. Meanwhile, the partial test (t-test) results show that only ten out of 15 variables are significant, namely income, agricultural sector contribution, unemployment rate, laborers' education level of primary school, secondary school, and high school, number of family dependents, female workers' productivity, and laborers in the primary sector. The details are provided in the following table 3.

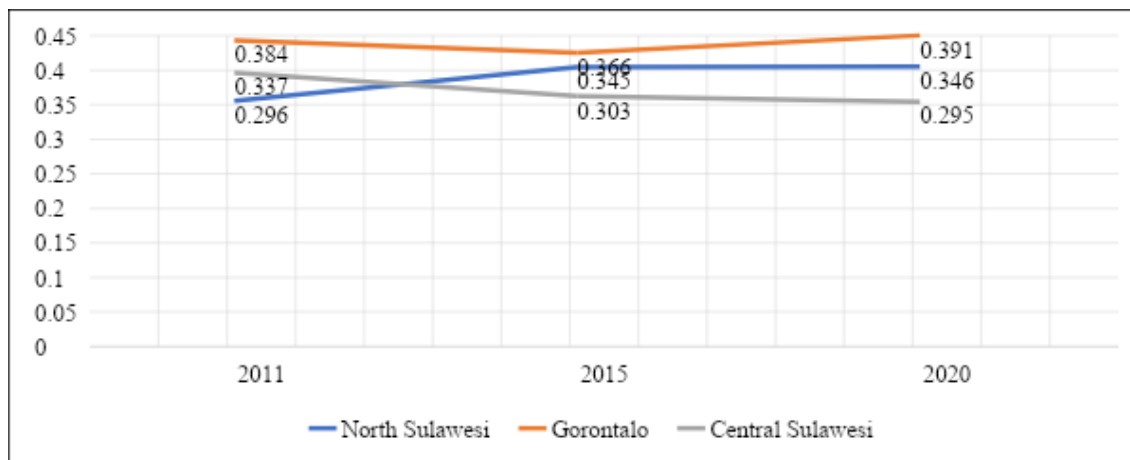### Tabel 3. Model Estimasi GLS Fix Effect Model dan Random Effect Model

	(2) Ipoverty	(3) Ipoverty
Lincome	-0.0443	-0.249***
	(-0.95)	(-4.52)
Ishareagri-	0.210	0.671***
	(-1.23)	(6.51)
Isharenona-I	-0.699	0.192
	(-1.79)	(1.23)
Lunemp	0.0141	-0.161***
	(0.80)	(4.05)
Lavesch	-0.819***	-0.431*
	(-4.62)	(-2.32)
Leducshs	0.0175	0.0114
	(0.39)	(0.12)
Leduclabps	-0.0324	0.240*
	(-0.67)	(2.23)
Leduclabss	0.0470	0.243**
	(1.18)	(3.05)
Leduclabhs	0.00462	0.129***
	(0.29)	(3.75)
Leduclabuniv	0.0158	-0.0463
	(0.86)	(-1.17)
Ifamily	-0.0166	0.108
	(-0.70)	(1.89)
Iprodwoman	0.0141	-0.0446*
	(1.58)	(-2.37)
Ilabprimer	0.0564	-0.268***
	(1.16)	(-3.54)
Ilabsecunder	0.0115	0.0300
	(0.72)	(0.88)
Ilabtersier	-0.0138	-0.0528
	(-0.80)	(-1.51)
_cons	7.972***	2.550**
	(4.32)	(2.72)
N	100	100

R-sqared:		Obs per group:	
Within	0.2837	min	10
between	0.9791	avg	10
overall	0.9248	max	10
		Wald	chi (15)
		1033.46	
corr(u_i, X) = 0 (assumed)		Prob > chi2	0

Sources: Processed (2021).
* $p<0.1$, ** $p<0.05$, *** $p<0.01$

Data processing results point out that the variable of per capita income has a strong effect on the rural poverty rate; the same finding is also found by Fosu (2017; Sillah (2012). The problem is that the incomes of rural people in North Sulawesi and Gorontalo have recently tended to experience inequality, as shown in Figure 3. However, the income of rural communities has tended to be increasingly unequal. Apergis, et al. (2011) have empirically proven that income inequality positively affects poverty. Policies that encourage economic improvement do not automatically better the income of people who are susceptible to poverty. For such a reason, increasing per capita income must coincide with income inequality improvement, not merely chasing growth. The starting point for poverty alleviation is implementing development strategies that address inequality (Kay, 2006). This needs inclusive sectors as a source of growth, having a significant impact on society, and relying on more than one sector to support the economy.

