ASSESSING THE CONTRIBUTION OF PHYSICAL AND FINANCIAL INFRASTRUCTURE TO INCLUSIVE DEVELOPMENT IN PAKISTAN

Zakia Batool
Assistant Professor, National University of Modern Languages (NUML), Islamabad, Pakistan.
zbatool@numl.edu.pk

Muhammad Haroon
Lecturer, National University of Modern Languages (NUML), Islamabad, Pakistan.
mhharoon@numl.edu.pk

Muhammad Sohail
Lecturer, Bacha Khan University Charsadda (BKUC) Khyber Pakhtunkhwa
msohail@bkuc.edu.pk

ABSTRACT
The growing income inequalities along with lack of access to education and health in developing economies have resulted in economic and social restlessness which eventually shifted the attention of policymakers from growth objectives to inclusive economic development. This study constructs an index for inclusive development using UNDP’s (2011) human development index approach. Furthermore, this study analyzes the role of the financial and physical infrastructure to fight against disparities in income distribution and providing access to education and health thereby enabling the economy to move along the road that leads to inclusive development. The findings of this paper imply that physical infrastructure and financial development positively affect inclusive development. Thus, there is a need to promote investment in financial services and physical infrastructure to foster inclusive economic development.

Keywords: Physical Infrastructure, Financial Issue, Inclusive development, Pakistan.

INTRODUCTION
The growing income inequalities along with lack of access to education and health in developing economies have resulted in economic and social restlessness. Such erratic economic and social conditions lead to exclusive development which fails to take all the individuals on the same course of development. One of the main sources of exclusive development around the globe is the capitalist approach to development that allows individuals to own property and the means of production. The capitalist-based economic system encompasses a structure that fosters a few individuals to gain control over the maximum wealth while the masses are left to struggle with covering their living expenses (Tchamyou 2017). According to the report by Oxfam2, income inequality and poverty are increasing globally and lack of food availability and health care facilities has influenced the death rate positively which is 21,000 people per day. The emergence of Covid-19 has further added to the economic agitations in the economies having weak physical and financial infrastructure. The death rate due to Covid-19 is double in developing countries compared to rich countries thus the problem of income inequality has been further aggravated.

The rising trend in income disparities across the world has caught the attention of many policymakers to seek a solution that could address issues such as poverty and income inequality while maintaining stable economic growth simultaneously. The notion of inclusive growth and development has emerged as a new dimension of development that mainly emphasizes the needs of marginalized groups of the economy and highlights the factors that discourage the participation of the poorest sections (Van Gent 2017). According to Gumede (2018), inclusive development brings social and economic inclusion. Inclusive development focuses on upgrading the living standard of everyone in the economy.

1 Corresponding Author
2 Oxfam report published on 17 January 2022
with reduced inequality. It is a broad concept that defines a pace and pattern of growth that allows an even opportunity for all members of the economy while at the same time ensuring that the growth benefits are commonly shared. Inclusiveness is a term that puts emphasis on bringing equality and thereby ensures sustainable growth and poverty reduction effectively (Kraay 2003; Berg and Ostry 2013) and ultimately leads to inclusive development.

Inclusive development depends on many factors such as the availability of infrastructure and a sound and stable financial structure. Though infrastructure serves as a catalyst for economic and social development for all economies, the return to investment in physical infrastructure is comparatively more in less developed economies (Briceno-Garmendia and Estache 2004). The lack of appropriate physical infrastructure such as roads, and access to transportation services in the developing economies is the main cause of economic exclusion and inequalities because it makes the access to market difficult for people living in far-flung areas. The disadvantaged groups living in rural areas every so often face difficulties in accessing employment opportunities and facilities including health care and financial services. The provision of transportation facilities makes farmers have access to the market easily to sell their products. According to Lewis (2011), transportation and communication services have a knock-on effect on employment and widen investment opportunities. Transportation facilities in an economy connect people living in one region to other areas and affect the labor pool of businesses. Whereas, a lack of communication services limits the market information and thus disrupts the production chain. The insufficient investment in infrastructure also impedes social development by restricting access to education and health. Due to a lack of transport infrastructure, people living in poor communities are unable to travel to cities where they could have better education and health care facilities. Thus, in the case of developing economies, improvement in infrastructure results in inclusive development by making access to employment opportunities and education and health facilities easier for the masses.

