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Regional Disparities in Public Expenditure Effectiveness; A Comparative Analysis of Western and Eastern Indonesia

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Abstract

This study investigates the impact of government expenditure on employment across Indonesia's regional economies, incorporating private investment as a mediating variable and region as a moderating variable. Using data from 2010 to 2022, the analysis focuses on five categories of government spending: general, housing and settlement, economic, education, and health. A multigroup path analysis model is employed to examine both direct and indirect effects of these expenditures on employment. The results reveal that government spending has a stronger impact on employment in the western region compared to the eastern region. Regional differences significantly moderate the relationship between government expenditure and private investment, particularly in general, economic, education, and health spending. In contrast, housing and settlement expenditure consistently affect both regions. Furthermore, private investment significantly enhances employment, especially in the western provinces. These findings underscore the importance of accounting for regional disparities in fiscal policy design and provide valuable insights for developing more effective and equitable regional economic strategies in Indonesia.

Keywords: Government Expenditure; Private Investment; Employment; Regional Disparities

1. Introduction

Regional disparities in employment capacity remain a persistent challenge in Indonesia's economic landscape. Provinces across the archipelago exhibit varying abilities to absorb labor, influenced by factors such as resource endowment, geographic conditions, demographic structure, and the scale of economic activities. These disparities have led to uneven economic development and labor absorption across regions. The eastern region had a higher employment rate (95.81%) than the western region (93.72%) in 2022, The western region still dominates in terms of labor force size, accounting for over 75% of the national total (Statistics Indonesia, 2023).

This paradox, where more economically advanced regions like Western Indonesia exhibit relatively lower employment absorption, raises critical questions about the effectiveness of fiscal policy in addressing regional employment gaps. Fiscal policy, particularly government

expenditure, plays a pivotal role in stimulating economic activity and employment, especially in developing economies where market mechanisms alone may not suffice. The theoretical foundation for government intervention in employment creation is rooted in Keynesian economics, which posits that insufficient aggregate demand can lead to unemployment, necessitating public sector spending to stimulate economic activity (Keynes, 1937). In contrast, classical economists argue for minimal government interference, emphasizing the role of market forces. However, contemporary empirical evidence suggests that the impact of government spending on employment is context-dependent, varying by region, sector, and the nature of the expenditure (Carvelli, 2023).

Recent studies have highlighted the importance of disaggregating government expenditure to understand its differential impacts. Productive expenditures such as infrastructure, education, and health are more likely to stimulate private investment and employment than unproductive ones (Bose et al., 2007; Afonso et al., 2010; Chalya et al., 2022). Moreover, the effectiveness of such spending is often mediated by private investment and moderated by regional characteristics, including institutional quality, infrastructure readiness, and human capital development (Albassam, 2020; Carvelli, 2023). Despite the growing body of literature, several gaps remain. First, many studies focus on national-level data, overlooking regional heterogeneity. Second, few have examined the moderating role of region in the indirect relationship between government expenditure and employment via private investment. Third, there is limited research on the comparative effectiveness of different types of public spending, such as general administration, housing, economic development, education, and health across regions. This study addresses these gaps by employing a multigroup path analysis to assess how regional differences in Indonesia influence the effectiveness of various types of government spending on employment, both directly and through private investment. By disaggregating public expenditure into five categories and analyzing their impact across the western and eastern regions of Indonesia, the study provides nuanced insights into the spatial dynamics of fiscal policy effectiveness. This study examines the government expenditure's impact on employment across Indonesia's western and eastern regions, incorporating private investment as a mediating variable and regional classification as a moderating factor. By analyzing five categories of government spending, general housing and settlement, economic, education, and health, this research seeks to uncover direct and indirect pathways through which fiscal policy influences employment outcomes.

The novelty of this study lies in its multigroup path analysis approach, which allows for a nuanced understanding of regional heterogeneity in fiscal policy effectiveness. Unlike previous studies that often treat Indonesia as a homogenous entity, this research disaggregates the analysis by region, offering insights into how fiscal interventions can be tailored to regional needs. The findings are expected to contribute both theoretically, by enriching the literature on regional fiscal policy and employment, and practically, by informing policymakers on how to design more equitable and effective employment strategies.

2. Literature Review

Government expenditure is critical in stimulating economic activity and employment, particularly in developing countries where market mechanisms alone may not suffice (Butkiewicz and Yanikkaya, 2011; Meyer et al., 2017; V. B. Nguyen, 2022; Arapova, 2022).

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The theoretical foundation for this stems from Keynesian economics, which emphasizes the importance of fiscal policy in managing aggregate demand and addressing unemployment (Keynes, 1937). In contrast, classical economic theory advocates minimal government intervention, relying on market forces to allocate resources efficiently (Siddiqui, 2023). In the context of regional economies, public expenditure serves multiple functions; allocation of resources, redistribution of income, and economic stabilization (Musgrave and Musgrave, 1980). These functions are particularly relevant in Indonesia, where regional disparities in infrastructure, human capital, and institutional capacity necessitate differentiated fiscal strategies. Public investment in infrastructure, education, and health has been shown to enhance regional competitiveness and attract private investment, generating employment (Patra and Wahyuny, 2016; Ewubare and Maeba, 2018; Nugraha and Prayitno, 2020; H. T. Nguyen, 2022; Primandani and Purbadharmaja, 2023).

H1: Region (Z) moderates the direct effect between General Public Services Expenditure (GPSE) and Private Investment (PI).

H2: Region (Z) moderates the direct effect between Housing and Settlement Expenditure (HSE) and Private Investment (PI).

H3: Region moderates the direct effect between Economic Affairs Expenditure (EAE) and Private Investment (PI).

H4: Region (Z) moderates the direct effect between Education Expenditure (EE) and Private Investment (PE).

