Fiscal Adjustments and Social Spending : An Analysis of the Indian Economy

* Ishfaq Ahmad Khoja
** N. A. Khan

Abstract

The higher and unsustainable levels of debt have forced the economies to undergo consolidation policies to improve their fiscal position. However, such policies can impact both economic growth and welfare spending owing to their deficit dependence. The current study analyzed the debt dependence of welfare spending and tried to evaluate the impact of consolidation strategies on the long - term social and welfare spending in case of the Indian economy. The study employed the time - series data covering the time period from 1990 - 2018 concerning 13 variables broadly grouped under three headings, that is, spending on education, health, and welfare. The study utilized the technique of generalized method of moments technique (GMM). The study found that the deficit financing nature of the government is a significant determinant of social and welfare spending in the Indian economy. A 1% increase in the growth rate of deficit financing was found to augment the growth rate of spending on education by 0.13%, on health by 0.03%, on welfare by 0.15% with an overall impact of 0.11%. Such a debt dependence by the social and welfare spending raised doubts that a consolidation design may further endanger the already stagnating social and welfare spending. This is mainly if a consolidation programme pursued with an aim to infuse fiscal prudence heavily concentrates on the quantity rather than the quality of the design.

Keywords : consolidation, growth, social spending, welfare spending

JEL Classification : H3, H41, H50, H63

Paper Submission Date : October 24, 2018 ; Paper sent back for Revision : May 7, 2019 ; Paper Acceptance Date : June 1, 2019

The recurring nature of business cycles and the resultant downswings in economic activity has forced the governments to adhere to the interventionist fiscal stance. This interventionist approach, however, has led to debate about the need, sustenance, and feasibility of such a policy. This institutional activism is questioned at least along three alternative dimensions: the first pertains to the possible impact of an expansionary fiscal rule on the level of debt in an economy ; the second line highlights the possible crowding out of private investment ; and the third pertains to the expansion of government activity beyond its defined boundaries and the possible inefficiencies that may creep-in (Brennan & Buchanan, 2000). In fact, the public choice theorists strongly advocate against the excessive expansion of state activities fearing that the disputes may arise as the nature of the state changes from protective to productive institution [1]. Over time, the stand advocated by public choice theorists drew wide support, mainly on account of rising and unsustainable levels of debt besides a

---

[1] There was a week long debate between Musgrave and Buchanan held at university of Munich related to the role of the state and the same has been summarized into a book.

---

* Research Scholar (Corresponding Author), School of Economics, Central University of Hyderabad, Gachibowli, Hyderabad - 500 046, Telangana. (Email : ishfaqmajeed.ku@gmail.com)
** Professor, School of Economics, Central University of Hyderabad, Gachibowli, Hyderabad - 500 046, Telangana. (Email : drkhan58@gmail.com)

competing discourse between the government and the private sector (see Musgrave, Musgrave, & Bird, 1989). This further culminated into popular support for the consolidation of public finances across the globe.

This contractionary fiscal stance to infuse more prudence and to evolve a sustainable consolidation design was institutionalized following the strong backing of international institutions like International Monetary Fund (IMF) and The World Bank [2]. These consolidation strategies were encouraged with a multitude of purposes like reduction of debt and the interest burden of the economies, the provision of congenial atmosphere for the private sector by reducing crowding-out, check on possible inflationary effects of rising debts, and creating more fiscal space for developmental spending. However, over time, these consolidation designs were questioned along two important lines, that is, the possible negative impact of these policies on growth and the impact on social spending following the hypothesis of minimalist government [3]. The former line of reasoning may better be attributed to the post Keynesian research, and the latter is attributed to the work by Musgrave (Musgrave et al., 1989). The consolidation designs structured on the slashing of government spending may have recessionary impacts on the growth rate of income, atleast in the short run (see Clinton, Kumhof, Laxton, & Mursula, 2010 ; Pashourtidou, Savva, & Syrichas, 2014). Apart from the growth rate of income, such designs may have deep repercussions on the provision of public goods, especially if markets fail to provide such goods or if the marginalized sections are unable to pay.

The under - provision or the under - utilization of these public goods, especially in the form of education and health may have a detrimental impact, on the long run, on the growth rate, at least in endogenous growth models (Bhatnagar & Sharma, 2016 ; Romer, 1990). This is because of the fact that the endogenous growth theory contends that the human capital is the perfect substitute for the physical capital in the long run. Thus, the governments, apart from the minimalist approach, need to focus on the areas, where either the market cannot operate or the operation may lead to unequal distribution of goods. However, the level and intensity of the government intervention may vary across countries given the initial level of economic advancement. In an advanced society where the provision of merit goods is better managed and fully affordable under a well defined market mechanism, the government can better assume the role of a regulator. The case for a developing society may not be so, given the wide - spread inequality and under provision of public services, especially to the marginalized sections of the society. Thus, the government, besides ensuring the protection from external aggression, internal strife and property rights, needs to provide social and physical infrastructure for the upliftment of the poor (Rao, 2017).

