Does Institutional Quality Affect the Finance-poverty Nexus? Evidence from Arab Countries

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Abstract: This paper investigates whether the level of institutional quality affects the finance-poverty relationship in Arab countries. Panel cointegration tests and FMOLS method of estimation are conducted for a sample of 14 Arab countries over the period 1996-2021. Using an interaction term constructed as a product between financial development indicators and an institutional index, we find that there was a conditional relationship between financial development and poverty. Moreover, institutional quality mitigates the negative effect of financial development on poverty alleviation. Consequently, a threshold level of institutional quality was determined in this study. In fact, to benefit from financial development in terms of poverty reduction, Arab countries must achieve an institutional threshold level close to 1.8 and 0.6 when the domestic credit to private sector ratio and the number of bank accounts per 1,000 adults are considered as indicators of financial development respectively.

JEL Codes: G20, I32, C23, O17.

Keywords: Financial development, institutional quality, poverty alleviation, Arab countries.

1. INTRODUCTION

Poverty reduction is a serious challenge for national and international communities. Addressing this question, an important strand of the literature has paid special attention to the role of the financial system in the poverty reduction process. Galor and Zeira (1993)suggest that financial deepening eases credit constraints, which in turn benefits low-income groups through the channels of human capital development and capital accumulation. Appiah-Otoo and Song (2021) argue that financial development eases the access to financial services on the part of the poor by reducing the cost of borrowing and the provision of asymmetric information. Financial deepening can also improve access and encourage the efficient provision of savings and credit, a situation which can help the poor to develop microenterprises. If financial markets were perfect, the availability of finance would allow individuals to fund education, training, or business opportunities based only on their talent and initiative, not on parental wealth. As financial markets grow deeper, and access to finance improves, households that did not previously have access to finance might be the main beneficiaries. In such a framework, financial development would equalize opportunities by reducing the importance of existing wealth and hence would favor the poor (Singh and Huang, 2015). However, another strand of the literature indicates that financial development primarily helps the rich. As the poor mainly rely on informal family connections for capital, improvements in the services of the formal financial sector

inordinately benefit those already purchasing financial services (Greenwood and Jovanovic, 1990).

Some studies have helped to distinguish between the conflicting views on the link between finance and poverty by assessing the impact of the different dimensions of financial development on the level of poverty (Ben Naceur and Zhang, 2016[1] and Rewilak, 2017[2]). Appiah-Otoo et al. (2022)argue that the conflicting evidence about the relationship between financial development and poverty might indicate that regional or income-specific differences are important because they are affected by the quality of the institutions involved (Singh and Huang 2015; Cepparulo, Cuestas, and Intartaglia, 2016;andRashid, 2017). In a more recent study, Appiah-Otoo et al. (2022) have examined the conditional finance-poverty relationship by exploring the role of institutional quality in West Africa. Their results offer evidence that financial development reduces poverty, but the existence of a weak institutional environment reduces the positive effect of such development on poverty reduction.

Our research extends the previous studies by examining the conditional finance-poverty nexus in non-rich Arab states. More precisely, we examine whether the finance-poverty nexus is affected by institutional quality. In fact, as identified by North (1990), institutions are "the rules of the games in a society". These include both "formal" rules such as constitutions and laws enforced by the state, and "informal" con-

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[1] The authors consider five financial dimensions, (i) financial access, (ii) financial depth, (iii) financial stability, (iv) financial efficiency and (v) financial liberalization.

[2] The author considers four financial dimensions, (i) financial access, (ii) financial depth, (iii) financial stability, and (iv) financial efficiency.

straints such as "codes of conduct, norms of behaviour, and conventions" which, generally, are enforced by the members of the relevant group(North 1990, p.36). Institutions determine the functioning of market and non-market activities (Balzat 2006). Therefore, an underdeveloped institutional setting hampers the progress with regard to new financial markets and products, which leads to an underdeveloped financial system and the amplification of poverty. However, a strong institutional environment leads to the development of a sound financial system and poverty alleviation by reducing risk and uncertainties and assuring an equitable distribution of resources.

