The Growth Effect of Government Expenditure in Jammu & Kashmir

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Abstract

Purpose : The paper examined the growth impact of aggregate government expenditure and its various components in Jammu & Kashmir using time series data from 1981–2020. At the disintegrated level, the study assessed the growth impact of government expenditure on three different types of services, namely, economic, social, and general.

Methodology : The autoregressive distributed lag (ARDL) or bounds cointegration technique was used to explore the long-run relationship (cointegration) between total government expenditure and economic growth. The growth impact of government expenditure on economic, social, and general services was investigated using the regression model.

Findings : The study found a cointegrating relationship between aggregate government expenditure and economic growth in the erstwhile state of Jammu & Kashmir. The ARDL estimates showed that total government expenditure impacted Jammu & Kashmir's economic growth positively and significantly in the short and long run. Furthermore, the estimated regression coefficients revealed that government expenditure on social services impacted economic growth positively and significantly. In contrast, government expenditure on economic and general services had a negative but insignificant growth impact.

Practical Implications : The study's findings would assist the policymakers in prioritizing Jammu & Kashmir's limited resources for developing sectors with the potential to raise economic growth. The study recommended that government expenditure on social services should be increased to enhance growth in the erstwhile state of Jammu & Kashmir. A compositional change in government expenditure favoring social services from general and economic services would stimulate economic growth in the former state of Jammu & Kashmir. The study's main limitation is that the other potential growth determinants were not considered explanatory/control variables.

Originality : The study provided empirical evidence of the growth effect of total government expenditure and its various types in one of India's least developed, slow-growing, and resource-deficit states (now Union Territory). To the best of my knowledge, the growth impact of government expenditure on three different types of services (economic, social, and general) were not investigated empirically in Jammu & Kashmir for the period from 1981–2020. The study contributed to the scant empirical literature on the growth impact of government expenditure at the sub-national (state level).

Keywords : **Government expenditure, economic growth, Jammu & Kashmir, ARDL bound**

JEL Classification Codes : E62, G18, H50

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Public expenditure as a fiscal policy instrument has been widely used to achieve certain economic and social goals in developed and developing countries. Government expenditure has multiple effects on the economy. It affects economic growth positively, reduces inequality, mitigates poverty, generates productive employment, and improves the quality of life. Fostering economic growth is one of the fundamental goals of government expenditure, especially in developing countries. The government expenditure's size and

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composition are key growth determinants (Sasmal & Sasmal, 2016). Government spending on public goods, infrastructure development, education, health, research, and development enhances the productivity of inputs (labor and capital), thus accelerating economic growth. However, excessive government expenditure may hurt the country's economic growth if financed by increased taxation. Oversized government spending may also retard growth by crowding out more productive private investment. The growth effect of government expenditure has been widely debated theoretically and empirically. However, there is disagreement among economists and researchers on the government expenditure-growth nexus. Theoretically, Keynes (1936) supported the government spending-led growth hypothesis and argued that increased government expenditure promotes higher economic growth by increasing aggregate demand. The endogenous growth model propounded by Barro (1990), Barro and Sala-I-Martin (1992), King and Rebelo (1990), and Lucas Jr (1988, 1990) argued that fiscal policy could affect both the level of output and its growth rate positively.

In contrast, Wagner (1890) supported the growth-led government spending hypothesis and argued that economic growth is a fundamental determinant of increased government expenditure. The neo-classical growth model propounded by Solow (1956) asserted that government expenditure has no long-term impact on the per capita income growth rate. However, it can influence per capita growth while transitioning to a steady state. Numerous empirical studies have investigated the growth impact of total government expenditure and its various components and reported ambiguous results. The empirical studies of Al-Bataineh (2012), Arestis et al. (2021), Arvin et al. (2021), Devarajan et al. (1996), d'Agostino et al. (2016), Gisore et al. (2014), Sedrakyan and Varela-Candamio (2019), and Zamanian et al. (2012) found that increased government expenditure has a positive and significant impact on the growth rate of per capita GDP. In contrast, the empirical studies by Butkiewicz and Yanikkaya (2011), Boldeanu et al. (2015), Ndjokou (2013), and Olaoye et al. (2020) showed that government expenditure has a negative and significant impact on the growth rate of output. Several empirical studies, such as Hasnul (2015), Landau (1986), Onuoha and Okoye (2020), and Olaoye and Afolabi (2021), reported no significant impact of government expenditure on economic growth. A quick survey of theoretical and empirical literature has concluded that the government expenditure-growth relationship is still inconclusive and needs further investigation. Government expenditure is not always growth-enhancing. It may have a positive, negative, or no impact on economic growth. Further, empirical evidence shows that different types of government expenditure have different effects on a country's growth rate.

The total government expenditure in the erstwhile state of Jammu & Kashmir increased 151 times from ₹428 crores in 1981 to ₹64,977 crores in 2020 because of the continuous increase in government activities. Between 1993 and 2020, government expenditure as a percentage of gross state domestic product (GSDP) increased from 28.22% to 38.24%. During the study period (1981–2020), government expenditure on economic, social, and general services increased substantially.

