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The impact of financial development on economic indicators: a dynamic panel data analysis

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ABSTRACT

The study investigates the effect of financial development on major economic indicators, i.e., economic growth, inflation, and employment by applying System GMM estimation technique for a panel of 120 countries for the period 1997 to 2017. Four distinct proxies of financial development are used, i.e., private sector credit, liquid liabilities, money and quasi money, and bank credit. The results contradict the traditional supply-lending hypothesis and reveal negative impact of financial development on economic growth. Moreover, financial development is found to be positively associated with inflation and employment growth. It is suggested that there is need to reform and strengthen the supervision of financial intermediaries to ensure sound prudential lending practices. Furthermore, more credit needs to be allocated to highly productive firms.

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1. Introduction

The words financial development, deepening, and financial intermediations mean the availability of wide range of financial services to address diverse financial requirements. In literature these words are used synonymously. Financial development is believed to affect economic growth through two major macroeconomic channels. Firstly, it shapes up savings (McKinnon, 1974). Secondly, it ensures the effectiveness of intermediation to provide the highest return on investment opportunities. Therefore, for sound and healthy structure of an economy, the role of financial development cannot be disregarded.

The theoretical affiliation between financial development and macroeconomic variables is verified empirically by previous studies (Adu et al., 2013; Samargandi et al., 2015). But these studies have examined the impact of financial development separately on economic growth, inflation, and employment on different groups of economies over various time horizons. Some studies have concentrated more on the

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direction of causality (Čižo, Lavrinenko, Ignatjeva, Danilevica, et al., 2020; Wadud, 2009), while others studies have focussed on the quantity and quality effects of financial development (Christopoulos & Tsionas, 2004; Rachdi & Mbarek, 2011). The studies seem to confirm the strong connection between financial development, economic growth and other related macroeconomic variables (Cheng et al., 2021; Nawaz et al., 2019). The significance of the current study is that it investigates the impact of financial development on three macroeconomic variables simultaneously, i.e., economic growth, inflation, and employment.

Recent studies have shown inconclusive impact of financial development on economic growth. Some studies have found positive impact (Afonso & Blanco-Arana, 2018; Ahmad et al., 2018; Bist, 2018; Čižo, Lavrinenko, & Ignatjeva, 2020; Durusu-Ciftci et al., 2016; Mhadhbi et al., 2020; Sharma, 2020), while some studies have shown negative impact (Ahmed, 2016; Ayadi et al., 2015; Ehigiamusoe et al., 2019) and neutral impact (Chang, 2002) of financial development on economic growth. Rousseau and Wachtel (2011) have suggested that financial development has a positive impact on economic growth only if inflation falls below the threshold. However, the financial development has no effect on economic growth when inflation goes beyond the threshold. Scant literature is found on the relationship between financial development and inflation. The present study tries to fill this gap in the literature by scrutinising the impact of financial development on inflation.

Financial development also affects employment level. Wasmer and Weil (2004) have shed light on the interaction between financial sector development (more liquidity) and labour hiring. They have found that high agitation in the credit sector would lead to low credit lending, which, in turn, makes it difficult for firms to create more job opportunities. Consequently, the overall employment level will deteriorate. Gatti et al. (2012) have empirically exhibited the positive relationship between financial development and employment. Similarly, Bayar (2016), Epstein and Shapiro (2019), Olowu et al. (2019) and Raifu (2019) have reported a positive relationship between financial development and employment. Literature on finance-economic growth nexus is widely available, but for the impact of financial development on inflation and employment is very limited. Therefore, this study will try to fill this gap in the literature.

Analyzing the financial sector and its related areas is worthwhile in present times as the financial crisis is primarily related to the financial sector. It raises the question of whether the intensified and deepened financial market can even be a consequence or a reason for affecting (positively or negatively) employment, inflation and, most importantly, the economic growth. The objective of this study is to analyse the impact of financial development on economic growth, inflation, and employment growth in a panel using sophisticated econometric techniques like System GMM. The study also reinvestigates the traditional supply leading hypothesis which suggests that financial development impact economic growth with no feedback response from economic growth.

The study contributes to the literature in several ways. First, it uses panel data of 120 countries for a long period from 1997 to 2017 to analyse the impact of financial development on economic growth, inflation and employment. Secondly, it will use unique proxies of financial development to investigate the impact of financial development on macroeconomic variables. Third, the proxies used for financial

development are based on financial assets and banking sector development, which are not found in the previous studies. Furthermore, the impact of each proxy of financial development is examined separately on macroeconomic variables. Fourth, the study reinvestigates the traditional supply leading hypothesis. Finally, the study also explores the impact of the financial crisis of 2008 on macroeconomic variables.

The remaining part of the paper is laid out as follows. The empirical literature is briefly explained in Section 2. The data and methodology are discussed in Section 3. The estimated outcomes are explained in Section 4. The study's conclusion and policy implications are presented in the final section.

