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RESEARCH PAPER

Privatization of the Public Enterprises: Assessing its Impact on Economic Development and Socioeconomic Outcomes

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ABSTRACT

This research aims to quantitatively assess the relationship between the privatization of public enterprises and financial progress using time-series data spanning from 1990 to 2025. The study focuses on both short-term and long-term impacts of privatization on economic development. By incorporating key economic variables such as Gross Domestic Product, privatization, gross capital formation, labor force participation rate, total reserves, foreign direct investment, and inflation, the analysis seeks to provide a comprehensive understanding of these dynamics. Utilizing a unit root test to ascertain the stationarity of the variables and an Auto-Regressive Distributed Lag model to analyze the relationships between the dependent and independent variables, this study uncovers critical insights. The findings indicate a long-term negative association between privatization and Gross Domestic Product, while highlighting the significant role of monetary growth in shaping economic outcomes. Conversely, gross capital formation and Foreign Direct Investment exhibit positive correlations with Gross Domestic Product, whereas labor force participation, total reserves, and inflation are negatively related to economic growth. Through this nuanced examination, the research sheds light on the complexities of privatization and its varying impacts on different facets of economic development, offering valuable implications for policymakers and stakeholders in shaping future economic strategies.

KEYWORDS Privatization, Inflation, Foreign Direct Investment, Economic Growth

Introduction

Privatization, which involves conveying ownership or control of a state-owned business, enterprise, agency, or public service to private interests, has deep and varied historical roots. At the same time, it isn't easy to credit the idea to a single individual. The modern concept of privatization became widely recognized in different forms during the 20th century. In economic terms, economists such as Milton Friedman and Friedrich Hayek significantly influenced the push for privatization, advocating for free-market policies and reduced government control over the economy during the mid-20th century (Hunjra et al., 2019; Malik et al., 2021; Radić et al., 2021; Estrin et al., 2009). In Pakistan, the privatization process started in 1990 and 1992. Proper regulations and rules have been established for the country's privatization process. After this process, some organizations in the public sector have been transformed from public to private property. From 1992 to 1994, assets estimated at 120 billion were split, and during the second time, propriety significant conducted a thorough investigation of the past decade (Bishop & Thompson 1992; Mehmood & Faridi, 2013; Lazzarini & Musacchio 2018;).

Privatizing publicly owned entities is primarily driven by the anticipated increase in productivity due to private ownership. This efficiency boost is expected because private owners typically prioritize profit growth, unlike the government, which may be less focused on profitability. Many businesses start as privately held entities funded by small investors. As these businesses grow, they often turn to the equity markets to raise investment capital

by issuing shares. Conversely, there are instances where this process is reversed. This occurs when investors or a private company acquires all public company shares, thereby privatizing it and removing it from the stock market (Chinnapareddy et al. 2018; Oum et al., 2006; Ali, 2017) Their ideas contributed to policy shifts in many Western countries, particularly under Reforms. To improve production and decrease public debt, these leaders encouraged a decrease in government participation in business and encouraged private sector involvement to increase efficiency and reduce public debt (Sikandar et al., 2021; Hemming & Mansoor 1998 ; Aivazian, Ge & Qiu 2005). While privatization has taken hold worldwide, variations in each country's experience, outcomes, and economic impact have been observed.

This study measures the relationship between the privatization of public enterprises and its impact on economic development. They used the time series data. They collect secondary data from various sources like the world development indicator and the economic survey of Pakistan.

Different researchers used different techniques to analyze the privatization of public enterprises and its impact on economic development, such as Chinnapareddy et al. 2018 Auto Regressive Distributed Lag (ARDL) and Khan, 2015) ordinary least square (OLS) multiple regressive models. The technique in this study will be selected according to the Dada research procedure.

Literature Review

Chinnapareddy et al., (2018) looked at how privatization affected Ethiopia's economic growth. Since privatization is believed to have both short-term and long-term effects on economic growth, the primary objective is to determine the long-term cointegration between economic growth, development, foreign direct investment, and private domestic investment. Actual GDP growth, privatization, inflation, government consumption, the balance of the government's budget, gross private domestic investment, and foreign direct investment were the primary variables. By applying the Autoregressive Distributed Lag (ARDL) model, the researchers concluded that privatization and the resulting foreign direct investment positively impact economic growth. Hunjra et al., (2019) investigated the disparity in bank performance before and after privatization in Pakistan, Bangladesh, and India—the researchers collected secondary data from financial reports of privatized banks. The researcher employs variables such as Efficiency, Liquidity, and Profitability ratios. Through the technique of ratio analysis and paired sample t-test, the findings reveal that the Pakistani banking sector exhibited improved performance following privatization. Conversely, the banking sectors in India and Bangladesh showed no significant difference in performance after privatization (Boardman & Vining 1989; Ali & Sardar, 2020).

