The Finance-Growth Nexus : Do All Countries Benefit Equally?

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The Finance-Growth Nexus: Do all Countries Benefit Equally?

I. The finance-growth nexus
II. Main results
III. Possible causes of heterogeneity
IV. Conclusions and future directions

Opening remarks

- **Opening remark 1**: It started with an unappreciated comment.
- **Opening remark 2**: Questions leading to more questions

I. Finance-growth nexus

- **Finance and growth literature**, beginning with King and Levine (1993) shows a robust causal relationship between financial depth (*FD*) and economic growth ($\dot{y}$):

$$\dot{y}_{it} = \beta_0 + \beta_1 FD_{it} + \beta_2 X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

- Standard result: β_1>0, using different methods: Cross section, Time Series, Dynamic Panels.
- Mostly gauging macro performance, but also many studies focus on micro-level growth (sector, firm, household).

I. Finance-growth nexus

Measurement of financial depth *FD*:

- On the banking side, ratios to GDP: Liquid liabilities, Deposits, **Credit**.
- On stock markets, Capitalization/GDP, **Turnover**.

For the most part, empirical studies assume one homogeneous effect β_1:

- Benefits of financial depth/deepening seen to be the same across countries and over time (at different stages of development).

I. Finance-growth nexus

However, expanding body of work on heterogeneity, nonlinearities:

- On interrelations between inflation, financial depth, and growth (Khan, Senhadji, and Smith, 2001)
- “Resource curse” related to finance
  - Oil exporters: lower *FD*, weaker impact of *FD* on investment (Nili and Rastad, 2007)
  - Resource-based economies: weaker *FD*, lower firm access to credit, although aggregate impact on growth not different (Beck, 2011)

I. Finance-growth nexus

However, expanding body of work on heterogeneity, nonlinearities (cont):

- "Too much finance?": at very high levels (*FD* ~ 110%), marginal effect on growth becomes negative (Arcand, Berkes and Panizza, 2011)
- Effect of banking crises: as more post-1990 data are incorporated, the empirical finance-growth link (β_1) weakens. However, once crises are accounted for, the link appears intact (Rousseau and Wachtel, 2011)

I. Finance-growth nexus

Our study examines cross-country & time heterogeneity across three dimensions:

- Regions (emerging & developing countries)
- Oil exporters vs the rest (Dutch disease/Resource Curse)
  - Widen country/time sample, examine impact on **non-oil growth**, degree of oil dependence, address econometric issues.
- Income
  - LICs vs the rest
  - Continuously with income level

I. Finance-growth nexus

- We start with Beck & Levine (2004), Beck (2008) specification as our baseline, and incorporate interaction terms *CRISIS* and γ:

$$\dot{y}_{it} = \beta_0 + \beta_1 FD_{it} + \beta_{11} CRISIS_{it} FD_{it} + \beta_{12} \gamma_{it} FD_{it} + \beta_2 X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

- ***CRISIS*** dummy variable, from Laeven and Valencia (2008)
- **γ** expresses heterogeneity:
  - ***oilexp*** (dummy) or ***oildep*** (oil GDP/total GDP)
  - **Region** dummy
  - **LIC** dummy, or income per capita

I. Finance-growth nexus

- Annual observations of >140 countries over 1975-2005
- Non-overlapping five-year periods
- Dynamic panel GMM estimation
- Dependent variable: real per capita GDP growth, real per capita non-oil GDP growth.
- Measures of *FD*: liquid liabilities/GDP, deposits/GDP, credit/GDP, stock market capitalization and turnover
- *X* controls: initial GDP, percentage of gross secondary school enrollment, FDI/GDP, terms of trade.

II. Results

In a nutshell, we find **heterogeneity** in the link between **banking depth** and growth; some groups of countries (characteristics) underperform:

- Middle East and North Africa (possible GCC puzzle, though)
- Oil exporters (as a group, and with greater oil dependence)
- LICs underperform (as a group, and with lower income level)
- But some mitigating factors as well

On the other hand, we find the link between **stock market turnover** and growth to be mostly homogeneous.