2. Literature review

Numerous empirical studies have inspected the impact of financial development on economic growth, inflation and employment growth on different countries and time horizons using different estimation techniques. These studies have used different variables, theoretical models, econometric techniques, data type, time horizon, etc. for the empirical analysis and have provided inconclusive results. Some studies have found positive impact of financial development on economic growth (Ahmad et al., 2018; Asongu, 2015; Mhadhbi et al., 2020; Samargandi et al., 2015) while some studies have confirmed negative impact of financial development on economic growth (Arcand et al., 2015; Loayza et al., 2017; Rousseau & Wachtel, 2011; Wachtel, 2003).

It is argued that financial development does not only speed-up economic growth but also generates employment and reduces poverty and income inequality, particularly in developing countries (Bayar, 2016; Çiftçioğlu & Bein, 2017; Hicham, 2017; Shaibu & Ibrahim, 2016; Uddin et al., 2014). Financial development promotes growth and increases employment through capital accumulation and technological innovation (Kapidani & Luci, 2019; Pietrovito, 2014). Studies have found mixed results regarding empirical relationship between financial development and employment. Some studies have found that financial development increases employment level (Pagano & Pica, 2012; Shaibu & Ibrahim, 2016). Similarly, some studies have reported that credit market perfection increases the persistence of employment (Kim & Lim, 2018; Ogbeide et al., 2016). According to Borsi (2018) an increase in private credit raises employment. However, financial development may reduce employment. The reducing effect of financial development depends on several factors, such as the choice of the measure of financial development, labour market regulations, union density and coordination of wage bargaining power (Gatti et al., 2012) and whether workers are skilled or un-skilled (Feldman, 2013). Employment also decreases with market concentration and rigid market regulation (Kim & Lim, 2018). Bayar (2016) concludes that financial development has no significant relationship with employment. Given the inconclusiveness in the existing studies, it is important to investigate the effect of financial development on employment.

In modern globalised world, financial sector is considered as the backbone of the economy. Therefore, it is important to empirically investigate whether the intensified and deepened financial market affects (positively or negatively) macroeconomic variables, i.e., economic growth, inflation and employment. The present study offers a

prolific and comprehensive insight regarding the impact of financial development on macroeconomic variables.

3. Data and methodology

3.1. Data overview

For empirical analysis, the study uses data set for 120 countries¹ from 1997 to 2017. Data is taken from World Development Indicators (WDI), Penn World Tables (PWT), International Country Risk Guide (ICRG) and International Financial Statistics (IFS).

Economic growth rate (GR) is proxied by real GDP growth rate. Inflation rate (INF) is measured by consumer price index (CPI). Employment growth rate (EMP) is calculated as the growth rate of the number of persons employed. Financial development (FD) is measured by four different proxies. In which, two proxies are linked with financial assets like liquid liabilities (M3 % of GDP) and money and quasi money (M2 % of GDP). The other two proxies are linked with banking sector development, i.e., domestic bank credit (DBC) and domestic bank private credit (DBPC) both are taken as % of GDP. Investment (INV) is taken as the growth rate of capital stock (million dollars). Government expenditure (GEXP) is used to control macroeconomic stability. It is measured by general government final consumption expenditure (% of GDP). Real exchange rate (REX) is measured by effective real exchange rate index. Wage (WAG) rate is used to control labour supply. According to classical economists, persistent unemployment prevails due to high wages, as it raises the cost of production. In turn, if the wages are reduced, the employer gets motivated to hire more labour, which will increase employment level (Apergis, 2008). Pertaining to its importance, wages are used as regressors in the employment equation. We have used share of labour compensation in GDP to measure wage rate. Law and order (LOR) is used as a proxy for institutions. This variable is scaled from 0 to 6. A higher value means better institutional quality and vice versa. Foreign direct investment (FDI) is taken as net inflows (% of GDP).

3.2. Research methodology

The purpose of this study is to examine the impact of financial development on growth, inflation and employment based on the concept given by Apergis et al. (2007). The model is expressed below with the help of the following system of equations:

$$GR_{it} = \alpha_0 + \alpha_1 GR_{it-1} + \alpha_2 INF_{it} + \alpha_3 EMP_{it} + \alpha_4 FD_{it} + \alpha_5 LOR_{it} + \alpha_6 INV_{it} + \alpha_7 GEXP_{it} + \alpha_8 D_t + \mu_{it} \quad (1)$$

$$INF_{it} = \beta_0 + \beta_1 INF_{it-1} + \beta_2 GR_{it} + \beta_3 EMP_{it} + \beta_4 FD_{it} + \beta_5 REX_{it} + \beta_6 FDI_{it} + \beta_7 GEXP_{it} + \beta_8 D_t + \nu_{it} \quad (2)$$

$$\begin{aligned}
 EMP_{it} = & \gamma_0 + \gamma_1 EMP_{it-1} + \gamma_2 GR_{it} + \gamma_3 INF_{it} + \gamma_4 FD_{it} + \gamma_5 INV_{it} \\
 & + \gamma_6 WAG_{it} + \gamma_7 D_{it} + \epsilon_{it}
 \end{aligned}
 \tag{3}$$

where, i stands for cross sectional units $i = 1, 2, \dots, 120$ countries and t denotes the time period $t = 1997 - 2017$. α 's, β 's and γ 's are the parameters to be estimated and μ , ν , and ϵ are the stochastic terms.