India being a developing society exhibits a wide range of poverty and deprivation that cannot be left unaddressed at the mercy of market forces. In case of countries like India, the state needs to assume a much larger role than the minimalist role that the public choice proponents would recommend. The Indian economy is experiencing a surge in its working populace and needs to be converted to what is popularly known as the *demographic dividend* [4]. However, this cannot be possible unless and until a significant government intervention is undertaken targeting the provision of education, health care, and skill development. However, the analysis of general budgets highlight the fact that the allocations to essential services like health care and education are pretty low by international standards. The public expenditure as a percentage of national income in India has been quite high when compared to the limit of 25% prescribed by the United Nations Development Programme (UNDP) (Dev & Mooij, 2002). Unfortunately, the same is not the case when it comes to expenditure on social and welfare services, especially health and education. As of 2015 - 16, the government spent 1.4% of GDP on health as against

---

[2] The SAP programmes were heavily criticized for their bias against the social sector spending and a pro-market sentiment at the cost of other sectors.

[3] The *minimalist government* is the term popularized by public choice theorists and holds that the primary or the minimal function of the government is the protection of life and liberty of citizens.

[4] The populace in the working age group constituted around 64% of the total population of the country and 130 million more are expected to be added by 2020 (see Rao, 2017).

the international norm of 3%, which is way below the 1.7% spending even by countries like Sri Lanka, Bangladesh, and Egypt. Even the basic preventive health care such as water supply and sanitation have been absent, implying that half of the population does not have access to safe drinking water and proper toilets (Rao, 2017).

The scenario of spending on education has not been encouraging either and has gravitated from 3% to 3.5% for almost the last one decade. However, this is well behind the international norm of 6% and even behind the countries falling in the same income level group, implying the failure of the government to provide goods and services of social value. Almost a similar stagnating scenario is prevalent in most of the Indian states (Tomar, 2017). According to UNDP, social expenditure should constitute more than 40% of the total public expenditure. More than 50% of this social spending should be devoted to human development concerns, and the proportion of national income attributed to human priority concerns should be more than 5%. However, in case of the Indian economy, none of the above targets have been ever achieved ; rather, a more distorted performance has been documented (see Dev & Mooij, 2002) [5]. Similar is the case with other sectors like welfare of marginalized, safety nets for poor, and upliftment of SCs and STs. The already endangered social spending scenario, as cited above, may experience further aggravation in face of government commitment to consolidate the public finances of the state. This may be mainly so because of the two possible constraints of the public budget, that is, an ailing tax structure and a rising current spending by the government [6]. The current study analyzes the possible impact of consolidation strategies adopted by the government on the social and welfare spending. More precisely, the study will focus on the impact of fiscal retrenchment on the spending in education and health besides welfare and sanitation.

Literature Review

The concept of fiscal consolidation and its resultant impacts on different macroeconomic indicators has been an area of intense debate. However, the major focus of such studies has been the growth rate of income, level of interest and inflation, aggregate investment and consumption levels, etc. The area of social and welfare spending could not generate much scholarship and research and thus report inadequacy. However, there are strong reasons for such exercises to be carried out where the possible impact of fiscal retrenchment on the social spending can be analyzed. For an economy like India, such an analysis assumes further importance, at least for two reasons. The revenue receipts of the economy hardly cover the revenue expenditure of the government, and the borrowed funds face rising trade-off between capital expenditure and social spending (Shariff, Ghosh, & Mondal, 2002). Moreover, the constitutional division of the economy is such that the social sector responsibility has been kept as the domain of states rather than that of the Central government.

Throughout the study, we could not come across adequate literature assessing the impact of fiscal consolidation on social spending. However, some studies were executed, but the main purpose was to address some other, though related issues. The initial attempt along the line, we came across, was from Kim and Kwon (2015), who analyzed the impact of consolidation strategies and welfare composition on the electoral behavior. Although the study does not concern the line of reasoning that we are interested in, but yet, some findings were found to be relevant.

The study found that post consolidation welfare spending is always a challenge, but a pro-spending strategy may prove to be a better strategy. Digging along the same line, Merola and Sutherland (2013) tried to find how the

---

[5] For the Indian economy, the public expenditure has been always in excess of 25%, the social allocation ratio has been around 20%, the social priority ratio has been around 34%, and the human expenditure ratio has been 2.5 %.

[6] The tax reforms in India have not been able to generate the required revenue ; rather, the tax GDP ratios have experienced a decline. Moreover, the government current expenditures have always been in excess of the ways and means of the government to fullfill them (see Rao, 2017).

pressure of social spending may affect the long term sustainability of consolidation designs. The study documented that if a consolidation design is associated with well crafted reforms, then the consolidation strategies may prove to be a success without much impact on growth and social sector spending.

