

Article

Financial Development, Human Resources, and Economic Growth in Transition Countries

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Abstract: This study explored the linkage between financial development, human resources, and economic growth in a group of twenty-five transition countries during the period 1995–2019. The author applied a range of estimations such as Ordinary Least Squares (OLS), fixed effects model, and two-step GMM methods in order to estimate the empirical research model. Different from previous research, financial development in this paper was a proxy variable that was assessed based on the level of outcomes of financial institutions and the financial market in three aspects: depth, access, and efficiency. In addition, the labor force participation rate and the human development index were employed as the comprehensive proxies for human resources. Generally, financial development and human resources exert positive impacts on economic growth. Financial access and financial efficiency boost economic growth, while financial depth does not. Human development was also documented as the driver of economic growth. In addition, the interaction between aggregate financial development and the human development index demonstrated a robust spur to economic growth. These findings contribute to the literature on economic growth and have considerable implications for policymakers in transition economies.

Keywords: financial development; human resources; economic growth; transition countries



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1. Introduction

Economic growth has always been the crucial socioeconomic issue of policymakers in transition countries. The reason is that after transitioning to market economies, transition countries face many problems in restructuring the financial system, improving the quality of institutions, and stabilizing the macro-economy. Although economic growth is a popular research topic in the group of developed or developing countries, in the scant research context of transition countries, the study on economic growth would make meaningful contributions.

Financial development has been considered the key driver of economic growth. [Levine \(1997\)](#) supported that a country with a well-developed financial system could effectively allocate saving resources by reducing the cost of transactions and providing access to financial institutions, facilitating trading activities, and exchanging goods. Previous empirical studies have also suggested a more nuanced view on the impact of financial development on economic growth ([Wen et al. 2021](#); [Bist 2018](#); [Guru and Yadav 2019](#)), especially in developing countries ([Ekanayake and Thaver 2021](#); [Khan et al. 2020](#); [Marcelin et al. 2021](#)).

In addition to focusing on the development of tangible concepts, human resources play an important role in the growth process. In the large body of previous research, human resources have been expressed in indicators related to health, education, training, knowledge, and labor. The endogenous growth theory states that increasing the capital stock of both physical and human resources promotes advantages and productivity. In particular, [Romer \(1986\)](#) included human capital in the production function of the long-term economic growth model. This increased the marginal production and the long-term growth. He also argued that a country that has a higher level of human resources may grow faster, compared with a country with limited human resources. In addition, the positive relationship

between human resources and economic growth both in the short term and long term was demonstrated (Gruzina et al. 2021; Antyukhova 2020; Munir and Arshad 2018).

All of the above-mentioned previous studies separately documented the influence of financial development and human resources on economic growth (Kendall 2012; Evans et al. 2002; Abubakar et al. 2015). However, the interactive effect of both financial development and human capital on economic growth has not been observed popularly, though these are two fields of substantial growth. The author was unable to find any academic research on their interaction with economic growth in transition countries.

In terms of measuring financial development and human resources, previous studies tend to employ numerous proxy variables. Financial development is usually represented by the outcomes of the banking system, such as deposit, money supply, and domestic credit (Evans et al. 2002; Abubakar et al. 2015; Nguyen 2021). However, financial development is a general concept that stems from various components. Hence, the proxy financial development variable in listed research seems sub-optimal to reflect developing activities in the finance industry. Similarly, human resources also cope with this limitation. Extant research selects one or two indicators related to education representing human capital, such as the ratio of school enrollments (Abubakar et al. 2015; Evans et al. 2002; Sethi et al. 2019; Sarwar et al. 2021) and primary pupil–teacher ratio (Sarwar et al. 2021). In essence, the human resources of a country are constituted by more factors than education alone. Therefore, to grasp a comprehensive meaning, we should take the labor force, the level of sustainable life, and health into consideration when measuring human resources.

