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Concessional Debt and Growth in Services Sector of Pakistan

Muhammad Abdullah [*] Ayza Shoukat [†] Atif Ali Gill [‡]

Abstract *The current study aims to explore the relationship between concessional debt and the services sector growth of Pakistan. The annual time series data for the period 1972 to 2019 has been employed. To find out the stationarity and order of integration, the ADF test is utilized. For the long-run relationship, Johansen's co-integration methodology is employed. The empirical results of the study manifest that growth in the services sector is sensitive to concessional debt in the long run. All other explanatory variables also demonstrated a positive and significant effect on services sector growth. VECM method is applied for short-run analysis. The lag of concessional debt is also positive in the short run. A negative and statistically significant lag of error correction term (ECT-1) reasserts the long-run relationship between services sector growth and concessional debt along with other explanatory variables.*

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Introduction

The services sector is one of the leading sectors across the nations of the modern era. The reason behind its immense contribution not only towards GDP but also brought about structural changes in traditional society. Growth trends in global economies have shown that the share of the services sector has risen considerably large over the years; 65.5 percent in global GDP, 70 percent in the GDPs of advanced countries, and 55 percent in the GDPs of transitional economies (WDI 2020). Besides, the growth rate of the services sector is persistently higher than the other major sectors; agriculture and industry. Economic theory also anticipates that the transition of an economy from a traditional society (i.e., agriculture-based) to modern society (i.e. industrialized and services-based) will result in a high-tech society with enhanced GDP per capita. In addition, the emergence of the services sector as an engine of growth is promoting investment, boosting public sector revenues, and elevating the process of employment creation (Rath & Rajesh, 2006; Aggarwal, 2012 and Hassan & Abdullah, 2015). In addition, a strong service sector also meliorates international trade by decreasing the cost of imports and opening the doors for new export markets (Visagie & Turok, 2021).

The composition of the services sector is complex and gigantic. It includes many sectors, including distributive services, producer services, personal services, and social services, further divided into various sub-sectors (Ahmed & Ahsan, 2014). The progression of economic societies in the world has also affected Pakistan. Pakistan's economy is transforming from a traditional society to a transitional society by taking baby steps. Likewise, the share of the services sector has also improved from 40.9 percent in 1972 to 53.85 in 2019 (Pakistan Economic Survey, 2021 and WDI, 2020). In addition to the growth of the services sector, another key contributing factor in transforming the economy is the availability of funds to finance the public sector goods and services. The public sector can generate revenues either by taxes or by borrowing. In case of a revenue-expenditure gap, the government can reconsider taxation or

[*] Assistant Professor, Department of Economics, University of Sahiwal, Sahiwal, Punjab, Pakistan.
Email: mabdullah@uosahiwal.edu.pk
[†] Lecturer, Department of Economics, University of Sahiwal, Sahiwal, Punjab, Pakistan.
[‡] Lecturer, Department of Business Administration, University of Sahiwal, Sahiwal, Punjab, Pakistan.

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debt financing. The economic cost of imposing new taxes or revising the existing rates would result in shrinking the real income along with inflation. Whereas, in the case of debt, debt obligations are predictable, and repayment can be devised accordingly. Besides, it offers adaptable options for corroborating and repayment choices. In addition, funds through borrowing help to finance mega public sector projects including many services (for example, ICTs, motorways, highways, powerplants, and seaports) (Savvides, 1992; Singh & Faircloth, 2005; Sasidharan, 2015 and Shoukat et al., 2017). These public investments (infrastructure services) are the basics for a sound economic environment for growth (Shoukat & Ahmad, 2016), and foreign borrowings remained a key contributor in these projects. Since the services sector in Pakistan is the fastest growing sector, our study aims to explore the relationship between the provision of concessional debt and the services sector growth in Pakistan.

