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Unveiling Human Development Index Mediation on Consumption Dynamics

Rosdiana[1]✉, [2] Muhammad Yasin Majoo

[1,2]Faculty of Economics, Nuku University

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Abstract

The research aims to explore the influence of household and government consumption expenditure on GRDP and its impact on HDI. Additionally, this study seeks to investigate the mediating role of HDI in the relationship between consumption expenditure and GRDP. The study utilizes data on Household Consumption Expenditures (HCE), Government Consumption Expenditures (GCE), Human Development Index (HDI), and Gross Regional Domestic Product (GRDP). The research population is all regions in North Maluku Province, totaling ten regions from 2013-2022. The sampling technique employs non-probability sampling with a census sampling method, resulting in a sample size equal to the population, which is 100 samples. The research adopts quantitative research methods, and the analysis techniques include SPSS and SmartPLS 4. The research findings indicate that Household Consumption Expenditures (HCE) significantly affect Gross Regional Domestic Product but do not impact the Human Development Index. Government Consumption Expenditures (GCE) do not significantly affect Gross Regional Domestic Product or the Human Development Index (HDI), and the Human Development Index (HDI) does not significantly influence Gross Regional Domestic Product (GRDP). Furthermore, HDI does not mediate the relationship between Household Consumption expenditure and Government Consumption expenditure on Gross Regional Domestic Product (GRDP).

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✉ Corresponding author :
Address: Faculty of Economics, Nuku University
E-mail: rosdianakoe01@gmail.com

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INTRODUCTION

The three most essential theories of economic growth are classical theory, neo-classical theory, and modern economic studies theory. The most influential economic growth theorists are Adam Smith (classical growth), Robert Solow, Trevor Swan (neo-classical growth), and Roy Harrod and Evsey Domar (modern growth). Although each theory has marked differences, they share the goal of understanding the concept and drivers of growth. The debate among these three theorists primarily revolves around their differing perspectives.

Classical economists such as Smith and Ricardo argued for the significance of studying how economies expand and contract. Neo-classical intellectuals like Solow and Swan emphasized the importance of economic actors' behavior within a system fundamental to growth. Finally, modern theory underscores the resolution of the economy's fundamental dilemma: meeting unlimited needs with limited resources. In this debate, they also advocate for the importance of knowledge as a critical element in growth (Pietak, 2014).

Gross Regional Domestic Product (GRDP) is a fundamental concept in regional economic development. GRDP serves as a measure of the economic success of all economic activities within a region. A region's economic development level is often gauged by its economic output. GRDP, a commonly used indicator, reflects a region's economic performance. An increase in GRDP signifies improved economic activities, welfare levels, and quality of life for the region's inhabitants, while a decrease implies the opposite.

Gross Regional Domestic Product by Expenditure (GRDP Expenditure) displays economic data for a region, alongside other forms such as GRDP by business fields, Input-Output tables, socio-economic balance systems, and fund flow balances. Within a region's economic data framework, GRDP Expenditure is a fundamental measure describing the utilization of goods and services produced through production activities. This form of GRDP represents the "final" outcomes of the production process occurring within the region's territorial boundaries. Domestic and foreign economic actors utilize these final goods and services to meet final demand. Key aggregates derived from GRDP Expenditure include Final Consumption Expenditure, gross fixed capital formation, and exports and imports.

The North Maluku Province has garnered attention due to reports indicating a projected economic growth of 25% in 2021. This news has sparked various opinions, particularly among North Maluku residents who express skepticism regarding its accuracy. Calculations based on data provided by the Central Statistics Agency of North Maluku Province, using current prices (ADHB), reveal that the average GRDP growth for the province over ten years (2013-2022) stands at 14.15%. The image below depicts GRDP growth data annually over the past decade.

