

Unraveling the Impact of Public Expenditures on Entrepreneurship and its Consequential Effects on Economic Growth in Meghalaya

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ABSTRACT

This research aims to investigate the complex interaction between entrepreneurship, public expenditures and economic growth in the context of Meghalaya, India. The study seeks to unravel the mechanics of sustainable development by examining the impact of public expenditures on entrepreneurship and assessing how this entrepreneurial activity, in turn, influences economic growth. Employing empirical analysis on the data set varying from 2004-05 to 2021-22, VECM models under STATA, the study aims to contribute valuable insights for policymakers and stakeholders interested in encouraging sustainable economic development. The findings showed there was long-run causality and short-run significant relationship running from Economic Growth (GSDP) to the PE (Public Expenditure) and Entrepreneurship (EA). The statistical output also found that the public expenditure ($\hat{\alpha} -0.28$; $p\text{-value} > 0.001$) does have a significant positive relationship and that the Entrepreneurship ($\hat{\alpha} 65.4$; $p\text{-value} > 0.001$) does have a significant but negative relationship with the Economic growth in Meghalaya.

Keywords: Entrepreneurship, Public Expenditures, Economic Growth, Sustainable Development Goals, Meghalaya, Vector Error Correction Model.

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1. INTRODUCTION

In the dynamic landscape of regional development, the role of public expenditures in fostering entrepreneurship has emerged as a critical factor influencing economic growth. Meghalaya, with its unique socio-economic environment, provides a captivating setting to unravel the complex relationship between entrepreneurship, public expenditures and economic growth. This research aims to explore the impact of public expenditures on entrepreneurship in Meghalaya and determine its consequential effects on economic growth.

The symbiotic relationship between entrepreneurship, public expenditures and economic growth is a crucial dimension in the pursuit of sustainable development goals. This study aims to unravel the complicated web of these relationships, focusing on the unique context

of Meghalaya. By exploring the impact of public expenditures on entrepreneurship and its consequential effects on economic growth, this research endeavors to contribute to the overarching framework of sustainable development.

2. CONTEXTUAL BACKGROUND

Meghalaya, with its rich cultural tapestry and diverse economic activities, faces the challenge of achieving sustainable development amidst evolving global dynamics. The nexus between public expenditures, entrepreneurship, and economic growth remains understudied, posing a critical knowledge gap that hinders informed policy decisions.

1. **Public Expenditures and Entrepreneurship:** The patterns and effectiveness of public expenditures in fostering entrepreneurship in Meghalaya are not well-understood. This knowledge deficit impedes the formulation of targeted policies to harness entrepreneurial potential for sustainable development.
2. **Entrepreneurial Contribution to Economic Growth:** While entrepreneurship is recognized as a catalyst for economic growth, the specific sectors and mechanisms through which public expenditures influence entrepreneurial contributions to the economy are not clearly delineated.
3. **Alignment with Sustainable Development Goals:** Understanding how public expenditures align with and contribute to the achievement of sustainable development goals in Meghalaya is imperative. This includes exploring the potential of entrepreneurship as a vehicle for advancing socio-economic and environmental sustainability.

3. RATIONALE OF THE STUDY

Meghalaya has a unique socioeconomic background, making it an excellent case study for understanding regional dynamics of entrepreneurship and economic progress. The findings of this study can provide significant insights for Meghalaya officials in devising strategies to optimize public expenditures for stimulating entrepreneurship and supporting sustainable economic growth. The study adds to the scholarly conversation by deepened understanding of the complicated interplay between entrepreneurship, public expenditure, and economic growth, particularly in the context of a region like Meghalaya. This research aims to not only improve our understanding of regional development dynamics, but also to provide actionable insights for directing Meghalaya towards a path of equitable and sustainable prosperity.

4. REVIEW OF LITERATURE

Relationship between Entrepreneurship and Public expenditure.

Public expenditure increases economic growth (Al-Yousif, 2000; Ranjan and Sharma, 2008), and Bernard (2009) demonstrated that insufficient funding has a negative impact on economic growth. According to Danladi et al., (2015), capital and recurring expenditure have a considerable positive link with economic growth. Bygrave (2006) and Koellinger and Minniti (2009) discovered that national level social expenditure limits

entrepreneurial activity, but Islam (2015) discovered a negative influence on entrepreneurial activity, which was later validated by Solomon et al., (2022) in 31 developed nations between 2004 and 2011. Prasetyo (2020) discovered that between 2009 and 2019 Q3, public expenditure has a favourable and significant link with small and medium-sized firms in Indonesia. Woldemichael et al., (2024) further added to the literature by discovering a mixed relationship between the functional level of the public expenditure and the motivation of the Entrepreneurship and concluded that there was a significant and positive relationship between the public expenditure and the entrepreneurial activities.

