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The Role of Financial Development in Human Capital Development: Evidence from Pakistan

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Abstract

The present paper studies the effects of financial development on the human capital development of Pakistan. An annual time series data over the period of 1991 to 2016 is used. Financial development is measured through three proxies, which are, bank deposits, broad money supply, and domestic credit to the private sector (DCPS). In addition, human capital development is measured by the human development index (HDI). The empirical findings indicate that a strong financial institution enhances human capital development in Pakistan. Similarly, the inflow of remittances increases human capital development. On the contrary, the unemployment rate, and a large population reduces the development of human capital. Thus, the findings of the present paper recommend some useful insights for the policymakers of Pakistan.

Keywords: financial development, human capital, remittances, government spending, money supply, human development index.

1. Introduction

The seminal work of Schumpeter (1911) open the debate on the importance of financial markets and its role in the economy. Several empirical and theoretical studies documented the relative importance of finance-growth nexus. Several economists contend that financial markets are crucial for the development of the economy. They argued that a well-developed financial institution is inevitable for financial intermediation and hence economic performance (Shaw, 1973; Levine, 1997; McKinnon, 1973, among others). Similarly, three ways have been proposed by Aziz and Duenwald (2002) that discussed how financial development can affect economic growth. One, a well-developed financial market increases the efficiency of capital by risk sharing. Second, financial development increases the availability of credit in the economy, and third, it helps people by reducing the cost of capital. More specifically, financial development encourages efficient financial intermediation among moneylenders and borrowers.

However, in the late nineteenth century, the emergence of endogenous theory diverted the attention of policymakers towards human capital and its role in the economy. Afterward, vast growing literature started focusing on the living standard and well-being of people. Ranis (2004) in his study associated human capital development with high economic growth. Sehrawat and Giri (2017), contended that both financial sector development and human capital development are important elements for economic growth. Financial sector development with low human capital leads to low economic growth. In addition, Sehrawat and Giri (2014) pointed out that economic development depends on the well-being of society. Whereas economic growth is only one of the aspects of economic development and may hide several economic problems such as poverty, income inequality, health, education, etc. According to UNDP (2018), human development is viewed as the well-being, freedom, and opportunities of humans.

Human development index (HDI) is used as a measure of human capital development. It comprises of three different dimensions, such as, education, health, and standard of living. The UNDP (2018) human resource development report has observed the positive trend of HDI around the world, amounting 0.598 in 1990 to 0.728 in 2017. More importantly, Pakistan has been experiencing a minimal increase in the index of human capital, amounted as 0.560 in 2016 and 0.562 in 2017. As compared to the other Asian countries, the progress is low but increasing.

On the other side, financial sector development measures the stability, strength, and effectiveness of the financial institutions. It includes financial intermediation, depth, and access to the financial market. For the past few years, the performance of the financial sector in Pakistan has been exceptional. Since the financial sector liberalization in 1980, the efficiency of financial institutions has been increased. According to a quarterly review report of State Bank of Pakistan (2018), solvency, improvement of asset quality, stable liquid liability, increasing bank deposits are some key factors that drive financial development in the country. As the State of Pakistan reported that bank deposits had been increased by 3.2% recorded as 10.3% in 2017. Whereas, the total assets of the banking industry have also been expanded by 4.5% in 2017.

Despite the growing trends and reliance on human capital and financial sector development as a crucial indicator of economic growth, consensus regarding the role of both the capital remains elusive among policymakers. Due to the surge in the global economy, investment in human resource capital has become one of the major challenges nowadays. As it is an integral factor that affect economic growth, development, and productivity. In addition, the role of the financial sector in the economy has become more vulnerable aftermath the global financial crisis. Several theoretical and empirical types of research have been conducted on financial and human capital development and its impact on economic growth (Law et al., 2014; Rioja & Valev, 2004; Wachtel & Zhou, 2009; Hakeem & Oluitan, 2012). However, finance-growth literature has a scarcity of investigation on financial development and human capital. Thus, the present study aims to examine the effects of financial development on human capital development in Pakistan. In particular, the study is carried out in Pakistan because of the growing importance of financial sectors and human capital in the country. As mentioned above, the increasing trend in human development index and financial institutions' performance motivated us to examine whether human capital development in Pakistan is driven by a

strong financial sector or not. The empirical findings of the present paper endorse that human capital development in Pakistan is significantly dependent on financial sector development. Previously, studies have been conducted on this particular topic but found the mixed relationship between the variables. These findings can help policymakers of Pakistan to increase human capital development in the country through strong financial institutions.