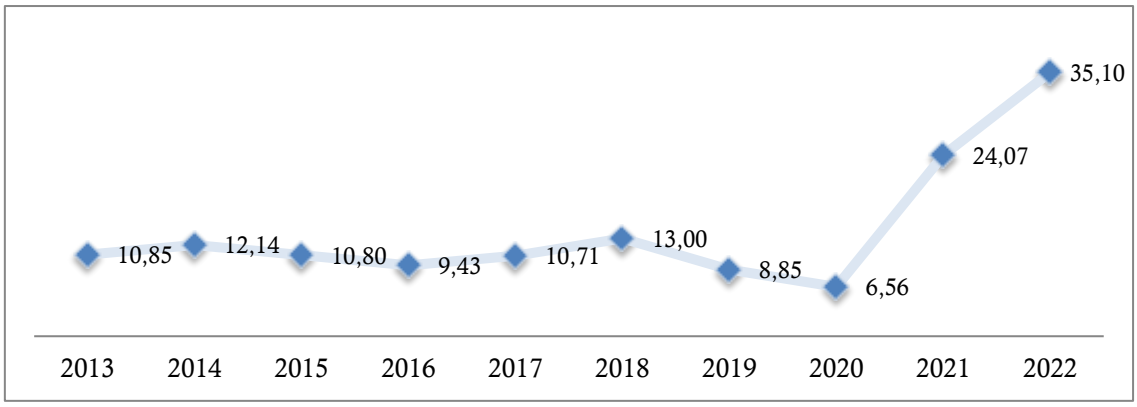

Figure 1. Gross Regional Domestik Bruto (GRDP) Growth (in Percent)
Source: BPS Of North Maluku Province, 2024 (Processed)

The GRDP percentage in 2013 was 10.85%, which increased to 12.14% in 2014. However, in 2015, it decreased to 10.80%, followed by another decrease to 9.43% in 2016. There was an increase to 10.71% in 2017 and a further increase to 13.00% in 2018. Subsequently, in 2019 and 2020, there was a decline to 8.85% and 6.56%, respectively. Notably, there was a significant increase in 2021 and 2022, reaching 24.07% and 35.10%, respectively. The drastic decline in GRDP in 2019 and 2020 can be attributed to the economic slowdown caused by the Covid-19 pandemic.

Positive GRDP growth is attributed to contributions from ten districts and cities in North Maluku Province, sorted from highest to lowest contribution. Ternate City had the highest contribution (24.83%), followed by South Halmahera (17.28%), North Halmahera (13.98%), Central Halmahera (9.81%), East Halmahera (8.47%), Tidore Islands City (7.05%), Sula Islands (6.07%), West Halmahera (5.54%), Morotai Islands (3.74%), and finally the Talibu Islands (3.48%). Notably, Ternate City and South Halmahera Regency contributed above the average GDP growth for North Maluku Province (14.15%), reflecting differences in living standards and quality of life that influence household consumption expenditure (HCE) and government consumption expenditure (GCE).

Household consumption expenditure (HCE) is the total expenditure for each household to obtain goods and services. Different household incomes result in different levels of consumption. At low-income levels, consumption expenditure is spent on basic needs, such as clothing, housing, fuel, etc., to meet physical needs. However, food consumption is the most crucial factor because food is the main item for survival. Food consumption can be a benchmark for national economic growth (Pahlevi, Andita, Gumilar, Nursafitri, & Sofiani, 2016).

Food is the most essential source of energy for increasing productivity. The proportion of each person's household consumption expenditure is not the same depending on the community's per capita income. The greater the per capita income, the greater the expenditure on consumption, and it is often used as a measure of prosperity (Hone & Marisennayya, 2019). This follows the concept put forward by Keynes (1935), which is based on the hypothesis that there is an empirical relationship between consumption and income with the formula (Abayomi, Michael & Olaronke, 2017).

Government consumption expenditure (GCE) is the purchase of goods and services produced in the economy and not a transfer payment of money collected from taxes on one group in society. Total government consumption is counted towards GDP, while payments are transfers of money taken from some people (taxes) and given to others. Most of the daily expenditure on health and education is government consumption, such as government investment to build new hospitals, while old age pensions are transfer payments. Government consumption consists of civil servant spending, provision of public facilities, and subsidies.

Government consumption expenditure is based on government policies adjusted to the added value generated from all business units. Expenditures from low-income countries (LICs) are not the same as expenditures from high-income countries (HICs) because they have unique characteristics and needs that may influence the macroeconomic impact of fiscal policy in specific ways (Shen, Yang, & Zanna, 2018).

Both household and government consumption expenditures contribute to human development, encompassing health, education, and welfare components, as measured by the Human Development Index (HDI). Health is essential for productivity, education enhances capacity building and technological absorption, and welfare improves living standards (Sulistyowaty, Sinaga & Novindra, 2017). However, contradictions in previous research findings exist regarding the impact of household and government consumption expenditures on GRDP.

Previous research found a significant impact on household consumption expenditure on GRDP (Pahlevi et al., 2016; Ramli, 2022). Pahlevi et al. (2016) researched food consumption in 34 provinces in Indonesia in 2015, and Ramli (2022) conducted research in South Sulawesi province for the 2016-2020 period for general household consumption. On the other hand, contradictory research results were conducted in East Kalimantan for the 2014-2018 period (Darma, 2020) and in Debremarkos City, Amhara Region, Ethiopia Zehiwot using 100 respondents (Hone & Marisennayya, 2019). In line with household consumption expenditure, conflicting research findings also occur in government consumption expenditure between opinions that agree and disagree. Research conducted in Mexico, Central America, and the Dominican Republic from 1990 to 2015 supports government spending on GRDP (Garry, Carlos, & Valdivia, 2017). The same opinion was also expressed by research conducted in 33 provinces in Indonesia for the 2016-2021 period (Wardhana, Kharisma, & Khairat, 2023). Research that does not support it research conducted in the 2011-2020 period in Indonesia (Permadi, Susilowati1, Hariyanti, & Damayanti, 2022).