This study primarily aimed to explore the impact of financial development and human resources on economic growth in 25 transition countries spanning 1995–2019. The author focused on this group due to the scarcity of research conducted in these countries that experienced changes in government regimes and introduced efficient policies to boost economic growth after the transition period. In addition, to bridge the gap in previous research, this study constructed new proxy variables for financial development and human resources that broadly cover aspects of finance and human development. In order to attain the robustness objective, the author observed this nexus together with the influence of interaction terms between the aggregate financial development indicator and the human development index.

This research is organized as follows: The next section documents the literature review in this landscape. The empirical research model and the data are described in Section 3. Section 4 presents the results and discussion. The robustness check is also explicated in this section. Finally, the author postulates conclusions and policy implications in Section 5.

2. Literature Review

The crucial role of financial development in economic growth has been widely investigated. According to Schumpeter's view, King and Levine (1993) supported that the financial institution system could spur economic growth. Later, Levine (2005) demonstrated the importance of financial market and intermediary institutions for economic growth. Furthermore, a well-developed financial industry breaks the constraints on external financing that promotes companies in an economy. In the research of Aziz and Duenwald (2002), the authors explained that financial development impacts economic growth through the financial intermediate system. Thus, the connection between savers and borrowers is more efficient, reducing transaction costs and increasing liquidity of the market and market integration.

In fact, the role of financial development in economic growth is also considered in developed economies. Swamy and Dharani (2019) examined the non-monotonic effect of finance on the economic growth of a group of 24 advanced economies during the period 1983 to 2013. They found there was a threshold of the effect when the GDP of those countries reached 142%. The finding confirmed and supported the results of Samargandi et al. (2015). However, this finding was opposite to the results reported by Ibrahim and Alagidede (2018). Moreover, during financial crises, Asteriou and Spanos (2019) explored financial development and economic growth over the period 1990–2016. Their principal point was to track

down the effect of financial development on economic growth. In particular, the outcomes of this study showed that before a crisis, financial development pushed economic growth, while after the crisis, it impeded the growth of economies.

A large body of research used panel dataset and documented the finance–growth nexus in various groups of countries. [Bist \(2018\)](#) analyzed the long-term relationship between financial development and economic growth in 16 low-income countries. By using credit to the private sector as the proxy for development of the financial industry, a long-term cointegrating connection between financial development and economic growth is demonstrated. Research of 73 economies during 1975–2011 is conducted by [Herwartz and Walle \(2014\)](#) to determine the difference in the nexus of finance and growth between high- and low-income countries. The rate of credit by deposit money banks and other financial institutions over the non-financial private sector compared with the percentage of GDP is considered the level of development in finance. These researchers stated that the influence of finance on economic development in high-income countries is generally stronger than in low-income countries. [Pradhan et al. \(2017\)](#) also observed this bond for the ASEAN region spanning the period of 1991–2011 by employing different proxies of financial development in four sectors: banking, bond market, stock market, and insurance. The results pointed out that the sharing of a cointegrating relationship among four sectors in the financial industry boosted the economic growth in ASEAN countries in the long-term. In line with the studies mentioned above, nuanced views on finance–growth could be found in a range of research in BRICS ([Guru and Yadav 2019](#)), a group of 120 countries ([Wen et al. 2021](#)), and in developing countries as well ([Ekanayake and Thaver 2021](#); [Marcelin et al. 2021](#)).

In the prior literature, researchers mainly focused on developed and emerging or developing economies, and thus there remains a lack of interest in countries which make the transition to a market economy. In the research of [Koivu \(2002\)](#), the finance–growth relation was observed in twenty-five transition countries during the period 1993–2000. By applying three different variables represented for the banking sector (financial spread, the level of non-performing loans in the banking sector, and the proportion of banking sector credit to the private sector), the results indicated that financial spread and non-performing loans have beneficial contributions to economic growth. However, the share of credit in banking compared to the private sector is detrimental to the growth of the economy. This adverse connection stems from the banking crises in transition countries during the 1990s. Similarly, [Neimke \(2003\)](#) also found the positive nexus of financial development and economic growth with bank and stock market indicators as proxy variables for financial development in transition countries. Later, [Djalilov and Piesse \(2011\)](#) investigated this linkage in twenty-seven transition economies in eastern Europe and the former Soviet Republics over the period from 1992 to 2008. Interestingly, the results demonstrated that indicators that stood for the transition reform of the European Bank for Reconstruction and Development exerted a negative influence on economic growth, while credit to the private sector did not. Additionally, the rate of difference between lending and borrowing exhibited negative impact. It is challenging to find updated research on this topic. Hence, it is necessary to examine the effect of financial development on economic growth in transition countries in the current era.