Financial infrastructure also serves as a key driver of inclusive development by enabling individuals to have easy access to financial services. Provision of credit to marginalized groups on easy terms provides them opportunities to have economic and social well-being, which eventually reduces inequality in income distribution. Thus, the financial structure of an economy determines the distribution of economic and social opportunities. Wang (2012) is of the view that at the initial stage of development, financial services play a major role in reducing income inequality. Due to an inclusive financial structure, the less advantaged group of society benefits also in terms of education and health. The improved financial structure, through the provision of credit and insurance services, enables households to treat illness and poor health conditions more effectively (Claessens and Feijen 2007). The financial structure also helps to boost the level of education and reduces educational inequality. The poor section of the economy can’t afford educational expenses, however, access to finance enables households to borrow to pay the educational expenses of their children. Thus, understanding the importance of financial and physical infrastructure, this paper is an attempt to explore the link between financial structure. Investment in transportation and communication and inclusive development in the case of Pakistan.

This paper is organized as follows: the first section introduces the problem of the study, Section II reviews past literature, Section III explains the methodology and data source, Section IV discusses the findings of this study, and the last section is about the conclusion and policy implication.

**REVIEW OF LITERATURE**

Since the 1990s, World Bank and IMF emphasizing to adopt pro-poor growth to tackle poverty and inequality. Among pro-poor growth and inclusive growth, the latter is more appropriate because the poor section of the economy gets the opportunity to be a helping hand in the growth process. Ali (2007) argues that inclusive growth provides an opportunity for the poor to become economically better by giving them equal reach to these opportunities. Job opportunities, particularly for the poor, interest rates, geology, and infrastructure availability have all been recognized as significant factors of inclusive growth and development in the literature. Ianchovichina & Gable (2012), Cyrek & Fura (2019), and Jianu et al. (2021) focused on the speed and distribution of growth and noted that although fast growth is extremely crucial for substantial poverty eradication, growth should be broad-based across all segments, including the majority of the labor force, to ensure long term sustainable development. Benefit-sharing and participation are used to determine inclusiveness. Anand et al. (2013) highlight that
inclusiveness depends on two factors, that is, the growth of the economy's income and its distribution thus faster and sustainable growth is a prerequisite for inclusive development.

Economic progress ought to provide fundamental socioeconomic amenities such as food to everyone, good education and healthcare for all, better infrastructure, and drinkable water, among other things. These will all boost human capital's quantity and quality, as well as increases their abilities. Dollar and Kraay (2002) and Dollar and Kraay (2003) argued that macroeconomic elements such as human and physical structures can aid in the lowering of poverty and joblessness. Furthermore, it has the potential to take an economy on the path to inclusive development. The growth that does not result in job creation is just as dangerous as stagnation. The creation of new jobs as a result of economic progress is a major driver of economic inclusiveness. The most significant obstacle to financial progress and advancement is indeed the lack of proper physical infrastructure, which limits market-led development and restricts access to social services, according to the Asian Development Bank (2007).

Trade and commerce, which functions as a catalyst for advancement and growth, is supported by human capital and physical infrastructure. In underdeveloped and developing countries, the payback on infrastructure spending is generally low. According to Briceno-Garmendia and Estache (2004), investments that contribute to the improvement of human capabilities, such as investments in key societal services such as education, along with health, are a highly important and prospective factor of growth.

Growth is said to be pro-poor if it in parallel reduces poverty, decreases inequality, and helps the poor to have a greater income share (Timmer, 2004; Fritzen, 2002; Geda et al., 2009). On the other hand, if the underprivileged section of the economy takes a share of growth outcomes but at the same time does not have enough opportunity to participate in the growth, growth will slow down and thus an unequal distribution will prevail in the economy over the periods. In other words, if economic progress leads to an unequal distribution of opportunities, it will lead to an unequal, segmented, and shallow development.