Qureshi et al., (2020) investigate the macroeconomic determinants of privatization in Pakistan, utilizing data from 1984 to 2015. The time series data was used for the period from 1990 to 2008. Secondary data is calm from various sources, including the World Development Indicator (WDI), the Ministry of Finance, the Economic Survey of Pakistan (ECP), the Pakistan Statistical Year Book, and the Labor Force Survey (LFS). The variables are the redundancy rate, Gross Domestic Product (GDP), budget deficiency, and inflation rate; the Ordinary Least Square (OLS) method was suggested. In the context of Pakistan, the research concludes that unemployment, inflation, GDP, and budget deficit are some of the main macroeconomic determinants, but the fiscal deficit is the main one. Islaminezhad et al., (2021) examined the influence of privatization on financial growth. The researcher utilized secondary data from different sources and used the entirely modified least squares (FMLS) technique. The variables of this study are economic growth and human capital. The consequences show that the bearing of privatization on economic growth is confident and significant (Mouneer et al., 2023).

Uddin and Ahmad (2021) analyzed the impression of privatization on economic development through entrepreneurship. The researcher utilized the secondary data, World Bank data, and World Development Indicators. A multiple regression model was employed. The variables used included GDP per capita, consumption expenses, gross wealth formation, transfers of goods and services, and imports of goods and services. The result shows that a statistically significant liberal economy inspires more imports of capital equipment and ramblingly affects growth completely. Kanwal et al., (2025) observed the impact of educational transfer on teachers' job security and working conditions in Punjab, the influence of privatization on teachers' salaries and financial well-being, and explored teachers' job satisfaction. The primary data was collected from questionnaires, Semi-structured interviews, and structured surveys; the variables used in this study are Job satisfaction, Salary, and Job security. By applying descriptive statistics and thematic analysis techniques, they settled that there is a complex connection among these variables. Teachers perceive a negative impact on their salaries and financial well-being, while the thematic analysis reveals a mixture of positive and negative feelings.

Material and Methods

This section discusses the data sources, briefly describes selected variables, and appropriate econometric techniques for analyzing chosen data**.**

Data Sources

Secondary annual data has been used to analyze the privatization of public enterprises and its impact on economic development in Pakistan. This data has been collected from various sources and covers the period from 1990 to 2025. This period was selected due to the availability of time series data on the selected dependent and independent variables. Data has been collected through the World Development Indicators website. Data is in percentage form**.**

Construction of Variables

At this stage, the study explains dependent and independent variables. Dependent and independent variables have been selected due to their rising importance in developing countries like Pakistan. In selecting variables, their significance in recent studies has also been kept in mind. The relevance of independent variables is crucial for explaining their relationship with the dependent variable. In the recent survey, GDP growth was taken as a dependent variable. The independent variables of the study are as follows: privatization, gross capital formation, inflation, foreign direct investment, total reserves, and labor force participation rate.

Table 1
List of Variables Explanation with Expected Sign in Privatization of Public Enterprises and its Impact on Economic Development

Variables	Explanation	
	Dependent variable	
GDPg	GDP growth rate (annual %)	
	Independent variable	
PVT	Privatization (annual %)	Both (+)&(-)
GCF	Gross capital formation as %of GDP	**-**
FDI	Foreign direct investment as % of GDP	**+**
LFPR	Labor force participation rate as% of GDP	**+**
INF	Inflation rate	**-**
TRES	Total reserves	**+**

The research was proceeded by applying the following econometric techniques. The recent study is founded on time series data, so the first task is to check the data's stationarity. The augmented Dickey-Fuller (ADF) test is used to determine the stationarity

of time series data. Stationarity sequences and the use of difference make forecasting the trend of the relation among the variables possible. ADF test is the standard measure of checking the stationarity of data. In this test, the ADF equation is expended by including the lagged value of dependent variables.