Now following questions emerged: (a) How increased government expenditure affected economic growth in the erstwhile state of Jammu & Kashmir? ; (b) Which types of government expenditure (expenditure on economic, social, and general services) were growth-enhancing and should be prioritized to achieve higher economic growth in the erstwhile state of Jammu & Kashmir? ; (c) Which type of government expenditure was growth detrimental and should be controlled to improve Jammu & Kashmir's financial position? ; (d) Can the government in Jammu & Kashmir raise economic growth by changing the composition of its expenditure? These questions are critical for the erstwhile state of Jammu & Kashmir. However, these questions remained unaddressed because no researcher investigated the growth impact of aggregated government expenditure and its components on the Jammu & Kashmir economy. The present study attempts to address these critical questions. Firstly, the study investigates how growth is affected by total government expenditure. Secondly, the study investigates how growth is affected by government spending on three main types of services – social, economic, and general. More specifically, the study attempts to identify the types of government expenditure that are growth-enhancing (productive) and should be prioritized to promote higher economic growth in one of the

country's least developed, slow-growing, and resource-deficient states. Considering Jammu & Kashmir's political situation and the private sector's underinvestment in key sectors like physical infrastructure, education, health, and rural development, government expenditure is expected to promote higher economic growth. Jammu & Kashmir lacks basic infrastructure facilities like transport and communication, power generation, irrigation, education, and health essential for growth. Public spending on these facilities would boost economic growth in Jammu & Kashmir.

For the following reasons, an investigation of how total government expenditure and its various components affect economic growth is essential for the erstwhile state of Jammu & Kashmir. Firstly, Jammu & Kashmir's fiscal deficit, revenue deficit, debt-SDP ratio, and interest payment obligations are among the highest in the states of the Indian Union. The fiscal deficit in the erstwhile state of Jammu & Kashmir (5.3% of the state domestic product) is the highest among the Indian states. A very high fiscal deficit is a big challenge for the government in Jammu & Kashmir. Spending on less productive or unproductive heads has been worsening Jammu & Kashmir's financial position. Steps are required to control the unproductive nature of government expenditure to stabilize Jammu & Kashmir's financial position. Secondly, Jammu & Kashmir has been identified as one of the least-growing states in the country. A compositional change in government expenditure (unproductive to productive) may affect growth positively in Jammu & Kashmir. There is an urgent need to divert Jammu & Kashmir's limited resources from unproductive to productive use to make it one of the fastest-growing economies. Alternatively, the government may improve its adverse financial position by controlling the unproductive nature of government expenditure. The study's findings will help policymakers to prioritize Jammu & Kashmir's limited resources to expand those services that contribute positively and significantly to its economic growth. Thus, investigating the growth impact of government expenditure has important policy implications for the erstwhile state of Jammu & Kashmir.

Literature Review

Empirically the growth effect of total government expenditure and its various components have been studied widely using different data sets and econometric techniques. However, the findings are conflicting. Landau (1983) observed that government consumption expenditure depressed the real GDP growth rate in 104 countries between 1960 and 1980. Devarajan et al. (1996) studied the growth effect of different components of government expenditure. The results indicated that the share of public expenditure on the current account enhanced per capita growth.

On the other hand, the share of government expenditure on the capital account retarded the growth rate of per capita GDP in the group of 43 developing countries between 1970 and 1990. Butkiewicz and Yanikkaya (2011) found that government spending was detrimental to economic growth in countries with inefficient governments. Lamartina and Zaghini (2011) found that increased government expenditure accelerated economic growth in 23 OECD countries. Ormaechea and Morozumi (2013) estimated the growth effects of different components of public expenditure. They found that public spending on education promoted economic growth in the sample of 56 countries for the period 1970–2010. Alshahrani and Alsadiq's (2014) study showed that aggregate public expenditure was growth-enhancing in Saudi Arabia in the long run. The study conducted by Gemmell et al. (2014) showed that government expenditure on infrastructure development had contributed positively and significantly to economic growth for several OECD countries between 1970 and 1995.

Moreno-Dodson and Bayraktar (2015) found that the capital account component of government expenditure had a positive and the current account component had a negative but insignificant impact on the economic growth of West African Economic and Monetary Union (WAEMU) countries between 2000 and 2013. Lahirushan and Gunasekara (2015) observed that government expenditure was growth-enhancing in Asian countries between 1970 and 2013. Ajayi and Aluko (2016) found no statistically significant relationship between government

spending and economic growth in Nigeria between 1985 and 2014. Kimaro et al. (2017) found that government expenditure was growth-enhancing in a sample of 25 low-income countries between 2002 and 2015 in sub-Saharan Africa. Anning et al. (2017) found that public spending Granger caused Ghana's economic growth between 1980 and 2015. Lupu and Asandului (2017) found a cointegration between public spending and economic growth in eight Eastern European countries between 1995 and 2014. Dudzevičiūtė et al. (2018) found that government expenditure was growth-enhancing in France, Belgium, and Portugal and growth retarding in Sweden, Germany, Poland, and Slovakia between 1995 and 2005. Zulfiqar (2018) pointed out that government expenditure's size, composition, and efficiency were important factors in stimulating economic growth in Pakistan during 1980–2015.

Odhiambo and Nyasha (2018) observed that government expenditure promoted growth in Kenya in the short and long run between 1970 and 2017. Amusa and Oyinlola's (2019) study showed that aggregate public spending retarded economic growth in the short run and accelerated growth in the long run in Botswana between 1985 and 2016. Chu et al. (2020) noted that total government expenditure as a ratio to GDP depressed economic growth in low to middle and high-income countries during 1993–2012. Olaoye et al. (2020) found that government expenditure had deleterious effects on economic growth in the sample of 15 countries of the Economic Community of West Africa. Nguyen and Bui (2022) found that government expenditure adversely affected economic growth in 16 emerging markets and developing economies in Asia during 2002–2020. Poku et al. (2022) noted that the growth impact of government expenditure was positive and significant in Ghana between 1970 and 2016. In the context of the Indian economy, several researchers have assessed the growth impact of government expenditure using national-level time series data (see Basumatary, 2022; Mohapatra & Giri, 2016; Seshaiah et al., 2018).

