



# The Effect of Aggregate Expenditure on Poverty Level in West Sulawesi Province

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**Abstract.** Using the human development index, this study examines how household consumer spending, government spending, investment, and net exports affect poverty in the province of West Sulawesi. Panel data from six districts in the province of West Sulawesi are used in this study for the years 2015–2022. The Path Analysis model, which is supported by the E-views 13 application, is the data analysis technique employed in this study. The study's findings show that while household consumption expenditure has a beneficial indirect impact on poverty through the human development index, it has no direct influence on the poverty rate. The human development index is one way that government spending affects the poverty rate indirectly, whereas direct government spending has a positive impact on the rate. Through the human development index, investment has a negative impact on poverty both directly and indirectly. Through the human development index, net exports indirectly reduce the rate of poverty.

**Keywords:** Household Consumption Expenditure, Government Expenditure, Investment, Net Export, Human Development Index, and Poverty Level.

## 1. Introduction

Poverty remains a significant and ongoing topic of discussion worldwide, particularly in developing countries. In Indonesia, the issue of poverty is a primary focus for the government, as it is not solely a matter of low income but is also intricately connected to insufficient levels of education and public health conditions. Poverty is defined as an individual's state with a low standard of living, characterized by a lack of basic needs (Pusparani, 2022).

Addressing poverty is a complex challenge that requires careful consideration of the profile of the impoverished population to ensure more targeted interventions. According to Ragnar Nurkse, the cycle of poverty signifies a complex interplay of factors that perpetuate and reinforce each other, resulting in a persistent state of poverty for a country. This cycle is driven by underdeveloped nations experiencing extremely low total productivity due to a lack of capital, market imperfections, and an underdeveloped economy.

Chambers' proposed dimensions of poverty offer insights into the various facets of poverty-related problems and the factors contributing to these conditions. The concept of poverty extends beyond the conventional economic view,

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A. Patunru et al. (eds.), *Proceedings of the 8th International Conference on Accounting, Management, and Economics (ICAME 2023)*, Advances in Economics, Business and Management Research 279,  
[https://doi.org/10.2991/978-94-6463-400-6\\_41](https://doi.org/10.2991/978-94-6463-400-6_41)

encompassing not only an inability to meet basic needs due to low income but also a state of helplessness arising from poor health and education, inadequate legal treatment, vulnerability to crime, the risk of negative political treatment, and a general inability to enhance one's own welfare.

Over the past five years (2015-2019), Indonesia has witnessed a continual decline in its poverty rate, reaching a commendable 9.22% in September 2019. However, the onset of the Covid-19 pandemic, affecting all nations, including Indonesia, led to a resurgence in poverty rates in March 2020. The repercussions of the virus extend beyond health concerns, impacting various socio-economic aspects, notably contributing to the rise in poverty (BPS-Statistics Indonesia, 2021).

A key objective of Indonesia's national development is to enhance economic performance, creating job opportunities and ensuring a decent standard of living for all citizens, ultimately fostering prosperity. Reducing the number of people living in poverty is a national development target, as poverty has adverse effects that can hinder overall economic progress. Poverty stands out as a crucial social indicator in the context of economic development, representing one of the fundamental challenges impeding progress in Indonesia (Misdawita & Sari, 2013).

The number of impoverished people in West Sulawesi Province is larger in rural areas than in urban areas, according to BPS-Statistics Indonesia (2021). The reason for this disparity is because job opportunities are more plentiful in metropolitan areas. The data indicates that the number of impoverished individuals in West Sulawesi Province varies, peaking at 157.19 thousand in 2021. It's interesting to note that the province's poverty rate rose by 11.29% in 2021 after declining by 7% between 2017 and 2020. This implies that the West Sulawesi Provincial administration has not been entirely successful in reducing poverty, underscoring the necessity of focused initiatives to address the differences between rural and urban communities.

