

**HOW DOES FINANCIAL INCLUSION AFFECT ECONOMIC
GROWTH, POVERTY AND INCOME INEQUALITY?
HERE IS AFRICA'S STORY**

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Background: Financial Inclusion (1)

❑ Two background research projects

- ESRC Ref. ES/N013344/1: Delivering Inclusive Financial Development and Growth
- ESRC Ref. ES/P005241/1: Research on China's Financial System towards Sustainable Growth: The Role of Innovation, Diversity and Financial Regulation
- AXA Research programme at SOAS University of London

❑ Financial and monetary policies: Financial regulation & financial inclusion

- African countries are facing seemingly intractable challenges: to simultaneously boost economic growth and reduce inequality
- What are the trends and drivers?
- What are the financial and monetary policy responses?
- Issues of financial regulation and inequality: financial inclusion

Background: Financial Inclusion (2)

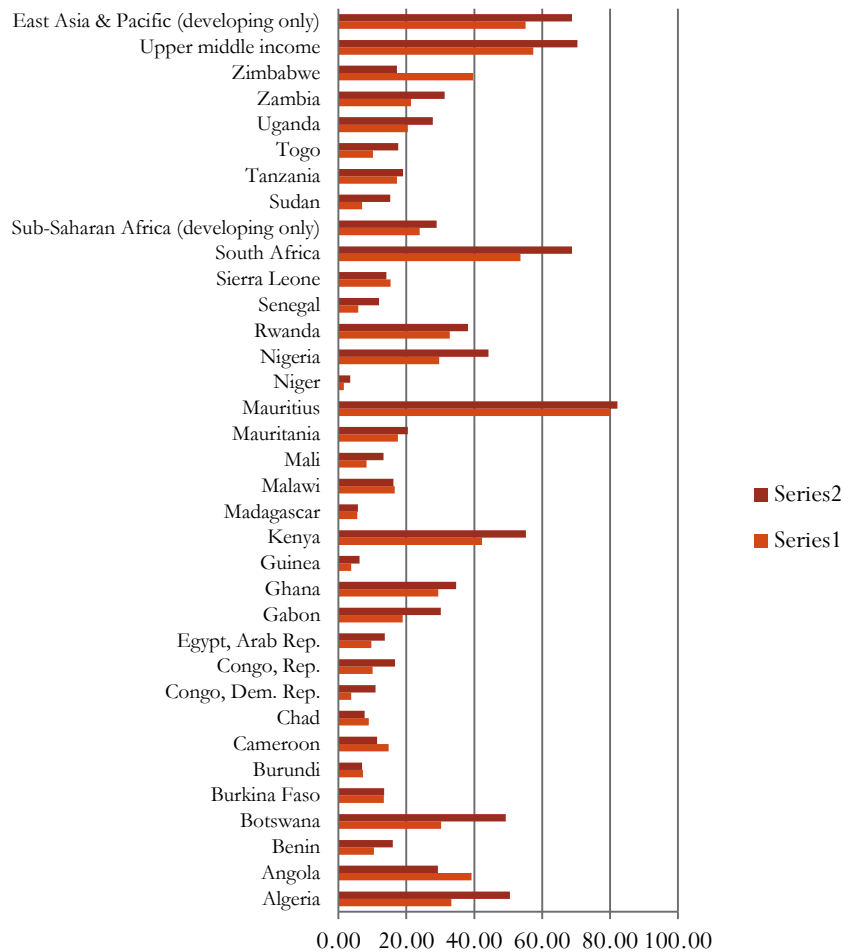
- ❑ Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way.
- ❑ Four key elements of FinInc
 - Access to finance
 - Use of finance
 - The cost of access and use (r ; t_c , ...)
 - The quality of finance (type and term)
- ❑ Why do we care about financial inclusion?
 - Reduction in poverty and inequality
 - Financial access enables poor people to save and borrow
- ❑ What is the impact of financial inclusion on poverty and income inequality in Africa?

