



KEYNES VS. WAGNER: AN INVESTIGATION OF THE RELATIONSHIP BETWEEN ECONOMIC GROWTH AND SOCIAL SECTOR EXPENDITURE IN KARNATAKA

Hemantha M ¹, Dr. S.B. Nari ²

¹Research Scholar, Karnatak University, Dharwad

²Associate Professor, Karnatak University, Dharwad

ABSTRACT

DOI No: 10.36713/epra14693

Article DOI: <https://doi.org/10.36713/epra14693>

The study examines the relationship between Economic Growth and Social Sector Expenditure. It focuses on Karnataka and provides insights into the impact of Social Sector Spending on the economy. The findings show that investments in the social sector contribute to Economic Growth. Past spending on social sectors can predict current Economic Growth patterns. However, Economic Growth does not necessarily lead to increased social sector spending. These findings support the Keynesian hypothesis on government spending and Economic Growth. In contrast, the results did not offer substantial support for Wagner's hypothesis, which suggests that as economy grows, there will be a proportionate increase in Social Sector Spending. In conclusion, the state of Karnataka provides a compelling narrative on the power of social investments in shaping its economic trajectory. As policymakers and stakeholders grapple with decisions on public spending, this research underlines the importance of viewing Social Sector Expenditures not just as costs, but as potential drivers of economic prosperity.

1.INTRODUCTION

The interaction between economic expansion and government spending, particularly in the domain of social sectors, continues to be a subject of profound scholarly and policy discussion. Embedded within this dynamic is the juxtaposition of the viewpoints of Keynes and Wagner. While the Keynesian perspective argues that government or Social Sector Expenditures can serve as a catalyst for Economic Growth, Wagner's hypothesis posits that as an economy develops, the government's role and its corresponding expenditure increase. The state of Karnataka, with its distinctive socio-economic and developmental characteristics, represents an ideal context to delve into this discourse. The objective of this research is to unravel the intricate connection between Economic Growth (GSDP) and Social Sector Expenditure (SSE) in Karnataka, with the aim of comprehending the directional causality between the two. Such an investigation not only contributes to the scholarly literature on the subject but also carries significant

policy implications for state-led interventions and strategies for growth.

2.LITERATURE REVIEW

The relationship between Economic Growth and Public Expenditure in Social Sectors is a topic of intense scrutiny and debate. The views of Keynes and Wagner provide a backdrop for understanding these dynamics. This research explores the nexus between Economic Growth and Social Sector Expenditure in Karnataka. The literature review is structured in three main segments. Firstly, we examine international perspectives on the relationship between Public Expenditure and Economic Growth. Secondly, we explore the interplay between Public Expenditure and Economic Growth in the Indian economy. Lastly, we examine evidence from various Indian states to understand the linkages between Public Spending and Economic Growth.

