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Yılmaz Bayar
Usak University,
Faculty of Economics and Administrative Sciences,
Department of Economics,
Usak,
Turkey
✉ yilmaz.bayar@usak.edu.tr

Financial Development and Poverty Reduction in Emerging Market Economies

Summary: Poverty reduction is one of the key challenges in the globalized world. This study investigates the relationship between financial development and poverty reduction in emerging market economies during the period 1993-2012. The Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo (2005) panel unit root test and the Basher and Westerlund (2009) cointegration test was applied considering the cross-sectional dependence and multiple structural breaks in the study period. The findings indicated that financial development, including banking sector development and stock market development, had a significant positive impact on poverty reduction in emerging market economies.

Key words: Financial development, Poverty reduction, Multiple structural breaks, Panel cointegration.

JEL: G20, I32, O16.

Poverty reduction is one of the leading issues on the global agenda. The percentage of the population living on less than US$1.25 a day (2005 purchasing power parity) decreased from 1.92 billion in 1990 to 1.01 billion (about 14.5% of the global population) in 2011 (World Bank 2015). India, China, Indonesia, Pakistan, and Vietnam were the five leading contributors to this downward trend in poverty during the period 2008-2011 (World Bank 2015). Economic growth is one of the major factors underlying the poverty reduction. However, development of financial sectormay also contribute to poverty alleviation providing funds with better economic conditions, contributing to the efficiently allocation of the funds and economic growth.

Emerging economies have experienced significant improvements in their financial sector with the globalization of financial markets and have also expanded their economies substantially, especially in the 1990s. The present study investigates to what extent the development of the financial sector alleviated poverty in emerging market economies during the period 1993-2012 and contributes to the literature by examining the impact of both banking sector development and stock market development on poverty reduction unlike the empirical studies in the literature. This work is also one of the first studies to investigate the relationship between financial development and poverty reduction in emerging market economies.

The rest of the report is organized as follows. Section 1 provides a review of the relevant empirical literature on the nexus between financial development and poverty reduction. Section 2 introduces the data and methodology and discusses the empirical findings of the study. Finally, Section 3 presents the conclusions and policy implications.

1. Literature Review

Financial development has the potential to affect the poverty both directly and indirectly. In the direct channel, financial development affects poverty by increasing the access of the poor to formal finance, and it can cause a decrease in poverty in a number of ways. First, financial development enables the poor to access funds in an easier way, thus enabling them to increase their consumption and welfare through the easier access to credit (Babajide Fowowe and Babatunde Abidoye 2013). Second, increasing number of customers in the financial sector raises the competition among the financial institutions and thus enhances the quality of the poor's living by providing better financial services, products and rates (Thorsten Beck, Asli Demirgüç-Kunt, and Ross Levine 2007). Third, financial development alleviates the problems of adverse selection and moral hazard arising from asymmetric information. In the indirect channel, financial development has the potential to contribute to poverty reduction through economic growth by providing funds for productive investments. Financial development thus affects economic growth positively, and economic growth in turn causes a decrease in poverty.

There have been limited studies on the relationship between financial development and poverty reduction. In contrast, there have been many studies on the relationship between financial development and economic growth (see Joseph Alois Schumpeter 1911; Robert G. King and Levine 1993; Levine 1997; Jin Zhang, Lanfang Wang, and Susheng Wang 2012; Monica Dudian and Raluca Andreea Popa 2013; Imen Kouki 2013; Yılmaz Bayar 2014; Khoutem Ben Jedidia, Thouraya Boujelbene, and Kamel Helali 2014; Nahla Samargandi, Jan Fidrmuc, and Sugata Ghosh 2014). The empirical studies on the relationship between financial development and poverty reduction have generally found a negative relationship between financial development and poverty reduction, as shown in Table 1.