H5: Region (Z) moderates the Direct Effect Between Health Expenditure (HE) and Private Investment (PI).

Several studies have examined the relationship between government spending and employment. Conducted a disaggregated analysis of public expenditure in developing countries and found that capital expenditures, particularly in infrastructure and human development, have a more pronounced effect on employment than recurrent expenditures (Bose, Haque and Osborn, 2007; Abdelkader, Cheikh and Sofiane, 2017; Basantwani *et al.*, 2021). The role of fiscal policy in promoting inclusive growth, especially during periods of economic crisis (Afonso et al., 2010). The mediating role of private investment in the relationship between public spending and employment has also gained attention. Nguyen (2022) demonstrated that public investment in infrastructure can crowd in private investment, thereby amplifying its impact on job creation. Mumuni and Njong, (2023) who emphasized the importance of complementary policies that enhance the efficiency of public spending and reduce barriers to private sector participation.

However, the impact of government expenditure is not uniform across regions. Regional disparities in infrastructure, institutional quality, and economic maturity can moderate the effectiveness of fiscal policy. For instance, Santos et al., (2022) found that decentralization in Indonesia has led to uneven development outcomes due to differences in local government capacity and institutional readiness, which in turn affect the success of public investment. This is particularly relevant in Indonesia, where the western and eastern regions exhibit significant differences in economic structure, infrastructure availability, and institutional capacity. The role of regional heterogeneity is further emphasized in studies that examine the spatial distribution of public investment. For instance, Beraldo et al., (2009) argue that the welfare effects of public spending are highly context-dependent, with variations in governance quality, demographic structure, and economic base influencing outcomes. In Indonesia, the western region characterized by more advanced infrastructure and higher economic activity tends to benefit

more from public spending compared to the eastern region, which remains relatively underdeveloped. Santos et al., (2022) found that decentralization in Indonesia has led to uneven development outcomes due to differences in local government capacity and institutional readiness, which in turn affect the success of public investment. The fiscal decentralization and infrastructure investment continue to yield uneven outcomes across Indonesian provinces due to persistent disparities in institutional capacity and economic readiness. Fiscal decentralization and infrastructure investment in Indonesia have led to uneven development outcomes across provinces, largely due to varying levels of institutional capacity and economic preparedness. While some regions, particularly in Java and other provinces, have effectively utilized these policies to boost growth and attract private investment, othersespecially in Eastern Indonesiastruggle with weak governance and inadequate human capital. These disparities are exacerbated by differences in local governments' ability to plan, implement, and maintain infrastructure projects, as well as by gaps in regulatory frameworks and financial management. Consequently, despite national efforts to promote balanced regional development, the benefits of decentralization remain concentrated in areas with stronger institutions and more advanced economic structures, perpetuating interregional inequality. Recent studies have emphasized the role of government spending in influencing private sector dynamics (H. T. Nguyen, 2022; Primandani and Purbadharmaja, 2023). However, limited research has explored the mediating role of private investment in the relationship between sectoral government expenditure and employment.

H6: Region (Z) moderates the direct effect between General Public Services Expenditure (GPSE) and Employment (EMP).

H7: Region (Z) moderates the direct effect between Housing and Settlement Expenditure (HSE) and Employment (EMP).

H8: Region (Z) moderates the direct effect between Economic Affairs Expenditure (EAE) and Employment (EMP).

H9: Region (Z) moderates the direct effect between Education Expenditure (EE) and Employment (EMP).

H10: Region (Z) moderates the effect between Health Expenditure (HE) and Employment (EMP).

H11: Region (Z) moderates the effect between Private Investment (PI) and Employment (EMP).

3. Methods

3.1 Data Description

This study adopts a quantitative approach to examine the impact of government expenditure on employment across Indonesia's regional economies, with private investment serving as a mediating variable and regional classification (Western vs. Eastern Indonesia) as a moderating variable. The analysis covers the period from 2010 to 2022, utilizing secondary data obtained from Statistics Indonesia, the Directorate General of Fiscal Balance, and the Ministry of National Development Planning. The dataset comprises panel data from 34 provinces, equally divided into two regional groups: 17 provinces in the Western Region of Indonesia (WRI) and 17 in the Eastern Region of Indonesia (ERI). This classification follows national administrative boundaries and reflects substantial socio-economic disparities between the two regions.

3.2 Methods

The study employs a Multigroup Path Analysis within the Structural Equation Modeling (SEM) framework to estimate both direct and indirect effects of government expenditure on

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employment. This method allows for simultaneous estimation of multiple relationships and facilitates comparison of structural paths across regional groups (Hair *et al.*, 2019; Kline, 2023). The data obtained were then analysed using the Multigroup Path analysis model. The independent variables consist of five categories of government expenditure, classified by functional spending: General Public Services Expenditure (GPSE), Housing and Settlement Expenditure (HSE), Economic Affairs Expenditure (EAE), Education Expenditure (EE), and Health Expenditure (HE). The mediating variable is Private Investment (PI), proxied by Gross Fixed Capital Formation (GFCF), while the dependent variable is Employment (EMP), measured by the number of employed persons in each province. The moderating variable is Zona/Region (Z), coded as 0 for Western Region of Indonesia (WRI) WRI and 1 for Eastern Region of Indonesia (ERI).

The model studied can be seen in Figure 1.