However, few researchers have investigated the growth effects of government expenditure at the sub-national (state level) using time series data (Hong & Ahmed, 2009; Kaur & Mishra, 2017; Marjit et al., 2020). An assessment of the empirical literature leads to the conclusion that there is disagreement among researchers on the growth impact of public spending. Because of the ambiguity and contradictory results reported by existing empirical studies, the growth impact of total government expenditure and its various components need further investigation. Further, to the best of my knowledge, there is no empirical evidence on how economic growth is affected by total government expenditure and its various components in Jammu & Kashmir. The present study attempted to fill this important research gap. This work adds to the existing literature on the government expenditure-growth relationship at the sub-national (state) level.

Data Sources and Research Methodology

The growth impact of government expenditure on the Jammu & Kashmir economy was investigated using annual data for the period 1981–2020. The real per capita net state domestic product (base 2011–12) was chosen as an indicator to measure economic growth. The annual data on the selected variables were collected from the Economic & Political Weekly Research Foundation (EPWRF). The following procedure was followed to estimate the growth effect of aggregate government expenditure. Firstly, the selected variables were converted into logarithm form. Secondly, the stationarity properties and order of integration of the selected variables were determined using Augmented Dickey-Fuller (ADF) test. Thirdly, the autoregressive distributed lag (ARDL) or bounds testing approach, as proposed by Pesaran et al. (2001), was used to explore the long-run association (cointegration) between aggregate government expenditure and economic growth and estimate the short-run and long-run growth effect of aggregate government expenditure.

The autoregressive distributed lag (ARDL) model is extensively employed by researchers for investigating the long-run equilibrium relationship between selected variables due to its following advantages over the standard cointegration and causality techniques: (a) The ARDL model can be used in a small sample size of 30–80

(Mah, 2000) ; (b) A major advantage of the ARDL model is that it can be applied irrespective of whether regressors are of 1(0), 1(1), or a mixture of [I(0)] or [I(1)] ; (c) Another important advantage of the ARDL model is that we can simultaneously estimate the short-run and long-run relationship. The relevant ARDL procedure can be written as follows:

$$\Delta \text{Ln}PcNSDP_{t-i} = \beta_0 + \sum_{i=1}^{n} \beta_1, \Delta \text{Ln}PcNSDP_{t-i} + \sum_{i=0}^{q} \beta_2 \Delta \text{Ln}GE_{t-i} + \delta_1 \text{Ln}PcNSDP_{t-1} + \delta_2 \text{Ln}GE_{t-1} + \varepsilon_T \quad (1)$$

where, $PcNSDP_t$ is the real per capita net state domestic product, Δ is the first difference operator. lnGE is the log of government expenditure. The null hypothesis of no cointegration is $H_0 1$: $\delta_1 = \delta_2 = 0$ against the alternative hypothesis $H_a 1$: $\delta_1 \neq \delta_2 \neq 0$. Once the cointegration is established, the long-run coefficients are estimated with the following equation :

$$\Delta \text{Ln}PcNSDP_t = \beta_0 + \sum_{i=1}^{p} \beta_1, \text{Ln}PcNSDP_{t-i} + \sum_{i=0}^{q} \beta_2 \text{Ln}GE_{t-i} + \varepsilon_T \quad (2)$$

It is expected that the long-run coefficient of government expenditure will be positive ($\beta_2 > 0$). The short-run coefficient of the explanatory variable is estimated with an error correction model as follows:

$$\Delta \text{Ln}PcNSDP_t = \beta_0 + \sum_{i=1}^{p} \beta_1, \Delta \text{Ln}PcNSDP_{t-i} + \sum_{i=0}^{q} \beta_2 \Delta \text{Ln}PE_{t-i} \gamma ECM_{t-i} + \varepsilon_T \quad (3)$$

The time series regression model was used to estimate the growth effect of government expenditure on three different types of services, namely, economic, social, and general. The following regression equation is estimated:

$$\Delta \ln PcNSDP_t = \beta_0 + \beta_1 \Delta \ln GESS_t + \beta_2 \Delta \ln GEES_t + \beta_3 \Delta \ln GEGS_t + \varepsilon_t \quad (4)$$

where, Δ is the first difference operator, the growth rate of real per capita net state domestic product ($\Delta \ln PcNSDP_t$) is the dependent variable. The growth rate of public spending on social services ($\Delta \ln GESS_t$), the growth rate of public spending on economic services ($\Delta \ln GEES$), and the growth rate of government expenditure on general services ($\Delta \ln GEGS$) are used as explanatory variables. β_1, β_2, and β_3 are coefficients, and ε_T is the error terms of the model. The estimated values of the coefficients (β_1, β_2, and β_3) are expected to be positive and statistically significant. Non-stationary variables were transformed into stationary ones before using the regression model. The following diagnostic tests were conducted to check the strength of the estimated results. Jarque - Bera test was used to check whether data were normally distributed. The Breusch-Godfrey Serial Correlation or LM test was used to identify the serial correlation. The ARCH test was used for heteroskedasticity, and the CUSUM test was used to determine the stability of the estimated coefficients.

