Economic growth-financial development-poverty nexus in emerging markets

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Abstract: The study’s three objectives were to investigate: 1) impact of economic growth on poverty; 2) financial development’s influence on poverty; 3) if financial development is an avenue through which economic growth alleviates poverty in emerging markets. The study used the dynamic generalised methods of moments (dynamic GMM) with annual panel data covering the period from 2005 to 2019. Economic growth was found to have non-significantly reduced poverty whilst financial development significantly reduced poverty levels in emerging markets. On the other hand, the complementarity between economic growth and financial development was found to have enhanced poverty reduction efforts in emerging markets. Financial development was found to be a channel through which economic growth reduced poverty in emerging markets. Emerging markets are therefore urged to implement financial development enhancement policies in order to successfully fight off poverty.

Keywords: economic growth; financial development; poverty; generalised methods of moments; GMM; emerging markets.


Biographical notes: Kunofiwa Tsaurai is an Associate Professor in Financial Management. His main areas of research interest include stock market development, foreign direct investment, monetary economics, international banking and finance, investments, credit management and risk management.

1 Introduction

In accordance to the United Nations (2014), poverty reduction is one of the United Nations’ Millennium Development Goals. The same report noted that majority of the 1.2 billion people who are living on less than US$ 1.25 per day are in Asia, emerging markets and Sub-Saharan Africa. Thorbecke (2013) argued that the benefits of economic growth must trickle down to the people in terms of employment creation, wealth creation and poverty alleviation. Cavusgil et al. (2013) questioned why majority of people in emerging markets are still living in poverty despite the bloc having experienced unprecedented economic growth during the past two decades. Even World Bank (2017)
noted that almost half of the population in emerging markets are living in poverty yet the economic bloc experienced the fastest economic growth in the recent past. Such a problem characterised by economic growth yet increased poverty is at the heart of this empirical investigation.

Financial development is one of the ways alluded to in the literature (Rajan and Zingales, 1998; Stiglitz, 1998) which is an avenue for poverty reduction. It appears that the poverty reduction influence of financial development is conclusive and no longer debatable. Sehrawat and Giri (2017) argued that financial development increases economic growth’s positive influence on poverty reduction. However, such an argument has not yet been tested empirically. It is the basis upon this study is anchored. The study enables emerging to develop economic growth and financial development policies that helps them to reduce poverty.

Empirical studies on economic growth-led poverty reduction have produced conflicting results. Some studies found out that economic growth reduces poverty (the trickle-down theory supported by Nandori (2010), Santos et al. (2016), and Skare and Druzeta (2016) by yet other empirical research noted that economic growth increases poverty (the trickle up theory by Todaro, 1997). Other empirical research produced findings which show that there is no relationship at all between economic growth and poverty (Skare and Druzeta, 2016; Okoroafor and Chinweoke, 2013). The other set of findings in the literature is that the relationship between economic growth and poverty is nonlinear and is U-shaped (Skare and Druzeta, 2016). Other factors need to be available before economic growth can have a significant impact on poverty reduction efforts, consistent with Sehrawat and Giri (2017). It is against this background that this study investigated if financial development is a channel through which economic growth alleviates poverty.

In addition to the fact that no empirical study to the best of the author’s knowledge has so far investigated if financial development is a channel through which economic growth reduces poverty, the existing empirical research on economic growth-poverty nexus has shied away from emerging markets. Earlier research work on economic growth-poverty nexus have largely ignored the vicious cycle of poverty, assumed a linear relationship between the two variables and failed to address the endogeneity problem that characterises the relationship between poverty and other macroeconomic variables. This study fills in these gaps.

This study adds to the body of literature in the following manner. Firstly, it acknowledges that the relationship between either economic growth and poverty or financial development and poverty is not linear. In other words, the relationship depends on other factors, therefore nonlinear. Secondly, unlike most studies on the determinants of poverty, this study captures the vicious cycle of poverty, in line with Azher’s (1995) argument. Thirdly, this study decisively deals with the endogeneity problem that normally characterises relationships between two or more macroeconomic variables. Fourthly, it is the first of its kind to investigate whether financial development is a channel through which economic growth influences poverty. Fifthly, the study is unique in the sense that it is the first study to investigate economic growth-financial development-poverty nexus using emerging markets as a unit of analysis, to the best of the author’s knowledge. Sixthly, the study acknowledges that the relationship between economic growth and poverty or financial development and poverty does not follow a straight line and is a complex relationship, in contradiction to what earlier similar empirical research has portrayed.
The paper is structured as follows: Section 2 is the literature review. It covers literature on the influence of economic growth on poverty, the impact of financial development on poverty and other factors that affect poverty. Section 3 presents and discusses the economic growth, financial development and poverty trends in emerging markets for the period ranging from 2005 to 2019. Section 4 describes the research methodology. Aspects covered in this section include data description, economic model specification, panel unit root tests, panel co-integration tests and main data analysis using the dynamic GMM method. Section 5 is the conclusion of the paper.

