

Econ 280 - Computation project

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1 Main result of the replication paper

Paper: Alfaro, Laura & Chanda, Areendam & Kalemli-Ozcan, Sebnem & Sayek, Selin, 2004. "FDI and economic growth: the role of local financial markets," Journal of International Economics, Elsevier, vol. 64(1), pages 89-112, October

Research Question and main result: The paper examines whether higher financial development (e.g., credit availability, market liquidity) amplifies FDI's impact on growth, i.e. whether countries with better financial systems can exploit FDI more efficiently. The paper has the following main results:

1. FDI alone plays an ambiguous role in contributing to the country's economic growth.
2. However, countries with well-developed financial markets gain significantly from FDI. In addition, the results are robust to different measures of financial markets development as well as different measures of economic growth.

2 Empirical Model

I replicate Table 6 from the paper, which runs the following 7 regressions for a panel data (annual frequency) for 56 countries between 1975-1995 :

Regressions (1)- (6):

$$GROWTH_i = \beta_0 + \beta_1 FDI_i + \beta_2 FDI_i * FINANCE_i + \beta_3 FINANCE_i + \beta_4 CONTROLS_i + \epsilon_i$$

Regression (7):

$$GROWTH_i = \beta_0 + \beta_1 FDI_i + \beta_2 FDI_i * PRIVCR_i + \beta_3 PRIVCR_i + \beta_4 FDI_i * SCHOOLING_i + \beta_5 SCHOOLING_i + \beta_6 CONTROLS_i + \epsilon_i$$

Dependent variable: Year-on-Year real per capita GDP growth for country i

Key Independent variable: FDI as a share of GDP for country i

Finance: List of key financial development indicators for country i:

- Liquid liabilities of the financial system (LLY): equals currency plus demand and interest bearing liabilities of banks and non-financial intermediaries divided by GDP.
- Commercial-central bank assets (BTOT): equals the ratio of commercial bank assets divided by commercial bank plus central bank assets.
- Private sector credit (PRIVCR): equals the value of credits by financial intermediaries to the private sector divided by GDP.

- Bank credit (BANKCR): equals the credit by deposit money banks to the private sector as a share of GDP (it does not include non-bank credit to the private sector).
- Stock market liquidity (SVALT): measured as the value of stock trading relative to the size of the economy
- Capitalization (SCAPT): average value of listed domestic shares on domestic exchanges in a year as a share of the size of the economy (the GDP).

Controls: Initial GDP, Schooling, population growth, Government consumption, regional dummy (1: If country in Sub-Saharan Africa, 0 otherwise), inflation and trade volume

3 Replication results

The below table has the replication results (consistent with Table 6 from the original paper). Along with this file, I have attached the Stata and R code for replication.

Figure 1: Growth and FDI—robustness: Regression with financial development interaction terms

		1975-1995						
Interaction terms with FDI/GDP		BTOT	BANKCR	LLY	PRIVCR	SCAPT	SVALT	Schooling & PRIVCR
		1	2	3	4	5	6	7
Period		1975-1995	1975-1995	1975-1995	1975-1995	1980-1995	1980-1995	1975-1995
n		991	1022	1039	1027	481	543	1027
F-stat		29.04	30.68	31.37	29.65	32.53	31.14	27.48
R-squared		27.2%	28.2%	28.4%	27.5%	42.9%	39.1%	27.5%
log (initial GDP)	coeff	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	std error	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	t-stat	-4.95	-5.57	-6.38	-5.34	-6.74	-5.44	-5.31
Investment/GDP	coeff	0.20	0.21	0.21	0.21	0.23	0.24	0.21
	std error	0.02	0.02	0.02	0.02	0.02	0.03	0.02
	t-stat	10.33	9.79	10.07	9.67	9.48	8.24	9.55
FDI/GDP	coeff	-0.60	0.37	0.13	0.41	0.38	0.36	0.37
	std error	0.46	0.20	0.22	0.21	0.11	0.10	0.33
	t-stat	-1.29	1.86	0.62	1.96	3.48	3.53	1.13
FDI/GDP *	coeff	1.34	0.12	0.47	0.05	0.02	0.14	0.04
financial markets	std error	0.53	0.28	0.30	0.26	0.09	0.18	0.26
	t-stat	2.54	0.42	1.55	0.20	0.21	0.76	0.16
Financial markets	coeff	-0.01	-0.01	-0.02	-0.01	0.00	0.00	-0.01
	std error	0.01	0.00	0.00	0.00	0.00	0.01	0.00
	t-stat	-1.18	-2.57	-3.20	-2.42	-0.21	-0.11	-2.40
FDI/GDP * Schooling	coeff						0.04	
	std error						0.22	
	t-stat						0.19	
Schooling	coeff	0.00	0.00	0.00	0.00	0.01	0.01	0.00
	std error	0.00	0.00	0.00	0.00	0.01	0.01	0.01
	t-stat	-0.21	0.86	1.00	1.02	2.29	1.50	0.84
Population growth	coeff	-1.14	-1.12	-1.09	-1.08	-1.25	-1.31	-1.08
	std error	0.18	0.18	0.17	0.18	0.27	0.26	0.18
	t-stat	-6.31	-6.38	-6.37	-6.14	-4.65	-5.09	-6.16
Government consumption	coeff	-0.06	-0.05	-0.04	-0.05	-0.06	-0.06	-0.05
	std error	0.03	0.03	0.03	0.03	0.04	0.05	0.03
	t-stat	-1.60	-1.54	-1.19	-1.43	-1.52	-1.29	-1.43
Sub-Saharan Africa dummy	coeff	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	std error	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	t-stat	-0.77	-1.50	-1.19	-0.94	-0.94	-1.28	-0.94
Inflation	coeff	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.02
	std error	0.00	0.00	0.00	0.00	0.00	0.01	0.00
	t-stat	-4.72	-4.89	-5.07	-4.91	-2.43	-2.53	-4.90
Trade volume	coeff	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	std error	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	t-stat	-0.86	-1.40	-1.46	-1.50	-1.42	-1.28	-1.48

Note: Green highlights statistical significance

4 Caveats about replication results

Please note the following caveats about the replication results. The paper did not have a readily available replication package, and the data used for replication has some minor differences relative to the data used in the original paper on the following fronts. That said, my results from replication are consistent with the results from the paper.

- Number of countries in the panel: The original paper uses different number of countries in different regressions, ranging between 49 and 71 countries. I use 56 countries across all regressions.
- Data unavailability for a few controls: I was unable to obtain data for two of the control variables used in the original paper: institutional quality and the black market premium. The institutional quality series from the International Country Risk Guide is behind a paywall, and for the black market premium the authors note that they obtained the data directly from previous researchers by request. Since I do not currently have access to either source, I exclude these two controls from my analysis for now.

5 Extension of the main result (preview)

The original analysis uses panel data from 1975–1995. I propose to extend their results by estimating the same regressions for 1996–2015 and examining whether the findings from the earlier period still hold over the subsequent two decades.