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Financial Liberalization and Poverty: The Threshold Effect of Financial Development

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ABSTRACT: *the paper aims to answer two main questions. The first is whether countries with higher degree of financial liberalization have lower poverty rates. The second question is whether the effect of financial liberalization on poverty depends on the level of financial development. More specifically, we will investigate the issues relevant to threshold effect of financial development on witch financial liberalization changes sign. In this paper, we develop a unified empirical framework for characterizing such threshold conditions. Estimations are conducted with a panel data of 49 developing countries over the period of 1990-2011 using GMM-System estimator for dynamic panel data. The empirical results support that financial liberalization contributes to poverty reduction according to the level of the domestic financial development. Our findings shows also that, in the presence of a certain threshold of financial development, less financial liberalized economy are more likely to reduce their poverty rates once these threshold conditions are satisfied. This threshold is estimated at a rate of the credits to the private sector to GDP around 56 %.*

KEYWORDS: *Financial development, financial liberalization, poverty.*

I. INTRODUCTION

The fight against poverty is part of our day as one of the key policy objectives and strategies. At the same, the international organizations such as World Bank and the International Monetary Fund (IMF) have incorporated the objective of poverty reduction in most of their development assistance programs. Therefore, and to fight against this scourge, which has affected all countries of the world, priority was given to pro-growth policies because it has been shown that countries whose experienced high rates of economic growth are those that have managed to reduce their poverty rates. The question that arises is: what are the economic factors that can generate economic growth and, at the same time, may contribute to poverty reduction?Financial liberalization has been identified as a potential source of economic growth, but is that it can also contribute to the poverty reduction? It is in this framework that fits our work that seeks to study the effects of financial liberalization on poverty reduction, taking into account the threshold effects of financial development.To examine the theoretical literature on the subject, we notice that the discussion on liberalizing financial markets started with the publications of McKinnon (1973) and Shaw (1973). Both authors wrote their work as a critique of government policies, which were focused on restricting and controlling financial markets, also known as financial repression. They held these policies responsible for the low growth rates in many developing countries during the 1950s and 1960s. They both argued in favour of liberalizing financial markets on the grounds that this would lead to more as well as more efficient investment which, in turn, would lead to higher economic growth rates and lower poverty.

The relationship between financial liberalization and poverty has been examined in the literature by focusing on the relationship between financial liberalization and growth with the further assumption that higher growth alleviates poverty, without paying direct attention to poverty. Liberalization of the financial system is thought to have positive effects on economic growth and thereby on poverty reduction. There are a number of channels through which financial liberalization may favorite economic growth: through increased efficiency and productivity via transfer of technology and managerial know-how (Prasad and al, 2003; Agenor, 2002); through investment in higher risk but higher return projects with the help of global diversification of risk (Obstfeld, 1994) and through increasing incentives, which improve the regulatory and supervisory framework of banking; this is helped by letting foreign banks introduce a variety of new financial instruments and techniques or by increasing competition, which can improve the quality of financial services (Prasad and al, 2003).The proponents of financial liberalization argue that it leads to financial deepening and better access to credit for previously marginalized borrowers and savers. Moreover, if banking markets are liberalized, banks are stimulated to become more efficient by reducing overhead costs, improving risk management and offering new financial instruments and services to the market to keep up with competitors wish leads to a rise in investment and a poverty reduction.

Again, this argument would support the idea that financial liberalization reduces financial constraints of firms, which ultimately increases macroeconomic growth. All these effects will help to improve the efficiency of financial intermediation in a country, contributing to higher returns to investment and thus to lower rates of poverty. But, although the positive effects of financial liberalization on growth and poverty, experiences has shown that most of the countries that have liberalized their financial systems have suffered from financial crises (see, for example, Arestis and Glickman, 2002). In some developing countries, banking sector problems started soon after the deregulation of the financial sector (Diaz-Alejandro, 1985). Fast growing economies in Latin America and East Asia all of a sudden faced recessions and the booming capital flows faded away. Devereux and Smith 1994 shows that, when countries share endowment risk via international capital markets, saving and growth rates can be lower in financial openness than in autarky. Lustig (2000) shows that financial crises not only result in higher poverty rates but also may cause irreversible damage to the human capital of the poor. He shows also that out of 20 crises in Latin America, all were followed by an increase in the poverty headcount ratio and 15 of them by a rise in the income inequality.

