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The Regulatory Quality and Economic Growth: An Empirical Analysis for Pakistan

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Abstract
The study investigates the long run impact of regulatory quality, foreign direct investment (FDI), gross fixed capital formation (GFC) and trade openness on GDP per capita through the autoregressive distributed lag (ARDL) bounds testing approach. The empirical results show that regulatory quality and FDI positively and significantly affect GDP per capita in the long run. FDI has the highest positive correlation with 0.54, followed by regulatory quality (0.32) and trade openness (0.25). There is a positive but not statistically significant relationship, however, between gross fixed capital formation and GDP per capita. The results emphasize the value of institutional quality, foreign investment and international trade for the economic growth. Three recommendations are made for sustainable economic development: strengthening regulatory institutions, productive foreign investment and improving trade competitiveness.

Keywords: Regulatory Quality, Economic Growth, Gross Fixed Capital Formation (GFC), Foreign Investment

1. Introduction

One of the main goals of economic policy is economic growth, especially in the developing world, where it is important to raise the living standards, increase productive capacity and sustain the development. GDP per capita is a widely adopted indicator of economic performance as it indicates economic output per capita. The improvement of GDP per capita, however, requires some economic and institutional conditions such as external investment, capital accumulation, and international trade, in addition to good governance. However, some of these have attracted considerable attention, such as the quality of regulation, which helps to provide a good regulatory climate for the growth of the private sector, investment, and efficient use of economic resources. Clear and specific regulation can help to alleviate business uncertainty, foster entrepreneurship, and boost the investor's confidence. Regulatory quality (RQ) is defined as the

capacity of governments to create and execute good policies and regulations for the development of the private sector. A well-functioning regulatory framework is conducive to business, as it cuts down on needless administrative obstacles, enhances market competition, and fosters a secure investment climate. Inadequate regulation on the other hand could deter investment, raise transaction costs, and limit economic activities. Consequently, a better-regulatory system is regarded as one of the key institutional conditions for fostering long-term economic growth.

Foreign direct investment (FDI) is also a significant factor for economic development. Its role is to facilitate capital flows, bring in technology transfer, create employment, and provide managerial skills and knowledge which results in economic growth. FDI can have positive effects on developing countries, enhancing the production capacity and facilitating market access to foreign markets. The same applies to gross fixed capital formation (GFC), which has a major impact on increasing productive infrastructure, machinery, equipment and physical assets. Increased capital accumulation increases the efficient use of resources and helps to sustain economic growth over time. Through its role in promoting economic trade, competition, technological diffusion and resource allocation, openness to trade (TOP) also helps to enhance economic performance. The opportunities for domestic industries to expand their production and increase their competitiveness may come from greater integration with international markets.

While previous studies have extensively covered how economic growth is related to its traditional determinants, there is still need for empirical research on the interaction of economic factors with institutional quality. In particular, the impact of the quality of regulation on foreign investment, domestic capital formation, and trade integration are important for the design of suitable economic policies. In light of the above, the present study examines the long-run relationship between GDP per capita, regulatory quality, foreign direct investment flows, gross fixed capital formation and trade openness employing the bounds testing approach of autoregressive distributed lag (ARDL). The objective of the study is to offer empirical evidence of the role of institutional quality and economic factors in long-term economic performance. The results it is expected to deliver will provide relevant policy lessons in the areas of enhancing regulatory institutions, foreign investment, capital accumulation and trade, and thus trade-induced economic growth.

2. Literature Review

In the recent empirical literature, there has been a great deal of attention paid to the relationship between institutional quality and economic growth. The regulatory quality is a key factor in the improvement of the business environment, in minimizing the uncertainty of regulation and stimulating private sector investment in economic development. Institutional quality and financial development in developing and emerging economies analysed by Khan et al. (2020). They found that regulatory quality, political stability and control of corruption are positively correlated with financial development. Likewise, Saha et al. (2022) examined 28 lower-middle income countries and concluded that regulatory quality and control of corruption have a positive impact on FDIs. Lopes et al. (2023) also found that there is a positive relationship between regulatory quality and economic growth, especially for emerging and developed countries. In addition, Shen et al. (2023) found that the regulatory quality positively influences sustainable economic growth by promoting both technologically innovative and financial development. The other important factor that influences economic growth is foreign direct investment which enables capital accumulation, technological development, job creation and knowledge transfer. Sahu (2021) studied 45 developing countries and explored the impact of FDI on the growth of

GDP per capita and revealed the significance of FDI in the long run economic performance. Based on the study by Chen and Jiang (2023), the research indicates that institutional quality has a positive impact on the flows of foreign direct investment, which is mediated by trade openness, technological innovation and industrial restructuring. In an empirical study of 102 developing countries, Ochi (2023) found that the positive impact of FDI on economic growth relies on the quality of governance at a certain threshold level. Likewise, the study by Husnain et al., (2023) South Asian economies, applied Panel ARDL methodology has shown positive long run, and short run impacts of institutional quality, FDI and domestic investments on economic growth. Similarly, the levels of economic growth showed that the role of FDI to GDP per capita would differ, as shown by Asafo-Adjei et al. (2023).