2 Literature review

This section discusses

1. the relationship between economic growth and poverty
2. financial development and poverty
3. other factors that influences poverty.

2.1 Economic growth and poverty

According to Kuznets (1995), the trickle-down theory argues that the growth of the economy reduces poverty if income distribution remains constant. In other words, economic growth ends up trickling down to the generality of the population even though this might take a long time. Economic growth creates employment, boosts investment income and increases wealth accumulation, all of which lowers down poverty levels among the people (Kuznets, 1995; Thorbecke, 2013; Ravallion and Chen, 2003).

On the other hand, trickle up theory of poverty argues that economic growth further enriches the already rich people and middle class at the very least whilst worsening the plight of the poor people (Todaro, 1997). Kuznets (1995) also argues that the relationship between economic growth and poverty is U-shaped in nature. Poverty is high during early years of economic growth and is gradually reduced as and when economic growth improves.

Below is a review of the most recent (not older than six years) empirical research on the impact of economic growth on poverty alleviation.

Using the vector autoregressive (VAR) method, Ebunolwua and Yusuf (2018) investigated the impact of economic growth on poverty in Nigeria. The study noted that Nigerians marginally benefited from economic growth. This is evidence that economic growth on its own does not have a significant influence on poverty reduction. It is against this background that the current study is investigating whether financial development is an important absorption capacity necessary to enable economic growth to reduce poverty.

Awad-Warrad and Muhtaseb (2017) used multivariate time series model to investigate the influence of economic growth on poverty in Jordan. They found out that economic growth did not result in poverty reduction in Jordan because of bloated government, foreign labour presence, influx of refugees and rapid population growth. It is clear from this study that certain factors can affect the ability of economic growth to reduce poverty levels. It is against this backdrop that the current study is investigating whether financial
development influences economic growth’s ability to lower down poverty levels in emerging markets.

Dieu Ne Dort et al. (2019) studied the link between economic growth and poverty in Cameroon using multivariate time series data analysis. Poverty levels were found to have been reduced by economic growth through its employment creation in Cameroon. Using multivariate time series data analysis, Mphuka et al. (2017) investigated the relationship between economic growth and poverty in Zambia. Economic growth was found to have a negligible effect on poverty on poverty reduction at a local level whilst the positive impact of economic growth on poverty reduction was found to be significant at a national level in Zambia.

Using ARDL approach, Dewi et al. (2018) studied the economic growth-poverty nexus in Indonesia. A bi-directional relationship between the two variables was detected. Nindi and Odhiambo (2015) investigated the influence of economic growth on poverty reduction in Swaziland. Economic growth had no impact on poverty in Swaziland both in the long and short run. Such a finding is evidence that certain factors must be available for economic growth to be able to contribute towards poverty reduction.

The most recent empirical research work on economic growth-poverty nexus discussed above used time series data analysis approaches. The methodological weaknesses of these studies are as follows: Firstly, they do not address the endogeneity problem associated with the relationship between economic growth and poverty. Secondly, ignore the dynamic features of poverty data are totally ignored. The current study fills in these gaps by using the dynamic generalised methods of moments (GMM). Unlike the current study, none of these empirical studies focused on emerging markets.

Using panel data analysis, Santos et al. (2016) investigated the economic growth led poverty reduction hypothesis in developing countries. Economic growth was found to have reduced multidimensional poverty less than it reduced income poverty in developing countries. Nakabashi (2018) also used panel data analysis to study the relationship between economic growth and poverty in Brazil. The study revealed that economic growth had no influence on poverty at all in Brazil. The finding implies that there could be other factors that influences economic growth’s ability to lower poverty levels in Brazil.

Skare and Druzeta (2016) explored the relationship between economic growth and poverty in developing nations using panel data analysis. An indirect relationship between the two variables was observed in the case of developing nations. The study also noted that the impact of economic growth on poverty in developing nations depended on the type of poverty proxy used. Using panel data analysis, Neil and Paul (2016) studied the impact of economic growth on poverty in British cities. Their study observed that the influence of economic growth on poverty reduction in British cities was quite marginal. Although these empirical studies on economic growth-poverty nexus used panel data analysis, none of them employed a panel data analysis approach which considers the dynamic features of poverty data and addressed the endogeneity problem. None of these empirical research work focused on emerging markets. The current study fills in these gaps.

The findings obtained from empirical studies on economic growth-poverty nexus are mixed. Some studies observed that economic growth reduced poverty, others produced results which show that economic growth increased poverty levels whilst others observed a feedback effect between the two variables. Other empirical research noted that economic growth had a marginal influence on poverty. Another group of researchers
observed that there is a nonlinear relationship between economic growth and poverty. In summary, there is no consensus yet about the impact of economic growth on poverty. In other words, the influence of economic growth on poverty reduction is still not yet conclusive. None of these empirical research work on economic growth and poverty focused on emerging markets. These are the other gaps filled in by this study.