2.1. International Perspectives on the relationship between Public Expenditure and Economic Growth

Chor, Foon, & Tang (2008) using recursive regression-based causality tests acknowledged that the causal relationship between government expenditure and Economic Growth in Malaysia is not stable. The causality evidence supports Wagner's law from 1985 until approximately 2000, while the Keynesian hypothesis was present only before 1980. **Samudram et al. (2009)** uses the Auto-Regression Distributed Lag (ARDL) model and the 'bounds test' and found a long run relationship between total expenditures and Gross National Product (GNP), supporting both Keynes Hypothesis and Wagner's Law. **Magazzino & Magazzino (2012)** investigates the empirical evidence of Wagner's Law in Italy for the period 1960-2008 at a disaggregated level, using a time series approach. The study concludes that there is a cointegration relationship for three out of five items of public spending in Italy. The results from Granger causality tests show evidence in favor of Wagner's Law only for passive interests spending in the long-run, and for dependent labor income spending in the short-run. **Antonis et al. (2013)** tests into Wagner and Keynesian Hypotheses economy from 1833-1938 in Greece and observed that Wagner's Law is more applicable to the Greek economy during the period of growth, industrialization, and modernization. **Magazzino et al. (2015)** supporting Wagner's law claimed the positive relationship between public expenditure and aggregate income in European Union countries using Panel Data Analysis. **Dembure & Ziramba (2016)** examines the validity of Wagner's hypothesis on the direction of causality between sectoral public expenditures and Economic Growth in Namibia for the period 1991-2013. The study using the Toda-Yamamoto (TY) Granger causality approach and the bounds test to cointegration determined the bidirectional causality which validates both Wagner's Law and Keynesian Law. **Paparas et.al. (2017)** finds that there is a long-run relationship between national income and public spending, and the causality is bi-directional in United Kingdom (UK), which supports both Wagner's and Keynesian hypotheses. The paper concludes that Wagner's law is valid in the UK during the last two centuries. **Ghazy et al. (2020)** utilising Time Series Analysis found that an increase in government expenditure is associated with progressive states. **Günay and Aygun (2022)** revealed the correlation between Economic Growth and government expenditure for 30 Sub-Saharan African countries using data from 1990-2019 and found that the Keynesian approach is the appropriate one to ensure Economic Growth. **Bazán et al. (2022)** found that Wagner's law and the Keynesian hypothesis are validated in Peru as Economic Growth drives fiscal policy to increase public expenditure measures. **Elish et al. (2023)** analyses the relationship between government spending, specifically military spending,

government spending on health, government spending on education, and Economic Growth in Egypt from 1980 to 2021. It supports the Keynesian view of causality from all government spending components to Economic Growth. yet reveals a negative correlation between military spending and Economic Growth, both in the short and long term. It also highlights a negative short-term but positive long-term impact of government expenditure on education and health, indicates that military expenditure influences health and education spending without a reciprocal impact, and suggests further research on the one-way relationship between military spending and health expenditure. **Mushtaq et.al (2023)** supported Wagner's law in some versions and also there exists lack of cointegration for all its six versions indicating public expenditure is not directly tied to economic expansion but is influenced by various factors in Pakistan. **Rahman (2023)** observed that government spending has a positive impact on Gross Domestic Product (GDP) in SAARC countries, and there is a long-lasting relationship between government expenditure and Economic Growth validating both the Keynesian theory and Wagner's Law. The study suggests that SAARC countries should boost their government involvement in spurring economic development. However, if public spending patterns are not effectively designed to meet the economy's needs, it has the ability to have an enormous negative impact on the economy, with the costs being borne by the general public.

2.2 Exploring the Interplay Between Public Expenditure and Economic Growth: Insights from Indian Economy

Sahoo (2001) conducts a thorough examination of Wagner's hypothesis for India by utilizing advanced unit root tests for the time span ranging from 1970-71 to 1998-99. The results of the study indicate the presence of a long-term equilibrium relationship between public expenditure and Economic Growth, thereby lending support to both Wagner's hypothesis and the Keynesian perspective in absolute terms. However, in terms of per capita, only Wagner's hypothesis is supported. **Khundrakpam (2003)** finds a stable long-run relationship between public sector expenditure and national income in India, with the causality running strictly from the former to the latter. The study also indicates that long-run positive impact of public sector expenditure on national income would turn adverse if the growth of the former is excessive. In the short-run, there is a trade-off between growth in public sector expenditure and income. Thus, though national income growth in India seems to be investment or demand led, there is the need for maintaining a proper balance between public sector expenditure and investment for Economic Growth. **Verma & Arora (2010)** scrutinizes the veracity of Wagner's Law in India from the year 1950-51 to 2007-08. The paper has estimated six variants of Wagner's