This paper aims to contribute to the literature in three major ways. First, it looks at the Arab states, more specifically the non-rich Arab countries. The choice of such Arab countries with regard to carrying out our empirical investigations is motivated by several reasons. Firstly, to the best of our knowledge, no study has been conducted investigating the effect of financial development on poverty in Arab countries. Moreover, according to Mohamed (2018), the Arab region fell short in terms of reducing extreme poverty by half from 1990 (the first of the Millennium Development Goals). In this context, Abu- Ismail (2020) argues that a significantly higher share of the population in the region is clustered between the $1.9 and $3.5 lines, suggesting that extreme poverty is low but that vulnerability to it is high. Secondly, we aim to examine the effect of institutional quality on the finance-poverty nexus. Finally, we calculate the minimum level of institutional quality that must be attained by Arab countries in order to benefit from financial development in terms of poverty alleviation.

In this study, an empirical model involving linear interaction between financial development and institutional quality is used to estimate the situation. Given our small sample of 14 countries[3] over the period from 1996 to 2021, we consider the Fully Modified OLS (.FMOLS) as a suitable econometric methodology. Our main findings show that while the indicators of financial development have a negative effect on poverty reduction, a sound institutional environment mitigates the negative effect of financial development on poverty alleviation. In fact, to benefit from financial development in term of poverty reduction, Arab countries must obtain an institutional threshold level close to 1.8 and 0.6 when domestic credit to the private sector and the number of bank accounts per 1,000 adults are considered as indicators of financial development respectively.

The rest of this study proceeds as follows. Section II reviews the literature exploring the relationship between financial development and poverty. Section III describes the data and presents the empirical methodology. Section IV reports the main results. The main conclusions and policy recommendations are reported in Section V.

2. LITERATURE REVIEW

The role of financial development in growth has been well documented in the literature. However, the literature on the financial development-poverty relationship is still nascent, with the existing theories providing conflicting predictions about the impact of financial development on poverty. One strand of the literature outlines the beneficial effect of financial development on poverty alleviation (e.g. Galor and Zeira, 1993; Aghion and Bolton, 1997; Barro, 2000), while the other (Rajan and Zingales, 2003and Claessens and Perotti, 2007) suggest that financial deepening would favor the rich.

Another stand of the literature predicts a nonlinear finance-poverty relationship. Greenwood and Jovanovic (1990) predict that there is an inverted relationship between financial development, income inequality and economic development. Their theory indicates that at the early stages of development, only the rich can access financial services because of the fixed cost of joining a financial coalition, resulting in wider income in equality.

Equally, the empirical studiesprovide mixed results. We can classify the empirical studies in terms of three mains trends. The first provides evidence in favor of the significant impact of financial development on poverty mitigation. The second suggests that financial development does not contribute to poverty reduction. The latest group concludes that there is a conditional finance-poverty relationship.

2.1. The Pro-poor Effect of Financial Development

Examining the relationship between finance and changes in both income distribution and poverty levels over the 1960-2005 period, Beck, Demirgüç-Kunt, and Levine (2007)find that financial development is strongly associated with poverty alleviation. Their results show that about 40% of the long-run impact of financial development on the income growth of the poorest quintile is the result of reductions in income inequality, while 60% is due to the impact of financial development on aggregate economic growth.

Considering a panel of 71 developing countries over the period 2002-2011, Donou-Adonsou and Sylwester (2016) provide evidence that banks reduce poverty. By considering the ratio of credit to GDP as an indicator of financial development, they provide robust results with regard to the use of assets to GDP as an alternative measure of financial development.

Rewilak (2017) investigates whether or not financial development is conducive to poverty reduction. Given that financial development may be broken into four sub-categories, Rewilak finds that financial deepening has the greatest effect when it comes to reducing poverty, followed by increasing financial access. In addition, the results show that financial instability and banking sector inefficiency have no harmful effects on poverty reduction.

Boukhatem and Mokrani (2012) consider a sample of 67 countries. Their finding provides strong evidence that financial development reduces poverty. Their findings are robust in terms of the use of different measure of financial development and poverty.

Using a sample of 143 countries from 1961 to 2011 and considering several financial development dimensions (financial access, efficiency, stability, and liberalization), Ben Naceur and Zhang (2016) provide evidence that most financial de-

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[3] Algeria, Comoros, Djibouti, Egypt, Iraq, Jordan, Lebanon, Mauritania, Morocco, Sudan, Syria, Tunisia, West Bank and Gaza, Yemen

velopment dimensions can help reduce income inequality and poverty.

Donou-Adonsou and Sylwester (2016) examine the effect of financial development on poverty alleviation in a sample of 71 developing countries over the period 2002–2011. Considering the ratio of credit to GDP as the main financial development indicator, the results indicate that banks reduce poverty.

Rashid (2017) empirically examines the impact of financial development on poverty reduction in developing countries over the period 1985-2008. His findings indicate that financial development plays a significant role in reducing absolute poverty.

