



RESEARCH PAPER

Public Debt, Social Spending and Economic Growth: An Analysis for Developing Economies

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ABSTRACT

The current study attempts to investigate the effect of public debt on economic growth through social spending in developing economies. Aside from the core goal, it also aims to look into how the public debt affects economic growth in selected developing economies over the period of 2000 to 2019. For this purpose, estimation technique of System Generalized Method of Moments (System GMM) is applied. Two models are used in the analysis. In first model, social spending is carried out to capture the impact of external public debt on economic growth while in second model it is used to measure the effect of total public debt on economic growth. The study finds that external public debt and total public debt have negative and significant impact on economic growth through social spending. Our analysis, therefore, recommends a more productive use of public debt fund in order to boost economic growth.

KEYWORDS Developing Economies, External Debt, Social Spending, System GMM, Total Public Debt

Introduction

For both developed and developing economies, sustained economic growth is crucial. In order to maintain economic growth level, developing economies take hard decisions than developed ones. One of the several issues that developing economies face is the fiscal deficit. They employ different strategies to decrease fiscal deficit such as reducing public expenditures, increasing revenues by enacting new taxes or raising tax rates, and creating of new currency. But these approaches have adverse impact on economy if they surpass specific thresholds. Just as higher taxes have a detrimental effect on investment, creating new currency for financing deficit, can increase inflation. Thus, in order to protect their economies from above mentioned adverse impacts, developing economies use debt to finance their fiscal deficit.

Developing economies require a sufficient amount of public debt to experience economic development. However, economic growth is not always boosted by debt. As “Neoclassical Growth Theory” states that when public debt is used efficiently, it can have positive effect on economic growth. External debt also helps the economy to boost and uplift the GDP of a country (Gabriel and Emori, 2015). They also explored that debt services of foreign debt contributes to instability of economy. A country must use their external debt in those projects that yields a minimum return as much as government can repay principal amount and debt services. On the other hand, “debt overhang hypothesis” suggests that benefits from debt only accrue up to a certain point. The additional debt over threshold point, will have negative impact on economic growth. It can only be stimulated by an appropriate level of borrowing.

The primary issue faced by developing economies has been debt (both external and domestic debt) over the past fifty years. Moreover, act of debt and making repayments for it hinders economic growth especially for less developed economies Zafar et al., (2019). This adverse impact of public debt on economic growth is also observed through different channels. For example, public debt over threshold point have negative impact on investment and this decline in investment slows economic growth (Krugman, 1988 and Saeed &Islam (2019)).

Social Spending is another way through which public debt has negative impact on economic growth. As it is strongly believed that social spending plays a significant impact in economic growth and developing economies are required to finance their huge portion of resources to social sectors like health and education. The social spending can be financed by two ways. One of them is tax revenues and the other is non-tax revenue like debt. When public debt reaches a threshold point, developing economies transfer the funds from social spending that are generated through public debt as well as tax revenues from the social sector, in order to pay debt services (Fosu, 2008).

Through social spending in developing economies, the present study aims to explore the impact of the external debt on economic growth. Furthermore, it also intends to investigate the impact of the total public debt on economic growth in developing countries. One of the main reasons of taking public debt is to fund social spending. Therefore, public debt can affect social spending both positively and negatively. This is because debt can result in the transfer of resources from social spending to repay debt and debt services, which has an adverse effect on economic growth. The present study provides a clear picture of how debt affects economic growth through social spending. To the best of our knowledge, no such research has been done so far.

Literature Review

A review of the theoretical and empirical literature is given in this section. This section is bifurcated into three sub categories i.e., literature on the relationship between debt and economic growth, impact of social spending on economic growth and social spending growth nexus. The literature on each aspect is given below.

Relationship between Debt and Economic Growth

This portion of the study consists on the relationship between external debt and influence of total public debt on economic growth.

Impact of External and Total Public Debt on Economic Growth

Gabriel and Emori (2015) examined the impact of external debt on GDP of Nigeria. They found that external debt helped the economy and uplift the GDP of Nigeria. Their results also highlighted that debt services on external debt causes economic instability. They suggested that a country must use its external debt for projects that generate at least as much revenue as government can repay principal amount and debt services. Ijirshar et al., (2016) discovered a similar outcome. They identified that debt incurred by the Nigerian government from foreign resources enhanced economic growth in both short and long run.

