Financial Constraints and Poverty

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Abstract

This article revisits again relationship between financial sector and poverty, by testing the hypothesis according to which it is primarily financial constraints that affect poverty before the size of the financial sector. We find empirically proofs, which suggest that the differential of financial constraints is negatively linked at the level of poverty. This effect is robust in the control of deepening or financial development. Besides, it has an unstable sign. It persists even in the controls of other variables and economic technical changes. In conclusion, the countries with higher financial constraints are those where poverty is rife.

JEL Classification Numbers: G0, O15, O16

Keywords: Financial development, Poverty, financial constraints

1. INTRODUCTION

There is an abundant literature linking the financial sector to poverty (Zhuang et al. 2009). Indeed, the first channel through which the financial sector affects poverty is economic growth. Numerous scholars such as Datt and Ravallion (1992); Ravallion and Chen (1997); Kakwani (2000); Fields (2001); Dollar and Kraay (2002); Ravallion (2004) and Levine (2004) recognized the relationship between poverty and growth. Levine (2004) for instance established an indirect connection between the financial sector and poverty. This may lead to the expectation that, the higher the effect of the financial sector on economic growth, the greater the influence of this macroeconomic indicator (growth) may be translated on reducing poverty.

Other researchers, on the other hands, looked directly at the link between financial development and poverty (Beck, Demirgüç-Kunt and Levine 2007; Clarke, Xu and Zou 2003; Honohan 2004; Li, Squire, and Zou 1998). There findings revealed a robust relationship stating that financial development affects poverty by providing access to the poor to financial services.

While several studies consider hypothesis which are not always proved, the idea of this paper is to show that financial development influences access to financial services for the poor. However, the 2008 financial crisis, for example, reveals otherwise[1]. Frictions or financial constrains can also accompany a developed financial development system. This is what characterizes many African countries like the Democratic Republic of Congo (Kodila-Tedika and Konso, 2013) for example where the financial sector is growing by excluding a large part of the population because of the asymmetries of information. Numerous economists are

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[1] Alors que les banques continuaient à réaliser de profit et donc à grandir, de moins en moins l'on pouvait accéder au crédit.

well aware of this problem. Banerjee and Newman (1993); Galor and Zeira (1993) and Aghion and Bolton 1997) showed that asymmetric information produces credit constraints which affects particularly the poor as they do not have resources to implement their own projects, nor a pledge to access to bank credits. Thus, the impact of financial development can be disproportionate to the poor.

The originality of this study is to put aside the classical hypothesis, which claims that financial development is positively linked to poverty reduction. We test in this paper the effect of financial constraints on poverty by controlling for the effect of financial development. Our results attempt to challenge the current findings: the assumption is that financial development is linked to poverty, but this sign becomes unstable. While financial constraints have a coefficient, whose sign remains positive in all specifications with a level of considerable significance. In different words, if it is true that financial development may affect poverty, it is more constraints of the financial sector that affect poverty. We noted that countries with weak constraints are those with low poverty levels also.

The rest of the article is organized as follows: the presentation of the model in the second section. The third section is where data are presented, methodology and empirical results found. The last section concludes the article.

1. MODEL

Our first aim is to consider the effect of the financial sector constraints or frictions on poverty. In order to do that, a simple type of relationship (1) is sufficient:

$$POV_i = \beta_0 + \beta_1 FF_i + \varepsilon_i, \tag{1}$$

However, such a regression is too 'naïve' to clarify whether frictions or financial constraints effect (FC) which we will find would not be due to a bias of omission. It is for this reason that we write this equation differently to reduce this bias (2):

$$POV_i = \beta_0 + \beta_1 FC_i + \delta Z_i + \varepsilon_i, \tag{2}$$

Note that the second equation does not ultimately solve the problem that we want to highlight. It is difficult to establish the effect of financial frictions or constraints not considered in this kind of regression. Therefore, to isolate the effect of these two variables, we write them explicitly in our econometric specification:

$$POV_i = \beta_0 + \beta_1 FC_i + \beta_2 FD_i + \delta Z_i + \varepsilon_i, \tag{3}$$

where POV is poverty, FC denotes the financial constraints, FD denotes the financial development, i=1, 2... captures the country index, $Z = (z_1, \ldots, z_k)$ is the vector of control variables, and ε_i represents the error term that is assumed to be normally and independently distributed. β_0 is the intercept, β_1 captures the effect of frictions or financial constraints and $\delta = (\delta_1, \delta_2, \cdots, \delta_n)$ is the parameter denoting the vector for control variables. The control variables used are consistent with those employed by Tebaldi and Mohan (2010) and Kodila-Tedika and Asongu (2017a).