2.2 Financial development and poverty

Boukhatem (2016) argued that financial development increases poverty levels because the poor people are always financially excluded because they do not have collateral security to get access to loans and other related financial products. On the other hand, Boukhatem (2016) noted that financial development reduces poverty levels only after exceeding a certain minimum level of development.

Rajan and Zingales (1998) argued that financial development reduces poverty because the costs associated with the small loans provision to the poor people can easily and quickly be absorbed by big financial market players. This view is in line with Stiglitz (1998) whose study argued that financial development enables the poor people to easily access small loans for their entrepreneurial projects. This creates more wealth among the poor people and generally reduces poverty.

Most recent empirical studies on the impact of financial development on poverty alleviation were done (Rewilak, 2017; Donou-Adonsou and Sylwester, 2016; Rashid and Intartaglia, 2017; Zahonogo, 2017; Ho and Iyke, 2017; Abdin, 2016; Sehrawat and Giri, 2017; Keho, 2016; Dewi et al., 2018; Bayar, 2017; Rono et al., 2015).

Rewilak (2017) investigated the impact of financial development on poverty in developing countries using cross sectional data analysis with data ranging from 2004 to 2015. The study found out that financial development reduced the number of people living in poverty. The study has several methodological weaknesses. Firstly, it does not consider the time series element of the data. Secondly, the methodology used cannot address the dynamic features of poverty data. Thirdly, endogeneity problem cannot be addressed using cross sectional data analysis.

Donou-Adonsou and Sylwester (2016) also investigated the influence of financial development on poverty reduction in developing countries using two stage least squares and fixed effects with panel data ranging from 2002 to 2011. Poverty levels were found to have been reduced by banking sector development whilst microfinance institutions had no impact on poverty alleviation.

Ho and Iyke (2017) investigated the relationship between financial development and poverty reduction in China using Toda-Yamamoto causality test with time series data set ranging from 1985 to 2014. A feedback effect was detected. Abdin (2016) also studied the relationship between financial development and poverty using multiple regression analysis in Bangladesh. Poverty was found to have been reduced by financial development in the case of Bangladesh. Using the autoregressive distributive lag (ARDL) with time series data (1970–2015), Sehrawat and Giri (2017) explored the relationship between poverty and financial development India. Both financial development and economic growth were found to have had a deleterious effect on poverty.

Keho (2016) also investigated the impact of financial development on poverty in the Sub-Saharan African countries using Granger causality test. No direct link was found between financial development and poverty alleviation. Using ARDL approach with time series data ranging from 1980 to 2015, Dewi et al. (2018) studied the link between
financial development and poverty in Indonesia. Their study noted that financial development reduced poverty levels in Indonesia. Rono et al. (2015) studied the relationship between poverty and financial development in Kenya using ARDL methodology with time series data ranging from 1980 to 2013. Credit offered by non-banking financial institutions was found to have had a poverty reduction effect in Kenya. The methodological weaknesses of these empirical studies are as follows: Firstly, the approaches ignore the cross sectional and panel characteristics of the data sets. Secondly, the approaches used ignores the dynamic characteristics of poverty data (vicious cycle of poverty). Thirdly, the approaches used are not capable of addressing the endogeneity problem. The current study contributes towards literature by filling in these gaps.

Using two step GMM with panel data ranging from 1985 to 2008, Rashid and Intartaglia (2017) explored the relationship between financial development and poverty in developing countries. Financial development had no influence on relative poverty whilst absolute poverty was found to have been reduced by the development of the financial sector. Using system GMM with panel data ranging from 1980 to 2012, Zahonogo (2017) found out that the relationship between financial development and poverty is nonlinear and is U-shaped. Bayar (2017) used panel data analysis methods to investigate the impact of the financial sector on poverty reduction in emerging markets. The study revealed that financial development triggered poverty reduction in emerging markets. These three empirical studies used a methodology that considers the dynamic nature of poverty data and addresses the endogeneity problem. However, the current study contributes to literature by using

1. the most recent panel data
2. emerging markets as a unit of analysis.

2.3 Other factors that influence poverty

This section discusses how factors such as remittances, human capital development, foreign direct investment and trade openness influences poverty. For example, Cattaneo (2005) argued that remittance inflow enhances not only poverty alleviation but economic growth and development. The same author also noted that overdependence on remittance inflow can create laziness among the people and in the country in general hence slowing down economic growth, development and poverty alleviation. Remittances are therefore expected to have a positive influence on poverty reduction.