Several previous studies have revealed several factors that support an increase in GRDP. However, the relationship between the Gross Regional Domestic Product (GDP) consumption dynamics and the Human Development Index (HDI) is poorly understood. Uncovering this relationship is crucial for policy-making and sustainable development strategies because household and government consumption expenditures are crucial to successful economic development (Hone & Marisennayya, 2019). Therefore, In this research, HDI acts as a mediating variable that connects household consumption expenditure and government consumption with GRDP. Furthermore, increasing HDI can also encourage long-term economic growth by increasing productivity and the availability of quality labor.

The phenomena and research gaps that have been stated previously give rise to the research problem of whether household consumption expenditure and government consumption expenditure have an impact on GRDP and the human development index and whether the human development index has an impact on GRDP, and whether the human development index can mediate household consumption and government consumption on GRDP?

Understanding the relationship between consumption dynamics, GRDP, and HDI is crucial for policy-making and sustainable development. Hence, this research aims to explore the influence of household and government consumption expenditures on GRDP and their effects on HDI. Additionally, the research seeks to investigate the mediating role of HDI in the relationship between consumption expenditures and GRDP.

RESEARCH METHODS

The research uses a quantitative research type sourced from secondary data because the data is collected through the Central Statistics Agency (CSA) of North Maluku Province, which consists of data on Household Consumption Expenditures (HCE), Government Consumption Expenditures (GCE), Human Development Index (HDI), and Gross Domestic Product (GRDP) for the 2013-2022 observation period. All data is in the form of numbers and compiled thoroughly and systematically into Excel files. These files were then tested using SPSS and SEM-PLS software to answer the research hypotheses. Researchers use SEM-PLS because PLS tends to be better in handling small samples (≤100) than other approaches. PLS also allows researchers to build complex conceptual models and simultaneously conduct statistical hypothesis testing to check relationships between variables (Ghozali & Latan, 2015).

The research population consisted of 10 regions in North Maluku Province, namely West Halmahera, Tangah Halmahera, Sula Islands, South Halmahera, North Halmahera, East Halmahera, Morotai Islands, Talibu Islands, Tidore City and Keota Ternate. The sample collection technique uses a non-probability sampling technique with a census sampling method because the entire population is included in the sample or the number of samples is the same as the total population, namely 100 samples (10 years x 10 regions).

This research uses the variables Household Consumption Expenditure (HCE) and Government Consumption Expenditure (GCE) as the Independent variable, the Human Development Index (HDI) variable as the mediating variable, and Gross Regional Domestic Product (GRDP) as the dependent variable. Each variable uses data from BPS North Maluku Province for 2013-2022. Detailed information regarding the research variables is presented in the following research operational definition table:

Table 1. Operational Definition of Variables

Variable	Operational Definition	Units	Data Sources
HCE	Household consumption expenditure includes expenditures on goods and services used by households to meet basic needs and desires (Hone & Marisennayya, 2019)	Percentage	BPS of North Maluku Province
GCE	Government consumption expenditure includes expenditures on goods and services used by the government to fulfill public needs, such as healthcare, education, and infrastructure services (Permadi, 2022; Simic, 2023)	Percentage	BPS of North Maluku Province
HDI	An index that measures a country's progress in three main dimensions: health (expressed by life expectancy), education (expressed by mean years of schooling and expected years of schooling), and decent standard of living (expressed by real per capita income) (Gulcemal, 2020).	Index	BPS of North Maluku Province
GRDP	The total value of all goods and services produced in a geographic region within a specific period, usually within a year (Susetyo, Yulianita, & Lestari, 2019).	Percentage	BPS of North Maluku Province

Source: Data Processed, 2024

The following image is an illustration of the research conceptual framework between the construct of independent variables on the dependent variable and independent variables on the dependent variable through mediating variables connected by arrows:

