Analyzing poverty levels and welfare: Does cigarette consumption and spending on regional functions have an impact?

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Abstract

In numerous developing nations, the impact of cigarette consumption on poverty often goes unnoticed by policymakers. This study endeavours to explore the correlation between household expenditure on cigarettes and levels of poverty and welfare. Beyond household spending, it also investigates the influence of regional functional expenditures and the prevalence of open unemployment on poverty and welfare. The examination encompasses 100 regencies and cities across three provinces: East Java (38 regencies and cities), West Java (27 regencies and cities), and Central Java (35 regencies and cities). Utilizing secondary data from the Central Statistics Agency (BPS) and the Ministry of Finance of the Republic of Indonesia, collected in 2021, employing a cross-sectional approach, this study employs multiple linear regression analysis via the Stata 17 program to discern the impact of various factors, including household spending, regional functional spending, and control variables, on poverty and welfare. The findings reveal that household cigarette consumption significantly exacerbates poverty, indicating that an increase in such consumption escalates poverty rates. Conversely, the second estimation model demonstrates that increased household expenditure on cigarettes significantly diminishes welfare levels, underscoring the adverse impact of heightened smoking consumption on overall welfare.

Keywords: *Cigarette consumption, Poverty, Regional function expenditures, Social welfare.*

JEL Classification: H75, I32, I38

INTRODUCTION

Poverty represents a significant social issue globally, affecting both developed and developing nations. Each country exhibits unique characteristics concerning this challenge. Notably, the European continent, despite its many developed nations, is not exempt from the grips of poverty, with regions in Eastern and Southern Europe displaying heightened levels of impoverishment, largely attributed to their lower GDP values (Sompolska-Rzechuła & Kurdyś-Kujawska, 2022). In Slovakia, for instance, the root causes of poverty have been identified as high unemployment rates and a reliance on government support (Jencova et al., 2015). Meanwhile, in Poland, the persistence of poverty has been linked to the centralization of industrialization, which has led to environmental degradation, shortages of consumable goods, and a downturn in public health indices (Golinowska, 2020).

A multitude of factors contribute to the escalation of poverty rates, among which a notable yet often overlooked trend is household expenditure on cigarettes. This phenomenon has been observed in various countries, where excessive spending on tobacco products significantly undermines health and welfare and exacerbates poverty levels without receiving due attention from policymakers (Efroymson et al., 2001). This scenario is not unique to Bangladesh but is similarly observed in Nigeria, Ukraine, India, Montenegro, Jordan, and Vietnam. In these countries, household cigarette spending detrimentally affects welfare by diverting funds from essential needs. Interestingly, increasing taxes on cigarettes has not led to a reduction in consumption; rather, it has prompted households to cut back on necessities (Adenji, 2021; Fuchs & Icaza, 2019; Fuchs & Meneses, 2017; Mohan et al., 2018; Mugosa et al., 2023; Selvaraj et al., 2011; Toukan, 2016). Furthermore, China has experienced a notable surge in poverty rates, significantly influenced by high household expenditure on cigarettes (Hu et al., 2005).

Cigarette consumption predominantly occurs in regions marked by elevated poverty levels, where communities face significant economic challenges, low educational attainment, and underachievement. For instance, Davis and Grier (2015) highlight that cigarette users often emerge from areas burdened by economic and educational disadvantages. In India, a staggering 64% of cigarette consumers are reported to be illiterate, underscoring the correlation between tobacco usage and educational deficits (Bhan, 2016; Haustein, 2006; WHO, 2004). Similarly, in China, the prevalence of cigarette smoking is notably higher in rural areas, where incomes are generally lower compared to urban settings (Hu et al., 2005).

Cigarette consumers frequently prioritize tobacco expenditure over essential needs, including housing, food, education, and healthcare (Satria & Dawood, 2017). This scenario contrasts with the situation in America, where access to cigarettes is relatively easier than access to smoking cessation aids, particularly for residents in impoverished areas (Cantrell et al., 2015). The financial burden of cigarette purchasing directly diminishes household income, thereby elevating poverty levels. Moreover, the indirect impact of such expenditure exacerbates poverty through health deterioration, such as worsened respiratory and heart conditions and increased triglyceride levels, which lead to higher medical expenses and potentially reduced income due to illness (Cai & Bidulescu, 2023; WHO, 2004).