The economic literature approves that the debt affects domestic investment significantly and positively up to a threshold level. Beyond the threshold level, this affects negatively. Cohen (1993) discussed that the effect of debt on investment could be similar to that of the 'Laffer Curve.' If the unpaid debt grows beyond this limit, the unfavorable effects of the borrowings start as the debt repayment drops off. However, within this threshold level, the benefits of borrowings are enormous and can be equally observable through the Laffer curve between foreign debt and economic welfare (Clements et al., 2003). In addition, if the foreign borrowings are managed at favorable terms (i.e., concessional rates), then the outcomes can be rewarding. In the case of Pakistan, several foreign grants and funding have been provided to federal and provincial governments under different conditions. These foreign inflows can be categorized as program loans, grants, and loans for projects and others. Program loans a specified for fiscal support and are often associated with certain objectives. Projects-based fundings are provided by the IFIs and countries with friendly relations. These resources are utilized to acquire project-related investment (tools, equipment, and others). Other foreign borrowings are received from unconventional sources for fiscal substance and balance of payment improvement (Government of Pakistan (GOP), 2018).

Pakistan has collectively received 1,118,023.833 million rupees of loans and grants in 2019 from various sources. This amount is allocated to various projects under PSDP, projects outside PSDP, program loans, and loans for other categories. Besides, the mega CPEC project is also underway in Pakistan, comprised of 47 billion dollars investment initially (Shoukat et al., 2016) and is currently estimated as 62 billion dollars (McCartney, 2020). The foreign borrowing under CPEC is comprised of soft loans based on concessional terms. Foreign funding is a great way of increasing productivity and investment only if debt management is efficient. On the contrary, ill management of external resources would result in a 'debt overhang', and developing countries may tend to suffer from acute financial crises in the long run (Diamond & He, 2014).

Considering the scenario, this study proposes to inquire about the effects of concessional debt and urbanization on the fastest-growing sector; the services sector in Pakistan. Literature has been presented in the second section; the third section deals with the theoretical background and model specification; the fourth section consists of the empirical findings of the study, and the last section concludes the study with necessary policy implications.

Literature Review

The underdeveloped economies transmute towards achieving sustainable development by kicking start from a sectoral shift from agriculture to industrial and then services sector (Chenery & Taylor,1968; Syrquin, 1988; Gallou & Savona, 2009 and Buera & Kaboski, 2012). The humongous growth in the services sector in the past two decades has cleared that developing economies can only catch up with the developed economies by promoting the services sector (Bryson & Daniels, 1998; Park & Shin, 2012; Mujahid & Alam and Benešová et al., 2018). Besides, the role of fiscal policy in developing economies by choosing effective investment plans for inclusive public welfare is equally important. However, the capacity of the public sector in developing economies to execute these projects on internal financing is restricted. These projects can only be carried out through external financing; debt financing. Debt financing allows the public sector to extend the development

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projects without increasing the tax burden. Although debt can boost growth yet, there are certain challenges associated with it, like the problem of debt overhang and unstable financial conditions of the economy. Economic literature broadly discusses the debt with respect to economic growth.

Debt accumulation can offer favorable outcomes in both the long run and short run. Human and physical capital formation through public investment is considered inviolable sources of economic growth in the long run (Kraay, 2014 and Turan & Yanıkkaya, 2021). Whereas in the short-run, episodic borrowings can prevent the transitional economies from the adverse effects of instability of macroeconomic indicators during a downturn. Besides, temporary borrowings for fiscal financing or tax relief can play the role of catalyst to boost economic control (Yared, 2019 and The World Bank, 2020). However, the effectiveness of these borrowings can only be estimated based on fiscal policy multipliers, tax multiplier, and government spending multiplier (Kraay, 2012; Auerbach & Gorodnichenko, 2013 and Huidrom et al., 2016). External debt on concessional terms helps to establish a sound asst for the businesses; it protects against the defaulter private sector through risk aversion. Consequently, demand for risk-free asset grows and ultimately delivers financial relief to the sovereign economies (Kumhof & Tanner, 2005 and Azzimonti & Yared, 2019). Nwakoby & Ezeaku (2021) examined the effects of concessional debt on West African Economies. The study employed panel data methodology and found a long-run relationship between concessional debt and economic growth. In addition, foreign inflows have significantly affected the living standards of the people of these economies. Further, the study suggested that developing economies must be provided with financial assistance on concessional terms. The recipient nations must also discourage undue borrowings and must allocate the finances towards development spendings only.