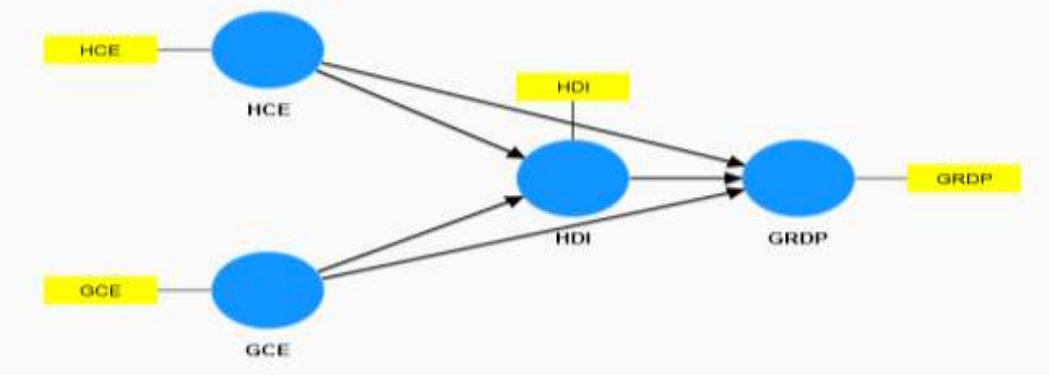

Figure 2. Research Model by smartPLS
Source: Data processed 2024

Research data analysis techniques use SPSS and SEM-PLS software. The testing steps carried out using the data analysis technique are descriptive analysis, which analyzes the research's average, median, mode, and standard deviation values. Next, validity and reliability tests are carried out, the measurement model (outer model) is evaluated, the structural model is evaluated (inner model), and the hypothesis is finally tested.

Hypothesis testing is carried out to test the relationship between research variables, both direct variables and indirect variables, which can then conclude whether the hypothesis is accepted or rejected. The research mathematical equation is:

$$GRDP_{i,t} = \beta_1 HCE + \beta_2 GCE + \beta_3 HDI + \varepsilon \quad \text{.....(1)}$$

$$HDI = \beta_1 HCE + \beta_2 GCE + \varepsilon \quad \text{..... (2)}$$

Where $GRDP_{i,t}$ is Gross Domestic Regional Product in city and district i period t (time), HCE is Household Consumption Expenditure, GCE is Government Consumption Expenditure, HDI is Human development index, $\beta_{i,}\ \beta_{2,}\ \beta_3$ is Intercept, and ε is the Error value.

RESULTS AND DISCUSSION

The first step in research data analysis is descriptive statistical analysis. This analysis is used to describe data so that it provides more precise and easier-to-understand information by looking at the mean value and standard deviation of each variable. The test results using SPSS for each variable are shown in the following table:

Table 1. Statistical Description Test Results

Variables	N	Minimum	Maximum	Mean	Std. Deviation
HCE	100	6.12	13.67	9.9999	2.09433
GCE	100	.00	14.43	9.9998	2.24758
HDI	100	56.86	80.81	65.3163	5.49780
GRDP	100	2.89	45.26	9.9998	4.80165
Valid N (listwise)	100				

Sources: Data processed, 2024

The results of the descriptive statistical analysis in Table 1 show that the Household Consumption Expenditure (HCE) variable has a maximum value of 13.67, which comes from Central Halmahera Regency in 2022, and the lowest value is 6.12, which comes from East Halmahera Regency in 2013 with an average value of 9.9999 and a standard deviation of 2.09433. The Government Consumption Expenditure (GCE) variable has a maximum value of 14.43, which comes from Sula Regency in 2022, and the lowest value of 0.00 comes from Tidore Islands City in 2022, with an average value of 9.9998 and a standard

deviation of 2.24758. The mediating variable Human Development Index (HDI) has a maximum value of 80.81, which comes from Ternate City in 2022, and the lowest value is 56.86, which comes from Talibu Islands in 2013 with an average value of 65.3163 and a standard deviation of 5.49780.

The dependent variable, Gross Domestic Product (GRDP), has a maximum value of 45.26, which comes from Central Halmahera in 2022, and the lowest value is 2.89, which comes from Central Halmahera in 2013 with an average value of 9.9998 and a standard deviation of 4.80165. In this way, all variables have a mean value more significant than the standard deviation value, which means that the data varies less in each region in North Maluku.

The next step is to evaluate the measurement model (outer model). In SmartPLS, it can be done in three ways: convergent validity, discriminant validity through cross-loading, and extraction of root mean variance. In this research, the outer model evaluation uses the cross-loading factor output from the SmartPLS algorithm. The criteria for the outer loading test results for each indicator variable are that if the value is more significant than 0.6 (>0.6), it can be considered valid. Conversely, if the value is smaller than 0.6 (<0.6), it is invalid. The following are the results of the research validity test:

Table 2. Discriminant Validity

	HCE	GCE	HDI	GRP
HCE	1.000			
GCE		1.000		
HDI			1.000	
GRDP				1.000

Sources: Data processed, 2024

Table 2 shows that the results of the outer loadings for each indicator variable are 1,000, which means that it is more significant than 0.60 (1,000 > 0.60), so it can be said that all indicators are valid and can be continued to the reliability testing stage.