Relationship between Entrepreneurship and Economic growth.

Hartog et al., (2010) undertook a systematic examination of the relationship between entrepreneurship and economic performance, concentrating on 21 OECD nations from 1981 to 2006. Their findings revealed convincing evidence for a long-run equilibrium relationship, leading them to conclude that increased firm ownership is causally related to economic growth.

Begum et al., (2022) added to this discussion by finding a positive and significant relationship between entrepreneurial growth, as measured by SME output, and overall economic growth. Their research found that entrepreneurship growth contributed 30.4% to the overall economic growth trajectory.

Zaki and Rashid (2016), on the other hand, found a substantial negative association in Emerging Countries. This emphasizes the complex function of institutional structures and strategic investments.

Relationship between Entrepreneurship and Human development.

Recent empirical studies highlight the critical significance of entrepreneurial activity in determining regional well-being and economic development. Scholars such as Thurik and Wennekers (2004), Wennekers et al., (2005, 2010), and Hafer (2013) have highlighted the importance of delving into the complex relationship between entrepreneurship and regional economic development. Renowned researchers such as Van Stel et al., (2005), Carree and Thurik (2010), and Pinillos and Reyes (2011) have shed light on the various consequences of entrepreneurship on regional economic dynamics. Recognising the temporal and regional heterogeneity of findings, researchers such as Bjornskov and Foss (2016, 2013), Hartog et al., (2010), and Vivarelli (2013) argue that the nature of the relationship—whether positive or negative—is an empirical matter that needs to be investigated. Ballesta et al., (2020) presented solid evidence in support of a link.

Relationship between Public Expenditure and Economic growth.

Increased government spending promotes economic growth (Al-Yousif, 2000; Ranjan and Sharma, 2008 and Nhemhafuki, 2023), but Hajamini and Falahi (2018) suggest that increased government spending may stifle economic growth if taxes and borrowing are increased. Although the relationship between government spending and economic growth is still debated, it varies greatly by country, methodology, proxy for government spending, and study period (Nyasha and Odhiambo, 2019). Inadequate finance, according to Bernard (2009), has a negative influence on economic growth. Capital and recurring

expenditure have a considerable positive link with economic growth, according to Danladi et al., (2015).

5. RESEARCH OBJECTIVES

1. To analyze the significance of public expenditures in Meghalaya, with a focus on sectors conducive to entrepreneurship.
2. To examine the current entrepreneurial landscape in Meghalaya, identifying key sectors and their responsiveness to public expenditures.
3. To measure the impact of entrepreneurial activities, influenced by public expenditures, on the economic growth of Meghalaya.
4. To illuminate through findings for policymakers to optimize public expenditures for fostering entrepreneurship and driving sustainable economic development.

6. HYPOTHESIS

H_{01} : There is no significant relationship between Entrepreneurship and Economic growth.

H_{02} : There is no significant relationship between Entrepreneurship and Public expenditure.

H_{03} : There is no significant relationship between Economic growth and Entrepreneurship

H_{04} : There is no significant relationship between Economic growth and Public Expenditure.

7. RESEARCH METHODOLOGY

Data: The annual time series data and the figures are in crores are obtained from a secondary source i.e. the Meghalaya Budget, Finance Department, Government of Meghalaya and the All-India Survey on Higher Education, Ministry of Education, Government of India, ranging from 2004-05 to 2021-22.

Public Expenditure: Public Expenditure is measured in respect to the Economic services and the Social and Community services as reported in the Meghalaya budget.

Entrepreneurial activity: In terms of enhancing more revenue, there is a strategic requirement to increase production and sales, which necessitates higher acquisition of inputs such as raw materials. This increase in operational activities invariably results in increased tax responsibilities, including but not limited to sales/trades taxes, excise charges, and vehicle-related taxes such as transportation levies for both products and passengers. This discernible upward trend in tax payments acts as a solid indicator of increased entrepreneurial activity, indicating prospective profit increases and thus, encouraging the growth of entrepreneurship. The aggregated outlays, which include sales/trade taxes, state excise taxes, vehicle taxes (transport), and taxes on goods and

passengers, represent the state's dynamic engagement of entrepreneurs. This comprehensive viewpoint sheds light on one aspect of their work.

Economic Growth: It is measured by Gross State Domestic product.

Research Design: Purposive sampling was used to analyse an annual time series data set. The reported variables are computed in crores for the analysis in the current study.