Many studies have revealed that infrastructure affects growth and development positively. Ghosh and De (2005), as well as Estache (2006), find a positive link between infrastructure spending and economic development. As a result, it is determined an important element in achieving IG, therefore, is that the neglected and deprived segments of the society should be equipped with a good infrastructure and in this way, the economy will profit from the rising social service. Experimental data reveal that infrastructure expenditures have a greater impact when accompanied by complementary activities. For example, rural roads, irrigation, and so forth. programs are more successful at dropping the poverty ratio if along with these investments; expenditures are made by the government in programs in education and health. Infrastructure provision improves access to key services like health, education, and additional needs that might contribute to the development of human capital According to Brenneman and Kerf (2002), investments in transportation and energy services facilitate access to and reimbursement from education, also building capacity amongst poor, while investments in sectors like energy, sanitation, transportation, and water have a positive impact on health outcomes. Physical infrastructure, such as communication and transportation, contributes to income growth and savings. The empirical research on the link between infrastructure development and economic growth gives solid evidence for a positive association between the two variables. Roller and Waverman (2001), and Calderon and Serven (2004) stated that infrastructure stocks and their quality are principal determinants of enhancing the growth and welfare of people.

Infrastructure is a key component of a country's growth and has a key role in bringing millions out of poverty. Hard and soft infrastructures are the two forms of infrastructure. Soft infrastructure refers to the rules and guidelines that control how physical infrastructure is used and operated. In this context, the judicial system and the quality of governance amplify infrastructure's good benefits in fostering equitable growth and poverty reduction. Quality infrastructure, according to Ali and Yao (2004), provides business opportunities and ease of doing business that is critical for stimulating domestic and foreign investment based on new advanced technologies. It will boost productivity and income per capita.

The provision of public infrastructure affects human capital positively (Francisco & Tanaka, 2019) which leads to inclusive development. To achieve inclusive growth, it is critical to increase labor force capacity building. Human capital is a collected pool of talent and skills that produces educated and competent workers in the region (Mathur 1999). Human capital investment can generate a
comparative benefit and surplus wealth, which can be utilized to improve technology and expand economic activity, allowing for more equitable inclusive growth (Ogunade 2011). Individual endowment in education and health are critical components of human capital which makes labor more dynamic and helps them to raise their standard of living. Human capital is a requisite for valuable utilization of physical capital and technology and skills. In the absence of human capital, the objective of alleviation of poverty is unavailable and human capital buildup is based upon education and skill accomplishment (Mughal 2007). suggests that Pakistan must modify its economic operations to become more competitive in order to achieve inclusive growth. A radical shift in industrial structure and economic structure is required. It will reduce the country’s emphasis on a limited number of industries for growth, this will promote stability, resulting in more and better job opportunities. The poor will stay poor without socioeconomic revolution, and all growth will be erratic and have no long-term implications. In this respect, investing in human and physical infrastructures will play a critical role since this would not only boost productivity but will cause in improvement the well-being of families by allowing them to earn better now and in the future, so assisting in the eradication of poverty.

The studies published by Mckinnon (1973), Shaw (1973), and King and Levine (1993) well established the relationship between financial development and growth and development. Thus, through efficient management of resources, a flourishing financial industry may help to drive inclusive growth. Financial development through capital accumulation affects investment’s efficiency. Economists have been taking interest in the finance–growth nexus since the seminal contributions of King and Levine (1993). It is clear that disparities in financial development explain a significant portion of the variances in long-run economic growth between countries. Studies have also concluded that access to finance is associated with higher rates of advancement and firm dynamism and promotes growth by increasing productivity (Ayagari et al. 2007; Levine 1998, 1999). Furthermore, financial development has been observed to play an important role in reducing the impact of external shocks on the domestic economy (Hanson & De Melo 1985; Beck et al. 2007; and Ibrahim & Alagidede, 2017) whereas Oyinlola & Adedeji (2019) are of the view that a well-developed financial system is required to achieve inclusive growth.