Gross fixed capital formation is well known as a key contributor of productive capacity and economic growth. Sijabat (2022) in their study on the effect of FDI on GDP in Indonesia found a positive causal relationship between FDI and GDP and confirmed the significance of investment in economic development. To examine the long-run relationship between capital, FDI, trade openness and economic growth in 62 countries, Radmehr et al., (2022) found a positive relationship between these variables. Likewise, Usmana (2023) investigated into trade and financial openness of China and found that economic integration with the outside world remains critical for economic performance. Trade openness helps to spur economic growth by expanding exports, through competition from abroad, technology transfer, and the efficient allocation of resources. Fatima et al. (2020) investigated the relationship between trade openness and GDP growth and emphasized the role of human capital in growth impacts of trade openness. In Africa, Akadiri et al. (2020) found a long-run relationship between FDI, trade openness, and economic growth and a bi-directional relationship between FDI and economic growth. In terms of the ARDL approach, Kong et al. (2021) had identified that trade openness has a positive relationship with economic growth in the short and long run for China. Similarly, Hao (2023) highlighted the dynamic relationship between trade openness, FDI, capital formation, and industrial economic growth. Overall, although these contributions are important, the long-run relationship between regulatory quality and FDI, gross fixed capital formation, trade openness and GDP per capita is one of the aspects that needs further research. Based on this, the present work tests these relationships and offers further empirical evidence on the impact of institutional and macroeconomic factors on long-term economic performance using the ARDL bounds test approach.

3. Data and Methodology

The data for the present study are from annual time series from 2001 to 2022 and sourced from World Development Indicators (WDI) database for Pakistan. There are 5 variables included in the empirical model with GDP per capita growth (in percentage per annum) as the dependent variable. The explanatory variables are regulatory quality (RQ) (0-100), higher scores indicate better institutional performance and effective public governance, foreign direct investment (FDI), growth rate of gross fixed capital formation (GFCF) and trade openness (TOP) (total exports + total imports / GDP). These variables are further included in the empirical framework and were analyzed in order to comprehend the contribution of these variables in economic development of Pakistan.

Table.1 Source and Data Description.

Variables	Unit of Measurement	Source
GDP	Annual % growth	WDI
RQ	Scaled from 0 to 100	WDI
FDI	Net inflows as % of GDP	WDI

GFC	Annual % growth	WDI
TOP	% of trade share in GDP	WDI

Notes: GDP=GDP per capita, RQ= Regulatory Quality, FDI=Foreign direct investment flow, GFC=Gross fixed capital formation, TOP= Trade openness.

The models 2 is applied for running the regression.

$$GDP = f(RQ, FDI, GFC, TOP) \quad (1)$$

$$GDP = \alpha_0 + \alpha_1 RQ + \alpha_2 FDI + \alpha_3 GFC + \alpha_4 TOP + \varepsilon_t \quad (2)$$

The stationary values of variables are presented in table 2.

Table 2: The Findings of ADF Test

`Variables	Parameters	ADF Calculated	At 5%	Trend/ Intercept	Conclusions
GDP	-0.31	-3.12	-2.17	Intercept	I(1)
RQ	-0.27	-3.48	-2.64	Intercept	I(0)
FDI	-0.39	-4.19	-3.69	Intercept	I(0)
GFC	-0.52	-5.21	-4.25	Trend	I(1)
TOP	-0.48	-4.46	-2.45	Intercept	I(0)

Note: The Results of the Table 2 are based on author's self-calculations

The ARDL approach is particularly well suited for empirical examination of small samples and variables of various orders of integration (I(0) and I(1)) which do not have an order of I (2). Moreover, the ARDL bounds testing approach provides a sound approach to analyses the presence of long-run relationships between variables. One big advantage of this approach is the estimation of both short-term adjustments as well as long-term equilibrium associations in the same econometric model.

