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Growth Effects of Structural Adjustment Program: Evidence from South Asian Economies

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Abstract

South Asian economies repeatedly turn to the IMF and World Bank Structural Adjustment Program (SAP) because of persistent fiscal and external imbalances. However, there is no agreement on whether these policy instruments help or hurt economic growth in these countries. Hence, this study aims to empirically examine the effects of four SAP-targeted variables (indirect taxes, subsidies, budget deficit, and the exchange rate) on economic growth in selected South Asian countries (Pakistan, India, Bangladesh, and Sri Lanka). For this purpose, panel data for the years 2000-2023 were collected from the World Development Indicators (WDI) and the International Monetary Fund (IMF). The study estimates the Fixed Effects Model (FEM) and the Random Effects Model (REM), while the Hausman specification test indicates that FEM is appropriate. The empirical results indicate that budget deficit (-0.120) is negatively and significantly associated with economic growth, while indirect taxes (0.733), exchange rate (0.715), and subsidies (0.072) have a positive and significant effect on economic growth in selected South Asian countries. The results suggest that the growth effect of the SAP-targeted variables depends on how governments utilize them, rather than on the programs themselves. Finally, the study recommends that governments should cut their non-productive expenditures to reduce budget deficit, raise domestic revenue by designing tax reforms that do not burden middle-income households, increase subsidies on productive sectors, and increase exports by adopting effective exchange rate policies.

***Keywords*:** budget deficit, economic growth, indirect taxes, subsidies

Introduction

Many developing economies, particularly those in South Asia, have faced domestic fiscal and external imbalances since gaining independence

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(Rajakaruna et al., 2021). To address these imbalances, they have relied on financial support from the World Bank and the International Monetary Fund (IMF), which make lending conditional on the adoption of a Structural Adjustment Program (SAP) designed to restore macroeconomic stability. Barro and Lee (2005) mentioned that almost every country in the world, except Botswana, Kuwait, and Malaysia, has adopted the SAP at least once. They argued that a debtor country is better off if it manages to avoid participating in an IMF loan program repeatedly. Similarly, Radelet et al. (1998) concluded that the IMF program does not help individual economies to improve. They argued that the program's policy measures typically involve increasing indirect taxes and reducing public expenditures, which may disproportionately affect poorer households.

On the contrary, the literature also identifies positive aspects of SAP. Mody and Rebucci (2006) argued that when a country adopts the SAP, it increases investor confidence, thereby boosting productivity and economic growth. Likewise, Subramanian (1997) also observed a positive effect of SAP on the Egyptian economy.

The South Asian region consists of developing countries and almost every economy in the region has undergone an adjustment program under the World Bank or IMF. The main targets of SAP are to increase indirect taxes, decrease subsidies, stabilize the exchange rate, and reduce the government budget deficit. So, the purpose of the current study is to empirically examine the effects of these variables on economic growth for selected South Asian economies (Pakistan, India, Sri Lanka, and Bangladesh).

Pakistan has faced the problem of fiscal deficits since independence. In 2000, the deficit was Rs. 88.307 billion. It rose to Rs. 422.06 billion by 2010, reflecting an upward trend over time. By 2018, it reached Rs. 2260.38 billion, equivalent to 6.6% of GDP. To finance this deficit, successive governments have repeatedly relied on loans from the IMF and World Bank, adopting eight SAP programs since independence. The first adjustment loan program was approved in 1982, followed by two energy loan programs in 1985 and 1989 respectively, both aimed at supporting the country's industrial and agricultural sectors.