Using cross-sectional data for a panel of 50 developing economies, Gupta, Verhoeven, and Tiongson (2002) tried to analyze the effectiveness of public spending on education and health care. The study used the justification of positive and increased social returns of public spending on education and health care. The study extended support for the proposition that increased spending on education and health care matter for educational attainment and increased health profile, thus contributing to human capital. In a more disaggregated provincial level study, Mendis and Ichihashi (2014) tried to assess the impact of government spending on education and health care in Sri Lanka. The study encompassed a panel of seven provinces using time series data from 1995 - 2011 and tried to find the effects of government spending on the student failure rate and infant mortality rate. The authors found that it is not only the quantity of public spending, but the quality of public spending that equally mattered for an improvement in the student failure rate. In case of infant mortality, the study found direct impact of public spending on reducing the child mortality.

In case of the Indian economy, we came across many studies evaluating the impact of consolidation plans on social and welfare spending. Given the constitutional responsibility of social spending to the state domain, accordingly the research has been skewed in favor of the latter. A multitude of studies mainly covering the post reform period found that the social sector expenditure has experienced an increase, but it has been quite low when compared to the levels required to cater to the rising population besides poverty and inequality. These studies document different type of inefficiencies and inadequacies like states' evasion of constitutional responsibility, lower standards of spending when compared to international standards, and sluggish growth (see Chopra, 2002 ; Dev & Mooij, 2002 ; Shariff et al., 2002). In a seminal paper on public expenditure in education, Mukherjee (2007) tried to highlight the different aspects of spending on education and expected returns both private and social. The study found that, though with the rising levels of education, private gains outweigh the social gains, but it pays to undergo more public spending given its long run potential for growth and development. The study further documented the fact that the effectiveness of the public spending may differ across the regions in the same country mainly depending upon how well the community behaves for such initiatives.

In yet another effort, Chakraborty and Dash (2017) tried to find the social spending behavior of Indian states once they are faced with the rules of fiscal prudence. The study documented the fact that the states have resorted to deliberate slashing of developmental spending in order to maintain their fiscal commitment. Although the reduction does not seem susubstantial, but it was found, mainly so on account of heavy central transfers to the states to overcome their finances. Extending support to the above cited findings, Rao (2017) tried to analyze the dynamics of public finances in the Indian economy. The study documented a very grim scenario of social and welfare spending in the Indian economy. The spending level was found to be quite insignificant both by international and comparable standards. The scenario was found to be further deteriorating in face of an expected increase in the population, especially in the working age group. The study documented the inability of the Union government to provide the public goods with strong externality effects like education and health care.

Utilizing a time series approach from 2005 - 06 upto 2014 - 15, Srinath, Kotasthane, Kher, and Chajer (2018) analyzed the qualitative and quantitative aspects of public health expenditure in India. The study was undertaken with the basic premise that public spending on health care in India is low and hence, out of pocket spending by poor people is many times more than government spending. The study found that India spends less than 2% of its GDP on health and around 70 - 80% of this spending is financed by states. States with higher health spending were found to be with a better index for infant mortality rate. However, the study documented a consistent rise of inequality among Indian states so far as their spending on health is concerned.

In a state level study of Indian economy, Kumar, Nema, Hazarika, and Sachdeva (n.d.) tried to examine the social sector spending by Indian states during the pre and post 14th Finance Commission. The study was

undertaken given the long run importance of investment in human capital besides the expectation that the states may utilize the additional funds for other sectors than social sector spending. However, the study quoted the results contrary to the presumed expectation wherein the states were found to have increased their spending on health and education post the 14th FC except the states of AP, Tamil Nadu, and Manipur.

Research Gap and Relevance of the Study

Most of the studies pertaining to the Indian economy have mainly confined their domain of analysis to the welfare spending behavior as exhibited by the states. However, there are valid reasons to carry out such an analysis pertaining to the Union government of India. This is mainly because over time, the Union government has assumed a significant place so far as the expenditure in education and health is concerned. These expenditures are mainly governed by the centrally sponsored schemes like NRHM, SSA, and RMSA[7].

Another line of departure from the early studies will be analyzing the impact of debt and deficit financed social sector spending. Earlier studies have mainly kept their domain confined to assessing the impact of economic growth on welfare spending and vice-versa. The study will highlight the extent of social sector dependence on the deficit financing behavior of the Central government. Thus, we can project the future scenario of social and welfare spending in the economy especially under the regimes of fiscal consolidation as pursued by the government from time to time. This, as per our knowledge, will be the first study where an explicit focus has been to assess the impact of fiscal consolidation on welfare spending in case of the Indian economy.