An Overview of Jammu & Kashmir's Economy, Trend, and Patterns of Public Expenditure

Political instability (militancy, strike, and lockdown), limited resources base, high population growth, inadequate and poor-quality infrastructure, nonviable nature of the state's finance, high and growing unemployment, and corruption are some key challenges the economy of Jammu & Kashmir has been facing. Regarding economic development, Jammu & Kashmir is far behind compared to other leading states of the Indian Union. In 2021, Jammu & Kashmir, with a real per capita income of ₹104,889, stood at 22nd position among 29 states of the Indian Union. In 2021, Jammu & Kashmir's real per capita income was around 20% lower than the national level per capita income and almost 50% lower than that of Himachal Pradesh, which has the same resource base and

typography. Jammu & Kashmir has registered very modest growth in the post-reform period. Between 1993–94 to 1998–99, Jammu & Kashmir's real per capita net state domestic product (base 1993–94) grew at an average annual growth rate of 2.21% compared to those of Himachal Pradesh (5.19%), Punjab (2.45%), Haryana (2.88%), Rajasthan (7.33%), and national level (4.52%). This was also the period when political instability was at its peak, causing a deterioration in the economic situation. Between 2011 and 2020, the average growth rate of real per capita net state domestic product in the erstwhile state of Jammu & Kashmir was 3.73% compared to 6.22% in Himachal Pradesh, 4.22% in Punjab, 6.56% in Haryana, and 4.03% in Rajasthan. This growth rate was far below the national growth rate of 5.12%. During the study period (1981–2020), Jammu & Kashmir's real per capita net state domestic product at a constant price (Base 2011–12) grew at an average annual growth rate of 2.09%. Apart from internal conflict, poor business climate, inadequate resources, poor infrastructure, and high corruption are important factors contributing to Jammu & Kashmir's relatively poor performance.

Jammu & Kashmir is financially poor and relies heavily on the federal government to meet its expenditure. Total transfers from the central government (including aid grants and tax share) accounted for 73.91 % of the total revenue receipts (Budget, 2021). Large fiscal deficit, primary deficits, and total liabilities as a percentage of gross state domestic product (52%) are serious macroeconomic problems the Jammu & Kashmir economy has been facing. Between 1991–2020, the gross fiscal deficit increased from ₹6.6 billion to ₹72 billion. During 2020–21, the gross fiscal deficit as a percentage of gross state domestic product (5.3%) was highest in Jammu & Kashmir compared to the other 11 special category states. Between 1991–2022, Jammu & Kashmir's total outstanding debt liability increased significantly from ₹33.58 billion to ₹1149.96 billion.

Total government expenditure in Jammu & Kashmir increased from ₹428 crores in 1981 to ₹64,977 crores in 2020, registering an average annual growth rate of 15%. The total government expenditure as a percentage of gross state domestic product increased from 28.22% in 1993–94 to 38.24% in 2020. However, Jammu & Kashmir has limited financial resources. Jammu & Kashmir's tax revenue (direct and indirect) accounted for only 26.02% of total revenue receipts (Budget, 2021). Public spending on interest payments (7%), pension (10%), and salaries (23%), which are generally non-productive, accounted for around 40% of total expenditure (Budget, 2021). An investigation of components of government spending shows that total government expenditure on social services increased from ₹112.67 crores in 1981 to ₹19910 crores in 2020, registering an average annual growth rate of 14.56%. The government expenditure on economic services increased from ₹204.84 crores in 1981 to ₹18,358 crores in 2020, recording an average annual growth rate of 13.41%. The total expenditure on general services increased from ₹12.84 crores in 1981 to ₹1425 crores in 2020, recording an annual growth rate of 26.72%.

Analysis and Results

Test of Unit Root

ARDL model requires that none of the selected variables has an order of integration higher than one. Thus, before applying the ARDL model, it is important to know the stationarity property and order of integration of the selected variables. The standard Augmented Dickey-Fuller (ADF) test is applied to determine the selected variable's stationarity properties and order of integration. The Akaike Information Criterion (AIC) is used for optimal lag selection. The outcomes of the Augmented Dickey-Fuller (ADF) test are presented in Table 1.

The Augmented Dickey-Fuller (ADF) test results show that selected variables are non-stationary at levels. Thus, the null hypothesis of a unit root at the conventional 5% level of significance at the level of the variables cannot be rejected. However, at the first difference of the selected variables, the null hypothesis of unit root is rejected at a 1% significance level. Thus, the Augmented Dicky-Fuller (ADF) test confirms that all the selected variables are integrated of order one [I (1)].

After ascertaining that government expenditure and real per capita net state domestic product are integrated of

Table 1. ***Results of the Augmented Dickey-Fuller Test***

Variables	At Level	At First Difference	Order of Integration
Log real per capita net state domestic product (Base 2011–12)	–1.41 (0.84)	–9.85 (0.000)	I(1)
Log aggregate government expenditure	–0.25 (0.92)	–8.39(0.000)	I(1)
Log government expenditure on economic services	0.274 (0.97)	–5.696 (0.000)	I(1)
Log government expenditure on social services	–2.25(0.34)	7.43(0.000)	I(1)
Log government expenditure on general services	–.23(0.9257)	–8.819 (0.000)	I(1)

Table 2. ***Results of the ARDL-Bounds Test***

Dependent Variables	*F*- Statistics	Upper Bounds Value	Lower Bounds Value
ΔLn*PcNSDP*	4.20	4.16(5%)	3.62(5%)
ln*GE*	7.13	4.16 (5%)	3.62(5%)

order one [I (1)], the next step is to estimate the long-run relationship (cointegration) between government expenditure and economic growth. The ARDL bounds testing approach, proposed by Pesaran et al. (2001), has been used to establish the long-run association between government expenditure and economic growth. The Akaike Information Criteria (AIC) determines the optimal lag length. Table 2 presents the results of the ARDL bounds test results.