law, espoused by different economists, that validate the presence of a persistent association between Economic Growth and the expansion of public expenditure. However, the short-term dynamics of the empirical evidence negate any nexus between the Economic Growth and the magnitude of government disbursement. **Palamalai (2013)** delves into the causal connections between public spending and economic advancement in India between 1973 to 2012 by utilizing cointegration methodology and an error correction model. The results witnessed the existence of a long-term balance between public expenditure and Economic Growth in India. The empirical outcomes based on the error-correction model estimation indicate that one-way causality is present from Economic Growth to public expenditure in both the short and long term, which substantiates the validity of Wagner's law of public expenditure. **Ranjan & Chintu (2010)** reveals that there is no evidence of bilateral causality between public expenditure and Economic Growth, but the study found evidence of unilateral causality between public expenditure and Economic Growth. **Medhi (2014)** shows evidence of a long run equilibrium relationship between spending and growth in India, with a unidirectional causality from expenditure to GDP, validating the applicability of Wagner's law in India. **Kaur & Afifa (2017)** test the validity of Wagner's Law for the Indian economy by analysing the relationship between government expenditure and Gross Domestic Product. The study utilises Time Series Analysis to test the short-run as well as the long-run relationship. The results concluded that the Wagner's Law is valid for the Indian economy except for the Pryor and Mann version. **Konwar (2017)** concludes that there is no equilibrium long-term relationship between Economic Growth and government expenditure during 1975-76 to 2013-14 period, and uni-directional causality is observed from government expenditure to Economic Growth, nullifying the applicability of Wagner's law in India and validating the Keynesian law. **Adil et al. (2017)** indicates that there is cointegration between public expenditure and GDP, but the evidence for Wagner's hypothesis is weak during 1970-2013 in Indian Economy. finds support for the hypothesis, indicating a long-run relationship between GDP and public expenditure, with causality being uni-directional from GDP to public expenditure. **Javed & Khan (2021)** finds support for the Wagner's hypothesis, indicating a long-run relationship between GDP and public expenditure, with causality being uni-directional from GDP to public expenditure from 1980-2019. **Rani & Kumar (2022)** investigates the validity of Wagner's hypothesis for the Indian economy in pre- and post-reform periods. The results indicate that unidirectional causality is moving from Economic Growth to government expenditure in all versions of Wagner's hypothesis. Thus, concluding that Wagner's hypothesis holds true for the Indian economy during

the post-reform period. **Pujari & Biradar (2023)** found a unidirectional causal relationship between public spending and agricultural output in the short and long term from 2009-10 to 2022-23 proving applicability of Wagner's Law. Infers that development expenditure does not have a significant impact on GDP, while public revenue and GDP have a significant impact on each other. **Sumandeeep et al. (2023)** infers that development expenditure does not have a significant impact on GDP, while public revenue and GDP have a significant impact on each other during 1990-2017. The study also found a positive association between tax revenue and both GDP and development expenditure. The findings suggest that accelerating development expenditures on capital projects can enhance GDP and growth.

2.3 Linkages Between Public Spending and Economic Performance: Evidence from Indian States

Narayan et al. (2012) finds strong evidence of Wagner's law in the consumption-driven relationship between public expenditure and Economic Growth in Indian states using panel data analysis. **Narang & Chotia (2016)** finds that the elasticity of social sector spending is fairly low in India, and the government should focus on enhancing Economic Growth to increase public expenditure. The Wagner's Law holds for the Indian states under study, implying a direct positive relationship between public expenditure and GDP. **Pattayat & Rani (2017)** explores the relationship between social sector development and Economic Growth in Haryana using time series data from 1985 to 2016. The study observed that increased expenditure on social sector development has a strong and positive impact on the growth of Net State Domestic Product (NSDP) in Haryana. **Nirola & Sahu (2018)** using panel estimation methods and second-generation panel unit root and cointegration tests to analyse the non-stationarity and cointegration properties between state-level government expenditure and state-level income for 15 non-special category states of India post the 1991 liberalization era. **Bhattacharyya (2019)** discovered unidirectional causality between Gross State Domestic Product (GSDP) and public expenditure on education for 28 states of India from 2008-09 to 2014-15, confirming validity of Wagner's hypothesis. **Kaur (2019)** analyzes the validity of six Versions Wagner law in Rajasthan Economy from 1970-71 to 2013-14. The study concluded that Peacock, Pryor, and Guffman versions of Wagner Law are valid for Rajasthan's economy. **Rastogi et al. (2019)** finds that Wagner's Law holds for total expenditure and its components, social sector and components, and economic services and components for the panel of low-income states during from 1980-81 to 2014-15. **Jha & Nayak (2021)** witnessed weak shreds of evidence of Wagner law for some of the Indian states, indicating a lack of a long-run comprehensive plan in designing