Source: Processed Data (2021)

Figure 3: Gini Ratio Perdesaan di Kawaan Teluk Tomini, 2011, 2015 dan 2020

In general, regions in the area Tomini Bay strongly depend on the agricultural sector as a source of economic growth, except Gorontalo City, as displayed in the following figure 4. In evidence, Boalemo Regency and Pohuwato Regency contributed more than 50 percent of the agricultural sector, where both regions are pockets of poverty in Gorontalo Province. Dependence on one sector of economic formation, at risk, can worsen welfare, let alone relying on agricultural products which are susceptible to climate change.
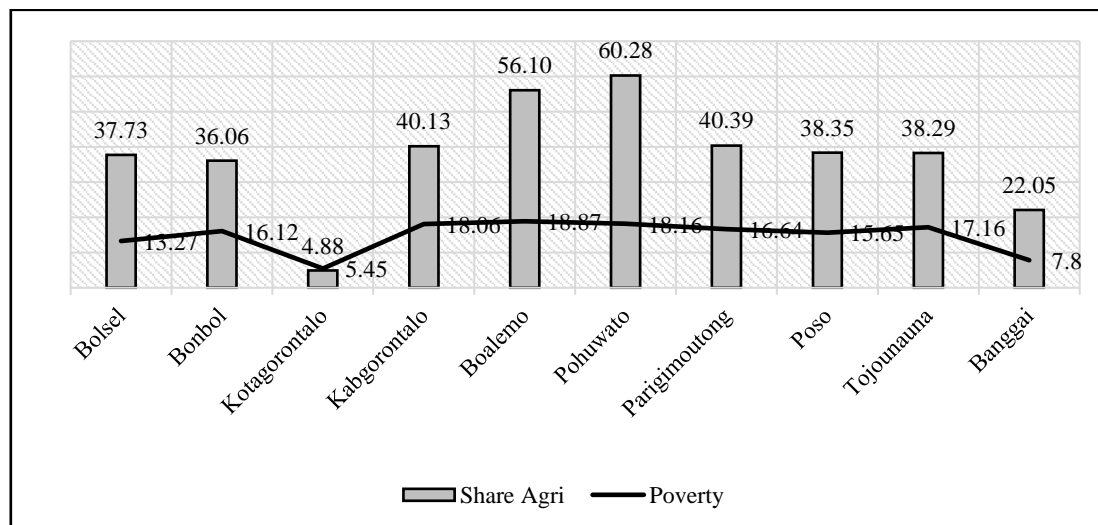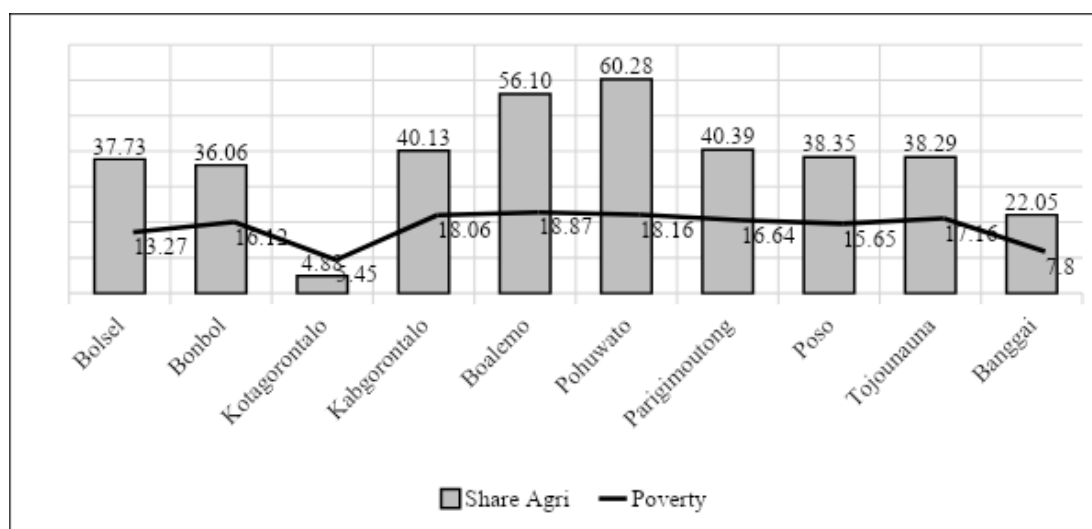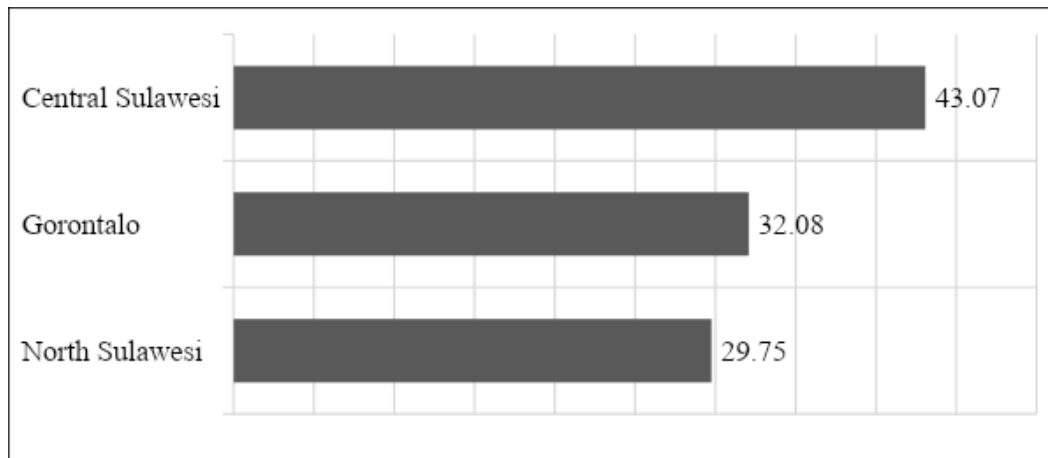