The computed value of *F*-statistics determines the existence of a long-run association between government expenditure and economic growth. The null hypothesis (H01) of no cointegration is rejected if the estimated value of the *F*-statistics is more than the upper critical bounds value. The null hypothesis of no cointegration cannot be rejected if the estimated value of the *F*-statistic is less than the lower critical bound value. If the estimated value of the *F*-statistics lies between upper and lower critical bound values, no appropriate conclusion can be drawn. As shown in Table 2, the estimated value of *F*-statistics (4.20) is higher than the upper-bound critical value (4.16) at a 5% significance level when economic growth is taken as a dependent variable and public expenditure as an explanatory variable. When government expenditure is taken as the dependent variable and economic growth as the independent variable, a long-run association exists between variables because the estimated *F*-statistics (7.13) is greater than the upper bounds critical value (4.16). The study finds a long-run association between aggregate public expenditure and economic growth in the erstwhile state of Jammu & Kashmir from 1981–2010. The null hypothesis (H01) of no cointegration between variables is rejected against its alternative hypothesis (Ha1) that there is cointegration between aggregate government expenditure and economic growth.

Following the cointegration between government expenditure and economic growth, the short-run and long-run coefficients of aggregate public expenditure are estimated. The short-run coefficient is obtained from ECM representation. The estimated short-run and long-run coefficients of the autoregressive distributed lag (ARDL) model with lags (1, 0) are reported in Table 3.

As shown in Table 3, the estimated short-run (0.027) and long-run (0.205) coefficients of aggregate government expenditure are positive and significant at a 5% significance level. The estimated coefficients indicate that keeping other factors constant, a 1% increase in aggregate government expenditure leads to a 0.027% increase in real per capita net state domestic product in the short run and a 0.205% increase in real per capita net state domestic product in the long run. The estimated coefficient of the error correction term (ECT_{t-1}), which indicates the speed of adjustment (how quickly/slowly variables return to equilibrium), is negative (–0.1343) and statistically significant at a 1% level of significance. This implies that the deviation from the

Table 3. ***Estimated Short-Run and Long-Run Coefficients, Using ARDL Approach***

Short-Run Coefficients				
Variables	**Coefficient**	**Std.Error**	***t*-statistics**	**Probability**
C	1.203551	0.715918	1.681129	0.1012
ΔLn*PcNSDP*(–1)	–0.134340	0.076721	–1.751028	0.0882
Δln*GE*	0.027574	0.012378	2.227639	0.0321
ECT_{t-1}	–0.134340	0.036855	–3.645156	0.0008
Long-Run Coefficients				
Ln*GE*	0.205253	0.047018	4.365376	0.0001
C	8.958965	0.371921	24.08833	0.0000

Table 4. ***Breusch-Godfrey Serial Correlation LM Test***

F-statistic	0.498349	Prob. *F*(1,33)	0.4852
Obs**R*-squared	0.565319	Prob. Chi-Square(1)	0.4521
Heteroskedasticity Test: ARCH Test			
F-statistic	2.393071	Prob. *F*(1,35)	0.1309
Obs**R*-squared	2.367915	Prob. Chi-Square(1)	0.1239

long-run equilibrium is corrected by 13.43% each year. I conducted important diagnostic tests, such as serial correlation, heteroscedasticity, normality, and parameter stability. The results are reported in Table 4.

The results of the Breusch-Godfrey Serial Correlation LM test do not show symptoms of autocorrelation (Table 4). Similarly, the results of the ARCH test show no evidence of heteroscedasticity. The outcome of the Jarque - Bera normality test shows that data is normally distributed. Finally, the CUSUM test was conducted to ascertain the stability of the parameters. The results have been explained in Figure 1. The null hypothesis of instability is rejected if the plots of the CUSUM test stay within the critical bounds at a 5% significance level. The CUSUM test indicates that the plot is within a 5% significance level, meaning the estimated coefficients are stable. Thus, the results of all diagnostic tests confirm that the model is correctly specified.