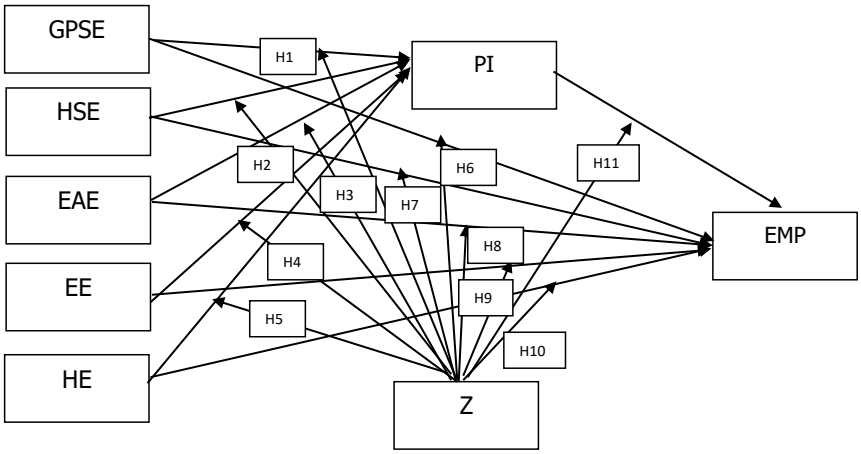

Figure 1. Research Framework

Prior to model estimation, the following statistical assumptions were tested; a). Linearity, Assessed using the Regression Specification Error Test (RESET), confirming linear relationships among variables (Thakkar, 2020), b). Homoscedasticity, evaluated using the Breusch-Pagan test, indicating constant variance of residuals, c). Normality,verified through the Kolmogorov-Smirnov test, confirming that residuals follow a normal distribution. All assumptions were satisfied, validating the use of Ordinary Least Squares (OLS) estimation within the path analysis framework.

4. Results

There are three assumptions that must be fulfilled in path analysis, namely the assumption of linearity, the assumption of homoskedasticity of the recidual of variance, and the assumption of normality of recidual. The first part, testing the linearity assumption is used to determine the effect between variables. Testing using the Regression Specification Error Test, the test results can be seen in Table 1.

Table1. Linearity Test Results Regression Specification Error Test

Effect		F Statistic	P-Value	Results
General Public Services Expenditure (GPSE)	Private Investment (PI)	2,009	0,379	Yes
Housing and Settlement Expenditure (HSE)	Private Investment (PI)	1,660	0,435	Yes
Economic Affairs Expenditure (EAE)	Private Investment (PI)	1,485	0,470	Yes
Education Expenditure (EE)	Private Investment (PI)	2,431	0,327	Yes
Health Expenditure (HE)	Private Invesment (PI)	1,847	0,403	Yes
General Public Services Expenditure (GPSE)	Employment (EMP)	0,566	0,784	Yes
Housing and Settlement Expenditure (HSE)	Employment (EMP)	0,457	0,842	Yes
Economic Affairs Expenditure (EAE)	Employment (EMP)	1,293	0,515	Yes
Education Expenditure (EE)	Employment (EMP)	3,217	0,261	Yes
Health Expenditure (HE)	Employment (EMP)	5,349	0,168	Yes
Private Investment (PI)	Employment (EMP)	1,172	0,548	Yes

Based on Table 1, It can be seen that the effect between exogenous and endogenous variables produces a p value > α = 0.05, which means that Ho is accepted, which means that the effect between variables in this study is linear. So it can be concluded that the overall variable effect is linear and fulfils one of the assumption requirements of path analysis. The second part, testing the assumption of homoscedasticity of the variance of errors, is used to determine whether the variance of errors from the results of path analysis is constant/homogeneous. The test uses Breusch-Pagan. The test results can be seen in Table 2.

Table 2. Bresusch-Pagan Homoskedastisitas.

Variable Error	Statistic X^2	P-Value	Results
e_{y1}	7,345	0,196	Homogeneous Variant
e_{y2}	8,966	0,175	Homogeneous Variant

Based on Table 2, it is known that the Chi Square test statistic produces a p-value > 0.05, so it can be said that the variance of the residuals is homogeneous / constant. The third part, testing the assumption of normality is used to determine whether the residuals spread according to the normal distribution or not. The test uses Kolmogorov-Smirnov. The test results can be seen in Table 3.

Table 3. Kolmogorov-Smirnov Normality Test Results

Variable Error	Z Statistic	P-Value	Results
e_{y1}	1,495	0,135	Normal
e_{y2}	1,319	0,187	Normal

Based on Table 3, it is known that the Z test statistics and p-values are more than α = 0.05 so it can be said that the residuals are normally distributed. Therefore, the use of path analysis with the OLS approach can be used in this study. The following are the results of the multigroup moderation path analysis model on the direct effect obtained in the following equation.

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1. Eastern Region of Indonesia Group

$$Z_{Y1i} = 0{,}1807\mathrm{Z_{X1i}} + 0{,}3155\mathrm{Z_{X2i}} + 0{,}2259\mathrm{Z_{X3i}} + 0{,}2353\mathrm{Z_{X4i}} + 0{,}3174\mathrm{Z_{X5i}}$$

$$Z_{Y2i} = 0{,}0564\mathrm{Z_{X1i}} + 0{,}0533\mathrm{Z_{X2i}} + 0{,}0785\mathrm{Z_{X3i}} + 0{,}2461\mathrm{Z_{X4i}} + 0{,}1781\mathrm{Z_{X5i}} + 0{,}3126\ \mathrm{Z_{Y1i}} \quad \text{..... (1)}$$

2. Western Region of Indonesia Group

$$Z_{Y1i} = 0{,}3088\mathrm{Z_{X1i}} + 0{,}3337\mathrm{Z_{X2i}} + 0{,}4896\mathrm{Z_{X3i}} + 0{,}3511\mathrm{Z_{X4i}} + 0{,}4549\mathrm{Z_{X5i}}$$

$$Z_{Y2i} = 0{,}0986\mathrm{Z_{X1i}} + 0{,}0910\mathrm{Z_{X2i}} + 0{,}1816\mathrm{Z_{X3i}} + 0{,}2598\mathrm{Z_{X4i}} + 0{,}3961\mathrm{Z_{X5i}} + 0{,}6635\mathrm{Z_{Y1i}} \quad \text{..... (2)}$$