ADF is based on the model,

$$\Delta Y=\alpha+Bt+(\rho-1)\ Yt-1+\delta\Delta Yt-1+et$$

If every variable included in the model is integrated to degree one, a simple OLS method will be employed. If the selected variable is not integrated to the same degree, as some are at I (0) and others are at I (1), then the Autoregressive Distributed Lag Method will be employed for the analysis of co-integration between the dependent and independent variables. The ARDL co-integration approach is used to estimate the selected variables' long-term and short-term parameters. This methodology can only be used if the selected variables have the stationarity of I (0) And I (1). However, the ARDL technique cannot be applied if all variables have a higher stationarity.

Model Specification

The recent study considers GDP growth as the dependent variable. The descriptive variables included are PVT, GCF, FDI, LFPR, TR, and INF.

This study works on the following equation:

$$GDPg = \beta0 + \beta1PVT + \beta2FDI+ \beta3GCF + \beta4LFPR + \beta5TR + \beta6INF + \epsilon$$

Here, GDPg = GDP growth rate, PVT = Privatization, FDI =Foreign Direct Investment, GCF =Gross Capital Formation, LFPR = Labor force participation rate, TR = Total Reserves, INF = Inflation, β0 = intercept, and β1+ β2+ β3+ β4+ β5+ β6 are coefficients of variables.

Econometric Analysis

The Econometric Analysis of this section is based on descriptive and econometric analysis, which provides a functional connection between the dependent and independent variables.

Descriptive Analysis

The whole set of data is based on 34 yearly observations from 1990-2025. Descriptive analysis of variables, i.e., GDP Growth rate, Privatization, Gross Capital Formation, FDI, labor force participation rate, total reserves, and inflation rate, are explained in Table 2,

Table 2
Descriptive Statistic of Some Selected Variables

	GDP	PVT	GCF	FDI	LFPR	TR	INF
Mean	2.39	2.29	16.79	0.91	49.05	-37.08	8.59
Median	2.34	4.57	16.28	0.69	50.10	-29.32	9.05
Maximum	4.28	6.10	20.68	3.03	77.08	13.16	20.28
Minimum	1.13	-5.40	14.53	0.13	23.74	-122.80	2.52
Std.Dev	9.37	2.15	1.69	0.66	8.42	46.52	3.86
Skewness	0.43	-0.33	0.57	1.95	-0.60	-0.39	0.48
Kurtosis	1.98	4.41	2.26	6.24	9.02	1.72	3.68

The above table presents the descriptive findings encompassing mean, median, maximum, minimum, standard deviation, skewness, and kurtosis.

Correlation Matrix

A correlation matrix presents correlation coefficients among multiple variables. Each cell illustrates the correlation between two variables. The matrix is symmetric, which means the values above the diagonal have the same values as those below the diagonal. The diagonal always holds one since the correlation of a variable with itself is consistently perfect.

Table 3
Correlation Matrix of Selected Variables

	GDP	PVT	GCF	FDI	LFPR	TR	INF
GDP	1.00						
PVT	-0.38	1.00					
GCF	-0.58	0.24	1.00				
FDI	-0.16	0.21	0.30	1.00			
LFPR	0.21	-0.12	0.00	-0.05	1.00		
TR	-0.99	0.31	0.57	0.20	-0.23	1.00	
INF	-0.15	0.17	0.17	0.00	-0.04	0.12	1.00

The above table shows the association between dependent and independent variables. The correlation of all variables with itself is perfect, as displayed by diagonal no 1. Privatization, gross capital formation, FDI, total reserves, and inflation negatively correlate with GDP, the dependent variable. Meanwhile, the labor force participation rate is completely correlated with GDP. Although the correlation between privatization, gross capital formation, foreign direct investment, total reserves, labor force participation rate, and inflation with GDP at -0.38, -0.58, -0.16, -0.99, 0.21, and -0.15.

Time Series Graph

A time series graph is a line graph that shows data such as measurements, sales, or frequencies over a given period. They can be used to show a pattern or trend in the data and are useful for making predictions such as weather forecasting or financial growth.

This section is explained in the below figure.