Figure 1. ***Graph of the CUSUM Test***

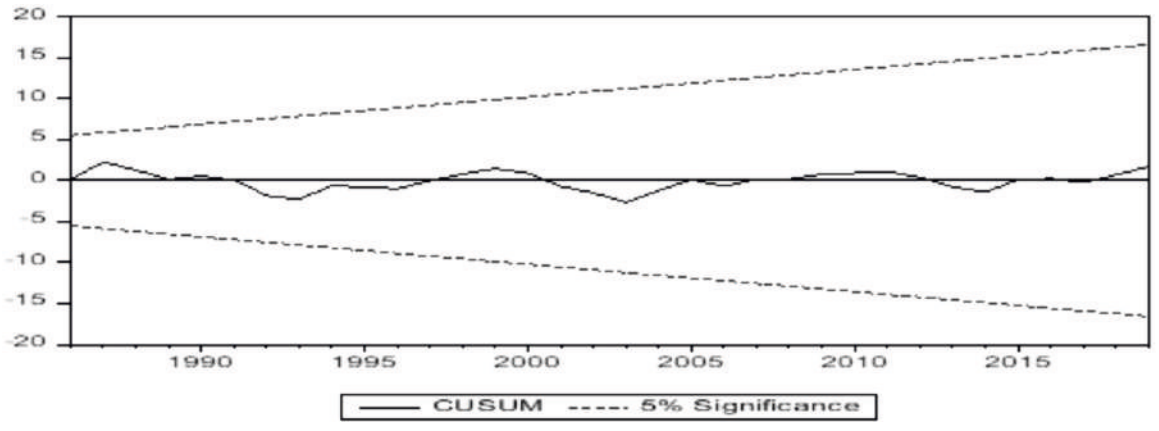

Table 5. ***Estimated Results of the Regression Model, Dependent Variable, ΔLnPcNSDP (Base 2011–12)***

Variable	Coefficient	Std. Error	*t*-Statistic	Probability
Δln*GEGS*	–0.057671	0.046903	–1.229573	0.2266
Δln*GEES*	–0.007810	0.014531	–0.537466	0.5942
Δln*GESS*	0.170163	0.066171	2.571586	0.0143

Note. *GEGS* = Government Expenditure of General Service, *GEES* = Government Expenditure on Economic Service, *GESS* = Government Expenditure of Social Services.

Next, the study estimated the growth effects of three different types of government expenditure using the time series regression model. The growth rate of real per capita net state domestic product is taken as a dependent variable, and the growth rate in public expenditure on economic, social, and general services as explanatory variables. The estimated coefficients of the regression model are presented in Table 5. The estimated results show that the growth rate of public expenditure on social services positively and significantly impacts the real per capita net state domestic product growth rate.

The estimated coefficient indicates that a 1% increase in the growth rate in public spending on social services leads to a 0.17% increase in the real per capita net state domestic product growth rate. As shown in Table 5, the estimated coefficients of public expenditure on economic and general services are negative but statistically insignificant. The findings show that government expenditure on economic and general services is not growth-enhancing in the erstwhile state of Jammu & Kashmir. One possible reason for the insignificant growth impact of public spending on economic and general services is the high corruption level. Some diagnostic tests, such as the Jarque - Bera normality test, the Breusch - Godfrey serial correlation LM test, and the ARCH test for heteroskedasticity, are also carried out to determine the viability of the estimated model. The results of the Jarque - Bera test indicate that the data is normally distributed. Breusch–Godfrey's serial correlation LM test results show that the model is free from serial correlation. The ARCH test indicates that there is no problem with heteroskedasticity.

Conclusion and Policy Suggestions

The paper empirically estimates the growth impact of total public spending and its various types in Jammu & Kashmir using annual data from 1981–2020. At the disintegrated level, the study estimated the growth impact of public spending on three different types of services, namely, economic, social, and general. The Augmented Dickey-Fuller (ADF) test indicated that all the selected variables were integrated of order one [I(1)]. The ARDL bounds test confirmed the existence of a long-run association (cointegration) between government expenditure and economic growth in the erstwhile state of Jammu & Kashmir between 1981 and 2020. The study found that aggregate government expenditure had contributed positively and significantly to Jammu & Kashmir's economic growth both in the short and long run during the study period (1981–2020). Though the government expenditure is relatively higher in Jammu & Kashmir, it has not reached its optimal or critical level. Therefore, increasing government expenditure would accelerate economic growth in the erstwhile state of Jammu & Kashmir. The regression model results show that the government expenditure on social services has contributed positively and significantly to Jammu & Kashmir's economic growth. Further, empirical findings show that government expenditure on economic and general services has a negative but statistically insignificant growth impact.

The study's findings lead to the following policy suggestions:

- Government expenditure on social services is growth-enhancing and should be increased to achieve higher

growth in the erstwhile state of Jammu & Kashmir. A greater share of government expenditure needs to be spent on social services such as education and health because expenditure on these services will foster economic growth in the erstwhile state of Jammu & Kashmir.

- Public spending on economic and general services is not growth-enhancing and should be reduced to improve Jammu & Kashmir's financial position. Shirking public spending on economic and general services may also help the government to reduce its fiscal deficit to a certain extent. The findings of the study justify the decision taken by the government to discontinue the 149 years of practice of the biannual Darbar Move from Srinagar to Jammu and vice-versa and save around ₹ 400 crore annually.

- The government may boost economic growth significantly by changing the composition of its expenditure by reallocating more public spending in favor of social services from economic and general services.

- Adequate measures are needed to increase the efficiency of public spending on economic and general services to make them more productive and growth-enhancing.

Limitations of the Study and Scope for Further Research

The study's main limitation is that other potential growth determinants could not be incorporated as explanatory/control variables due to the non-availability of time series data. However, a more robust result can be obtained by incorporating other growth determinants and government expenditure as explanatory variables. So, further research may be conducted in this direction.

Author's Contribution

Dr. Tasleem Araf Cash is the sole author of this paper. He critically reviewed the existing literature regarding the government expenditure-growth nexus. He conceived the idea, designed the model, collected, and analyzed the data. He interpreted the results of the article and wrote the final manuscript.

Conflict of Interest

The author certifies that he has no affiliations with or involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this manuscript.

