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Analyzing the Impact of Government Expenditure, Institutional Factors, Foreign Direct Investment, Public Investment, and Technological Innovations on Human Development Index in Pakistan and China

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Abstract
The prime objective of this study is to inspect the Impact of Government Expenditure (GE), Institutional Factors (IF), Foreign Direct Investment (FDI), Public Investment (PI), and Technological Innovations (TI) on Human Development Index (HDI) in Pakistan and China during the period from 1997 to 2017. The study broadly analyses and join in both theoretical and empirical literature pertaining to this subject. It commences by providing an overview of Impact of Government Expenditure (GE), Institutional Factors (IF), Foreign Direct Investment (FDI), Public Investment (PI), and Technological Innovations (TI) on Human Development Index (HDI) in Pakistan and China. Afterward, it categorizes current literature based on theoretical and empirical insights found in available works. Furthermore, the paper puts light on theoretical approaches that explain how it works. To conclude, the article recommends three auspicious proportions for future research in this area. By judgmentally investigating and creating prevailing theories and research, this study plays its role while understanding of the connection Between Government Expenditure (GE), Institutional Factors (IF), Foreign Direct Investment (FDI), Public Investment (PI), and Technological Innovations (TI) on Human Development Index (HDI) in Pakistan and China.
Keywords: Government Expenditure (GE), Institutional Factors (IF), Foreign Direct Investment (FDI), Public Investment (PI), and Technological Innovations (TI), Human Development Index (HDI)

1. Introduction

It is broadly said that a country's financial situation in a specific time to a Great extent by its political, institutional and lawful environment. We mention these institutions and rules as the domination structure of a country. The domination Structure of a country supports to explain its savings environment, and thus produces Satisfactory situations for economic evolution current experiential suggestion contribute to approve the premise that cross-country alterations in development and production are associated to changes in governance structure (Huang et al., 2024; Sadia Bint Raza et al., 2024; Parveen et al., 2024). Because the investment environment of a country disturbs both domestic and foreign investors, and because foreign direct investment (FDI) has been revealed to encourage host country productivity, is a natural allowance of the literature to deliberate the effect of governance structure on cross-country alterations in FDI flux (Amin et al., 2024; Rabbia Syed, Sehrish Arshad, 2024; Zubair et al., 2024; Ali, 2022).

Technological innovation has had a significant part in supportive economic growth, producing new job openings, and enhancing social well-being, and also technological innovation has been of concentration to many researchers and policy makers for long ages. Remarkably, innovation produces chances in developed countries as well as in less developed countries (Song et al., 2024; Shen et al., 2024; Abro et al., 2024; Ali, 2022). Therefore, the formation of innovative technologies and thoughts shaped by people is essential to development in all areas and features of human life. Subsequently, human resources are accountable for innovation, and it disturbs it significantly in countries with inadequate natural resources, or rich countries. The essential thing here is how to achieve and develop human capital (Minhas et al., 2024; Maqsood1 et al., 2023; Ali, 2022; Ali & Bibi, 2017). Although most people trusting that natural resources are the core source of income for any country, there are many countries that do not hold many natural resources but have high economic growth and economic growth in all fields; this is due to the attention in human capital in relations of education and training. Hereafter, human capital means to the knowledge and services owned by manpower that offers probable or real economic value (Shahid, 2024; Nazik Maqsood, 2024; Saeed et al., 2024; Ali & Audi, 2018; Ali & Rehman, 2015).

In the framework of developing economies, the existing digital change in these economies offers both chances and challenges to placed them on the track of supportable and comprehensive economic growth In the framework comprehensive economic development (Ahmad Shahid et al., 2023; Irfan et al., 2023). In an existing universal study on 122 economies for the period from 2000 to 2019 (Tanveer Ahmad Shahid, 2023), initiate that the ICT uprising has produced in higher economic growth and lower instability in development. Thus, understanding the possible profits of ICT is central for achieving the Sustainable Development Goals (SDGs), but dependent upon the existence of numerous macroeconomic factors like ICT infrastructure, human capital, financial development, R&D expenditures, and governance quality of the countries (Arshad et al., 2024). Alterations in macro-economic factors lead to variances in ICT-centric productivity and growth rates across diverse countries Differences in macro-economic factors lead to differences in ICT-centric productivity and growth rates across different countries (T. A. Shahid et al., 2023; Rahman & Bakar, 2019; Ahman et al., 2023; Arshad & Ali, 2016; Audi et al., 2021; Audi et al., 2023).