According to Afzal et al. (2010), in a scenario where the population predominantly access public sector education characterised by poor standards, human capital development efforts becomes an expense which increases poverty. On the contrary, human capital development increases knowledge and skills among the people hence increasing their chances of securing highly paying job which lowers down poverty (Chaudhry and Rahman, 2009). The study therefore expects human capital development to have either a positive or negative impact on poverty alleviation.

Bornschier and Chase-Dunn (1985) argued that over relying on FDI has got a negative impact on economic growth and development and income distribution thereby contributing towards an increase in poverty. Romer (1986) and Solow (1956) argued that FDI brings skills and increase the local people’s chances of getting employment
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especially in the labour-intensive sectors of the economy. FDI can therefore have a positive or negative impact on poverty.

Pradhan and Mahesh (2014) noted that domestic companies are better able to create employment and reduce poverty among the local people if they allowed uninterrupted access to international markets. These companies can end up downsizing and retrenching their employees thereby increasing poverty levels if they fail to withstand competition associated with participating against international firms. On the other hand, Pradhan and Mahesh (2014) argued that domestic companies are better able to expand their operations and create more employment opportunities if they are allowed cheaper access to international raw materials and variety of international raw materials. The study therefore expects trade openness to affect poverty either way.


Table 1 shows economic growth, financial development and poverty trends in emerging markets during the period ranging from 2005 to 2019. In line with Tsaurai (2018), household consumption expenditure, mortality rate and life expectancy were used as measures of poverty.

<table>
<thead>
<tr>
<th>Countries</th>
<th>GDP per capita</th>
<th>Stock market capitalisation (% of GDP)</th>
<th>Mean mortality rate, infant (per 1,000 births)</th>
<th>Mean household consumption expenditure (% of GDP)</th>
<th>Mean life expectancy at birth, total (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turkey</td>
<td>9,781.59</td>
<td>28.78</td>
<td>13.85</td>
<td>75.35</td>
<td>75.24</td>
</tr>
<tr>
<td>Russia</td>
<td>10,570.28</td>
<td>51.34</td>
<td>8.44</td>
<td>69.43</td>
<td>69.80</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>25,288.80</td>
<td>87.38</td>
<td>16.97</td>
<td>65.13</td>
<td>80.81</td>
</tr>
<tr>
<td>Portugal</td>
<td>21,776.62</td>
<td>33.26</td>
<td>3.16</td>
<td>84.22</td>
<td>80.02</td>
</tr>
<tr>
<td>Philippines</td>
<td>2,442.02</td>
<td>70.19</td>
<td>24.47</td>
<td>82.83</td>
<td>65.41</td>
</tr>
<tr>
<td>Peru</td>
<td>5,405.25</td>
<td>46.05</td>
<td>14.81</td>
<td>74.83</td>
<td>69.81</td>
</tr>
<tr>
<td>Malaysia</td>
<td>9,327.93</td>
<td>133.92</td>
<td>6.34</td>
<td>63.03</td>
<td>69.80</td>
</tr>
<tr>
<td>Mexico</td>
<td>9,232.14</td>
<td>35.46</td>
<td>14.08</td>
<td>77.51</td>
<td>75.07</td>
</tr>
<tr>
<td>India</td>
<td>1,433.96</td>
<td>79.06</td>
<td>41.56</td>
<td>68.12</td>
<td>67.35</td>
</tr>
<tr>
<td>Indonesia</td>
<td>3,033.31</td>
<td>41.99</td>
<td>26.58</td>
<td>67.66</td>
<td>69.75</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>19,482.96</td>
<td>22.80</td>
<td>2.80</td>
<td>67.79</td>
<td>77.89</td>
</tr>
<tr>
<td>Colombia</td>
<td>6,072.76</td>
<td>45.80</td>
<td>15.05</td>
<td>81.18</td>
<td>75.84</td>
</tr>
<tr>
<td>China</td>
<td>6,000.52</td>
<td>57.79</td>
<td>12.40</td>
<td>52.51</td>
<td>75.00</td>
</tr>
<tr>
<td>Brazil</td>
<td>9,346.34</td>
<td>53.50</td>
<td>16.25</td>
<td>81.45</td>
<td>74.05</td>
</tr>
<tr>
<td>Argentina</td>
<td>11,212.75</td>
<td>12.21</td>
<td>11.75</td>
<td>80.01</td>
<td>75.62</td>
</tr>
<tr>
<td>Overall mean</td>
<td>10,027.15</td>
<td>53.30</td>
<td>15.23</td>
<td>72.74</td>
<td>73.43</td>
</tr>
</tbody>
</table>

Russia, Republic of Korea, Portugal, Czech Republic, and Argentina had their mean GDP per capita higher than the overall mean GDP per capita of US$ 10,027.15 whilst the
remaining countries such as Turkey, Philippines, Peru, Malaysia, Mexico, India, Indonesia, Colombia, China, and Brazil had their mean GDP per capita lower than the overall mean GDP per capita. Republic of Korea, Portugal, Philippines, Peru, India, Indonesia and Czech Republic are outliers because their mean GDP per capita deviated by a wider margin from the overall mean GDP per capita of US$ 10,027.15.