These three equations are devised to check the impact of financial development on economic growth, inflation rate, and employment, respectively. Lag term of dependent variable is introduced as an explanatory variable to capture the dynamic impact. Apart from the financial development indicator, other determinants of economic growth, inflation, and employment are used to avoid specification bias. This simultaneous equation model will be estimated using System GMM technique. This technique addresses endogeneity issue and controls the unobserved country-specific factors (Levine et al., 2000). System GMM is a two-step estimation technique; therefore, it produces more efficient and accurate estimates than the differenced GMM method (Baltagi, 2005; Roodman, 2006). This approach also effectively resolved the issue caused by the proliferation of instruments (Roodman, 2009). Thus, the dynamic panel system GMM is the most convenient and economical way to analyse the impact of financial development on macroeconomic variables.

4. Results and discussion

4.1. Descriptive statistics

Table 1 explains the descriptive analysis. The mean value of economic growth is 3.81%. Equatorial Guinea has the highest economic growth rate, which is 71.18%. This high level of economic growth is attributed to the discovery of natural resources and increased privatisation (McSherry, 2006). The lowest value of economic growth rate is observed in Latvia which is -32.11% . It is observed mainly due to hyperinflation in Latvia (Tragakes et al., 2008). Both the maximum and minimum economic growth rate is from developing economies. Gabon has the minimum level of inflation (-11.68%). Bulgaria witnessed the maximum level of inflation (1058.4) in 1997 due to excessive monetary expansion and exchange rate volatility (Charles & Marie, 2017). Furthermore, the maximum and minimum growth of employment was observed in Bahrain and Suriname respectively.

Table 1. Descriptive statistics of the variables.

	Minimum	Maximum	Mean	Std. dev.
Economic growth	-32.11	71.18	3.81	3.14
Inflation	-11.68	1058.4	13.84	12.72
Employment	-19.45	29.08	2.09	1.75
Investment	-4.91	90.25	5.4	4.18
Money and quasi money	3.01	670.81	63.71	60.45
Liquid liability	5.52	350.91	57.51	46.01
Domestic bank credit	0.71	320.45	53.69	50.11
Domestic bank private credit	0.91	323.45	55.69	51.1
Foreign direct investment	-67.16	155.2	4.95	3.77
Government expenditure	3.74	80.22	16.61	8.07

Source: Authors calculation.

4.2. Estimated results

Table 2 provides the estimated results. Due to missing data for the law and order variables equation (1) is estimated twice, i.e., with and without law and order variable. The results of the economic growth equation show that most of the lagged coefficients of economic growth are negative and statistically insignificant. It indicates that there is no inertia effect. Inflation has a significant negative influence on economic growth. These results validate the existing literature that inflation has statistically significant negative effect on economic growth (Ehigiamusoe et al., 2019; Khan & Hanif, 2020; Law & Singh, 2014). The coefficients of employment and investment are positive and statistically significant. It indicates that high level of employment and investment increase economic growth. It implies that the sustained economic growth cannot be attained without job creation (Bai et al., 2020; Mokuolu, 2018). It supports the findings of previous studies that employment growth serves as a cornerstone in generating economic growth (Glaeser et al., 1995). Government expenditure has negative but statistically insignificant impact on economic growth (columns 1-4). Churchill and Yew (2018) have established a negative insignificant relationship between government expenditure and economic growth. However, the estimation without law and order variable shows that the government expenditure has negative and statistically significant effect on economic growth. The coefficient of law and order (LOR) in economic growth equation is positive throughout but insignificant in columns (1) and (2) and significant in columns (3) and (4). Haggard and Tiede

Table 2. Estimated results (dependent: economic growth).

	With law and order				Without law and order			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>C</i>	4.83 (0.37)	2.19 (0.31)	2.38 (0.28)	-0.05 (-0.08)	0.89 (0.07)	-2.44 (-0.46)	5.89 (0.42)	-2.12 (-0.06)
<i>GR_{t-1}</i>	-0.09 (-0.77)	-0.07 (-0.85)	-0.35 (-1.53)	-0.25 (-1.54)	0.06 (0.37)	-0.05 (-0.49)	-0.07 (-0.93)	-0.08 (-0.84)
<i>INF</i>	-0.13* (-1.80)	-0.02*** (-2.40)	-0.02** (-2.19)	-0.04** (-2.27)	-0.01* (-1.85)	-0.03** (-2.37)	-0.04* (-1.88)	-0.03* (-1.85)
<i>EMP</i>	0.15* (1.68)	0.43** (2.12)	0.38** (2.20)	0.33** (2.10)	0.21* (1.97)	0.44** (2.23)	0.45** (2.39)	0.49** (2.45)
<i>INV</i>	0.54*** (3.84)	0.63*** (3.83)	0.72*** (3.83)	0.71*** (4.97)	0.39** (2.44)	0.47*** (2.63)	0.43** (2.40)	0.26** (2.22)
<i>GEX</i>	-0.29 (-1.30)	-0.31 (-1.46)	-0.4 (-1.41)	-0.29 (-1.31)	-0.33** (-2.23)	-0.43** (-2.21)	-0.35** (-2.17)	-0.33* (-1.88)
<i>LOR</i>	0.34 (0.98)	0.32 (0.78)	0.71* (1.76)	0.64* (1.75)	—	—	—	—
<i>M3</i>	-0.04** (-2.48)	—	—	—	-0.04** (-2.43)	—	—	—
<i>M2</i>	—	-0.04** (-2.42)	—	—	—	-0.05** (-2.77)	—	—
<i>DBC</i>	—	—	-0.03** (-2.41)	—	—	—	-0.02* (-1.75)	—
<i>DBPC</i>	—	—	—	-0.09*** (-2.86)	—	—	—	-0.02** (-2.12)
<i>D</i>	-0.51** (-2.16)	-0.68** (-2.25)	-0.78** (-2.26)	-0.77** (-2.15)	-0.58* (-1.98)	-0.62** (-2.21)	-0.79** (-2.31)	-0.79** (-2.16)
Arellano-Bond Test for AR(2)	0.662	0.343	0.399	0.367	0.889	0.562	0.69	0.455
Hansen Test	0.672	0.786	0.806	0.649	0.884	0.457	0.233	0.422