Data Description and Descriptive Analysis

(1) Data : The study employs the annual time series data covering 13 variables spanning a time period from 1990 - 91 upto 2017-18. The variables consist of both deficit indicators and indicators for social spending apart from national income[8]. The social sector spending will be covered under the heading of expenditure on education, health, welfare, and overall social spending. The variable representing the spending on education will be a combination of spending on education, art and culture, along with spending on scientific services and research. The variable capturing spending on health will be a combination of three other sub-categories, that is, spending on sanitation, water supply, and other sanitation related expenditure ; spending on family health and welfare ; and spending on public health like drinking water. The vector representing the welfare spending will be a horizontal summation of five other variables like expenditure on housing, spending on urbanization, expenditure on labour and employment, expenditure on relief and natural calamities, and other social security expenditures covering the welfare of marginalized sections of the society.

The indicators of the social and welfare spending will be the combined expenditure of both Centre and State governments. Although social spending is mainly the constitutional domain of states, but over time, the Union government has made a substantial presence mainly through the instruments of centrally sponsored schemes[9].

---

[7] Although post the 14th Finance Commission Award, the volume of such transfers has declined to a large extent, but their presence could not be eliminated. Moreover, there has been a surge in the voices especially from weaker states about increased spending by the Centre in social and welfare programmes given the limited fiscal space of states (refer to Kumar, Nema, Hazarika, & Sachdeva, n.d.).

[8] The deficit variables will include gross fiscal deficit, revenue deficit, and primary deficit. The social sector will be broadly categorized into three categories of spending on education, welfare, and health. The national income will be used to capture the effects of pure economic scenario.

[9] Although there has been a drastic reduction in the centrally sponsored schemes and the spending through these channels, but yet, their role cannot be ruled out given their rolling on nature. This reduced influence of Centrally Sponsored Schemes (CSS) is mainly on account of the recommendations of the 14th Finance Commission.

Table 1. Descriptive Statistics (Pertaining to the Growth Rates of the Variables)

Variable	Observations	Mean	Stand. Deviation	Variance
GDP	28	6.5	2.1	4.3
Gross Fiscal Deficit	28	13.1	33.9	1152.3
Revenue Deficit	28	22.0	75.1	5646.1
Primary Deficit	28	70.0	235.1	55257.1
Revenue Receipts	28	13.4	8.7	76.4
Capital Receipts	28	13.0	23.7	562.0
Revenue Exp.	28	12.9	5.4	29.3
Capital Exp.	28	10.6	22.1	490.3
Education	28	13.7	5.9	34.9
Welfare	28	17.0	10.4	107.2
Health	28	13.5	5.4	29.3
Overall Social	28	14.4	5.6	31.4

Note. The descriptive pertains to the data period ranging from 1990-91 upto 2017-18.

Moreover, under certain circumstances, the Union government explicitly directs the regional units with specific directions regarding certain expenditures like education and welfare of marginalized, women, and weaker sections. As can be seen from the Table 1, the deficit indicators have experienced the highest growth rates over the reference period but with an acute variability. On the other hand, the welfare spending experienced a continuous growth over time with much certainty and can be described as a welcome development. The data pertaining to the above cited variables has been acquired from multiple sources. The chief source has been the Economic and Political Weekly Research Foundation (EPWRF) followed by Reserve Bank of India (RBI), Centre for Monitoring Indian Economy (CMIE), and Ministry of Statistics and Programme Implementation (MOSPI).

(2) Deficit Financing and Social Spending - Bivariate Correlation Analysis : The simple correlation matrix reported in the Table 2 exhibits interesting insights about the association between deficit financing and social spending with statistically significant and theoretically expected signs. Although few of them are not in consonance with the general economic literature, but they are well in line with the economic behaviour exhibited by the Indian economy over time. For instance, the growth rates of both national income and revenue receipts are found to be negatively associated with the growth rate of deficit financing, but the growth rate of capital receipts is found to be debt augmenting. This may be because of the fact that as the capital receipts increase over time, the government may be investing these receipts into more sophisticated technology, thus prompting the government for more deficits [10]. Similarly, the behaviour of the primary deficit, though broadly in consonance with economic theory, has exhibited some special relations with other economic variables like in our case, with growth rate of income. However, the main concern of the study is to analyze the association between social and welfare spending with that of deficit financing behaviour of the Union of India. As can be seen from the Table 2, all the coefficients of correlation analysis pertaining to the association between developmental spending with that of

---

[10] Such a behavior has long been recognized in Indian finances where the growth rate of capital expenditure has always been higher than the growth rate of capital receipts. This may be attributed to two possible reasons: one the need of technological up-gradation to keep pace with the global environment and the other may be the developing nature of the Indian economy and hence increasing needs of more technological advances.

Table 2. Bivariate Correlation Matrix

Variable	Fiscal Deficit	Revenue Deficit	Primary Deficit	Observations
GDP	-0.010^	-0.370^	-0.300^	28
Revenue Receipts	-0.621*	-0.543*	-0.126**	28
Capital Receipts	0.562*	0.516*	0.153^	28
Revenue Expenditure	0.750*	0.780*	0.250**	28
Capital Expenditure	-0.334**	-0.361**	-0.245^	28
Education	0.450*	0.430*	0.040**	28
Welfare	0.305*	0.350**	0.268^	28
Health	0.176**	0.153**	0.291^	28
Overall Social Spending	0.446*	0.459*	0.21^	28

Note. The above tabled bivariate correlation pertains to the time period from 1990-91 upto 2017-18.