The following pair of Equation for the VECM has been considered as follows:

$$EP_t = \alpha + \sum_{i=1}^k a_i EP_{t-i} + \sum_{j=1}^k O_j PE_{t-j} + \sum_{j=1}^k Y_j EG_{t-j} + e_1 ECT_{t-1} + \epsilon_{it} \dots \dots \dots (1)$$

$$EG_t = \alpha + \sum_{i=1}^k a_i EG_{t-i} + \sum_{j=1}^k O_j PE_{t-j} + \sum_{j=1}^k Y_j EP_{t-j} + e_1 ECT_{t-1} + \epsilon_{it} \dots \dots \dots (2)$$

Where,

EP (dependent variable) is the function of its (EP, PE & EG) lagged values in an enquiry to derive its intricate relationship i.e. equation (1), on the other equation (2); EG (dependent variable) is the function of its (EG, PE & EP) lagged values for its consequential effects.

$t - i$ = the lag length is reduced by 1

a_i, O_j, Y_j = short run dynamic coefficients of the model's adjustment long run equilibrium
 e_1 = speed of adjustment parameter with a negative sign

ECT_{t-1} = the error correction term is the lagged value of the residuals obtained from the cointegrating regression of the dependent variable on the regressors. Contains long run information derived from the long run cointegrating relationship

ϵ_{it} = residuals (*error terms*)

EP = Entrepreneurship

PE = Public expenditure in Economic services and Social and Community Services

EG = Economic growth measured by increased in Gross State Domestic Product.

Statistical Tools:

The VECM was used, along with lag order selection statistics and the Cointegration test. These criteria are widely used in the literature due to their effectiveness in balancing model fit and complexity (Hansen, 2001). For unit root tests, the Augmented Dickey-Fuller method was also used. The ADF test is a robust method for assessing the stationarity of a series and is frequently referenced in econometric analyses (Dickey & Fuller, 1981). The results from these tests guide the subsequent cointegration analysis, ensuring that our model adheres to the necessary assumptions of stationarity. The integration preconditions were also met by using the ADF method for unit root testing, after which the variables were converted to First Differences and tested again to confirm the unit roots. This transformation is a common practice in time series analysis, as differencing helps eliminate trends and allows for the application of conventional statistical techniques (Box & Jenkins, 1976). The variables were finally used to meet the desired objective and questions.

8. ANALYSIS: RESULTS & DISCUSSIONS

UNIT ROOT TEST :

To fulfil the required criteria, the variables were first checked for unit root test using ADF method. The variables were converted into First difference and further tested for unit roots and the results are as follows.

Table 1: Augmented Dickey Fuller Test for Unit Root Test (no-constant)

Variable	Test Statistics	5% Critical Value
EP	3.020	-3.000
PE	2.916	-1.950
EG	4.762	-1.950

The test results in Table No.1 above revealed that the Test Statistics Value of EP, PE and EG are greater than its 5% Critical Value, indicating that they are stationary. It means that the variables do not have a unit root after being transformed into first difference.

The preceding tests have met the prerequisites for the co-integration test. As a result, for the Lag Order Selection in the VEC Model, the VARSOC technique was used and suggested for lag 4 as the maximum lag selection, but due to technicalities, the lags are reduced and computed at lag 1 in the system.

Johansen tests for cointegration

					5%
maximum				trace	critical
rank	parms	LL	eigenvalue	statistic	value
0	3	-462.77482	.	39.1092	29.68
1	8	-451.76672	0.72612	17.0930	15.41
2	11	-445.66294	0.51232	4.8854	3.76
3	12	-443.22022	0.24977		

					5%
maximum				max	critical
rank	parms	LL	eigenvalue	statistic	value
0	3	-462.77482	.	22.0162	20.97
1	8	-451.76672	0.72612	12.2076	14.07
2	11	-445.66294	0.51232	4.8854	3.76
3	12	-443.22022	0.24977		

From Table 3 mentioned below, it can be seen that the probability z value of ce1 (viz. Error Correction term which is a speed of adjustment towards equilibrium) was -3.47 (less than 0.01), it was found significant and the Coefficients of ce1 value was negative, which was a good sign of cointegration, as shown above (Table 4). This means that there was long-run causality running from Entrepreneurship (EA) to the PE (Public Expenditure) and Economic Growth (GSDP).