Globally, there are approximately 1.3 billion cigarette users, with a significant 80% residing in developing countries (Fedho, 2022). In Southeast Asia, Indonesia ranks second only to Vietnam regarding cigarette expenditure. The Central Statistics Agency (BPS) of Indonesia has documented a striking trend: the average household expenditure on cigarettes surpasses that on any food category, including ready-made food and beverages, meat, vegetables, fruit, and oil, across all districts and cities in the country. Remarkably, tobacco expenditure in these regions accounts for 30% of average household spending, followed by expenditure on prepared food and drinks, illustrating the profound economic impact of cigarette consumption on families and the broader societal challenge of addressing this issue.

The issue of poverty remains a pressing social concern in Indonesia, a nation that, despite 78 years of independence, has struggled to mitigate poverty levels significantly.

The Central Statistics Agency (BPS) reported that in 2022, Indonesia's population living in poverty reached 26.36 million individuals, with the highest concentrations in East Java, West Java, and Central Java. A notable factor contributing to the persistently high poverty rates in Indonesia is the substantial household expenditure on cigarettes (Almizi et al., 2018).

Research focusing on the relationship between household cigarette expenditure and the levels of poverty and welfare in Indonesia is relatively scarce. However, studies conducted by Alkadri et al. (2023), Lubis et al. (2022), and Marisca & Sari (2016) have elucidated the significant impact that cigarette expenditure has on poverty levels. These studies reveal that the implementation of cigarette excise taxes has failed to curtail spending on tobacco products. Cigarette expenditure exerts a more profound effect on poverty than the role of cigarette production in alleviating poverty through contributions to the Gross Regional Domestic Product (GRDP). Further research by Neli & Hardius (2020) suggests that poverty at the household level, attributable to cigarette spending, could be alleviated by reallocating finances towards more essential and basic needs, such as food, shelter, education, and health. It is also noted that households with higher levels of education, those owning businesses, employed individuals, and those not engaged in agriculture are more likely to rise above the poverty threshold.

Beyond cigarette expenditure, income and health status are critical factors influencing poverty levels and overall welfare. Enhancements in income and health are associated with increased welfare and reduced poverty rates. Moreover, education and health levels significantly impact household poverty, as demonstrated in studies by Haqiqi & Subroto (2021), Manoppo et al. (2018), and Amanaturrohim & Widodo (2016). These findings underscore the multifaceted nature of poverty in Indonesia, highlighting the need for comprehensive strategies that address economic behaviours and broader socio-economic factors to combat poverty effectively.

The enactment of Law No. 32 of 2004 and Law No. 23 of 2014 regarding Regional Autonomy represents a strategic initiative by the central government of Indonesia to mitigate poverty rates across the nation. This policy grants regional governments the authority and responsibility to plan and manage their governance, to leverage their unique regional potentials to foster development, reduce poverty, and enhance community welfare (Ristanti & Handoyo, 2017). Regional authorities are empowered to devise and manage their budgets, including planning regional income and expenditure, determining expenditure allocations, and prioritizing functions essential to regional advancement.

Furthermore, the impact of regional spending on poverty and welfare is significant, with research indicating that increased regional expenditure contributes to welfare enhancement and poverty reduction (Bandiyono, 2018; Deswantoro et al., 2017; Duanti & Arifin, 2018; Fiszbein et al., 2014; Hasanah & Siregar, 2014; Mardiana et al., 2018; Nisa & Handayani, 2021; Sidabutar et al., 2020; Sasana, 2012; Fahrianti & Saleh, 2021; Sutono, 2022; Utama & Kustiani, 2012). Specifically, Sidabutar et al. (2020) highlighted that regional expenditure on education significantly contributes to welfare, as evidenced by improvements in the Human Development Index (HDI). Investments in education, housing, public facilities, general allocation funds, and population management have been shown to influence poverty reduction positively (Basuki, 2022).

Contrastingly, other studies reveal nuanced effects of regional spending on poverty. For instance, Fithri & Kaluge (2017) and Mardiana et al. (2018) found that while regional spending on education and the unemployment rate do not directly affect poverty levels, expenditure on health significantly negates poverty.