The empirical studies showed that some researchers used the poverty headcount ratio at $1, 1.25, or 2 per day as a proxy for poverty (see Beck, Demirgüç-Kunt, and Levine 2004, 2007; Patrick Honohan 2004; Takeshi Inoue and Shigeyuki Hamori 2010; Sylviane Guillaumont Jeanneney and Kangni Kpodar 2011; Salvador Perez-Moreno 2011; and Fowowe and Abidoye 2013). Other works used private consumption *per capita*, growth of income, and changes in the distribution of income as a proxy for poverty (see Hossein Jalilian and Colin Kirkpatrick 2005; Beck, Demirgüç-Kunt, and Levine 2007; Ejaz Ahmad Azra, Dilawar Khan, and Waheed Ullah Jan 2012; Leila Chemli 2014; and Gazi Salah Uddin et al. 2014). In this study, we used household final consumption expenditure *per capita* as a proxy for poverty because there was insufficient data on the poverty headcount in our sample; also, the poverty headcount ratio is calculated based on consumption and/or income (United Nations 2015). On the other hand, there has been a near consensus on the selection of financial development indicator. Most studies used private credit as percent GDP as a proxy for financial development (Beck, Demirgüç-Kunt, and Levine 2004, 2007; Honohan 2004; Jalilian and Kirkpatrick 2005; Inoue and Hamori 2010; Jeanneney and Kpodar 2011; Azra, Khan, and Jan 2012; Fowowe and Abidoye 2013; and Chemli 2014). In the present work, we also used domestic credit to private sector as percent GDP considering the related literature, as well as stock market capitalization as percent of GDP.

Table 1 Literature Summary

Study	Country and study period	Method	Impact of financial development on poverty
Honohan (2004)	China, Korea, Russia and the United Kingdom, 1960-2000	Panel regression	Negative
Beck, Demirgüç-Kunt, and Levine (2004)	58 developing countries, 1980-2000	Panel regression	Negative
Jalilian and Kirkpatrick (2005)	26 developing and 16 developed countries, 1960-1995	Panel regression	Negative
Beck, Demirgüç-Kunt, and Levine (2007)	Different groups of countries, 1980-2005	Panel regression	Negative
Nicholas M. Odhiambo (2010)	Kenya, 1968-2006	Causality test	Unidirectional causality from financial development to poverty reduction
Inoue and Hamori (2010)	India, 1973-2004	Dynamic panel regression	Negative
Jeanneney and Kpodar (2011)	65 developing countries, 1966-2000	Dynamic panel regression	Negative
Perez-Moreno (2011)	35 developing countries, 1970-1998	Granger causality test	Unidirectional causality from financial development to poverty reduction
Nazima Ellahi (2011)	Pakistan, 1975-2010	Johansen cointegration and vector error correction model	Unidirectional causality from financial development to poverty reduction
Azra, Khan, and Jan (2012)	Pakistan, 1981-2010	ARDL cointegration	Negative
Fowowe and Abidoye (2013)	African countries	Dynamic panel	No significant impact
Uddin et al. (2014)	Bangladesh, 1975-2011	ARDL cointegration	Negative
Odhiambo (2013)	Tanzania, 1988-2011	ARDL cointegration and Granger causality	Unidirectional causality from financial development to poverty reduction
Chemli (2014)	8 MENA countries, 1990-2012	ARDL cointegration	Positive in upper middle income countries and no significant impact in middle income countries

Source: Author's own elaboration based on literature review.

2. Data and Methodology

2.1 Data

The household final consumption expenditure *per capita* growth was used as a proxy for poverty reduction because of the nonavailability of sufficient data, such as the poverty headcount ratio at national poverty lines. Domestic credit to private sector as percent GDP and stock market capitalization as percent GDP were used for the financial development considering the relevant empirical studies in the literature. The annual data on the variables representing poverty and financial development during the period 1993-2012 were used to investigate the relationship between financial development and poverty reduction in emerging market economies. These data were taken from the World Development Indicators of World Bank (2015). The study included all the emerging economies as classified by Morgan Stanley Capital International - MSCI (MSCI 2014) (Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey) except Qatar, Taiwan, and the United Arab Emirates.

The study period and sample were determined based on the availability of data. Table 2 shows the variables used in the econometric analysis and their corresponding symbols. The software packages Eviews 8.0, WinRATS Pro. 8.0, and Gauss 11.0 were applied in the econometric analysis.