Additional important feature of economic growth is the government institutional quality of country (A. U. Shahid et al., 2022; Ur Rahman & Bakar, 2018; Zulfiqar et al., 2022) With cumulative digitalization, cyber security is seeming as an important alarm for the governments, to defense the security and privacy of the emerging economies (Chaudhary et al., 2023). While ICT upsurges government institutional efficacy by growing transparency (Ur Rahman & Bakar, 2019) the governance excellence also plays a vital role in confirming cyber security and the effectiveness of ICT on economic growth (Dawood et al., 2023). However, the curbing effects of the above macroeconomic factors on ICT effectiveness have not established as much consideration from researchers, as the direct effects of ICT. By assessing both the direct and indirect effects of ICT on economic growth for the emerging economies, we attempt to fill this research gap.

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Such analysis is especially relevant for the emerging economies since they are struggling to sustain their surging growth rates in the face of worldwide rapid digital revolution (Zhao et al., 2023; Li et al., 2022; Shahzadi et al., 2023; Roussel et al., 2021; Sajid & Ali, 2018). The analysis contributes to the already burgeoning ICT-growth literature by incorporating the moderating role of institutional quality along with the roles of other macroeconomic parameters like R&D expenditure, financial development and FDI. Unlike the earlier studies that only accounted for the individual effects of the above-mentioned macroeconomic variables, this study makes a novel contribution by incorporating the direct as well as moderating roles of institutional quality, financial development, R&D expenditure and FDI in the ICT–economic growth relationship (Rahman et al., 2022).

1.1. Problem Statement

The inspection of the impact of government consumption, institutional variables, unfamiliar direct speculation (FDI), public venture, and mechanical advancements on the Human Development Index (HDI) in Pakistan and China talks about a critical understanding the fundamentals of financial progress in these countries. Past investigation has emphasized the meaning of government spending and institutional quality in driving human turn of events (Zahra et al., 2023). Nevertheless, the transaction between these factors, close by FDI, public speculation, and mechanical progressions, remains discreetly underexplored inside the setting of HDI in both Pakistan and China.

In Pakistan and China, where rapid financial development accords with financial distinctions, accepting the disconcerting construction between government consumption, institutional structures, FDI, public speculation, mechanical advancements, and HDI is basic (Ullah et al., 2023). While current writing affects progress results, limited examinations have widely broken down how these factors impacting HDI. Besides, as the two nations seek after aggressive advancement plans, including the China-Pakistan Financial Passage (CPEC), understanding the all-encompassing effect of these variables on human development turns out to be much really enfolding (Awan et al., 2023). Afterward, this analysis tries to overwhelmed this issue by giving a nuanced examination of the combined effects of government strategies, institutional quality, speculation inflows, and mechanical advancement on HDI results in Pakistan and China.

1.2. Research Questions

- Is there any linkage between Foreign Direct Investment (FDI), Public Investment (PI) and Human Development Index (HDI) in Pakistan and China?
- How Technological Innovation (TI) Effects on Human Development Index (HDI) in Pakistan and China?
- What kind of Relationship is between Institutional Factors (IF) and Government Expenditures (GE) on Human Development Index in Pakistan and China?

1.3. Research Objective

- To Explore the Link between Foreign Direct Investment (FDI), Public Investment (PI) and Human Development Index (HDI) in Pakistan and China

- To Examine the Relationship Among Technological Innovation (TI) and Human Development Index (HDI) in Pakistan and China
- To Explore the Link between Institutional Factors (IF) and Government Expenditures (GE) on Human Development Index in Pakistan and China

2. Literature Review

While setting up the relationship between foreign direct investment and technological innovation and understanding their impact on economic growth, it is essential to consider the results that are most related to the perception of foreign direct investment, long-term economic growth, and technological innovation. The economic writings define a variation of channels whereby the FDI creates economic growth. Neoclassical growth theory proposes that foreign investment increases the prosperity in host nations through multinational companies. This will let quicker growth than would have been likely due to including on domestic savings. According to the perspective of the theory of endogenous expansion, technological innovation increases economic growth by producing outwards that pay compensation for diminishing returns on capital. The universal understanding of MNEs is dual: first, they play a prevailing position in search and development operations and in the generation of developing innovations, and they have a solid effect on local economies. As a result, their activities have inspired an extensive conversation, making the issue of the domestic implications of their activities one of the most common questions elevated by field researchers, just like (Qureshi et al., 2022).