Source: Processed Data (2021)

Figure 4. Relation Between Share of Agricultural Sector and Poverty

Regions that become poverty enclaves are seen to highly depend on the agricultural sector. The estimation result strengthens this idea, in which the contribution of the agricultural sector is impactful on the increase in rural poverty, as shown in table

3. The more the agricultural sector's contribution enhances the economic formation in the Tomini Bay area, the more the number of the poor increases (see figure 3). This is contrary to previous studies which have suggested that agriculture significantly reduces poverty (Ahluwalia, 2007; Christiansen, et al., 2011). The agricultural sector has a positive influence on poverty because there is an enormous number of laborers in this sector, of which 29.75% in North Sulawesi, 32.08% in Gorontalo, and 43.07% in Central Sulawesi (see figure 5). Yet, land ownership is an average of 0.5 ha. Government support to the agricultural sector is often mistargeted because those who plan to get agricultural subsidies should own land. Meanwhile, the workers in the agricultural sector (farmers) usually are sharecroppers who are not eligible for subsidies.

Source: Processed Data (2021).

Figure 5. Populations of North Sulawesi, Gorontalo, and Central Sulawesi Working in the Agricultural Sector, 2020.

The large ratio of laborers in the agricultural sector yet limited land ownership results in a lack of productivity. Some of them even become part-time workers (hidden unemployment). In spite of that, part-time workers are able to lower the number of rural poor; it is better than not working at all. Moreover, jobs in rural areas are minimal and only dominated by the minimum value-added agricultural sector. To lessen the risk of hidden unemployment, the government needs to make a policy so that that rural commodity products can be available in the market aside from processing industries. It is expected that the labor force structure can be gradually shifted to secondary and tertiary sectors. Such a work shift can determine the increase in household income (Goh, et al., 2009).