Meanwhile, Elia et al. (2020) approach the relationship between poverty and fiscal policy from a contrasting angle, examining how poverty levels influence local government expenditure. Their findings suggest that a higher poverty rate increases government budgets allocated to economic development by enhancing investment and employment opportunities. According to Isaac (2017), while direct government spending negatively impacts poverty, indirect spending has a beneficial effect. Additionally, the rates of poverty and welfare are further affected by the level of open unemployment, as indicated by research from Ningrum et al. (2020) and Siregar et al. (2023).

The studies above primarily focus on single facets influencing poverty and welfare levels—either household expenditure (notably on cigarettes) or government spending. The current research expands this scope by integrating household and government expenditure to provide a comprehensive view of the determinants of poverty and welfare from both community behaviour and policy-making perspectives. By employing the multiple linear regression method, this study aims to explore the effects of household expenditure on cigarettes and regional spending on poverty and welfare levels. The objective is to yield findings that could offer policy implications for mitigating poverty and enhancing welfare, through managing household spending on cigarettes and optimizing government expenditure in targeted areas. This holistic approach underscores the need for multifaceted strategies to address the complex dynamics of poverty and welfare, highlighting the significance of individual behaviours and governmental policies in crafting effective solutions.

METHODS

This study utilizes secondary data to examine the dynamics of poverty and welfare across 100 regencies and cities within three provinces of Indonesia: 38 regencies and cities in East Java Province, 27 in West Java, and 35 in Central Java. The data, which are cross-sectional for 2021, were sourced from the Central Statistics Agency (BPS) and the Ministry of Finance of the Republic of Indonesia. The analytical method employed is multiple linear regression.

In this research framework, poverty and welfare serve as the dependent variables. The poverty level measures poverty, while welfare is gauged through the Human Development Index (HDI). The independent variable is a household expenditure, represented specifically by household spending on cigarettes. Additionally, regional function expenditure and the open unemployment rate are included as control variables to provide a comprehensive analysis. The model for estimating the impact on both poverty and welfare incorporates these variables as follows:

$$Pov_i = \beta_0 + \beta_1 Cig_i + \beta_2 Gen_i + \beta_3 Los_i + \beta_4 Eco_i + \beta_5 Liv_i + \beta_6 Hea_i + \beta_7 Edu_i + \beta_8 Soc_i + \beta 9\ Unei + \varepsilon_i \quad (1)$$

$$HDI_i = \beta_0 + \beta_1 Cig_i + \beta_2 Gen_i + \beta_3 Los_i + \beta_4 Eco_i + \beta_5 Liv_i + \beta_6 Hea_i + \beta_7 Edu_i + \beta_8 Soc_i + \beta 9\ Unei + \varepsilon_i \quad (2)$$

Where:

Pov = Poverty Level
HDI = Welfare measured by the Human Development Index
Cig = Household cigarettes expenditure:
Gen = General expenditure

Los = Law, Order and safety expenditure
Eco = Economy expenditure
Liv = Living environment expenditure
Hea = Health expenditure
Edu = Education expenditure
Soc = Social protection expenditure
Une = Open Unemployment Rate
β_0 = Intercept
β_1 to β_9 = coefficient
εi = Error term
i = the cross-sectional unit of analysis

Table 1 presents the definition of variables utilized in the study. The variables are categorized into dependent and independent, each serving a distinct role in the analysis.

Table 1. Variable definition

Variables		Definition
Dependent	Pov	The percentage of poor people in each regency and city in 2021.
	HDI	Community welfare is evaluated using the Human Development Index (HDI), which aggregates various dimensions of human development across districts and cities, with index values for 2021 providing a comprehensive measure of well-being.
Independent	Cig	The average per capita expenditure on cigarettes and tobacco by region and city, measured in Rupiah for each regency and city in 2021.
	Gen	Total spending by regional governments for general administrative functions, measured in Rupiah for each regency and city in 2021.
	Los	Expenditure focused on maintaining law, order, and safety, measured in Rupiah for each regency and city in 2021
	Eco	Government spending is aimed at economic functions, indicating investment in regional economic development, measured in Rupiah for each regency and city in 2021
	Liv	Expenditure related to environmental protection and management, showcasing regional commitment to sustainability, measured in Rupiah for each regency and city in 2021
	Hea	Total health-related government spending, reflecting investment in public health services and infrastructure, measured in Rupiah for each regency and city in 2021
	Edu	Expenditure on educational functions indicates the investment level in regional education systems and infrastructure, measured in Rupiah for each regency and city in 2021
	Soc	Government spending aimed at social welfare programs and protection measures, measured in Rupiah for each regency and city in 2021
	Une	The percentage of the unemployed relative to the total population within each regency and city in 2021.