In this era of digitalization, investment in ICT plays a significant role for economic growth. ICT's emerging significance in daily life has gathered a portion of interest from researchers to inspect the effect of digitalization on economic growth. Numerous studies have revealed a significantly positive effect of ICT on growth, specifying that the developments in telecommunication infrastructure are vital for attaining economic (Javaid et al., 2023). Furthermore, investment in the ICT sector had been found to improve the efficiency and effectiveness of the operationalization of businesses in the developing economies. A latest study by (Saif Ur Rahman, Salyha Zulfiqar Ali Shah) using the dataset for the SAARC2 countries over the period from 1990 to 2014, found that ICT has a statistically significant and positive impact on the economic growth of these countries. Though, some readings have found that while ICT significantly contributes towards the growth of the developing, developed, and emerging economies, the developing countries are less profited from investments in ICT as paralleled to the developed and emerging countries (Khawaja Hisham Ul Hassan, 2021). The study discovers out whether foreign direct investment affects economic growth in the Gulf Cooperation Council (GCC) during the period 1980–2014using the ARDL methodology and determined that foreign direct investment is one of the main locomotives of economic growth in Iran and the GCC countries. The border test result also indicated a stable long-term relationship between foreign direct investment and gross domestic product (GDP) in Iran and for each country in the Gulf Cooperation Council. The Findings of the Granger causality test also shown a two-way causal relationship from foreign direct investment to real GDP growth in Qatar, Saudi Arabia, and the United Arab Emirates, and a one-way causal relationship from foreign direct investment to the rate

of real GDP in Kuwait and Oman. The study by (Bakar, 2019) found a negative relationship between foreign direct investment (FDI) and economic growth. This study inspected that relationship in the Somali economy by using detailed sectoral data of foreign direct investment flows to Somalia during the period 1980–2015 using multiple regression to measure the relationship between the independent variable (FDI) and dependent variable (macroeconomic indicators). The study by (Hafiza et al., 2022) directed to confirm the relationship between foreign direct investment and GDP in Turkey during the tenure 2002–2014 by means of the unit root test and the Johansen method of co integration, the study determined that there is no long-term relationship between these variables (Shahzadi, Ali, et al., 2023).
A few of cross-country studies have acknowledged that economic growth is positively motivated by FDI, as it enables the host country to participate into international trade via technological spill over. Utilization of human capital and development of new enterprises. Additionally, few studies have determined that investments in ICT infrastructure help in inducing FDI inflows into several sectors, specifically into the telecommunication and financial sectors, by providing larger market access through reduced managerial risk, and concentrated production and transaction cost (Naz et al., 2022) observed how the effect of FDI on economic growth is modulated by ICT for 25 SSA4 nations from 1980 to 2014, using GMM estimators. They detected that within a certain threshold level, ICT significantly modulates the inflow of FDI, thereby inducing a positive effect on the economy, elsewhere which ICT reveals a negative impact. A new study by (T. A. Shahid, 2024) found a positive impact of ICT on FDI inflows. There are studies of technological innovation with relationship to economic growth. In the globalization of the global economy, technological differences explain the motive for the variance in economic growth and income discrimination between countries. The aim of science and technology is to empower companies and individuals to use more effective technologies because this leads to lower costs and increased productivity (Abro et al., 2024).

3. Research Methodology

The critical review includes literature published from 1997 to 2017. To recognize the most relevant HDI papers, a detailed search was conducted, assessing papers from economics journals listed in Clarivate Analytics comprehensive databases, Google Scholar, and an extensive cross-disciplinary bibliography on HDI from numerous journals. The author founds literature selection principles founded on precise features, exclusive of papers not addressing HDI and those that are not empirical or conceptual (such as books, commentaries, conference summaries, abstracts, keywords, executive abstracts, editorials, literature reviews, and newspaper/magazine articles). In total, after excluding replicas, the author classifies almost 60 articles. Each paper's significance is e by examining its abstract, title, and methodology where applicable.

4. Conclusion

Resulting the critical review of the collected works, it is established that mutually positive and negative effects of Human Development Index (HDI) are obvious when likened to the total value of HDI. The existence of distinct conclusions is fascinating as it talks about a gap in the previous studies. The effect of FDI on HDI remains a subject of continuing discussion, with frequent studies examining the effect of foreign investment on whole economic performance. Several studies suggest a significant and positive impact, while many detect a negative and substantial influence on economic growth, reliant on on the specific economic, financial, and technological conditions of the host countries. This study purposes to contribute to the current knowledge regarding Government Expenditure (GE), Institutional Factors (IF), Foreign Direct Investment (FDI), Public Investment (PI), and Technological Innovations (TI), specifically examining the impact of Foreign Direct Investment (FDI), Public Investment (PI), and Technological Innovations (TI) on Human Development Index (HDI). The research efforts to bring into line literature perceptions with relevant contributions to the topic, recognizing that variable analysis is not broadly established in this study. The main goal is to present a clear and complete outline of previous studies on HDI, joining appropriate approaches and practices.

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