In terms of education level, laborers in the area Tomini Bay are mostly or dominated by junior high school graduates (SMP) and below, in North Sulawesi in 2020 the laborers who only completed junior high school was 994,666 laborers of a total of 1,931,636 wolaboreres. In Gorontalo Province, of the total laborers of 893.745 junior high school graduates and below, 596,962 laborers, while in Central Sulawesi there were 2,269,144 laborers, junior high school graduates and below reached 1,372,077 laborers. Even though in terms of education level, laborers in the area of Tomini Bay are mostly primary school graduates or even have no formal schooling. A low level of education contributes to weak productivity. Consequently, the government should pay close attention to the education sector; the 9-year compulsory education program is insufficient. Even the policy of the mandatory 12-year education program should be applied by all local governments. Not only formal education, but the government should also concern about non-formal education for laborers that lack skills. It is on the ground of the estimation result showing that average years of the school effectively lower the poverty rate. This result is consistent with previous research by Sudaryati et al. (2021) that average years of school depict one's education level. The longer a person takes education, the better the level of education, leading to increased productivity. The field school is one of the non-formal educations for laborers. This program is believed to improve skills and mastery over technology. The

presence of field schools will be worthwhile for underprivileged farmers if they directly participate in the program rather than indirectly receiving knowledge (Phillips, et al., 2013).

Besides the average years of school, school enrollment also takes part in bettering people's well-being. Studies conducted by Rollenston (2011), Lekobane and Seleka (2016) conclude that education level is of paramount importance in defining household welfare, and higher education level has a more significant benefit in increasing income. In this context, it is expected that the high school enrollment rate rises. Although the estimation result indicates that high school enrollment does not help the poor, the minimum effect of high school enrollment reduces poverty. This is assumed to be due to a discrepancy between curriculum outputs and the structure of available jobs. The finding asserts the common assumption that education matters at high school and university levels are not that necessary to grow the economy of poor and developing countries. On this ground, such levels of education are not included in the agenda of poverty alleviation in multiple poor countries and international donor organizations (Tilak, 2007).

The common assumption mentioned earlier is in line with the estimation result of the education level of laborers graduating from secondary and high schools. It is signified that this variable contributes to the new poverty, compared to primary school education level. This also implies that the higher the education level of laborers, the more likely it is to worsen rural poverty. Similarly, university graduates also have less impact on lowering the poverty rate due to the unrelated and unmatched profile of the secondary school, high school, and university graduates with the region's economic structure. On the other hand, Bonal (2007) states that the efforts to cut down poverty frequently fail because education level is assumed to impact poverty. The majority of experts and policymakers underestimate the inverse relationship, i.e., the impact of poverty on education.

Another fact affecting rural poverty is the number of family dependents. The estimation result elaborates that the increase in dependent family members also increases the poverty rate. This finding strengthens previous studies by Anyanwu (2014b), Sekhampu (2017), Liboisa and Somville (2018b) that family size, or in this case having more children (family dependents), will contribute to household poverty. Awareness of the importance of limiting the number of children in one family in Tomini Bay has been relatively proper, as shown by the average family members with four people. They have two kids as recommended by the government program.

Several policies are established by the government in dealing with poverty. Still, the policies of poverty reduction mostly focus on men, which have widened the gap in productivity and income between men and women, and increased gender inequality. The present paper attempts to include the factor of female workers' productivity. Following the estimation result, this factor shows reasonable indications to alleviate poverty by increasing the participation and productivity of female workers. The more women involved in the working process with productivity, the more effective the action of reducing the rural poverty rate. As a consequence, Gu and Nie (2021) explain in their research that women's empowerment should be optimized as it is impactful on poverty alleviation. Women have contributed to bettering the household income and standard of living. The intervention of women's empowerment comprises training, cooperative (association), and credit assistance. In addition to empowerment strengthening, it is also vital to be attentive to

female workers in formal sectors regarding wage discrimination. Discrimination against women is influential in today's poverty rate (Gradin, et al., 2010).

Compared to secondary and tertiary sectors, the primary sector (agriculture) effectively lowers rural poverty. This notion depicts the weak changes in economic structure in the area of Tomini Bay. The roles of secondary and tertiary sectors have not been enhanced yet, thus slowing down the changes in labor force structure. Lin (2019) confirms that structural changes will usually be accompanied by new technologies and job opportunities that will help people increase their income.