Table 4. Table Result (Direct Effect)

Effect		MultiGroup: Region (Categorical)						Ratio	Conclusion
Dependent	Independent	East	P-value	West	P-value	Difference	P-value		
General Public Services Expenditure (GPSE)	Private Investment (PI)	0,1807*	0,0011	0,3088*	0,0000	-0,1281*	0,0000	1,7089	West has a Stronger Influence
Housing and Settlement Expenditure (HSE)	Private Investment (PI)	0,3155*	0,0000	0,3337*	0,0000	-0,0182	0,5552	1,0577	Not Different
Economic Affairs Expenditure (EAE)	Private Investment (PI)	0,2259*	0,0000	0,4896*	0,0000	-0,2637*	0,0000	2,1673	West has a Stronger Influence
Education Expenditure (EE)	Private Investment (PI)	0,2353*	0,0001	0,3511*	0,0000	-0,1158*	0,0000	1,4921	West has a Stronger Influence
Health Expenditure (HE)	Private Invesment (PI)	0,3174*	0,0000	0,4549*	0,0000	-0,1375*	0,000	1,4332	West has a Stronger Influence
General Expenditure (X1)	Employment (EMP)	0,0564	0,4471	0,0986	0,1488	-0,0422	0,1946	1,7482	Not Different
Housing and Settlement Expenditure (X2)	Employment (EMP)	0,0533	0,2336	0,0910	0,0707	-0,0378	0,1263	1,7073	Not Different
Economic Expenditure (X3)	Employment (EMP)	0,0785	0,2299	0,1816*	0,0010	-0,1030*	0,0000	2,3134	West has a Stronger Influence
Education Expenditure (X4)	Employment (EMP)	0,2461*	0,0001	0,2598*	0,0000	-0,0137	0,6610	1,0557	Not Different
Health Expenditure (X5)	Employment (EMP)	0,1781*	0,0011	0,3961*	0,0000	-0,2180*	0,0000	2,2240	West has a Stronger Influence
Private Investment (Y1)	Employment (EMP)	0,3126*	0,0000	0,6635*	0,0000	-0,3509*	0,0000	2,1225	West has a Stronger Influence

*) significant

Based on the hypotheses and the empirical testing results summarized in Table 4, the following explanations can be provided:

H1: The region can moderate the direct effect of General Public Services Expenditure on investment based on the coefficient difference value of -0.1281 (p value= 0.000). This indicates that the region moderates the direct effect between General Public Services Expenditures and private investment. Based on the ratio value, it can be seen that General Public Services Expenditure in the western region is 1.7089 times greater than the eastern region. This suggests that the western region has a stronger influence in the allocation of

public expenditure. This factor may be related to the higher level of infrastructure needs and public services in the western region. The coefficient of difference of -0.1281, which is negative, indicates that the strength of the effect between public expenditure and private investment is greater in the western region compared to the eastern region. In other words, the impact of public expenditure on private investment tends to be more effective or stronger in the western region.

H2: Based on the results of the direct influence test in each region, the p-value of the difference is 0.5552. This indicates that the region cannot moderate the direct influence between housing and organizational expenditures on private investment.

H3: Based on the results of the direct effect test on each region, the coefficient difference value is 0.2637 with a difference p value of 0.000. This indicates that the region moderates the direct effect between economic expenditure and private investment. The negative difference coefficient indicates that the western region affects the effect between economic expenditure and private investment more strongly than the eastern region. The economic expenditure of the western region is 2.1673 times greater than that of the eastern region. This suggests that the western region has a higher priority in economic development, possibly due to higher levels of economic activity or more government investment in the western region's economic sectors. In other words, increased economic spending in the western region has a greater impact on private investment compared to the eastern region.

H4: Based on the direct effect test results in each region, the coefficient difference value is -0.1158 with a difference p value of 0.000. This shows that the region moderates the direct effect between education expenditure and private investment. The negative difference coefficient indicates that the western region affects the effect between education expenditure and private investment more strongly than the eastern region. In terms of ratio value, it is found that education expenditure in the western region is 1.4921 times greater than that in the eastern region. This indicates that the western region pays more attention to the education sector, which may reflect better access to education facilities or higher education enrolment rates in the region.

H5: Based on the results of the direct effect test in each region, the coefficient difference value is 0.1375 with a difference p value of 0.000. This indicates that the region moderates the direct effect between health expenditure and private investment. The negative difference coefficient indicates that the western region affects the effect between health expenditure and private investment more strongly than the eastern region. In terms of the ratio, health expenditure in the western region is 1.4332 times greater than that in the eastern region. This suggests that the western region has a higher priority for the health sector, possibly due to greater demand for health services or better access to health facilities.

H6: Based on the results of the direct effect test on each region, the coefficient difference value is 0.0422 with a difference p value of 0.1946. This indicates that the region cannot moderate the direct influence between General Public Services Expenditure on private investment.

H7: Based on the results of the direct effect test on each region, the coefficient difference value is 0.0378 with a difference p value of 0.1263. This indicates that the region cannot moderate the direct effect between housing and settlement expenditure on employment.

H8: Based on the results of the direct effect test on each region, the coefficient difference value is 0.1030 with a difference p value of 0.000. This indicates that the region moderates the direct effect between economic expenditure and employment. The negative difference coefficient indicates that the western region affects the effect between economic expenditure and employment more strongly than the eastern region. In addition, the ratio value of 2.3134 indicates that the effect of economic spending on employment in the

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western region is about 2.3134 times greater than that in the eastern region. In other words, each unit increase in economic expenditure in the western region results in an impact on Employment that is more than double that in the eastern region.