4. Results and Discussion

The long-run ARDL estimates provide evidence of positive relationships between regulatory quality, foreign direct investment (FDI), gross fixed capital formation (GFC), trade openness (TOP) and GDP per capita. Their size, however, varies by explanatory variable and the statistical significance also varies. The coefficient between regulatory quality and other factors is positive and the value is 0.32, t-ratio is 2.13 and the standard error is 0.15. This means that regulatory reform has a positive impact on long-term economic performance. Effective regulations, transparent government policies and stable business environment can stimulate private sector activities and enhance resource allocation. The invention is a reminder of the critical role that institutional development plays in ensuring sustainable economic growth. Likewise, FDI shows positive and statistically significant effect on GDP per capita. Coefficient of FDI is 0.54 and t-ratio is 4.15 respectively. The FDI is the one variable that has the highest estimated coefficient in the explanatory variables, implying that it plays a significant role in the long-run economic performance. Foreign investment can boost growth through foreign capital inflows, transfer of technology, job creation and managerial improvements. This finding highlights the need to create investment policies and institutional stability to bring in foreign investments. The coefficient for gross fixed capital formation is also positive (0.32), indicating that building of capital facilitates economic growth. At conventional significance levels, however, this relationship isn't statistically significant (t = 1.23). This implies that while investing in physical assets is important for promoting economic growth, this might not be enough unless resources are freed up in an efficient way and invested in productive industries. Moreover, the coefficient of trade openness is positive and statistically significant with t-ratio of 2.78. The result suggests that increased integration into the international markets is beneficial for long term economic

growth via export potential, competition and technological diffusion. Both the constant term and the time trend (0.098) are statistically significant, and the time trend is positive. In summary, the results reveal that FDI, regulatory quality, and trade openness are significant predictors of GDP per capita in the long run. Political and institutional measures, therefore, should remain key economic policy priorities for strengthening institutional arrangements, promoting foreign investment and enhancing international trade competitiveness.

Table 3: Long- Run Results of ARDL bounding testing. Dependent variable is GDP

Explanatory Variables	Coefficients	Standard Error Coefficients	T-Ratio
RQ	0.32	0.15	2.13
FDI	0.54	0.13	4.15
GFC	0.32	0.26	1.23
TOP	0.25	0.09	2.78
Constant	4.28	1.36	3.15
Trend	0.098	0.088	1.11

Notes: GDP=GDP per capita, RQ= Regulatory Quality, FDI=Foreign direct investment flow, GFC=Gross fixed capital formation, TOP= Trade openness.

5. Conclusion and Policy Implication

The long-run relationship between GDP per capita, regulatory quality, foreign direct investment (FDI), gross fixed capital formation (GFC) and trade openness (TOP) is examined in the present study and ARDL bounds testing approach is adopted. The empirical results confirm that the regulatory quality, FDI and trade openness are significant and positively correlated with GDP per capita in long run. The most significant positive relationship was found with FDI, with a coefficient of 0.54, which is an important indicator of the role of FDI in the economic performance of Pakistan due to its contribution of capital inflows, technological development, employment generation and knowledge transfer. The quality of regulations is also a positive determinant of economic growth, indicating that good regulation, institutional strength, and a good business environment are important to enhancing economic performance. Likewise, trade openness has a positive effect on GDP per capita, underscoring the positive effects of international market integration, export growth and competition. While gross fixed capital formation does have a positive coefficient, its effect is not statistically significant which means that capital accumulation itself might not yield significant economic growth. In addition, there is no statistically significant time trend. Governments should focus from a policy viewpoint on enhancing the quality of the regulatory framework, for example by increasing the transparency of the institutions, reducing bureaucracy, ensuring policy coherence and improving the performance of regulatory institutions. More efforts need to be directed at attracting productive FDI through the policy, infrastructure building, protection of investments, and stability of the regulatory framework.

Policymakers must also encourage trade openness through the elimination of unnecessary trade barriers, expanding export markets, enhancing product quality, and making international trade more competitive. In the case of gross fixed capital formation, the approach to investment policy should not be at the level of an investment spending increase, but must be directed to productive sectors, modern infrastructure, technological innovation and the effective use of financial resources. The effectiveness of capital allocation can also be enhanced through public-private partnerships. In general, the results indicate that sustainable GDP per capita growth needs a unified economic strategy that involves three key elements: institutional changes, foreign

investor promotion, international trade integration and productive accumulation of capital. This can contribute to the enhancement of economic productivity and the economic development.

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