The need for inclusive growth and development is evident from previous literature, however, the literature fails to emphasize the importance of financial and physical infrastructure in encouraging equitable development in Pakistan. Thus, by establishing an indicator of inclusive development using inequality-adjusted HDI and studying the impact of financial development and physical infrastructure on inclusive development, this study serves to bridge the gap in the literature.

THEORETICAL MODEL
Inclusive development is a concept that focuses on the association between growth, poverty, and income distribution. According to Asongu and Kodila-Tedika (2018), the effect of economic growth on poverty is a diminishing function of income inequality. The work done by Levine (1999) and Beck et al. (2007) sheds light on the importance of financial structure concerning poverty reduction and income distribution. The financial structure of the economy accelerates productive activities and improves economic growth which has a trickle-down effect on the poor section of the economy, furthermore, access to finance helps to reduce inequality in education and health as well. The findings of the study by Beck et al. (2010) show that regulatory reforms in the financial structure increase competition in the banking area and thereby help the income households reduce inequality. The significant hindrance to economic development and prosperity is the lack of physical infrastructure which suppresses market-driven growth and restricts access to social services (ADB, 2012). Dollar and Kraay (2003), Fernholz (2010) and Batoool et al. (2020) argue that investment in physical infrastructure promotes development, especially in remote areas thus intensifying the inclusiveness of economic development. Other than investment in financial and physical infrastructure, this study also considers international trade, human capital, and urbanization as potential drivers of inclusive development. The goal of trade is to create a virtuous loop between the decrease of systematic inequities and growth, which will benefit the majority of people.

International trade provides opportunities for labor and industries but the magnitude and distribution of trade benefits are governed by existing capabilities. On the other hand, urbanization offers significant prospects for economic development, innovation, and job creation and provides greater access to health and education facilities.
Measurement of inclusive development

Inclusive growth has been characterized in a variety of ways by different academics. Adedeji et al. (2013) define inclusive development as a concept that refers to opportunities that are available to families and the equal distribution of these opportunities. Staurt (2011) and Ramos and Ranieri (2013) all seek to interpret inclusive growth, claiming that it centers on the concepts of growth, poverty, and inequalities. According to Klasen (2010), a measure of growth inclusivity must encompass both income and non-income elements of well-being, such as access to education and health.

Similar to Huang and Quibria (2013), describe inclusive growth as a developmental process that shrinks inequality. To determine inclusive development, this article utilizes the annual growth of the inequality normalized human development index (afterworld IHDI), which is measured by using techniques provided by UNDP. The formula for determining IHDI is as follows:

$$IHDI = \sqrt{(1 - ALife) \cdot (1 - AEducation) \cdot (1 - AIncome) \cdot HDI}$$

HDI is the human development index. Where ALife, Aeducation, and AIncome are the Atkinson measures of disparity in life expectancy, average years of education, and per capita consumption, respectively. The World Development Indicator Database was used to get information on the length of primary and secondary schooling, life expectancy at birth, and GNI per capita. To assess disparity in income, the average monthly expenditure of households across individuals is carried from (HIES). However, to evaluate the disparity in education data on "Individuals who have ever attended school" across individual people was collected from the Pakistan Social and Living Measurement Survey (PSLMS).

Empirical Model

This study uses the ARDL (Autoregressive and distributed lag) technique created by Pesaran et al. (2001) to analyze the dynamic interplay among inclusive growth and human capital investment and physical facilities, as well as trade, money, and quasi money, and urbanization. The principal reason for using this particular technique in the current study:

Some of the variables in our model are integrated of zero-order and some at one while the ARDL approach works even if we have a different level of integration, but this approach is not applicable if any of the variables in the model is integrated of order two. The second reason is that the sample size of this study is only 41, which is a small sample size, and Pesaran et al. (2001) highlight that we can use this approach if we have a small sample size. Thirdly, in any study that involves empirical exercise, the results are considered valid if parameters are unbiased and for this approach of ARDL bound testing, Harris and Sollis (2003) examined that the results of long-run coefficients are unbiased.