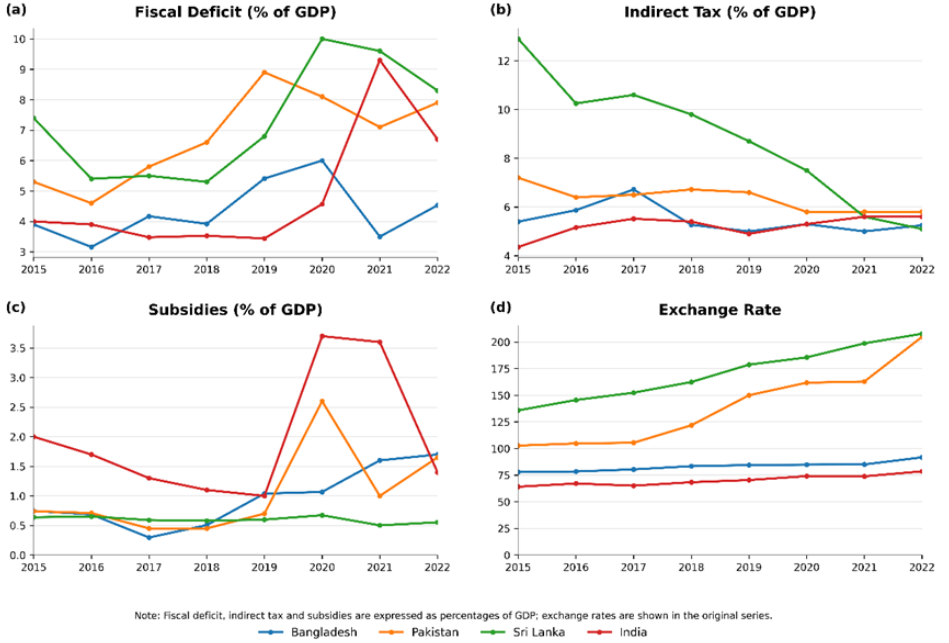
India has faced a similar trajectory. Its fiscal deficit stood at Rs. 1000.5 billion in 2005 (4.1% of GDP), reaching Rs. 3147.30 billion by 2015. In

2021, the deficit climbed further to Rs. 8045.74 billion (9.3% of GDP).

Sri Lanka has also followed the same pattern. The deficit rose from Local Currency Unit (LCU) 246.20 billion in 2010 to LCU 1614.55 billion in 2021 (9.6% of GDP). Since 1965, Sri Lanka has adopted sixteen SAP programs under the IMF and World Bank, more than any other country in the region. Despite this, the country was declared an economic defaulter in 2022, when its fiscal deficit reached 8.3% of GDP, prompting it to negotiate yet another program with the IMF to recover from the crisis. Similarly, Bangladesh has experienced comparatively moderate but persistent fiscal imbalances. In 2001, the gap between government revenue and expenditure stood at LCU 31.32 billion. The country's engagement with the IMF began soon after independence, leading to its first SAP program in the 1980s and a second in the late 1990s. By 2021, the fiscal deficit had grown to LCU 451.92 billion (3.5% of GDP). Taken together, these trends show that all four countries have suffered from fiscal deficits and have regularly adopted SAP programs from the IMF and World Bank to stabilize their economies.

Figure 1

Trends in the SAP-Targeted Macroeconomic Variables across Four Countries for The Period 2015-2022



The figure shows that fiscal deficit and subsidies rose sharply in the four South Asian economies in 2020 (due to the COVID-19 pandemic), while indirect taxes fell during the same period. On the other hand, the exchange rate increased. The above mentioned fluctuations show the sensitivity of these policy adjustment instruments which affect the economic growth of a nation directly.

An efficient tax system helps nations to sustain and accelerate economic development. Every adjustment program aims to increase indirect taxes. The replacement of trade and direct taxes with indirect taxation can boost the debtor country's revenue without affecting investment. Higher effective indirect tax collections can generate revenue, shrink fiscal deficit, generate more space for productive spending, develop infrastructure, and increase economic growth (Johansson et al., 2008). On the other hand, if these taxes become a burden on consumption, they can hamper short-term economic growth by suppressing aggregate demand and decreasing the purchasing power of poorer households (Swistak & de la Feria, 2024).

Similarly, subsidies are also an effective policy adjustment tool within the SAP, which aims to reduce and reallocate resources. Cutting subsidies becomes efficient when it reduces the deficit and reallocates resources towards more productive activities. However, abrupt cuts and inefficient reallocation can raise living costs, reducing consumption and investment in the short-run (Roos & Adams, 2020).