Thereby, more competition in financial markets may also imply a reduction in profit margins and an increased financial fragility of financial intermediaries such as banks. Hellmann and al. (2000) in a series of articles shows that financial liberalization reduces the franchise value of banks, which makes them more prone to financial disruption and stimulates risk taking in order to try to increase profits under the pressure of falling interest rate margins. In the same context, Rodrik (1998), using data on developing as well as developed countries, finds no significant effect of financial liberalization on the percentage change in real income per capita over the period 1975-1989. Edwards (2001) shows that the positive relationship between financial liberalization and productivity performance manifests itself only after the country in question has reached a certain degree of development. At very low levels of financial system development, a more liberalized financial system may even have a negative effect on economic performance. That for that reason, in the debate on liberalization, we do not take a position for or against the role of financial liberalization, but rather to highlights the comparative costs and benefits of liberalization. It can even be argued that uncontrolled financial liberalization as it was known in the 1990s, and the succession of crises that spawned plays against the other globalization, the market property. Some empirical studies (Honohan, 2004; Beck and al., 2007; Honohan and Beck, 2007) showed that the poor benefit from the banking system's ability to provide more savings opportunities but do not manage to benefit from the greater availability of credit; and to the extent financial liberalization affects growth positively, it also affects poverty. However, financial liberalization promotes financial instability, which hurts the poor, who are vulnerable to unstable and malfunctioning institutions.

In total, economic literature in the subject has not been able to conclusively establish the poverty and stability benefits of financial liberalization. In particular, cross-country studies have not, yielded robust evidence that financial openness has a positive effect on poverty. Studies using microeconomic data or those that look at specific events such as equity market liberalizations do detect significant growth effects, but it remains an open question whether these effects scale up when one considers the more general concept of financial openness and its effects on poverty. Moreover, for developing economies with low to intermediate levels of financial openness, there is equally sparse evidence that financial liberalization has delivered its other presumed benefit-improved risk sharing and better consumption smoothing. It is, thus, not quite clear whether the relationship between financial liberalization and poverty is negative as one might expect. The above short discussion shows that, from a theoretical perspective, the nature of the relationship between financial liberalization and poverty is ambiguous. We think that it seems that there was a certain "threshold" level of financial development that an economy needs to attain before it can get the full indirect benefits and reduce the risks of capital account liberalization. It has generally been the case that developed economies, which typically have deeper financial markets than developing countries, have been the main beneficiaries of financial liberalization. This has led many authors to argue that developing economies should focus on strengthening their financial markets before opening up their capital accounts (e.g., Rodrik and Subramanian, 2009). How to balance these considerations against the potential benefits to be gained from financial liberalization is a pressing policy question, now that developing countries again face difficult choices about whether and how to liberalize capital account transactions further.

Given this theoretical ambiguity, it is important to investigate from an empirical point of view whether or not financial liberalization leads to lower poverty rates. Our main contribution is to provide a unified empirical framework for studying the concept of thresholds in the process of financial liberalization and poverty for analyzing the policy implications of this framework for the process of capital account liberalization. We thank that, if several attempts have been made to investigate the threshold effects in determining the relationship between financial development and economic growth, no empirical study, except error on our part, has addressed the issue of the threshold effect between financial liberalization and poverty. More specifically, the paper utilizes aggregate annual panel data, on a sample composed of 49 developing countries, from 1990-2011

to investigate this relationship further through an empirical investigation of the direct relationship between financial liberalization and poverty, thereby by passing the required further assumption that growth and poverty are negatively linked. In this study, we are also interested on the threshold effects of financial system in determining the financial liberalization-poverty nexus. Following this introduction is empirical model specification, sample and variables description, while section 3 presents and discusses the results of estimations. Section 4 concludes.

II. AN ECONOMETRIC ANALYSIS OF FINANCIAL LIBERALIZATION, POVERTY AND FINANCIAL DEVELOPMENT

II.1. Model Specification

Based on theoretical analysis on poverty and to assess the impact of the financial liberalization, we adopted a standard poverty model building on previous studies (Dollar and Kraay, 2002; Honohan, P. 2004; Guillaumont–Jeanneney, S. and Kpodar. K. 2011; Sin-Yu Ho and Nicholas M. Odhiambo, 2011 and Singh and Huang, 2011). The model explains poverty by a core set of control variables, overall income per capita, to capture the contribution of economic development. It is incorporated in the model to reflect the level of development of the economic system. We therefore expect a positive coefficient of this variable. We add inflation, to control for the macroeconomic environment; the number of people who accessed the telephone lines per 100 inhabitants is introduced to measure the quality of infrastructure; the trade openness to capture the degree of international openness; The growth population is also introduced into the model to capture the impact of demographic growth on poverty: the theory of endogenous growth predict that, an increase in population growth, increases the rate of household poverty. We expect a negative effect of this variable. The baseline model is then augmented with an indicator of financial liberalization and financial development.