II. Results

Bank depth has a heterogeneous effect across regions:

Regional Heterogeneity in the Finance-Growth Nexus

Dependent variable:	Growth rate of per capita real GDP			Growth rate of non-oil per capita real GDP		
	(1)	(2)	(3)	(4)	(5)	(6)
Private Credit	0.013 ***	0.016 **	0.016 **	0.013 ***	0.018 **	0.013 *
	(3.567)	(2.342)	(2.157)	(2.845)	(2.083)	(1.672)
Private Credit x Financial Crisis	-0.006 ***	-0.005 ***	-0.006 ***	-0.007 ***	-0.005 ***	-0.006 **
	(-5.460)	(-2.670)	(-3.109)	(-5.850)	(-2.651)	(-2.575)
Private Credit x MENA		**-0.005 ***			**-0.009 *****	
		(-1.765)			**(-2.679)**	
Private Credit x GCC			0.005			-0.001
			(1.061)			(-0.161)
Private Credit x non-GCC			**-0.011 ****			**-0.010 ****
			(-2.061)			**(-2.066)**
Private Credit x East Asia & Pacific		-0.002	-0.002		-0.004	-0.002
		(-0.389)	(-0.344)		(-0.636)	(-0.305)
Private Credit x Europe & Central Asia		0.011 **	0.013 **		0.009	0.010
		(2.043)	(2.025)		(1.457)	(1.497)
Private Credit x Latin America & Caribbean		-0.006 *	-0.005		-0.007 *	-0.006
		(-1.783)	(-1.329)		(-1.928)	(-1.431)
Private Credit x South Asia		-0.008	-0.006		-0.009	-0.006
		(-1.420)	(-0.857)		(-1.298)	(-0.885)
Private Credit x Sub Saharan Africa		-0.008	-0.008		-0.007	-0.005
		(-1.418)	(-1.118)		(-0.981)	(-0.767)
Observations	670	670	670	619	619	619
Number of countries	142	142	142	140	140	140

II. Results

Bank depth has a weaker effect in oil exporters:

Oil Exporters vs Non Oil Exporters

Dependent variable:	Growth rate of per capita real GDP		Growth rate of per capita non-oil real GDP	
	(1)	(2)	(3)	(4)
Private Credit	0.011 ***	0.012 ***	0.010 *	0.009 **
	(3.033)	(2.810)	(1.949)	(2.179)
Private Credit x Financial Crisis	-0.006 ***	-0.006 ***	-0.006 ***	-0.006 ***
	(-5.204)	(-4.864)	(-4.959)	(-4.793)
Prvate credit x Oil Exporter	**-0.007 ** **		**-0.010 ** **	
	(-2.255)		**(-2.126)**	
Private Credit x Oil Dependence		**-0.030 *** **		**-0.044 *** **
		(-3.118)		**(-3.777)**
Observations	678	637	630	630
Number of countries	146	144	144	144

II. Results

Bank depth has a weaker effect the lower the income level:

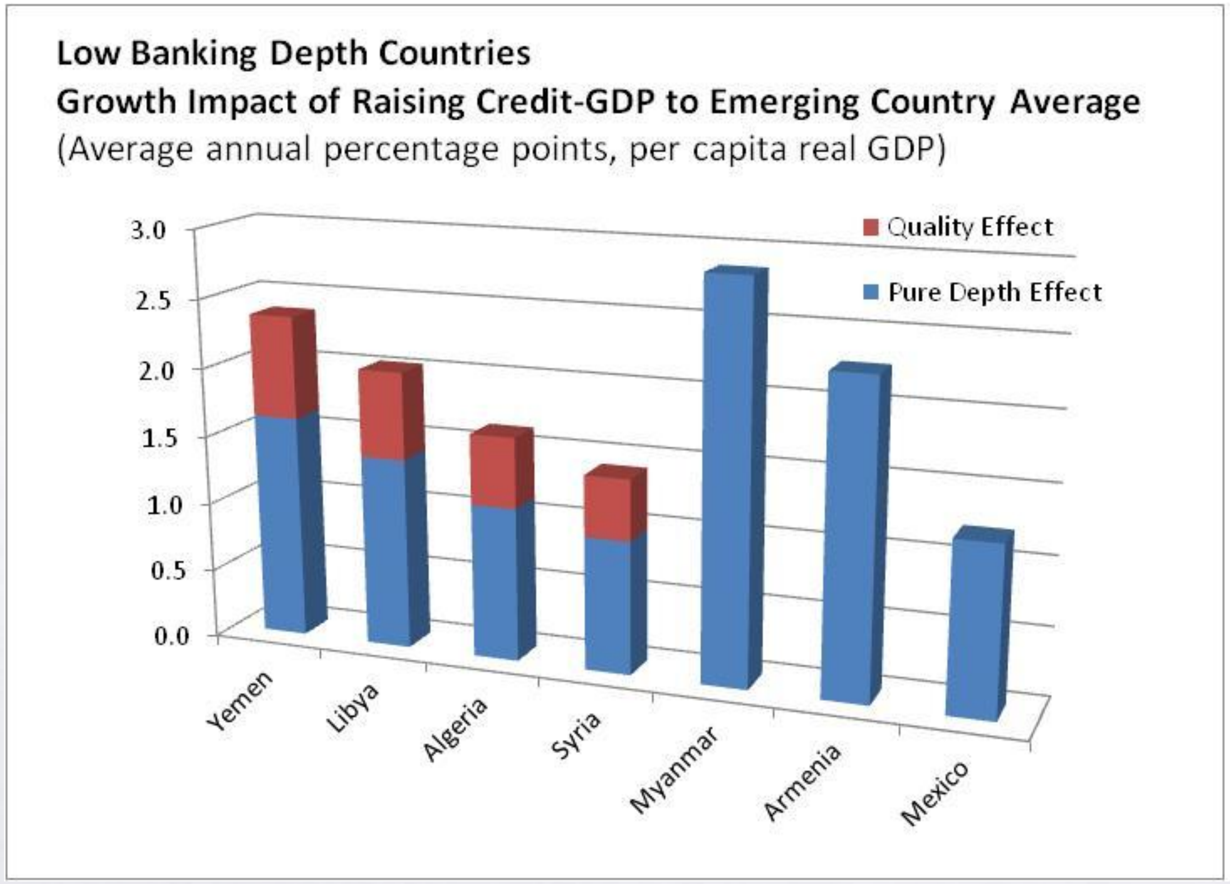
Heterogeneity by Income Level

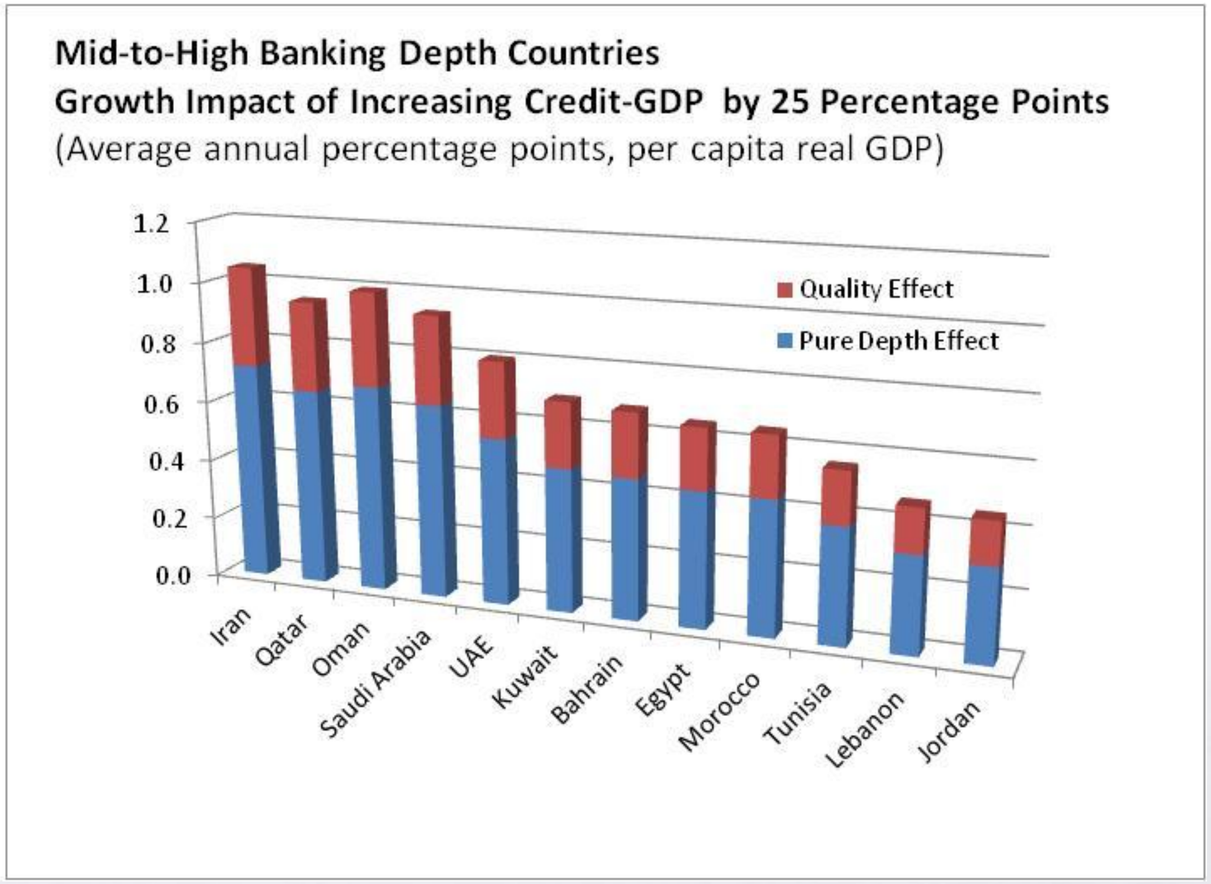
	(1)	(2)	(3)	(4)	(5)	(6)
		***FD* = Deposits/GDP**			***FD* = Credit/GDP**	
Financial depth *FD*	0.020 ***	-0.092 ***	0.016 ***	0.017 ***	-0.047 **	0.013 **
	(3.235)	(-3.481)	(3.291)	(2.471)	(-2.593)	(2.571)
FD x Financial crisis	-0.007 ***	-0.006 ***	-0.006 ***	-0.006 ***	-0.006 ***	-0.009 ***
	(-6.923)	(-5.611)	(-3.147)	(-4.046)	(-4.090)	(-3.435)
Interactions with LIC dummy and other indicators						
FD x Low Income Countries	-0.009 ***		-0.011 ***	-0.006		**-0.011 ***
	(-2.997)		(-2.827)	(-1.483)		**(-2.929)**
FD x Income		0.015 ***			0.009 ***	
		(3.855)			(3.092)	
FD x Bank Supervision			0.005			**0.001**
			(1.486)			**(0.632)**
FD x LIC x Bank Supervision			0.005 **			**0.004 ***
			(2.461)			**(1.929)**
Observations	673	672		678	677	407
Number of countries	144	144		146	146	80

II. Results

Sizable effects of the regional heterogeneity:

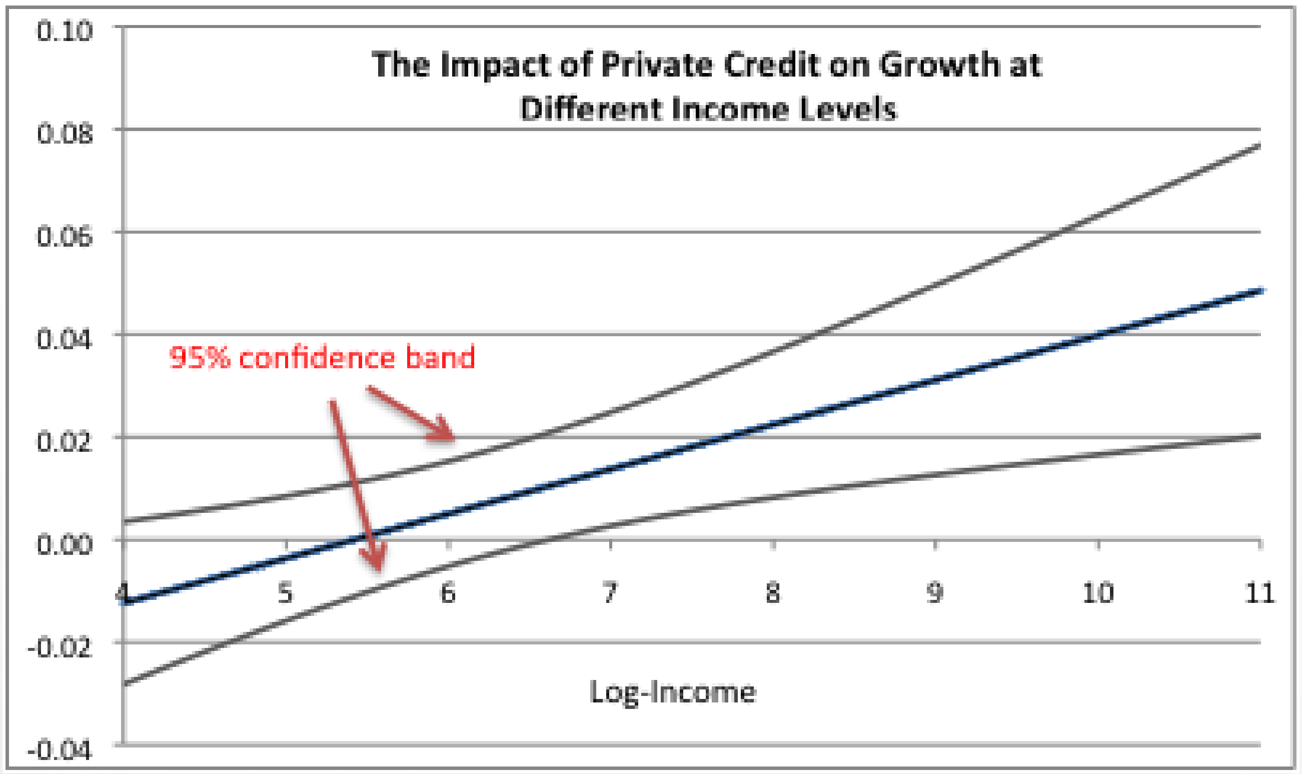
- **Conservatively**, the growth benefits of banking depth in MENA are ⅓ lower than in other regions.
- Depth "**quality**" vs quantity