Indicators of Financial Inclusion: Africa

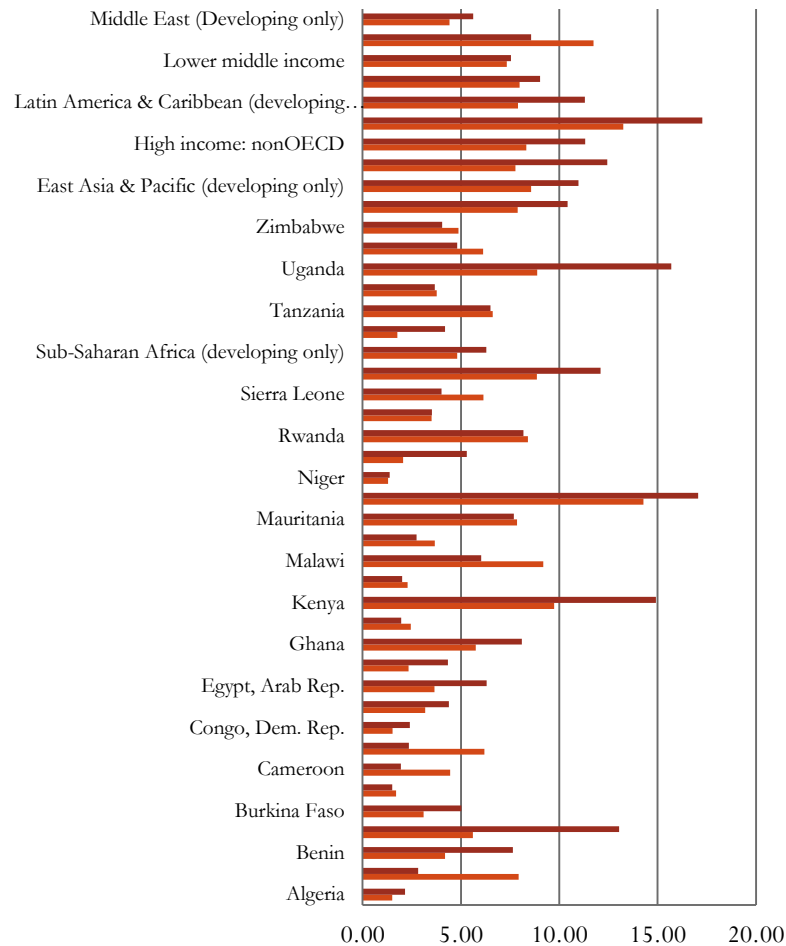
Financial inclusion measures: Account at a financial institution (% age 15+), Borrowed from a financial institution (% age 15+)

Years: 2011, 2014

Account at a financial institution (% age 15+)



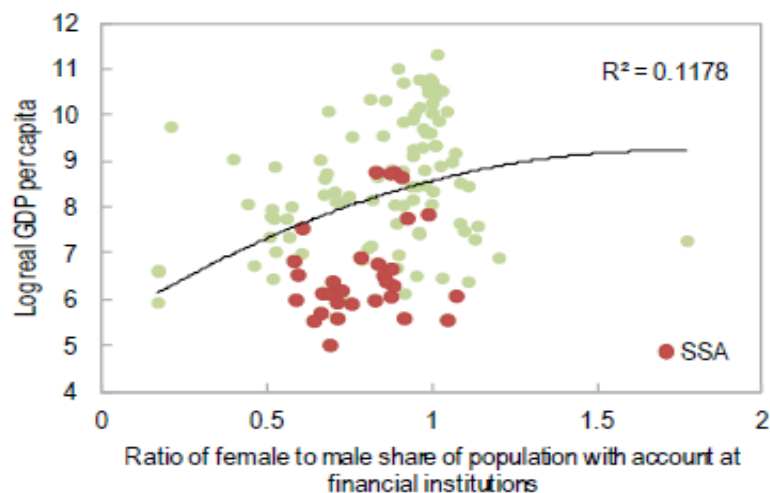
Borrowed from a financial institution (% age 15+)