Table 2 Data Description

Variables	Description
HCONS	Household final consumption expenditure *per capita* growth (annual %).
DCRD	Domestic credit to private sector (% of GDP).
SMCAP	Market capitalization of listed companies (% of GDP).

Source: Author's own elaboration.

2.2 Method

First, the cross-sectional dependence was tested with the use of the LM_{adj} (Lagrange Multiplier) test, which was originally developed by Trevor S. Breusch and Adrian R. Pagan (1980); M. Hashem Pesaran and Takashi Yamagata (2008) later adjusted the test bias. Then, the stationarity of the series was determined with the panel unit root test of Josep Lluís Carrión-i-Silvestre, Tomás del Barrio-Castro, and Enrique López-Bazo (2005), which was a second generation test that considers the cross-sectional dependence and multiple structural breaks in the panel. At a later stage, the long-run relationship was tested with the approach of Syed Abul Basher and Joakim Westerlund (2009), which considersthe cross-sectional dependence and multiple structural breaks in the cointegrating vector; the homogeneity of the cointegrating coefficients was also tested by applying the method of Pesaran and Yamagata (2008). Finally, the individual cointegrating coefficients were estimated with the common correlated effects (CCE), and the panel cointegrating coefficients with the common correlated mean group effects (CCMGE).

2.3 Cross-Sectional Dependence Test

Considering the cross-sectional dependence among the series in the analysis is very important for the results of the tests (Breusch and Pagan 1980). Therefore, it is necessary to test the cross-sectional dependence among the series and cointegrating equation for the selection of right panel unit root and cointegration tests. LM tests are used in the analysis of cross-sectional dependence. If the time dimension is higher than the cross-sectional dimension ($T > N$), the Breusch-Pagan (1980) LM test is used; if both dimensions are high, the Pesaran (2004) cross-section dependence (CD) test is preferred. In the present study, the bias-adjusted LM test (LM_{adj}) by Pesaran, Aman Ullah, and Yamagata (2008) was used in the analysis of the cross-sectional dependence because the time dimension (T = 36 years) was higher than the cross-sectional dimension (N = 20).

The LM test statistic originally suggested by Breusch and Pagan (1980) is:

$$LM = T\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\left(\hat{\rho}_{ij}^{2}\right) \sim \chi^2_{\frac{N(N-1)}{2}} . \quad (1)$$

However, this test statistic is biased because its group mean is zero and the individual mean is different from zero. Pesaran, Ullah, and Yamagata (2008) later adjusted the bias by adding the variance and mean to the test statistic. Thus, the test is called the bias-adjusted LM test $\left(LM_{adj}\right)$. The bias-adjusted test statistic is:

$$LM_{adj} = \left(\frac{2}{N(N-1)}\right)^{1/2}\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\left[\hat{\rho}_{ij}^{2}\left(\frac{(T-K-1)\hat{\rho}_{ij}^{2}-\hat{\mu}_{Tij}}{v_{Tij}}\right)\right] \sim N(0,1). \quad (2)$$

In the equation above, μ_{Tij} denotes the mean, and v_{Tij} represents the variance. The test statistic obtained from the last equation has an asymptotically standard normal distribution. The null hypothesis of the test is that there is no cross-sectional dependence.

The test results presented in Table 3 indicated that the null hypothesis was rejected at 5% significance level. Therefore, there was cross-sectional dependence among the panel units and cointegrating equation. Accordingly, the other countries in the panel are affected by the shock to which any country is exposed. The cross-sectional dependence should thus be considered in choosing the panel unit root and cointegration tests.

Table 3 Results of Cross-Sectional Dependence Test

Variables	Test statistics	*p*-value
HCONS	6.332	0.001
DCRD	7.092	0.024
SMCAP	7.843	0.000
Cointegration equation	8.224	0.003

Notes: Probability values at 5% significance level are generated by using bootstrap and based on on 1000 simulations.

Source: Author's own elaboration based on the results of cross-sectional dependence test.