Reliability testing uses the Cronbach alpha value of the research variable. If the CA value is more significant than 0.6 (CA>0.60), it meets the reliability requirements. Conversely, if the CA is smaller than 0.60 (CA <0.60), it does not meet the reliability requirements. The reliability test results are shown in the following table:

Table 3. Reliability Statistics

Cronbach's Alpha	N of Items
.643	4

Sources: Data processed, 2024

The test results in Table 3 show that the CA value is 0.643, more significant than 0.60 (0.643 > 0.60), which means that the research data is accurate because it meets the reliability requirements.

After evaluating the measurement model, the next step is to evaluate the structural model (Inner Model) by looking at the R^2 value of the relationship between the constructs. The R^2 value states that variations in the endogenous construct can be explained by the exogenous construct, which is identical to the magnitude of the contribution of the exogenous construct to the endogenous construct. From the results of data processing, it can be seen the value of R^2 as in the following table:

Table 4. R-square value

	R-square (R^2)	R-square Adjusted
GRDP	0.447	0.430
HDI	0.087	0.069

Sources: Data processed, 2024

Table 4 shows that the variable household consumption expenditure (HCI), government consumption expenditure (GCI), and human development index (HDI) together can explain the variable gross domestic product (PDRB) of 0.447 (44.7%). In comparison, other variables outside the research explain the rest of the data, which is 0.553 (55.3%). Furthermore, the household consumption variable (HCI) Moreover, the government consumption expenditure (GCI) can explain the human development index (HDI) variable of 0.087 (8.7%), while the remaining 0.913 (91.3%) is explained by other variables not studied.

The next stage is to calculate the value of the predictive relevance model. (Q^2) using the formula:

$$Q^2 = 1 - (1 - R1^2)(1 - R2^2)$$

$$Q^2 = 1 - (1 - 0.447)(1 - 0.087$$

$$Q^2 = 0.495 \text{ .....(5)}$$

The calculation results obtained a predictive relevance model value (Q^2) of 0.495, which means that the accuracy or correctness of this research model can explain the diversity of suitable corporate governance variables, board characteristics, audit committee characteristics, financial engineering quality, and working capital management efficiency on company performance. Therefore, the research model is quite good because it has a predictive relevance model $Q^2 > 0.000$ (Ghozali & Latan, 2015), so the model can be used to test hypotheses.

From the evaluation results of the measurement model (outer model) and structural model (inner model), the research results can be briefly described in a path structural model (PLS Algorithm) as follows:

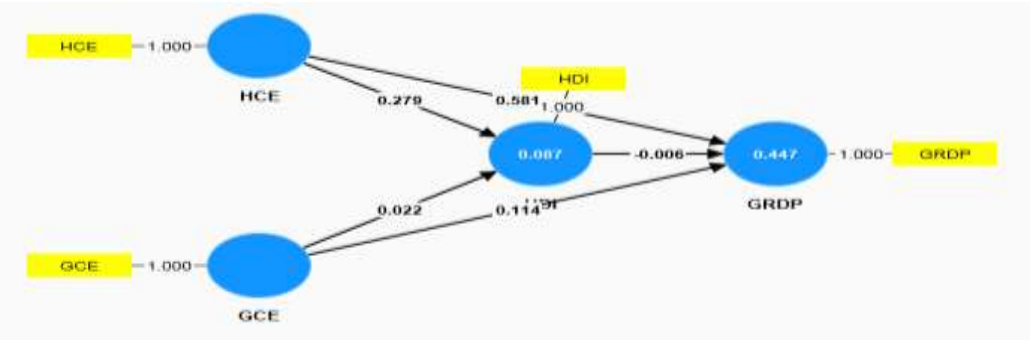

Figure 3. Results of research model estimation
Sources: Data processed 2024

Based on the model test output shown in Figure 2, a functional equation can be formed in a simultaneous Structural Equation Model (SEM) model with reduced form as follows:

$$GRDP = 0{,}581\ HCE + 0.114\ GCE - 0.006\ HDI + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots (R^2 = 0.447)$$

$$HDI = 0.279\ HCE + 0.022\ GCE + \varepsilon \ldots\ldots\ldots \quad (R^2 = 0.087)$$

Next is the research hypothesis testing stage. So, a hypothesis test was conducted to answer and prove the research hypothesis using smartPLS-Bootstrapping. The results of hypothesis testing regarding the direct relationship between the variables Household Consumption Expenditure (HCE), Government Consumption Expenditure (GCE), Human Development Index (HDI), and Gross Regional Domestic Product (GRDP) are shown in the following figure:

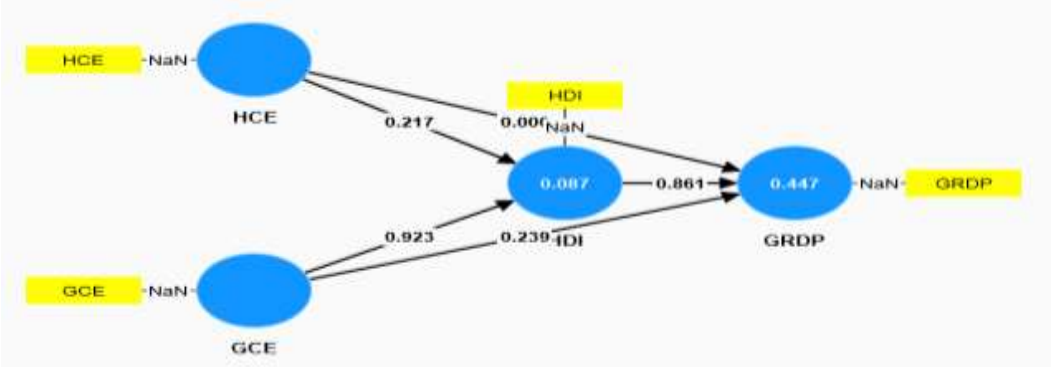

Figure 4. Hypothesis testing with smartPLS-Bootstrapping
Sources: Data processed, 2024

To facilitate understanding of the relationship between research variables, the output results in Figure 3 are presented in the following table:

Table 5. Direct Effect of Variables

Variable	Coefficients Beta	P-Value (Sig)	Information
HCE → GRDP	0.581	0.000	Accepted
GCE → GRDP	0.114	0.239	Rejected
HDI → GRDP	-0.006	0.861	Rejected
HCE → HDI	0.279	0.217	Rejected
GCE → HDI	0.022	0.923	Rejected

Sources: Data processed, 2024

Table 5 shows that on the dependent variable GRDP, only the HCE variable has a significant effect, while the GCE and HDI variables have no significant effect. The same thing happens to the dependent variable HDI, where the variables HCE and GCE do not have a significant effect.

The indirect impact between Household Consumption Expenditure (HCE), Government Consumption Expenditure (GCE), and Gross Regional Domestic Product (GRDP) through the Human Development Index (HDI) is shown in the following table:

Table 6. Indirect Effect of Variables

Variables	Coefficients Beta	P-Value (Sig)	Information
HCE → HDI → GRDP	-0.002	0.989	Rejected
GCE → HDI → GRDP	-0.000	0.923	Rejected

Sources: Data processed, 2024

Table 6 shows that the HDI variable has a negative and insignificant effect, so it cannot mediate the relationship between the HCE and GCE variables on the GRDP variable.

The results of research hypothesis testing using smartPLS with an alpha value of 5% revealed that the household consumption expenditure (HCE) variable significantly affected GRDP but did not affect the human development index (HDI). At the same time, government consumption expenditure (GCE) has no significant effect on gross regional domestic product (GRDP) and HDI. Furthermore, the HDI variable also does not have a significant effect on GRDP, and the HDI variable also cannot mediate the household consumption expenditure (HCE) and government consumption expenditure (GCE) variables on gross regional domestic product (GRDP). Therefore, of the several variables tested, only one variable has a significant effect, namely the household consumption expenditure variable.

The HCE variable affects GRDP but does not affect HDI because the contribution of household consumption expenditure in North Maluku province to gross regional domestic product receipts reached an average of 53% in the last ten years (2013-2022), which caused GRDP to also increase by an average of 14.15%. Household consumption is the most essential economic behavior and will continue continuously because household consumption includes primary consumption and secondary consumption. Each household has a different level of consumption depending on the size of the household's income, age, and gender, and the size of the household also determines the level of consumption (Madudova & Corejova, 2024; Pahlevi et al., 2016)

Theoretically, explanations for why household consumption exerts a substantial influence on Gross Regional Domestic Product (GRDP), particularly in the context of North Maluku province because household consumption serves as a vital gauge of economic

vitality within a region. As households allocate funds towards the purchase of goods and services, it catalyzes increased economic activity, including the production of goods and services, thereby bolstering GRDP. Additionally, household consumption triggers a significant multiplier effect within the economy. Each increment in household consumption expenditure tends to induce additional spending across various sectors, such as business investment and government expenditure. This dynamic creates a reinforcing cycle wherein heightened household consumption generates income for other businesses and individuals, subsequently fueling further consumption (Abayomi, Michael, & Olarongke, 2017; Hone & Marisennayya, 2019)