The methodology of Generalized Method of Moments (GMM) for panel data analyses, proposed by Arellano and Bond (1991) and then further developed by Blundell and Bond (1998), is employed here to control for endogeneity in our estimations. The empirical results suggest, however, that the past poverty is suited in the explanation of the current level of poverty. Following Kpodar and al. (2011), we use the GMM estimator to investigate the financial liberalization-poverty nexus in developing countries. The following presentation of the structure of the model of regression is based on a dynamic specification. We are going to consider the model of following regression:

$$P_{it} = \alpha P_{it-1} + \delta_1 X_{it} + \mu_i + \xi_{it}$$

With μ_i and ξ_{it} are independently distributed, E (μ_i) = E (ξ_{it}) = E ($\mu_i * \xi_{it}$) =0

The system GMM estimator is to combine for each period with the first equation in the level differences. In the first-difference equation, the variables are instrumented with their level values of at least one period. However in the level equation, the values are instrumented by their first differences. This involves estimating a system comprising a first differenced equation to eliminate country fixed effects and an additional equation in levels. Appropriately lagged values of levels and first-differences, respectively, can then be used as instruments in these equations to address endogeneity concerns. The resulting system of equations is estimated simultaneously with the generalized method of moments. This approach is increasingly being used in a variety of related contexts.The GMM estimator will be used because it has a number of advantages. For instance, Beck and al. (2000) argue that the GMM panel estimator is good in exploiting the time-series variation in the data, accounting for unobserved individual specific effects, and therefore providing better control for endogeneity of all the explanatory variables. To test the validity of the lagged variables as instruments, Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998) suggest two specification tests: first, sargan over-identification test which tests the overall validity of the instruments by analyzing the sample analog of the moment conditions used in the estimation process. Then the second order autocorrelation test.To test the effects of financial liberalization on poverty reduction, taking into account the importance of financial development in determining this relationships, we follow the previous empirical studies on the subject (K. Kpodar and R. J. Singh, 2011) by adopting the following both dynamic equations where we introduce the financial development and financial liberalization indicators:

$$P_{it} = \alpha P_{it-1} + \delta_1 X_{it} + \delta_2 FD_{it} + \delta_3 FL_{it} + \mu_i + \xi_{it} \quad (1)$$

$$P_{it} = \alpha P_{it-1} + \delta_1 X_{it} + \delta_2 FD_{it} + \delta_3 FL_{it} + \delta_4 \left(FD_{it} * FL_{it} \right) + \mu_i + \xi_{it} \quad (2)$$

For i = 1..., N; t = 2...., T and E (ξ_{it} , ξ_{is}) = 0 $\forall$ t different to S.

Where P_{it} is the indicator of poverty for a country *i* at a period *t*; X_{it} is a set of potential poverty determinants, that include the variables most used in the economic literature, FD_{it} is an indicator of financial development, FL_{it} represent financial liberalization and μ_i is the country specific effect and ξ_{it} is the error term.