The selection of regional function expenditure variables, encompassing expenditure on public functions, order and security, economy, environment, health, education, and social protection, is premised on the objective of these expenditures to elevate welfare and mitigate poverty levels within communities. This strategic choice of variables is not only aligned with the inherent goals of governmental budget allocations but also draws upon empirical foundations laid out in prior studies, as discussed in the introductory section of the research. These expenditure categories represent critical areas of public service and infrastructure investment that directly or indirectly affect the quality of life, access to essential services, and economic opportunities for the populace, thereby influencing overall welfare and poverty metrics.

Furthermore, the decision to include the open unemployment rate as a control variable is underpinned by acknowledging unemployment as a fundamental driver of poverty. The lack of employment opportunities directly correlates with an increased risk of falling into poverty, given the absence of stable income sources for affected individuals and their families. Including the open unemployment rate also reflects an adherence to methodological precedents established in previous research, recognizing the variable's significance in assessing socio-economic dynamics. The employment status of the population is a pivotal factor in understanding variations in poverty levels across different regions, making it a crucial element of analysis in exploring the relationship between government spending, household behaviours, and socio-economic outcomes.

RESULTS AND DISCUSSION

This descriptive statistics (Table 2) provides a comprehensive overview of various socio-economic and administrative variables across West Java, Central Java, and East Java. In West Java, with 27 observations for each variable, the mean poverty rate is 10.54%, ranging from a minimum of 2.58% to a maximum of 36.59%. The HDI averages at 71.94, spanning from 65.56 to 81.96. Notably, the average per capita expenditure on cigarettes and tobacco is relatively high at 40,849 Rupiah.

Central Java, with 35 observations per variable, shows a slightly higher mean poverty rate of 12.16% and an HDI mean of 72.84. The average expenditure on cigarettes and tobacco is lower than in West Java, at 29,153 Rupiah.

East Java, with 38 observations for each variable, presents a poverty rate of 11.44% and an HDI mean of 72.22. The average per capita expenditure on cigarettes and tobacco is 30,054 Rupiah, indicating a variation in spending habits across the regions.

Across these regions, expenditure on general administrative functions, law, order, and safety, economic functions, environmental protection, health services, education, and social welfare programs showcases a range of investment levels, with slight variations in means and relatively narrow bands between the minimum and maximum values. This suggests a consistent level of government expenditure across different sectors within each region.

The unemployment rate shows significant regional variation, with West Java recording a higher mean of 9.40% compared to 5.87% in Central Java and 5.51% in East Java. This indicates differences in labour market conditions across the regions.

This table highlights the socio-economic diversity and differences in governmental spending priorities among West Java, Central Java, and East Java regions. It provides a snapshot of the regional disparities in poverty, human development, and government expenditure patterns, offering valuable insights for policy analysis and regional development planning.