Human resources, in addition to the focus on tangible concepts, play an essential part in the growth process. In the research of [Benhabib and Spiegel \(1994\)](#), the authors documented the contribution of a well-educated labor force to innovation, technology diffusion, and economic growth. The connection between human resources and economic growth has been empirically examined. Earlier empirical studies ([Gennaioli et al. 2011](#); [Lee and Hong 2012](#)) indicated the significant relationship between human development and economic progress. Recent border-crossing studies have explored this relationship in advanced and emerging economies ([Ahsan and Haque 2017](#)) and Asian countries ([Mustafa et al. 2017](#)). More recently, [Rosendo Silva et al. \(2018\)](#) explored the effect of human capital on economic growth in 92 countries and found that a healthier labor

force could create better productivity outcomes. In addition, human resources exert a strong and positive influence on economic growth. In East Asia countries, [Li and Liang \(2010\)](#) not only supported the essential role of health and education capital in economic growth but also emphasized that health capital makes greater contributions than education. In addition, the positive relationship between human resources and economic growth in the short-term and long-term was demonstrated in some countries such as Russian Federation ([Gruzina et al. 2021](#)); Pakistan ([Munir and Arshad 2018](#)); and Mauritius ([Neeliah and Seetanah 2016](#)). On the other hand, in the study of [Antyukhova \(2020\)](#) and [Sehrawat and Giri \(2015\)](#), human capital and physical capital were found to have a causal connection with economic growth in the long-term.

The relationship between financial development, human capital, and economic growth has been observed in some scant research. However, the interactive effect of financial development and human resource has been mainly ignored. Although prior studies did not directly mention the interaction between human resources and financial development, they have considered the role of human resources in the connection between finance and growth. Particularly, [Kendall \(2012\)](#) investigated the linkage of financial development, human resources, and economic growth in several districts in India and indicated that the level of economic growth could be reduced in districts with a less-developed banking system, but this adverse connection could be decoupled with the support of a high level of human capital. Furthermore, [Evans et al. \(2002\)](#) supported that financial development, as important as human resources, also contributed to the growth process. By using a panel data set of 82 countries over the period from 1972 to 1992, economic growth was demonstrated to have a positive relationship with financial development and human capital. One of the special points of this research is that the author applied the production function in a translog form as a theoretical framework for estimation. In addition, financial development was represented by two indicators, M2/GDP and domestic credit to GDP, while primary and secondary school enrollments were proxy variables for human capital. This research concept was also observed in the Economic Community of West African States (ECOWAS). [Abubakar et al. \(2015\)](#) analyzed the finance–growth relation through the channel of human resources. They also used the share of school enrollments to measure human resources and the ratio of broad money to GDP and the ratio of bank credit to GDP as proxy variables of financial development. By applying a cointegration technique, DOLS, and a fully modified least squares method for panel data, the authors stated that both financial development and human capital development are beneficial for the economic growth of ECOWAS. In general, financial development and human resources are two fields of substantial growth, and the interaction between them could be considered. No academic research on this interaction in transition countries has yet been done.

3. Methodology

3.1. Empirical Research Model

In order to investigate the relationship between financial development, human resources, and economic growth in transition countries, this study constructed a basic empirical research model as Equation (1):

$$\text{Economic Growth}_{i,t} = \alpha_0 + \beta \text{FD}_{i,t} + \gamma \text{HR}_{i,t} + \delta X_{i,t} + \varepsilon_{i,t} \quad (1)$$