Series 2=year 2014, Series 1: year 2011,
Data Source: Global Financial Inclusion Database

Financial Inclusion: Growth, Poverty and Inequality in Africa

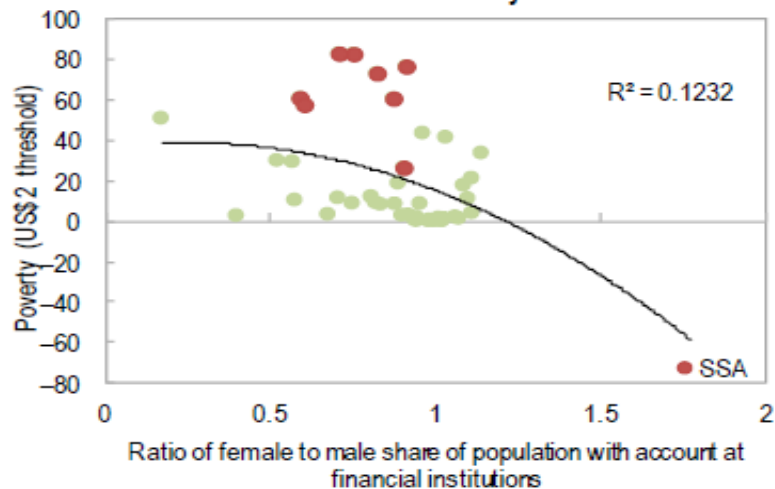
1. Financial Inclusion and GDP per Capita



2. Financial Inclusion and Income Inequality



3. Financial Inclusion and Poverty



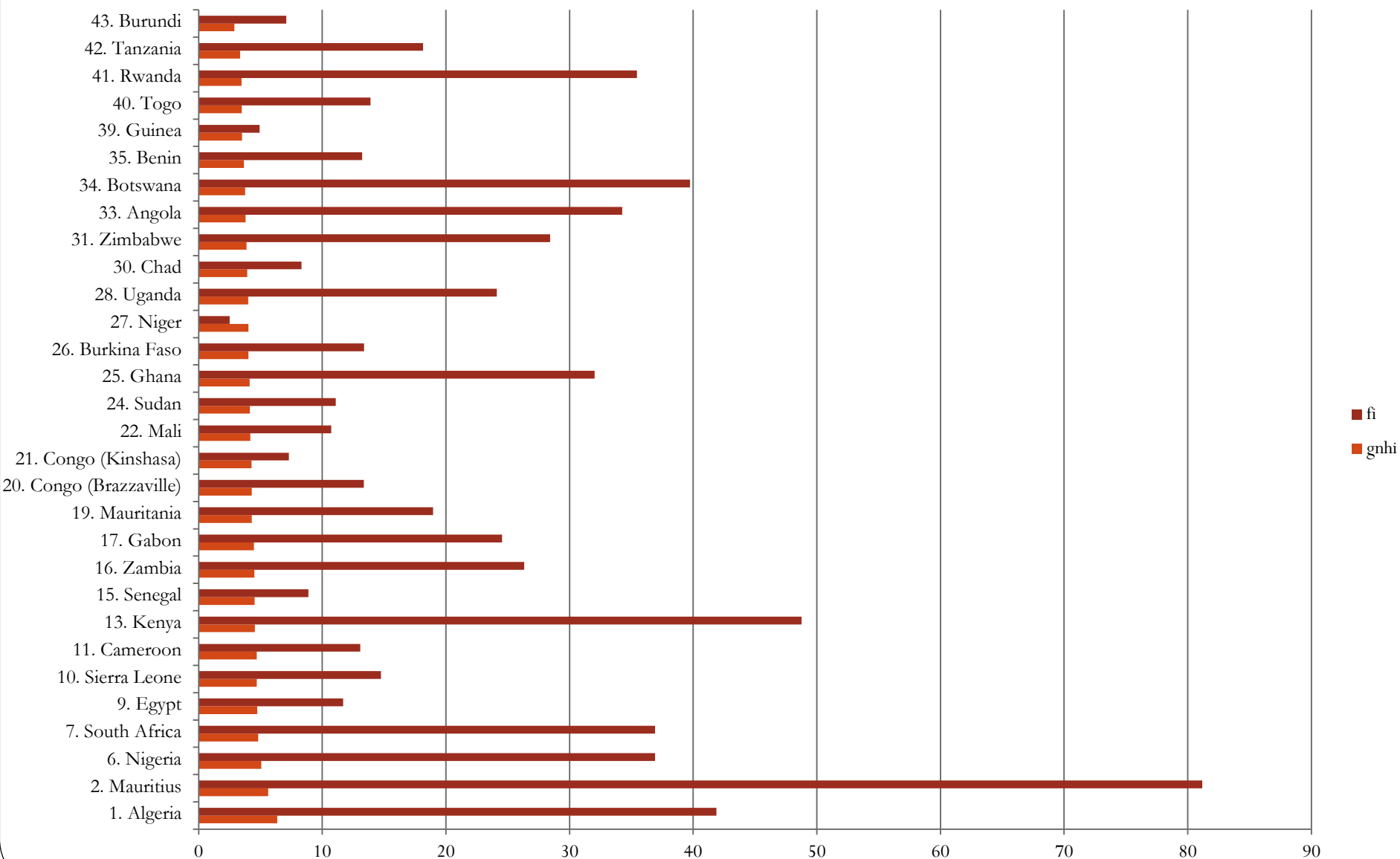
4. Financial Inclusion and Female Labor Force Participation