In a more recent study, Acheampong et al. (2021) consider a sample of 44 sub-Saharan African (SSA) countries from 2010 to 2019. Their findings provide evidence that financial development reduces both male and female poverty. Similarly, examining the relationship between financial development and poverty reduction in Africa over the period of 1996–2015, Bolarinwa et al. (2022) conclude that financial development has a reducing effect on absolute poverty, but this does not affect relative poverty.

2.2. The Non-pro-poor Effect of Financial Development

While most empirical studies provide strong evidence that financial development reduces poverty, some other studies have opposed the common view. Fowowe and Abidoye (2013) argue that when financial reforms are implemented, an increase in lending funds has been observed. This can discourage the poor from borrowing and exclude them from the market for loanable funds. The latest argument has been supported by Khan, Rashid Gill, and Noreen (2015) who have tested the causal process linking financial development and poverty reduction in Pakistan. Their findings show that financial development in Pakistan has not led to poverty reduction.

Seven and Coskun (2016) examine the effect of bank and stock market development on poverty in emerging countries over the period of 1987–2011. Their results show that neither banks nor stock markets play a significant role in poverty reduction.

In a more recent study, considering a sample of 132 countries over the 1980-2104 period, the findings of Nasreddine, Mensi, and Ben Amor (2019) indicate that financial development does not improve the situation of the poor.

2.3. The Conditional Finance-Poverty Relationship

The effect of financial development on poverty can be conditioned by institutional quality and the level of economic development.In this vein,Singh and Huang (2015) consider a sample of 35 countries in SSA from 1992 to 2006.Their results show that financial deepening could widen income inequality and increase poverty if not accompanied by stronger property rights.

To examine whether or not the level of institutional quality influences how financial development affects poverty, Cepparulo, Cuestas, and Intartaglia (2016) consider a sample of developing countries covering the 1984 to 2002 period. Using an interaction term constructed as a product between financial development and institutional quality, the researchers find that the pro-poor impact of financial development decreases as the quality of institutions rises.

Examining the ICT-Financial Development and poverty relationship in 42 SSA countries over the period of 1980-2019, Ofori et al. (2021) conclude that ICT skills reduce poverty, and this effect is more pronounced in the presence of enhanced financial development.

Appiah-Otoo et al. (2022) examine the effect of institutional quality on the financial development-poverty relationship in 16 West African countries over the 2019 to 2002 period. Their findings provide evidence that finance reduces poverty. However, a weak institutional environment reduces the positive effect of finance on poverty reduction.

In more recent study (Benabdennour et al. 2022) investigate the non-linear effect of financial development and economic development on poverty. Applying the PTR model developed by Hansen (1999), for a sample of 49 countries, over the period 2004-2017, (Benabdennour et al. 2022) provide empirical evidence of the non- linear finance-poverty relationship. Their findings show that the effect of financial development on poverty is a function of levels of economic development and financial development. Moreover, they conclude that threshold levels associated to financial development and economic development are necessary to have significant poverty reduction.

3. ECONOMETRIC MODEL AND DATA

3.1. The Sample and Variables

The purposes and the contributions of this study are as follow: First, this study re-investigates the finance-poverty relationship. Specifically, it examines whether or not the finance-poverty nexus is affected by the level of institutional quality in a sample of Arab countries. Our sample contains data on 14 Arab countries covering the period 1996 to 2021.

- – Our dependent variable is poverty (**POV**). As a measure of poverty this study considers house holds' per capita consumption. This choice is justified because there is limited data on the poverty head count ratio— the popular proxy for poverty— in Arab countries. The house hold per capita consumption has also been noted to be a viable proxy of poverty reduction (Quartey, 2005).This poverty measure has also been used in several studies such as those of (Appiah-Otoo et al. (2022), Appiah-Otoo and Song (2021), Quartey (2005), Uddin et al. (2014), Sehrawat and Giri (2016b), Sehrawat and Giri (2016a) and Ho and Iyke (2018).

- – Two indicators of financial development are considered for use in the study. The first is an indicator of financial access which is measured by the number of bank accounts per 1,000 adults (**BANK**). The second indicator of financial development is the ratio of domestic credit to private sector which is considered as a proxy of financial development (**DC**). Domestic credit is argued to be a good proxy of financial development because it reflects the ability

of the financial system to channel savings into investment opportunities. However, by excluding credit to the public sector, the domestic credit to private sector ration reflects the extent of efficient resource allocation on the part of the private sector (Levine and Zervos, 1998).