To apply the bound test, the following model is used

$$\Delta IHDI = \alpha_0 + \alpha_1 IHDI_{t-1} + \alpha_2 FD_{t-1} + \alpha_3 INF_{t-1} + \alpha_4 HC_{t-1} + \alpha_5 T_{t-1} + \alpha_6 U_{t-1} + \sum_{i=1}^{p} \delta_i \Delta IHDI_{t-i} + \sum_{i=0}^{p} \delta_2i \Delta FD_{t-i} + \sum_{i=0}^{p} \delta_3i \Delta INF_{t-i} + \sum_{i=0}^{p} \delta_4i \Delta HC_{t-i} + \sum_{i=0}^{p} \delta_5i \Delta T_{t-i} + \sum_{i=0}^{p} \delta_6i \Delta U_{t-i} + \varepsilon_t$$

Where

IHDI= Inequality adjusted HDI
FD= Financial Development Index
INF= Investment in Infrastructure
HC= Human Capital Index
T= Trade
\[ U = \text{Urban} \]
\[ \varepsilon_t = \text{residual term} \]
\[ \alpha = \text{Long run coefficients} \]
\[ \delta = \text{short run coefficients} \]

The Akaike information criterion is used to determine the model's appropriate lag duration. To evaluate the presence of a long-run equilibrium connection among components, on the other hand, the Wald F test has been used in which the value of the coefficients of the variables that are lagged zero is assumed to have zero value. To test the null and alternative hypotheses

\[ H_0: \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = \alpha_6 = 0 \]
\[ H_1: \alpha_1 \neq \alpha_2 \neq \alpha_3 \neq \alpha_4 \neq \alpha_5 \neq \alpha_6 \neq 0 \]

The value of the computed F-test is then compared to the table value of critical bounds developed by Narayan (2005). The reason why this study uses the critical value developed by Narayan (2005) is that the sample size of this study is very small while values in the table developed by Pesaran et al. (2001) assume large sample sizes. The null hypothesis is rejected if we find the value of the F test greater than the upper critical bound value and it leads to the conclusion that variables have a long-run relationship between them and vice versa. The coefficients of the long-run model are estimated once we are sure that cointegration exists. The long-run model is as follows

\[ \text{IHDI}_t = \lambda_0 + \lambda_1 \text{FD}_t + \lambda_2 \text{INFR}_t + \lambda_3 \text{HC}_t + \lambda_4 \text{T}_t + \lambda_5 \text{U}_t + \mu_t \quad (2) \]

Using an unrestricted-ARDL Model, the value of long run parameters in equation (2) are estimated as

\[ \lambda_0 = - \frac{\alpha_0}{\alpha_1}, \quad \lambda_1 = - \frac{\alpha_2}{\alpha_1}, \quad \lambda_2 = - \frac{\alpha_3}{\alpha_1}, \quad \lambda_3 = - \frac{\alpha_4}{\alpha_1}. \]

\[ \mu_t \] is the error term and this is assumed to be distributed normally. In order to find the short run estimates of the model, an unrestricted Error Correction Model (ECM) is used. The equation of the ECM model is specified below,

\[ \Delta \text{IHDI}_t = \gamma_0 + \sum_{i=1}^{p} \gamma_1 \Delta \text{IHDI}_{t-1} + \sum_{i=0}^{p} \gamma_2 \Delta \text{FD}_{t-1} + \sum_{i=0}^{p} \gamma_3 \Delta \text{INFR}_{t-1} + \sum_{i=0}^{p} \gamma_4 \Delta \text{HC}_{t-1} + \sum_{i=0}^{p} \gamma_5 \Delta \text{T}_{t-1} + \sum_{i=0}^{p} \gamma_6 \Delta \text{U}_{t-1} + \psi \text{ECT}_{t-1} + \varepsilon_t \quad (3) \]

Where \( \gamma_i \) shows the short-run impact of independent variables on IHDI and \( \psi \) measures speed of adjustment and ECT is obtained using the following equation

\[ \text{ECT}_{t-1} = \text{IHDI}_{t-1} - \lambda_2 \text{FD}_{t-1} - \lambda_3 \text{INFR}_{t-1} - \lambda_4 \text{HC}_{t-1} - \lambda_5 \text{T}_{t-1} - \lambda_6 \text{U}_{t-1} \quad (4) \]

Data on Human Capital Index is collected from FRED and data on Trade as a percentage of GDP, Urban population is taken from World Bank database. For infrastructure, this study constructed an index using data on mobile phone subscriptions, per capita electricity consumption, and road density. For financial structure, data on the financial development index from the IMF database is used as a proxy. Data is collected for the period from 1980 to 2020.