Exchange rate manipulation is also considered a core instrument of the SAP to restore external competitiveness and eradicate the black market premium, which distorts trade incentives (Kamin, 1993). The devaluation of an overvalued currency can lower the relative price of exports and increase the price of imports, which can stimulate export-led growth by improving the trade balances (Bahmani et al., 2013). Conversely, for countries that depend heavily on imports, devaluation of the currency raises the cost of imported goods, inputs, and debt services, which can outweigh the competitiveness gain.

Likewise, reducing the budget deficit is one of the core objectives of the SAP. An increase in the budget deficit can slow down economic growth (Abbasov, 2025; Mavodyo, 2023; Sundus et al., 2022; Tung, 2018). Reducing the budget deficit can restore macroeconomic stability, control inflation, and decrease the crowding-out effect of private investment.

Cutting non-productive expenditures can boost economic growth by lowering interest rates and crowding in private investment. Whereas, cutting productive investments in infrastructure, education, and health to reduce the budget deficit can hinder economic growth (Alesina & Ardagna, 2010; Barro, 1990).

Every lending nation that borrows from international financial institutions, such as the World Bank and IMF, is obliged to adopt the adjustment policies of these financial agencies. South Asian countries, especially Pakistan, India, Sri Lanka, and Bangladesh, rely heavily on the IMF's and World Bank's SAPs. Pakistan has taken eight SAP loans since independence, while Sri Lanka has taken sixteen since 1965, with a default in 2022. Both of the countries still suffer from a low growth rate and unstable macroeconomic conditions. Moreover, India and Bangladesh also face the same conditions while relying persistently on SAPs. This shows that the relationship between SAP-targeted variables and economic growth is not straightforward. The literature is also divided into two schools of thought. Some argue that the SAP of the IMF and World Bank is harmful for economic growth and affects the purchasing power of individuals (Barro & Lee, 2005; Radelet et al., 1998). Others suggest that it increases the confidence of investors, which can increase economic growth (Rebucci & Mody, 2006; Subramanian, 1997). Each policy instrument can affect economic growth positively and negatively, depending on how it is applied. Most of the literature is based on cross-country studies. The number of regional studies, especially for the South Asian region, is very small. Hence, the current study addresses this gap by empirically examining the impact of these SAP-targeted variables on economic growth across the four South Asian countries.

Following are the objectives of this study. First, to empirically examine the impact of indirect taxation on economic growth for selected South Asian economies. Second, to determine the effect of reduction in subsidies on economic growth across the four countries. Third, to analyse the effect of exchange rate stabilization on economic growth for the selected countries. Fourth, to assess the impact of budget deficit reduction on economic growth across the four South Asian countries.

To achieve these objectives, this study empirically tests the following hypotheses.

H_1: Fiscal deficit has a significant negative effect on economic growth in South Asia.

H_2: Indirect taxes have a significant positive effect on economic growth in South Asia.

H_3: Subsidies have a significant positive effect on economic growth in South Asia.

H_4: Exchange rate has a significant positive effect on economic growth in South Asia.

Supporting the stated objectives and hypotheses of the study, the following is a review of some theoretical and empirical studies that measured the impact of the SAP-targeted variables.

Literature Review

The existing literature provides mixed evidence: some studies favour SAPs, while others view them as a curse for the economy. Some of these are listed below. Merza and Khatatbeh (2025) measured the impact of tax and public debt for 177 developing and developed countries. They used cross-sectional data for the specified countries and applied econometric techniques, such as quantile regression and extreme bound analysis. The empirical results showed that high taxes and heavy debt burdens slowed down economic growth. They also concluded that salary-based workers on fixed wages bear the brunt of the tax burden. Finally, they suggested that reducing taxes for the rich is not effective for economic growth; rather, giving subsidies and reducing taxes to the salary-based and the middle class is more effective.