– In terms of institutional quality, we construct an institutional quality index (**INST**) which is an average of the six sub-indicators defined by the World Governance Indicators (WGI) database-initially provided by Kaufmann, Kraay, and Zoido (1999), including Voice and Accountability (**VAC**), Regulatory Quality (**REG**), Rule of Law (**LAW**), Control of Corruption (**COR**), Political Stability (**POL**) and Governance Effectiveness (**GEF**). The index is measured on a scale ranging from −2.5 to 2.5, where high values indicate effective institutions.

– To assess the strength of the independent link between financial development and poverty, we control for other potential determinants of poverty in our regression. Specifically, we choose the most commonly-used variables in the empirical poverty theory defined as follows: *real GDP per capita* (**GDP**), *government expenditures to GDP* (**GOV**) *and inflation rate* (**INF**) (*Source: World Development Indicators, World Bank, 2022*).

Variable definitions and sources are reported in Table **1**:

Table 1. Variable Definition and Sources.

Variables	Proxy	Sources
The household's per capita consumption	POV	World Bank Database
The ratio of domestic credit to private sector	DC	World Bank Financial Database
The number of bank accounts per 1,000 adults	BANK	World Bank Financial Database
Real GDP per capita	GDP	World Bank Database
General government expenditure to GDP ratio	GOV	World Bank Database
Inflation rate	INF	Worl Bank Database
Control of Corruption	COR	World Governance Indicators Database
Governance Effectiveness	GEF	World Governance Indicators Database
Political stability	POL	World Governance Indicators Database
Regulatory Quality	REG	World Governance Indicators Database
Rule of Law	RUL	World Governance Indicators Database
Voice and Accountability	VAC	World Governance Indicators Database
Institutional quality index	INST	Author calculations from World Governance Indicators Database

3.2. Econometric Model

We follow the basic regression specification from the poverty and financial development literature

$$POV_{it} = \alpha_i + \beta FD_{it} + \gamma\ Z_{it} + \mu_{it} \qquad (1)$$

where POV_{it} refers to poverty indicator in the ith country for some time period. This is our dependent variable. FD_{it} is the key explanatory variable that we are interested in; Z_{it} represents a matrix of control variables; α_i is an unobserved country specific effect; and μ_{it} is the error term of each observation.

To control the wealth effect, we use the Log of GDP per capita as a control variable. Inflation is also considered as a control variable and is viewed as an indicator of macroeconomic stability. Another control variable we use in our analysis is government consumption (GC) which is measured as the ratio of government expenditure to GDP.

To examine how institutional quality affects the finance-poverty relationship, we consider the following empirical specification:

$$POV_{it} = \alpha_i + \beta_0 FD_{it} + \beta_1 INST_{it}$$
$$+ \beta_3(FD_{it} * INST_{it}) + \gamma Z_{it} + \mu_{it} \qquad (2)$$

In this specification, the responsiveness of the steady state level of poverty to financial development is as shown in equation (3). Specifically, we differentiate equation (2) with respect to financial development in order to obtain the marginal effect of financial development on poverty:

$$\sigma = \frac{\partial POV}{\partial FD} = \beta_0 + \beta_3 \times INST \qquad (3)$$

The relationship between financial development and poverty might be a case of reverse causation[4]. Thus, to control for endogeneity and reverse causation, we consider the Fully Modified OLS (FMOLS) as method of estimation. This method solves the cross-sectional heterogeneity problem, small sample size bias, and endogeneity. The hypotheses tested in our study are reported in Table **2**.

Table 2. Hypotheses.

Signs	Meaning
If $\beta_0 > 0$ $B_3 > 0$	Financial development contributes to poverty reduction, and institutional quality promotes the pro-poor impact of financial development
If $\beta_0 > 0$ $\beta_3 > 0$	Financial development contributes to poverty reduction, and institutional quality adversely affects this positive effect

[4]Ben Naceur and Zhang (2016) argue that "*the relationship between financial development and poverty might be a case of reverse causation. For example, a lower level of poverty implies that financial services are already more*

If $\beta_0 > 0$ $B_3 > 0$	Financial development amplifies poverty, and institutional quality mitigates this negative effect
If $\beta_0 > 0$ $B_3 > 0$	Financial development amplifies poverty, and institutional quality aggravates this effect