The dependent variable in this model is Economic Growth_{*i,t*}, which is measured by the log value of the Gross Domestic Product of country *i* at time *t*. Two main explanatory variables in this study are financial development (FD) and human resources (HR). Since both of these elements could not be measured directly, the author created a set of novel proxy variables for them. In terms of financial development, this study employed five indicators that represented the development level of the financial industry: Financial institution depth (FID), financial institution access (FIA), financial institution efficiency (FIE), financial market depth (FMD), and financial market (FM). These indices covered the development of finance in wide aspects such as banking, the stock market, debt securities, pension

fund, mutual fund, and insurance. Regarding human resources, this study employed the labor force participation rate (LFPR) and the level of human development (HDI) across the country. $X_{i,t}$ is the set of macro-control variables, including inflation and foreign direct investment, while $\varepsilon_{i,t}$ is the error term.

In the light of the above definitions, the static equation now is clarified as below:

$$\text{Economic Growth}_{i,t} = \alpha_0 + \beta_1 \text{FID}_{i,t} + \beta_2 \text{FIA}_{i,t} + \beta_3 \text{FIE}_{i,t} + \beta_4 \text{FMD}_{i,t} + \beta_5 \text{FM}_{i,t} + \gamma_1 \text{LFPR}_{i,t} + \gamma_2 \text{HDI}_{i,t} + \delta_1 \text{INF}_{i,t} + \delta_2 \text{FDI}_{i,t} + \varepsilon_{i,t} \quad (2)$$

Technically, this study used basic sequential estimation for panel data including Pooled-OLS, fixed effects model, and random effects model. After that, in order to control endogenous problems, the author employed a two-step difference GMM estimation. In this sense, a lagged dependent variable and lagged endogenous variables would be used as instrumental variables.

3.2. Data

This study constructed a panel data set of 25 transition countries spanning 1995–2019. These countries were selected based on the list of the International Monetary Fund and the accessibility of data sources. Appendix A presents the list of countries.

The objective of this study was to observe whether financial development and human resources improve or worsen the economic growth in transition countries. Therefore, the dependent variable was economic growth, measured by the log form of Gross Domestic Product (GDP) value and calculated by the World Bank. Two major explanatory elements were financial development and human resources. Financial development was represented by five indices: financial institution depth (FID), financial institution access (FIA), financial institution efficiency (FIE), financial market depth (FMD), and financial market (FM). Specifically, these indices were introduced by IMF and calculated from various elements.

The development of the finance industry was expressed by the depth, access, and efficiency level of financial institutions and financial markets. The financial institution depth index covered the contribution to GDP by the private sector credit, pension funds, mutual funds, and insurance, while the financial institution access index was measured by the number of bank branches and automated teller machines (ATMs). Financial institution efficiency was constructed based on three aspects of bank efficiency: (1) the ratio of savings to investment, including net interest margin and lending deposits spread; (2) the efficiency of financial institution's operation activities, measured by non-interest income to total income and overhead costs to total assets; (3) the indicator-reflected profitability via return on assets and return on equity. In terms of financial market depth, this index not only presented the stock market capitalization and stock trade to GDP but also included the volume of debt securities constituting three sectors: international, financial corporations, and non-financial corporations to GDP. Finally, the share of market capitalization, stock market turnover, and debt securities issuers contributed to the calculation of the financial market index.

In addition, human resources were evaluated by two main indicators: the labor force participation rate (LFPR) and the human development index (HDI). Labor force participation rate data were collected from the World Bank and measured by the proportion of the population over 15 years old and their labor supply to the production of goods and services in each country. The Human Development Index (HDI) was a summary data that measured achievement in the development of humanity in three dimensions: a sustainable life in terms of longevity and health, the level of accessing the knowledge by years of schooling, and standard of living depicted via GNI per capital. This study used the annual Human Development reports of the United Nations to collect HDI data.

In addition to the main independent variables, this study also employed inflation and foreign direct investment as two basic macro-economic factors playing the role of control variables. Both of them were collected from the World Bank data source.