El-Mahdy and Torayeh (2009) investigated the relationship between external debt and economic growth for Egypt and concluded a robust negative relationship between these two. Zafar at el. 2015 explored how external debt has a negative impact on economic growth in developing economies. Kharusi & Ada (2018) also found a negative correlation between external debt and economic growth in Oman. Another study by Omodero (2019) indicated the same results for Nigerian economy explains same result for the economy of Nigeria in terms of capital investment reduction.

Kempa and Khan (2016) checked the effect of public debt on economic growth in Pakistan and discovered a positive relationship between public debt and economic growth. Similar findings were explored by Saeed and Islam (2019) for South Asian economies. Picarelli et al., (2019) studied the effect of public debt on public investment for European Union economies. The result showed that if public debt exits, public investment will decline. Ndoricimpa (2020) identified that impact of public debt on economic growth in Africa is neutral of the debt accumulation is less than threshold level.

Impact of Social Spending on Economic Growth

This portion of literature review covers up the impact of health and education expenditures on economic growth.

Rajeshkumar and Nalraj (2014) investigated the impact of public health expenditures on economic growth in India. The findings revealed a positive correlation between these two variables. Qingyuan et al., (2021) found that public spending in health sector has positive impact on economic growth in China. Yang (2020) explored the impact of health expenditures in developing economies and suggested that on a country's human capital. Health expenditures have a negative influence on economic growth if the country's human capital is low. Furthermore, positive effects of health spending on economic growth were observed in high human capital countries.

Idrees and Siddiqi (2013) examined the effect of education expenditures on economic growth in advanced and developing economies in which they identified a positive relationship between expenditures in education sector and economic growth. ar panel data 1990-2006 and the data were 14 cross sections of developed and developing countries. Similar findings are revealed by Sunde (2017) who indicated that GDP growth rates of Mauritius in long run is increasing as public education spending increases.

Kouton (2018) found a negative impact of education spending on economic growth in Ivory Coast. He concluded that this negative relationship exists due to inefficient and irrelevant utilization of public education spending. Same outcome was observed by Bexheti and Mustafi (2015). They analyzed a negative correlation between economic growth and public education spending.

Impact of Debt on Social Spending

Shabbir and Yasin (2015) examined the implications of public foreign debt for public education, health expenditures and other social spending for Asian developing economies. The results highlighted that foreign debt exerts a negative impact on health, education and other social spendings. They recommended that developing economies should raise their own domestic resources to fulfill public expenditures and lessen their dependency on borrowing foreign debt from international institutions as much as possible.

Ono and Uchida (2018) conducted a study in which they attempted to investigate the influence of public debt on human capital and economic development. They concluded that when education spending is financed by debt, it reduces when compared to education spending paid by taxes. Their analysis indicated that education spending decreases when they are financed by debt with respect to education spending that are financed by taxes. Said and Morai (2020) observed the impact of public debt on health expenditures in Sub Saharan African economies. The findings of the study revealed a negative impact of public debt on health spending which in turn affects economic growth negatively.

Material and Methods

Theoretical Framework

Theoretical framework is based on two aspects i.e. (i) debt and economic growth (ii) Social spending and economic growth.

Social Spending and Economic Growth

Solow and Swan first introduced the neoclassical growth theory in 1956. At first, there were only a few determinants of economic growth. At the start, there were a few determinants of economic growth but as research work progressed many more other determinants of economic growth were taken into account. In 1980s, new growth theories emerged. These theories considered human capital as a determinant of economic growth formally. But new growth theories recognized human capital as a determinate of EG formally. They modified the work of Schultz (1961), Arrow (1962) and Uzawa (1965) and as a result school enrollment, education expenditures, Research and Development (R&D), health, life expectancy, and on-the-job training were identified as determinants of EG.

The "Endogenous Growth Model" presented by Romer (1986) and Lucas (1988) took this research field of economic growth determinants into account. Lucas (1988) was the first to consider human capital as a factor of production in economic growth theory. In economic literatures for the last three decades, education and health has been thought as important factor in development of human capital (Becker, 1993; Schultz, 1997).

There are many studies that support human capital theory by its empirical work. These studies identified that public expenditure in social sectors (like education, health and social welfare) has significant impact on economic growth and poverty reduction. Government expenditures in social sectors like (education, health and social protection) have long-term growth effect. Barro (1991) identified the positive association of human capital with economic growth. Investment in human capital increases the productivity of human capital. In contrast to neoclassical proposition, Romer, (1986) and Lucas, (1988) suggested that economic growth is determined in an endogenous way by technology that relies on economic factors like capital-labor relationship. The productivity of labors, that are educated and healthy, is more than the productivity of uneducated and unhealthy labors. Better health helps labors in minimizing incapacity, physical weakness and lost working days due to sick leaves. So, through education and health, human capital along with physical capital can enhance their work force, effective participation and productivity. In this way human capital plays an important and crucial role in economic growth.