4. EMPIRICAL RESULTS AND INTERPRETATION

The summary of the statistics and the correlation matrix are reported in Tables **3** and **4** respectively. Table **3** suggests that the countries in our sample have very diverse levels of poverty. In fact, the household consumption measure ranges from -5.40% to 58%,with domestic credit having an average of only 3.061%. It is clear that a large proportion of non-rich Arab countries have not taken advantage of the benefits offered by the financial sector. This conclusion is confirmed by the low level of financial inclusion in this region. That is, out of every 1000 people, only 82 have bank accounts. With regard to institutional quality, the negative value of the average of the institutional quality index (-0.8) implies weaknesses in terms of the institutional environment in non-rich Arab countries. The correlation matrix reported in Table **2** indicates that the coefficients of correlations between the explanatory variables are generally low than the issues of multi collinearity and autocorrelation are not expected in our study.

4.1. Stationarity Analysis

As a means of pre-estimation with regard to analysis of the data, we investigate the stationarity proprieties of all variables to ensure they are not integrated. The Levin, Lin, and James Chu (2002) test (LLC) is used to measure the common unit root test. Two individual unit root tests are then considered. These are *(i)* the test proposed by Im, Pesaran, and Shin (2003) and (ii) Fisher-type tests based on augmented Dickey-Fuller tests (ADF) (Dickey and Fuller, 1979). The

results reported in Table **5** show that it is clear that for all our variables at the level the unit root hypothesis cannot be rejected at the three levels of significance (1%, 5% and 10%). On the other hand, when we consider the first differences with regard to these variables, the unit root test is clearly rejected. To sum up, it is clear that household consumption, the domestic credit to private sector ratio, the number of bank accounts per 1,000 adults, GDP per capita, government expenditure to GDP, the inflation rate, the institutional index, and the interaction terms between the institutional index and our two indicators of financial development (*DCINST and BANKINST*) are I (1) series.

4.2. Cointegration Analysis

Once the order of stationarity has been defined, we applied the panel cointegration test proposed by Pedroni (1999) which takes into account heterogeneity by using specific parameters that are allowed to vary across individual members of the simple. Pedroni has proposed seven different statistics to test panel data cointegration. The first four test statistics are based on the "within" dimension, while the second three test statistics are based on the between dimension. The null hypothesis of no cointegration is H_0: $\rho_i = 1$ (no cointegration) for both kinds of tests. However, the alternative hypothesis is H_0: $\rho_i = \rho < 1$ for the first group of test statistics and H_0: $\rho_i < 1$ for the second group of test statistics. The null hypothesis of no cointegration against the alternative of cointegration is tested using all seven statistics. Rejection of the null hypothesis means that the variables are cointegrated. The results of the Pedroni panel cointegration test based on the seven test statistics are tabulated in Table **6**. We used four within-group and three between-group tests. In general, the panel cointegration tests point to the existence of a long-run relationship between variables in all of the models.

Table 3. Summary Statistics for the Main Variables.

Variables	Obs	Mean	Std.Dev.	Min	Max
POV	338	2.077	6.970	-5.249	58.028
DC	364	3.061	1.175	-1.408	4.984
BANK	182	4.407	1.5047	-.164	6.650
INST	364	-.810	.519	-2.015	.0820
GDP	364	7.84	.522	6.85	9.11
GOV	338	2.761	.3366	.892	3.486
INF	318	4.575	.708	2.474	9.695

Table 4. Correlation Matrix.

Variables	POV	DC	BANK	INST	GDP	GOV	INF
POV	1						
DC	-0.55	1					
BANK	-0.140	0.296	1				
INST	-0.339	0.060	0.52	1			

GDP	0.070	0.553	0.373	0.286	1		
GOV	-0.166	-0.404	0.338	0.275	0.161	1	
INF	-0.361	0.372	0.218	-0.211	-0.029	0.172	1

Table 5. Panel Unit Root Tests.