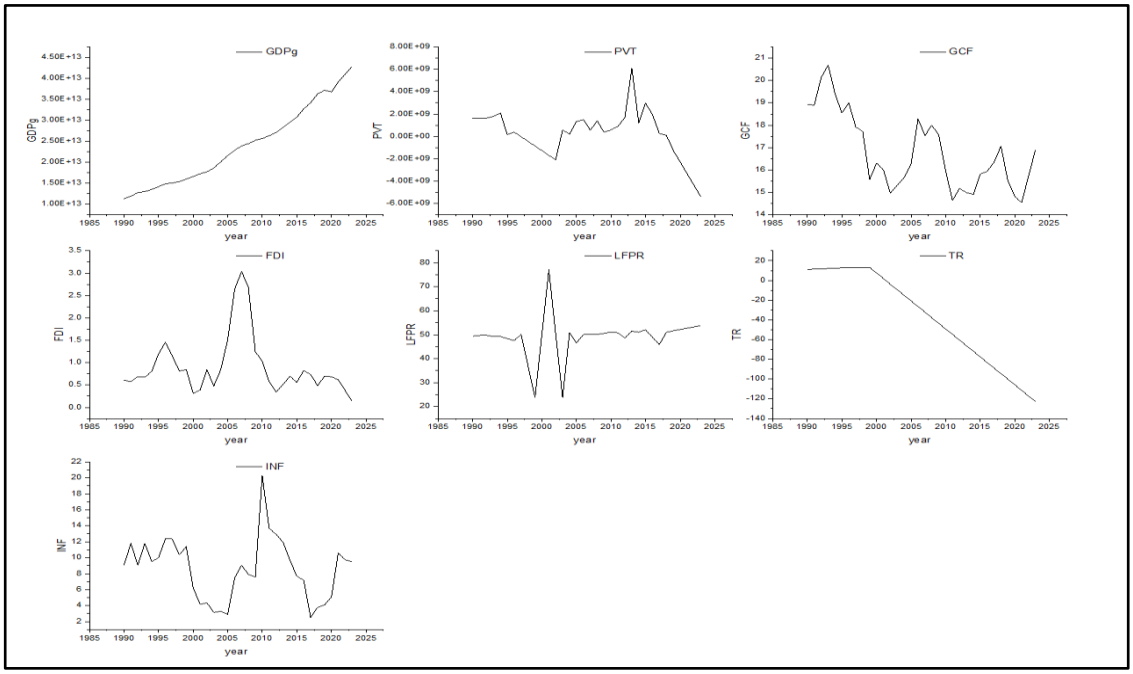

Figure 1: Time Series Graph of all the Variables

3D Bars for All Variables

This section explains the 3D bars for all variables used in model estimation shown in Figure 3. The x-axis and y-axis shows all input variables such as PVT (Privatization), GCF (Gross Capital Formation), FDI (foreign direct investment), LFPR (labor force participation rate), TR (total reserves), and INF (inflation rate), and z-axis shows the outcome variables that is GDP growth.