Table 2. Statistic description

Variable	Obs	Mean	Min	Max
West Java				
Pov	27	10.54	2.58	36.59
HDI	27	71.94	65.56	81.96
Cig	27	40849	27653	55812
Gen	27	27.33	25.86	28.49
Los	27	24.51	23.03	25.90
Eco	27	26.32	24.81	27.91
Liv	27	23.97	0.00	27.18
Hea	27	27.20	26.18	28.42
Edu	27	27.54	25.82	28.52
Soc	27	24.41	23.31	25.22
Une	27	9.40	3.25	13.08
Central Java				
Pov	35	12.16	4.56	30.46
HDI	35	72.84	66.32	83.6
Cig	35	29153	17412	40197
Gen	35	27.01	25.85	27.82
Los	35	23.96	23.28	25.42
Eco	35	26.00	24.82	27.42
Liv	35	24.53	22.72	26.20
Hea	35	29.69	24.67	27.64
Edu	35	27.06	25.05	27.75
Soc	35	23.88	23.20	24.97
Une	35	5.87	2.43	9.97
East Java				
Pov	38	11.44	4.09	34.7
HDI	38	72.22	62.8	82.31
Cig	38	30054	14490	42214
Gen	38	26.98	25.50	27.96
Los	38	24.03	22.44	25.75
Eco	38	25.90	24.37	28.17
Liv	38	23.02	0.00	27.34
Hea	38	26.67	24.42	28.45
Edu	38	26.96	25.12	28.27
Soc	38	24.00	21.89	25.54
Une	38	5.51	2.04	10.87

Furthermore, to ensure the robustness of our findings, we conducted classical assumption tests, specifically heteroscedasticity and multicollinearity tests. Table 2 outlines the results of the heteroscedasticity test, focusing on two dependent variables: Poverty and Welfare.

Table 3. Heteroscedasticity test

Dependent Variable	Prob. Chi^2	Decision
Pov	0.9550	Free from Heteroscedasticity
HDI	0.1855	Free from Heteroscedasticity

As their probability values indicate, the findings reveal that both variables are free from heteroscedasticity issues. The probability value for poverty is 0.9550, and for welfare, it is 0.1855, significantly greater than the alpha level of 5%. This indicates that the model utilized in this research does not suffer from heteroscedasticity problems, affirming the reliability of the statistical analysis conducted.

Table 3 presents the outcomes of the multicollinearity test, showcasing the Variance Inflation Factor (VIF) for a series of variables within two models, Poverty and Welfare.

Table 4. Multicollinearity test

Variables	VIF	
	Pov	HDI
Cig	1.45	1.65
Gen	4.10	5.10
Los	2.89	3.17
Eco	2.06	2.15
Liv	1.19	1.21
Hea	6.00	6.01
Edu	7.79	8.63
Soc	1.82	1.85
Une	2.01	2.07

The VIF values for each variable across both models fall below the threshold of 10, signifying that the model employed in this study is devoid of multicollinearity issues. This absence of multicollinearity confirms the statistical soundness of the model, ensuring that the variables are independent of each other and the model's estimates are reliable.

Table 4 provides the output from the Ordinary Least Squares (OLS) estimation regarding the impact of various variables on Poverty (Pov) and Welfare (HDI).

Table 5. Output OLS estimation

Variables		**Pov**	**HDI**
Cig	Prob.	0.001***	0.000***
	Coef.	0.025	-0.026
Gen	Prob.	0.000***	0.412
	Coef.	7.402	-0.971
Los	Prob.	0.004***	0.018**
	Coef.	-4.150	2.526
Eco	Prob.	0.041**	0.088*
	Coef.	-1.938	0.208
Liv	Prob.	0.224	0.106
	Coef.	0.143	0.143
Hea	Prob.	0.708	0.077*
	Coef.	-0.680	2.424
Edu	Prob.	0.002***	0.026**
	Coef.	-7.755	3.123
Soc	Prob.	0.225	0.017**
	Coef.	-1.271	1.903
Une	Prob.	0.095*	0.002*
	Coef.	-0.412	0.571
CONS	Prob.	0.047**	0.037**
	Coef.	56.59	44.52
R-Squared		0.4781	0.5116
Prob. F		0.0000	0.0000

*Notes: * <0.1, **<0.05, ***<0.01*

From the OLS estimation results, it's observed that expenditure on cigarettes and tobacco significantly impacts poverty with a positive relationship, whereas its effect on the HDI is negative. Expenditure on general administrative functions shows a significant decrease in poverty but does not significantly affect the HDI. Expenditure on law, order, and safety is positively related to poverty and the HDI. Expenditure on economic functions shows a negative relationship with poverty and a weak positive effect on the HDI, indicating that investments in regional economic development have the potential to reduce poverty and slightly improve welfare.

