The Role of Defence Savings Certificates in Pakistan's GDP Performance

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ABSTRACT

This study empirically investigates the impact of Defence Saving Certificates (DSCs) on Pakistan's gross domestic product (GDP), addressing an important gap in the literature on domestic savings instruments and macroeconomic performance. DSCs are government-sponsored, low-risk financial instruments administered by the National Savings Organisation (NSO) and are designed to mobilize household savings for public financing. Despite their widespread use and fiscal importance, their specific contribution to economic growth has remained underexplored in empirical research.

Using annual time-series data spanning the period from 1990 to 2024, this study applies an Autoregressive Integrated Moving Average (ARIMA) modeling framework to examine the dynamic relationship between GDP, DSC investments, gross capital formation (GCF), and gross domestic savings (GDS). The results indicate a statistically significant and positive relationship between DSCs and GDP, suggesting that increased investment in these certificates contributes meaningfully to overall economic output by channeling domestic savings into productive public use. Consistent with economic theory, GCF also exhibits a strong positive effect on GDP, reflecting the role of investment in driving growth. In contrast, GDS does not show a significant direct relationship with GDP within the estimated model, implying that savings alone may not translate into growth without effective financial intermediation.

The study concludes that DSCs represent an effective fiscal and financial instrument for supporting economic growth in Pakistan. It recommends policy measures to enhance their accessibility, expand digital platforms, and strengthen the institutional capacity of the NSO to better harness domestic savings for sustainable national development.

1. Introduction

Domestic savings are the cornerstone of economic growth and development (Wanzala and Obokoh, 2024) by providing the capital that works as fuels in investment and enhance growth. The strong link between a national savings and its investment levels has long been documented in economic theory (Feldstein and Horioka, 1980). Investment, enhances productivity, encourages innovation, and sustains long-term economic expansion. For developing economies such as Pakistan, strong domestic savings are even more essential. They reduce dependence on unpredictable external borrowing and promote lasting macroeconomic stability (Khan *et al*., 1998).

The saving is the holdings in backward societies whereas in developed and dynamic economies, savings is an important factor of development, which we call Investment. From an economic point of view, saving is that part of income that is not spent on consumption (Mankiw, 1998). Lord J.M. Keynes, enumerates three motives of savings, (i) Speculative Motive (ii) Business Motive and (iii) To Meet Emergency. Savings can be viewed from various perspectives, including that of an individual, a family, a business, or an entire country (Keynes, 1937). When considered from the national or country level, these savings are referred to as "National Savings or domestic savings". National Savings organization as it stands today is one of

the primeval institutions in the country with a legacy of more than 140 years that came into existence with the promulgation of the Government Savings Bank Act in 1873 (Tumbe, 2015). During World Wars I and II, the British Government used this channel to raise funds to meet war related expenditures. Given the effectiveness and net benefits of these initiatives, the idea of institutionalizing the savings culture was materialized by setting up a National Savings Bureau in 1943-44 as an attached department of the undivided Government of India. Since acquiring independence in 1947, this organization remained operational in Pakistan in different forms. This Bureau was renamed as Central Directorate of National Savings in 1953 (National Savings, 2025). In 1960, it was decided to rejuvenate the structure of CDNS by declaring the status of an Attached Department of the Pakistan's Ministry of Finance with the powers to formulate policies and execute various National Savings Schemes (Khan, 2024).

In this context, the National Savings Organization (NSO) has played a central role in mobilizing Pakistan's domestic resources. A key turning point came in 1972, when the NSO was granted authority to manage both policy and implementation for various National Savings Schemes (NSS). Through these schemes, the organization has designed financial instruments tailored to a diverse range of investors, encouraging financial inclusion while channeling household savings into productive government use (Malhotra, 1956).

Among these instruments, the Defence Saving Certificates (DSCs), launched in 1966, stand out as a secure, government-backed investment option. They not only offer individuals a low-risk savings avenue but also help the state meet its long-term financing needs for development and budgetary support. Yet, despite their long-standing presence in Pakistan's financial landscape, surprisingly little empirical research has examined how DSCs influence key macroeconomic indicators such as Gross Domestic Product (GDP). While theory clearly links savings to growth, the real question is: do specific state-managed savings tools like DSCs truly drive economic expansion or merely finance fiscal deficits? Previous studies offer mixed answers. Some suggest that national savings schemes primarily support government borrowing rather than directly stimulating growth (Feltenstein and Iwata, 2002).

This study seeks to clarify that uncertainty by asking: Do Defence Saving Certificates have a statistically significant and direct impact on Pakistan's GDP, independent of general savings and investment trends. By addressing this question, the research aims to provide policymakers with evidence-based insights on how to strengthen the NSO's contribution to Pakistan's broader development strategy.