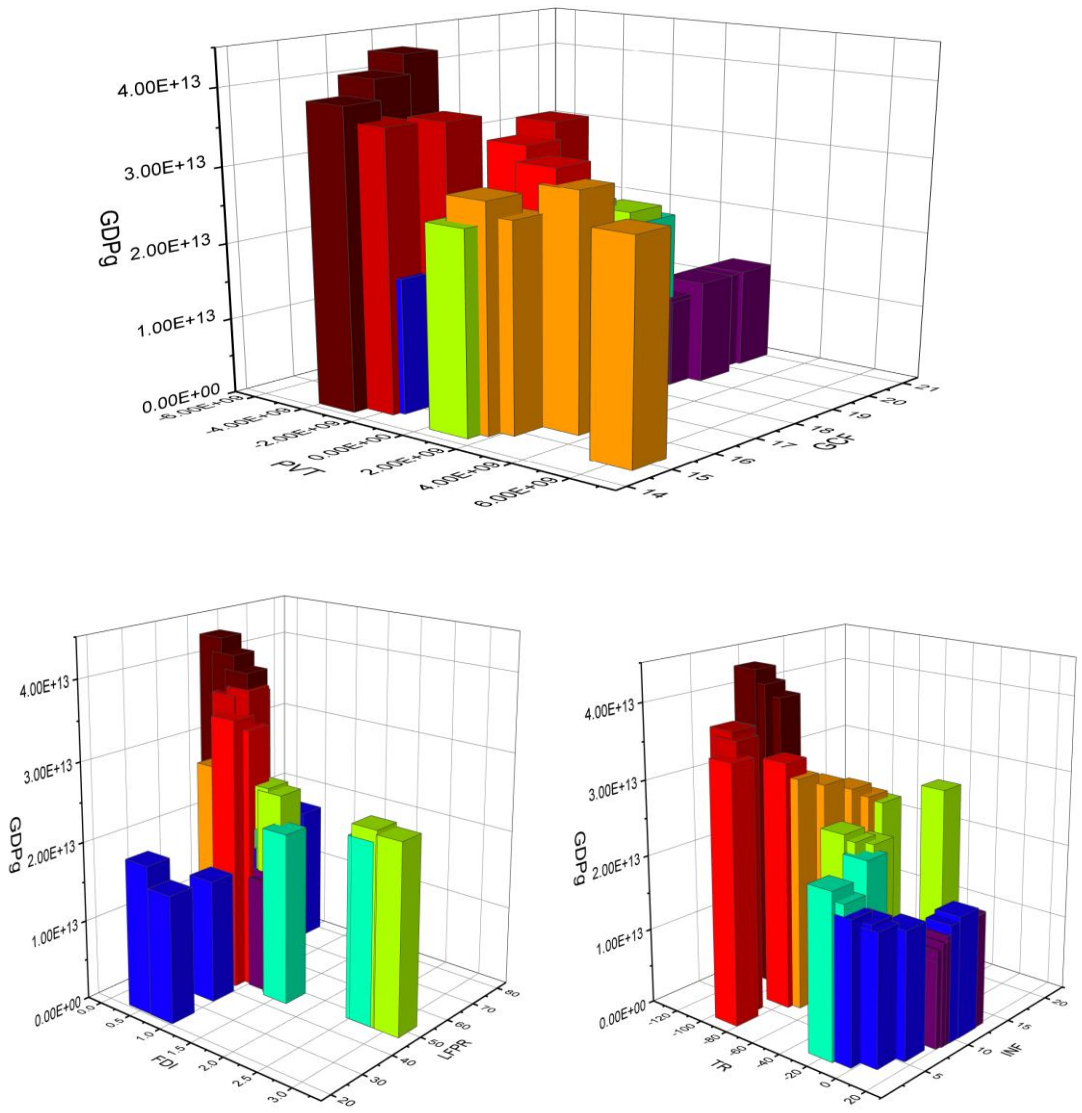

Figure 2: 3D bars for all variables

Empirical Analysis

At this study stage, we will specify the privatization of public enterprises and its impact on economic development. Empirical analysis of the data provides the relationship between dependent and independent variables.

ADF Test for Unit Root Stationarity

The initial stage of econometric analysis involves verifying data stationarity on chosen variables. To accomplish this, the Augmented Dickey-Fuller (ADF) test is employed for assessing stationarity. ADF test is the advanced and extended form of the Dickey-Fuller (DF) test.

Table 4
ADF Test with level and 1st Difference

Variables	Level		1ST Differences		Conclusion
	Intercept	Trend and intercept	Intercept	Trend and intercept	
GDP g	3.50 (1.00)	-0.28 (0.98)	-3.67 (0.00)	-4.89 (0.00)	I(1)
PRIV	-1.28 (0.62)	-0.45 (0.98)	-8.16 (0.00)	-8.32 (0.00)	I(1)
GCF	-1.90 (0.32)	-1.94 (0.60)	-4.98 (0.00)	-4.97 (0.00)	I(1)
FDI	-2.89 0.05	-2.95 0.15	-3.76 0.00	-3.76 0.03	I(1)
LFPR	-7.07 0.00	-7.65 0.00	-3.37 0.02	-3.33 0.08	I(0)
TR	0.02 0.95	-5.07 0.00	-1.65 0.44	-1.61 0.76	I(0)
INF	-2.65 0.09	-2.63 0.26	-7.14 0.00	-7.05 0.00	I(1)

The interpretation of the p-value in the context of an Augmented Dickey-Fuller (ADF) test, which is used to test for stationarity in a time series, follows the general rules of hypothesis testing, H0: The series has a unit root (i.e., non-stationary) and (H1): The series does not have a unit root (i.e., it is stationary). After applying the ADF test to the data of some selected variables, it is concluded that some variables are stationary at a level while others are at 1st difference. So, we shall apply the Auto Regressive Distributed Lag (ARDL) technique to determine the short-run and long-run relationship between dependent and independent variables.

Long Run Estimation

The long-run estimation of the specified model is explained in the following table and calculated using ARDL format.