Countries whose stock market capitalisation (% of GDP) was lower than the overall mean stock market capitatio of 53.30% of GDP include Turkey, Russia, Portugal, Peru, Mexico, Indonesia, Czech Republic, Colombia and Argentina. Considering the extent of deviation between the mean stock market capitalisation of each country and overall mean stock market capitalisation for all countries, countries which are outliers include Turkey, Republic of Korea, Portugal, Philippines, Malaysia, India, Czech Republic and Argentina.

Turkey, Russia, Portugal, Peru, Malaysia, Mexico, Czech Republic, China and Argentina are the countries whose mean mortality rate were lower than the overall mean mortality rate of 15.23 per every 1,000 births. The remaining countries has their mean mortality rates higher than the overall mean value. Russia, Portugal, Philippines, Malaysia, India, Indonesia and Czech Republic are the outliers because their mean mortality rates deviated from the overall mean mortality rate value of 15.23 per every 1,000 births by a wider margin.

Eight countries, namely Turkey, Portugal, Philippines, Peru, Mexico, Colombia, Brazil and Argentina had their mean household consumption expenditure ratios higher than the overall mean household expenditure of 72.74% of GDP. On the other hand, countries whose mean consumption expenditure ratios were lower than the overall mean consumption of 72.74% of GDP include Russia, Republic of Korea, Malaysia, India, Indonesia, Czech Republic and China. Portugal, Philippines and China are the outliers because their mean household expenditure ratios deviated from the overall mean household expenditure ratio of 72.74% by at least 10 percentage points.

Turkey, Republic of Korea, Portugal, Mexico, Czech Republic, Colombia, China, Brazil and Argentina had their mean life expectancy at birth higher than the overall mean life expectancy at birth of 73.43 years. On the other hand, countries whose mean life expectancy at birth were lower than the overall mean life expectancy at birth of 73.43 years include Russia, Philippines, Peru, Malaysia, India and Indonesia. Outlier countries include India and Philippines because their mean life expectancy at birth deviated lower than the overall mean life expectancy by a wider margin (more than 5 years). Republic of Korea and Portugal were also outliers because their mean life expectancy at birth deviated higher than the overall mean life expectancy at birth by a wider margin (more than 5 years). Following Aye and Edoja (2017), all the data sets were transformed into natural logarithms before being used for main analysis. This exercise helps to avoid spurious results outcome which can mislead decision making.

4 Research methodology

4.1 Data description

The study used panel data ranging from 2005 to 2019 extracted from reputable international databases such as International Monetary Fund, International Financial Statistics and World Development Indicators. Fifteen emerging markets included in this
study in line with International Monetary Fund (2015) include Turkey, Russia, Republic of Korea, Portugal, Philippines, Peru, Malaysia, Mexico, India, Indonesia, Czech Republic, Colombia, China, Brazil and Argentina.

4.2 Econometric model specification

Equation (1) is the general model specification of the study (poverty function).

\[
POVERTY = f(GROWTH, FIN, FDI, REMIT, OPEN, HCAP)
\]

where \(GROWTH\), \(FIN\), \(FDI\), \(REMIT\), \(OPEN\) and \(HCD\) respectively stands for economic growth, financial development, foreign direct investment, personal remittances inflow, trade openness and human capital development. The choice of the explanatory variables is in line with other more related recent empirical studies such as Dieu Ne Dort et al. (2019), Dewi et al. (2018) Mphuka et al. (2017).

Mortality rate, infant (per 1,000 live births, mean life expectancy at birth, total (years) and mean household consumption expenditure (% of GDP) were the three measures of poverty used. GDP per capita was used as a measure of economic growth. Stock market capitalisation (% of GDP) is the financial development proxy used. Net foreign direct investment (% of GDP) is the measure of FDI used in the study. Human capital development index was used as a measure of human capital development whilst exports and imports (% of GDP) is the proxy of trade openness used in this study.

Equation (1) is transformed into equation (2), in econometric terminology.

\[
POVERTY_{it} = \beta_0 + \beta_1 GROWTH_{it} + \beta_2 FIN_{it} + \beta_3 FDI_{it} + \beta_4 REMIT_{it} + \beta_5 OPEN_{it} + \beta_6 HCAP_{it} + \epsilon_{it}
\]

Table 2 interprets the main variables used in the study.