government expenditures. **Singh et al. (2021)** examines the impact of public expenditure on agricultural growth in Punjab, from 1990-91 to 2019-20. The study finds that expenditure on crop husbandry, dairy development, and agricultural research & education had a positive and significant impact on agricultural growth supporting Wagner's law, while expenditure on soil & water conservation and forestry & wildlife did not impact it. **Kaur (2022)** determined that state government expenditure is a key driver of GDP growth in India, supporting the Keynesian approach. **Hazarika & Nayak (2022)** showed signs of fiscal illusion and a flypaper effect caused by intergovernmental transfers and deficit. Wagner's law loses validity when controlled for these factors. **Raj & Vikas (2022)** demonstrated a modest yet noteworthy correlation linking government spending and Economic Growth. The study also suggested that Economic Growth is the primary factor leading to capital expenditure. **Nayak & Hazarika (2023)** tests Wagner's law in 21 Indian States for the period from 1980-81 to 2019-20. In terms of its validity, Wagner's law holds true for the entire sample, but its applicability varies across different income categories and regions.

From the above literature Review, it is evident that the previous research works have largely focused on validity of Wagner's Hypothesis only in India and Indian States. There is also lack of studies specifically concentrating on Public Spending on Social Sector. And it is also observed that the previous studies have not focused specifically on Karnataka State. Given

that unique socio-economic characteristics of Karnataka state, the present study have tried to fill this research gap by examining validity of Keynes and Wagner's Hypothesis for Social Sector Spending in Karnataka.

3. DATA AND METHODOLOGY

The present study is based on secondary data on Gross State Domestic Product (GSDP) and Social Sector Expenditure (SSE) of Karnataka. The required data has been retrieved from Economic and Political Weekly Research Foundation (EPWRF) Database. The study covers the time period from 1980 to 2021. Since the aim of the study is to examine the causal relationship between Gross State Domestic Product (GSDP) and Social Sector Expenditure (SSE), the present study utilised Econometric tools like Granger causality and Vector Auto Regression models. The prerequisite of the Granger causality test is that the time series under consideration must be stationary. Therefore, unit root test has been used to test the non-stationarity in both of the time series GSDP and SSE.

4. EMPIRICAL RESULTS AND DISCUSSION

Firstly, a comprehensive assessment is carried out to determine the normality of Gross State Domestic Product (GSDP) and Social Sector Expenditure (SSE), from which the samples were derived. The normality of GSDP and SSE is verified using the Jarque-Bera (JB) test of normality. The results of the JB test are documented in Table 4.1.

Table 4.1.: Results of Normality

	lnGSDP	lnSSE
Mean	17.2617	13.3693
Std.Dev.	0.8056	1.6811
Skewness	0.1474	-0.0494
Kurtosis	1.7967	1.8600
Jarque-Bera	2.6858	2.2912
Probability	0.2610	0.3180

Table 4.1 illustrates that the natural logarithm of Gross State Domestic Product (lnGSDP) displays a standard deviation of 0.8056, signifying a lower degree of variability when contrasted with the standard deviation of 1.6811 exhibited by the natural logarithm of State Statistical Error (lnSSE). The assessment of the distributions' normality is conducted through the

utilization of the Jarque-Bera test values for both series, yielding values of 2.6858 for lnGSDP and 2.2912 for lnSSE. Given that these values fall beneath the critical chi-square value at the 1% probability level, the null hypothesis of normality cannot be refuted. Consequently, we deduce that both indicators adhere to the principle of normality.