* Significant at 1% or 5%. ; ** Significant at 10% ; ^ Significant at more than 10%

deficit financing are found to be well in line with the literature (see Chakraborty & Dash 2013 ; Mukherjee, 2007). Since these expenditures mainly fall under the revenue budget of the government, that may be the reason of higher magnitude of coefficients pertaining to the revenue deficit than the overall gross fiscal deficit. However, the analysis is just a preliminary inspection carried out with the help of simple correlation and cannot be relied with certainty unless empirically supported by the hard core regression analysis to be carried out in the next section.

Econometric Analysis

(1) The Econometric Models : The relationship between deficit financing and developmental spending in the current study has been estimated by regressing the annual growth rates of welfare spending on a set of regressors, both fiscal and economic. The generalized method of moment's technique (GMM) has been employed to estimate the final models of the concern. This has been mainly done by keeping in view the possible endogeneity problem that the regression may encounter, given the nature of the relationship among the variables. Although the common practice has been either to employ the normal ordinary least squares or the two stage least squares, but some studies mainly vote for GMM (see Gupta, Clements, Baldacci, & Mulas - Granados, 2005). The GMM has the beauty to encompass both the OLS and 2SLS methods of estimation and is infact better described as the combination of the duo[11]. The GMM has been used especially to take care of the possible endogeneity problem that we may encounter [12]. The problem of endogeneity is a very common issue, especially in the literature on fiscal policy and growth. It may be quite possible that the level of economic growth may well determine the level of deficits in an economy. If this being the case, then a regression analysis using debt indicators and level of national product as independent variables may exhibit a higher probability to encounter the problem of endogeneity. Under such a scenario, the normal estimation techniques that did not account for this possible interrelation between variables may yield us biased estimates. To specifically address this issue, we employ the GMM technique instrumenting for some desired regressors besides the lagged value of other regressors.

---

[11] Besides taking care of the possible endogeneity, the method is better suited to the problem when we do not know the distribution of the dependent variable.

[12] Although there are well established tests to check for the possible problem of endogeneity ; yet, authors prefer to use GMM over OLS. This may be attributed to many reasons like the assumptions assumed by a diagnostic of endogeneity are seldom possessed by the data at large.

The study estimates four regression models with alterative specifications to contextualize the results pertaining to the effects of deficit financing on the social sector spending. In all the four models, annual growth rates of the variables of concern have been utilized to estimate the required coefficients. The models have been estimated with the following specifications :

Model I : (Spending on Education, Art, and Culture)

$$Ed_{it} = \alpha_t + \Sigma^k_{i=1}\beta_i G_{it} + \Sigma^q_{i=1}\beta_h X_{ht} + \mu_{it} \qquad ....(1)$$

where, Ed_{it} represents the growth rate of expenditure on education and scientific research. The G_{it} represents the vector of non-fiscal independent variables, mainly the growth rate of national income. The X_{ht} is a vector of fiscal independent variables mainly representing the deficit indicators, though the use of primary deficit as an independent variable in our final econometric estimation will be limited.

Model II: (Spending on Health and Sanitation)

$$HS_{it} = \alpha_t + \Sigma^k_{i=1}\beta_i G_{it} + \Sigma^q_{i=1}\beta_h X_{ht} + \mu_{it} \qquad ....(2)$$

where, HS_{it} represents the expenditure on community and social health. This will mainly comprise of expenditure on sanitation, water supply, family health, and welfare and spending on public works especially related to health and sanitation. The G_{it} represents the level of national income as before. The X_{ht} represents the deficit indicators of the government.

Model III: (Spending on Community Welfare)

$$WH_{it} = \alpha_t + \Sigma^k_{i=1}\beta_i G_{it} + \Sigma^q_{i=1}\beta_h X_{ht} + \mu_{it} \qquad ....(3)$$

where, WH_{it} represents the spending on community welfare over the reference period. The community welfare is a horizontal summation of expenditures on housing, urbanization, labour welfare, and employment, relief disbursement in face of natural calamities, and spending on social security of marginalized sections especially SCs and STs. The G_{it} and X_{ht} represent national income and deficit indicators as before.

Model IV: (Overall Social and Welfare Spending)

$$SSS_t = \alpha_t + \Sigma^k_{i=1}\beta_i G_{it} + \Sigma^q_{i=1}\beta_h X_{ht} + \mu_{it} \qquad ....(4)$$

where, SSS_{it} is the overall social spending by both Centre and States on all the above three heads. The G_{it} and X_{ht} represent the national income and deficit indicators as before.