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References

Ajayi, M. A., & Aluko, O. A. (2016). The causality between government expenditure and economic growth in Nigeria: A Toda-Yamamoto approach. *Journal of Economics and Business Research, 22*(2), 77–90. https://www.uav.ro/jour/index.php/jebr/article/view/809

Al-Bataineh, I. M. (2012). The impact of government expenditures on economic growth in Jordan. *Interdisciplinary Journal of Contemporary Research in Business, 4*(6), 1320–1338.

Alshahrani, S. A., & Alsadiq, A. J. (2014). *Economic growth and government spending in Saudi Arabia: An empirical evidence* (IMF Working Paper No. WP/14/3). International Monetary Fund.

Amusa, K., & Oyinlola, M. A. (2019). The effectiveness of government expenditure on economic growth in Botswana. *African Journal of Economic and Management Studies, 10*(3), 368–384. https://doi.org/10.1108/AJEMS-03-2018-0081

Anning, L., Haisu, W., & Riti, J. S. (2017). Government spending and economic growth in Ghana: Evidence from Granger casusality analysis. *International Journal of Management Science and Business Administration, 3*(2), 50–58. http://dx.doi.org/10.18775/ijmsba.1849-5664-5419.2014.32.1005

Arestis, P., Şen, H., & Kaya, A. (2021). On the linkage between government expenditure and output : Empirics of the Keynesian view versus Wagner's law. *Economic Change and Restructuring, 54*, 265–303. https://doi.org/10.1007/s10644-020-09284-7

Arvin, M. B., Pradhan, R. P., & Nair, M. S. (2021). Are there links between institutional quality, government expenditure, tax revenue and economic growth? Evidence from low-income and lower middle-income countries. *Economic Analysis and Policy, 70*, 468–489. https://doi.org/10.1016/j.eap.2021.03.011

Barro, R. J., & Sala-I-Martin, X. (1992). Public finance in models of economic growth. *The Review of Economic Studies, 59*(4), 645–661. https://doi.org/10.2307/2297991

Barro, R. J. (1990). Government spending in a simple model of engogeneous growth. *Journal of Political Economy, 98*(5, Part 2), S103–S125. https://doi.org/10.1086/261726

Basumatary, J. (2022). Effects of tax revenue and capital expenditure on economic growth: A case study of the Union Territory of Puducherry, India. *Arthshastra Indian Journal of Economics & Research, 11*(2), 8–21. https://doi.org/10.17010/aijer/2022/v11i2/172209

Boldeanu, F. T., Tache, I., & Sebastian-Ion, M. (2015). The impact of fiscal policy on economic growth in the countries of Eastern Europe. *Revista Economica, 67*(5), 16–32.

Butkiewicz, J. L., & Yanikkaya, H. (2011). Institutions and the impact of government spending on growth. *Journal of Applied Economics, 14*(2), 319–341. https://doi.org/10.1016/S1514-0326(11)60017-2

Chu, T. T., Hölscher, J., & McCarthy, D. (2020). The impact of productive and non-productive government expenditure on economic growth: An empirical analysis in high-income versus low-to middle-income economies. *Empirical Economics, 58*, 2403–2430. https://doi.org/10.1007/s00181-018-1616-3

d'Agostino, G., Dunne, J. P., & Pieroni, L. (2016). Government spending, corruption and economic growth. *World Development, 84*, 190–205. https://doi.org/10.1016/j.worlddev.2016.03.011

Devarajan, S., Swaroop, V., & Zou, H.-F. (1996). The composition of public expenditure and economic growth. *Journal of Monetary Economics, 37*(2), 313–344. https://doi.org/10.1016/S0304-3932(96)90039-2

Dudzevičiūtė, G., Šimelytė, A., & Liučvaitienė, A. (2018). Government expenditure and economic growth in the European Union countries. *International Journal of Social Economics, 45*(2), 372–386. https://doi.org/10.1108/IJSE-12-2016-0365

Gemmell, N., Kneller, R., & Sanz, I. (2014). *Does the composition of government expenditure matter for long-run GDP levels?* Available at SSRN. http://dx.doi.org/10.2139/ssrn.2484917

Gisore, N., Kiprop, S., Kalio, A., & Ochieng, J. (2014). Effect of government expenditure on economic growth in East Africa : A disaggregated model. *European Journal of Business and Social Sciences, 3*(8), 289–304.

Hasnul, A. G. (2015). *The effects of government expenditure on economic growth: The case of Malaysia* (MPRA Paper No. 71254). Munich Personal RePEc Archive. https://mpra.ub.uni-muenchen.de/71254/1/MPRA_paper_71254.pdf

Hong, H., & Ahmed, S. (2009). Government spending on public goods: Evidence of growth and poverty. *Economic and Political Weekly, 44*(31), 102–108. https://www.jstor.org/stable/25663397

Kaur, K., & Mishra, O. N. (2017). Causal relationship between government spending and economic growth in Rajasthan: A Toda - Yamamoto approach. *Arthshastra Indian Journal of Economics & Research, 6*(1), 10–22. https://doi.org/10.17010/aijer/2017/v6i1/111019

Keynes, J. M. (1936). *The general theory of employment, interest, and money.* Harcourt, Brace.

Kimaro, E. L., Keong, C. C., & Sea, L. L. (2017). Government expenditure, efficiency and economic growth: A panel analysis of Sub Saharan African low income countries. *African Journal of Economic Review, 5*(2), 34–54. http://dx.doi.org/10.22004/ag.econ.264565

King, R. G., & Rebelo, S. (1990). Public policy and economic growth: Developing neoclassical implication. *Journal of Political Economy, 98*(5, Part 2), S126–S150. https://www.jstor.org/stable/2937634

Lahirushan, K. P., & Gunasekara, W. G. (2015). The impact of government expenditure on economic growth: A study of Asian countries. *International Journal of Humanities and Social Sciences, 9*(9), 3152 – 3160.