Sources: Solt 2014; World Bank 2014b, Global Findex 2014; and World Bank (2015), World Development Indicators.

Note: SSA = sub-Saharan Africa.

Financial Inclusion (Account at a financial institution (% age 15+)) and Gross National Happiness (GNH) Index (Average of 2011-2014)



Theoretical flow of funds model for financial inclusion

Financial Inclusion in a Flow of funds Conceptual Framework

	Government	Banks	Other financial institutions (OFIs)	Private corporate business (PCBs)	House-holds	Market-clearing endogenous variables
Currency	–				+ (·)	
Excess reserves	–	+ (·)				Excess reserves
Deposits		–		+ (·)	+ (·)	Deposits
Government debt	–	+ (·)	+ (·)		+ (·)	Government debt (R1) or government debt yd. (R2)
Company securities		+ (·)	– (·)	– (·)	+ (·)	Return on shares
Loans		+ (·)	+ (·)	– (·)	– (·)	Lending rate
Net worth	– 0		0	–	+	

Notes: (·) = behavioural equations. Government debt includes government securities, government deposits, small savings. Company securities includes paid-up capital and unit trust capital. Loans include loans and advances, fixed deposits of PCB tures. Empty cells are those with zero or negligible transactions; they are treated as exogenous.

Data and Methodology

Following Jalil et al. (2010) and Christopoulos and Tsionas (2004), the following equation is used to test the impact of financial inclusion on poverty and income inequality (fi:financial inclusion, x: control variables) using panel GMM estimator due to Arellano and Bond (1991):

$$y_{it} = \beta' f_{it} + \gamma x_{it} + \varepsilon_{it} \quad (\text{data set: 2005-2015})$$

Table 2. Definitions of variables and sources of data

Variable	Notation	Source
Log of per capita real GDP (constant 2005 US\$)	LY	WDI (2016)
GINI	GINI	WDI (2016)
Poverty	Poverty	WDI (2016)
Commercial bank branches/1,000 km ²	FI1	IMF (http://fas.imf.org)
Commercial bank branches per 100,000 adults	FI2	(http://fas.imf.org)
Outstanding deposits with commercial banks (% of GDP)	FD1	(http://fas.imf.org)
Gross capital formation (percentage of GDP)	INVEST	OPEN WDI (2016)
Trade (percentage of GDP)	OPEN	OPEN WDI (2016)
Primary school enrolment rate (percentage)	SCHOOL	WDI (2016)

Notes: IMF: International Monetary Fund; WDI: World Development Indicators.