Khan et al. (2011) analysed the impact of policy instruments, for instance, budget deficit, subsidies, indirect taxes, and exchange rate on unemployment, inflation, income inequality, and per capita income in Pakistan for the time period 1981-2001. They used the Ordinary Least Squares (OLS) method to get the empirical results. The study concluded that the SAP is not the lifeline for the Pakistani economy. The study empirically proved that a decline in subsidies decreases per capita income in Pakistan.

Rehman et al. (2021) examined the composite effect of government taxes on economic growth for seven South Asian countries for the period 2001-2018. They used the pooled mean group method to find the empirical results. The study found that human capital, gross fixed capital formation,

political stability, and labour force have a positive effect on economic growth. Whereas, taxes on goods and services and taxes on income have a negative effect on growth, while customs duties and other taxes have a positive and significant effect on economic growth for South Asian countries. On the basis of empirical findings, the study concluded that tax composition and political stability are the key indicators of the economic development of the region.

Easterly (2001) measured the effect of World Bank and IMF programs on poverty. The study concluded that there is no direct effect of IMF programs on economic growth. Further, it determined that in those counties which have adopted some SAPs, the poor benefit more from output expansion as compared with those that have adopted many SAPs. According to these findings, the adoption of SAPs affects the growth elasticity of poverty. Moreover, the study found that none of the top 20 loan receiving countries were able to achieve reasonable growth based on these policies.

Khan (1999) measured the impact of policy instruments of SAP on the industrial sector in Pakistan. According to the study, there are mixed effects of structural reforms on the industrial sector in Pakistan. After adopting the SAP, the local industry developed and the country's exports increased. On the other hand, production cost increased due to currency stabilization. The study further examined the role of domestic demand, import substitution, and export promotion on industrial growth and found that cheap imported goods can weaken the local industry. Finally, it was concluded that the government should adopt policies that increase exports and limit cheap industrial goods to promote the local industry.

Tung (2018) investigated the effects of budget deficit on economic growth in Vietnam. The study used quarterly data for the period 2003-2016 and utilised the Error Correction Model (ECM). The results showed that fiscal deficit has a negative effect on economic growth in Vietnam. The empirical results further explained that fiscal deficit also negatively affects investment, foreign direct investment, and net exports. The research concluded that policymakers should control the fiscal deficit immediately to increase economic growth in Vietnam.

Abedin (2004) theoretically examined the SAPs, their history, and the effects of their implementation on economic growth. The study concluded

that SAP policies are not effective in promoting economic growth and there can be many social and economic costs of these programs, such as increased poverty, unemployment, and inequality. The research recommends that the government avoids such programs and strengthens fiscal deficit management.

Despite all this literature, the empirical evidence remains inconclusive, Khan et al. (2011) argued that an increase in subsidies can decrease the per capita income in Pakistan, while Merza and Khatatbeh (2025) considered subsidies as a significantly effective tool for the salaried class. However, there are very few studies that test the consistency of subsidies for the South Asian region. Furthermore, most of the studies analysed the SAP-targeted variables individually and in isolation, rather than jointly. Some studies performed the cross-country analysis of the SAP-targeted variables without focusing on the specific South Asian countries. This study addresses these gaps by empirically investigating the panel data across Pakistan, India, Sri Lanka, and Bangladesh to jointly examine the impact of four SAP-targeted variables on economic growth.

Methodology

This study empirically analyses the effects of the Structural Adjustment Program (SAP) on economic growth in four South Asian countries (Pakistan, India, Bangladesh, and Sri Lanka) using panel data for the years 2000-2023. Data on the said variables were collected from the World Development Indicators (WDI) and the International Monetary Fund (IMF). Table 1 shows the general description of the variables.