Variables	LLC		IPS		ADF	
	In Level	In First Difference	In Level	In First DIFFERENCE	In Level	In First Difference
POV	-1.0683 (0.1427)	-6.1326* (0.000)	-0.9821 (0.1630)	-8.2604* (0.000)	42.6897 (0.933)	156.3393* (0.000)
DC	-0.1250 (0.4503)	-2.7561* (0.0029)	1.8439 (0.9674)	-2.4654* (0.0068)	19.2506 (0.8902)	56.2644* (0.000)
BANK	-2.1086 (0.175)	4.3697* (0.0006)	0.1249 (0.5497)	-0.154 * (0.0034)	16.7197 (0.2714)	46.1868* (0.000)
INST	-0.8216 (0.2057)	-5.4201* (0.000)	0.0379 (0.5151)	-6.4660* (0.000)	27.6550 (0.4828)	115.4524* (0.000)
GDP	-3.2789 (0.522)	-2.3309* (0.0099)	-0.9295 (0.1763)	-3.3311* (0.0004)	34.5387 (0.1837)	85.4873* (0.000)
GOV	-1.8544 (0.3181)	-5.9124* (0.000)	-1.0719 (0.1419)	-8.1222* (0.000)	39.5520 (0.4311)	157.1893* (0.000)
INF	1.7427 (0.9593)	-2.1688* (0.0004)	5.7001 (1.000)	-4.3219* (0.000)	15.6049 (0.9713)	46.1183* (0.016)
DCINST	-0.5019 (0.3057)	-5.8061* (0.000)	0.6237 (0.7336)	-6.7359* (0.000)	26.8932 (0.5241)	118.6824* (0.000)
BANKINST	-0.8343 (0.2020)	-4.4295* (0.000)	-0.3234 (0.3732)	-4.2417* (0.000)	15.4702 (0.3468)	53.5961* (0.000)

Notes: Symbols denote significance at *1% ** 5%***10% levels respectively. All 3 panel unit root tests noted above have the null hypothesis of unit roots (non-stationary).

Table 6. Pedroni Panel Cointegration Test Results.

Test Statistics	(1) DC	(2) Bank	(3) DC*Instindex	(4) Bank*Inst
Within dimension				
Panel υ	2.72*	2.89*	1.63**	4.77*
Panel ρ	-2.06**	-1.50**	-1.38***	-2.03**
Panel PP	-10.82*	-8.75*	-10.34*	-9.55*
Panel ADF	-4.17*	-7.10*	-4.43*	-5.33*
Between dimension				
Group υ	2.91*	3.95*	7.72*	3.33*
Group ρ	-9.35*	-6.66*	-7.27*	-6.66*
Group ADF	-3.51*	-4.68*	-2.38*	-4.55*

Notes: * rejection of the null hypothesis of no cointegration at 1%; ** rejection of the null hypothesis of no cointegration at 5%; *** rejection of the null hypothesis of no cointegration at 10%.

Table 7. The Effect of Institutional Quality on Finance-Poverty Relationship: FMOLS Estimates.

	Model 1 FD=Domestic Credit	Model 2 FD= the Number of Bank Accounts per 1,000 Adults	Model 3 FD= Domestic Credit	Model 4 FD= the Number of Bank Accounts per 1,000 Adults
DC	-3.299*(0.000)		-3.39*(0.000)	
BANK		-.166(0.131)		-.179***(0.083)
INST			-1.734(0.323)	-2.515(0.284)
GDP	3.870*(0.002)	.511*(0.012)	3.177*(0.005)	.532**(0.015)
GOV	.4819(0.809)	.221(0.575)	.2627(0.885)	.233(0.570)
INF	-2.297**(0.011)	-.227***(0.069)	-.412**(0.067)	-.3087**(0.034)
DC*INST			1.884*(0.001)	
BANK*INST				.0301**(0.044)
Cst	-8.672(0.433)	-2.094(0.114)	-7.287(0.468)	-1.958(0.155)
Observations	337	155	337	155
R^2	0.93	0.83	0.95	0.91
Threshold level of institutional index			1.8	0.6

Note: Marginal significance levels (p-values) are reported in parentheses. *, ** and *** denote significance at 1%, 5% and 10% levels respectively.

4.3. ESTIMATION RESULTS

Table (**7**) traces the estimated results of the FMOLS. In column (1) the domestic credit to private (**DC**) is considered as an indicator of financial development. Contrary to expectations, the coefficient associated with domestic credit is negative and statistically significant at 5%. The evidence from column (2) indicates that bank accounts per 1,000 adults does not appear a significant determinant of household consumption. In fact, in terms of the coefficient associated with bank accounts per 1,000 adults (**BANK**), while it is negative, it does not appear significant. Our finding is consistent with those of Fowowe and Abidoye (2013), Khan et al. (2014), Khan, Rashid Gill, and Noreen (2015) and de Haan, Pleninger, and Sturm (2022), who have concluded that financial development does not improve the situation faced by the poor. This counter-intuitive result in terms of the impact of financial development on poverty reduction can be explained by the fact that the banking sector in non-rich Arab countries is dominated by public sector banks, which are characterized by government intervention in terms of credit allocation, losses and liquidity problems, and wide interest rate spreads (Creane et al., 2004).