2. LITERATURE REVIEW

For times, economists have tangled with a misleadingly simple question that "how exactly do a nation's savings fuel its economic growth?" The search for its answer has spun a global web of studies, each one adding a piece to a puzzle that is anything but straightforward.

The connotation between national savings and economic growth is a subject that has been broadly discussed and investigated, thus it presents a tapestry of insights across various economic contexts. The seminal contribution of (Feldstein and Horioka, 1980) actually focused on the high association between domestic savings and investment within OECD countries, thus indicating limited international capital mobility and reinforcing the importance of domestic savings and domestic investment. Dynamics among developing countries, however, are often different. Specific research on Pakistan's savings schemes has also produced mixed results. Pakistan offered a particularly curious case. An early investigation by (Feltenstein and Iwata, 2002), zoomed in on the country's National Saving Scheme (NSS). Sifting through data from the State Bank and economic surveys, they concluded the scheme's overall effect was murky. Its real importance was not in directly powering growth, but in plugging the hole between what the government spent and what it earned. They made two fascinating discoveries: people often treated NSS deposits and regular bank accounts as interchangeable, and demand for the NSS was strangely tied to foreign currency deposits. The numbers from 1991 to 1996 revealed why: with the average NSS return at 11.69% and dollar deposits paying 14.19%, that 2.5% gap showed how savers were swayed by the strength of the US dollar. This idea that government-backed savings plans are not a cure, found support in the work of (Attanasio and DeLeire, 2002) that same year. They contended that even popular tax-break accounts like IRAs in the United States only added, at the very most, a modest 9% to the country's total savings, a figure they pulled from historical spending data. As researchers broadened their view to other countries, the plot thickened.

Nnanna (2003) explained that savings play a foundational role in capital accumulation and long-term economic development. High savings rates allow higher levels of investment, which in turn make stronger productive capacity and overall national growth. The study emphasized that savings behaviour is strongly influenced by income levels, inflation expectations, interest rate structure, and the efficiency of financial institutions.

In Ghana, a study by (Asamoah, 2008) used regression analysis to measure the impact of financial reforms. Studies results pointed to a powerful link between real interest rates

and private investment. The connection was so strong that only 1 percent rise in the real interest rate would trigger an 8.2 percent jump in private investment that highlights how crucial financial incentives are for channeling savings into productive projects.

Back in Pakistan, the analytical tools grew more advanced. (Sajid and Sarfaraz, 2008) used data from 1973 to 2003 and applied sophisticated Co-integration models. They uncovered a critical nuance: while savings led to growth in the long-run, the short-term story supported the Keynesian view that savings levels are actually a consequence of the current level of output or GDP. (Ahmad and Mahmood, 2013) pushed this challenge to traditional economic thinking further. Focusing on Pakistan from 1974 to 2010, they used an Autoregressive Distributed Lag model and arrived at a provocative finding: per capita income and its growth were an inverse function of national savings. In simpler terms, as the country's income grew, the proportion of income being saved did not necessarily follow suit-it might even fall. Finally found a note of resolution in the work of (Najarzadeh *et al*., 2014), Study from Iran, from 1972 to 2010 with a similar model, they found clear evidence of a two-way relationship, means that in the long haul, their work confirmed a virtuous cycle where savings and economic growth feed into and strengthen one another. Intertwined together, these studies create a rich tapestry of insight. They tell us that the link between saving and growth is not a simple lever to pull, but a dynamic influenced by policy, incentives, currency, and time itself whose steps change in every economy.

Same like that, (Nabi and Billah, 2024) examines the role of remittances inflow on GDP growth and inflation influences national savings in south Asian economies. Study revealed that remittances have significant and positive effect on national savings while GDP growth and migration rate have positive relationship. Adding to this global perspective, a recent study by (Wanzala and Obokoh, 2024) examines the nexus between domestic savings and sustainable economic growth in South Africa. Study findings indicate that corporate savings significantly boost long-run economic growth, while household and government savings exhibit insignificant long-run effects.

This review also highlights that the relationship between savings and growth is not monolithic; rather, it is mediated by policy, institutional factors, and economic context. There is also a clear gap in the literature on the exact impact of individual savings instruments, such as Defence Saving Certificates, on GDP. This study contributes to this discourse by focusing specifically on this instrument within Pakistan's unique economic environment.

3. Materials and Methods
Research Design and Data Sources

This study uses quantitative time series data to examine the impact of Defence Savings Certificates (DSC) on Pakistan's GDP**.** Secondary data is collected from various sources, including government financial institutions and economics reports. The primary source of data is from State bank of Pakistan, National savings organisation and Historical data of Defence saving Certificates (DSC) issuance, Gross Domestic Product (GDP), Government Capital Formation (GCF) and Gross Domestic Savings (GDS) were analyzed. Historical data of DSC's, GDP, GCF, GDS and DSC from the fiscal year of 1990 to 2024.