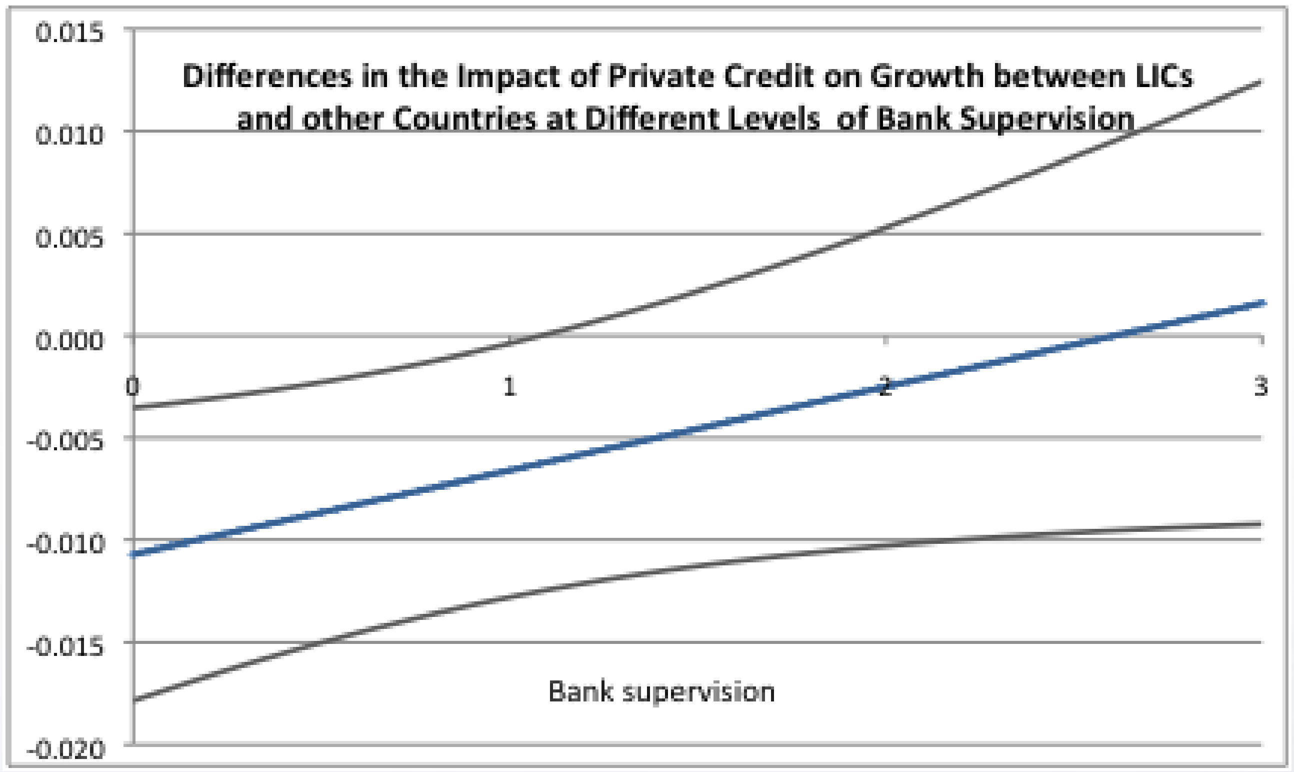




II. Results

Also, sizable effects of heterogeneity across income levels, although LICs can mitigate through better policies (supervision)