2. ESTIMATING THE IMPACT OF FINANCIAL CONSTRAINTS ON POVERTY

3.1. Data

This study uses poverty data from the World Development Indicators (WDI), which is compiled by the World Bank. We use a poverty measure that considers the percentage of the population living on less than PPP \$2 a day as the dependent variable. To circumvent missing data, we use the average poverty rates from 2000–2004. Financial Constraints is the percentage of firms that have neither a line of credit nor a loan and report to need capital. The source is Enterprise

Surveys of the World Bank (ESWB). García-Santana and Ramos (2015) use this indicator in particular.

Private credit is a traditional measure of financial development, as measured by the value of financial intermediaries credits to the private sector as a share of GDP (excludes credit to the public sector and credit issued by the central and development banks), average over 2000–2004. The source is the World Bank WDI online database; Beck et al. (2010).

Kauffman et al. (2010) provides six other measures of institutions: Control of Corruption, Regulatory Quality, Rule of Law, Government Effectiveness, Voice and Accountability, Political Stability and Absence of Violence. These variables range from 2.5 to 2.5, with higher scores indicating better institutions. This study uses an average index through the time periods of 1996, 1998, 2000, 2002, 2004 and 2005. The main component is used to generate the institutional variable. Malaria is taken from McArthur and Sachs and the latitude variables are taken from La Porta et al. (1999). We use latitude, which measures the absolute value of the latitude. *Colonial legacy* indicators that source from La Porta et al. (1999) consists of a set of dummy variables, which take the value of 1 if the country is a former *French, Socialist, Scandinavian, German or English* colony. Most of the variables, mentioned earlier regarded as control variables, are documented in the literature on the determinants of poverty (Tebaldi and Mohan (2010) and Kodila-Tedika and Asongu (2017ab), Kodila-Tedika and Mulunda Kabange (2018).

Table 1 presents descriptive statistics

Table 1. Summary statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Private credit	180	.506169	.4649888	.0195633	2.303401
Financial constraints	103	.2919531	.1946553	.022518	.9075769
Poverty	72	3.273148	1.048106	.6931472	4.525856
English colony	202	.3267327	.4701839	0	1
Socialist colony	202	.1683168	.375077	0	1
French colony	202	.4455446	.4982606	0	1
German colony	202	.0346535	.1833549	0	1
Scandinavian colony	202	.0247525	.1557559	0	1
Institution	204	-.0183957	2.205758	-4.893744	4.592062
Malaria	149	.3298025	.6220786	0	6.00528
Revenue (log)	188	8.527906	1.177607	5.88374	10.78347
Latitude	202	.2788653	.1899623	0	.8
Gini Index	93	39.94909	9.068499	25	60.05

3.2. Econometric Methodology

First, we used cross-section regressions, by recourse to Ordinary Least Squares (OLS). This logic estimates is recognized in the literature on the determinants of poverty (Tebaldi and Mohan, 2010; Kodila-Tedika and Asongu, 2017a, 2017b). In addition, based on this literature, we selected a number of variables as control variables described above. However, if it can be assumed that financial constraints may affect the level of poverty by excluding the poor of the financial system, the reverse is also sustainable especially as poverty could lead to a situation where one has no resource that can be used to guarantee and so in front of banks the poor man is seen as an insolvent.

To take into account this reverse causality problem, we used historical instruments of La Porta *et al.* (1997, 1998), which show that the origin of law is determining the financial sector behavior of each country. This instrument has no direct relationship with the state of the current poverty in different nations if it is not indirectly by affecting for example the financial sector. Also, by drawing

inspiration from this literature, we kept some variables as variables of control, described before.

3.3. Results

Table 2 presents the main regression results. In model 1, we start with a simple bivariate regression without controlling for potential antecedents of poverty. We find that the coefficient for financial constraints is positive and statistically significant at the 1% level. The restricted specification estimates provide general support for the model with an adjusted R^2 of 0.343.

Particularly, a 10-point increase in poverty level is associated with a 3.6-point increase in financial constraints. We add the private credit in model 2. Poverty is negatively correlated with the private credit and its coefficient is statistically significant at the 5% level. We notice that a 10-point increase in poverty level is associated with a 1.2-point reduction in private credit.