(2) Regression Analysis : The models specified in the above context have been estimated using the growth rates of the variables. However, before proceeding for the formal estimation of the models, we have to make sure that we do not encounter the possible unit root problem in the data given the time series nature of analysis [13]. Though we performed alternative unit root tests to detect for the possible problem of non-stationarity, but for the sake of convenience and simplicity, we sketch down the results of only the ADF test (Table 3)[14].

As can be seen from the Table 3, almost all the variables under consideration are stationary at either 1% or at

---

[13] Unit root, also known as unit root process or difference stationary process, is a stochastic trend in a time series exhibiting systematic patterns that are unpredictable. In case of a unit root problem, the normal OLS estimates are no more trustworthy for policy and forecast analysis (For more insights, see Gujarati (2009).
[14] The other tests performed on the data include Phillips - Perron (PP) and Ng Perron.

Table 3. Unit Root Analysis Using Augmented Dickey - Fuller Test

Variable	t-stat	1%	5%	10%	p-value
GDP	3.34	4.35	3.59	3.23	0.08
Gross Fiscal Deficit	5.38	4.35	3.59	3.23	0.00
Revenue Deficit	5.39	4.35	3.59	3.23	0.00
Primary Deficit	5.14	4.35	3.59	3.23	0.01
Revenue Receipts	6.60	4.35	3.59	3.23	0.00
Capital Receipts	4.69	4.35	3.59	3.23	0.00
Revenue Exp.	3.55	4.35	3.59	3.23	0.05
Capital Exp.	6.47	4.35	3.59	3.23	0.00
Education	3.26	4.35	3.59	3.23	0.09
Welfare	3.25	4.35	3.59	3.23	0.05
Health	3.62	4.35	3.59	3.23	0.04
Overall Social	5.21	4.35	3.59	3.23	0.00

Note. The *T*-statistics and critical values are absolute coefficients.

5% level of significance, except gross domestic product and spending on education, which are significant at the 10% level of significance. However, the above estimates pertain to only the specification of the Augmented Dickey - Fuller model which includes both intercept and trend. The other specifications, though estimated, have not been quoted due to their voluminous nature. After the assured results of our stationarity analysis, we proceed for the final econometric estimation of our cited models to execute the study. The study has employed the technique of generalized method of moments (GMM) instrumenting for the alternative variables depending upon the model specification. The results of the estimation have been depicted in the Table 4.

The empirical results reported in the Table 4 depict some interesting insights about the association between deficit financing and social spending in case of the Indian economy. The results extend the support to the earlier findings regarding the potential impact of deficit financing on welfare spending. The deficit spending is found to positively contribute to the spending on education and scientific research, a finding which is in line with the results of earlier studies (see Chopra, 2002 ; Dev & Mooij, 2002 ; Mukherjee, 2007 ; Shariff et al., 2002). It can be seen that a 1% increase in the growth rate of gross fiscal deficit may increase the growth rate of spending on education by about 0.13%.

Similarly, a 1% increase in the growth rate of deficits may increase the spending on health by 0.03 % , on welfare by 0.15%, and on overall, it may increase the spending by about 0.11 %. Such a dependence of welfare spending on deficit financing may be attributed to a multiplicity of reasons.

The prime reason may be the sluggish growth rate of own revenue receipts of the government which could hardly fullfill the committed expenditures of the government in the form of wages, salaries, and other government maintenance [15]. The other reason may be the fact that the spending on social infrastructure is of long gestation period and is expected to yield the return over a very long run. This may force the government to finance such spending by deficits rather than the current revenues given the severity of trade-off between current consumption and the future consumption that takes the form of savings. Moreover, the discretionary nature of such expenditures may constitute an additional factor determining the behaviour as exhibited above. These findings are in consonance with the existing literature for the Indian economy (see Chakraborty & Dash 2017 ; Rao, 2017).

---

[15] Although a part of wages and salaries out of the general expenditure is attributed to both education and health sectors, but the current study has almost excluded that component and is primarily focused on the infrastructure development in these sectors.

Table 4. Deficit Financing and Social Sector Spending

Variables	Model I	Model II	Model III	Model IV
	Education	Health	Welfare	Overall SSS
Constant	-1.63 (.57) [2.88]	5.31 (1.24) [4.26]	-5.89 (1.18) [4.97]	-2.45 (0.78) [3.10]
GDP	0.83** (1.84) [0.45]	0.89*** (1.84) [0.48]	1.45** (1.96) [0.73]	1.11** (2.59) [0.42]
RD GFD	0.13* (8.52) [0.01]	0.03** (2.62) [0.01]	0.15* (4.11) [0.03]	0.11* (7.04) [0.01]
PD RR	0.29* (3.06) [0.09]		0.56** (2.29) [0.24]	0.28** (2.65) [0.10]
Past values	0.32** (2.27) [0.13]	0.14 (0.81) [0.18]	0.21** (2.19) [0.09]	0.27** (2.22) [0.12]
Adjusted R^2	.50	0.21	0.44	0.55
S.E of Regression	4.19	5.16	8.53	3.79
Durbin Watson	1.99	1.90	1.90	1.86
Number of Observations	27	27	27	27

Note. () encompasses the t-statistic and [] encompasses the standard error of estimate.