III. Possible causes for heterogeneity

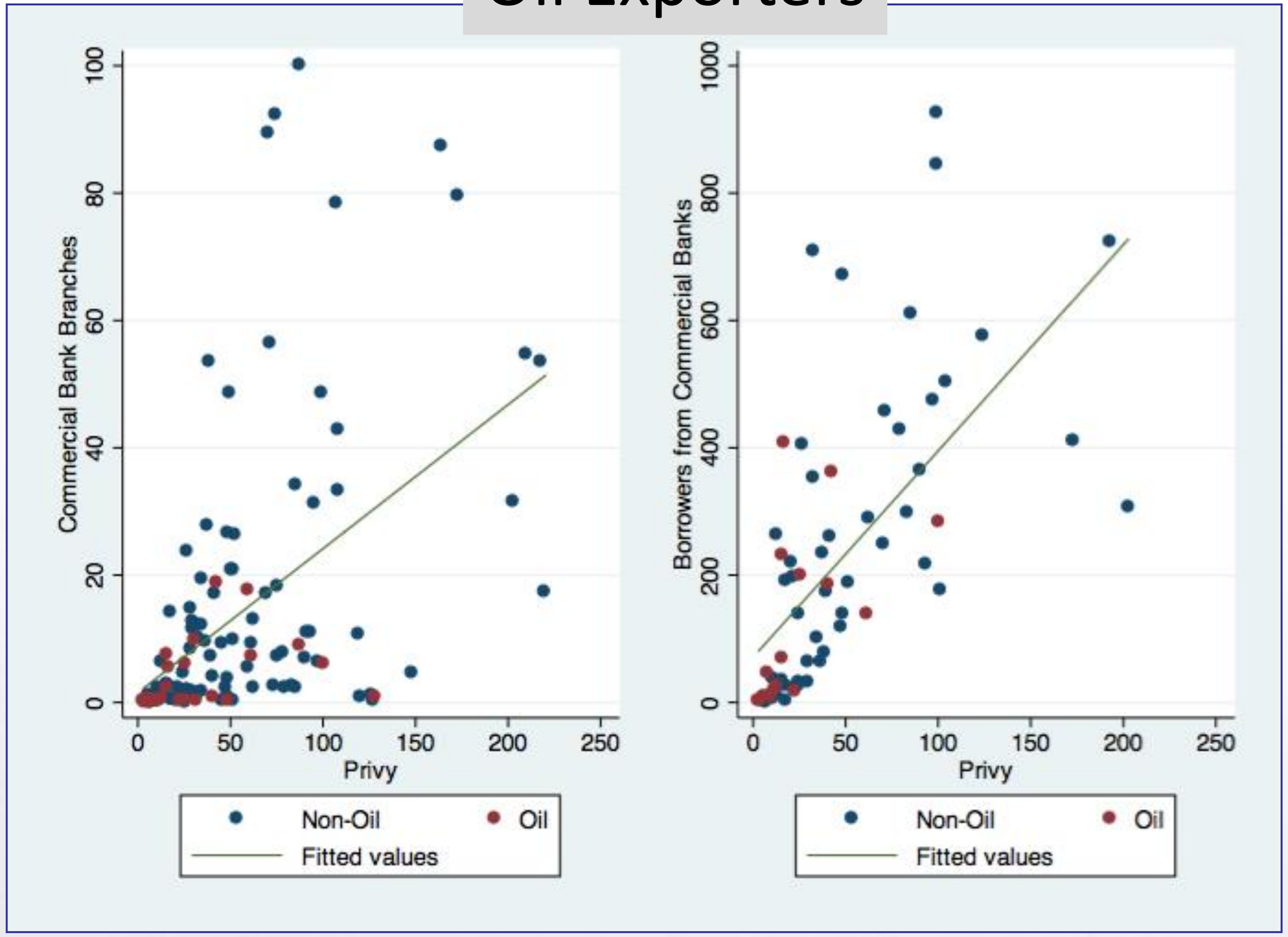
Our initial list of possible candidates was related to the MENA experience. **Descriptively encouraging**, but extensive testing yet to yield robust results:

- Competition (H-statistic, Lerner index; Anzoategui, et. al, 2011)
- State banking (Korner and Schnabel, 2011)
- Foreign banking penetration (Claessens, 2011)
- Financial reform (7 dimensions, Abiad, Detragiache and Tressel, 2008)
- Financial access (World Bank Flagship Report on Finance in MENA, 2011)