The endogenous growth models are originated from the studies of Romer (1986), Lucas (1988), Barro (1991) and Rebelo (1991). Endogenous growth models include the intervention of government in economic growth through macroeconomic policies.

Debt and Social Spending

Public debt affects economic growth through investment. There are individual effects of two theories that shows how public debt affects economic growth. These are the debt overhang and debt crowding theories.

According to debt overhang theory, to reduce the accumulated debt tax rate must be increased. This results the reduction in private sector investment. Government also cut down its expenditure in order to utilize the resources saved by cutting public spending to pay debt services. According to Stephens (2001), public sector "investment spending" is crowded out by debt servicing. He investigated how debt accumulation and debt service have a negative impact on education and health spending. Loko et al., (2003) investigated that whether debt servicing crowds out government social spending. They analyzed that in order to pay debt services, governments often decrease their investment in education,

health, and safety nets etc. Because cutting social sector spending is an easier way than reducing spending in other sectors.

As for as debt crowding out hypothesis is concerned, the government reduce their outstanding debts by utilizing the revenue from their exports and in some cases, to assist their forthcoming debt, the government transfers their resources like foreign exchange resources and foreign aid. This is worse for economic growth because the transformation of revenue from export earnings to return back the debt leads to reduce public investment and spending in social sector. (Dereje, 2020).

Model Specification

We now suggest the following models for study estimation in light of the previous discussion. The present study consists of two different econometric models. Model 1 is estimated to identify the impact of external debt on economic growth through social spending and model 2 is estimated to explore the effect of total public debt on economic growth through social spending.

Functional equation of the models is given below:

$$GDPPC = f(SS * ED, SS * TD, SS, ED, TD, TOP, INV, INF)$$

The following is econometric specification of models 1 and 2.

$$Y_{it} = \alpha_1 Y_{i,t-1} + \alpha_2 Top_{it} + \alpha_3 lRGFCF_{it} + \alpha_4 lCPI_{it} + \alpha_5 SS_{it} + \alpha_6 lED_{it} + \alpha_7 SS * ED_{it} + \mu_{1it} \quad (1)$$

$$Y_{it} = \alpha_1 Y_{i,t-1} + \alpha_2 Top_{it} + \alpha_3 lRGFCF_{it} + \alpha_4 lCPI_{it} + \alpha_5 SS_{it} + \alpha_6 TD_{it} + \alpha_7 SS * TD_{it} + \mu_{2it} \quad (2)$$

Where, Y_{it} = growth rate of real GDP per capita of country i for the year t, $Y_{i,t-1}$ = growth rate of GDP per capita for the previous year (t-1), Top = Trade Openness, RGFCF = real gross fixed capital formation, CPI = consumer price index, SS = social spending, ED = External debt, TD = total debt, SS*ED = interactive variable, SS*TD: interactive variable and u_{1it} & u_{2it} are error terms.

GDP per capita, real gross fixed capital formation and consumer price index are used as proxies for economic growth investment and inflation, respectively.

Data Source

The present study is based on the panel dataset of 40 selected developing economies over the period of 2000 to 2019. These economies are chosen on the basis of availability of data. Names of the economies are,

Albania, Argentina, Armenia, Azerbaijan, Bangladesh, Belize, Benin, Bhutan, Bulgaria, Burkina Faso, Burundi, Cameroon, Chad, Colombia, Costa Rica, Cote d' Ivoire, Gambia, Guatemala, Guinea, Indonesia, Iran, Jamaica, Kenya, Kyrgyz Republic, Lebanon, Madagascar, Mali, Mauritius, Mexico, Moldova, Nepal, Niger, Pakistan, Peru, Rwanda, Senegal, Sierra Leone, Thailand, Togo and Ukraine.

Data of all variables is taken from Worldwide Development Indicators (WDI).