Note. ***, ** and * indicates that the value is significant at 1%, 5% and 10% and (.) denotes the t-values, respectively. Source: Author's Calculated.

(2011) and Park and Shin (2017) emphasise the importance of rule and law and its positive impact on economic growth. Barro and Lee (2013) in their study validate the positive impact of rule and law in developing economies.

Finally, all financial development variables have a significant negative impact on economic growth. These results are aligned with some recent studies (Cheng et al., 2021; Mhadhbi et al., 2020; Nawaz et al., 2019). One possible justification of this negative effect of financial development on economic growth could be inadequate regulation and inefficient deposit insurance policies of the governments. Previously, in different cross-country analysis, Arcand et al. (2015) have also shown the existence of a negative relationship between financial depth and economic growth. The negative effect of financial deepening on economic growth is attributed mainly to the expansion of credit with lack of accountability, regulation, and monitoring of the intermediaries which may be banks or other institutions. Balino and Sundararajan (1991) accredit the negative relationship in the face of irregularities in credit expansion and their utilisation in inappropriate projects, which, in turn, affects growth adversely. The negative impact of financial development on economic growth is also due to financial crisis and that private credits are directed more towards consumption rather than productive utilisation (Asteriou & Spanos, 2019; Rousseau & Wachtel, 2011).

The time dummy in the economic growth equation has statistically significant and negative sign, which confirms the economic distress of world countries as a result of the 2008 financial crisis. Hansen test of over-identifying restrictions is used as it tests the overall validity of the instruments. The high insignificant p-values indicate that the instruments used are valid. The statistically insignificant values of Arellano-Bond Test for AR (2) indicate that there is no serial correlation.

The inflation equation is also estimated twice, i.e., with and without real effective exchange rate. The results are reported in Table 3. The results show that the lag of inflation has a positive and statistically significant effect on current inflation. It means that current inflation is positively affected by previous inflation. Economic growth has a positive but statistically insignificant effect on inflation. Bhusal and Silpakar (2011) have determined that there is no response from output growth to inflation. Employment growth and government expenditures have statistically insignificant effect on inflation. Foreign direct investment has a positive and statistically significant effect on inflation in estimation without real effective exchange rate.

Financial development has a statistically significant and positive effect on inflation. Previously, English (1999), Huang et al. (2010), Sanusi et al. (2017) and Ehigiamusoe et al. (2019) have confirmed this relationship and have stated that the increase in liquidity increases inflation. The intuition is that higher liquidity increases the capital price, which, in turn, increases product prices (Yiheyis, 2013). With reference to the quantity theory of money, the increased supply of money will result in inflated price levels. Coefficient of dummy variable has positive sign and it is statistically significant, which indicates that financial crisis of 2008 has increased inflation rate in the world.

The results of employment equation are reported in Table 4. The statistically insignificant coefficient of lag of employment negates the existence of employment rigidity and persistence. Previously, a similar result has been found by Narayanan (2003). Economic growth has statistically significant positive effect on employment growth. It

Table 3. Estimated results (dependent: inflation).