Variables:

In this study, the dependent variable is Pakistan's GDP, measured in million rupees. The independent variables include Defence Savings Certificates (DSC) measured in million rupees, Gross Domestic Savings (GDS) measured in billion US dollars, and Gross Capital Formation (GCF) measured in trillion US dollars. These variables are used to examine how changes in savings instruments and investment-related indicators are associated with variations in Pakistan's GDP over time.

Sources of data

For this study are taken from official and reliable databases. Gross Domestic Product (GDP) data is obtained from State Bank of Pakistan financial reports and the Economic Survey of Pakistan. Defence Savings Certificates (DSCs) data is collected from State Bank of Pakistan financial reports, the Economic Survey of Pakistan, and National Savings Organisation financial reports. Gross Domestic Savings (GDS) data is taken from the World Bank database, while Gross Capital Formation (GCF) is sourced from the World Bank datasheets.

Econometric Model:

In this study, the econometric analysis is conducted using the Autoregressive Integrated Moving Average (ARIMA) model, estimated in SPSS (version 22). ARIMA is a univariate time-series technique that captures dependence in the data through autoregressive (AR) and moving average (MA) components, while ensuring stationarity through differencing (the "I" term). The appropriate ARIMA specification is selected by examining the series for stationarity and using autocorrelation (ACF) and partial autocorrelation (PACF) patterns, supported by information criteria such as AIC and BIC. Model parameters are then

estimated in SPSS, and diagnostic tests (e.g., residual normality and independence checks such as the Ljung–Box Q statistic) are used to confirm that the residuals behave like white noise. Once validated, the final ARIMA model is employed to generate forecasts and evaluate the time-series behavior of the study variable.

4. Results and Discussion
Results

This section discusses the essential findings that highlight the significance of Defence Saving Certificates (DSCs) in the GDP performance of Pakistan. Employing the time-series approach, the findings are outlined to illustrate the trends and implications that emerge, first, into the relationship between the DSC and GDP, and, therefore, the implications that arise out of this relationship for economic performance. Essentially, the significance of this section not only lies in identifying the outcomes that arise out of the empirical findings, but also the implications that arise out of these findings to not only interpret the results, but to position them within the economic framework that Pakistan follows with regard to savings and government borrowing.

Table 1: Model Summary Model summary of Defence Saving Certificates, Pakistan GDP, GDS and GCF

Model	Model Fit statistics		
	Number of Predictors	Stationary R-squared	R-squared
Gross Domestic Product	3	0.672	0.672

In this table 1, it shows the overall goodness of fit estimated for Pakistan's GDP using three predictors that are Defence Savings Certificates, Gross Domestic Savings (GDS) and Gross Capital Formation (GCF). These three predictors means that three independent variables are included in the model to explain variation in the Pakistan's GDP. R-Square is 0.672 which shows that 67.2% of variation in GDP is explained by these predictors and the stationary R-squared, which is also 0.672, confirms that the model maintains its explanatory power after accounting for stationarity in the time-series data.

Table 2: Estimated ARIMA Model Coefficients for GDP and Key Predictors (DSCs, GDS, and GCF)

	ARIMA Model Parameters			
	Estimate	SE	t	Sig.
Gross Domestic Product	-16556004.79	7582159.351	-2.184	0.037
Defence savings certificates	85.686	33.998	2.52	0.017
Gross Domestic Savings	-324037.366	693625.114	-0.467	0.644
Gross Capital Formation	753312.461	280424.871	2.686	0.012

Table 2 presents the estimated the ARIMA parameter shows that the intercept GDP is negative and statistically significant ($p = 0.037$) that indicates a meaningful effect when all predictors are held constant and coefficient for Defence Saving Certificates is positive and statistically significant at the 5 percent level of significance ($\beta = 85.686$, $p = 0.017$). This finding implies that an increase in investment through Defence Saving Certificates contributes positively to Pakistan's economic growth. The result highlights the role of government backed saving instruments in mobilizing domestic resources and supporting GDP expansion. While, Gross Domestic Savings exhibits a negative but statistically insignificant relationship with GDP ($\beta = -324,037.366$, $p = 0.644$). Domestic savings do not exert a significant direct influence on economic growth. Finally, Gross Capital Formation shows a positive and statistically significant impact on GDP ($\beta = 753,312.461$, $p = 0.012$), this result indicates that increased investment in

physical capital plays a crucial role in enhancing economic output, consistent with classical and endogenous growth theories. These findings demonstrate that Defence Saving Certificates and Gross Capital Formation are significant drivers of Pakistan's GDP, while Gross Domestic Savings does not significantly affect economic growth in the estimated ARIMA framework.