Expenditure on environmental protection does not significantly impact poverty or the HDI, indicating the limits of its influence. On the other hand, expenditure on health services shows a significant positive effect on the HDI but not on poverty. Investment in education displays a strong negative relationship with poverty and a positive impact on the HDI, affirming the importance of education in improving welfare and reducing poverty. Expenditure on social welfare programs has a negative effect on poverty and a positive effect on the HDI, though with varying significance levels. Meanwhile, the unemployment rate is associated with increased poverty and significantly negatively impacts the HDI.

The R-squared values indicate that the models explain a substantial portion of the variability in their dependent variables, poverty and HDI, with Prob. F values close to 0.0000 signal the models' statistical significance in explaining variance in poverty and HDI across regions. This analysis highlights the complex interplay between various types of government expenditure and socio-economic indicators such as poverty and welfare, underlining the importance of targeted spending, especially in education and health, to enhance community welfare and reduce poverty.

The influence of public regional function expenditures on poverty and welfare

In the initial estimation model, the variable representing regional function expenditure for the general public is found to have a positive influence on poverty levels. This suggests that an increase in spending on regional functions for the public correlates with a rise in the poverty rate. This finding aligns with the studies conducted by Tandiyono (2018) and Hossain (2014), which observed that escalated spending on public functions tends to elevate the poverty rate. However, these results diverge from the conclusions of research by Basuki (2022), Elia et al. (2020), and Sasana & Kusuma (2018), which argue that increased government spending significantly contributes to reducing poverty rates.

In contrast, the second estimation model indicates that spending on regional functions for the public does not significantly impact welfare. This outcome is consistent with the findings of Duanti & Arifin (2018), who argue that general expenditure, as proxied by capital expenditure, does not significantly influence welfare levels. The rationale behind this observation is that capital expenditure is predominantly physical and does not directly affect welfare levels. This discrepancy in findings across different studies underscores the nuanced and context-dependent nature of the relationship between government spending and its effects on poverty and welfare, highlighting the need to consider the types of expenditures and their intended outcomes carefully.

The influence of regional function expenditures for order and security on poverty and welfare

The analysis of the influence of regional expenditures on functions related to order and security reveals significant findings concerning poverty and welfare. In the initial model, it is observed that expenditures dedicated to order and security functions exert a notable negative impact on poverty levels, suggesting that augmented spending in these areas can contribute to poverty reduction. This phenomenon underscores the pivotal role of government expenditure on order and security in enhancing community welfare, primarily through fostering a sense of security and order that positively affects people's lives. Such findings align with the research presented by England (2012), which articulates that increased governmental spending significantly mitigates poverty rates.

Furthermore, a subsequent model establishes that regional spending on order and security functions significantly bolsters welfare. This delineates that an upsurge in investments within these domains directly correlates with enhancements in welfare. This observation is corroborated by studies conducted by Nisa & Handayani (2021) and Sutono (2022), which elucidate that heightened government expenditure, encompassing regional and central allocations, has a beneficial impact on welfare levels. These insights affirm the critical importance of strategic government spending on order and security functions in fostering socio-economic development and improving community welfare.

The influence of regional functional expenditures for the economy on poverty and welfare

Examining regional functional expenditures dedicated to the economy reveals a discernible impact on poverty and welfare. The data indicates that increased regional spending on economic functions correlates with reduced poverty levels. This relationship underscores the effectiveness of targeted government investments in economic areas as a strategic approach to poverty alleviation. The findings resonate with studies conducted by Tandiyono (2018), Hasanah & Siregar (2014), and Sasana (2012), which collectively assert that escalated government expenditure on economic functions significantly contributes to the decline in poverty rates.

Furthermore, in a secondary model, it is observed that regional expenditures on the economy positively impact welfare, suggesting that enhancements in economic-focused spending lead to improvements in community welfare. This positive correlation highlights the broader socio-economic benefits of investing in economic functions, reflecting the potential of such expenditures to foster a more prosperous and well-supported community. These insights are supported by research from Sutono (2022), which indicates that increased government spending, encompassing regional and central budgets, is pivotal in elevating welfare levels. Collectively, these findings emphasize the critical role of government spending on economic functions in promoting socio-economic development and enhancing the quality of life for the community.