Methodology

The current study uses cross sectional data. The panel estimation technique is required for selected developing economies. As model appears to be dynamic theoretically, so the Generalized Method of Moments (GMM) is selected for its estimation. Moreover, using GMM estimation to address the issues of model uncertainty, endogeneity, heterogeneity and

serial correlation is a best practice. Arellano- Bond (1991) states that the most widely used choice for estimating dynamic panels with unseen heterogeneity and predetermined regressors, is the GMM estimator (Moral Benito et al., 2017). When we have a shorter time span and more cross-country observations, GMM is incredibly helpful (Roodman, 2009).

There are two different types of GMM: difference GMM and system GMM. There is a rule that tells us which GMM technique will be used for estimation. Rule for choosing between difference GMM technique and system GMM technique consists of three steps, Blundell et al., (2001). In first step, we use pooled OLS. The upper bound estimate for δ is observed in this estimation. Next, lower bound estimates for δ are observed by running fixed effect estimators. After this, in third step, difference GMM is carried out. System GMM is selected if estimates from the difference GMM are smaller than the estimates of the fixed effect due to the downward biasedness of the difference GMM. Thus, System GMM is an appropriate technique for estimation.

Results and Discussions

Table 1
Results of System GMM

Variables	Model 1	Model 2
lgdppc(-1)	0.992** (0.000)	1.00*** (0.000)
Top	0.030*** (0.000)	0.39*** (0.000)
IGFCF	0.011** (0.000)	0.00053 (0.765)
ICPI	-0.011*** (0.000)	-0.0015 (0.673)
SS	0.006** (0.039)	0.013*** (0.005)
IED	-0.011*** (0.000)	-----
TD	-----	-0.0006** (0.021)
SS*IED	-0.00029** (0.021)	-----
SS*TD	-----	-0.0001** (0.024)
<i>Observations</i>	654	654
<i>No. of Countries</i>	40	40
<i>AR (1). P values</i>	-3.54 (0.000)	-3.77 (0.000)
<i>AR (2). P values</i>	-1.55 (0.122)	-1.11 (0.269)
<i>Sargan test</i>	91.92 (0.000)	110.11 (0.000)
<i>Hansen test</i>	37.66 (0.485)	29.26 (0.253)

Note: (1) Standard errors are in parentheses. ***, **, * denotes 1%, 5%, 10% level of significance respectively. (2) AR (1) and AR (2) are tests for first order and second order serial correlation with p-values in parentheses. (3) Sargan test of the over-identifying restrictions of each model is given with p-value in parentheses.

The system GMM result for both models indicates a positive and significant relationship between trade openness and economic growth. These outcomes are consistent with the findings of Karras (2003) and Keho (2017). Trade openness has many advantages for developing economies. In order to increase productivity, it fulfills the need of capital, technology, education, and training etc. (Rivera Batiz & Romer (1991) and Fang & Wang (2006)).

The regression coefficient of investment is positive and significant in model 1. These results are in line with the outcomes of Dao (2014) and Nweke et al., (2017). Investment can increase the output of economy because it increases production which in turn, creates job opportunities Ahmad et al., (2012).

Inflation has a detrimental effect on economic growth in developing economies in model 1. It is justified from theory that inflation leads to lower investment and productivity, which in turn results in lower economic growth. The result of this variable is well matched with the outcome of Iqbal & Nawaz (2009) and Idris & Bakar (2017).

In both models, social spending has a substantial and positive impact on economic growth. Studies like Furceri & Zdzienicka (2012) also confirm our findings.

External debt negatively affects economic growth in model 1. The findings are similar to the findings of Calderon & Fuentes (2013) and Zafar *at el.* 2015. The negative impact of total public debt on economic growth is identified in model 2. These results are consistent with the studies of Afonso & Alves (2015) and Picarelli et al., (2019).

The present study primarily examines the relationship between external debt, total public debt and economic growth via social spending, is identified by system GMM. The results demonstrate that external debt has negative and considerable impact on economic growth through social spending in model 1. The coefficient of interactive variable (ss*led) indicates that the variations are correlated with slope of GDP on social spending. The outcome regarding this variable is supported by theory that demonstrate the adverse effects of external public debt on social spending, as it leads to the reallocation of funds from social sectors to debt servicing and repayment, Yasin and Shabbir (2015). The study indicates a negative correlation between total public debt and economic growth through social spending. Our results are consistent with the findings of Ono and Uchida (2018) and Said & Morai (2020).

Conclusion

The present study examines the effects of public debt on economic growth through social spending in developing economies. It also tries to explores how the public debt affects economic growth in developing economies. The findings of the study show that both external debt and total public debt have negative impact on economic growth through social spending. Our results are in line with previous research findings.