Discussion

The empirical results of this study provide insight into the distinct role various forms of savings play in the economic ecosystem of Pakistan. The strong positive relationship between DSCs indicates that targeted government-directed savings instruments work well. Capital mobilized through DSCs is efficiently channeled into the fiscal system, where it is most likely used for public investment in infrastructure and other development projects or to finance budgetary deficits in a manner that sustains aggregate demand. This direct channel from household savings to government spending translates into a noticeable and measurable stimulus to national output.

The contrasting outcome for GDS, which shows an insignificant relationship, deserves careful interpretation. This does not mean that savings are unimportant for growth. What this says is that aggregate domestic savings, if not intermediated appropriately by the financial system, may not get transformed into productive capital formation within the model's framework. This could be due to a number of structural factors in the Pakistani economy:

Heavy domestic borrowing by the government may use up most of the available funds in the market, thereby perhaps increasing interest rates and reducing credit to private investors. A large portion of GDS can be held in unproductive assets, such as real estate, gold, or foreign currency kept outside the formal banking sector and thereby not contributing to the pool of investable capital. In a country with limited social safety nets, a large fraction of household savings may be precautionary, held in liquid forms with the purpose of buffering against income shocks rather than being committed to long-term investment.

5. Conclusion

The ensuing study establishes quite conclusively that Defence Saving Certificates are a major and positive determinant of GDP growth in Pakistan. By offering a safe and attractive avenue for investment, DSCs effectively mobilize inactive domestic capital and route it directly into the government's development financing stream with a tangible macroeconomic return. The findings thus confirm the continued relevance of the National Savings

Organisation as an institution for fiscal stability and growth. The strong, positive impact of the GCF reinforces fundamental economic theory, since GCF represents direct investment in physical capital, which expands the economy's capacity for production. The insight behind the findings along this critical distinction while GDS represents potential for investment, DSCs, part of government savings, and GCF represent actualized investment emphasizes the NSO's role: an efficient intermediary in directly converting public trust into fiscal fuel for growth. However, the neutral result for GDS points to inefficiencies in the broader financial system's ability to mobilize and allocate general savings towards productivity, enhancing investments.

Policymakers should actively enhance the appeal of DSCs through digital accessibility, including a dedicated mobile application for investment, management, and profit withdrawal. Targeted financial literacy campaigns for middle- and lower-income households can deepen penetration and financial inclusion. The government should address operational bottlenecks facing the NSO. This means increasing staff strength and reviewing compensation structures to be competitive with other financial institutions, hence improving service delivery and morale. More so, investment in IT infrastructure and acquiring owned premises for key offices will improve operational efficiency and increase public trust. The insignificant finding on GDS indicates the urgency of broader financial sector reforms to improve the overall efficiency of financial intermediation. Policy should ensure that banks and capital markets channel national savings to private sector investment in a manner that would provide a more balanced and robust investment structure.

Despite these efforts, financial sector distress, though reduced and continues to affect public confidence and undermines savings mobilization. High inflationary expectations encourage immediate consumption and reduce incentives to save. Low returns on manufacturing and productive investments divert funds away from real sectors toward alternative assets. Furthermore, institutional weaknesses such as inadequate micro-credit frameworks, corruption, and weak financial governance continue to limit Pakistan's ability to foster strong savings and investment culture. Strengthening indigenous cooperative systems and enhancing the credibility of financial institutions remain critical steps toward improving savings behavior.

Deem it wise to say that National Saving Organization plays an important role in the development of Pakistan. It is backbone of our economy. This organization prevents holding of money of the people and brings it to circulation.

Which is mandatory for economic growth of the country. On the other side, people who cannot do business for lack of experience can invest in this organization and get handsome profit. On the third side, this organization off sets the rising prices and inflation.

Limitations and Avenues for Future Research

Limitations:

This study has recognized a number of limitations: using macro-level, aggregate data masks important heterogeneous investor behaviors and regional disparities in the diffusion of DSCs; although key variables have been considered, the model may not catch other factors affecting GDP, including political stability, workers' remittances, or terms of trade shocks, probably due to omitted variable bias.

Future Research Avenues

The results open several promising avenues for future investigation. Future studies might, apply the Granger causality tests, which can more clearly determine the direction of influence between the DSCs and GDP. Use household survey data to conduct micro-econometric analyses that profile DSC investors and their savings motivations and constraints. Compare the cost effectiveness and growth impact of DSCs versus other government debt instruments, such as Treasury Bills and Pakistan Investment Bonds.

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