H9: Based on the results of the direct effect test on each region, the coefficient difference value is 0.0137 with a difference p value of 0.6610. This indicates that the region cannot moderates the direct effect between education expenditure and employment.

H10: Based on the results of the direct effect test on each region, the difference coefficient value is -0.2180 with a difference p value of 0.000. This indicates that the region moderates the direct effect between health expenditure and employment. The negative difference coefficient indicates that the western region affects the effect between health expenditure and employment more strongly than the eastern region. In addition, the ratio value of 2.2240 indicates that the effect of health expenditure on employment in the western region is about 2.2240 times greater than that of the eastern region. In other words, any increase in health expenditure in the western region results in more than double the impact on Employment compared to the eastern region.

H11: Based on the results of the direct effect test on each region, the coefficient difference value is 0.3509 with a difference p value of 0.000. This indicates that the region moderates the direct effect between private investment and employment. The negative difference coefficient indicates that the effect of private investment on employment is stronger in the western region compared to the eastern region. This means that any increase in private investment in the western region results in a greater impact on job creation or an increase in Employment compared to the eastern region. The ratio value of 2.1225 indicates that the effect of private investment on employment in the western region is about 2.1225 times greater than that in the eastern region.

The following are the results of the multigroup moderation path analysis model on the indirect effect obtained in the following equation.

1. Eastern Region of Indonesia Group

$$Z_{Y2i} = 0{,}0565\mathrm{Z_{X1i}} + 0{,}0986\mathrm{Z_{X2i}} + 0{,}0706\mathrm{Z_{X3i}} + 0{,}0736\mathrm{Z_{X4i}} + 0{,}0992\mathrm{Z_{X5i}}$$

2. Western Region of Indonesia Group

$$Z_{Y2i} = 0{,}2049\mathrm{Z_{X1i}} + 0{,}2214\mathrm{Z_{X2i}} + 0{,}3249\mathrm{Z_{X3i}} + 0{,}2330\mathrm{Z_{X4i}} + 0{,}3019\mathrm{Z_{X5i}}$$

The results presented in Table 5 highlight the critical role of private investment as a mediating variable in the relationship between government expenditure and employment. The analysis reveals that the indirect effects of government spending on employment channeled through private investment are significantly stronger in the western region of Indonesia compared to the eastern region. Among the five categories of government expenditure analyzed, economic expenditure stands out with the highest indirect effect in the western region (0.3249), which is more than four times greater than in the eastern region (0.0706). This suggests that economic development initiatives in the West are more successful in stimulating private sector activity, which in turn leads to job creation. The difference in effect ratio of 4.6020 underscores the magnitude of this disparity.

Health expenditure also shows a substantial indirect effect in the west (0.3019) compared to the east (0.0992), with a ratio of 3.0433. This indicates that investments in health infrastructure and services not only improve public welfare but also enhance the attractiveness of regions for private investment, particularly in the West where health systems are more developed. Education expenditure follows a similar pattern, with an indirect effect of 0.2330 in the west and 0.0736 in the east. The ratio of 3.1658 suggests that education-related spending

is more effective in generating employment through private investment in the western provinces, likely due to better alignment between educational outcomes and labor market needs. General public services expenditure and housing and settlement expenditure also exhibit stronger indirect effects in the west, although the differences are slightly less pronounced. For example, the indirect effect of housing expenditure on employment is 0.2214 in the west versus 0.0986 in the east, with a ratio of 2.2454. This implies that housing development projects in the west are more likely to stimulate private sector participation and employment. These findings collectively point to a structural advantage in the western region, where better infrastructure, institutional quality, and economic maturity enhance the effectiveness of public spending.

Table 5. Table Result (Indirect Effect)

Effect (Mediation: Private Investment (Y1)		MultiGroup: Region (Categorical)						Ratio	Conclusion
Dependent	Independent	East	P-value	West	P-value	Difference	P-value		
General Public Services Expenditure (GPSE)	Employment (EMP)	0,0565	0,0724	0,2049*	0,0000	-0,1484*	0,0001	3,6265	West has a Stronger Influence
Housing and Settlement Expenditure (HSE)	Employment (EMP)	0,0986*	0,0093	0,2214*	0,0000	-0,1228*	0,0000	2,2454	West has a Stronger Influence
Economic Affairs Expenditure (EAE)	Employment (EMP)	0,0706	0,0591	0,3249*	0,0000	-0,2542*	0,0000	4,6020	West has a Stronger Influence
Education Expenditure (EE)	Employment (EMP)	0,0736*	0,0004	0,2330*	0,0000	-0,1594*	0,0000	3,1658	West has a Stronger Influence
Health Expenditure (HE)	Employment (EMP)	0,0992*	0,0002	0,3019*	0,0000	-0,2026*	0,0000	3,0433	West has a Stronger Influence

The moderating role of region is evident across all expenditure categories, with the western region consistently outperforming the eastern region in converting public investment into private sector growth and employment. From a policy perspective, this suggests that fiscal decentralization and regional targeting are essential. While the western region may benefit from continued investment in economic and health sectors, the eastern region requires capacity-building interventions to strengthen the link between public spending and private investment. This could include improving regulatory frameworks, enhancing access to finance, and investing in foundational infrastructure. In conclusion, Table 5 provides compelling evidence that the indirect pathway from government expenditure to employment via private investment is not uniform across regions. The western region demonstrates a more efficient and responsive investment environment, while the eastern region lags behind. Addressing this imbalance is crucial for achieving inclusive and equitable economic development across Indonesia.