The influence of regional function expenditures for the environment on poverty and welfare

The investigation into regional expenditures' impact on environmental functions reveals that such spending does not significantly influence poverty levels or community welfare. This observation indicates that investments allocated towards environmental functions have yet to yield notable benefits regarding poverty alleviation or welfare enhancement. The primary reason for this phenomenon appears to be the nature of environmental spending itself, which is largely directed towards personnel costs, goods, and services, rather than initiatives that directly contribute to income generation for the populace in the short term.

This finding aligns with the research conducted by Nisa & Handayani (2021), Sasana (2012), and Sutono (2022), which discuss the broader impacts of government spending on welfare and poverty. These studies collectively suggest that while increased government expenditure, including regional and central spending, can positively affect welfare levels and reduce poverty rates, the specific allocation towards environmental functions does not follow this trend. The implication is that while environmental spending is crucial for the long-term sustainability and health of the community, its immediate effects on poverty reduction and welfare improvement are less pronounced. This underscores the need for a nuanced understanding of how different types of government spending contribute to socio-economic objectives, highlighting the importance of strategic allocation to achieve immediate and long-term benefits.

The effect of regional function expenditures for health on poverty and welfare

The analysis of the effects of regional expenditures for health on poverty and welfare presents a complex picture. It is observed that such expenditures do not significantly alter poverty levels, suggesting that investments in the health sector have not directly contributed to poverty reduction. This phenomenon can be attributed to the allocation of health spending, primarily directed towards personnel and capital expenditures, rather than programs that might directly enhance individuals' income in the short term.

This finding diverges from the research conducted by Tandiyono (2018), Hasanah & Siregar (2014), and Fahrianti & Saleh (2021), which argue that government investment in the health sector plays a crucial role in alleviating poverty. This discrepancy may also reflect the broader challenge of ensuring that public spending on health (and education) effectively reaches and benefits people with low incomes, as observed in countries like Nepal, India, and Morocco. The World Bank (2003) has noted that public spending on education, for instance, can exacerbate inequality due to inadequate allocation for basic education, suggesting a similar dynamic may occur with health spending.

Conversely, in a secondary model, regional health expenditures significantly positively impact welfare, indicating that increased spending in this area leads to welfare improvements. This outcome is supported by the findings of Mardiana et al. (2018), which suggest that heightened investment in health services contributes to enhanced welfare. However, this perspective contrasts with Tandiyono (2018), who found that health sector spending does not significantly influence welfare, highlighting a divergence in scholarly opinions.

These results underscore the complexity of the relationship between government spending in the health sector and its socio-economic impacts. While increased health expenditures are positively correlated with improvements in welfare, their direct effect on poverty reduction is less clear, pointing to the necessity for a strategic approach in health spending that addresses immediate and long-term socio-economic goals.

The influence of regional function expenditures for education on poverty and welfare

The analysis of regional expenditures for the education function demonstrates a significant relationship between poverty reduction and welfare improvement. The data indicates that increased spending on education is associated with a decrease in poverty levels, suggesting that investments in the education sector are effective in poverty alleviation efforts. This finding is consistent with the research conducted by Tandiyono (2018), which asserts that enhancing regional spending on education significantly impacts poverty reduction.

Furthermore, in a separate model, it is found that education spending positively affects welfare, indicating that increased investment in education reduces poverty and contributes to overall welfare enhancement. This result aligns with the findings of Mardiana et al. (2018), Sidabutar et al. (2020), and Fahrianti & Saleh (2021), which all highlight the positive impact of education spending on welfare. These studies collectively affirm the vital role of education in fostering socio-economic development and improving quality of life.

However, a discrepancy in the literature regarding the impact of spending on different sectors is worth noting. While the studies above emphasize the benefits of education spending, Tandiyono (2018) reports that spending on the health function does not significantly affect welfare, suggesting a nuanced landscape in which the impacts of government expenditures vary by sector. This discrepancy underscores the importance of targeted and strategic investment in public services, where funds allocated to education are particularly effective in promoting socio-economic benefits, including poverty reduction and welfare improvement.

The effect of regional function expenditures for social protection on poverty and welfare

The analysis of the impact of regional expenditures on social protection functions presents a nuanced view of their effects on poverty and welfare. The findings indicate that increased regional spending on social protection does not significantly influence poverty levels, suggesting that such investments may not directly contribute to immediate poverty reduction. This observation aligns with the research conducted by Utama & Kustiani (2012), which posits that regional spending dedicated to social protection functions does not play a significant role in alleviating poverty.