Conclusion and Suggestion

Various empirical evidence becomes the factors contributing to rural poverty. Nevertheless, the present study divides them into three important factors with a number of aspects, namely economic, human resources, and welfare factors. It is discovered that not all of the capable-considered variables have been proven to reduce the poverty rate; some of them are not in accordance with theories. Significant findings of this research are as follows: 1) per capita income, average years of school, the productivity of female and primary sector laborers quite significantly cut down rural poverty rate; 2) the contribution of the agricultural sector, laborers' education level, i.e., primary school, secondary school, and high school, and dependent family members have a positive correlation. Besides, the increase in agricultural sector contribution and laborers' education level impact the rise in underprivileged people. It is because the distribution of laborers in the agricultural sector is still relatively large. At the same time, farmers' land ownership is only 0.5 ha on average, not to mention the education level is relatively out of sync with the structure of the available jobs. For such reasons, laborers solely dominate the agricultural sector; 3) the contribution of non-agricultural sectors to the economy, access to high school education (net enrollment rate), university graduates, as well as labor force structure in secondary and tertiary sectors are not impactful on poverty. This gives us the idea that the slow process of economic structural changes in the Tomini Bay area will weaken the shift of labor force structure to productive sectors. Drawing upon the conclusions, the findings of this study have the following recommendations: 1) the government should design a policy that focuses on job creation by optimizing the region's potentials. The agricultural sector production should also be improved with value-added commodities. This is done by involving women in managing agricultural resources and products by providing training, mentoring, and credit assistance; 2) it is essential to design curriculum and education model development that comply with the region's economic structure. Hence, educational institution graduates are able to better the region's potentials with their skills and knowledge; 3) Tomini Bay area owns natural resource potentials and social capital. Accordingly, the acceleration of structural changes is required by strengthening non-primary sectors, including the development of the tourism sector and the processing of agricultural commodities and services according to the region's characteristics to speed up poverty rate reduction.

References:

Ahluwalia, M. S. (2007). Rural Poverty and Agricultural Performance in India, The Journal of Development Studies, 14 (3), 298 – 323. https://doi.org/10.1080/00220387808421677.

Anyanwu, J. C. (2014). Marital Status, Household Size and Poverty in Nigeria: Evidence from the 2009/2010 Survey Data. African Development Review, 26 (1), 118 – 137. https://doi.org/10.1111/1467-8268.12069.

Apergis, N., Dincer, O. & Payne, J.E. (2011). On The Dynamics of Poverty and Income Inequality In US States. Journal of Economic Studies, 38 (2), 132 - 143. https://doi.org/10.1108/01443581111128370.

Arham, M. A. & Hatu, R. (2020). Does Village Fund Transfer Address the Issue of Inequality and Poverty? A Lesson from Indonesia, The Journal of Asian Finance, Economics and Business, 7 (10), 433 – 442. https://doi.org/10.13106/jafeb.

Arham, M. A., Fadhli, A. & Dai, S. I. (2020). Does Agricultural Performance Contribute to Rural Poverty Reduction in Indonesia?, JEJAK, Jurnal Ekonomi dan Kebijakan, 13 (1), 69 – 83. https://doi.org/10.15294/jejak.v13i1.20178.

Arndt, C., Garcia, A., Tarp, F. & Thurlow, J. (2011). Poverty Reduction and Economic Structure: Comparative Path Analysis for Mozambique and Vietnam. The Review of Income and Wealth, 58 (4), 742 – 763. https://doi.org/10.1111/1467-9361.00096.

Arora, D. (2015) Gender Differences in Time-Poverty in Rural Mozambique, Review of Social Economy, 73 (2), 196 – 221. http://doi: 10.1080/00346764.2015.1035909.

Bandiera, O., Burgess, R., Das, N., Gulesci, S., Rasul, I. & Sulaiman, M. (2017). Labor Markets and Poverty in Village Economies. The Quarterly Journal of Economics, 132 (2), 811 – 870. https://doi.org/10.1093/qje/qjx003.

Bonal, X. (2007). On Global Absences: Reflections On The Failings In The Education and Poverty Relationship in Latin America, International Journal of Educational Development, 27 (1), 86– 100. https://doi.org/10.1016/j.ijedudev.2006.05.003.