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5. Discussion

5.1. Regional Moderation in the Direct Effects of Government Expenditure on Private Investment and Employment

This study provides compelling empirical evidence on the differentiated impact of government expenditure on employment across Indonesia's regional economies, with private investment serving as a mediating variable and regional classification as a moderating factor. The multigroup path analysis reveals significant regional disparities, particularly between the Western and Eastern regions, in the effectiveness of fiscal policy interventions. The results confirm that General Public Services Expenditure (GPSE), Economic Affairs Expenditure (EAE), Education Expenditure (EE), and Health Expenditure (HE) significantly influence private investment, with stronger effects observed in the Western Region. These findings are consistent with Carvelli (2023) those who emphasized that public expenditure has a more pronounced impact on private investment in regions with better institutional frameworks. Similarly, Nguyen (2022) it has been demonstrated that infrastructure-related public spending can crowd in private investment, particularly in economically advanced regions.

This pattern is further supported by Bose et al., (2007) and Afonso et al., (2010) who found that capital expenditures—especially in infrastructure, education, and health are more likely to stimulate private sector activity than recurrent expenditures. In the Indonesian context, Nugraha and Prayitno (2020) it is highlight that government investment in economic and social infrastructure significantly enhances regional competitiveness and attracts private capital, particularly in provinces with stronger institutional capacity. Moreover, Albassam (2020) emphasized that the efficiency of public spending is contingent upon governance quality and regional readiness, which helps explain why the Western Region—characterized by more advanced infrastructure and institutional maturity—exhibits stronger fiscal transmission effects. Santos et al., (2022) noted, disparities in local government capacity and fiscal autonomy further shape the success of public investment, reinforcing the need for regionally tailored fiscal strategies. Several interrelated factors contribute to this. In the West, higher GPSE improves governance and reduces bureaucratic inefficiencies, lowering business risks while targeted EAE develops industrial clusters and transportation networks, creating agglomeration economies. Meanwhile, superior EE and HE in the West enhance human capital through skilled labor and healthier workers, increasing productivity. In contrast, Eastern Indonesia's less developed infrastructure, weaker institutions, and unequal access to education and health services limit spillover effects, perpetuating regional disparities in private investment (Hakim and Rosini, 2022). These differences confirm how concentrated public spending in the West fosters a more attractive ecosystem for private capital, compared to eastern Indonesia (Lewis, 2013; Alif Almughni *et al.*, 2024; Raksaka and Resosudarmo, 2024).

Sector-specific mechanisms also play a role. GPSE improves administrative efficiency and reduces transaction costs, thereby lowering barriers for private sector entry (Musgrave and Musgrave, 1980). EAE often includes infrastructure and business support programs that directly stimulate entrepreneurial activity. EE and HE contribute to human capital development, which enhances labor productivity and innovation, key drivers of private sector expansion (Beraldo et al., 2009). Additionally, the effectiveness of public expenditure is amplified when accompanied by complementary policies such as access to finance, regulatory reform, and public-private partnerships (Mumuni and Mom Njong, 2023). The Western Region's stronger fiscal impact may thus reflect not only higher spending levels but also a more conducive policy environment. It is also important to consider the temporal dynamics of fiscal policy. As Afonso et al., (2010) suggest, the impact of capital expenditures on private investment may manifest over a longer

horizon, particularly in sectors like education and health. This may explain why regions with sustained and consistent investment, such as the Western provinces, exhibit stronger cumulative effects.

These findings collectively reinforce the theoretical framework of Keynesian economics, which posits that government spending can stimulate aggregate demand and catalyze private investment, especially in regions with favorable economic conditions and institutional support (Keynes, 1937). The direct effects of government expenditure on employment also vary by region. Economic Affairs Expenditure (H8) and Health Expenditure (H10) exhibit significantly stronger effects in the Western Region, indicating that these sectors are more effective in generating employment where institutional and infrastructural conditions are favorable. This finding is consistent with Afonso et al., (2010) those who emphasized the importance of economic and health sector investments in driving inclusive growth and employment. Sector-specific mechanisms help explain this pattern, economic affairs spending often includes infrastructure development, agricultural support, and industrial subsidies activities that are labor-intensive and have immediate employment effects Bose et al., (2007). Similarly, health expenditure not only creates direct employment in the healthcare sector but also improves labor productivity and reduces absenteeism, indirectly supporting broader employment growth (Beraldo et al., 2009).

The Western Region's stronger employment response to these expenditures may also be attributed to its more developed labor markets, better infrastructure, and higher institutional capacity, which allow public investments to be absorbed more efficiently (Albassam, 2020; Santos et al., 2022). These structural advantages enhance the employment elasticity of public spending, particularly in sectors with high labor intensity. In contrast, General Public Services Expenditure (H6), Housing and Settlement Expenditures (H7), and Education Expenditure (H9) do not show significant regional moderation, suggesting that their impact on employment is less sensitive to regional disparities. This may be due to the nature of these expenditures. GPSE typically involves administrative and governance functions, which have limited direct employment effects. HSE often entails long gestation periods and indirect benefits through housing markets and construction linkages. EE, while critical for long-term human capital development, may not immediately translate into employment unless aligned with labor market demands (Primandani and Purbadharmaja, 2023).

Furthermore, the differential impact across expenditure types may reflect variations in employment elasticity. Sectors such as infrastructure and health tend to have higher employment multipliers compared to administrative or educational services, which require longer-term investments in skills and institutional frameworks (Afonso et al., 2010). These findings underscore the importance of not only the amount but also the composition and regional targeting of government expenditure in achieving employment outcomes. The mediating role of private investment (H11) is particularly noteworthy. The Western Region exhibits a stronger mediation effect, indicating that private investment effectively translates public spending into employment gains. This supports empirical studies by Mumuni and Mom Njong (2023) that affirm that private investment serves as a critical channel through which public expenditure influences labor market outcomes. Private investment acts as a transmission mechanism that converts public sector inputs such as infrastructure, education, and health spending into productive economic activity (Christie and Rioja, 2017; Matvejevs and Tkacevs, 2023; Marcos and Vale, 2024). By enhancing capital formation, improving business confidence, and expanding industrial capacity, private investment amplifies the employment-generating effects of public expenditure (Bose et al, 2007; Nguyen, 2022).