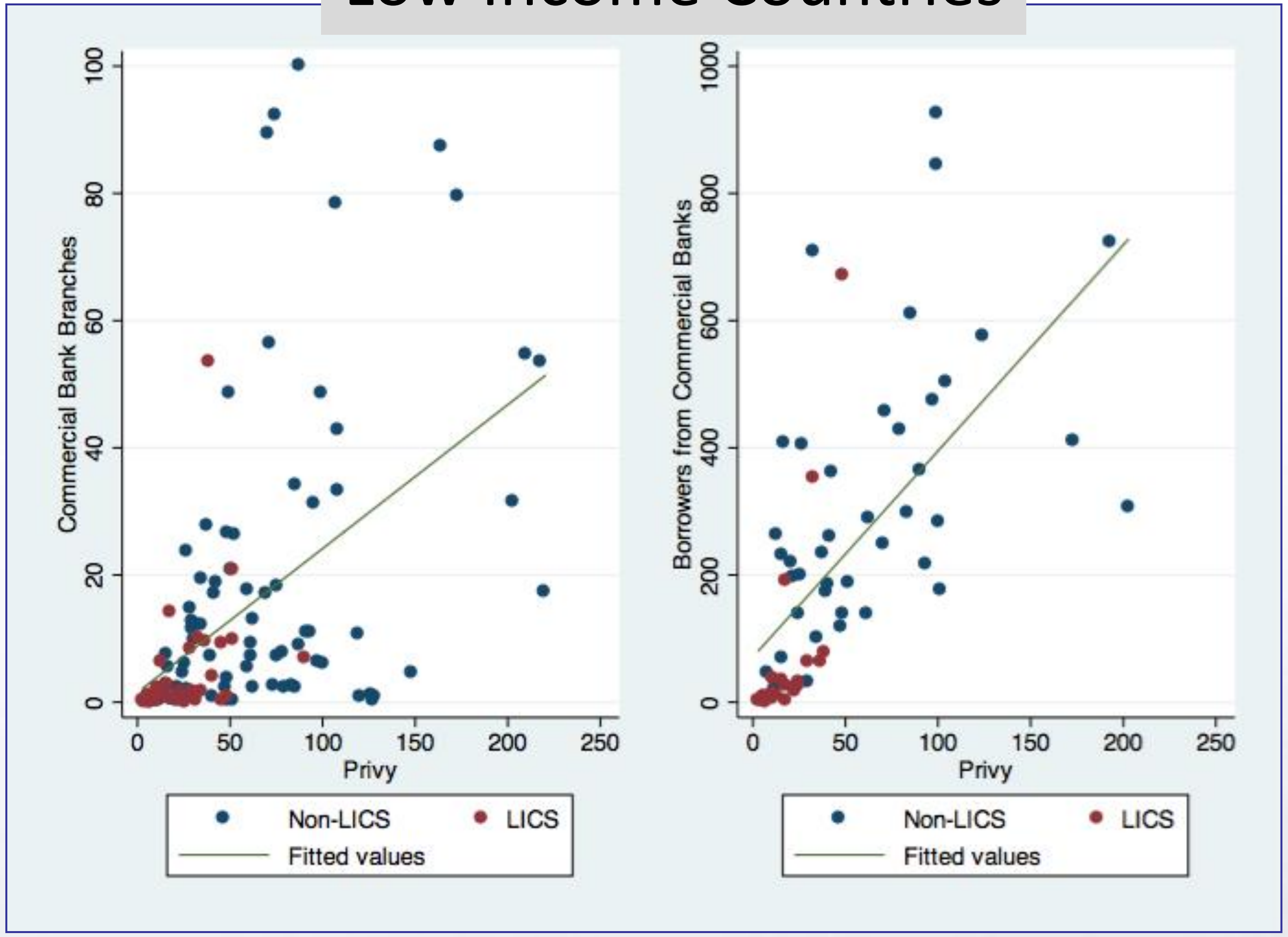
III. Possible causes for heterogeneity

For example, financial access: indication that types of countries that underperform in growth also underperform in access.

Oil Exporters



Low Income Countries



V. Conclusions and future directions

- Not all countries or regions benefit equally from greater **banking depth** (MENA, Low Income Countries, Oil Exporters)
- Indirect implication of results: possible tradeoff between growth (higher β_1 during tranquil times, but higher incidence of crisis) and stability?
- Need to understand better the link between finance and growth.
- Move beyond traditional indicators of banking depth (credit/GDP)