Brown, P. & James, D. (2020). Educational Expansion, Poverty Reduction and Social Mobility: Reframing the Debate. International Journal of Educational Research 100. http://doi.org/10.1016/j.ijer.2020.101537.

Cervantes-Godoy, D. & Dewbre, J. (2010), Economic Importance of Agriculture for Poverty Reduction", OECD Food, Agriculture and Fisheries Papers, No. 23, OECD Publishing, Paris. http://dx.doi.org/10.1787/5kmmv9s20944-en.

Christiansen, L., Demery, L. & Kuhl, J. (2011). The (Evolving) Role of Agriculture In Poverty Reduction—An Empirical Perspective, Journal of Development Economics, 96 (2), 239 – 254. https://doi.org/10.1016/j.jdeveco.2010.10.006.

Dinda, S. (2008). Social Capital In The Creation of Human Capital and Economic Growth: A Productive Consumption Approach, The Journal of Socio-Economics, 37 (5), 2020 – 2033. https://doi.org/10.1016/j.socec.2007.06.014.

Elmi Z, & Alitabar, F. (2012). The Effect of Education and Household Size on Poverty in Urban Areas of Iran, Social Welfare Quarterly, 12 (46), 93 – 159. http://refahj.uswr.ac.ir/article-1-971-en.html.

Fosu, A. K. (2017). Growth, Inequality, and Poverty Reduction In Developing Countries: Recent Global Evidence Research in Economics, 71 (2), 306–336. https://doi.org/10.1016/j.rie.2016.05.005.

Goh, C-C., Luo, X. & Zhu, N. (2009). Income Growth, Inequality and Poverty Reduction: A Case Study of Eight Provinces In China, China Economic Review, 20 (30), 485 – 496.

Gökovalı, U. (2013). Everyone's Own Poverty: Gendering Poverty Alleviation Policies in Turkey. Women's Studies International Forum, 41 (1), 65 – 75. https://doi.org/10.1016/j.wsif.2013.01.014.

Gradín, C., del Río , C. & Cantó, O. (2010). Gender Wage Discrimination and Poverty in the EU, Feminist Economics, 16 (2), 73 - 109 https://doi.org/10.1080/13545701003731831.

Gu, R. & Nie, F. (2021). Does Empowering Women Benefit Poverty Reduction? Evidence From A Multi-Component Program In The Inner Mongolia Autonomous Region of China, Journal of Integrative Agriculture, 20 (4), 1092 – 1106. https://doi.org/10.1016/S2095-3119(20)63436-0.

Kay, C. (2006). Rural Poverty and Development Strategies in Latin America, Journal of Agrarian Change, 6 (4), 455 – 508. https://doi.org/10.1111/j.1471-0366.2006.00132.x.

Lanjouw, P. & Ravallion, M. (1995). Poverty and Household Size, The Economic Journal, 105 (433), 1415 – 1434. https://doi.org/10.2307/2235108.

Lekobane, K. R. & Seleka, T. B. (2016). Determinants of Household Welfare and Poverty in Botswana, Journal of Poverty, 21 (1), 42-60. https://doi.org/10.1080/10875549.2016.1141381.

Liboisa, F. & Somville, V. (2018). Fertility, Household Size and Poverty In Nepal, World Development, 103 (3), 311 – 322. https://doi.org/10.1016/j.worlddev.2017.11.005.

Lin, J.Y. (2019),. Structural Change and Poverty Elimination. China Agricultural Economic Review, 11 (30, 452 - 459. https://doi.org/10.1108/CAER-08-2018-0169.

Loayza, N. V. & Raddatz, C. (2010). The Composition of Growth Matters for Poverty Alleviation, Journal of Development Economics, 93 (1), 137 – 151. http://hdl.handle.net/10986/4720.

Mood, C. & Jonsson, J. O. (2016). The Social Consequences of Poverty: An Empirical Test on Longitudinal Data, Social Indicators Research, 127, 633 – 652. http://doi.org/10.1007/s11205-015-0983-9.