II.2. Data and sample

Given that the issue of poverty is a scourge that affects more developing countries than developed one, we chose to conduct our study on a sample composed only of developing countries. Overall, our dataset comprises a total of 49 developing countries over the period 1990-2011. Data are taken from WDI database and the IFS database. The indicator of the financial development is measured by the ratio of the credits to the private sector to GDP. Capital account liberalization is used as proxies for financial liberalization. We use this indicator because it is more frequently used in empirical literature and it is available for most countries. Given that time series data on poverty in many developing countries are very limited and this because many developing countries have started recording data on poverty only in the late 90's. We will use consumption per capita as a proxy of poverty (see also Quartey, 2005 and Nicholas M. Odhiambo, 2009). This is consistent with the definition proposed by the World Bank which defines poverty as "the inability to reach the subsistence level of life" measured in terms of basic consumption needs (World Bank, 1990).For the other control variables whereas the inflation is measured by growth of consumer price index available in CD-ROM of World Bank. It is introduced into the model to capture the impact of macroeconomic stabilization on poverty: inflation is a factor worsening poverty because it has a negative impact on the real value of assets and the purchasing power of household incomes, K. Kpodar (2006). Trade openness is defined as the sum of exports and imports as a share of GDP, to capture the degree of international openness. The level of infrastructure is measured by number of subscriber telephone lines per 100 inhabitants represents the degree of development in the field of information technology and communication, which is a sector that could have a positive influence on the poverty rate by encouraging financial innovation and facilitating access to credit by the poor and the finalization of financial transactions. We add on our model FL*FD to capture the interaction term between the financial liberalization and the level of financial development. We are particularly interested in the effect of the interaction term because we suspect that international financial liberalization may complement or substitute other conditions.

The coefficients of interest are δ_2, δ_3, and δ_4, which get the effect of the potential interaction between the financial development and the financial liberalization. In this way, we allow the impact of one of both variables to depend on the level of the other one. δ_2 and δ_3, of the equation (1) represent the marginal impacts respectively of the financial development and the financial liberalization. On the contrary, δ_3 in equation (2) represents the marginal impact of the financial liberalization conditional on the level of financial development being zero and the interpretation which is similar for δ_2 is also held. Finally, to obtain the level of threshold of financial development, we have to calculate from (model 4, Table 1) the function: $\frac{dP}{dFL} = \delta_3 + \delta_4 FD$ being equal to zero. Then the threshold of financial development is equal to $(-\frac{\delta_3}{\delta_4})$.

III.RESULTS AND INTERPRETATIONS

Our estimates are listed in Table 1. The test of second-order serial correlation justifies the acceptation of the null hypothesis, and the Sargan test of over identification suggests that we cannot reject the hypothesis of the validity of instruments. It noted that we have instrumented the indicator of the financial development by its values lagged and time dummies variables to check the time effect.

Table 1: Financial liberalization and poverty: the incidence of financial development (*GMM-System Estimation of full sample)*

Variables	(1)	(2)	(3)	(4)
Lagged dependent variable	0.223	0.221	0.215	0.226
	(3.04)**	(2.06)**	(2.89)**	(2.35)**
GDP/Capita	0.027	0.026	0.023	0.022
	(5.48)***	(4.39)***	(4.56)**	(4.19)***
INF	-0.073	-0.074	-0.071	-0.078
	(-13.53)***	(-11.18)***	(-14.92)***	(-11.58)***
Trade Openess	0.732	0.734	0.695	0.716
	(2.80)**	(2.63)**	(2.36)**	(2.55)**
POP	-0.032	-0.034	-0.038	-0.031
	(-1.31)	(-0.73)	(-1.27)	(-1.49)
TEL	0.092	0.097	0.082	0.088
	(13.16)**	(5.94)***	(9.86)***	(20.78)***
FD	--	0.044	0.047	0.046
	--	(2.61)**	(3.97)***	(1.78)*
FL	--	--	-0.021	-0.023
	--	--	(-2.47)**	(-2.26)**
FD*FL	--	--	--	-0.041
	--	--	--	(-2.91)**
Constant	2.24	2.49	2.39	2.32
	(11.62)***	(17.42)***	(14.72)***	(12.35)***
Nombers of obs.	1078	1078	1078	1078
Number of countries	49	49	49	49
Sergan/Hansen Test	0.87	0.82	0.76	0.91
AR2	0.47	0.52	0.44	0.57

Notes: * significant at 10% ** Significant at 5%; *** Significant at 1%. GDPG is the growth rate of GDP /capita; INF is the inflation rate; OPEN is trade openness measured by the sum of exports and imports to GDP; POP is the population growth rate; TEL is an indicator of infrastructure as measured by the number of subscribers to telephone lines per 100 habitants; FD is the indicator of financial development measured by domestic credit to private sector to GDP and FL is an indicator of financial liberalization measured by capital account liberalization.