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The Western Region's superior mediation effect may be attributed to its more favorable investment climate, including better access to finance, more developed infrastructure, and stronger institutional support. These conditions enable private investors to respond more effectively to public sector signals and opportunities (Albassam, 2020; Santos et al., 2022). In such environments, public investment tends to crowd in private investment by reducing risk and improving expected returns. This crowding-in effect is particularly evident in the Western Region, where government spending complements rather than substitutes private sector activity (Kim and Nguyen, 2020). Furthermore, the effectiveness of mediation depends on the alignment between public spending priorities and private sector interests. In the Western Region, sectors such as transport, health, and education are more closely integrated with private enterprise, enhancing the multiplier effect of investment on employment. These findings underscore the importance of strategic coordination between public and private actors to maximize the employment impact of fiscal policy. They also reinforce the theoretical framework of Keynesian economics, which posits that government spending can stimulate aggregate demand and catalyze private sector expansion, particularly in regions with conducive economic and institutional conditions (Keynes, 1937).

5.2. Regional Moderation in the Indirect Relationship Between Government Expenditure and Employment Through Private Investment

The findings of this study provide compelling evidence on the differentiated impact of government expenditure on employment across Indonesia's regional economies, mediated by private investment and moderated by regional classification. This section interprets the empirical results, relates them to existing theories and prior studies, and explores the underlying mechanisms that may explain the observed patterns. The results confirm that government expenditure significantly influences employment, both directly and indirectly through private investment. However, the magnitude and significance of these effects vary between the Western and Eastern regions of Indonesia. In particular, the Western Region consistently exhibits stronger direct and indirect effects across most expenditure categories, especially in economic and health sectors. This suggests that the Western Region, with its more developed infrastructure and institutional capacity, is better positioned to translate public spending into productive investment and job creation. These findings are consistent with Carvelli (2023) what was found that public expenditure has a stronger long-run effect on private investment in regions with better institutional frameworks. Similarly, Beraldo et al., (2009) emphasized that the welfare effects of public spending are highly context-dependent, influenced by governance quality and economic maturity. Santos et al., (2022) Further support this view by showing that decentralization in Indonesia has led to uneven development outcomes due to disparities in local government capacity. These structural advantages in the western region enhance the transmission of fiscal policy into employment outcomes, reinforcing the need for regionally differentiated strategies.

The mediating role of private investment is particularly noteworthy. In the Western Region, government spending on economic affairs and health not only directly boosts employment but also stimulates private investment, which in turn amplifies employment outcomes. This finding aligns with the theoretical framework of Keynesian economics, which posits that public investment can crowd in private sector activity, especially in contexts where infrastructure and market conditions are favorable. Empirical support for this mechanism is provided by Nguyen (2022), who found that public investment in infrastructure significantly enhances private sector participation and employment in Vietnam. Similarly, Mumuni and Mom

Njong (2023) emphasized that effective governance and complementary policies are crucial in ensuring that public spending translates into private investment and economic growth. In the Indonesian context, the government expenditure and investment jointly influence employment opportunities and community welfare, particularly in regions with stronger institutional capacity (Primandani and Purbadharmaja, 2023).

Several structural factors may explain the regional disparities observed in this study. The Western Region benefits from better infrastructure, higher levels of human capital, and more dynamic private sector activity, which enhance the effectiveness of public spending. In contrast, the Eastern Region faces challenges such as limited connectivity, lower institutional capacity, and a smaller industrial base, which may dampen the impact of government expenditure on employment (Faisal et al., 2024). These findings are consistent with Santos et al., (2022) the decentralization in Indonesia, which has led to uneven development outcomes due to disparities in local government capacity and institutional readiness. Beraldo et al., (2009) emphasized that the effectiveness of public spending is highly context-dependent, influenced by governance quality, demographic structure, and economic base. Furthermore, the fiscal decentralization and infrastructure investment continue to yield uneven outcomes across Indonesian provinces due to persistent disparities in institutional capacity and economic readiness (Kristiansen, 2006).

Moreover, the findings suggest that not all types of government spending are equally effective. While economic and health expenditures show strong effects, general public services expenditures and housing expenditures exhibit weaker or non-significant impacts, particularly in the Eastern Region. This highlights the importance of expenditure composition and the need for targeted fiscal interventions that address region-specific constraints. These results are consistent with Bose et al., (2007) what was found that capital expenditures in infrastructure and human development have a more pronounced effect on employment than recurrent expenditures such as general administration. Afonso et al., (2010) also emphasized that the effectiveness of fiscal policy depends on the type of spending and the economic context in which it is applied. In the Indonesian context, Nugraha and Prayitno (2020) highlighted that infrastructure and health-related investments tend to yield better employment outcomes, especially in regions with stronger institutional and economic foundations.

The results of this study are consistent with prior research emphasizing the role of public investment in stimulating employment and regional development. Public investment can boost growth and employment, especially when aligned with regional development goals (Vasilakos *et al.*, 2023; Jalles *et al.*, 2025; Pham *et al.*, 2025). They also demonstrated that infrastructure investment has varying effects on employment across Indonesian provinces, depending on local economic conditions and institutional readiness. However, this study extends the literature by explicitly modeling the moderating role of regional classification and the mediating role of private investment, offering a more nuanced understanding of fiscal policy effectiveness in a decentralized context. This approach aligns with the findings of Santos et al., (2022) who emphasized the importance of regional governance capacity in shaping the outcomes of decentralization and public investment. By incorporating both mediation and moderation mechanisms, this study provides a more comprehensive framework for evaluating fiscal policy impacts across heterogeneous regions.