Table 3: vector Error Correction Model

. vec GSDP EA PE, trend(constant) lags(1)					
Vector error-correction model					
Sample: 2006 - 2022					
			Number of obs	=	17
			AIC	=	54.0902
Log likelihood = -451.7667			HQIC	=	54.12918
Det(Sigma_ml) = 2.43e+19			SBIC	=	54.4823
Equation	Parms	RMSE	R-sq	chi2	P>chi2
D_GSDP	2	1521.2	0.6702	30.4794	0.0000
D_EA	2	70.6786	0.8079	63.0697	0.0000
D_PE	2	72472.8	0.3376	7.644829	0.0219

Table 4: Long-run causality Test (EA - PE - GSDP)

D_EA						
_ce1						
L1.	-.0035875	.0010342	-3.47	0.001	-.0056144	-.0015606
_cons	377.8139	75.57925	5.00	0.000	229.6813	525.9465

The probability z value of ce1 (viz. Error Correction term which is a speed of adjustment towards equilibrium) was -3.47 (p-value < 0.01), it was found significant and the Coefficients of ce1 value was negative, which was a good sign of Cointegration, as shown above (Table 4). This means that there was long-run causality running from Entrepreneurship (EA) to the PE (Public Expenditure) and Economic Growth (GSDP).

The probability z value of ce1 (viz. Error Correction term which is a speed of adjustment towards equilibrium) was -2.75 (less than 0.01), it was found significant and the Coefficients of ce1 value was negative, which was a good sign of Cointegration and effective consequential effects, as shown below (Table 5). This means that there was long-run causality running from Economic Growth (GSDP) to the PE (Public Expenditure) and Entrepreneurship (EA).

Table 5: Long-run causality test (GSDP –PE –EA)

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
D_GSDP						
_cel						
L1.	-.061149	.0222578	-2.75	0.006	-.1047735	-.0175244
_cons	6119.279	1626.677	3.76	0.000	2931.051	9307.507

Table 6: Short-run causality Test (GSDP - PE - EA)

Johansen normalization restriction imposed						
beta	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
_cel						
GSDP	1	.	.	.	.	.
EA	65.39539	19.32577	3.38	0.001	27.51758	103.2732
PE	-.2831428	.0557376	-5.08	0.000	-.3923866	-.1738991
_cons	98289.52	.	.	.	.	.

The VECM results shown above (Table 6), clearly demonstrated that there was a short-run significant relationship running from GSDP to PE and EA. The coefficient of PE was -0.28 which was significant at the 0.001 level (p-value < 0.001), suggests a highly significant relationship between the Economic growth and public expenditure. Thus, the null hypothesis that “There is no significant relationship between the Economic growth and Public expenditure” may be rejected. This means that every increase of the public expenditure by Rs. 1 crore, the GSDP on average expected to be increasing by Rs. 28 lakh, ceteris paribus. Therefore, statistically, it may be said that the public expenditure does have a significant positive relationship with the Economic growth in Meghalaya.

It can also be seen that coefficient of EA was 65.39 which was significant at the 0.001 level (p-value < 0.001), suggests a highly significant relationship between the Economic growth and Entrepreneurship. Thus, the null hypothesis that “There is no significant relationship between the Economic growth and Public expenditure” may be rejected. This means that every increase of the Entrepreneurship by Rs. 1 crore, the

GSDP on average expected to be decreasing by Rs. 65 crores, ceteris paribus. Therefore, statistically, it may be said that the Entrepreneurship does have a significant but negative relationship with the Economic growth in Meghalaya.

Table 7: Short-run causality Test (EA - PE - GSDP)

Identification: beta is exactly identified						
Johansen normalization restriction imposed						
beta	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
_ce1						
EA	1	.	.	.	.	.
PE	-.0043297	.0007596	-5.70	0.000	-.0058185	-.0028409
GSDP	.0152916	.0205158	0.75	0.456	-.0249186	.0555018
_cons	1503.004	.	.	.	.	.

The VECM results shown above (Table 7), subsequently demonstrated that there was a short-run significant relationship running from EA to PE and GSDP. The coefficient of PE was -0.04 which was significant at the 0.001 level (p-value < 0.001), suggests a highly significant relationship between the Economic growth and Public expenditure. Thus, the null hypothesis that “There is no significant relationship between the Entrepreneurship and Public expenditure” may be rejected. This means that every increase of the public expenditure by Rs. 1 crore, the GSDP on average expected to be increasing by Rs. 43 thousand, ceteris paribus. Therefore, statistically, it may be said that the public expenditure does have a significant positive relationship with the Entrepreneurship in Meghalaya.