The first model shows the results, obtained from GMM-System, of the model without introduction of financial development and financial liberalization variables. We find that the initial level of poverty has a positive sign and is statistically highly significant. The results related to the control variables are mostly in line with expectations, expect population growth which has the right sign but is not significant. The results demonstrate that per capita income growth has a significant poverty-reducing effect where a 1% increase in per capita incomes reduces poverty by 2%. In particular, the equation shows that the coefficient of inflation appears to be significantly negative showing the negative effects on the processes of poverty reduction. A 1% change in the consumer price index decreases household final consumption expenditure by about 0.07 point, confirming the negative role of inflation in reducing poverty rate. This result is interpreted in accordance with the theoretical predictions (K. Kpodar, 2006) which provide that inflation is a factor worsening poverty because it has a negative impact on the real value of assets and the purchasing power of household incomes. Our findings shows also that the level if infrastructure, as captured by telephone line per 1000 people, play significant role in poverty reduction. This result is consistent with the study of David Parker, Colin Kirkpatricka, Catarina Figueira-Theodorakopoulou (2008) which showed that to access to infrastructure services, such as mains water, safe sanitation, mains power supplies, maintained roads and telephones can help reducing poverty. On the coefficient of trade openness, it appears to be significantly positive. This result can be interpreted in accordance with the predictions of the international trade theory which argue that trade openness supports positively economic development.In column (3), we have introduced the indicator of the financial development measured by ratio of credits for the private sector to GDP and the financial liberalization measured by capital account liberalization. Our findings suggest that financial development reduces favorably the rate of poverty by the fact that an increase in the indicator of the credits of 1 point percentage leads to decrease in to the poverty rate by 0.2 point. The introduction a broad measure of financial liberalization shows that, as is typical in the literature, the correlation between financial liberalization and poverty is weak or even slightly negative.

This highlights the key discrepancy between theory and evidence on the poverty effects of financial liberalization. More specifically, financial liberalization aggravates significantly the poverty rate of 0.2 point. This result is consistent with some empirical results which argue that financial liberalization has led in many cases to disappointing results and in some cases even to economic and financial crises. For instance, Stieglitz (2000) have pointed out that financial liberalization as such does not solve the problem of asymmetric information. This may prevent financial intermediation from becoming more efficient in a liberalized market. Thus, financial liberalization may trigger crises if it leads to excessive risk taking under the pressure of increased competition (Demirgüç-Kunt and Detragiache, 1998). This leads us to think that, enjoy the fruits of financial liberalization should requires that certain conditions are met prior. Among these conditions, some predict that must reach a certain threshold of financial development.

In column (4), we are interesting to point out that the addition of the interactive term between the financial liberalization and the financial development is in the objective of knowledge, at which level of financial development, the financial liberalization can change sign towards its effect on the poverty rate. The coefficient on the interaction term appears to be strongly positive and nearly the same in magnitude as the negative coefficient on the financial liberalization variable itself. This means that a developed financial system, by the exercise of functions as mentioned in Levine (1997), minimizes the economic danger of financial liberalization. In other words, the financial liberalization reduces the poverty rate as soon as certain threshold of the financial development is reached by the countries. This means that there is a threshold of financial development from which the coefficient of the financial liberalization changes sign. This one is determined by the calculation of the marginal impact of the financial liberalization as explained above. This means that from a certain level of the financial development, the financial liberalization has just brought its initial enthusiasm while reducing poverty. This threshold is approximate at a level of 56 % of the private credit ratio. Other control variables resist due to the same signs as in model 1 and 2.Finally, we think that our conclusion at the end of this study does not seem to be that of all the countries of the entire sample. Indeed, the results can vary greatly depending on the degree of liberalization of the countries. The results of our estimation should be taken with great caution because we used a sample containing both less and highly liberalized economies. Therefore, financial liberalization can help reduce poverty in some countries as it can have adverse effects in others. That is why it may be that the process of separation of the sample according to the degree of liberalization, allows giving more precise and accurate results. Separation of the sample is done according to the degree of financial liberalization, adopted by Kose, Mr A. E. Prasad, K. Rogoff, and S.J. Wei (2006). This will give 26 less financial liberalized countries and 23 highly financial liberalized countries. The results of estimation of two groups of countries are listed in Table 2 and Table 3.