Furthermore, the Human Development Index in West Sulawesi Province has experienced a consistent increase from 2015 to 2022. Simultaneously, the poverty rate in the province declined from 2015 to 2020 but saw an increase from 2020 to 2022. Upon closer examination, it becomes evident that as the human development index rises, the poverty level tends to decrease. This correlation can be explained by the fact that an elevated human development index enhances the quality of human resources, contributing to a reduction in poverty levels. The spike in poverty witnessed in 2020-2022 was a direct result of the Covid-19 pandemic, with the impoverished population in rural areas experiencing a notable increase of 12.58% (BPS-Statistics Indonesia, 2022).

In fact, West Sulawesi Province's Human Development Index (HDI) showed an increasing tendency between 2015 and 2022. At the same time, the province's poverty rate decreased between 2015 and 2020 before rising between 2020 and 2022. Additional investigation finds a correlation: the poverty level tends to decline as the HDI rises. An improvement in the caliber of human resources is shown by an elevated HDI, which helps to reduce poverty. The Covid-19 pandemic is blamed for the increase in poverty that was seen in 2020–2022, which was made worse by a 12.58% rise in the number of disadvantaged people living in rural regions.

West Sulawesi Province stands out as a province in Indonesia that requires attention regarding its human development achievements. The HDI in this province

lags behind the average HDI in the Sulawesi region and the national average. The HDI targets set in the 2017-2022 West Sulawesi Province Regional Medium-Term Development Plan (RPJMD) consistently fall below the regional and national averages. The province has struggled to achieve its RPJMD HDI targets from 2017 to 2021 (Kanwil DJPB Provincial West Sulawesi, 2019).

Government spending, according to Mangkoesobroto in Jean & Mongan (2019), reflects government policy, with incurred costs acting as a result of policies that are put into effect. Budgets that have been allocated indicate the government's intention to deal with problems in particular industries. The State Revenue and Expenditure Budget Law (UU-APBN) and the Regional Regulations pertaining to the Regional Revenue and Expenditure Budget (APBD), which are enacted annually, serve as evidence of the government's dedication to regional autonomy and development. The two main instruments for enhancing community wellbeing are APBN and APBD.

Net exports play a crucial role in influencing economic growth through the demand for exports and imports, impacting the performance of economic sectors and the production of goods and services. According to the Hecksher-Ohlin theory, international trade and economic growth depend on export and import activities. Exports, carried out at lower production costs, benefit the country, while imports occur when needed goods are unavailable domestically, proving mutually beneficial for countries. In this context, export and import activities contribute significantly to economic growth and international trade (Pridayanti, 2013).

Effective poverty reduction strategies demand an integrated, systematic approach, involving all stakeholders, including central and regional governments, businesses, non-governmental organizations, community groups, and the impoverished themselves. This collaborative effort aims to maximize benefits, improving social, economic, and cultural conditions and enhancing the overall welfare of the impoverished population.

## 2. Literature Review

Poverty is a pervasive challenge faced by countries worldwide, particularly in developing nations like Indonesia. It represents a limitation experienced by individuals, families, communities, or even entire nations, resulting in life discomfort, threats to law enforcement and justice, and potential generational losses with a bleak future for the nation. This comprehensive understanding emphasizes the relation between poverty and the discomfort experienced in various aspects of life. Individuals find themselves marginalized in all fields, unable to align their living conditions with those of the surrounding community (Mahmud et al., 2020).

Statistics BPS Indonesia uses the basic needs approach to define poverty, defining it as the inability to pay for fundamental necessities, both food and non-food. Poor residents are defined as those whose average monthly per capita expenditures fall below the poverty line, which is the total of the Food Poverty Line (GKM) and the Non-Food Poverty Line (GKNM). Furthermore, the World Bank determines the poverty line by considering an individual's daily income, classifying people who earn less than US\$1.25 and US\$2 as impoverished (World Bank, 2006).