Looking to control variables, economic development measured by the level of GDP per capita has a significant and expected positive coefficient when the two-different indicators of financial development are considered (Table **7**). This result supports the argument of pro-poor economic development. The sign for inflation is statistically negative with regard to most regressions, meaning that inflation reduces the purchasing power of the poor (Bolarinwa, Vo, and Olufolahan, 2021). The coefficient with regard to government spending is positive but non-significant.

To detect the overall effect of finance on poverty we now turn to the interaction between financial development and institutional quality. The results for the interaction between the institutional index and domestic credit and the number of bank accounts per 1,000 adults, are reported in Table **7** (columns 3 and 4 respectively). The results show that while the coefficient of domestic credit to private sector remains significantly negative, the coefficient of interaction terms (*DCINST*) are significantly positive. The same results are reported when the number of bank accounts per 1,000 adults is considered as an indicator of financial development. These findings reveal that institutional quality mitigates the negative effect of financial development on household consumption. These results are in line with the findings of Singh and Huang (2015) who argue that the poor can benefit more from financial development in a more developed institutional environment. We do not find statistical support for the institutional quality pro-poor view. As shown in Table **7**, the coefficient of institutional index appears negative and non-significant in terms of most regressions. These results contradict the findings of Appiah-Otoo et al. (2022) who stress that increases in institutional quality increase poverty in African countries.

Moving our focus to the threshold analysis, our findings indicate that to benefit from financial development in terms of poverty alleviation, the non-rich Arab countries must attain a certain institutional threshold. [5] More so, when the ratio domestic credit to private sector is considered, we find an institutional threshold level of 1.8. Based on estimation when the number of bank accounts per 1,000 adults is adopted, the corresponding institutional threshold level is around 0.6. Thus, the negative effect of financial development on household consumption can be explained by the low level of insti-

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[5] The interaction effect of the number of bank accounts per 1,000 adults and regulation quality, government effectiveness, voice and accountability.

tutional quality in non-rich Arab countries where the average value of institutional quality is around -0.81 (Table **3**) which is lower than the 0.6 and 1.8 threshold level.

The results of the regression with regard to each of the components of the institutional index (control corruption, rule of law, regulation quality, government effectiveness, political stability, and voice and accountability) are reported in Tables **8** and **9**. The coefficient of interaction effect of domestic credit and control of corruption, rule of law, government effectiveness, political stability and regulation quality, appear to be qualitatively the same as those with regard to the institutional index. This means that the pro-poor effect of

financial development in Arab countries is conditioned by the level of institutional quality. A sound institutional environment can embed the negative effect of financial development on poverty. These results are confirmed with regard to the interaction effect of the number of bank accounts per 1,000 adults and control of corruption, political stability and rule of law. For the rest of the interaction terms, while they are not significant, the sign of the coefficients is positive. The interaction effect of voice and accountability, and the two indicators of financial development, are positive but non-significant.

Table 8. The Components of the Institutional Index and the Finance-Poverty Relationship.

Variables	FD= Domestic Credit to GDP Ratio					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
DC	-1.215* (0.000)	-2.869* (0.000)	-1.336* (0.000)	-3.690* (0.000)	-3.878* (0.000)	-3.361* (0.000)
GDP	3.675* (0.002)	2.014** (0.044)	4.911* (0.000)	1.894*** (0.092)	3.108* (0.000)	3.496* (0.000)
GOV	.6610 (0.741)	1.792 (0.220)	.9521 (0.601)	-.017 (0.992)	1.296 (0.241)	1.523 (0.317)
INF	-1.521 (0.121)	-.846 (0.254)	-1.325** (0.032)	-.357 (0.684)	-.7912 (0.158)	-2.029* (0.005)
COR	-1.334 (0.321)					
GEF		-.334 (0.552)				
POL			-.222 (0.146)			
REG				-2.65 (0.634)		
RUL					-1.77 (0.882)	
VAC						-.766 (0.122)
DC*COR	.845*** (0.093)					
DC*GEF		1.520* (0.000)				
DC*POL			.575** (0.039)			
DC*REG				1.953* (4.53)		
DC*RUL					1.324* (0.000)	

DC*VAC						.305
						(0.409)
Cst	-6.414	-.1645	-2.68***	3.682	-7.992	-8.874
	(0.549)	(0.984)	(0.070)	(0.703)	(0.194)	(0.300)
Obs	337	337	337	337	337	337
R^2	0.90	0.93	0.93	0.95	0.92	0.92
Threshold	1.42	1.88	2.32	1.88	2.19	

Note: Marginal significance levels (p-values) are reported in parentheses. *, ** and *** denote significance at 1%, 5% and 10% respectively.