Lamartina, S., & Zaghini, A. (2011). Increasing public expenditure: Wagner's Law in OECD countries. *German Economic Review, 12*(2), 149–164. https://doi.org/10.1111/j.1468-0475.2010.00517.x

Landau, D. (1983). Government expenditure and economic growth: A cross-country study. *Southern Economic Journal, 49*(3), 783–792. https://doi.org/10.2307/1058716

Landau, D. (1986). Government and economic growth in the less developed countries: An empirical study for 1960–1980. *Economic Development and Cultural Change, 35*(1), 35–75. https://www.jstor.org/stable/1154144

Lucas Jr, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics, 22*(1), 3–42. https://doi.org/10.1016/0304-3932(88)90168-7

Lucas Jr, R. E. (1990). Supply-side economics: An analytical review. *Oxford Economic Paper, 42*(2), 293–316. https://doi.org/10.1093/oxfordjournals.oep.a041948

Lupu, D., & Asandului, M. (2017). The nexus between economic growth and public spending in Eastern European countries. *Engineering Economics, 28*(2), 155–161. https://doi.org/10.5755/j01.ee.28.2.7734

Marjit, S., Sasmal, R., & Sasmal, J. (2020). Composition of public expenditure and growth of per capita income in Indian states: A political perspective. *Journal of Social and Economic Development, 22*, 1–17. https://doi.org/10.1007/s40847-020-00097-y

Mohapatra, G., & Giri, A. K. (2016). The composition of public expenditure and economic growth in India: Evidence form auto regressive distributed lag approach. *Journal of Economic Research, 21*, 205–230.

Moreno-Dodson, B., & Bayraktar, N. (2015). *Public spending and growth in an economic and monetary union: The case of West Africa* (MFM Global Practice Discussion Paper, No. 6). World Bank. http://hdl.handle.net/10986/22928

Ndjokou, M. M. (2013). Fiscal policy and growth: An empirical evaluation in CFA Franc Zone. *International Business Research, 6*(7), 131–141. https://doi.org/10.5539/ibr.v6n7p131

Nguyen, M.-L., & Bui, N. T. (2022). Government expenditure and economic growth: Does the role of corruption control matter? *Heliyon, 8*(10), e10822. https://doi.org/10.1016/j.heliyon.2022.e10822

Odhiambo, N. M., & Nyasha, S. (2018). *Public expenditure and economic growth in Kenya: A multivariate dynamic causal linkage* (No. 24895). https://doi.org/10.1504/IJSE.2021.114617

Olaoye, O. O., Orisadare, M., & Okorie, U. U. (2020). Government expenditure and economic growth nexus in ECOWAS countries: A panel VAR approach. *Journal of Economic and Administrative Services, 36*(3), 204–225. https://doi.org/10.1108/JEAS-01-2019-0010

Olaoye, O., & Afolabi, O. (2021). Government spending and economic growth: A trivariate causality testing. *African Journal of Economic and Management Studies, 12*(2), 250–268. https://doi.org/10.1108/AJEMS-07-2020-0334

Onuoha, N. E., & Okoye, G. O. (2020). Public expenditure and economic growth relationship: Further evidence from Nigerian context. *International Journal of Academic Research in Business and Social Sciences, 10*(11), 616–627. https://doi.org/10.6007/IJARBSS/v10-i11/8129

Ormaechea, S. A., & Morozumi, A. (2013). *Can a government enhance long-run growth by changing the composition of public expenditure?* (IMF Working Paper No: WP/13/162). International Monetary Fund.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16*(3), 289–326. https://doi.org/10.1002/jae.616

Poku, K., Opoku, E., & Ennin, P. A. (2022). The influence of government expenditure on economic growth in Ghana: An ARDL approach. *Cogent Economics & Finance, 10*(1), Article 2160036. https://doi.org/10.1080/23322039.2022.2160036

Sasmal, R., & Sasmal, J. (2016). Public expenditure, economic growth and poverty alleviation. *International Journal of Social Economics, 43*(6), 604–618. https://doi.org/10.1108/IJSE-08-2014-0161

Sedrakyan, G. S., & Varela-Candamio, L. (2019). Wagner's law vs. Keynes' hypothesis in very different countries (Armenia and Spain). *Journal of Policy Modeling, 41*(4), 747–762. https://doi.org/10.1016/j.jpolmod.2019.02.011

Seshaiah, S. V., Reddy, T. K., & Sarma, R. S. (2018). General government expenditure and economic growth in India: 1980–81 to 2015–16. *Theoretical Economic Letters, 8*(4), 728–740. https://doi.org/10.4236/tel.2018.84050

Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics, 70*(1), 65–94. https://doi.org/10.2307/1884513

Wagner, A. (1890). *Finanzwissenschaft*. C. F. Winter.

Zamanian, G., Mahmoodi, M., & Mahmoodi, E. (2012). Government expenditure and GDP: The case of 12 Asian developing countries. *Journal of American Science, 8*(9), 66–69.

Zulfiqar, K. (2018). Fiscal policy and inclusive growth. *Pakistan Economic and Social Review, 56*(1), 21–46. https://www.jstor.org/stable/26616731

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