The Human Development Index (HDI) takes important aspects of living quality into account when evaluating human development accomplishments. It uses a three-dimensional approach that includes knowledge, a respectable level of living, and a long and healthy life. Life expectancy, literacy rates, average years of education, and purchasing power parity indicators are used to measure these characteristics (BPS-Statistics Indonesia, 2020).

The United Nations Development Program (UNDP, 1990) outlines the HDI's criteria, categorizing an index of over 80 as very high, 70 to 79 as high, 60 to 69 as medium, and below 60 as low (Runtunuwu, 2020). In economic growth according to Keynes, the money flow cycle involves increasing spending, which stimulates income, leading to further spending and income increases (Mankiw, 2013). Household expenditures, encompassing all family and individual spending, serve as indicators of individual and social welfare, reflecting the overall economic system's development (Illahi et al., 2018).

Keynes in Sukirno (2013) underscores that income is a pivotal factor influencing consumption and savings levels. Households allocate income to meet various needs, such as food, clothing, transportation, education, rent, and vehicles, aiming to improve their overall welfare.

Investment activity stands as a key determinant of economic development, reflected in the Gross Fixed Capital Formation (GFCF) and Changes in Inventory (PI) components of the Gross Regional Domestic Product (GRDP) (Central Statistics Agency, 2021). The purpose of investment spending is to generate future profits, making it a crucial factor influencing aggregate expenditure.

In international trade, export and import activities are interrelated, with exports referring to goods and services sold abroad, and imports representing those produced abroad for domestic consumption (Mankiw, 2014). Net Exports, the difference between export and import values, impacts economic growth. A positive net export value, indicating a trade surplus, contributes positively to economic growth, while a negative value, suggesting a trade deficit, has a detrimental effect.

The export base theory, introduced by Tiebout, distinguishes between basic and non-basic sectors within a region. Basic sectors, not tied to internal conditions, stimulate other types of work and are exogenous, while non-basic sectors meet local community needs and are endogenous, dependent on the region's economic conditions (Tarigan, 2005).

## **Research Method**

The research strategy used in this study is a quantitative approach. Scientific techniques known as quantitative research methods place a high priority on the statistical processing of numerical data, or numbers, for analysis. Using the human development index in West Sulawesi Province, the quantitative method used in this study attempts to quantify and assess the effects of net exports, government spending, investment, and household consumption spending on poverty from 2015 to 2022.

The research was conducted in six districts within West Sulawesi Province, including Polewali Mandar District, Majene District, Mamasa District, Mamuju District, Central Mamuju District, and Pasangkayu District. For the analysis, Path Analysis is employed using Eviews 12 software. This model is deemed suitable for

elucidating the influences within the established framework. The method facilitates the testing of complex hypotheses, proving beneficial for assessing both the direct and indirect impact of independent variables on the dependent variable.

To analyze the relationship, the baseline equation is as follows:

$$Y1 = f(X1, X2, X3, X4)$$

$$Y2 = f(X1, X2, X3, Y1)$$

Where :

X1 = Household consumption

X2 = government expenditure

X3 = investment

X4 = net exports

Y1 = human development index

Y2 = poverty

Based on the functional relationship in equations (3.1) and (3.2), it can be expressed non-linearly as follows:

$$e^{Y1} = \alpha0 . X1^{\alpha1} . X2^{\alpha2} . X3^{\alpha3} . X4^{\alpha4} e + \mu1 \dots (3.1)$$

$$e^{Y2} = \beta0 . X1^{\beta1} . X2^{\beta2} . X3^{\beta3} . Y1^{\beta4} e^{\beta0} + \mu2 \dots (3.2)$$

based on equations (3.1) and (3.2), it can be expressed linearly as following:

$$Y1 = \alpha0 + \alpha1X1 + \alpha2X2 + \alpha3X3 + \alpha4X4 + \mu \dots (3.3)$$

$$Y2 = \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \mu2 \dots (3.4)$$

then, equation (3.4) is substituted into equation (3.5) to become:

$$\begin{aligned} \ln Y2 &= \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \mu2 = \beta0 + \beta1Y1 + (\alpha0 + \alpha1X1 + \\ &\alpha2X2 + \alpha3X3 + \alpha4X4 + \mu1) + \beta2X1 + \beta3X2 + \beta4X3 + \mu2 = (\beta0 + \beta1\alpha0) + \\ &(\beta1\alpha1 + \beta2) X1 + \beta1\alpha2 + \beta3) X2 + \beta1\alpha3 + \beta4) X3 + \beta1\mu1 + \mu2 = \\ &\delta0 + \delta1 X1 + \delta2 X2 + \delta3 X3 + \delta4 X4 + \delta5 Y1 + \mu2 \dots (4.5) \end{aligned}$$

Where:

$$\delta0 = \beta0 + \beta1\alpha0$$

$$\delta1 = \beta1\alpha1 + \beta2$$

$$\delta2 = \beta1\alpha2 + \beta3$$

$$\delta3 = \beta1\alpha3 + \beta4$$

$$\delta = \beta1\mu1 + \mu2$$

$\alpha0$  = Constanta Y1

$\beta0$  = Constanta Y2

## Results and Discussion

This research focuses on assessing the extent of influence exerted by exogenous variables on endogenous variables. The exogenous variables in this study comprise household consumption expenditure, government expenditure, investment, and net exports. In contrast, the endogenous variables encompass the human development index and poverty level.

### 2.1 Direct Relationship Between Variables

The direct estimation results, as presented in Table 1, reveal the impact of household consumption, local government expenditure, private investment, net exports, and the Human Development Index on poverty, based on the processed data in this research.

Upon examining the estimated coefficient of determination for the Human Development Index (Y1) model, which stands at 0.44, it becomes evident that 44 percent of the variability in the human development index can be explained by household consumption expenditure, government expenditure, investment, and net exports. The remaining 56 percent is attributed to other variables not integrated into the research model. This is further substantiated by the F test with a probability of 0.00, signifying that, collectively, the independent variables can elucidate the human development index at the 5 percent level.

In the case of the poverty model (Y2), the coefficient of determination is calculated at 0.86. This implies that 86 percent of the variations in poverty can be accounted for by household consumption expenditure, government expenditure, investment, and the human development index. Conversely, the remaining 14 percent is ascribed to other variables not considered in the research model. This finding is corroborated by the F test with a probability of 0.00, indicating that the independent variables collectively have the capacity to explain the human development index at the 5 percent level.

**Table 1.** Results of Analysis of Direct Influence Between Variables

The Variable Relationships	Coefficient	Probability	Note
X1 → Y1	-9.93	0.001	Signifikan
X2 → Y1	3.41	0.007	Signifikan
X3 → Y1	7.02	0.000	Signifikan
X4 → Y1	-1.66	0.003	Signifikan
X1 → Y2	-0.67	0.650	Tidak Signifikan
X2 → Y2	9.53	0.000	Signifikan
X3 → Y2	-3.038	0.001	Signifikan

Y1 → Y2	-0.928	0.000	Signifikan
*) Significant level $\alpha = 5\%$			
$R^2 Y1 = 0,44$			
$Y2 = 0,86$			

(Source: Eviews 12, Data is processed)

Based on the obtained results, Figure 3 illustrates the direct impact of household consumption expenditure, government expenditure, investment, and net exports on poverty through the human development index.

The estimated effect of household consumption expenditure (X1) on the human development index (Y1) is -9.93, with a probability of 0.000 at a significance level of 5 percent. This indicates a negative influence of household consumption expenditure on the human development index. Specifically, a 1 percent increase in household consumption expenditure results in a -9.93 percent reduction in the human development index. These findings contradict the initial hypothesis, which posited a positive and significant influence of household consumption expenditure on the human development index.