Table 2. Estimates with OLS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Financial constraints	3.564***	2.900***	2.238***	1.698**	1.923***	1.819**	0.632
	(0.665)	(0.710)	(0.683)	(0.666)	(0.681)	(0.692)	(0.556)
Private credit		-1.175**	-0.342	-0.345	-0.551	-0.533	0.033
		(0.533)	(0.551)	(0.516)	(0.513)	(0.515)	(0.399)
Institutional Quality			-0.334***	-0.297***	-0.298***	-0.295***	-0.176**
			(0.101)	(0.096)	(0.091)	(0.091)	(0.071)
Latitude				-1.648***	-0.966	-0.902	0.315
				(0.565)	(0.752)	(0.757)	(0.604)
Gini Index					0.026*	0.024	0.041***
					(0.014)	(0.015)	(0.011)
Malaria						0.106	-0.056
						(0.118)	(0.093)
Ln GDP per capita							-0.883***
							(0.143)
Constant	2.246***	2.799***	2.482***	3.134***	1.846**	1.903**	8.322***
	(0.212)	(0.324)	(0.313)	(0.368)	(0.848)	(0.853)	(1.223)
Observations	57	57	57	57	56	56	56
R^2	0.343	0.397	0.500	0.570	0.615	0.622	0.789

Notes: Standard errors in parentheses. Significance at the 1% level is denoted by ***; ** denotes significance at the 5% level; and * significance at the 10% level.

Models 3 to 7 are stepwise regressions where we include other control variables in sequence. The estimated coefficients on the control variables turn out to be as expected. GDP per capita, latitude, and Institutional Quality are negatively correlated with poverty, which means that higher income, latitude and Institutional Quality, contribute to alleviating poverty. The coefficient on Gini index is positive, reflecting a positive relationship between inequality and poverty.

Table 3. Estimates with 2SLS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Financial constraints	8.642***	8.217***	8.166***	7.589	4.932***	4.930***	3.605**
	(2.869)	(2.951)	(2.786)	(4.687)	(1.655)	(1.652)	(1.578)
Malaria		-0.002				0.017	-0.083
		(0.243)				(0.138)	(0.109)
Private credit			0.500	0.644	-0.363	-0.359	0.010
			(1.109)	(1.095)	(0.580)	(0.578)	(0.467)
Institutional Quality				-0.090	-0.204*	-0.203*	-0.134
				(0.216)	(0.111)	(0.110)	(0.086)
Latitude				-0.258	0.498	0.515	1.143
				(1.377)	(1.102)	(1.073)	(0.812)
Gini Index					0.048**	0.048**	0.056***
					(0.019)	(0.020)	(0.015)
Ln GDP per capita							-0.618***
							(0.210)
Constant	0.895	1.012	0.862	0.984	-0.305	-0.306	4.542*
	(0.781)	(0.754)	(1.058)	(1.761)	(1.414)	(1.406)	(2.321)
Observations	57	56	57	57	56	56	56
R^2	0.864	0.875	0.878	0.892	0.948	0.948	0.967
Sargan Statistic	0.409	0.383	0.310	0.165	0.821	0.823	0.369

Notes: Standard errors in parentheses. Significance at the 1% level is denoted by ***; ** denotes significance at the 5% level; and * significance at the 10% level.

Given that the estimations by the OLS technique may be weak in the endogeneity issue, we verify the robustness of corresponding estimates by employing an estimation technique that corrects the presence of such endogeneity. For this purpose of robustness we employ Two-stage-least squares (2SLS) estimation technique. The reported results in Table 3 indicate that the positive impact of financial constraints is greater in countries with a higher level of poverty, i.e. the countries with higher financial constraints are those where poverty is rife. These results further indicate that financial constraints exert a quantitatively weighty contribution to explain poverty in developing countries, which must not be ignored by policymakers considering the role of financial constraints to steer the development of the financial system in a pro-growth and pro-poor direction.

Financial reform policies aimed at expanding financial access and depth, as well as enhancing financial efficiency and stability, should all be encouraged. These policies may include relaxing credit and interest controls, and improving banking and securities market supervision.

Conclusion

This study aimed at testing the relationship between the financial contraints and poverty. Most studies suggest a negative relationship between these two variables. However, the weakness of these studies is to consider financial development and financial deepening in ignoring problems that are often encountered in this sector. The purpose of this research is precisely to overcome this deficiency.

We found that by controlling the friction effects in the financial sector, financial development no longer has a strong impact on poverty. Moreover, the sign of the coefficient becomes unstable. This is hardly the case for the friction or financial constraints' signs. In other words, it is more the constraints that affect poverty than the size of the sector. Countries that have higher financial constraints are those where poverty is rife.

References

Aghion, P., & P. Bolton. (1997). "A Theory of Trickle-Down Growth and Development." *Review of Economic Studies* 64:151–72.

Banerjee, A., & A. Newman. (1993). "Occupational Choice and the Process of Development." *Journal of Political Economy* 101(2):274–98.