Meanwhile, HCE does not significantly affect HDI because household consumption expenditure is prioritized for food consumption, a basic need, compared to expenditure needed for human resource development (Pahlevi et al., 2016). The main factor influencing household consumption expenditure is inflation and inflation in North Maluku province has continued to increase in the last ten years, where in 2013 (0.8%), 2014 (0.75%), 2015 (0.64%), 2016 (0.15 %), in 2017 (0.17%). In 2018 (0.34%), 2019 (0.17%), 2020 (1.50%), 2021 (1.72%) and 2022 (2.70%). Inflation can reduce people's purchasing power (Anozi & Novianda, 2023). When the inflation rate is high, the prices of goods and services tend to rise so that money will have a lower value. To offset the effects of inflation on purchasing power, individuals or households may need to adjust their income, so they may be forced to adjust their spending.

Household consumption mainly reflects expenditure on daily necessities, such as food, clothing and housing. Meanwhile, HDI includes indicators such as life expectancy, average years of schooling, and real income per capita. Most household expenditures may not directly contribute to improvements in the factors measured in the HDI. So, while household consumption is essential for the economic well-being of society, its impact on HDI is not significant. This shows the importance of considering the various factors that contribute to overall human development when measuring a region's progress.

In contrast to the HCE variable, the GCE variable does not significantly affect GRDP and HDI because most government spending is allocated to non-productive consumption, such as paying civil servant salaries or inefficient subsidies, rather than investment that increases economic productivity. The allocation of government spending is closely related to economic development. However, if the government makes wrong and inconsistent policies, it will impact GRDP revenues. Government spending is allocated through direct and indirect spending to develop the economic sector. If this allocation is used well, the improvement or growth that will occur in the economic sector will increase, and in aggregate, it will increase economic growth.

Government consumption also does not affect HDI because government expenditure in North Maluku Province is more focused on physical infrastructure or national security than investment in health and education. HDI is a limited indicator and may not be able to accurately reflect all aspects of human development that are influenced by government consumption. Many other factors not considered in the HDI can influence people's health, education, and living standards, such as government spending on environmental functions (Fadly & Edward, 2023). The impact of government consumption on HDI can vary between regions or regions depending on the policies and programs implemented.

The effect of HDI on GRDP in North Maluku province also has no significant effect. This is because several human development programs related to HDI have not been implemented well or are not on target. HDI only covers three main dimensions of human development, namely health (expressed by life expectancy at birth), education (expressed by average years of schooling and expected length of schooling), and standard of living (expressed by per capita income), while not taking into

account other factors. Other essential factors include social inequality, human rights, justice, and environmental sustainability. Social and economic conditions in North Maluku Province, such as inflation, economic crisis, and conflict, must change government policies that also change the HDI indicator quickly.

Regarding indirect impacts, HDI does not mediate the HCE and GCE variables on GRDP because HDI and GRDP represent different concepts and dimensions in the context of economic and human development. HDI is a holistic indicator that reflects general human welfare. At the same time, GRDP measures a region's total economic production, and household consumption is essential for economic growth. Hence, it is not fully reflected in HDI because it focuses more on social aspects and human welfare. Meanwhile, government consumption expenditure can directly influence GRDP because the government is often one of the primary managers in a country's economy. Government spending policies, such as public spending or infrastructure investment, can directly impact economic activity and growth. Therefore, HDI is unnecessary in mediating the relationship between government consumption and GRDP. Many other factors can influence the relationship between government consumption and GDP, such as private investment, international trade, or monetary policy.

The results of this research support findings from several previous studies indicating that household consumption expenditure contributes to the increase of gross regional domestic product (GRDP) in a region (Fauziyah, Kardoyo, Yulianto, & Oktavilia, 2023; Handriyani, 2016; Pahlevi et al., 2016; Ramli, 2022; Subing, 2015). The same results were also presented by research conducted in the Slovak Republic (Madudova & Corejova, 2024), research in Thailand (Hean & Chairassamee, 2020), Bali Province (Desy, Sari, Luh, Aswitari, & Si, 2020), CEE Countris (Radulescu, Serbanescu, & Sinisi, 2019), research in Asian countries (Arapova, 2018). But, several researchers actually found conflicting results, such as research conducted in the city of Deremarkos, Amraha region of Ethiopia (Hone & Marisennayya, 2019), research in Kalimantan province (Darma, 2020), as well as research throughout Indonesia (Ferdiansyah, 2022).