Following the introduction, we review the related literature on financial development and human capital. After reviewing past studies, we specify the model and discuss the methodology. In the following section, we report empirical findings by applying several appropriate statistical techniques. Finally, in the last section, we conclude the present study and give some policy implications.

2. Literature Review

Financial capital and human capital, both are the essential elements of economic growth. It determines the long-term economic growth of the nation. Several studies investigated the relationship between financial and human development with economic growth. Initially, Schumpeter (1911), Goldsmith (1959), Shaw (1973), McKinnon (1973) and later by Romer (1990), Mankiw et al. (1992), Ranis (2004) among others. However, a direct relation between financial development and human capital development is still scarce especially in the context of Pakistan. In the later part of this section firstly, we reviewed literature related to human capital development and economic growth. Secondly we reviewed financial development and economic growth, and lastly we reviewed literature related to financial development and human capital development.

2.1 Relationship between Human Capital and Economic Growth

A vast amount of theoretical and empirical literature has been conducted on human capital, financial development, and economic growth. Among them, Zhang and Zhuang (2011) investigated the link between human capital and economic growth in China. Findings revealed that tertiary education in China is more important for economic growth than primary and secondary education. Similarly, Chi (2008) concluded that human capital is an important element of economic growth in China. It is also noticed that public spending on female education and social services are the key elements that determine the relationship between human capital and economic growth. The study explored the effects of human capital on the economic productivity of India (Pradhan and Abraham, 2002). It is found that human capital is strongly related to economic growth and human development position of the country determines the economic policies of the country. Additionally, Ogundari and Awokuse (2018) used two different measures of human capital, such as secondary education and health to test its impact on the economic progress of Sub-Saharan Africa. It is revealed that both the measures of human capital development is significantly affecting economy of Sub-Saharan Africa, whereas, the impact of health is slightly larger than the education. Hena et al., (2018) conducted study human capital development on the sectoral growth of Pakistan. According to the study, the effects of human capital vary sector to sector. It is found that both the variables have direct link.

2.2 Relationship between Financial Development and Economic Growth

In the seminal work of Schumpeter (1911), in which it is argued that well-functioned financial institutions raise economic growth via investments. Since then, an interest among researchers and policymakers on finance and growth nexus has been renewed. Shaw (1973) and McKinnon (1973), observed in their respective studies that regulations on financial capital impede investment decisions, therefore, they stressed on deregulation and financial liberalization, which further lead to effective allocation of funds. Strong financial institutions and developed financial system strongly and positively affect the growth via investments (Xu, 2000). The similar study of Rioja and Valev (2004), revealed that the economy's productivity is dependent on the different levels of financial development. The depth of the financial sector drives productivity and investment via capital accumulation (Calderon & Liu, 2003). Further, Law et al. (2013) and Hasan et al. (2009) find that institutional quality is an important element that shapes the finance-growth relationship. In contrast to the above, Ouyang and Li (2018) revealed that financial development has an inverse effects on economic growth of China. They used different comprehensive indicators of financial development, such as m2, value of stock market, credits, etc.). The study of Ayadi and Arbak (2013) confirmed that bank deposits and credit have negative effects on economic growth, whereas, liquidity and stock market size have a positive impact on economic growth.