4. Results and Discussion

4.1. Descriptive Statistics and Correlation Matrix

Table 1 below shows a brief description of variables used in this model in terms of mean, standard deviation, and minimum and maximum value. Economic growth is evaluated by the gross domestic product and the mean value of 25 transition countries with about \$59,248,458 USD. Financial development measured by five indices has a mean value from the lowest number of 0.077 (financial market depth) to the highest number of 0.571 (financial institution efficiency). In general, as financial development has a scale from 0 to 1, transition countries did not reach a dramatic result in this factor. On the contrary, the mean value of human development was high, standing at 0.733. The labor force participation rate in this group was about 59.424%. Two control variables in this paper were inflation and foreign direct investment, which had a mean value of 16.982% and \$284.9 million USD, respectively.

Table 1. Data descriptive statistics.

Variable	Measure	Obs.	Mean	Std. Dev.	Min	Max
Gross domestic product	US\$ (million)	625	59,248	89,551	860.521	595,862
Financial institution access		625	0.351	0.240	0.017	0.935
Financial institution depth		625	0.139	0.106	0.005	0.389
Financial institution efficiency	ranges from 0 (low) to 1 (high)	625	0.571	0.137	0.067	0.813
Financial market depth		625	0.077	0.08	0.001	0.408
Financial market		625	0.119	0.148	0.001	0.632
Human development index		615	0.733	0.104	0.391	0.917
Labor force participation rate	% of population	609	59.424	10.964	30.070	89.754
Inflation	consumer prices (annual %)	624	16.982	66.923	−8.525	1058.374
Foreign direct investment	US\$ (million)	623	2849	7763	−64,702	92,165

Source: Author's calculation.

The impact of financial development and human development on economic growth was evaluated first by observing the correlation matrix in Table 2. Generally, all five indices of financial development exerted a positive connection with GDP. In addition, human development and labor force participation also had the same direction with the growth of economy. While inflation showed a negative relation, the foreign direct investment was a positive one.

Table 2. Correlation matrix.

	GDP	FIA	FID	FIE	FMD	FM	LFPR	HDI	INF	FDI
GDP	1									
FIA	0.277	1								
FID	0.464	0.655	1							
FIE	0.398	0.477	0.596	1						
FMD	0.537	0.378	0.641	0.419	1					
FM	0.531	0.206	0.575	0.451	0.777	1				
LFPR	0.026	−0.263	−0.059	0.048	0.076	0.057	1			
HDI	0.419	0.741	0.716	0.494	0.462	0.336	−0.246	1		
INF	−0.084	−0.119	−0.097	−0.187	−0.117	−0.031	−0.104	−0.133	1	
FDI	0.426	0.097	0.273	0.184	0.385	0.372	0.019	0.193	−0.049	1

Source: Author's calculation.

4.2. Empirical Analysis

To explore the relationship between financial development, human development, and economic growth, the author orderly applied three methods: pooled ordinary least squares (OLS), fixed effects model, and two-step difference GMM. The empirical results are exhibited in Table 3. The first column demonstrates the positive effect of financial development and human development on economic growth in transition countries. In particular, the coefficients of financial institution access, financial market depth, and financial market were positive and statistically significant. However, the depth and efficiency level of financial institution were not statistically significant. In terms of human capital, the positive coefficient of labor force participation and human development supported the beneficial contribution of human resources to economic growth.

Table 3. The estimation results.

	OLS	Fixed Effects	Two-Step Difference GMM
	−1	−2	−3
GDP_{t-1}			0.197 **
FIA			−0.083
	0.280 ***	0.380 ***	0.807 ***
FID	−0.078	−0.045	−0.215
	0.09	0.119 ***	−0.554 *
FIE	−0.067	−0.06	−0.326
	−0.155	−0.051	0.323 ***
FMD	−0.207	−0.057	−0.126
	0.215 ***	−0.029	−0.392 ***
FM	−0.063	−0.023	−0.079
	0.309 ***	0.074 *	0.577 ***
LFPR	−0.051	−0.003	−0.069
	0.15 ***	0.14 ***	−0.002
HDI	−0.018	−0.017	−0.001
	0.496 ***	1.289 ***	8.428 ***
INF	−0.088	−0.136	−2.584
	0.011	0.017	0.01 *
FDI	−0.039	−0.015	−0.006
	−0.227 ***	0.003 *	0.031 *
	−0.033	−0.001	−0.016
Obs.	552	552	494
R^2	0.693	0.887	
Hausman Test		0.002	
AR(2)			0.425
Hansen test of overid. restrictions			0.159
Hansen tests of exogeneity of instrument subsets: Hansen test excluding group			0.071
Hansen tests of exogeneity of instrument subsets: Difference (null H = exogenous)			0.976

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors in parentheses. Source: Author's estimation.