Table 3: Regression Results on Economic Growth

LY _{i,t-1}	0.6191 (30.5168)**	0.5843 (30.3908)**	0.5981 (18.2976)**	0.5405 (16.2414)**
FI1 _{it}	0.0040 (6.8719)**	0.0026 (2.6050)*		
FI1 _{i,t-1}		0.0003 (0.4982)		
FI2 _{it}			0.0094 (20.4707)**	0.0176 (9.7574)**
FI2 _{i,t-1}				-0.0073 (-11.0123)**
INVEST _{it}	0.0019 (20.6439)**	0.0018 (37.1758)**	0.0020 (18.3278)**	0.0019 (9.1891)**
OPEN _{it}	0.0014 (34.9527)**	0.0012 (37.6159)**	0.0014 (21.6989)**	0.0012 (14.3276)**
SCHOOL _{it}	0.0032 (51.8204)**	0.0033 (34.5876)**	0.0027 (12.1120)**	0.0023 (5.8727)**
J-test (p-value)	24.2047 (0.5643)	25.7755 (0.4197)	20.8212 (0.7511)	25.8118 (0.3098)

Notes: t-values are in parentheses and are calculated using robust standard errors. ** (*) indicates statistical significance at the 1 percent (5 percent) level.

For Case 1, the following instrumental variables for GMM are used: dynamic panel instruments are LY_{i,t-j} (j = 1,2, . . .); other instruments are ΔFI1_{i,t-1}, ΔINVEST_{i,t-1}, ΔOPEN_{i,t-1}, and ΔSCHOOL_{i,t-1}.

For Case 2, the following instrumental variables for GMM are used: dynamic panel instruments are LY_{i,t-j} (j = 1,2, . . .); other instruments are ΔFI1_{i,t-1}, ΔFI1_{i,t-1}, ΔINVEST_{i,t-1}, ΔOPEN_{i,t-1}, and ΔSCHOOL_{i,t-1}.

For Case 3, the following instrumental variables for GMM are used: dynamic panel instruments are LY_{i,t-j} (j = 1,2, . . .); other instruments are ΔFI2_{i,t-1}, ΔINVEST_{i,t-1}, ΔOPEN_{i,t-1}, and ΔSCHOOL_{i,t-1}.

For Case 4, the following instrumental variables for GMM are used: dynamic panel instruments are LY_{i,t-j} (j = 1,2, . . .); other instruments are ΔFI2_{i,t-1}, ΔFI2_{i,t-1}, ΔINVEST_{i,t-1}, ΔOPEN_{i,t-1}, and ΔSCHOOL_{i,t-1}.

(Δ denotes the first-difference values).

Table 4. Regression Results on Poverty

LY _{i, t-1}	0.5345 (34.5168)**	0.5342 (34.3908)**	0.6234 (17.2976)**	0.2345 (15.2414)**
FI1 _{it}	-0.0039 (8.9219)**	-0.0023 (5.5950)*		
FI1 _{i,t-1}		-0.0003 (0.3482)		
FI2 _{it}			-0.0072 (19.4707)**	-0.0226 (10.7574)**
FI2 _{i,t-1}				-0.0073 (-11.0123)**
INVEST _{it}	0.0015 (19.6439)**	0.0016 (28.1758)**	0.0019 (19.3278)**	0.0021 (7.1891)**
OPEN _{it}	0.0021 (21.9527)**	0.0015 (25.6159)**	0.0009 (19.6989)**	0.0010 (12.3276)**
SCHOOL _{it}	0.0021 (49.8204)**	0.0023 (43.5876)**	0.0016 (13.1120)**	0.0032 (9.8727)**
J-test (p-value)	28.2047 (0.3443)	22.7755 (0.3297)	19.8212 (0.7611)	23.8118 (0.4198)

Notes: t-values are in parentheses and are calculated using robust standard errors. ** (*) indicates statistical significance at the 1 percent (5 percent) level.