Several studies predicted a threshold level of external debt to boost economic growth. Smyth and Hsing (1995) conducted an empirical study to calculate the optimal level of public debt for stimulus growth. The study examined the economic growth patterns of the US economy in the early 80s. The analysis suggested that 38.4% of the debt to GDP ratio would be appropriate for persistent economic growth in the US economy. Whereas for some other countries like Jordon, the optimal level of debt to GDP ratio is 53 percent (Maghyereh, 2002). For Jamaica, Blavy (2006) found a direct relationship between debt and GDP growth in Jamaica. The study proposes a 21% debt to GDP ratio for economic prosperity. Chudik et al. (2017) empirically tested the effect of public debt and economic growth for a large data set including many developing and developed economies. The study was unable to calculate a universal threshold level of debt to GDP ratio, yet it suggests that government spending financed through debt are not inevitably adversely affects growth in the long run; efficient fiscal policy can spur the economic growth as well as can retain the debt burdens on sustainable levels.

Several studies found the adverse effects of external borrowings on economic growth and fixed capital stock. The primary toll of debt is interest payment, along with the principal amount turns the arguments against debt financing (Mendoza & Oviedo, 2009). Higher servicing cost of public debt may exceed the advantage of borrowing like once the debt reaches to maturity level, the toll over refinancing can become a financial liability during the downturn of a business cycle and set off a fiscal crisis (Ardagna et al., 2007). Obstfeld (2013) suggested that instead of only considering the interest rate on debt, one must compare the output growth rate with the rate of return on capital investment financed by debt. If the output growth rate is higher than the rate of interest on capital investment, then the debt could be easily serviced in the future as the output growth rate is continuously increasing and the debt burden is decreasing. But Mauro & Zhou (2019) proposed that the comparison between the rate of interest and output growth must be considered for accretion of new debt and not the cumulative debt or the sustainability of the debt would be questionable. Besides, an increasing debt burden can shake the confidence of investors as if the debt is no more sustainable and can lead to a monetary crisis (Blanchard, 2019 and Rogoff, 2019). A critical review of the literature shows that the out of debt accumulation can vary from country to country. Besides, the impact of concessional debt on economic growth has been rarely discussed. In particular, not a single study is available for Pakistan addressing the consequences of concessional debt on the

fastest-growing sector; the services sector. The current study intends to bridge this breach. Our study seeks the impact of concessional debt on services sector growth by considering the period 1972-2019 in Pakistan.

Theoretical Background and Model Specification

Economic literature describes the growth trajectory with the significant role of investment. Theoretically, investment not only plays the role of mediator but also contributes directly towards growth. But the dual gap theory postulates that domestic savings in underdeveloped economies are not enough to promote growth through investment. Weighing domestic savings, these countries need external support in the form of borrowings. Therefore, bridging the gap between low savings and investment in underdeveloped economies, external borrowing is the conventional way out (Hassan et al., 2015 and Nwakoby & Ezeaku, 2021). For empirical analysis of growth models, it is a common practice to use the standard growth model (The Solow Growth Model) in augmented form. Following the lines of Woo & Kumar (2015), this study has augmented concessional debt (CONDETt) and urbanization (URBPOPt) as explanatory variables. Labor force participation rate (LFPRt) and gross fixed capital formation (GFCFt) are used as proxies of labor and capital, respectively. World Development Indicators (WDI-2020), an online database of the World Bank, is the source of data for all variables for the period of 1972 to 2019.