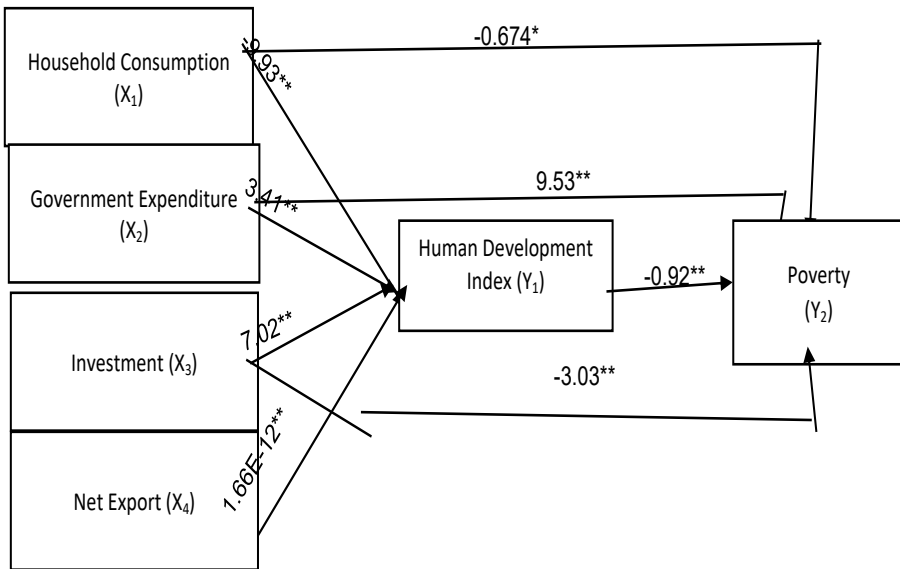


Fig. 3. Research Results Framework

The estimated result of government expenditure (X2) on the human development index (Y1) is 3.41, with a probability of 0.000 at a significance level of 5 percent. This signifies that government spending has a positive impact on the human development index, indicating that every 1 percent increase in government

spending will raise the human development index by 3.41 percent. These findings align with the initial hypothesis, which posited a positive and significant influence of government spending on the human development index.

Similarly, the estimated result of investment (X3) on the human development index (Y1) is 7.02, with a probability of 0.000 at a significance level of 5 percent. This indicates a positive effect of investment on the human development index, with every 1 percent increase in investment contributing to a 7.02 percent rise in the human development index. These results are consistent with the initial hypothesis, which suggested a positive and significant influence of investment on the human development index.

Conversely, the estimated result of net exports (X4) on the human development index (Y1) is  $-1.66E-12$ , with a probability of 0.003 at a significance level of 5 percent. This suggests that net exports have a negative effect on the human development index, with every 1 percent increase in net exports causing a reduction of -1.66 percent in the human development index. These findings contradict the initial hypothesis, which proposed a positive and significant influence of net exports on the human development index.

Moving to the poverty level (Y2), the estimated results of household consumption expenditure (X1) show a coefficient of -0.67, with a probability of 0.650 at a significance level of 5 percent. This indicates that household consumption expenditure has no significant effect on the poverty level. These results diverge from the initial hypothesis, which asserted a negative and significant influence of household consumption expenditure on the poverty level.

The estimated result of government expenditure (X2) on poverty (Y2) is 9.53, with a probability of 0.000 at a significance level of 5 percent. This suggests that government spending positively influences the poverty level, with every 1 percent increase in government spending leading to a 9.53 percent rise in the poverty level. These results are contrary to the initial hypothesis, which stated a negative and significant influence of government spending on poverty levels.

Regarding investment (X3) and its impact on the poverty level (Y2), the estimated result is -3.03, with a probability of 0.001 at a significance level of 5 percent. This reveals a negative effect of investment on the poverty level, with every 1 percent increase in investment resulting in a reduction of -3.03 percent in the poverty level. These findings align with the initial hypothesis, indicating a negative and significant influence of investment on poverty levels.