Table 9. The Components of the Institutional Index and the Finance-Poverty Relationship.

Variables	FD = Numbers of Bank Accounts Per 1,000 Adults					
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
BANK	-.0786	-.186	-.2028*	-.164	-.284**	-.387*
	(0.360)	(0.307)	(0.000)	(0.286)	(0.024)	(0.000)
GDP	.5341*	.791**	1.11*	.4995	.187	.741*
	(0.000)	(0.048)	(0.000)	(0.130)	(0.440)	(0.000)
GOV	.055	.559	.2913	.1629	.465	-.1762
	(0.837)	(0.370)	(0.282)	(0.752)	(0.239)	(0.236)
INF	-.1211	-.340	.136	-.273	-.298	-.537*
	(0.398)	(0.351)	(0.368)	(0.357)	(0.180)	(0.000)
COR	-1.33					
	(0.558)					
GEF		2.13				
		(0.176)				
POL			-1.66			
			(0.681)			
REG				-2.54		
				(0.223)		
RUL					2.509	
					(1.62)	
VAC						1.33
						(0.512)
BANK*COR	.127**					
	(0.013)					
BANK*GEF		.0790				
		(0.306)				
BANK*POL			.102*			
			(0.000)			
BANK*REG				.016		
				(0.836)		
BANK*RUL					.482*	
					(0.001)	

BANK*VAC						.220 (0.267)
Cst	-2.329* (0.009)	-4.883* (0.041)	-6.082* (0.000)	-2.836 (0.102)	.853 (0.553)	-1.204** (0.015)
Obs	155	155	155	155	155	155
R^2	0.932	0.961	0.952	0.96	0.94	0.95
Threshold	0.61		1.98		0.58	

Note: Marginal significance levels (p-values) are reported in parentheses. *, ** and *** denote significance at 1%, 5% and 10% respectively.

5. CONCLUSION AND POLICY IMPLICATIONS

This paper aimed to re-investigate the effect of financial development on poverty alleviation in non-rich Arab countries. More precisely we investigated the effect of institutional quality in terms of the finance-poverty relationship. To this end, a panel cointegration and FMOLS are executed for the panel data of 14 countries for the period 1996-2021. Two indicators of financial development (domestic credit of the private sector and the the number of bank accounts per 1,000 adults) are considered in this study, and an institutional index was calculated based on the World Governance Indicators' (WGI) database. As a measure of poverty this study considers household per capita consumption. This measure has also been used in several studies such as those of Appiah-Otoo et al. (2022), Appiah-Otoo and Song (2021), Quartey (2005), Uddin et al. (2014), Sehrawat and Giri (2016b), Sehrawat and Giri (2016a) and Ho and Iyke (2018).

We have made use of a model involving a linear interaction between financial development and an institutional index. To measure institutional quality, we construct an institutional quality index which is a mean of the six sub-indicators defined by the World Governance Indicators' (WGI) database, initially provided by Kaufmann, Kraay, and Zoido (1999). These are Voice and Accountability, Regulatory Quality, Rule of Law, Control of Corruption, Political Stability and Governance Effectiveness. The main results from this empirical investigation can be summarized as follows. First, we have concluded that financial development has a statistically-significant and negative effect on poverty. Secondly, the estimates show that the development of the institutional environment has a significant and a negative effect on poverty alleviation. Moreover, we also find that there is a conditional finance-poverty relationship. In fact, institutional quality mitigates the negative effect of financial development on poverty alleviation. These results imply that financial development and institutional quality work as complements. Thus, a sound institutional environment strengthens the pro-poor impact of financial development.

More so, the negative effect of financial development on poverty alleviation in non-rich Arab states can be explained by the fact that these countries have not attained the level of institutional framework beyond which financial development can reduce poverty. This study determines the institutional quality thresholds at which financial development can reduce poverty as 1.8 when domestic credit is used, and 0.6 when we consider the number of bank accounts per 1,000 adults. Finally, the study establishes the thresholds levels of all the subcomponents of the institutional index.

The main policy implications are that, in order to alleviate poverty, policymakers and governments in the countries concerned are advised to promote not only their domestic financial systems but also to strengthen the institutional environment. Both aspects are crucial in order for the countries to benefit from poverty alleviation resulting from financial development.

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