Table 2: Financial liberalization and poverty: the incidence of financial development (GMM-System Estimation of less financial liberalized countries)

Variables	(1)	(2)	(3)	(4)
Lagged dependent variable	0.213	0.218	0.235	0.228
	(3.63)**	(2.37)**	(1.88)**	(2.46)**
GDP/Capita	0.024	0.025	0.021	0.019
	(2.65)**	(2.42)**	(3.89)***	(1.99)**
INF	-0.082	-0.071	-0.063	-0.088
	(-9.42)***	(-7.45)***	(-5.25)***	(-6.23)***
Trade Openess	0.726	0.694	0.715	0.723
	(2.67)**	(2.48)**	(2.96)**	(2.94)**
POP	-0.034	-0.037	-0.032	-0.033
	(-0.91)	(-1.13)	(-1.67)*	(-1.36)
TEL	0.089	0.092	0.085	0.083
	(9.16)***	(7.94)**	(11.54)***	(6.78)***
FD	--	0.044	0.047	0.046
	--	(2.93)**	(3.64)***	(2.28)**
FL	--	--	-0.025	-0.027
	--	--	(-2.87)**	(-2.26)**
FD*FL	--	--	--	-0.047
	--	--	--	(-2.91)**
Constant	1.84	2.09	2.19	1.92
	(5.32)***	(3.24)***	(4.56)***	(8.35)***
Nombers of obs.	572	572	572	572
Number of countries	26	26	26	26
Sergan/Hansen Test	0.92	0.86	0.89	0.88
AR2	0.53	0.57	0.58	0.63

*Notes: * significant at 10% ** Significant at 5%; *** Significant at 1%. GDPG is the growth rate of GDP /capita; INF is the inflation rate; OPEN is trade openness measured by the sum of exports and imports to GDP; POP is the population growth rate; TEL is an indicator of infrastructure as measured by the number of subscribers to telephone lines per 100 habitants; FD is the indicator of financial development measured by domestic credit to private sector to GDP and FL is an indicator of financial liberalization measured by capital account liberalization.*

Table 3: Financial liberalization and poverty: the incidence of financial development (GMM-System Estimation of more financial liberalized countries)

Variables	(1)	(2)	(3)	(4)
Lagged dependent variable	0.182	0.175	0.213	0.192
	(1.94)**	(2.53)**	(1.98)**	(2.25)**
GDP/Capita	0.017	0.016	0.014	0.016
	(3.45)***	(5.34)***	(4.52)***	(6.29)***
INF	-0.046	-0.031	-0.037	-0.043
	(-4.51)**	(-3.97)***	(-4.02)***	(-3.59)***
Trade Openess	0.621	0.658	0.591	0.703
	(1.81)**	(1.61)	(2.18)**	(1.85)**
POP	-0.032	-0.034	-0.038	-0.031
	(-1.54)	(-1.75)*	(-1.57)	(-1.36)
TEL	0.074	0.085	0.082	0.078
	(6.46)***	(8.99)***	(11.06)***	(8.38)***
FD	--	0.043	0.045	0.042
	--	(2.61)**	(3.97)***	(1.78)*
FL	--	--	-0.019	-0.021
	--	--	(-2.95)**	(-3.24)**
FD*FL	--	--	--	-0.039
	--	--	--	(-1.35)
Constant	4.06	5.23	3.84	4.53
	(17.25)***	(15.51)***	(18.77)***	(16.63)***
Nombers of obs.	506	506	506	506
Number of countries	23	23	23	23
Sergan/Hansen Test	0.91	0.96	0.83	0.94
AR2	0.49	0.58	0.61	0.53

*Notes: * significant at 10% ** Significant at 5%; *** Significant at 1%. GDPG is the growth rate of GDP /capita; INF is the inflation rate; OPEN is trade openness measured by the sum of exports and imports to GDP; POP is the population growth rate; TEL is an indicator of infrastructure as measured by the number of subscribers to telephone lines per 100 habitants; FD is the indicator of financial development measured by domestic credit to private sector to GDP and FL is an indicator of financial liberalization measured by capital account liberalization.*