2.4 Panel Stationarity Test of Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo (2005)

There are two types of panel unit root tests: first generation and second generation. The second generation panel unit root tests analyze the stationarity by considering the cross-sectional dependence, whereas the first generation panel unit root tests assume that the cross-sectional units of the panel are independent. The major second generation panel unit root tests include the multivariate augmented Dickey-Fuller test by Mark P. Taylor and Lucio Sarno (1998), the seemingly unrelated regression augmented Dickey-Fuller by Janice Boucher Breuer, Robert Mcnown, and Myles Wallace (2002), and the cross-sectional augmented Dickey-Fuller test by Pesaran (2004). However, the second generation panel unit root tests generate biased results when there are structural breaks in the series (e.g., see Junsoo Lee and Mark C. Strazicich 2004 and Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo 2005). Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo (2005) developed a panel unit root test that considers the cross-sectional dependence and multiple structural breaks. This test can analyze the stationarity of the series even when there are structural breaks in the means and trends of the series in the panel. Also, the test allows a different number of structural breaks in each cross-sectional unit of the panel at different times (Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo 2005). The test model is:

$$Y_{it} = \alpha_{it} + \beta_{it} + \varepsilon_{it},\ i = 1,2, \ldots \ldots, N \text{ and } t = 1,2, \ldots, T$$
$$\alpha_{it} = \sum_{k=1}^{m} (\theta_{ik} K1_{it}) + \alpha_{it} = \sum_{k=1}^{m} (\gamma_{ik} K2_{it}) + u_{it} \quad (3)$$
$$\beta_{it} = \textstyle\sum_{k=1}^{n} (\varphi_{ik} K1_{it}) + \alpha_{it} = \sum_{k=1}^{n} (\delta_{ik} K2_{it}) + v_{it}.$$

In the equations above, $K1$ and $K2$ are dummy variables can be defined as follows:

$$K1 = \begin{cases} 1, & t = T_B + 1 \\ 0, & other\ cases \end{cases}$$

$$K2 = \begin{cases} 1, & t > T_B + 1 \\ 0, & other\ cases \end{cases},$$

where T_B represents the structural break point and allows m structural breaks in the constant term and n structural breaks in the trend term. The Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo (2005) test allows 5 structural breaks at most and determines the dates of the structural breaks by following Jushan Bai and Pierre Perron (1998) and localize the points where the sum squared residuals are minimum. Bai and Perron (1998) suggested two different processes for determining the date of a structural break. The first process, developed by Jian Liu, Shiying S. Wu, and James V. Zidek (1997), is based on the modified Schwarz information criterion, whereas the second is based on the calculation of sequential F-statistics. In calculating the number of structural breaks, the Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo (2005) test uses the first process for the model with trend, and the second process for the model without trend (Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo 2005). The null hypothesis of the Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo (2005) test is that the series is stationary.

In the current work, the stationarity of the series was tested with the Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo (2005) test. Table 4 shows the test statistics of the individual countries and the panel. The findings indicated that the series were not stationary at the level but became stationary after the first differencing.

Table 4 Results of Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo (2005) Panel Unit Root Test