Household consumption tends to be more stable than business investment or exports in the short term. When economic conditions are unstable, household consumption tends to remain relatively stable because many basic consumption needs are maintained by households. Therefore, the contribution of household consumption to GRDP can provide relative stability in the regional economy.

Similarly, the research findings on government consumption expenditure (GCE) and GRDP align with research conducted in South Sulawesi for the 2016-2020 period using quantitative research with SPSS 23 analysis revealing that government expenditure has a negative and insignificant effect on GRDP (Ramli, 2022), studies using data from the Central Statistics Agency (BPS) across all provinces in Indonesia (Permadi et al., 2022; Sarungu, Soesilo, Rizky, & Hasanah, 2019) as well as research in Asia for the 2002-2019 period (Nguyen & Bui, 2022). In contrast to the results of this study, the positive influence of GCE on GRDP was suggested by research in Asia, Africa, Europe and Latin America (Suresh, Seth, Behera, & Rath, 2023), SAARC countries (Rahman, Nath, Siddqu, & Hossain, 2023), Eastern Europe and Central Asia (EECA) (Shaddady, 2022), and in Ghana (Poku et al., 2022).

Regarding the relationship between household consumption expenditure (HCE) and government consumption expenditure (GCE) on the Human Development Index (HDI), the results of this study are consistent with previous research, indicating that HCE has no significant effect on HDI. Similarly, GCE has no significant effect on HDI; research conducted in Nigeria and India revealed that government consumption expenditure did not significantly affect the human development index (Innocent et al., 2020). The same thing was expressed by

research in India: in the long term, GCE does not significantly affect HDI (Ranjan & Panda, 2021). Other research results reveal that health spending does not significantly affect HDI, but government spending on education is the most profitable investment in developing human resources in the research period (Maharda & Aulia, 2020; Sijabat, 2020). Different findings reveal that government spending on economic functions does not affect the human development index, while government spending on health and education functions has a significant effect on the human development index (Christin et al., 2023.; Fadilah, Ananda & Kaluge, 2018; Fadillah & Setiartiti, 2021).

Furthermore, this research is different from previous ones, which found that HDI had a significant effect on GRDP such as research conducted in 10 ASEAN member countries (Syahzuni, 2018), research in Turkey (Gulcemal, 2020), research in Vietnam (Hoa, Liem, & Phuoc, 2016), research in Medan City (Raynaldo et al., 2022), research in developing countries (Gulcemal, 2020), and in Pakistan (Taqi, Sibt, Parveen, Babar, & Khan, 2021).

On the other hand, several studies have the same results as this study, where HDI does not have a significant effect on GRDP, such as the results of research in Riau province (Ramadhani, 2021) and research in North Sumatra (Amalia et al., 2021).

The observed result is reinforced by Keynesian economic theory, which underscores the pivotal role of consumer spending in propelling economic activity. Keynesian theory advocates for policies aimed at stabilizing aggregate demand to attain full employment and foster economic growth. However, the results of research in North Maluku province contradict Keynes' theory of government expenditure which explains the theoretical relationship between government expenditure and economic growth. According to the Keynesian theory, an increase in government expenditure leads to an increase in economic growth via an expansionary fiscal policy. When government spending increases, production also increases, and this leads to an increase in aggregate demand, which ultimately leads to an increase in gross domestic product (GDP). Therefore, if government spending increases, all things being equal, output increases (Lapian, Walewangko & Yapanto, 2023; Poku et al., 2022).

CONCLUSION

Based on the data processed using SmartPLS to test the direct and indirect influence of the research variables, it can be concluded that only the Household Consumption Expenditure (HCE) variable has a significant direct influence on Gross Regional Domestic Product (GRDP). In contrast, the Government Consumption Expenditure (GCE) variable and the Human Development Index (HDI) do not significantly affect the Gross Regional Domestic Product (GRDP). Moreover, the Human Development Index (HDI) does not act as a mediating variable between Household Consumption Expenditure (HCE) and Gross Regional Domestic Product (GRDP), nor between Government Consumption Expenditure (GCE) and Gross Regional Domestic Product (GRDP). This research contributes to developing a theory about the relationship between household consumption, government consumption, human development index, and economic growth at the regional level so that these findings can help fill knowledge gaps in the regional economic literature. These findings can also be a basis for further research in understanding the relationship between household consumption, government consumption, human development index, and economic growth more deeply.

Further research can provide deeper insights and more effective solutions to improve people's welfare. The practical implication of the research is that the government must focus on increasing household consumption through fiscal, monetary, and social policies aimed at stimulating economic growth and improving social welfare, while the theoretical implication is that this research can develop our understanding of how household consumption and government consumption influence growth. Regional economic and human development

index. This can help enrich regional economic and consumption theories.

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