2.3 Relationship between Human and Financial Capital Development

The initial work of Outreville (1999), Pagano (1993), Papagni (2006), Evans et al. (2002) and De Gregorio (1996) established the links between human capital and financial development. It is evident that financial indicators play a significant role in increasing human capital in Pakistan. Broad money supplies strongly contribute to human development. However, the weak relationship found between market capitalization and human capital. Similarly, Sethi et al. (2019) identified that a faster degree of financial sector development and large market size increases the development of human capital in South Asia. In contrast, Nik et al. (2013) examined the relationship between human capital and financial development in Iran. They found an inverse relationship between both the variables due to the cash flows. The study explored that inefficient banking channel lacks proper allocation of resources, poor facilities, etc. negatively affect human development. Likewise, Hakeem and Oluitan (2012) also found a negative effect of financial development on human capital in South Africa due to the improper channels of the banking system. In contrast, there are some studies that highlighted no significant relationship between financial development and human capital development (Hatemi-J & Shamsuddin, 2016).

3. Data and Methodology

3.1 Data Set

To examine the effects of financial development on human capital development in Pakistan, we have compiled data from different sources during the period of 1991 to 2016. The human development index (HDI) is a dependent variable used as a measure for human capital development. The data of the HDI index is taken from the UNDP human development report (2017). This index covers three main areas of human capital development, such as health, education, and standard of living.

Financial development is an independent variable that considered one of the major elements of economy. It is defined as the development of financial markets in the country. A well-functioned financial system facilitates the economy by providing efficient intermediation. Three different variables have been used as a proxy to estimate the size and activities of the financial market. According to Dutta and Sobel (2018), these proxies measure the financial access, intermediation, and depth of the market. One such proxy is domestic credit to the private sector (as a share of GDP) taken from the database of the World Bank's World Development Indicator (WDI). As stated in the literature, this variable measures the function and performance of the financial intermediaries (Giuliano & Ruiz-Arranz, 2009 and Beck et al., 2007).

The second proxy of financial development is Bank deposits (% of GDP), comprised of the overall value of demand, deposits, and time deposit money as a share of GDP, this proxy also measured the size of the financial sector. The data of bank deposits (% of GDP) is also obtained from the Global Financial Development Database (GFDD). Similarly, the third considered proxy for financial development is broad money supply (as a share of GDP). This proxy is the measurement of financial intermediation and size. It is basically the sum of currencies outside the banks. Broad money as a percentage of GDP data is also obtained from the World Development Indicators (WDI).

In addition to the focused variables, we also include some control variables in the model, which also commonly used in previous studies. The control variables are the annual growth rate of population, unemployment rate and personal remittances received by the household as a percentage of GDP.

3.2 Methodology

In order to empirically test the main question; does financial development affect human capital development in Pakistan? we estimate the following model;

$$HC_t = \beta_o + \beta_1 FD_t + \beta_2 Unemp_t + \beta_3 POP_t + \beta_4 REM_t + \varepsilon_t \quad \text{--------- (1)}$$

where, HC is the human capital, measured by human development index (HDI), FD is financial development, a composite variable comprised of three proxies, such as broad money supply, bank deposits and domestic credit to the private sector (DCPS). For the financial development (FD) variable, we have constructed a composite variable by applying principal component analysis (PCA). On the other hand, Unemp is the employment rate measured as a percentage of GDP; POP is the annual growth of total population, REM is the personal remittances measured as a percentage of GDP, ε is the error term, and subscript *t* is the time span.

For estimation, we used three dynamic approaches, such as, DOLS, FMOLS and system GMM. These approaches are preferred over the conventional OLS approach because of some specific reasons. It eliminates the possible endogeneity in regressors and remove serial correlation between the error term and regressors and also resolve the issue of omitted variables and simultaneity (reverse causality).