Country	DHCONS		DSMCAP		DDCRD	
	Critical value	**Date of structure break**	**Critical value**	**Date of structure break**	**Critical value**	**Date of structure break**
Brazil	0.001*	1998, 2001, 2009	0.022*	1999, 2001, 2009	0.003*	1999, 2001, 2009
Chile	0.024*	1999, 2009	0.006*	1999, 2009	0.025*	1999, 2009
China	0.013*	1999, 2008, 2011	0.003*	1999, 2008, 2011	0.001*	1999, 2010
Colombia	0.017*	1998, 1999, 2009	0.000*	1999, 2009	0.000*	1999, 2009
Czech Republic	0.005*	1993, 1998, 2009	0.027*	1997, 2009, 2012	0.035*	1993, 1997, 2009, 2013
Egypt	0.004*	2002, 2008, 2011	0.035*	2002, 2011	0.047*	2002, 2011
Greece	0.001*	1993, 2008, 2010	0.014*	1993, 2008, 2011	0.023*	1993, 2009, 2011, 2012
Hungary	0.002*	1993, 2009, 2012	0.003*	1993, 2009, 2012	0.004*	1993, 2009, 2012
India	0.000*	1998, 2002, 2008	0.028*	1999, 2003, 2009	0.028*	1999, 2009
Indonesia	0.000*	1998, 1999	0.005*	1998, 1999	0.001*	1998, 1999
Korea Republic	0.016*	1998, 2009	0.001*	1998, 2009	0.000*	1998, 2009
Malaysia	0.026*	1998, 2001, 2009	0.009*	1998, 2001, 2010	0.017*	1998, 2001, 2009
Mexico	0.038*	1995, 2002, 2008	0.027*	1995, 2001, 2008	0.003*	1995, 2001, 2009
Peru	0.001*	1998, 2001, 2009	0.004*	1998, 2001, 2009,	0.029*	1998, 2001, 2009
Philippines	0.023*	1993, 1999, 2009	0.015*	1993, 1998, 2009	0.000*	1994, 1999, 2009
Poland	0.000*	1994, 2003, 2009	**0.026***	1994, 2003, 2009	0.007*	
Russian Federation	0.002*	1995, 1998, 2009	**0.031***	1993, 1996, 2009	0.006*	1995, 1998, 2009
South Africa	0.028*	1995, 1998, 2009	**0.021***	1998, 2009	0.000*	1993, 1999, 2009
Thailand	0.037*	1997, 1998, 2009	**0.000***	1995, 1998, 2009	0.031*	1997, 1998, 2009
Turkey	0.005*	1994, 1999, 2001, 2008	**0.006***	1994, 1999, 2008	0.004*	1994, 1999, 2001, 2008
Panel	0.017*	-	**0.002***	-	0.016*	-

Notes: * is stationary at 5% significance level. Critical values are generated by using bootstrap and based on 1000 simulation at 5% significance level. We selected the model which allows structural break in both constant and trend.

Source: Author's own elaboration based on the results of Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo (2005) panel unit root test.

Moreover, the Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo (2005) test successfully determined the dates of the structural breaks from the findings, as shown in Table 5.

Table 5 Examination of Structural Breaks in the Countries

Country	Evaluation
Brazil	1998-1999 Currency crisis 2002 South American economic in Argentina, Brazil and Uruguay 2008-2009 Global financial crisis
Chile	1999 Chile economic crisis and 2008-2009 Global financial crisis
China	1997-1998 Asian crsis, 2008-2009 Global financial crisis
Colombia	1998-1999 Colombia financial crisis, 2008-2009 Global financial crisis
Czech Republic	1993 Separation of Czech Republic from Slovak Republic, 1992-1993 ERM crisis, 1997 Czech exchange rate crisis, 2008-2009 Global financial crisis and 2009 Eurozone sovereign debt crisis
Egypt	2008-2009 Global financial crisis
Greece	1989-1993 Greek crisis, 1992-1993 ERM crisis, 2008-2009 Global financial crisis, 2009 Greece crisis and Eurozone sovereign debt crisis
Hungary	1992-1993 ERM crisis, 2008-2009 Global financial crisis, 2009 Eurozone sovereign debt crisis including Hungarian crisis
India	1991 India currency crisis, 2001-2002 India-Pakistan standoff, 2008-2009 Global financial crisis
Indonesia	1997-1998 Asian crsis
Korea, Rep.	1997-1998 Asian crsis, 2008-2009 Global financial crisis

Malaysia	1997-1998 Asian crsis, 2008-2009 Global financial crisis
Mexico	1994-1995 Mexican peso crisis, 2002 South American economic in Argentina, Brazil and Uruguay, 2008-2009 Global financial crisis
Peru	1998 Peru's banking crisis, 2002 South American economic in Argentina, Brazil and Uruguay, 2009 Peruvian political crisis, 2008-2009 Global financial crisis
Philippines	1992-1993 Philippines energy crisis,1997-1998 Asian crsis, 2008-2009 Global financial crisis
Poland	2008-2009 Global financial crisis, 2009 Eurozone sovereign debt crisis
Russian Federation	1998 Russian financial crisis, 2008-2009 Global financial crisis
South Africa	1998 Rand crisis, 2008-2009 Global financial crisis
Thailand	1997-1998 Asian crsis, 2008-2009 Global financial crisis
Turkey	1994 Turkish currency crisis, 1999-2001 Turkish financial crises, 2008-2009 Global financial crisis

Source: Information obtained from a great number of websites by author's research.