| \(POVERTY_{it}\) | Poverty in country \(i\) at time \(t\) |
| \(GROWTH_{it}\) | Economic growth in country \(i\) at time \(t\) |
| \(FIN_{it}\) | Financial development in country \(i\) at time \(t\) |
| \(FDI_{it}\) | Foreign direct investment in country \(i\) at time \(t\) |
| \(REMIT_{it}\) | Personal remittances received in country \(i\) at time \(t\) |
| \(OPEN_{it}\) | Trade openness in country \(i\) at time \(t\) |
| \(HCD_{it}\) | Human capital development in country \(i\) at time \(t\) |
| \(\beta_1 \text{ to } \beta_6\) | Co-efficient of the explanatory variables |
| \(i\) | Country |
| \(\beta_0\) | Intercept term |
| \(\epsilon_{it}\) | Error term |
| \(t\) | Time |

Source: Author compilation

Consistent with Sehrawat and Giri (2017), economic growth leads to poverty reduction given that financial sector complements by granting loans for entrepreneurial projects and new business ventures that creates employment. The study therefore expects poverty
reduction to be induced by the complementarity between economic growth and financial development. In other words, the study expects the combination of economic growth and financial development to have a significant negative impact on poverty. Azher’s (1995) vicious cycle of poverty is also incorporated into equation (3).

\[
POVERTY_{it} = \beta_0 + \beta_1 POVERTY_{it-1} + \beta_2 GROWTH_{it} + \beta_3 FIN_{it} \\
+ \beta_4 (GROWTH_{it-1}, FIN_{it}) + \beta_5 FDI_{it} + \beta_6 REMIT_{it} \\
+ \beta_7 OPEN_{it} + \beta_8 HCAP_{it} + \epsilon_{it}
\]  

\(POVERTY_{it-1}\) stands for the vicious cycle of poverty (Azher, 1995).

In this case, there are three ways of interpreting a co-efficient \(\beta_4\) depending on the measure of poverty used. A significant positive coefficient \(\beta_4\) when either mean life expectancy at birth or mean household expenditure are used as proxies of poverty means that the interaction between economic growth and financial development reduced poverty levels. A significant negative coefficient \(\beta_4\) when mortality rate, infant (1,000 live births) is used as a measure of poverty implies that the complementarity between economic growth and financial development led to poverty reduction. In line with empirical research work done by Nor et al. (2015), equation (3) was estimated by the dynamic GMM approach proposed by Arellano and Bond (1991).

### 4.3 Panel root tests

Where: LMRI, LHCE and LLE represents logarithm of infant mortality rate, logarithm of household consumption expenditure and logarithm of life expectancy respectively.

<table>
<thead>
<tr>
<th>Variable</th>
<th>LLC</th>
<th>IPS</th>
<th>ADF</th>
<th>PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual intercept LMRI</td>
<td>-2.13**</td>
<td>0.91</td>
<td>56.32***</td>
<td>98.73**</td>
</tr>
<tr>
<td>Individual intercept LHCE</td>
<td>-2.79***</td>
<td>-1.44*</td>
<td>46.16*</td>
<td>38.55</td>
</tr>
<tr>
<td>Individual intercept LLE</td>
<td>-0.57</td>
<td>3.87</td>
<td>5.67</td>
<td>9.93</td>
</tr>
<tr>
<td>Individual intercept LGROWTH</td>
<td>-5.49***</td>
<td>-1.71**</td>
<td>43.83*</td>
<td>22.18</td>
</tr>
<tr>
<td>Individual intercept LFIN</td>
<td>-4.09**</td>
<td>-1.83**</td>
<td>43.92*</td>
<td>74.72**</td>
</tr>
<tr>
<td>Individual intercept LFDI</td>
<td>-1.33*</td>
<td>-2.44**</td>
<td>48.52**</td>
<td>99.28**</td>
</tr>
<tr>
<td>Individual intercept LREMIT</td>
<td>-8.92***</td>
<td>-5.46***</td>
<td>77.18**</td>
<td>83.17**</td>
</tr>
<tr>
<td>Individual intercept LOPEN</td>
<td>-1.29*</td>
<td>-0.67</td>
<td>38.23</td>
<td>36.73</td>
</tr>
<tr>
<td>Individual intercept LHCAP</td>
<td>-7.48***</td>
<td>-6.92***</td>
<td>94.09**</td>
<td>181.93**</td>
</tr>
</tbody>
</table>

Notes: LLC, IPS, ADF and PP stands for Levin et al. (2002); Im et al. (2003); augmented Dicky-Fuller (ADF) Fisher chi square and Phillip Peron (PP) Fisher chi square tests respectively. *, ** and *** denote 1%, 5% and 10% levels of significance, respectively.