	With real effective exchange rate				Without real effective exchange rate			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>C</i>	13.92 (1.14)	16.35 (1.49)	29.43** (2.55)	47.61** (2.63)	10.54* (1.81)	12.25** (2.62)	8.70** (2.51)	26.50*** (2.74)
<i>INF</i> _{<i>t</i>-1}	0.74*** (5.29)	0.59*** (6.12)	0.71*** (5.55)	0.76*** (5.39)	0.66*** (4.69)	0.77*** (3.27)	0.79*** (5.66)	0.69*** (3.62)
<i>GR</i>	0.33 (0.28)	0.08 (0.38)	-0.34 (-0.80)	-0.09 (-0.48)	0.06 (0.47)	0.31 (0.51)	0.06 (0.52)	-0.03 (-0.32)
<i>GEXP</i>	0.35 (0.71)	0.06 (0.3)	-0.96 (-1.56)	-0.99 (-1.24)	-0.4 (-0.77)	-0.51 (-1.56)	-0.24 (-0.60)	-0.59 (-1.49)
<i>EMP</i>	0.47 (0.78)	0.37 (0.65)	-0.65 (-1.47)	-0.75 (-1.27)	-0.94 (-1.48)	-0.88 (-1.31)	-1.10 (-1.50)	-0.53 (-1.12)
<i>FDI</i>	-0.23 (-1.10)	-0.21 (-0.83)	0.15 (1.14)	0.36 (1.39)	0.72** (2.66)	0.60** (2.56)	0.60** (2.73)	0.56** (2.45)
<i>REX</i>	-0.27** (-2.30)	-0.31* (-1.78)	-0.20* (-1.82)	-0.21* (-1.92)	—	—	—	—
<i>M3</i>	0.21 (1.38)	—	—	—	0.21* (1.79)	—	—	—
<i>M2</i>	—	0.06 (0.93)	—	—	—	0.20* (1.67)	—	—
<i>DBC</i>	—	—	0.06* (1.76)	—	—	—	0.07* (1.75)	—
<i>DBPC</i>	—	—	—	0.05* (1.77)	—	—	—	0.05* (1.77)
<i>D</i>	6.21*** (3.55)	5.51*** (4.76)	4.48*** (2.12)	4.92*** (2.38)	5.18*** (2.71)	4.54*** (5.27)	3.55*** (3.28)	4.18*** (3.14)
Arellano-Bond test for AR(2)	0.236	0.203	0.228	0.246	0.249	0.168	0.328	0.286
Hansen Test	0.383	0.756	0.532	0.576	0.613	0.392	0.419	0.527

Note. ***, ** and * indicates that the value is significant at 1%, 5% and 10% and (.) denotes the t-values, respectively. Source: Author's Calculated.

Table 4. Estimated results (dependent: employment).

	(1)	(2)	(3)	(4)
<i>C</i>	-1.87 (-1.23)	-3.05 (-1.10)	-1.29 (-0.64)	-1.29 (-0.84)
<i>EMP</i> _{<i>t</i>-1}	0.24 (1.50)	0.08 (0.73)	-0.06 (-0.42)	-0.05 (-0.63)
<i>GR</i>	0.51*** (3.10)	0.44*** (4.27)	0.30*** (5.87)	0.23*** (3.71)
<i>INF</i>	0.019 (1.77)	0.017 (1.34)	0.014 (1.39)	0.022 (0.59)
<i>INV</i>	0.32* (1.68)	0.24* (1.76)	0.26* (1.86)	0.75* (1.92)
<i>WAG</i>	-1.71 (-0.55)	-1.18 (-0.46)	-1.88 (-0.79)	-1.77 (-0.89)
<i>M3</i>	0.02* (1.92)	—	—	—
<i>M2</i>	—	0.018** (2.69)	—	—
<i>DBC</i>	—	—	0.023* (1.70)	—
<i>DBPC</i>	—	—	—	0.037** (1.89)
<i>D</i>	0.28 (0.99)	0.4 (1.25)	0.48** (2.42)	0.48* (1.98)
Arellano-Bond test for AR(2)	0.236	0.287	0.256	0.345
Hansen test:	0.32	0.428	0.354	0.42

Note. ***, ** and * indicates that the value is significant at 1%, 5% and 10% and (.) denotes the t-values, respectively. Source: Author's Calculated.

implies that employment increases with the increase in economic growth. Inflation has statistically insignificant impact on employment. Investment has a statistically significant positive effect on employment. The wage coefficient is negative but statistically insignificant, which indicates that wage rate has no impact on employment.

Financial development has positive and statistically significant effect on employment growth. The positive relationship between financial development and employment has been validated by Bayar (2016), Epstein and Shapiro (2019) and Raifu (2019). Neimke (2003) and Pagano and Pica (2012) have also verified the existence of a positive relationship between financial development and employment. According to these studies, financial development ensures the reallocation of labour from less profitable to highly profitable industries, which generates more job opportunities. Financial crisis dummy has a positive influence on employment but it is statistically significant only in two estimates.

5. Conclusion

The paper examines the impact of financial development on major economic indicators including economic growth, inflation and employment using data for a panel of 120 countries for the period 1997 to 2017. The System GMM estimation technique is applied for empirical analysis. The results indicate that financial development has negative impact on economic growth and reject the traditional supply-lending hypothesis. It has positive impact on inflation and employment. The results imply that extended credits due to financial developments are not utilised for productive investments. It indicates the adverse selection of projects and lack of their check and balance. The financial development inflates the price level and improves the employment. The rapid and unregulated expansion of credits always resulted into hysterical inflationary pressure.

The paper has some important policy recommendations. Since financial development has a negative impact on growth, it is suggested that there is a need to reform and strengthen the supervision of financial intermediaries to ensure sound prudential lending practices. Credits should be allocated to more productive firms. Governments should utilise the resources optimally and need to shift resources from consumption to investment expenditure. Further, the central banks should impose rules for strict credit standards to avoid too much liquidity. Moreover, in the case of a large number of financial institutions, it would be rational to impose high entry requirements in order to avoid weak entrants and thinly spread supervision issue.

Note

1. Lack of financial development data our sample size is limited to 120 countries.

Disclosure statement

Authors have no conflict of interest.