The findings from the OLS method show the influence of financial development and human resources on economic growth, but not the disparity among countries and years. Thus, to examine this relationship, the author employed the fixed effects model. In essence, this research conducted a fixed effects model and a random effects model. Based on the result of the Hansen test, the fixed effects model was more sufficient. Compared with the results of the OLS method, the outcomes of the fixed effects model also pointed out the role of financial development in terms of bank branches, ATMs, private-sector credit,

pension funds, mutual funds, and insurance premiums. In addition, debt securities and stock market turnover were documented to contribute to economic growth. Accordingly, the essential role of labor force participation and human development in economic growth was confirmed.

To resolve endogenous problems in the empirical model, the two-steps difference GMM method was applied. The result of GMM analysis is depicted in column 3 of Table 3. The estimation equation added to the lag variable of dependent variable was a new independent variable. The coefficient of GDP_{t-1} was 0.197, which demonstrated that the historical number of Gross Domestic Product could affect the growth of GDP currently. Generally, this result was consistent with that of the fixed effects method. The positive and statistically significant influence of financial institution access, financial institution efficiency, and financial market variables on economic growth was underpinned. These variables represented the development of the financial industry that is considered a key driver of the economy of a country. Based on Levine (1997), the operation of a financial system is to allocate the capital flow in an optimal way and minimize transaction costs and risk. Hence, financial development facilitates all parties who participate in financial markets to promote the efficiency of markets and business activities. As a result, this accelerates economic growth. This finding was supported by the research of Ibrahim (2018), Eita and Jordaan (2010), and Levine (2005).

However, the result of the GMM method also exploited the dark side of financial development. The levels of financial institution depth and financial market depth exerted a negative connection with economic growth. The explanation for this trend was mentioned in the research of Allen et al. (2011) and Allen (2012). This is because development activities may lead to a higher level of systemic risk and complicated financial products (Gubler 2011). In addition, researchers also argued that the financial crisis in 2008 roots in developed financial products. In particular, in the research of Asteriou and Spanos (2019), the authors stated that financial development increased economic growth in 26 European Union countries for the period before the crisis of 2008, while after the crisis it hindered the growth of the economy. Regarding human resources, human development showed a positive effect on economic growth. A country that has better education and healthier citizens could reach sustainability resources to enhance socioeconomic development. This viewpoint was also supported by a large body of research by Munir and Arshad (2018), Rosendo Silva et al. (2018), and Neeliah and Seetanah (2016).

4.3. Robustness Check

For robustness, the author evaluated the linkage between financial development, human resources, and economic growth by adding an aggregate financial development factor and an interaction term of financial development and human development as two more control variables. The result of this section is reported in Table 4.

In the research of Levine (2005), financial development includes activities to improve the main functions of financial systems related to savings, capital flow for investment and risk diversification. This impacts not only the choice of saving and investment of individuals but also the efficiency of funds. Consequently, financial development influences the aggregation of physical resource, human capital, and total factor productivity. These core elements constitute the level of economic growth. In terms of data source, the aggregate financial development index was collected from the Global Financial Development Database of the World Bank, while the human development index was created by the United Nation in the development program. Table 4 presents the outcomes of the empirical model in the robust-checking process using the two-steps difference GMM method.

Table 4. Robustness check.