Table 4.2.: Correlation Matrix

	lnGSDP	lnSSE
LnGSDP	1.0000	0.9955
lnSSE	0.9955	1.0000

In Table 4.2, the correlation matrix displays a robust positive association in the relationship between the natural logarithm of Gross State Domestic Product (lnGSDP) and the natural logarithm of Social Sector

Expenditure (lnSSE). The correlation coefficients for Economic Growth with itself and Social Sector Spending with itself are both 1.0000, indicating perfect correlations. Notably, the correlation between

Economic Growth and Social Sector Spending is 0.9955, signifying an almost perfect linear relationship between the two variables. This significant degree of correlation highlights the substantial interdependence between Economic Growth and Social Sector

Spending. It implies that variations in Gross State Domestic Product are closely mirrored by corresponding changes in Social Sector Expenditure, thereby reflecting a harmonious alignment between Economic Growth and investments in social welfare.

Table 4.3.: Stationarity of Time Series and the Order of Integration (ADF Test)

Variables	Intercept (Without trend)	With Trend	None	Decision/Order of Integration
Gross State Domestic Product (GSDP)	I(1)	I(1)	I(2)	I(1)
Social Sector Expenditure (SSE)	I(1)	I(1)	I(1)	I(1)

Note: Optimal lag lengths in the ADF test are determined through Schwarz Information Criterion (SIC)

Table 4.3. presents the results of the Augmented Dicky-Fuller (ADF) test for Stationarity. The ADF test was employed to determine the results for each condition, and the optimal lag lengths were identified using the Schwarz Information Criterion (SIC). For Economic Growth, the results indicate that the series is integrated of order one, or I(1), when considering the Intercept (Without trend) and With Trend. However, when the trend is not considered (None), the series is integrated of order two, or I(2). The final

Decision/Order of Integration for Economic Growth (GSDP) is I(1), indicating that the series becomes stationary after being differenced once. In contrast, the Social Sector Expenditure (SSE) consistently demonstrates an order of integration of I(1) across all conditions, including Intercept (Without trend), With Trend, and None. This consistency indicates that the Social Sector Expenditure becomes stationary after differencing once, regardless of the consideration of trend.

Table 4.4.: Results of Granger Causality

Null Hypothesis	F-Statistic	Probability	Direction of causality
SSE does not Granger Cause GSDP	3.0276*	0.0613	SSE Granger causes GSDP
GSDP does not Granger Cause SE	1.6492	0.2068	GSDP does not Granger cause SSE

Note: “*” indicates significant at 10% level.

Table 4.4 shows the results of the Granger causality test between Social Sector Expenditure (SSE) and Economic Growth (GSDP). The table examines the causal relationship between Social Sector Expenditure and Economic Growth using F-statistics and probability values. The test rejects the null hypothesis that Social Sector Spending does not cause Economic Growth, indicating that Social Sector Expenditure Granger causes Economic Growth. This suggests that past Social Sector Expenditure can predict Economic Growth at present. However, the test does not reject the null hypothesis that Economic Growth does not

cause Social Sector Expenditure, indicating that Economic Growth does not Granger cause Social Sector Spending. These findings support the Keynesian hypothesis that government spending drives Economic Growth. This evidence suggests that investing in social welfare programs can stimulate economic activity. However, the lack of Granger causality from Economic Growth to Social Sector Spending does not support Wagner's hypothesis that Economic Growth leads to increased Social Sector Expenditure.

Table 4.5.: Results of VAR Granger Causality/Block Exogeneity Wald Tests

Dependent Variable	Independent Variable	Chi-square value	DF	P-Value	Causal Relations
GSDP	SSE	6.0552**	2	0.0484	SSE Granger causes GSDP
SSE	GSDP	3.2985	2	0.1922	GSDP does not Granger cause SSE

Note: “**” indicates significant at 5% level.

Table 4.5. displays the outcomes of the VAR Granger Causality/Block Exogeneity Wald Tests between Economic Growth and Social Sector Expenditure. The

results offer insights into the causal connections between these variables.