References

- Adu, G., Marbuah, G., & Mensah, J. T. (2013). Financial development and economic growth in Ghana: Does the measure of financial development matter? *Review of Development Finance*, 3(4), 192–203. <https://doi.org/10.1016/j.rdf.2013.11.001>
- Afonso, A., & Blanco-Arana, C. (2018). *Financial development and economic growth: A study for OECD countries in the context of crisis* (REM Working Paper 046). ISEG - Lisbon School of Economics and Management, REM, Universidade de Lisboa.
- Ahmed, A. D. (2016). Integration of financial markets, financial development and growth: Is Africa different? *Journal of International Financial Markets, Institutions and Money*, 42, 43–59. <https://doi.org/10.1016/j.intfin.2016.01.003>
- Ahmad, N., Nazir, M. S., Nafees, B., & Papadamou, S. (2018). Impact of financial development and credit information sharing on the use of trade credit: Empirical evidence from Pakistan. *Cogent Economics & Finance*, 6(1), 1483466. <https://doi.org/10.1080/23322039.2018.1483466>
- Apergis, N. (2008). The employment-wage relationship: Was Keynes right after all? *American Review of Political Economy*, 6(1), 40. <https://doi.org/10.38024/arpe.100>
- Apergis, N., Filippidis, I., & Economidou, C. (2007). Financial deepening and economic growth linkages: A panel data analysis. *Review of World Economics*, 143(1), 179–198. <https://doi.org/10.1007/s10290-007-0102-3>
- Arcand, J. L., Berkes, E., Panizza, U., & Arcand, J. L. (2015). Too much finance? *Journal of Economic Growth*, 20(2), 105–148. <https://doi.org/10.1007/s10887-015-9115-2>
- Asongu, S. (2015). Liberalisation and financial sector competition: A critical contribution to the empirics with an African assessment. *South African Journal of Economics*, 83(3), 425–451. <https://doi.org/10.1111/saje.12048>
- Asteriou, D., & Spanos, K. (2019). The relationship between financial development and economic growth during the recent crisis: Evidence from the EU. *Finance Research Letters*, 28, 238–245. <https://doi.org/10.1016/j.frl.2018.05.011>
- Ayadi, R., Arbak, E., Naceur, S. B., & De Groen, W. P. (2015). Financial development, bank efficiency, and economic growth across the Mediterranean. In *Economic and social development of the Southern and Eastern Mediterranean countries* (pp. 219–233). Cham: Springer.
- Bai, J., Fairhurst, D., & Serfling, M. (2020). Employment protection, investment, and firm growth. *The Review of Financial Studies*, 33(2), 644–688. <https://doi.org/10.1093/rfs/hhz066>
- Balino, J. T., & Sundararajan, V. (Eds.). (1991). *Banking crises: Cases and issues*. International Monetary Fund.
- Baltagi, B. H. (2005). *Econometric analysis of panel data*. John Wiley & Sons Ltd.
- Barro, R. J., & Lee, J. W. (2013). A new data set of educational attainment in the world, 1950–2010. *Journal of Development Economics*, 104, 184–198. <https://doi.org/10.1016/j.jdeveco.2012.10.001>
- Bayar, Y. (2016). Financial development and unemployment in emerging market economies. *Scientific Annals of Economics and Business*, 63(2), 237–245. <https://doi.org/10.1515/aeab-2016-0119>
- Bhusal, T. P., & Silpakar, S. (2011). Growth and inflation: Estimation of threshold point for Nepal. *Economic Journal of Development Issues*, 13(14), 131–138.
- Bist, J. P. (2018). Financial development and economic growth: Evidence from a panel of 16 African and non-African low-income countries. *Cogent Economics & Finance*, 12(1), 1–17.
- Borsi, M. T. (2018). Credit contractions and unemployment. *International Review of Economics & Finance*, 58, 573–593.
- Chang, T. (2002). Financial development and economic growth in Mainland China: A note on testing demand-following or supply-leading hypothesis. *Applied Economics Letters*, 9(13), 869–873. <https://doi.org/10.1080/13504850210158962>
- Charles, S., & Marie, J. (2017). Bulgaria's hyperinflation in 1997: Transition, banking fragility and foreign exchange. *Post-Communist Economics*, 29(3), 313–335. <https://doi.org/10.1080/14631377.2017.1339476>