The estimation results of less financial liberalized economies are presented in Table 2. We notice, as shown in the column (3), that the poverty rate is decreased during studied period and it is significantly explained by the evolution of the lagged poverty, the inflation rate, the trade openness, the income per capita level, and the degree of financial liberalization. On the financial development indicator, it has a significant effect on the decline of the poverty reduction of less financial liberalized economy. This says that the countries which have under developed financial systems may fall into a poverty trap to the opening to international financial markets. The evaluation of model (4) of the same table suggests that the financial liberalization changes sign of impact on the poverty reduction to a certain level of development because the interactive term with the indicator of the financial development is shown statistically significant. This discovery is compatible and in agreement with previous empirical results and with most of the theoretical models which plan an ambiguous impact of financial liberalization on the poverty rate, according to the nature of the shocks which strike the economy. For the financial development, this result agrees with Beck and al. (2000). The threshold of the financial development in less financial liberalized economy from which the financial liberalization changes sign towards the poverty is approximate at a level of 57 % ($-\frac{\delta_3}{\delta_4}$). And even the question of the threshold effect in the relationship between financial liberalization and poverty reduction has not been the subject of some empirical works to our knowledge, so that we can make comparisons of results, we believe that most developed countries and a few emerging markets are above the estimated threshold levels of financial development, while a majority of emerging markets and nearly all other developing countries are below them.For the more financial liberalized economies, the estimated coefficients (see Table 3) of control variables have the expected sign. The coefficient of the lagged dependent variable has a significant and positive sign. The impact of the level of infrastructure is positive, as well as the indicator of trade openness. Financial developments continue to have a positive effect on poverty reduction, while financial liberalization appears to have negative effects on poverty reduction. On the interaction term, it has no significant impact.

In total, the fact of considering a simple exercise where we look at whether the correlation is different between countries with high and low degree of financial liberalization shows that there is a striking difference. When we interact the indicator for a high degree of financial liberalization with the financial development variable, the coefficient on the interaction term is strongly negative and nearly the same in magnitude as the positive coefficient on the financial liberalization variable itself. In other words, the effect of financial liberalization is positive for economies with comparatively low degree of financial liberalization and slightly negative but insignificant for those with higher degree. Finally, we thank that the threshold found in our study is only a statistical significance, it may depend on the methodology used, the decomposition of the sample in question and on all the control variables used.

IV.CONCLUSION

This paper aims to study the relationship between financial liberalization and poverty reduction taking into account to the development of the financial system. The interaction between the financial development and the financial liberalization may determine the nature of the financial liberalization-poverty nexus. Economic literature on the question shows that there is a threshold effect of financial liberalization on poverty. An increase in the degree of financial liberalization will be conducive to poverty if the financial system develops, that is to say, if financial systems are sufficiently developed this may help explain the role of the variable "financial development" in testing the relationship between financial liberalization and poverty.

Using GMM-System estimator for dynamic panel data on a sample composed of 48 developing countries over the period 1990-2011, our finding shows that financial liberalization is associated with the lower poverty rates if the level of financial development is under a certain threshold. This result holds the level of threshold of financial development, measured by the ratio of domestic credit to private sector to GDP, is estimated to be around 56 %. Beyond this threshold, financial liberalization has a positive and significant impact on poverty reduction. This suggests that the financial system has to be a prerequisite for the effect of the financial liberalization. That why before liberalizing their financial system, it is necessary that the State prepare an adequate legal and institutional environment allowing them to benefit from the financial intermediations.

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Appendix

Correlation Matrix

	GDP/Capita	INF	Trade	POP	TEL	FD	FL	FL*FD
GDP/Capita	1							
INF	0.087*	1						
Trade Openess	0.328*	0.082	1					
POP	-0.095	0.251**	-0.082	1				
TEL	0.020	0.349**	0.220**	0.058	1			
FD	0.017	-0.148***	0.355**	0.202*	0.192*	1		
FL	-0.098*	-0.221	0.535**	0.162*	0.268*	0.0462**	1	
FL*FD	0.106*	0.070	0.302**	0.046	0.353*	-0.421**	0.363**	1

*Notes: * significant at 10% ** Significant at 5%; *** Significant at 1%.*

List of the Sample Countries

Less Financial Liberalized countries	More Financial Liberalized countries
Algeria	Argentina
Bangladesh	Brazil
Benin	Chile
Bolivia	Colombia
Botswana	Egypt
Burkina Faso	Gabon
Burundi	Guatemala
Cameroon	Indonesia
Costa Rica	Malaysia
Côte d'Ivoire	Mexico
Ecuador	Morocco
El Salvador	Niger Venezuela
Ghana	Pakistan
Haiti	Paraguay
Honduras	Peru
Jamaica	Philippine
Kenya	R. Korea
Maurice	Singapore

Nicaragua	South Africa
Nigeria	Sri Lanka
Niger	Thailand
Panama	Turkey
Syria	Venezuela
Tunisia	
Togo	
Uruguay	