2.5 Panel Cointegration Test of Basher and Westerlund (2009)

The panel cointegration method of Basher and Westerlund (2009) tests the cointegration relationship in the series, which are not stationary at the level when there are multiple structural breaks in the cross-sectional dependence and cointegration relationship. This model allows three structural breaks at most in the constant and trend terms of the cointegration relationship. The test statistic given by Basher and Westerlund (2009) is:

$$Z(M) = \frac{1}{N}\sum_{i=1}^{M}\sum_{j=1}^{M_i+1}\sum_{t=T_{ij-1}+1}^{T_{ij}}\left(\frac{S_{it}^2}{\left(T_{ij}-T_{ij-1}\right)^2\hat{\sigma}_i^2}\right). \tag{4}$$

In the equation above, $S_{it}=\sum_{s=T_{ij-1}+1}^{t}\widehat{W}_{it}$ is the residuals vector obtained from an estimator, similarly to the fully modified least squares method; $\hat{\sigma}_i^2$ is the long-run variance estimator based on $\widehat{W}_{it}$. When simplified by taking the cross-sectional averages, $Z(M)$ is transformed into the following equation:

$$Z(M) = \sum_{t=T_{ij-1}+1}^{T_{ij}}\left(\frac{S_{it}^2}{\left(T_{ij}-T_{ij-1}\right)^2\hat{\sigma}_i^2}\right)\sim N(0,1)\,. \tag{5}$$

The test statistic shows a standard normal distribution. The null hypothesis of the test is that there is a cointegration relationship among the series for all the cross-sectional units.

Table 6 presents the results of the Basher and Westerlund (2009) cointegration test, which indicatedthat there was a cointegration relationship among the series for all the cross-sectional units. Thus, the series comoved in the long-run, and the long-run analysis with level values yielded reliable results.

Table 6 Results of Basher and Westerlund (2009) Panel Cointegration Test

Test statistic	Probability
62.871	0.184

Notes: Probability values are based on 1000 simulations. We selected the model which allows structural break in both constant and trend.

Source: Author's own elaboration based on the results of Basher and Westerlund (2009) panel cointegration test.

2.6 Slope Homogeneity Test of Pesaran and Yamagata (2008)

P. A. V. B. Swamy (1970) is the pioneering study on whether the slope coefficients of the cointegrating equation are homogenous; Pesaran and Yamagata (2008) later improved the Swamy test. The test determines whether the β_i slope coefficients differ among the cross-sectional units in the following typical panel cointegrating equation:

$$Y_{it} = \theta + \beta_i X_{it} + \varepsilon_{it}. \quad (6)$$

The null hypothesis of the test is that the slope coefficients are homogenous. Two different test statistics were developed to test the hypothesis (Pesaran and Yamagata 2008):

$$\tilde{\Delta} = \sqrt{N}\left(\frac{N^{-1}\tilde{S}-k}{2k}\right) \sim \chi_k^2 \text{ for large samples;} \quad (7)$$

$$\tilde{\Delta}_{adj} = \sqrt{N}\left(\frac{N^{-1}\tilde{S}-k}{v(T,k)}\right) \sim N(0,1) \text{ for small samples.} \quad (8)$$

In the equations above, N is the number of cross sections, S is the Swamy test statistic, k is the number of explanatory variables, and $v(T,k)$ is the standard error. Table 7 presents the test results, which indicated that the cointegrating coefficients were heterogeneous.

Table 7 Results of Pesaran and Yamagata (2008) Slope Homogeneity Test

Test	Test statistics	*p*-value
$\tilde{\Delta}$	6.338	0.009*
$\tilde{\Delta}_{adj}$	8.277	0.034*

Notes: * significant at 5% level.