Note. * Indicates that the coefficient is significant at 1% ; ** indicates at the 5% level of significance; *** indicates at the 10% level of significance

Thus, a shock to the level of deficits may have a profound impact on the welfare spending, especially so if the quality of shock is neglected. This may aggravate the already fragile social spending scenario and may lead to the exposure of the poor and marginalized sections of the society. Though the estimation documents a significant dependence of social spending on the growth rate of income and revenue receipts, but the main focus of the study is the analysis of the debt financed welfare designs of the government.

Conclusion

The study has been conducted with a primary purpose of analyzing the possible impact of fiscal retrenchment on the social and welfare spending on the poor and marginalized sections of the society. The study has employed the annual time series data covering the time period from 1990-91 upto 2017-18. The study has utilized the technique of bivariate correlation analysis to analyze the long term association between welfare spending and deficit financing. The same results are later on established under the hard core regression technique, though under alternative specifications. The study has specified four alternative models and has been estimated through the technique of generalized method of moments (GMM).

The study documents a positive and significant dependence of social and welfare spending on the nature of deficit financing behaviour of the government. The spending on welfare of the poor and marginalized is found to be strongly dependent on the level of deficits followed by spending on education and health. A 1% increase in the level of deficits is found to augment the spending on education by about 0.13%. Similarly, a 1% growth rate of deficit financing is found to contribute to the expansion of health to the tune of 0.03% and to the welfare to the tune of 0.15% (refer to Table 4). The study also documents a substantial dependence of spending on education and health on the growth rate of national income and revenue receipts of the government. This dependence of the welfare spending on deficit financing may display an endangered scenario in face of a consolidation effort targeted to normalize the level of debt in the economy. Such a policy design may lead to exposure of destitute and

marginalized sections of the society to a further low. This may, on the one hand, reduce the quality of human development and on the other hand, it may endanger the long run sustainability of economic growth.

Policy and Research Implications

As quoted already, the Indian economy is performing quite low in terms of its spending on the poor and backward sections of the society. Any further slack on the resources meant for the marginalized sections may jeopardize the long term economic prospects. The main policy and research implications that follow from the above analysis include :

(1) A consolidation design that is based on slashing of expenditures especially social sector spending will negatively impact the creation of human capital and hence raise questions on sustenance of long run economic growth of the economy. However, this should not be taken as an incentive to step down from the path of consolidation and induce inefficiencies. The authorities need to sketch a fine balance between both quality and quantity of consolidation in order to minimize the burden on welfare spending.

(2) The government needs to revise its back-loaded (spending financed) designs of consolidation and should give due consideration to the front loaded (revenue augmenting) designs. The authorities, instead of curtailing the spending on education and health, as is the case with even the current government, should increase it both in absolute terms and national income adjusted.

(3) Besides economic support, there should be considerable support from the political institutions especially in the form of new legislations aimed at changing the nature of social spending from discretionary to compulsory.

(4) Moreover, there is enormous scope for the researchers to dwell deeper into the dynamics of social and welfare spending. More disaggregated and intensive studies with explicit focus on analyzing the impact of government policies both economic and political will help policy makers to come up with policy prescriptions regarding both quality and quantity of government spending on the social sector.

Limitations of the Study and Scope for Further Research

The study has some limitations emanating especially from data and domain deficiency. The social sector spending under Indian federalism is the principle domain of Indian states rather than the Union government. So, it would have been appropriate to execute the study using a panel of Indian states. But due to data deficiency related to most of the welfare indicators at the state level, the study relied mainly on the social sector spending by the Central government. Moreover, the study is holistic rather than disaggregated in nature because the indicators of spending on education, health, and welfare are arrived at by horizontal summation of 12 micro indicators. A more disaggregated analysis of all the individual indicators would have been more comprehensive. However, these limitations should not be taken as a question mark on the relevance and efficacy of the results.

References

Bhatnagar, G., & Sharma, S. (2016). Inter - state disparities in higher education: Affecting economic development in India. *Arthshastra Indian Journal of Economics & Research, 5* (1), 8 - 21. DOI: 10.17010/aijer/2016/v5i1/87838

Brennan, G., & Buchanan, J. M. (2000). *The power to tax: Analytic foundations of a fiscal constitution* (Vol. 9). Cambridge : Cambridge University Press.