SSE to GSDP: With a chi-square value of 6.0552 and a P-value of 0.0484, the null hypothesis that SSE does not Granger cause GSDP is rejected at the 5% level of significance. This result is marked as significant at the 5% level, affirming that SSE Granger causes GSDP. In other words, past values of Social Sector Expenditure helps to predict current values of Economic Growth.

GSDP to SSE: Conversely, the chi-square value of 3.2985 and a P-value of 0.1922 lead to a failure to reject the null hypothesis that GSDP does not Granger cause SSE. This result implies that there is no significant evidence to suggest that Economic Growth Granger causes Social Sector Expenditure in the given dataset.

The findings reveal a unidirectional causal relationship running from Social Sector Expenditure to Economic Growth. The evidence supports the Keynesian hypothesis, suggesting that government or Social Sector Spending can be a catalyst for Economic Growth. The positive causal impact from SSE to GSDP reinforces the idea that investments in social programs and initiatives may stimulate economic activity. In contrast, the absence of Granger causality from GSDP to SSE does not lend support to Wagner's hypothesis, which would imply that Economic Growth leads to increased government or Social Sector Spending. In essence, the analysis uncovers the intricate relationship between Social Sector Expenditure and Economic Growth, reflecting a one-way causality where social investment drives economic prosperity. The table provides a nuanced perspective on these economic variables, offering a thoughtful analysis that resonates with the Keynesian view of public expenditure. It's a rich narrative that speaks to the power of social investment as a driver of economic development, weaving a story of economic mechanisms that shape the landscape of growth and well-being.

CONCLUSION

The analysis of the relationship between Social Sector Expenditure (SSE) and Gross State Domestic Product (GSDP) in Karnataka provides valuable insights into the impact of Social Sector Spending on Economic Growth. The findings suggest that investing in social welfare initiatives positively influences economic progress, aligning with the Keynesian hypothesis and contradicting Wagner's hypothesis. Given these observations, it becomes crucial for policymakers in the state of Karnataka to acknowledge the potential of investments in the social sector as catalysts for economic well-being. When viewed as a driver of economic progress, investments in areas such as healthcare, education, and other social welfare initiatives not only address issues of fairness and social justice but also directly contribute to the economic vitality of the state. Consequently, a policy

approach that prioritizes and amplifies expenditure in the social sector can serve as a strategic instrument for promoting sustainable and inclusive economic advancement in Karnataka. The strong correlation between Gross State Domestic Product (GSDP) and Social Sector Expenditure (SSE) highlights their interdependency, suggesting that changes in economic productivity are reflected in Social Sector Spending. Further research could explore specific sectors to identify areas with the highest economic returns and investigate time-lags, expenditure efficiency, and institutional frameworks for a more detailed understanding of the dynamics. Comparisons with other states or regions can help validate or challenge findings specific to Karnataka. In conclusion, Karnataka's journey towards Economic Growth seems intrinsically linked with its commitment to social welfare. By focusing on strategic social investments, the state can harness the dual benefit of fostering economic prosperity while ensuring the well-being of its residents. The Keynesian perspective shines brightly in this context, offering a roadmap for policymakers and researchers alike.