Im et al. (2003), Fisher-tests, Levin et al. (2002) and Breitung (2000) panel unit root tests were used, following Taiwo and Olayemi (2015).
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Table 4  Panel root tests – at first difference

<table>
<thead>
<tr>
<th>Variable</th>
<th>LLC</th>
<th>IPS</th>
<th>ADF</th>
<th>PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual intercept LMRI</td>
<td>−7.13***</td>
<td>−3.73**</td>
<td>−6.01***</td>
<td>78.18***</td>
</tr>
<tr>
<td>Individual intercept LHCE</td>
<td>−11.43***</td>
<td>−9.18***</td>
<td>118.02***</td>
<td>178.21***</td>
</tr>
<tr>
<td>Individual intercept LLE</td>
<td>−10.11***</td>
<td>−14.99***</td>
<td>183.12***</td>
<td>312.04***</td>
</tr>
<tr>
<td>Individual intercept LGROWTH</td>
<td>−7.17***</td>
<td>−4.74***</td>
<td>83.11***</td>
<td>89.28***</td>
</tr>
<tr>
<td>Individual intercept LFIN</td>
<td>−17.95***</td>
<td>−12.84***</td>
<td>154.82***</td>
<td>313.37***</td>
</tr>
<tr>
<td>Individual intercept LHCE</td>
<td>−9.02***</td>
<td>−11.82***</td>
<td>143.83***</td>
<td>277.93***</td>
</tr>
<tr>
<td>Individual intercept LREMIT</td>
<td>−10.25***</td>
<td>−8.28***</td>
<td>88.13**</td>
<td>100.23**</td>
</tr>
<tr>
<td>Individual intercept LOPEN</td>
<td>−11.23***</td>
<td>−9.15***</td>
<td>114.92***</td>
<td>202.54***</td>
</tr>
<tr>
<td>Individual intercept LHCAP</td>
<td>−17.18***</td>
<td>−16.21***</td>
<td>192.18***</td>
<td>409.15***</td>
</tr>
</tbody>
</table>

Notes: LLC, IPS, ADF and PP stands for Levin, Lin and Chu; Im, Pesaran and Shin; ADF Fisher chi square and PP Fisher chi square tests respectively. *, ** and *** denote 1%, 5% and 10% levels of significance, respectively.

Following Odhiambo (2014), establishing whether the data used is stable can be done by doing panel unit root tests. Results in Table 4 provides evidence that the data in use for all the variables is integrated of order 1 hence paving way for panel co-integration tests to be undertaken.

4.4 Panel co-integration tests

Kao (1999) methodology was used for panel co-integration tests (see results in Table 5). The purpose of these tests is to determine if a long run relationship among all the variables studied exists (Okoroafor and Chinweoke, 2013).

Table 5  Kao co-integration test results

<table>
<thead>
<tr>
<th>Series</th>
<th>ADF t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>LE GROWTH FIN FDI REMIT OPEN HCAP</td>
<td>−5.0015***</td>
</tr>
<tr>
<td>HCE GROWTH FIN FDI REMIT OPEN HCAP</td>
<td>−3.9372***</td>
</tr>
<tr>
<td>MRI GROWTH FIN FDI REMIT OPEN HCAP</td>
<td>−2.3281***</td>
</tr>
</tbody>
</table>

Note: *** denote 1% level of significance.

Source: Author compilation

The results show that a null hypothesis which says that there is a long run relationship among the variables studied cannot be rejected at one percent level of significance. The finding allowed dynamic GMM econometric tests to proceed, consistent with Guisan (2014).

4.5 Dynamic GMM results

Following Nor et al. (2015), the following are the reasons for the use of dynamic GMM in this study. It addresses the endogeneity problem, captures the vicious cycle of poverty
characteristic of poverty data and that it considers both time series and panel data characteristics.

Table 6  Dynamic GMM results

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAG OF POVERTY</td>
<td>0.6651***</td>
<td>-0.7238***</td>
<td>-0.6194***</td>
</tr>
<tr>
<td>GROWTH</td>
<td>-0.0127</td>
<td>0.2319</td>
<td>0.3336</td>
</tr>
<tr>
<td>FIN</td>
<td>-0.2217*</td>
<td>0.3492**</td>
<td>0.4839*</td>
</tr>
<tr>
<td>GROWTH. FIN</td>
<td>-0.6523**</td>
<td>0.7219***</td>
<td>0.5528**</td>
</tr>
<tr>
<td>FDI</td>
<td>0.6819</td>
<td>0.1839*</td>
<td>0.5629</td>
</tr>
<tr>
<td>REMIT</td>
<td>-0.0389*</td>
<td>0.0827***</td>
<td>0.1938*</td>
</tr>
<tr>
<td>OPEN</td>
<td>-0.0328</td>
<td>0.1193</td>
<td>0.0782</td>
</tr>
<tr>
<td>HCAP</td>
<td>-0.4428***</td>
<td>0.8216***</td>
<td>0.0982***</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.7219</td>
<td>0.8104</td>
<td>0.7915</td>
</tr>
<tr>
<td>J-statistic</td>
<td>271.00</td>
<td>271.00</td>
<td>271.00</td>
</tr>
<tr>
<td>Prob (J-statistic)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Notes: ***, ** and * denote 1%, 5% and 10% levels of significance, respectively.