The following model in the mathematical form is used for empirical analysis.

$$SERVAD_t = F(CONDET_t, URBPOP_t, LFPR_t, GFCF_t) \quad (1)$$

The econometric equation for the augmented growth model is written as:

$$SERVAD_t = \beta_0 + \beta_1 CONDET_t + \beta_2 URBPOP_t + \beta_3 LFPR_t + \beta_4 GFCF_t + \varepsilon_t \quad (2)$$

't' represents that we are taking time-series data. $SERVAD_t$ is our dependent variable. It represents the percentage growth in the services sector, and we have used the annual growth rate of value-added to GDP (from Services). $CONDET_t$, is a measure of concessional debt and has been accounted for by taking a percentage of the annual total external debt of Pakistan. Other supporting variables are urban population, workforce, and investment by the public and private sectors. These variables are measured as the percentage of the urban population, workforce participation rate in percent, and gross fixed capital formation as a percentage of GDP, respectively.

Results Discussion

To avoid the problem of spurious regression, it is important to determine the stationarity of the series. For this, the Augmented Dickey-Fuller test (ADF) is applied, and the results of the unit root test have been presented in Table-1.

Table 1. The Unit Root Test

ADF Test Statistics and Probabilities at Level				
Names of Variables	Without Trend	Probability	Trend & Intercept	Probability
$SERVAD_t$	-2.8521	0.0612	-2.7817	0.2128
$CONDET_t$	-1.8740	0.3405	-2.3362	0.4053
$URBPOP_t$	-0.3121	0.9135	-1.0025	0.9317
$GFCF_t$	-2.911	0.0536	-2.9083	0.1716
$LFPR_t$	-2.5176	0.1184	-2.9491	0.1581
ADF Test Statistics and Probabilities at First Difference				
Names of Variables	Without Trend	Probability	Trend & Intercept	Probability
$\Delta SERVAD_t$	-5.1454*	0.0001	-5.0760*	0.0010
$\Delta CONDET_t$	-4.7675*	0.0004	-4.7393*	0.0026
$\Delta URBPOP_t$	-3.7261*	0.0076	-3.6751**	0.0369
$\Delta GFCF_t$	-7.8105*	0.0000	-7.6711*	0.0000
$\Delta LFPR_t$	-5.1320*	0.0001	-5.0709*	0.0009

*Note: * denotes 1% and**denotes 5% level of significance*

The results ADF test support that every series contains a unit root. However, at the first difference, they become stationary. It means, all series in our model are first difference stationary or are integrated or order one I(1). Therefore, Johansen co-integration seems to be appropriate for the determination of the long-run relationship. The next step is to determine the optimal lag length. Different criteria can be considered for optimal lag length determination for the VAR process. Results of VAR are described in Table-2 below.

Table 2. Selection of Lag Order

No. of Lags	Akaike (AIC)	Schwarz (SC)	Hannan-Quinn (HQ)
0	18.8132	18.7869	18.7691
1	6.1344	7.4328	6.2318
2	2.8673*	4.9734*	3.7569*

**at 5% significance level*

According to the results conveyed in Table-2, all three criteria suggest two lags as optimal. Results of Johansen co-integration technique for the long-run relationship are displayed in Table-3 and Table-4.

Table 3. Trace Statistics

H_0	Test Statistics (Trace)	Critical Values	Probability
r = 0*	116.6734	69.8188	0.0000
r ≤ 1*	70.30291	47.8561	0.0001
r ≤ 2*	39.08921	29.7970	0.0032
r ≤ 3*	15.73824	15.4947	0.0460
r ≤ 4	1.695925	3.841466	0.1928

**rejecting the null hypothesis at 5% significance level*

Table 4. Maximum Eigen Values

H_0	Test Statistics (Max-Eigen)	Critical Value	Probability
r = 0*	46.37049	33.87687	0.0010
r ≤ 1*	31.21370	27.58434	0.0163
r ≤ 2*	23.35097	21.13162	0.0240
r ≤ 3	14.04232	14.26460	0.0542
r ≤ 4	1.695925	3.841466	0.1928

**rejecting the null hypothesis at 5% significance level*

Empirical results in Table-3 and Table-4 prove the existence of the long-run relationship between concessional debt and the growth of the services sector. There are four cointegrating vectors according to Trace statistics and three cointegrating vectors according to Maximum Eigenvalue statistics. On the basis of cointegration results, it is obvious that services sector growth is affected by concessional debt. Coefficients of normalized vector, which are presented in Table-5, also confirm the presence of long-run relationships. Results in Table-5 show that all variables are statistically significant and contribute towards the services sector growth in Pakistan.