However, this conclusion contrasts with the views of Tandiyono (2018) and Fiszbein et al. (2014), who argue that increased spending on social protection can have a positive impact on poverty, highlighting a divergence in the academic discourse regarding the effectiveness of social protection expenditures in poverty mitigation. The allocation of social protection funds towards personnel and capital spending, rather than direct income support or poverty alleviation programs, may explain the limited immediate impact on reducing poverty levels.

Conversely, the data suggests that regional expenditures for social protection have a positive effect on welfare, indicating that such spending can contribute to overall welfare improvements. This finding is supported by research from Nisa & Handayani (2021) and Sutono (2022), which acknowledge the positive relationship between the absorption of regional and central spending on social protection and welfare enhancement. Nevertheless, this perspective is not universally accepted, as evidenced by Deswantoro et al. (2017), who contend that regional spending on social functions does not significantly affect welfare, pointing to ongoing debates within the literature regarding the socio-economic impacts of social protection spending.

These mixed findings underscore the complexity of assessing the effectiveness of social protection expenditures on poverty and welfare. While evidence suggests that such spending can enhance welfare, its direct impact on poverty reduction remains contested, highlighting the need for further research and a more strategic approach to allocating social protection funds.

The effect of open unemployment rates on poverty and welfare

As presented in this research, the relationship between the open unemployment rate and its effects on poverty and welfare offers intriguing insights that diverge from conventional expectations. The analysis reveals that an increase in the unemployment rate is associated with a reduction in poverty levels, a finding that contradicts the research conducted by Emt et al. (2023) and Sembiring et al. (2023), which posits that higher unemployment rates typically lead to increased poverty.

Furthermore, the open unemployment rate is found to have a significant positive influence on welfare, suggesting that a rise in unemployment levels could, paradoxically, lead to an increase in welfare. This conclusion aligns with the findings of Siregar et al. (2023), who indicate that unemployment may positively affect welfare. However, this perspective is challenged by Ningrum et al. (2020), who argue that unemployment adversely affects people's welfare.

The apparent contradiction in the relationship between unemployment rates, poverty, and welfare may be attributed to external factors, notably the impact of the Covid-19 pandemic in 2021. The pandemic led to widespread layoffs, prompting government intervention to support affected employees and maintain public spending. This assistance helped to mitigate the potential rise in poverty and sustain welfare levels despite the increasing unemployment rate.

Such findings underscore the complex dynamics between unemployment, poverty, and welfare, especially in external shocks such as the Covid-19 pandemic. Government interventions during such periods can play a critical role in buffering the adverse socio-economic effects typically associated with rising unemployment rates, illustrating the importance of responsive and targeted policy measures in maintaining social welfare and reducing poverty amidst economic challenges.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study reveals that household expenditure on cigarettes significantly exacerbates poverty, with increased spending on smoking correlating with a rise in the poverty rate. Furthermore, household spending on cigarettes detrimentally affects welfare, suggesting that higher expenditures on smoking lead to a reduction in welfare levels.

The analysis identifies specific regional function expenditures that significantly influence poverty, including spending for the public, order and security, economy, and education. Additionally, expenditures significantly impacting welfare include those allocated for order and security, economy, health, education, and social protection. Notably, regional spending on economic functions and social protection directly contributes to poverty reduction, highlighting the importance of targeted spending beyond cash assistance, such as providing productive assistance to develop micro and small businesses.

Recommendations

Recommendations emerging from the study emphasize the need to control cigarette expenditure as a strategy for poverty alleviation and welfare improvement. This could involve updating policies or regulations concerning excise and cigarette taxes, coupled with enhancing public education on the health and economic consequences of smoking. Furthermore, the government is urged to ensure that regional budgets are efficiently allocated and prioritized towards functions directly impacting poverty and welfare, particularly in economic functions, health, and education sectors. For future research, there is a recommendation to incorporate spatial analysis methods to explore the direct and indirect relationships between poverty and welfare across regions, offering a more comprehensive understanding of these socio-economic dynamics.

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