Contrary to some earlier studies that found uniform effects of public spending across regions (Bose et al., 2020), this study demonstrates that regional heterogeneity significantly shapes the outcomes of fiscal interventions. This finding underscores the need for differentiated policy approaches that consider local economic structures and institutional capacities. The implications of these findings are significant for policymakers. To promote balanced regional

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development and employment, fiscal policies must be tailored to the specific needs and conditions of each region. In the Western Region, where infrastructure and institutional capacity are relatively strong, policies should focus on further enhancing private sector participation and investment. In the Eastern Region, efforts should be directed towards improving infrastructure, building institutional capacity, and creating an enabling environment for private investment. These recommendations are supported by Santos et al., (2022) who emphasized that disparities in local government capacity significantly influence the success of public investment in Indonesia. The effectiveness of fiscal policy depends on regional governance quality and institutional readiness (Beraldo et al., 2009; Albassam, 2020). The importance of inclusive and context-sensitive policy frameworks to achieve sustainable development goals, particularly in regions with structural disadvantages (Neely *et al.*, 2021).

In summary, this study provides compelling evidence on the differentiated impact of government expenditure on employment across Indonesia's regional economies, mediated by private investment and moderated by regional classification. The findings highlight the importance of context-specific policy interventions in promoting employment and economic growth in developing economies. By recognizing and addressing regional disparities, policymakers can design more effective and equitable fiscal policies that promote inclusive economic growth and job creation across the country. The results of this study provide valuable insights for policymakers to design more effective regional economic strategies that balance development between western and eastern Indonesia.

6. Conclusion

The findings reveal significant regional disparities in the effectiveness of government spending, with the western region consistently showing stronger effects compared to the eastern region. Key findings include; general public services expenditures, Economic Affairs Expenditures, education exopenditures, and health expendiures has a stronger influence on private investment and employment in the western region. Economic Affairs Expenditures and health expenditures are particularly effective in generating employment in the western provinces. Private investment significantly mediates the relationship between public spending and employment, especially in the western region. These results underscore the importance of considering regional context when formulating fiscal policies aimed at promoting job creation. The western region benefits from better infrastructure, more dynamic markets, and stronger institutions, which enhance the efficiency of fiscal policy transmission. In contrast, the eastern region requires targeted interventions to strengthen the investment climate and improve the absorptive capacity of public spending.

7. Implication of Research

The findings of this study on the impact of government expenditure on employment in Indonesia, mediated by private investment and moderated by regional differences, have significant theoretical and practical implications. These implications are crucial for policymakers, researchers, and stakeholders aiming to design effective fiscal policies and promote balanced regional development. From a theoretical perspective, this study supports Keynesian views on the role of government in stimulating aggregate demand and employment. The findings align with the public finance theory of (Whalley et al., 1975), which emphasizes the allocation, distribution, and stabilization functions of government. The study contributes to the literature on regional economic development by highlighting the importance of considering regional disparities in the effectiveness of fiscal policy. The results underscore the need for regionally differentiated fiscal strategies to optimize the impact of government spending on employment.

Practically, the study provides valuable insights for policymakers to design more effective fiscal policies that promote employment and balanced regional development. The findings suggest that economic and health expenditures have the most substantial impact on employment, particularly in the western region of Indonesia. Policymakers should prioritize investments in these sectors to maximize job creation. In the eastern region, targeted interventions in health, housing, and education are necessary to strengthen the link between government spending and private investment, thereby enhancing employment outcomes. This study contributes to the global discourse on fiscal policy effectiveness by highlighting the role of regional heterogeneity in shaping the outcomes of public expenditure. Unlike many existing studies that treat national economies as homogeneous entities, this research disaggregates the analysis by region, offering a nuanced understanding of how fiscal interventions interact with local economic structures and institutional capacities.

The findings provide valuable insights for policymakers in developing countries facing similar regional disparities. By demonstrating the differential impact of government spending across regions, the study underscores the importance of context-specific fiscal strategies to promote inclusive and balanced economic development. This approach aligns with global development goals, particularly those related to reducing inequality and fostering sustainable economic growth.

8. Limitation of study and future research

This study has several limitations that should be acknowledged. Firstly, the analysis is limited to provincial-level data, which may not capture intra-provincial disparities. Future research could benefit from examining district-level data to provide a more granular understanding of regional differences. Secondly, the study focuses on five categories of government expenditure, but other types of spending, such as social protection or environmental expenditure, may also have significant impacts on employment and private investment. Including these additional categories in future studies could provide a more comprehensive view of fiscal policy effectiveness.

Another limitation is the exclusion of other potential mediating variables, such as institutional quality, access to finance, or labor market flexibility. These factors could influence the relationship between government expenditure, private investment, and employment, and their inclusion in future research could enhance the robustness of the findings. Additionally, the study uses secondary data from government publications, which may be subject to reporting biases or inaccuracies. Future research could incorporate primary data collection methods to validate and complement the secondary data.

Author Contributions

Sabir: conceptualization, data analysis and drafted the manuscript, Abd. Rahman R and Adji Achmad Rinaldo Fernandes: conceptualization, methodology, data analysis and interpretation, provided critical feedback and revisions, Normizan bin Bakar: conceptualization, methodology, data analysis, writing and review.

Competing interests

There are no potential conflicts of interest reported by the authors.

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The data is not available upon request to the corresponding author.

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