Source: Author's own elaboration based on the results of Pesaran and Yamagata (2008) slope homogeneity test.

2.7 Estimation of Long-Run Cointegrating Coefficients

The individual long-run cointegrating coefficients were estimated with the common correlated effects (CCE) developed by Pesaran (2006). The CCE estimator is able to yield results that show a consistent and asymptotic normal distribution in case time dimension is higher or lower cross-sectional dimension and to calculate the long-run equilibrium values for each cross-sectional unit (Pesaran 2006). On the other hand,the long-run cointegrating coefficient of the panel was calculated by applying the common correlated mean group effects (CCMGE) by Pesaran (2006). The CCMGE estimated the long-run cointegrating coefficient by using the arithmetic mean of the group values. Table 8 presents the estimations obtained with the CCE and the CCMGE. The findings showed that DSMCAP and DCRD had a positive impact on HCONS. In other words, increases in banking sector development and stock market development also caused poverty reduction (increased household final consumption expenditure). SMCAP had the largest impact on HCONS in Brazil, China, Egypt, Hungaria, India, Peru, and Thailand, whereas DCRD had the largest impact on HCONS in China, Hungary, India, Korea Republic, Mexico, Peru, and Poland.

Table 8 Results of Long-Run Cointegrating Coefficients

Country	DSMCAP		DDCRD	
	Coefficient	*t*-statistics	Coefficient	*t*-statistics
Brazil	0.31*	5.223	0.29*	4.997
Chile	0.25*	4.871	0.23*	3.731
China	0.42*	4.006	0.38*	3.208
Colombia	0.19*	3.998	0.21*	4.507
Czech Republic	0.20*	5.265	0.22*	5.334
Egypt	0.35*	4.762	0.25*	5.223
Greece	0.24*	3.803	0.29*	4.906
Hungary	0.33*	3.775	0.39*	3.284
Indonesia	0.13*	2.997	0.19*	3.761
India	0.39*	4.224	0.37*	4.709
Korea Republic	0.26*	4.823	0.31*	4.482
Mexico	0.28*	3.855	0.34*	5.101
Malaysia	0.17*	3.221	0.21*	3.288
Peru	0.38*	5.467	0.32*	5.372
Philippines	0.14*	3.709	0.18*	3.726
Poland	0.26*	4.253	0.30*	4.455
Russian Federation	0.23*	3.022	0.28*	3.606
Thailand	0.37*	4.606	0.31*	4.628
Turkey	0.23*	3.943	0.27*	3.704
South Africa	0.25*	4.206	0.29*	4.803
Panel	0.26*	4.003	0.28*	4.731

Notes: * significant at 5% level. Autocorrelation and heteroscedasticity problems were eliminated by Newey-West method.

Source: Author's own elaboration based on the results of CCE and CCMGE estimation.

3. Summary and Conclusions

This study examined the impact of banking sector development and stock market development on poverty reduction in emerging countries during the period 1993-2012. The Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo (2005) panel unit root test and the Basher and Westerlund (2009) cointegration test were applied, considering the frequent crises during the study period. This work is one of the early studies to investigate the relationship between financial development and poverty reduction in emerging economies and to include stock market development as a component of financial development.

The Carrión-i-Silvestre, del Barrio-Castro, and López-Bazo (2005) panel unit root test captured the multiple structural breaks in the series. The results of the Basher and Westerlund (2009) cointegration test indicated that there was a long-run relationship between financial development, banking sector development, and stock market development. On the other hand, the long-run cointegrating coefficients indicated that financial development decreased poverty in all the countries in the sample. Stock market development had the largest impact on poverty reduction in Brazil, China, Egypt, Hungaria, India, Peru, and Thailand, whereas banking sector development had the largest impact on poverty reduction in China, Hungary, India, Korea Republic, Mexico, Peru, and Poland.

Our findings indicated that financial development contributed to poverty reduction moderately. Therefore, less developed and developing countries should consider the development of their financial sectors in determining development policies.

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