Njoya, E. T. & Seetaram, N. (2017). Tourism Contribution to Poverty Alleviation in Kenya: A Dynamic Computable General Equilibrium Analysis, Journal of Travel Research, 57(4), 513 – 524. https://doi.org/10.1177/0047287517700317.

Phillips, D., Waddington, H. & White, H. (2014). Better Targeting of Farmers As A Channel for Poverty Reduction: A Systematic Review of Farmer Field Schools Targeting, Development Studies Research, 1 (1), 113-136, http://doi.org/ 10.1080/21665095.2014.924841

Pramudji (2018). Kondisi Umum Perairan Teluk Tomini, LIPI, Jakarta.

Rasyid, M., Kristina, A., Sutikno, Sunaryati & Yuliani, T. (2020). Poverty Conditions and Patterns of Consumption: An Engel Function Analysis in East Java and Bali, Indonesia, Asian Economic and Financial Review, 10 (10), 1062 – 1076. http://doi.org/10.18488/journal.aefr.2020.1010.1062.1076

Rolleston, C. (2011). Educational Access and Poverty Reduction: The Case of Ghana 1991– 2006, International Journal of Educational Development, 31 (4), 338 – 349. http://doi.org/10.1016/j.ijedudev.2011.01.002.

Rolleston, C. (2011). Educational Access and Poverty Reduction: The Case of Ghana 1991– 2006, International Journal of Educational Development, 31 (4), 338 – 349. http://doi.org/10.1016/j.ijedudev.2011.01.002.

Sekhampu, T. J. (2017). Determinants of Poverty in a South African Township, Journal of Social Sciences, 34 (2), 145 – 153. https://doi.org/10.1080/09718923.2013.11893126.

Senevirathne, H. M., Rajasinghe, N. A. & Perera, D. A. M. (2016). Conspicuous Consumption and Rural Poverty in Farming Community: An Empirical Investigation based on Two DS Divisions in Kurunegala District in Sri Lanka, Procedia Food Science, 6, 73–77. https://doi.org/10.1016/j.profoo.2016.02.015.

Serumaga-Zake, P & Naudé, W. The Determinants of Rural and Urban Household Poverty In The North West Province of South Africa, Development Southern Africa, 19 (4), 561 - 572. https://doi.org/10.1080/0376835022000019392.

Sillah, B. M. S. (2012). Governance and Income Determinants of Poverty Reduction: A Cross-Country Analysis of Sub-Saharan African Countries, African Journal Business Management, 6 (3), 756 – 761. https://doi.org/10.5897/AJBM10.1446.

Siyan, P. & Adegoriola, A. E. & Adolphus, J. A. (2016): Unemployment and Inflation: Implication on Poverty Level in Nigeria. Journal of Development and Society, 3 (4), 17 - 45. https://mpra.ub.uni-muenchen.de/id/eprint/79765.

Sudaryati, S., Ahmad, A. A., & Suprapto, (2021). The Effect of Average Length of Schooling, Life Expectancy and Economic Growth on Poverty in Banjarnegara Regency 2005-2019, Eko-Regional; Jurnal Pembangunan Ekonomi Wilayah, 16 (1), 29 – 35. https://doi.org/10.20884/1.erjpe.2021.16.1.1677.

Tilak, J. B. G. (2007). Post-elementary Education, Poverty and Development in India, International Journal of Educational Development, 27 (4), 435 – 445. https://doi.org/10.1016/j.ijedudev.2006.09.018.

Vanegas, M., Gartner, S.W. & Senauer, B. (2015). Tourism and Poverty Reduction: An Economic Sector Analysis for Costa Rica and Nicaragua. Tourism Economic, 21 (1), 159 – 182. http://doi.org/10.5367/te.2014.0442.

Verner, D. (2004). Education and its Poverty-Reducing Effects: The Case of Paraíba, Brazil, Policy Research Working Papers, Work Bank Group. https://doi.org/10.1596/1813-9450-3321.

Widiyanti, E., Pudjihardjo & Saputra, P. M. A. (2018). Tackling Poverty through Women Empowerment: The Role of Social Capital in Indonesian Women's Cooperative. Jurnal Ekonomi dan Studi Pembangunan, 10 (1), 44 – 55. http://dx.doi.org/10.17977/um002v10i12018p044.