RESULTS AND DISCUSSION

The ARDL model and the corresponding bound testing are not applicable if any of the variables in the model are found to be integrated of order 2. So, before moving on to the ARDL technique, make sure that all variables are stationary at order 0 or 1 using the unit root test. The objective was to confirm that neither of the variables was I(2) and to prevent erroneous outcomes. If there is an I(2) variable, the explanation of F-stat results turns invalid Pesaran et al. (2001).
Table 1: Unit Root Test Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADF-Statistic</th>
<th>Order of Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>IHDI</td>
<td>-2.2814*</td>
<td>I(1)</td>
</tr>
<tr>
<td>FD</td>
<td>-4.2094***</td>
<td>I(1)</td>
</tr>
<tr>
<td>INFR</td>
<td>-3.5463***</td>
<td>I(0)</td>
</tr>
<tr>
<td>HC</td>
<td>-2.3205**</td>
<td>I(0)</td>
</tr>
<tr>
<td>T</td>
<td>-1.9710*</td>
<td>I(1)</td>
</tr>
<tr>
<td>U</td>
<td>-7.1407***</td>
<td>I(1)</td>
</tr>
</tbody>
</table>

Note: *, **, *** shows significance level at 10, 5, and 1 percent respectively.

Table 1 shows the findings of the ADF test, which shows human capital and infrastructure are integrated at the level, whereas IHDI, trade, urbanization, and financial development are stationary at first difference. As a consequence, the ARDL technique is employed to verify model co-integration.

Before calculating a dynamic link among the variables, it is important to define the appropriate lag length (Lütkepohl 2006). The Akaike Information Criteria are used to determine the best lag duration, and the lag structure of the accepted model is examined (2, 1, 2, 0, 2, 1). The output of the bound test is given in Table 2. As shown in Table 2, the value of the F-statistic is 6.126. At the 1% and 5% levels of significance, accordingly, the estimated F statistic (6.126) surpasses the critical bound values (4.045, 5.898) and (2.962, 4.338). The null hypothesis, that there is no long-run co-integrating connection, is thus rejected. This demonstrates the robustness of the estimations and suggests that there is a long-term link between inclusive growth and the model's other variables.

Table 2: F-statistics for Testing the Existence of long Run Relationship

<table>
<thead>
<tr>
<th>Test Statistics</th>
<th>Value</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-stat</td>
<td>6.126</td>
<td>0.0021</td>
</tr>
<tr>
<td>Critical value with k=5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower-Bound Value, Upper-Bound Value (at 1 percent)</td>
<td>4.045</td>
<td>5.898</td>
</tr>
<tr>
<td>Lower-Bound Value, Upper-Bound Value (at 5 percent)</td>
<td>2.962</td>
<td>4.338</td>
</tr>
<tr>
<td>Lower-Bound Value, Upper-Bound Value (at 10 percent)</td>
<td>2.483</td>
<td>3.708</td>
</tr>
</tbody>
</table>

Note: critical values are obtained from Narayan (2005), unrestricted intercept with no trend. The model has included an intercept term.

The estimates of the ARDL long-run coefficient for the considered model are given in Table 3.

Table 3: Result of Long run Estimates

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-0.1555</td>
<td>-1.08423</td>
<td>0.3253</td>
</tr>
<tr>
<td>FD</td>
<td>0.3421***</td>
<td>2.9542</td>
<td>0.0088</td>
</tr>
<tr>
<td>INFR</td>
<td>0.4324***</td>
<td>3.1795</td>
<td>0.0052</td>
</tr>
<tr>
<td>HC</td>
<td>0.0424**</td>
<td>2.8921</td>
<td>0.0107</td>
</tr>
<tr>
<td>T</td>
<td>-0.0043*</td>
<td>-1.9892</td>
<td>0.1003</td>
</tr>
<tr>
<td>U</td>
<td>0.3452**</td>
<td>2.1342</td>
<td>0.0284</td>
</tr>
</tbody>
</table>

| R Square | 0.664       | Durbin Watson | 2.76 |
Note: *, **, *** shows significance level at 10, 5, and 1 percent respectively.