- Cheng, C. Y., Chien, M. S., & Lee, C. C. (2021). ICT diffusion, financial development, and economic growth: An international cross-country analysis. *Economic Modelling*, 94, 662–671. <https://doi.org/10.1016/j.econmod.2020.02.008>
- Christopoulos, D. K., & Tsionas, E. G. (2004). Financial development and economic growth: Evidence from panel unit root and cointegration tests. *Journal of Development Economics*, 73(1), 55–74. <https://doi.org/10.1016/j.jdeveco.2003.03.002>
- Churchill, S. A., & Yew, S. L. (2018). The effect of military expenditure on growth: An empirical synthesis. *Empirical Economics*, 55(3), 1357–1387. <https://doi.org/10.1007/s00181-017-1300-z>
- Çiftçioğlu, S., & Bein, M. A. (2017). The relationship between financial development and unemployment in selected countries of the European Union. *European Review*, 25(2), 307–319. <https://doi.org/10.1017/S1062798716000600>
- Čižo, E., Lavrinenko, O., & Ignatjeva, S. (2020). Analysis of the relationship between financial development and economic growth in the EU countries. *Insights into Regional Development*, 2(3), 645–660. [https://doi.org/10.9770/IRD.2020.2.3\(3\)](https://doi.org/10.9770/IRD.2020.2.3(3))
- Čižo, E., Lavrinenko, O., Ignatjeva, S., Danilevica, A., & Tvaronavičienė, M. (2020). Financial development and its impact on economic growth (the case of Latvia). *Journal of Security & Sustainability Issues*, 10(2), 465–476. [https://doi.org/10.9770/jssi.2020.10.2\(8\)](https://doi.org/10.9770/jssi.2020.10.2(8))
- Durusu-Ciftci, D., Ispir, M. S., & Yetkiner, H. (2016). Financial development and economic growth: Some theory and more evidence. *Journal of Policy Modeling* S0161, 8938(16), 30063–30061.
- Ehigiamusoe, K. U., Gupta, V., & Narayanan, S. (2019). *The effects of income and inflation on financial development: Evidence from heterogeneous panels* (Economics Discussion Papers, No 2019-11). Kiel Institute for the World Economy. Retrieved 28 January from, <http://www.economics-ejournal.org/economics/discussionpapers/2019-11>
- English, W. B. (1999). Inflation and financial sector size. *Journal of Monetary Economics*, 44(3), 379–400. [https://doi.org/10.1016/S0304-3932\(99\)00033-1](https://doi.org/10.1016/S0304-3932(99)00033-1)
- Epstein, B., & Shapiro, A. F. (2019). Financial development, unemployment volatility, and sectoral dynamics. *Journal of Economic Dynamics and Control*, 99, 82–102. <https://doi.org/10.1016/j.jedc.2018.11.004>
- Feldmann, H. (2013). Technological unemployment in industrial countries. *Journal of Evolutionary Economics*, 23(5), 1099–1126.
- Gatti, D., Rault, C., & Vaubourg, A.-G. (2012). Unemployment and finance: How do financial and labor market factors interact? *Oxford Economic Papers*, 64(3), 464–489. <https://doi.org/10.1093/oep/gpr046>
- Glaeser, E. L., Scheinkman, J. A., & Shleifer, A. (1995). Economic growth in a cross-section of cities. *Journal of Monetary Economics*, 36(1), 117–143. [https://doi.org/10.1016/0304-3932\(95\)01206-2](https://doi.org/10.1016/0304-3932(95)01206-2)
- Haggard, S., & Tiede, L. (2011). The rule of law and economic growth: Where are we? *World Development*, 39(5), 673–685. <https://doi.org/10.1016/j.worlddev.2010.10.007>
- Hicham, A. (2017). Financial development and poverty reduction nexus: A co-integration and causality analysis in selected Arabic Countries. *Academic Journal of Economic Studies*, 3(2), 28–35.
- Huang, H. C., Lin, S. C., Kim, D. H., & Yeh, C. C. (2010). Inflation and the finance–growth nexus. *Economic Modelling*, 27(1), 229–236. <https://doi.org/10.1016/j.econmod.2009.09.003>
- Kapidani, M., & Luci, E. (2019). The Effects on innovation from financial sector development: Evidence from developing countries. *Journal of Competitiveness*, 11(2), 84–94. <https://doi.org/10.7441/joc.2019.02.06>
- Khan, M., & Hanif, W. (2020). Institutional quality and the relationship between inflation and economic growth. *Empirical Economics*, 58(2), 627–649. <https://doi.org/10.1007/s00181-018-1479-7>
- Kim, C. U., & Lim, G. (2018). Minimum wage and unemployment: An empirical study on OECD countries. *Journal of Reviews on Global Economics*, 7, 1–9. <https://doi.org/10.6000/1929-7092.2018.07.01>