REFERENCES

1. Adil, M. H., Ganaie, A. A., & Kamaiah, B.. (2017). *Wagner's Hypothesis: An Empirical Verification*. *IIM Kozhikode Society & Management Review*, 6(1), 1-12. <https://doi.org/10.1177/2277975216667095>
2. Antoniou, Antonis., Katrakilidis, Constantinos., Tsaliki, Persefoni. (2013). *Wagner's law versus Keynesian hypothesis: Evidence from pre-WWII Greece*. *Panoeconomicus*, 60(4):457-472. doi: 10.2298/PAN1304457A
3. Bazán, C., Álvarez-Quiroz, V. J., & Morales Olivares, Y. (2022, August 22). *Wagner's Law vs. Keynesian Hypothesis: Dynamic Impacts*. *Sustainability*, 14(16), 10431. <https://doi.org/10.3390/su141610431>.
4. Bhattacharyya, P. (2019). *Public expenditure on education and Economic Growth: A state-level analysis in India*. *Humanities & Social Sciences Reviews*, 7(6), 533-539.
5. Chor, Foon, Tang. (2008). *Wagner's Law versus Keynesian Hypothesis: New Evidence from Recursive Regression-Based Causality Approaches*. *The IUP Journal of Public Finance*, 29-38.
6. Cosimo, Magazzino., Cosimo, Magazzino. (2012). *Wagner versus Keynes: Public spending and national income in Italy*. *Journal of Policy Modeling*, 34(6):890-905. doi: 10.1016/j.jpolmod.2012.05.012
7. Cosimo, Magazzino., Cosimo, Magazzino., Lorenzo, Giolli., Marco, Mele. (2015). *Wagner's Law and Peacock and Wiseman's Displacement Effect in European Union Countries: A Panel Data Study*. *Social Science Research Network*.
8. Dimitrios, Paparas., Christian, Richter., Ioannis, Kostakis. (2019). *The validity of Wagner's Law in the United Kingdom during the Last Two Centuries*. *International Economics and Economic Policy*, 16(2):269-291. doi: 10.1007/S10368-018-0417-7.