The long-run association between variables is seen in Table 3. The long-run estimations are produced through the normalizing method. The normalizing procedure was already covered in the methods section. The table shows that all of the explanatory factors have a positive and substantial impact on inclusive development, except for trade, since it has a significant but negative impact on inclusive development. The coefficient of financial development is significant at a 1 percent level of significance and the coefficient value is positive which shows that a developed financial structure helps the marginalized individuals to have access to financial instruments and services at ease so that they could improve their living standards by making investment health and education. An inclusive and developed financial structure provides loan at easy terms and condition that encourages low-income groups to start small businesses. The coefficient of infrastructure is significant at a 5 percent level of significance. One of the reasons why people living in rural areas contribute less to the economy's growth process is the lack of infrastructure. An increase in expenditure on transportation and communication helps the people living in rural areas to have easy access to the market thus provides them to participate more in the economic activities. The provision of communication and transportation services helps the poor section to have access to education and health services as well and thus reduces inequality in education and health.

The coefficient of human capital is positive and significant which shows that investment in human capital contributes positively to inclusive development. The absorption of knowledge in any country depends on the level of human capital and thus results in a higher return. Capital investment reduces the disparity in income and leads to inclusive growth and development (Oyinlola and Adedeji, 2021). On the other side, it is observed that trade affects inclusive development negatively in the long run. According to Anand et al. (2013), trade reduces income inequality if it brings macroeconomic stability and improvement in human capital, however, in our case the negative coefficient of trade points out that in the case of Pakistan it causes an increase in inequality because the trade benefits are concentrated to only a few groups. Urbanization is also found to have a positive impact on inclusive development. One of the benefits of urbanization is that it brings with it easy access to financial markets and new industrial and production methods that help to promote inclusive growth however the metropolitan centers also offer opportunities for advancements in the field of education and health which ultimately affects inclusive development positively.

Numerous diagnostics were used to demonstrate the model's efficacy and unbiasedness. The following are the findings of diagnostic testing.

Table 4: Diagnostic test Results

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LM-Statistic</td>
<td>1.9325</td>
<td>0.5771</td>
<td>0.5421</td>
<td>0.874</td>
</tr>
<tr>
<td>Prob.</td>
<td>0.1138</td>
<td>0.2320</td>
<td>0.2417</td>
<td>0.3190</td>
</tr>
</tbody>
</table>

According to Table 4 for estimating serial correlation, this study uses the LM test that has the null hypothesis that "there does not exist serial correlation in successive error terms" beside the alternate hypothesis that "there exists serial correlation". Table 4 shows that the probability value of serial LM statistic is 0.1138 which is greater than 0.05 thus making us believe that there does not exist serial correlation. While the null hypothesis of the Normality test is that errors are normally distributed and the probability value of JB Statistic greater than 0.05 thus we accept our null hypothesis, ARCH LM test, and Ramsey RESET test has been applied to check Heteroskedasticity and functional form respectively, based on probability values, none of the null hypotheses of these tests could be rejected and we conclude that there is no heteroscedasticity and the model is correctly specified.
To get short-term estimates of the model, this study applies the error correction model. The error correction term (ECT) is a residual from the long-run co-integration model, and the estimates are reported in Table 5.