- Law, S. H., & Singh, N. (2014). Does too much finance harm economic growth? *Journal of Banking & Finance*, 41, 36–44. <https://doi.org/10.1016/j.jbankfin.2013.12.020>
- Levine, R., Loayza, N., & Beck, T. (2000). Financial intermediation and growth: Causality and causes. *Journal of Monetary Economics*, 46 (1), 31–77. [https://doi.org/10.1016/S0304-3932\(00\)00017-9](https://doi.org/10.1016/S0304-3932(00)00017-9)
- Loayza, N., Ouazad, A., & Ranciere, R. (2017). *Financial development, growth, and crisis: is there a trade-off?* The World Bank.
- McKinnon, R. I. (1974). Money, Growth, and the Propensity to Save: An Iconoclastic View. In *Trade, Stability, and Macroeconomics* (pp. 487–502). Academic Press.
- McSherry, B. (2006). The political economy of oil in Equatorial Guinea. *African Studies Quarterly*, 8(3), 23–45.
- Mhadhbi, K., Terzi, C., & Bouchrika, A. (2020). Banking sector development and economic growth in developing countries: A bootstrap panel Granger causality analysis. *Empirical Economics*, 58(6), 2817–2836. <https://doi.org/10.1007/s00181-019-01670-z>
- Mokuolu, J. O. (2018). Assessment of the development and growth of Nigerian economy as a function of FDI flows. *Journal of Accounting, Business and Finance Research*, 2(2), 91–97. <https://doi.org/10.20448/2002.22.91.97>
- Narayanan, V. G. (2003). Activity based pricing in a monopoly. *Journal of Accounting Research*, 41(3), 473–502. <https://doi.org/10.1111/1475-679X.00113>
- Nawaz, K., Lahiani, A., & Roubaud, D. (2019). Natural resources as blessings and finance-growth nexus: A bootstrap ARDL approach in an emerging economy. *Resources Policy*, 60, 277–287. <https://doi.org/10.1016/j.resourpol.2019.01.007>
- Neimke, M. (2003). *Financial development and economic growth in transition countries* (IEE Working Papers, No. 173). Ruhr-Universität Bochum, Institut für Entwicklungsforschung und Entwicklungspolitik (IEE), Bochum.
- Ogbeide, F. I., Kanwanye, H., & Kadiri, S. (2016). Revisiting the determinants of unemployment in Nigeria: Do resource dependence and financial development matter? *African Development Review*, 28(4), 430–443. <https://doi.org/10.1111/1467-8268.12222>
- Olowu, G., Olaseinde-Williams, G. O., & Bein, M. (2019). Does financial and agriculture sector development reduce unemployment rates? Evidence from Southern African countries. *Agricultural Economics*, 65(5), 223–231.
- Pagano, M., & Pica, G. (2012). Finance and employment. *Economic Policy*, 27(69), 5–55. <https://doi.org/10.1111/j.1468-0327.2011.00276.x>
- Park, D., & Shin, K. (2017). Economic growth, financial development, and income inequality. *Emerging Markets Finance and Trade*, 53(12), 2794–2825. <https://doi.org/10.1080/1540496X.2017.1333958>
- Pietrović, F. (2014). Does financial development help to align growth opportunities with growth? Evidence from industry-level data. *Review of World Economics*, 150(2), 421–442. <https://doi.org/10.1007/s10290-013-0182-1>
- Rachdi, H., & Mbarek, H. B. (2011). The causality between financial development and economic growth: Panel data cointegration and GMM system approaches. *International Journal of Economics and Finance*, 3(1), 143–151. <https://doi.org/10.5539/ijef.v3n1p143>
- Raifu, I. A. (2019). The effect of financial development on unemployment in Nigeria: do measures of financial development matter? *DBN Journal of Economics and Sustainable Growth*, 2(2), 1–35. <https://ssrn.com/abstract=3476848>
- Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *The Stata Journal: Promoting Communications on Statistics and Stata*, 9(1), 86–136. <https://doi.org/10.1177/1536867X0900900106>
- Roodman, D. R. (2006). *Xtabond2: Stata module to extend xtabond dynamic panel data estimator*. Statistical Software Components, Boston College Department of Economics.
- Rousseau, P. L., & Wachtel, P. (2011). What is happening to the impact of financial deepening on economic growth? *Economic Inquiry*, 49(1), 276–288. <https://doi.org/10.1111/j.1465-7295.2009.00197.x>

- Samargandi, N., Fidrmuc, J., & Ghosh, S. (2015). Is the relationship between financial development and economic growth monotonic? Evidence from a sample of middle-income countries. *World Development*, 68, 66–81. <https://doi.org/10.1016/j.worlddev.2014.11.010>
- Sanusi, K. A., Meyer, D., & Ślusarczyk, B. (2017). The relationship between changes in inflation and financial development. *Polish Journal of Management Studies*, 16(2), 253–265. <https://doi.org/10.17512/pjms.2017.16.2.22>
- Shaibu, U. M., & Ibrahim, M. K. (2016). Access and utilization of government health facilities by rural farm households: Evidence from Kogi State, Nigeria. *International Journal of Agricultural Science, Research and Technology in Extension and Education Systems (IJASRT in EESs)*, 7(1), 11–17.
- Sharma, S. K. (2020). Financial development and economic growth in selected Asian economies: A dynamic panel ARDL test. *Contemporary Economics*, 14(2), 201–219.
- Tragakes, E., Brigis, G., & Karaskevica, J. (2008). Health systems in transition 2008. *Latv Heal Syst Rev*, 10(2), 1–276.
- Uddin, G. S., Shahbaz, M., Arouri, M., & Teulon, F. (2014). Financial development and poverty reduction nexus: A cointegration and causality analysis in Bangladesh. *Economic Modelling*, 36, 405–412. <https://doi.org/10.1016/j.econmod.2013.09.049>
- Wachtel, P. (2003). How much do we really know about growth and finance?. *Economic Review-Federal Reserve Bank of Atlanta*, 88(1), 33–48.
- Wadud, A. M. (2009). Financial development and economic growth: A cointegration and error-correction modeling approach for south Asian countries. *Economics Bulletin*, 29(3), 1670–1677.
- Wasmer, E., & Weil, P. (2004). The macroeconomics of labor and credit market imperfections. *American Economic Review*, 94(4), 944–963. <https://doi.org/10.1257/0002828042002525>
- Yiheiyis, Z. (2013). Trade openness and inflation performance: A panel data analysis in the context of African countries. *African Development Review*, 25(1), 67–84. <https://doi.org/10.1111/j.1467-8268.2013.12014.x>