4.1 Data Analysis

4.1.1 Summary Statistics

Table I reports the summary statistics of the studied macroeconomic variables of Pakistan over the period of 1991 to 2016. It is shown that average bank deposits as a percentage of GDP from the given period were 27.27% with the standard deviation of 4.64, the minimum bank deposits in the given years were 17.20% of GDP, whereas, the maximum value was 33.08%. The average broad money supplies were 48.26% with the standard deviation of 5.44, the minimum money supply was 38% of GDP, and the maximum was 58% of GDP. The average domestic credit to the private sector between 1991 to 2016 was 22% with a standard deviation of 4.11, and the maximum and minimum values were 28.74% and 15.38% of GDP. The unemployment rate in the stipulated time period was 5% on average with the maximum percentage of 8.2 and a minimum of 0.6 and with a standard deviation of 2.13. The human development index on average was measured as 0.47 with the maximum value of 0.56 and a minimum of 0.40, the standard deviation value of 0.05. From the period of 1990-2016, the average population growth was 2.27%, with a minimum of 1.9% and a maximum of 2.9% and the standard deviation is 0.26. The average remittances of Pakistan for the same period were 4.15% of GDP; the maximum percentage was 7.13 and the minimum was 1.45 with the standard deviation of 1.73.

Table 1: Summary Statistics of Pakistan from 1991-2016

Variables	BD (%)	BMS (%)	PSC (%)	UNEMP (%)	HDI (Index)	POP (%)	REM (%)
Mean	27.276	48.260	22.808	5.025	0.479	2.273	4.150
Maximum	33.308	58.870	28.740	8.270	0.560	2.912	7.136
Minimum	17.208	38.590	15.380	0.650	0.404	1.999	1.454
Std. Dev.	4.642	5.442	4.114	2.133	0.050	0.267	1.734
Observations	26	26	26	26	26	26	26

4.1.2 Stationary and Cointegration Analyses

In the initial stage, unit root test has been applied using ADF (1979) in order to test the stationarity of the variables. If the data series of the variables are non-stationary at the level, then only we proceed to test the stationarity of the series at first difference. If the data series is found to be stationary at first difference, we conclude that all the variables are integrated at order one I (1). Table II reports the results of the ADF unit root test, showing that all variables have trend (non-stationary) at level and no trend (stationary) at first difference. Hence, it indicates that the series of all the variables have the same level of integration, i.e., I (1).

Table 2: Stationary Test (ADF)

Variables	Level I (0)		1st Difference I (1)	
	Without trend	With trend	Without trend	With trend
FD	0.425	0.159	0.010***	0.051***
HDI	0.986	0.142	0.011***	0.043***
Unemp	0.145	0.154	0.001***	0.004***
POP	0.226	0.717	0.006***	0.000***
REM	0.853	0.121	0.001***	0.003***
*Note: *** denotes the rejection of the null hypothesis*				

The stationary status of the variables suggests the expected long term relationship among the studied variables. In order to confirm the cointegration between variables, we employ J-J cointegration test. Table III displays the results of the Johansen and Juselius Cointegration test. The results of both the test (trace statistics and max-eigen statitics suggest the rejection of the null hypothesis of no co-integration, which indicate that all the variables have long term association.

Table 3: Johansen and Juselius Cointegration test

Hypothesized No. of CE(s)	Trace Statistic	0.05 Critical Value	Probability	Max-Eigen Statistic	0.05 Critical Value	Probability
None *	178.289	88.804	0.000	72.035	38.331	0.000
At most 1 *	106.254	63.876	0.000	39.701	32.118	0.005
At most 2 *	66.554	42.915	0.000	33.592	25.823	0.004
At most 3 *	32.961	25.872	0.006	22.714	19.387	0.016

4.1.3 Robustness check

Having established the long term association among the variables, we proceed further to test the cointegrating vectors of the studied relationship, by applying three dynamic approaches, such as system GMM, FMOLS, and DOLS. As noted in earlier studies, these approaches are preferred over the conventional OLS approach because of some specific reasons. The DOLS and FMOLS eliminate the possible endogeneity in regressors and remove correlation between the regressors and error term. Likewise, the system GMM approach also addresses the endogeneity issue caused by omitted variables and simultaneity (reverse causality). In the present scenario, we have some endogenous variables in our specified model which possibly cause endogeneity in regressors, they are, financial development, human capital and unemployment. There is also a possibility of some omitted explanatory variables from the model. Therefore, to address the endogeneity issue and serial correlation of error terms, we apply all the three dynamic approaches to determine the robustness of the results.