Beck, T., A. Demirgüç-Kunt, & R. Levine, (2007), "Finance, Inequality and the Poor," *Journal of Economic Growth*, Vol. 12, No. 1, pp. 27-49.

Beck, T., Demirgüç-Kunt, A. & Levine, R., (2010). Financial institutions and markets across countries and over time: the updated financial development and structure database. World Bank Economic Review 24, 77–92.

Clarke, G., L. Xu, & H. Zou. (2003). Finance and Income Inequality: Test of Alternative Theories. World Bank Policy Research Working Paper No. 2984, World Bank, Washington, DC.

Datt, G., & M. Ravallion. (1992). "Growth and Redistribution Components of Changes in Poverty Measures: A Decomposition with Applications to Brazil and India in the 1980s."*Journal of Development Economics* 38(2):275–95.

Dollar, D., & A. Kraay. (2002). "Growth is Good for the Poor." *Journal of Economic Growth* 7(3):195–225.

Fields, G. (2001). *Distribution and Development: A New Look at the Developing World*. NY: Russell Sage Foundation, and Cambridge, MA: MIT Press.

Galor, O., and J. Zeira. (1993) "Income Distribution and Macroeconomics." *The Review of Economic Studies* 60(1):35–52.

García-Santana, M & Ramos, R. (2015) Distortions and the size distribution of plants: evidence from cross-country data, *Journal of Spanish Economic Association* 6:279–312

Guillaumont Jeanneney, S. & Kpodar, S. (2008), Financial Development and Poverty Reduction: Can There Be a Benefit Without a Cost? IMF Working Paper WP/08/62.

Honohan, P. (2004). "Financial Development, Growth and Poverty: How Close are the Links?" In E. C. Goodhard, ed., *Financial Development and Economic Growth: Explaining the Links*. London: Palgrave

Kakwani, N. (2000). "On Measuring Growth and Inequality Components of Poverty with Application to Thailand." *Journal of Quantitative Economics* 16:67–79.

Kaufmann, D., Kraay, A. & Mastruzzi, M., (2010). The Worldwide Governance Indicators: Methodology and Analytical Issues. Policy Research Working Paper Series 5430, The World Bank

Kodila-Tedika, O. & Asongu, S. (2017), Institution and poverty: A Critical Comment Based on Evolving Currents and Debates?, *Social Indicators Research* DOI 10.1007/s11205-017-1709-y.

Kodila-Tedika, O. & Asongu, S. (2017), Is poverty in the African DNA (Gene)? *South African Journal of Economics*, 85 (4), 533–552.

Kodila-Tedika, O. & Mulunda Kabange, M. (2018). "Constitutional instability and Poverty: Some Empirical Evidence," MPRA Paper 84501, University Library of Munich, Germany.

La Porta, R., Florencio, L.-d.-S., Shleifer, A. & Vishny, R.W., (1997). Legal determinants of external finance. *Journal of Finance* 52, 1131–1150.

La Porta, R., Florencio, L.-d.-S., Shleifer, A. & Vishny, R.W., (1998). Law and finance. *Journal of Political Economy* 106, 1113–1155.

La Porta, R., Lopez-de-Silanes, F. & Shleifer, A., (2008). The economic consequences of legal origins. *Journal of Economic Literature* 46, 285–332.

Levine, R. (2004). Finance and Growth: Theory and Evidence. NBER Working Paper No. 10766, National Bureau of Economic Research, Cambridge.

Li, H., L. Squire and H. Zou. (1998). "Explaining International and Intertemporal Variations in Income Inequality." *Economics Journal* 108:26–43.

McArthur, J.W. and Sachs, J.D. (2001) Institutions and geography: comment on Acemoglu, Johnson, and Robinson (2000). NBER Working Paper 8114. Cambridge: National Bureau of Economic Research.

Ravallion, M., (2004). Pro-poor Growth: A Primer. World Bank Policy Research Working Paper No. 3242.

Ravallion, M., & S. Chen. (1997). "What Can New Survey Data Tell Us about Recent Changes in Distribution and Poverty?" *World Bank Economic Review* 11(2):357–82.

Tebaldi, E. & Mohan, R. (2010) 'Institutions and Poverty', *Journal of Development Studies*, 46: 6, 1047 — 1066

Zhuang, J., Gunatilake, H., Niimi, Y., Khan, M.E., Jiang, Y., Hasan, R., Khor, N., Lagman-Martin, A., Bracey, P. & Huang, B. (2009), Financial Sector Development, Economic Growth, and Poverty Reduction: A Literature Review, ADB Economics Working Paper Series No. 173.