Table 5
Long Run Analysis through ARDL Procedure

Variable	Coefficient	Std.Error	t-statistic	Prob*
PVT	-146.64	65.59	-2.23	0.03
GCF	1.45	9.73	1.49	0.15
FDI	1.11	1.46	0.76	0.45
LEPR	-2.68	1.40	-1.91	0.06
TR	-7.28	2.74	-2.65	0.01
INF	-1.62	2.35	-0.00	0.99
C	1.10	3.24	3.14	0.00

The above table illustrates the extended run analysis outcome by applying the technique ARDL (autoregressive distributive lag). GDPg is the dependent variable in the model. As the long-run estimation in the above table shows, privatization, which is peroxide by privatization revenue as a percentage of GDP, hurts economic growth and is statistically significant. The coefficient of privatization is -146.64, which means that a one percent increase in privatization leads to a decrease in the GDP of about -146.64 percent. The coefficient of gross capital formation has a positive value of 1.45, which indicates that a one-percent increase in gross capital formation leads to a one-percent increase in GDP. The value of gross capital formation is insignificant in this study. The coefficient of foreign direct investment has a positive value of 1.11, which indicates that a one percent increase in foreign direct investment leads to a 1.11 percent increase in GDP. The value of FDI is insignificant in this study. The labor force participation rate coefficient is -2.68, and the probability value is 0.0695, which indicates that the adverse relation with the gross domestic product (GDP) is insignificant. The results suggest that a one-percent increase in the labor force participation rate will cause a -2.68 percent decrease in GDP. The coefficient values of total reserves and inflation are -7.28 and -1.62. The probability value of total reserves is 0.01, which is significant, and the probability value of inflation is 0.99, which is

insignificant because it is greater than 5 percent. The results indicate that a one-percent increase in total reserves will cause a -7.28 percent decrease in GDP, while a one-percent increase in inflation will cause a -7.28 percent decrease in GDP.

Table 6
Short Run Analysis through ARDL Procedure

Variables	coefficient	Std.Error	t-statistic	Prob
d(GCF)	1.45	7.19	0.00	0.00
d(GCF(-1))	2.79	7.47	0.00	0.00
d(LFPR(-1))	1.67	6.32	0.00	0.00
CointEq (-1)*	-0.36	0.02	-15.94	0.00

Calculations are made by author using the software E-views

Above Table illustrates the outcomes of short-run analysis by applying the technique ARDL (auto-regressive distributed lag). The results of the short-run analysis express the relationship between economic development and privatization. In the outcome of the short-run analysis, the cointegration value is -0.36, and the probability value is 0.00, which is significant.36% of dis-equilibrium adjusted towards long-run equilibrium each year. However, the analysis of the short run of a few variables is significant, and few are insignificant to GDP. This means that these variables do not influence economic development.

Conclusion

This study investigates the relationship between the privatization of public enterprises and economic development in Pakistan, using time-series data from 1990 to 2025. The analysis focuses on how privatization influences the country's economic growth, with GDP as the dependent variable. Independent variables include privatization, gross capital formation, foreign direct investment (FDI), labor force participation rate, total reserves, and inflation, selected for their significant roles in shaping economic outcomes in Pakistan. The Augmented Dickey-Fuller (ADF) test measured data stationarity, revealing that some variables are stationary at level I(0), while others are stationary at first difference I(1). The Autoregressive Distributed Lag (ARDL) technique analyzed both short-run and long-run relationships between the dependent and independent variables, with computations performed using EViews software.

The study's results indicate that privatization, labor force participation rate, total reserves, and inflation negatively impact GDP. Conversely, gross capital formation and FDI positively affect GDP, reflecting irregular patterns of economic growth. The findings suggest that privatization minimally promotes financial growth in Pakistan, consistent with previous research indicating its minor role in less developed countries' economies. Moreover, the study highlights the potential adverse effects of privatizing essential sectors such as healthcare, education, and utilities. Privatization in these areas can lead to unequal access to critical services, reducing social welfare and negatively impacting GDP. These insights underscore the complexities of privatization policies and their implications for sustainable economic development in Pakistan. Through this comprehensive analysis, the research provides valuable perspectives for policymakers. It emphasizes the need for a balanced approach to privatization, considering its limited effectiveness in driving economic growth and potential social welfare consequences.

Policy Implications

Privatization is a crucial factor in developing countries like Pakistan, serving as a vital tool for enhancing state revenue. While the government has devised numerous policies, their practical implementation remains a challenge. Additionally, recent studies suggest that further policies are necessary to maximize the benefits of privatization. Establishing strong

regulatory frameworks is essential; developing robust regulatory agencies to oversee privatized sectors will ensure they meet performance and service quality standards without compromising public welfare. This approach will help maintain accountability, protect consumer interests, and enhance the overall effectiveness of privatization efforts.

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