The empirical results of all the three dynamic techniques are shown in Table IV. It is revealed that financial sector development positively influence the human capital development in Pakistan. The result of FMOLS shows that the relationship of both the variable is significant in all the respective tests. In addition, the results also revealed that an increase in the unemployment rate would decrease human capital development. All of the three statistical techniques confirm the inverse relationship between unemployment and human capital development. Likewise, it is also confirmed that a larger population will also lead to less human capital development. Contrary to that, the flow of remittances assists human capital development in Pakistan.

It is inferred from the findings that financial development positively influence human capital development in Pakistan. Past researches corroborated the findings of our research (Sehrawat & Giri, 2014; 2017 & others). Financial development provides excess supply of money and efficient intermediation between lenders and borrowers, which further influences the human development and eventually economy. Besides this, it is also evident that remittances are also an important factor that boosts human capital development in the country. Whereas, population growth and unemployment rate reduce human capital development.

Table 4: Results of FMOLS, DOLS and GMM Estimates of Human Development Model for Pakistan

HDI	GMM		DOLS		FMOLS	
	Coef.	*Prob.*	*Coef.*	*Prob.*	*Coef.*	*Prob.*
FD	0.008	0.053	0.010	0.000	0.007	0.028
Unemp	-0.008	0.000	-0.006	0.000	-0.005	0.000
Pop	-0.122	0.000	-0.120	0.000	-0.116	0.000
REM	0.004	0.203	0.006	0.001	0.008	0.000
Constant	0.781	0.000	0.752	0.000	0.737	0.000

5. Conclusion

Due to the volatility in the global financial market, it is essential to comprehend the factors that affects the economy and its growth. As highlighted in the contemporary literature of financial economics, the growth of the financial market is one of the crucial factors of the economy. Human capital development, on the other hand, plays a vital role in economic productivity. Several studies have been conducted in the past that studied the determinants and causal links of the considered variables (Satrovic, 2015; among others), however, the relation of financial development and human capital development is still inconclusive. Therefore, the present paper adds to the existing literature by analyzing the effects of financial development on human capital development in Pakistan. Recently, instability of the financial market and the sudden reduction of human capital development in the country motivated us to explore the relationship between financial development and human capital development in Pakistan using the annual data from 1990 to 2016. Previously, studies have generally used one proxy for financial development that measures one aspect of the market. However, in this article, we have used three different proxies of financial development that measured all the aspects of the financial markets, such as, financial access, depth and intermediation.

The empirical results indicate that financial market development supports human capital development in Pakistan. We possibly justify this finding by providing positive views by past researchers. Financial sector development improves efficiency and intermediation between lenders and borrowers. The better financial market also promotes labor division and innovation which increases efficiency, competition and ultimately stimulates innovation. Moreover, it is also found out that a high unemployment rate reduces human capital development in Pakistan. Moreover, the relationship between population growth and human capital development is also found significantly negative. On the contrary, the injection of the remitted amount in the economy substantially improves human capital development.

Overall, our findings have important policy implications. As reported above the financially developed market enhances human capital development in Pakistan. Therefore, it is suggested to the state owners that they should liberalize regulatory policies in the financial institutions in order to boost the financial activities. Moreover, the government needs to improve institutional quality and economic growth in order to encourage the development of the financial sector. It is also suggested that the state should prioritize human capital development and include a large portion for it in a budget, since it is a crucial element for economic development. Though a well-functioned financial market facilitates human capital and ultimately the economy, but some prudential policies should be designed to prevent the financial system from the negative repercussions of liberalization.

5.1 Limitations and Future Researches

In addition, the present paper is also confined under some limitations, which can help future researchers to explore more in this area. Firstly, this research is particularly carried out for Pakistan. Thus, the empirical results can only be generalized for Pakistan. Additionally, the econometric model can also be strengthened by adding more control variables in it. Importantly, future researchers can also explain the existing relationship in the presence of some other macroeconomic variables such as entrepreneurship, corruption, etc.

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