Significant policy implications are suggested by the current analysis. In order to close the resource gap, the study suggests that developing economies must take on external debt and manage it well. Governments must ensure that the funds from external debt are directed towards the economy's value-added sectors and are used as efficiently as possible to positively impact growth performance. Loans from external debt should only be utilized for high-priority, profitable investments that will help generate returns. This study also suggests that policy makers should focus on new strategies to fulfill their expenditures instead of too much relying on debt because taking too much debt has a detrimental effect on economic growth.

References

- Afonso, A., & Alvis, J. (2015). The role of government debt in economic growth. *Revista Hacienda Publica Espanola/ Review of Public Economics*, 215(4), 9-26.
- Ahmad, N., Hayat, M. F., Luqman, M., & Ullah, S. (2012). The causal links between foreign direct investment and economic growth in Pakistan. *European Journal of Business and Economics*, 6(2012), 20-21.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The review of economic studies*, 58(2), 277-297.
- Arrow, K. J. (1962). The economic implications of learning by doing. *The review of economic studies*, 29(3), 155-173.
- Barro, R. J. (1991). Economic growth in a cross section of countries. *The quarterly journal of economics*, 106(2), 407-443.
- Becker, G. S. (1993). Nobel lecture: The economic way of looking at behavior. *Journal of political economy*, 101(3), 385-409.
- Bexheti, A., & Mustafi, B. (2015). Impact of public funding of education on economic growth in Macedonia. *BERG working paper series*, 98. 1-11.
- Blundell, R., Bond, S., & Windmeijer, F. (2001). Estimation in dynamic panel data models: improving on the performance of the standard GMM estimator. *Nonstationary panels, panel cointegration, and dynamic panels*, 53-91.
- Calderón, C., & Fuentes, J. R. (2013). *Government debt and economic growth* (No. IDB-WP-424). IDB working paper series. DB-WP-424, 1-46.
- Dao, M. Q. (2014). Drivers of economic growth in developing countries. *Studies in Economics and Econometrics*, 38(1), 75-85.
- Dereje, H. (2020). *The Effect of Human Capital proxed by Education Expenditure on Economic Growth in Ethiopia* (Doctoral dissertation, ST. MARY'S UNIVERSITY).
- El-Mahdy, A. M., & Torayeh, N. M. (2009). Debt sustainability and economic growth in Egypt. *International journal of Applied Econometrics and quantitative studies*, 6(1), 21-55.
- Fang, C., & Wang, D. (2006). Employment growth, labour scarcity and the nature of China's trade expansion'. *The Turning Point in China's Economic Development*, Asia Pacific Press, Canberra.
- Fosu, A. K. (2008). Implications of the external debt-servicing constraint for public health expenditure in sub-Saharan Africa. *Oxford Development Studies*, 36(4), 363-377.
- Furceri, D., & Zdzienicka, A. (2012). The effects of social spending on economic activity: Empirical evidence from a panel of OECD countries. *Fiscal Studies*, 33(1), 129-152.
- Gabriel, E. E. (2015). The Impact of External Debt on Nigerian Economic Growth (1990–2009). *Archives of Business Research*, 3(1), 53-64.