Table 1

Description of Variables

No.	Variables (Notations)	Measurements	Sources
1	Economic Growth (GDPC)	Gross Domestic Product at Current Price (LCU) in Billions	WDI
2	Exchange Rate (EXCH)	Nominal Exchange Rate	WDI
3	Tax (IT)	Indirect Taxes (LCU) in Billions	WDI
4	Subsidies (SUB)	Subsidies (LCU) in Billions	IMF
5	Budget Deficit (BD)	Budget Deficit (LCU) in Billions	WDI

To measure the effect of the SAP program on economic growth, Gross Domestic Product (GDP) at current prices is taken as the dependent variable, while exchange rate, indirect taxes, budget deficit, and subsidies are used as independent variables. The general and econometric equation of the model is as follows:

$$GDPC = f(EXCH, IT, SUB, BD) \quad (1)$$

$$LGDPC_{it} = \gamma_0 + \gamma_1 LEXCH_{it} + \gamma_2 LIT_{it} + \gamma_3 LSUB_{it} + \gamma_4 LBD_{it} + \mu_{it} \quad (2)$$

Where

LGDPC	=	Log of Gross Domestic Product
LEXCH	=	Log of Exchange Rate
LIT	=	Log of Indirect Tax
LSUB	=	Log of Subsidies
LBD	=	Log of Budget Deficit
μ	=	Error term

The economic model is established in equation (1) to measure the effectiveness of SAP by using the independent variables, namely exchange rate, indirect taxes, subsidies, and budget deficit. GDPC is the dependent variable. Equation (2) explains the econometric form of the economic model; the subscript (*it*) shows both cross-section 'i' and time series 't', while the symbols γ_0, γ_1, γ_2, γ_3, and γ_4 are regression coefficients. Table 2 presents the descriptive statistics of the dependent and independent variables.

Results and Discussion

Table 2

Descriptive Statistics

Variables	Obs	Mean	Std. Dev	Min	Max
GDPC	93	34544.19	48592.13	1257.63	203398.50
EXCH	93	88.48	39.57	41.34	211.93
IT	93	2043.85	2043.56	42.65	9356.35
SUB	93	455.56	732.35	2.08	2570.80
BD	93	1177.93	1756.81	18.71	8344.17

To estimate the results, this study alternates between the Fixed Effects Model (FEM) and the Random Effects Model (REM). To choose between FEM and REM, the Hausman specification test applied (Hausman, 1978), as shown in Table 3. According to the results, the Chi-square value is 59.43 and the *p*-value is 0.000, so the null hypothesis that REM is appropriate is rejected and FEM is adopted.

Table 3

Hausman Specification Test

Test	Chi-square / *p*	Decision
Hausman Specification	59.43(0.000)	Fixed Effect is appropriate

To check the assumptions of Ordinary Least Squares (OLS), diagnostic tests are applied, as reflected in Table 4. Breusch-Pagan test (Breusch & Pagan, 1979) is applied to check for heteroscedasticity. The results show that there is an absence of heteroscedasticity in the model, as the *p*-value is greater than the 5% level of significance. Breusch-Godfrey (LM) test, presented by Godfrey (1978) and Breusch (1978), is used to detect the problem of serial correlation. The outcome of the test indicates the failure to reject the null hypothesis, which shows that there is no serial correlation in the model, as the probability is greater than 5%. To check for model specification error, the Ramsey RESET test is applied, introduced by Ramsey (1969). The results indicate that the model is correctly specified.

Table 4

Diagnostic Tests

Diagnostic Tests	Results	Decision
Breusch-Pagan test	2.13 (0.1449)	No heteroscedasticity
Breusch-Godfrey (LM) test	4.87 (1.245)	No serial correlation
Ramsey RESET test	15.26 (0.216)	Model is correctly specified

Empirical Estimation and Interpretation

Table 5 shows the outcomes of FEM and REM. The Hausman specification test indicates that FEM is appropriate. The FEM results indicate that LEXCH, LIT, and LSUB are statistically significant and positively related to LGDPC, while LBD is negatively and significantly

related to LGDPC.

Table 5

Output of FEM and REM, Dependent Variable: LGDPC

Variables	Fixed Effect Model (FEM)	Random Effect Model (REM)
Intercept	1.098(0.06)*	2.151(0.002)**
LEXCH	0.715(0.00)***	0.156(0.04)**
LIT	0.773(0.00)***	0.503(0.00)***
LSUB	0.072(0.07)*	0.120(0.17)
LBD	-0.120(0.01)***	-0.213(0.00)***
F-test	418.44(0.00)***	316.84(0.00)***
R^2	0.962	0.944

Note. ***p<0.01. **p<0.05. *p<0.1.