Table 5: Result of short-run model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.0026</td>
<td>1.9645</td>
<td>0.109</td>
</tr>
<tr>
<td>D(FD)</td>
<td>0.2729</td>
<td>2.5471</td>
<td>0.005</td>
</tr>
<tr>
<td>D(INF)</td>
<td>0.0138***</td>
<td>2.1568</td>
<td>0.043</td>
</tr>
<tr>
<td>D(HC)</td>
<td>0.1306</td>
<td>2.7891</td>
<td>0.002</td>
</tr>
<tr>
<td>D(T)</td>
<td>-0.0323</td>
<td>-0.8771</td>
<td>0.323</td>
</tr>
<tr>
<td>D(U)</td>
<td>-0.3366</td>
<td>-2.7106</td>
<td>0.003</td>
</tr>
<tr>
<td>D(FD(-1))</td>
<td>-0.0023</td>
<td>-0.9170</td>
<td>0.480</td>
</tr>
<tr>
<td>D(INF(-1))</td>
<td>-0.0002</td>
<td>-0.1016</td>
<td>0.545</td>
</tr>
<tr>
<td>D(HC(-1))</td>
<td>0.0284**</td>
<td>2.0582</td>
<td>0.076</td>
</tr>
<tr>
<td>D(T(-1))</td>
<td>0.9674**</td>
<td>2.1787</td>
<td>0.035</td>
</tr>
<tr>
<td>D(IHDI(-1))</td>
<td>-0.8672</td>
<td>-1.9838</td>
<td>0.077</td>
</tr>
<tr>
<td>D(FD(-2))</td>
<td>0.0163</td>
<td>2.3816</td>
<td>0.019</td>
</tr>
<tr>
<td>D(INF(-2))</td>
<td>-0.0329</td>
<td>-0.4565</td>
<td>0.658</td>
</tr>
<tr>
<td>ECT(-1)</td>
<td>-0.4342*</td>
<td>-2.9524</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note: *, **, *** shows significance-level at 1, 5 and 10 percent respectively.

The findings of the error correction model indicate that physical infrastructure, trade, and investment in human capital have a positive influence on inclusive development. As expected, the error correction term is negative and significant, implying that long-run equilibrium is achieved and around 44 percent of the disequilibrium is adjusted every year.

CONCLUSION AND POLICY IMPLICATIONS

In developing economies, the issue of economic disparity has worsened dramatically over the previous decade, and these economies’ external shocks, such as a pandemic or global financial crisis have affected the economies disproportionately. The uncertain economic shocks have the tendency to hit the low and middle-income countries more adversely and lead to weak economic structure, high unemployment rate, and rising poverty. The exclusive development is one of the reasons that developing economies are more vulnerable to economic crises and natural disasters. However, investment in physical and financial infrastructure catalyzes inclusive economic development. In this study, IHDI (Inequality-adjusted Human Development Index) growth rate is used as a proxy for inclusive development. The outcomes of this study confirm that investments in financial and physical infrastructure have a favorable impact on inclusive development. The developed financial structure provides easy access to credit for all and helps to improve living standards through resource allocation while physical infrastructure provides opportunities for employment and better education and health. Urbanization and human capital have a positive and long-term impact on inclusive growth, but trade has a negative long-term impact on inclusivity but its effects are positive in the short run.

The empirical findings of this study suggest that investment in financial and physical infrastructure (transport and communications) leads to the inclusive economic development over time, and there is a persistent need to empower the human capital by subsidizing education and skill-oriented training and workshops so that the excluded groups could participate in the process of growth and thereby have improved living standards. To promote inclusiveness, a fair portion of the budget must be devoted to the upgrade of the communication and transportation systems. The benefits of financial innovations cannot be enjoyed fully if there is a lack of awareness amongst people regarding financial schemes and services. The low level of financial literacy, especially in rural areas, makes people reluctant to avail financial services. To improve financial literacy, consumer knowledge regarding the use of mobile banking and availing of other financial services should be provided in rural areas.
Batool, Haroon, & Sohail

To analyze the role of physical infrastructure in promoting inclusive development, this study used data on road density along with other indicators. Due to the unavailability of data on road density for other developing countries, this study conducts the analyses of financial and physical infrastructure for the economy of Pakistan only. Subject to the availability of data, future studies should analyze the impact of physical infrastructure on the inclusive development of Asian developing countries. Future studies should also focus on assessing how inclusive the financial and physical infrastructure in developing countries is.

REFERENCES
Contribution of Physical and Financial Infrastructure to Inclusive Development