Finally, the estimated results of the human development index (Y1) on the poverty level (Y2) yield a coefficient of -0.92, with a probability of 0.000. This demonstrates that the human development index has a negative effect on the poverty level, with every 1 percent increase in the human development index leading to a -0.92 percent reduction in the poverty level. These findings align with the initial hypothesis, which asserted a negative and significant influence of the human development index on poverty levels.



### 2.2 Indirect Variable Relationships

The indirect estimates of the impact of household consumption, local government expenditure, private investment, and net exports on poverty through the human development index, processed in this research, are outlined in Table 2.

Upon analyzing the results in Table 2, the interplay between variables unfolds as follows:

The effect of household consumption expenditure (X1) on poverty levels (Y2) through the human development index (Y1) reveals a positive and significant outcome with a regression coefficient of 3.84 ( $-9.93 \times -0.92$ ). This influence originates from a negative and significant correlation between government spending on the human development index, followed by a negative and significant relationship between the human development index and poverty levels. Consequently, a 1 percent increase in household consumption expenditure leads to a decrease of -9.93 percent in the human development index. The ensuing reduced human development index resulting from household consumption expenditure triggers a 3.84 percent increase in the poverty rate. This finding contradicts the initial hypothesis, which proposed that household consumption expenditure directly exerts a negative and significant effect on poverty levels through the human development index.

**Table 2.** Results of Analysis of Indirect Effects Between Variables

The Variable Relationships	Parameter	Coefficients	Note
X1 → Y1 → Y2	$\alpha_1, \beta_1$	3.844	Significant
X2 → Y1 → Y2	$\alpha_2, \beta_1$	-3.208	Significant
X3 → Y1 → Y2	$\alpha_3, \beta_1$	-3.784	Significant
X4 → Y1 → Y2	$\alpha_4, \beta_1$	2.736	Significant
*) Signification 5%			

(Source: Eviews Data is Processed)

The direct impact of government spending (X2) on poverty levels (Y2) through the human development index (Y1) manifests as a negative and significant outcome with a regression coefficient of -3.20 ( $3.415 \times -0.929$ ). This effect stems from a positive and significant association between government spending on the human development index, followed by a negative and significant relationship between the human development index and poverty levels. In essence, a 1 percent increase in government spending results in a 3.41 percent increase in the human development index. The subsequent rise in the human development index from increased government spending leads to a reduction in the poverty rate by -3.20 percent. These findings align with the initial hypothesis, asserting that government spending indirectly exerts a negative and significant effect on poverty levels through the human development index.

The estimated impact of investment (X3) on poverty levels (Y2) through the human development index (Y1) reveals negative and significant results with a regression coefficient of -3.78 ( $7.062 \times -0.928$ ). This influence arises from a positive and significant correlation between investment and the human development index, followed by a negative and significant relationship between the human development index and poverty levels. In practical terms, a 1 percent increase in investment leads to a 0.426 percent increase in the human development index. The subsequent rise in the human development index from increased investment results in a reduction in the poverty rate by -3.78 percent. These results corroborate the initial hypothesis, indicating that investment indirectly has a negative and significant effect on poverty levels through the human development index.

The impact of net exports (X4) on poverty levels (Y2) through the human development index (Y1) displays significant results with a regression coefficient of 2.736 ( $-1.66E-12 \times -0.928524$ ). This influence originates from a negative and significant relationship between net exports and the human development index, which then continues with a negative and significant relationship between the human development index and the poverty level. In essence, a 1 percent increase in net exports results in a -1.66E-12 percent decrease in the human development index. The subsequent decline in the human development index from net exports leads to an increase in the poverty rate by 2,736 percent. This finding contradicts the initial hypothesis, which proposed that net exports indirectly have a negative and significant effect on poverty levels through the human development index.