9. Elish, E., Ahmed, H. E., & AboElsoud, M. E. (2023). Military spending crowding out health and education spending: Which views are valid in Egypt? *Humanities and Social Sciences Communications*, 10(1), 1-9. <https://doi.org/10.1057/s41599-023-01916-3>
10. Hazarika, B., & Nayak, D. K. (2022). Fiscal Illusion and Wagner's Law: Evidence from Indian Subnational Finances. *National Institute of Public Finance and Policy. Working Paper No. 367*.
11. Honest, Dembure., Emmanuel, Ziramba. (2016). Testing the validity of Wagner's law in the Namibian context: a Toda-Yamamoto (TY) granger causality approach, 1991-2013. 14(1):52-70. doi: 10.4314/BOJE.V14I1
12. Javed, A. & Khan, W. A. (2021). Wagner's Hypothesis in India: An Empirical Investigation Using Bivariate Framework. *Webology* (ISSN: 1735-188X), 18(6).
13. Jha, S., & Nayak, B.. (2021). Causality between Government Expenditure and Domestic Output: A Case Study of Indian States. *Vidyasagar University Journal of Economics*. Vol. XXVI. ISSN - 0975-8003.
14. Kabakçı Günay, E. & Aygun, B. (2022). The Impact of Economic Growth on Government Expenditures in Sub-Saharan African Countries: A Panel Data Analysis for Wagner Law and Keynesian Approach. *JOEEP: Journal of Emerging Economics and Policy*, 7(1), 297-304. Retrieved from <https://dergipark.org.tr/en/pub/joep/issue/66260/1083001>.
15. Kaur, K., & Afifa, U. (2017, January 1). Testing Wagner's Law in India: A cointegration and causality analysis. *Communications in Statistics - Theory and Methods*. <https://doi.org/10.1080/03610926.2016.1183788>.
16. Kaur, R. (2022). Investigation of Causality Relation between State Governments' Expenditure and GDP in India. *Abhigyan*. 40(1), 34-41.
17. Khundrakpam, J. K.. (2003). Public Sector Spending and Economic Growth in India. 22 (No.1, 2 & 3), 1-17.
18. Kirandeep Kaur. Wagner's Law and Public Expenditure in Rajasthan: An Econometric Analysis. *Res. J. Humanities and Social Sciences*. 2019; 10(4): 1011-1024. doi: 10.5958/2321-5828.2019.00166.9
19. Konwar, Paranan. (2017). Co-Integration And Causality Analysis: An Empirical Inquiry into the Validity of Wagner's And Keynesian Laws in India. *International Journal of Social Science and Humanities Research*. 5. 174-180.
20. Medhi, K. (2014). An empirical investigation of the causality between government expenditure and Economic Growth in India during 1974-2010. *IOSR Journal of Humanities and Social Science*, 19(7), 53-58.
21. Narang, D., & Chotia, V. (2016). Testing Wagner's Law for India's Social Sector: A Panel Data Analysis. *Journal of Economic Policy and Research*, 12(1), 34-49.
22. Narayan, S., Rath, B. N., & Narayan, P. K. (2012). Evidence of Wagner's law from Indian states. *Economic Modelling*, 29(5), 1548-1557. <https://doi.org/10.1016/j.econmod.2012.05.004>
23. Nayak, D. K., & Hazarika, B. Linkage Between Income and Government Expenditure at Indian Sub-Nationals: A Second-Generation Panel Cointegration Techniques. *The Journal of Developing Areas*, 57(1), 205-228. <https://doi.org/10.1353/jda.2023.0013>
24. Nirola, N., & Sahu, S. (2018). Revisiting the Wagner's law for Indian States using second generation panel cointegration. *Economic Change and Restructuring*, 53, 241-263. doi:10.1007/s10644-018-9237-6
25. Noha, Ghazy., Hebatallah, Ghoneim., Dimitrios, Paparas. (2021). The validity of Wagner's law in Egypt from 1960-2018. 6(2):98-117. doi: 10.1108/REPS-01-2020-0004
26. Palamalai, S. (2013). Causality between Public Expenditure and Economic Growth: The Indian Case. *International Journal of Economics and Management*. 7(2), 335-347. <https://ssrn.com/abstract=2376143>
27. Pattayat, S. S., & Rani, P. (2017). Social Sector Development and Economic Growth in Haryana. *Journal of Economics and Economic Education Research*.18(3).
28. Pujari, D., & Biradar, R. (2023). An Econometric Analysis of Public Expenditure and Agriculture Output: An Evidence from India. 27(33). <https://doi.org/10.18311/sdmimd/2023/33007>
29. Rahman, M. A. (2023). The Impact of Government Expenditure on Economic Growth: A Study of SAARC Countries. <https://doi.org/http://dx.doi.org/10.2139/ssrn.4344848>
30. Rani, R., & Kumar, N.(2022). Wagner hypothesis in India: An empirical investigation from pre and post reform period. 22(1), e2395.
31. Ranjan, R., & Chintu. A. K. (2010). An Application of Wagner's Law in the Indian Economy: 1970-71 to 2010-11. *Knowledge Horizons - Economics*. 5(4), 138-144.
32. Rastogi, R., Chakravarty, S., & Pradhan, B. K. (2019). Wagner's Law for Low Income States in India. *Institute of Economic Growth, University Enclave, University of Delhi*.
33. Sahoo, P. (2001, January 1). Wagner hypothesis: further empirical evidence from India. *Journal of Indian School of Political Economy*.
34. Samudram, M., Nair, M., & Vaithilingam, S.. (2009). Keynes and Wagner on government expenditures and economic development: the case of a developing economy. 36, 697-712.
35. Shahzad Mushtaq Mushtaq, Abida Hafeez Hafeez, Tourqeer Ahmad Ahmad (2023). Wagner VS Keynes: A cointegration analysis of Pakistan, available at Research Square <https://doi.org/10.21203/rs.3.rs-3160172/v1>.
36. Singh, O. K., Priscilla, L., & Vatta, K. (2021). The impact of public expenditure on agricultural growth: empirical evidence from Punjab, India. *Agricultural Economics Research Review*, 34.
37. Sumandeep, S., Ravi, R. K., & Sharma, R. K. (2023). Empirical Analysis of Public Revenue, Development Expenditure and Economic Growth in India Using Vector Autoregressive Model. <https://doi.org/10.21203/rs.3.rs-2418404/v1>

38. Tilak Raj & Vikas (2022). *Public Expenditure and Economic Growth in Haryana: An Empirical Verification*. *Indian Development Policy Review*, Vol. 3, No. 1, pp. 95-10
39. Verma, S., & Arora, R. (2010). *Does the Indian Economy Support Wagner's Law? An Econometric Analysis*. *Eurasian Journal of Business and Economics*. 3(5), 77-91.