Chakraborty, P., & Dash, B. B. (2017). Fiscal reforms, fiscal rule, and development spending: How Indian states have performed ? *Public Budgeting & Finance, 37*(4), 111 - 133. https://doi.org/10.1111/pbaf.12161

Chopra, K. (2002). Social capital and development processes: Role of formal and informal institutions. *Economic and Political Weekly, 37* (28) (Jul. 13 - 19), 2911 - 2916. DOI: 10.2307/4412361

Clinton, K., Kumhof, M., Laxton, D., & Mursula, S. (2010). *Budget consolidation: Short-term pain and long - term gain* (IMF WP/10/163). Retrieved from http://asip.org.ar/wp-content/uploads/2016/05/Budget-Consolidation-Clinton-FMI.pdf

Dev, S. M., & Mooij, J. (2002). Social sector expenditures in the 1990s : Analysis of central and state budgets. *Economic and Political Weekly, 37*(9) (March 2 - 8, 2002), 853 - 866.

Gujarati, D. N. (2009). *Basic econometrics.* India : Tata McGraw - Hill Education.

Gupta, S., Verhoeven, M., & Tiongson, E. R. (2002). The effectiveness of government spending on education and health care in developing and transition economies. *European Journal of Political Economy, 18* (4), 717 - 737. DOI: 10.1016/S0176-2680(02)00116-7

Gupta, S., Clements, B., Baldacci, E., & Mulas - Granados, C. (2005). Fiscal policy, expenditure composition, and growth in low - income countries. *Journal of International Money and Finance, 24* (3), 441 - 463. DOI: 10.1016/j.jimonfin.2005.01.004

Kim, H., & Kwon, C. (2015). The effects of fiscal consolidation and welfare composition of spending on electoral outcomes : Evidence from US gubernatorial elections between 1978 and 2006. *New Political Economy, 20* (2), 228 - 253. DOI : https://doi.org/10.1080/13563467.2014.923822

Kumar, A., Nema, A., Hazarika, J., & Sachdeva, H. (n.d.). *Social sector expenditure of states pre & post fourteenth finance commission* (2014-15 & 2015-16) (No. id: 12786). Retrieved from https://niti.gov.in/writereaddata/files/document_publication/Social%20Sector%20Expenditure%20of%20States_%20Paper.pdf

Mendis, K. S. A., & Ichihashi, M. (2014). *Impact of government spending on education and health in Sri Lanka : A provincial level analysis* (Vol. 4, No. 8). Retrieved from http://ir.lib.hiroshima-u.ac.jp/files/public/3/36179/20141104054003610838/IDEC-DP2_04-8.pdf

Merola, R., & Sutherland, D. (2013). Fiscal consolidation and implications of social spending for long term fiscal sustainability. *Review of Economics and Institutions, 4* (3), Article 2. DOI: http://dx.doi.org/10.5202/rei.v4i3.100

Mukherjee, A. (2007). *Public expenditure on education : A review of selected issues and evidence* (National Institute of Public Finance and Policy WP No. 1). Retrieved from https://www.nipfp.org.in/media/medialibrary/2013/04/wp_2007_hd_51.pdf

Musgrave, R. A., Musgrave, P. B., & Bird, R. M. (1989). *Public finance in theory and practice* (Vol. 5). New York: McGraw - Hill. DOI: 10.2307/2553841

Pashourtidou, N., Savva, C. S., & Syrichas, N. (2014). The effects of fiscal consolidation on macroeconomic indicators in Cyprus. *Cyprus Economic Policy Review, 8* (1), 93 - 119.

Rao, M. G. (2017). *Public finance in India in the context of India's development* (National Institute of Public Finance and Policy WP No. 219). Retrieved from https://www.nipfp.org.in/media/medialibrary/2017/12/WP_2017_219.pdf

Romer, P. M. (1990). Endogenous technological change. *Journal of Political Economy, 98* (5, Part 2), S71 - S102.

Shariff, A., Ghosh, P., & Mondal, S. K. (2002). State - adjusted public expenditure on social sector and poverty alleviation programmes. *Economic and Political Weekly, 37* (8) (Feb - 23 - March 1, 2002), 767 - 787.

Srinath, P., Kotasthane, P., Kher, D., & Chajer, A. (2018). A qualitative and quantitative analysis of public health expenditure in India : 2005 - 06 to 2014 -15 *(Takshashila Institution Working Paper,* 2018 - 01). Retrieved from https://takshashila.org.in/wp-content/uploads/2018/07/TWP-Public-Health-Expenditure-in-India-PS-PK-DK-AC-2018-01.pdf

Tomar, R. (2017). Education expenditure in Punjab and Haryana : An empirical analysis. *Arthshastra Indian Journal of Economics & Research, 6* (4), 32 - 40. DOI: 10.17010/aijer/2017/v6i4/118156

About the Authors

Ishfaq Ahmad Khoja is currently pursuing his Ph.D. programme from the Central University of Hyderabad and has previously completed M.Phil. from the same university. Before joining HCU, he was working as a Research Associate in SKUAST-K Shalimar J&K (Agricultural University).

N. A. Khan is presently working as a Professor in School of Economics, Central University of Hyderabad. The Professor is specialized in public finance and policy besides international business and macroeconomics. He completed his doctorate from Allahabad University.