The research findings indicate that household consumption expenditure does not have a direct impact on poverty levels. It is suspected that the increase in people's consumption could be driven by their attempt to meet daily needs, even at higher prices. This could be attributed to high fuel prices and inflation, which may have complex effects on people's consumption. These results diverge from the research conducted by (Maulidah & Soejoto, 2017) and (Yusri et al., 2020), where the findings suggested that household consumption has a negative and significant effect on poverty, indicating that substantial household consumption contributes to poverty reduction.

Indirectly, household consumption expenditure has a positive and significant influence on poverty levels through the human development index. This implies that the human development index acts as a mediator between household consumption and poverty. Therefore, an increase in household consumption leads to a rise in poverty through the human development index. The research results also reveal that household consumption expenditure directly has a negative effect on the human development index, which, in turn, positively affects the poverty level. These findings are consistent with the study conducted by (AyuBhakti et al., 2018), which suggested that household expenditure on food is closely related to people's welfare. Although the absolute number is increasing, the percentage is decreasing due to a greater allocation of income to non-food consumption. Furthermore, the research aligns with the data from the Central Statistics Agency for West Sulawesi Province in 2022, indicating a slowdown in household consumption since 2019, with a further decline in 2020, reaching only 0.48 percent. Several sub-components within it experienced

contraction, with the health and education sub-component projected to contract by 2.26 percent in 2022.

The research findings also reveal that government spending has a direct positive and significant influence on poverty levels. However, the efficacy of government spending in poverty reduction hinges on its efficiency and accuracy in targeting relevant sectors such as education, health, and social protection. These results correspond with the findings of (Fithri & Kaluge, 2017), suggesting that additional government spending in the health sector may not effectively reduce poverty if improvements in public health are not aligned with new job creation.

Moreover, the research indicates that investment has a direct negative effect on poverty levels. The influx of investment can enhance economic activity, potentially reducing poverty. This aligns with Harrod-Domar's assertion that investment is integral to economic growth, and low investment correlates with low per capita income and economic growth due to insufficient economic activity (Todaro, 2006). Additionally, the research findings highlight that the human development index mediates the negative impact of investment on poverty levels. This underscores the role of investment in enhancing economic activities, gradually diminishing poverty. This observation aligns with the assertion made by (Asif et al., 2020), emphasizing the vital role of investment in improving human development and alleviating poverty in developing countries. Hence, collaborative efforts between governments and the private sector are essential to increase investments in key sectors that drive human development and poverty reduction.

Furthermore, the research findings indicate that net exports indirectly influence poverty levels through the human development index, resulting in a positive impact. This suggests that the human development index has not been effective in mediating the impact of net exports on poverty. This finding corresponds with the viewpoint expressed by (Todaro & et al, 2006), emphasizing that economic development requires inclusive growth and contributions from the majority of the population rather than a limited elite. If only a small portion of the population contributes to economic growth, the benefits are concentrated within that elite group.

The research presents valuable insights into the complex interplay between household consumption expenditure, government spending, investment, net exports, the human development index, and poverty levels in West Sulawesi Province. These findings underscore the importance of targeted policies and interventions to ensure that economic activities, public spending, and investments effectively contribute to poverty reduction and human development.

## **Conclusion**

In summary, household consumption expenditure shows no direct effect on poverty. This finding implies that household consumption expenditure alone will not contribute to poverty reduction. However, indirectly, the influence of household consumption expenditure has a positive impact on poverty through the Human

Development Index. This suggests that household consumption expenditure may impact poverty alleviation when considered in conjunction with the human development index.

Government spending exhibits a direct positive effect on poverty. This finding implies that government spending directly contributes to poverty reduction. Moreover, government spending indirectly exerts a negative effect on poverty through the human development index. This suggests that government spending influences poverty levels through the intermediary factor of the human development index. Investment demonstrates both a direct and indirect negative effect on poverty. This implies that investment can directly contribute to poverty reduction and, simultaneously, indirectly impact poverty through the human development index.

Net exports indirectly exhibit a positive influence on poverty levels through the human development index. This suggests that net exports may not directly impact poverty reduction, particularly if considered through the lens of the human development index.

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