Source: Author’s compilation

where models 1, 2 and 3 uses mortality rate, household consumption expenditure and life expectancy as measures of poverty respectively.

The lag of poverty was found to have had

1  a significant positive impact on mortality rate under model 1
2  a significant negative influence on household consumption and life expectancy.

These results show that the lag of poverty increased poverty under all the three models used, in line with Azher’s (1995) vicious cycle of poverty explanation.

Economic growth had a non-significant negative impact on mortality rate and a non-significant positive effect on both life expectancy and household consumption. The results indicate that economic growth non-significantly reduced poverty levels in the emerging markets, in support of empirical findings by Ebnouluwa and Yusuf (2018) whose study noted that economic growth had a marginal poverty reduction impact in Nigeria and that economic growth on its own cannot significantly reduce poverty.

Financial development was found to have had a significant negative effect on mortality rate and a significant positive influence on both household consumption expenditure and life expectancy in emerging markets. These results mean that financial development significantly reduced poverty under all the three measures of poverty, a finding which supports authors such as Rajan and Zingales (1998) who argued that financial development has a deleterious effect on poverty because the costs associated with the small loans provision to the poor people can easily and quickly be absorbed by big financial market players. The results also resonate with earlier similar empirical studies done by Dewi et al. (2018) and Sehrawat and Giri (2017).

As expected, the complementarity between economic growth and financial development had a significant positive impact on life expectancy and household consumption and a significant negative effect on mortality rate. It is clear from Table 6
that the size and significance of the coefficients of the interaction term (economic growth x financial development) is larger than the size and significance of economic growth and financial development separately. The results indicate that the interaction between economic growth and financial development enhanced poverty reduction in emerging markets, consistent with an argument by Sehrawat and Giri (2017) that economic growth leads to poverty reduction if complimented by a developed financial sector capable of providing loans for entrepreneurial projects and new business ventures that creates employment.

FDI had a non-significant positive influence on mortality, results which means that foreign direct investment increased poverty in emerging markets. The results agree with Bornschier and Chase-Dunn (1985) whose research noted that over relying on FDI has got a negative impact on economic growth and development and income distribution thereby contributing towards an increase in poverty. On the other hand, FDI had a significant positive influence on household consumption and also a non-significant positive effect on life expectancy. The results indicate that FDI reduced poverty, a finding which supports an argument by Romer (1986) that FDI brings skills and increase the local people’s chances of getting employment especially in the labour-intensive sectors of the economy.

Personal remittances received were found to have had a significant negative impact on mortality rate. On the other hand, personal remittances’ influence on life expectancy and household consumption was found to be positive and significant. These results show that personal remittances received had a significant positive influence on poverty reduction in emerging markets during the period under study, in line with arguments put forward by Cattaneo (2005).

Trade openness was found to have had a non-significant deleterious effect on mortality rate whilst its impact on life expectancy and household consumption was positive but insignificant. These results generally show that trade openness had a marginal poverty reduction effect in emerging markets. The results resonate with Pradhan and Mahesh’s (2014) findings.

The impact of human capital development on mortality rate was found to be negative but significant. The study also noted that human capital development’s influence on household consumption and life expectancy was positive and significant. These results indicate that human capital development played a significant role in reducing poverty in emerging markets during the period under study. They support views put forward by Chaudhry and Rahman (2009) that human capital development boost skills and knowledge among the people thereby not only increase their chances of acquiring job but also getting a well-paying one.

From the results in Table 6, it is quite clear that the relationship between economic growth and poverty or between financial development and poverty is nonlinear. This study also proved that financial development enhances economic growth’s influence on poverty reduction in emerging markets. However, the U-shaped relationship between economic growth/financial development and poverty has not yet been investigated. The threshold levels of economic growth/financial development significant enough to influence poverty reduction is also not yet been investigated. The current study recommends that future empirical studies fills in these gaps in the literature.
5 Conclusions

The study investigated the impact of economic growth, financial development, FDI, personal remittances, trade openness and human capital development on poverty levels in emerging markets. It also explored whether the complementarity between economic growth and financial development had an enhancing effect on poverty reduction in emerging markets. The dynamic GMM approach with panel data ranging from 2005 to 2019 was used for two main reasons. It captures the vicious cycle of poverty (dynamic features of poverty data) and addresses the endogeneity problem prevalent in the relationship between poverty and its driving forces. Economic growth was found to have non-significantly reduced poverty whilst financial development significantly reduced poverty levels in emerging markets. On the other hand, the complementarity between economic growth and financial development was found to have enhanced poverty reduction efforts in emerging markets. In other words, financial development was found to be a channel through which economic growth reduced poverty in emerging markets. The findings are well supported by theoretical predictions and empirical literature. Emerging markets are therefore urged to implement financial development enhancement policies in order to successfully fight off poverty.

References


Economic growth-financial development-poverty nexus in emerging markets