- Idrees, A. S., & Siddiqi, M. W. (2013). Does public education expenditure cause economic growth? Comparison of developed and developing countries. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 7(1), 174-183.
- Idris, M., & Bakar, R. (2017). The relationship between inflation and economic growth in Nigeria: a conceptual approach. *Asian Research Journal of Arts & Social Sciences*, 3(1), 1-15.
- Iqbal, N., & Nawaz, S. (2009). Investment, inflation and economic growth nexus. *The Pakistan Development Review*, 863-874.
- Ijirshar, V. U., Joseph, F., & Godoo, M. (2016). The relationship between external debt and economic growth in Nigeria. *International Journal of Economics & Management Sciences*, 6(1), 1-5.
- Karras, G. (2003). Trade openness and economic growth can we estimate the precise effect?. *Applied econometrics and international development*, 3(1), 3-25.
- Keho, Y. (2017). The impact of trade openness on economic growth: The case of Cote d'Ivoire. *Cogent Economics & Finance*, 5(1), 1- 14.
- Kempa, B., & Khan, N. S. (2016). Government debt and economic growth in the G7 countries: are there any causal linkages. *Applied Economics Letters*, 23(6), 440-443.
- Kharusi, S. A., & Ada, M. S. (2018). External debt and economic growth: The case of emerging economy. *Journal of economic integration*, 33(1), 1141-1157.
- Kouton, J. (2018). Education expenditure and economic growth: Some empirical evidence from Côte d'Ivoire. *Journal of Economics and Sustainable Development*, 14(9), 22-34.
- Krugman, P. (1988). Financing vs. forgiving a debt overhang. *Journal of development Economics*, 29(3), 253-268.
- Loko, M. B., Nallari, R., Kalonji, M. K. D., & Mlachila, M. M. (2003). *The impact of external indebtedness on poverty in low-income countries*. International Monetary Fund.
- Lucas Jr, R. E. (1988). On the mechanics of economic development. *Journal of monetary economics*, 22(1), 3-42.
- Moral-Benito, E., Allison, P. D., & Williams, R. A. (2017). Dynamic panel data modelling using maximum likelihood: an alternative to Arellano-Bond.
- Ndoricimpa, A. (2020). Threshold effects of public debt on economic growth in Africa: a new evidence. *Journal of Economics and Development*, 22(2), 187-207.
- Nweke, G. O., Odo, S. I., & Anoke, C. I. (2017). Effect of capital formation on economic growth in Nigeria. *Asian Journal of Economics, Business and Accounting*, 5(1), 1-16.
- Omodero, C. O., & Alpheaus, O. E. (2019). The effect of foreign debt on the economic growth of Nigeria. *Management Dynamics in the Knowledge Economy*, 7(3), 291-306.
- Ono, T., & Uchida, Y. (2018). Human capital, public debt, and economic growth: A political economy analysis. *Journal of Macroeconomics*, 57, 1-14.
- Picarelli, M. O., Vanlaer, W., & Marneffe, W. (2019). Does public debt produce a crowding out effect for public investment in the EU?. *European Stability Mechanism Working Paper No. 36*, 1-46.

- Qingyuan, S. H. E. N., Chang, B., Guoyu, Y. I. N., & Wendong, W. A. N. G. (2020). The impact of health investment on economic growth: evidence from China. *Iranian Journal of Public Health, 49*(4), 684.
- Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *The stata journal, 9*(1), 86-136.
- Rajeshkumar, N., & Nalraj, P. (2014). Public expenditure on health and economic growth in selected Indian states. *International Journal of Science and Research, 3*(3), 468-472.
- Rivera-Batiz, L. A., & Romer, P. M. (1991). Economic integration and endogenous growth. *The Quarterly Journal of Economics, 106*(2), 531-555.
- Rebelo, S. (1991). Long-run policy analysis and long-run growth. *Journal of political Economy, 99*(3), 500-521.
- Romer, P. M. (1986). Increasing returns and long-run growth. *Journal of political economy, 94*(5), 1002-1037.
- Saeed, S., & Islam, T. (2018). Public Debt and Economic Growth Nexus: Evidence from South Asia. *Nust Journal of Social Sciences and Humanities, 5*(2): 119-128.
- Said, R., & Morai, A. S. (2020). Relationship between Public Debt Burden and Health Expenditure in Sub-Saharan African Countries: The Role of Institutional Quality. *Journal of Business and Social Review in Emerging Economies, 6*(2), 493-502.
- Schultz, T. W. (1961). Investment in human capital. *The American economic review, 51*(1), 1-17.
- Schultz, T. P. (1997). Assessing the productive benefits of nutrition and health: An integrated human capital approach. *Journal of Econometrics, 77*(1), 141-158.
- Shabbir, S., & Yasin, H. M. (2015). Implications of public external debt for social spending: a case study of selected Asian developing countries. *The Lahore Journal of Economics, 20*(1), 71-103.
- Stephens, M. T. (2001). *External debt, government spending and growth in heavily indebted poor countries*. New York University.
- Sunde, T. (2017). Education expenditure and economic growth in Mauritius: An application of the bounds testing approach. *European Scientific Journal, ESJ, 13*(22), 70-81.
- Uzawa, H. (1965). Optimum technical change in an aggregative model of economic growth. *International economic review, 6*(1), 18-31.
- Yang, X. (2020). Health expenditure, human capital, and economic growth: an empirical study of developing countries. *International journal of health economics and management, 20*(2), 163-176.
- Zafar, M., Sabri, P. S. U., Ilyas, M., & Kousar, S. (2015). The impact of trade openness and external debt on economic growth: new evidence from south asia, east asia and middle east. *Science International, 27*(1), 509-516.