	Aggregate Financial Development (AFD) Control	Interaction between Aggregate Financial Development and Human Development
	(1)	(2)
GDP_{t-1}	0.406 *** (0.045)	0.428 *** (0.043)
FIA	0.509 *** (0.215)	0.512 *** (0.126)
FID	−0.331 * (0.153)	−0.308 * (0.168)
FIE	−0.057 (0.181)	−0.019 (0.187)
FMD	−0.21 *** (0.079)	−0.231 *** (0.042)
FM	0.283 *** (0.069)	0.333 *** (0.101)
LFPR	0.004 *** (0.001)	0.004 ** (0.001)
HDI	5.519 *** (2.584)	4.899 ** (2.12)
INF	0.011 * (0.007)	0.011 * (0.006)
FDI	0.059 0.036	0.049 0.033
AFD	2.66 ** (1.068)	
AFD*HD		2.639 * (1.402)

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors in parentheses. Source: Author's estimation.

With the control of aggregate financial development (AFD) in column 1 of Table 4, the result is similar to the basic estimation in Table 3. This highlighted the crucial role of financial development and human resources in economic growth. In addition, aggregate financial development (AFD) showed a positive and statistical significance in relation to economic growth.

In the research of Kendall (2012), Hakeem (2010), and Ibrahim (2018), the interaction role between financial development and human capital was observed. Hence, in the robust-checking step, an interaction term of aggregate financial development and human development (AFD*HD) was created and used as an extra control variable. The result in column 2 of Table 4 did not change considerably in the dimension and the value. This result strongly supports the empirical findings presented in Section 4.2.

Generally, by applying the robustness check, this study emphasized a robust and stable relationship between financial development, human resources, and economic growth. The development of the financial industry and human capital could be the main drivers of economic growth.

5. Conclusions

The empirical findings demonstrate the positive and statistically significant influence of financial development on economic growth, particularly on the access and efficiency level of financial institutions and financial markets. Spreading out bank branches and increasing the number of ATMs could attract entrepreneurs, households, and individuals to the financial industry, reducing commuting expenses that are considered a barrier to finance. In essence, financial development facilitates all parties who take part in financial markets to promote the efficiency of market and business activities. Consequently, this boosts the growth of the economy. As a key financial intermediary, bank efficiency reflects how efficient financial institutions of a country are. Positive findings of financial institution

efficiency in this study imply enhancing the productivity of financial institutions measured by their return, contributing resources to the growth of the economy. In addition, the turnover of the stock market and debt securities represented in the financial market also prompt an impulse towards economic growth. However, development activities in the financial industry may lead to a higher level of systemic risk and complicated financial products (Gubler 2011). Economic growth was found to have a negative relationship with the levels of financial institution depth and financial market depth.

In terms of human resources, while labor force participation rate (LFPR) does not relate to economic growth, human development showed a positive effect on economic growth. This result supports the statement that a country that has better education and healthier citizens could reach sustainability resources to enhance social and economic development. In the robustness-checking step, the author added an interaction term of financial development and human developments (AFD*HD) as an independent variable. The result once again shows the highly positive and statistical significance in relation to economic growth. This highlights not only the crucial role of financial development and human resources, but also the interaction between them in the level of economic growth in transition countries.

After evaluating the impact of financial development and human resources on economic growth by econometric methods and robustness check, this study exhibits robust and stable findings. This study also contributed an academic reference to the research on economic growth in transition countries, which has been left open. Furthermore, policymakers could consider applying the outcomes of this research to issuing development programs in terms of finance and humanity in order to reach overall and sustainable growth. At the beginning of the transition process in transition economies, the interest rates for loans are relatively high, while the interest rates for saving are low. That exhibits poor competition in the finance sector. During the transition process, policies need revisions both to meet the objectives of changing from plan to market economy and integrating into the global economy. That is a big challenge for transition countries compared with others. However, they should take advantage of financial development and human resources and consider them leverage for economic development. This study explored the relationship between financial development, human resources, and economic growth. However, the author only focused on linear regression, while the non-linear nexus or “too much finance” viewpoint also needs examining. That is the limitation of this research that should be investigated and developed in further works.

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Appendix A

List of transition countries: Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Cambodia, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Laos, Latvia, Lithuania, Moldova, Poland, Romania, Slovak Republic, Slovenia, Tajikistan, Ukraine, Uzbekistan, and Vietnam.

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