However, it can also be seen that coefficient of GSDP was 0.015 which was not significant at the 0.001 level (p-value > 0.001) and suggested not significant relationship between the Economic growth and Entrepreneurship. Thus, the null hypothesis that “There is no significant relationship between the Entrepreneurship and Economic growth” may not be rejected. Therefore, statistically, it may be said that the Economic growth does not have a significant relationship with the Entrepreneurship in Meghalaya.

Further, the following diagnostics and post estimation tests were computed to to assess the validity of assumptions, check the model's fit, and evaluate the reliability of the estimated parameters.

Table 8: Auto-correlation Test

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. vec1mar
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Lagrange-multiplier test
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lag	chi2	df	Prob > chi2
1	7.8073	9	0.55367
2	16.3573	9	0.05978

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H0: no autocorrelation at lag order
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The output clearly showed that the estimated parameters with Chi2 value of 7.807 at lag 1 and the Chi2 value of 16.36 at lag2 has no autocorrelation at its lag order and hence it is evident for the validity of the no autocorrelation assumption.

Table 9: Jarque-Bera Test

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. vecnorm, jbera skewness kurtosis
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Jarque-Bera test
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Equation	chi2	df	Prob > chi2
D_GSDP	1.150	2	0.56262
D_EA	0.869	2	0.64745
D_PE	1.945	2	0.37812
ALL	3.965	6	0.68144

The Jarque-Bera test was used to assess the normality of the residuals; the p-values are 0.562, 0.647 and 0.378, respectively. These are relatively high p-values, indicating that there was no strong evidence to reject the null hypothesis of normality for the residuals in these equations and hence it supports the validity of the normality assumption.

The overall combination of a unit modulus eigenvalue as shown in Table 10 below suggests a well-behaved system with stable long-term relationships and an ability to adjust to short-term disturbances.

Table 10: Eigenvalue Test

. vecstable	
Eigenvalue stability condition	
Eigenvalue	Modulus
1	1
1	1
.5181152	.518115
The VECM specification imposes 2 unit moduli.	

Hence, it can also be said that the computed model statistically indicated that changes in public expenditure overtime have a lasting impact on entrepreneurship activities and economic growth and whenever there are short-term disruptions or changes in expenditure, the entrepreneurship activities and economic growth adjusts quickly overtime and move back to its stable relationship in the long-run.

9. LIMITATIONS

The study confronts many difficulties, largely due to time restrictions, while investigating the impact of public expenditures on entrepreneurship and its subsequent implications on economic growth in Meghalaya. The duration available for data collection may limit the data sets' comprehensiveness and the public expenditures in other services are also not covered, potentially resulting to an imperfect picture of long-term trends and fluctuations in economic and entrepreneurial dynamics. The findings of the study may be limited to a single time period, limiting its generalizability and application to broader temporal settings or various regions. Furthermore, the study's short timeline may not fully capture the changing policy environment and the breadth of entrepreneurial indicators. Despite these constraints, the research seeks to convey its findings in a transparent manner, making meaningful contributions while acknowledging the contextual and temporal constraints. Future research projects could these limitations for a more comprehensive understanding of the interplay between public expenditures, entrepreneurship, and economic growth in Meghalaya.

10. FINDINGS & CONCLUSION

The statistical analysis revealed significant long-term relationships among Entrepreneurship, Public Expenditure, and Economic Growth in Meghalaya, with p-values less than 0.05. The Vector Error Correction Model (VECM) indicated that changes in public expenditure have a notable and stable short-term impact on Entrepreneurship, while Entrepreneurship also significantly influences Economic Growth. This suggests that short-term fluctuations in these variables are temporary, with a tendency to return to a stable equilibrium over time. These findings highlight that a sustained increase in public expenditure, particularly focused on economic activities and social services, is essential for fostering Entrepreneurship and enhancing Economic Growth in Meghalaya. Overall, the results underscore the importance of strategic public investment to stimulate growth and improve entrepreneurial outcomes.

This study contributes to the existing literature by confirming the interconnectedness of Entrepreneurship, Public Expenditure, and Economic Growth and advocate for government intervention and investment in public goods as a catalyst for economic development. The findings reinforce the idea that effective public expenditure can enhance entrepreneurial activity, which in turn drives economic growth. The results suggest that policymakers should prioritize increasing public expenditure in sectors that directly support Entrepreneurship, such as education, infrastructure, and community services. This strategic investment can create an environment conducive to business growth and innovation. The implications are significant: increased public spending aimed at fostering Entrepreneurship can lead to job creation, improved living standards, and greater overall economic resilience in Meghalaya. By recognizing the vital role of public expenditure, stakeholders can work towards a more sustainable and inclusive economic future for the state.

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