Table 5. Long-run Coefficients (Explained Variable: SERVADt)

Names of Variables	Coefficients	SE	t-stat
$CONDET_t$	0.2708	0.0869	3.1162
$URBPOP_t$	3.8801	2.0123	1.9282
$LFPR_t$	4.9751	0.8430	5.9017

Names of Variables	Coefficients	SE	t-stat
$GFCF_t$	1.3231	0.3709	3.5673

In order to verify short-run dynamics, Vector Error Correction Mechanism (VECM) is utilized. The short-run dynamics are presented in Table-6. The short-run dynamics indicate that ta single lag of concessional debt is significant. In the short run, the lags of all other variables are not statistically significant. A negative and significant ECT_{t-1} term reasserts the presence of the long-run relationships, whereas its coefficient demonstrates the speed of convergence.

Diagnostic tests have been utilized to verify the accuracy of the short-run model. The results of the diagnostic test are shown in Table-7. The results show that residuals are normally distributed as Jarque-Bera statistics is 1.0938 with a probability of 0.5787. The short-run model is also free from the issues of heteroskedasticity and serial correlation.

Table 6. Short-Run Dynamics (Explained Variable: $\Delta SERVAD_t$)

Name of the Variable	Coefficient	t-stat
Constant	-3.0268	-3.5707
$\Delta SERVAD_{t-1}$	-0.8932	-4.7135
$\Delta SERVAD_{t-2}$	-0.1743	-1.3337
$\Delta CONDET_{t-1}$	0.2842	3.4087
$\Delta CONDET_{t-2}$	0.1378	1.0827
$\Delta URBPOP_{t-1}$	-7.9831	-0.5799
$\Delta URBPOP_{t-2}$	18.2165	1.2107
$\Delta LFPRPR_{t-1}$	-7.1326	-0.3528
$\Delta LFPRPR_{t-2}$	-2.7452	-0.1464
$\Delta GFCF_{t-1}$	-0.1641	-1.0415
$\Delta GFCF_{t-2}$	0.0199	0.1193
ECT(-1)	-0.8932	-4.7135
R^2=0.683 Adj. R^2=0.562 F-stat. =6.171 Prob. (F-stat) =0.0000 DW=1.86		

Table 7. Diagnostic Tests

Test		F-statistics	Probability
Normality	Jarque-Bera test	1.0938	0.5787
Heteroskedasticity	Breusch-Pagan-Godfrey test	0.6276	0.7856
Serial Correlation	Brush-Godfrey LM Test	0.2412	0.7984

Conclusion and Policy Recommendations

In 2020, the service sector contributed 52.79 percent value addition in the GDP of Pakistan, which is still below the world average of 55.5 percent (WDI-2020) based on 144 countries. Many factors are important for the growth of this sector, including adequate investment through external financing. This study aims to investigate the effect of concessional debt on the services sector growth in Pakistan. Annual time series data has been taken into account for the period 1972 to 2019. The study employed the ADF test to check the existence of unit root in the series. The test results indicate that all of our series are integrated of order one. As the order of integration of all series is the same, we further applied Johansen's co-integration methodology for long-run results. The empirical results of the study manifest a positive as well as significant relationship between concessional debt and growth in the services sector of Pakistan. All other explanatory variables also demonstrated a positive and significant effect on services sector growth. VECM method is applied for short-run analysis. The lag of concessional debt is also positive in the short run. A negative and statistically significant lag of error correction term (ECT_{-1}) confirms the long-run relationship between services sector growth and concessional debt along with other explanatory variables. Government should arrange domestic and foreign debt under soft conditions for the development of the services sector by providing

necessary social and physical infrastructure. In addition, external borrowings must be directed towards the specified projects, especially infrastructure, as it acts as fixed capital in the economy. In this regard, political-economic practices based on self-interests must be discouraged. Besides, constituting debt management policies and replacing external financing with human capital formation should be the priority of the public sector.

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