The empirical findings indicate that a 1% increase in the exchange rate leads to a 0.715% increase in LGDPC. The coefficient is statistically significant at the 1% level, as the *p*-value is less than 0.01. An increase in the exchange rate reflects the depreciation of the local currency, which makes exports cheaper and imports more expensive. This mechanism promotes export-led growth in the country. Ridhwan et al. (2024) found a similar relationship between the real exchange rate and economic growth in developing countries. The coefficient of LBD indicates a negative relationship between budget deficit and economic growth and it is statistically significant at 1% level. Hence, a 1% increase in LBD is associated with a 0.12% decrease in economic growth. This negative relationship arises because reducing non-productive expenditures to lower the budget deficit can boost economic growth. Khan et al. (2011) and Tung (2018) also found the same relationship between budget deficit and economic growth. The results also show a direct relationship between LIT and LGDPC: a 1% increase in LIT leads to a 0.773% increase in LGDPC. This result is significant, as the *p*-value is below the 1% level. Further, an increase in indirect tax collection can raise economic growth by generating revenue, reducing the fiscal deficit, creating more space for productive spending, and supporting infrastructure development. These results are consistent with Johansson et al. (2008). Similarly, subsidies have a positive relationship with LGDPC in South Asian countries. A 1% increase in LSUB raises LGDPC by 0.072%. The result is significant at 10% level, as the *p*-

value is below 0.10. Higher subsidies can increase investment and capital accumulation because subsidized businesses have more funds to invest, which can also generate employment in the country (Deng, 2024; Wan & Ding, 2025). Finally, the overall model is also significant, as indicated by the significant F-statistic. The results show that the model is good fitted, as the value of R^2 is 0.96, which means that 96% of the variation in the dependent variable is predicted by the independent variables.

Conclusion

South Asian countries have regularly adopted adjustment programs from the IMF and World Bank. The literature shows mixed results: some studies found the positive effects of the SAP-targeted variables on their economies, while others reported negative effects. This study examines the effects of policy tools commonly associated with SAP, namely subsidies, indirect taxes, budget deficit, and exchange rate on economic growth in selected South Asian economies using panel data from 2000 to 2023. To get the empirical results, FEM and REM models have been estimated, with the Hausman Specification test indicating that FEM is appropriate. The findings demonstrate that indirect taxes, subsidies, and exchange rate are positively related to economic growth, while budget deficit is negatively related to growth. Indirect taxes have the strongest effect, while the effects of subsidies and exchange rate are significant at 10% level. Overall, the results suggest that in the South Asian region, the effectiveness of SAP depends on how local governments of the selected countries can manage their policy instruments.

Recommendations

Based on the empirical results, the following policy recommendations are made:

- The respective governments of the selected South Asian countries should lower the fiscal deficit by cutting non-productive spending, using public investments effectively, and increasing domestic revenue.
- Policymakers should make the tax system more efficient to earn more revenue and should ensure that the increase in taxes is not considered a burden for the middle-income group.
- Subsidies show a positive but small effect on economic growth in South Asian countries. The government should carefully target sectors like

manufacturing, agriculture, education, technology, and energy, which can promote investment and employment in the economy.

- Exchange rate policies should support export-led growth that maintains stability and competitiveness in international markets.

Author Contribution

Rana Hamza Gull: Conceptualization, Formal Analysis, Methodology, Software, Investigation. **Urwah Mehak:** Writing – original draft, Writing – review & editing. **Shumaila Yasin Sundhu:** Visualization, Validation. **Rafaqat Ali:** Validation.

Conflict of Interest

The authors of the manuscript have no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement

The data used in this study consisted of firm-level observations compiled from publicly available databases and company financial reports. However, the data and supporting materials used in this study would be made available by the corresponding author upon reasonable request, subject to any applicable licensing restrictions of the original data providers.

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The authors did not use any type of generative artificial intelligence software for this research.

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