For Case 1, the following instrumental variables for GMM are used: dynamic panel instruments are LY_{i,t-j}, (j = 1,2, . . .); other instruments are ΔFI1_{i,t-1}, ΔINVEST_{i,t-1}, ΔOPEN_{i,t-1}, and ΔSCHOOL_{i,t-1}.

For Case 2, the following instrumental variables for GMM are used: dynamic panel instruments are LY_{i,t-j}, (j = 1,2, . . .); other instruments are ΔFI1_{i,t-1}, ΔFI1_{i,t-1}, ΔINVEST_{i,t-1}, ΔOPEN_{i,t-1}, and ΔSCHOOL_{i,t-1}.

For Case 3, the following instrumental variables for GMM are used: dynamic panel instruments are LY_{i,t-j}, (j = 1,2, . . .); other instruments are ΔFI2_{i,t-1}, ΔINVEST_{i,t-1}, ΔOPEN_{i,t-1}, and ΔSCHOOL_{i,t-1}.

For Case 4, the following instrumental variables for GMM are used: dynamic panel instruments are LY_{i,t-j}, (j = 1,2, . . .); other instruments are ΔFI2_{i,t-1}, ΔFI2_{i,t-1}, ΔINVEST_{i,t-1}, ΔOPEN_{i,t-1}, and ΔSCHOOL_{i,t-1}.

(Δ denotes the first-difference values).

Table 5. Regression Results on Income Inequality

LY _{i,t-1}	0.3213 (33.5338)**	0.5345 (31.3306)**	0.3452 (13.2231)**	0.2421 (15.2313)**
FI1 _{it}	-0.021 (3.123)**	-0.032 (5.432)*		
FI1 _{i,t-1}		-4.21 (0.2211)		
FI2 _{it}			-0.033 (3.4211)**	-0.044 (7.5423)**
FI2 _{i,t-1}				-0.0073 (-10.3412)**
INVEST _{it}	0.0021 (22.6439)**	0.0023 (36.1758)**	0.0020 (13.3278)**	0.0032 (12.1891)**
OPEN _{it}	0.0017 (37.9527)**	0.0018 (38.6159)**	0.0011 (19.6989)**	0.0019 (19.3276)**
SCHOOL _{it}	0.0043 (52.8204)**	0.0037 (43.5876)**	0.0034 (21.1120)**	0.0035 (7.8727)**
J-test (p-value)	25.2047 (0.6543)	26.7755 (0.4197)	21.8212 (0.5711)	27.8118 (0.0398)

Notes: t-values are in parentheses and are calculated using robust standard errors. ** (*) indicates statistical significance at the 1 percent (5 percent) level.

For Case 1, the following instrumental variables for GMM are used: dynamic panel instruments are LY_{i,t-j}, (j = 1,2,...); other instruments are ΔFI1_{i,t-1}, ΔINVEST_{i,t-1}, ΔOPEN_{i,t-1}, and ΔSCHOOL_{i,t-1}.

For Case 2, the following instrumental variables for GMM are used: dynamic panel instruments are LY_{i,t-j}, (j = 1,2,...); other instruments are ΔFI1_{i,t-1}, ΔFI1_{i,t-1}, ΔINVEST_{i,t-1}, ΔOPEN_{i,t-1}, and ΔSCHOOL_{i,t-1}.

For Case 3, the following instrumental variables for GMM are used: dynamic panel instruments are LY_{i,t-j}, (j = 1,2,...); other instruments are ΔFI2_{i,t-1}, ΔINVEST_{i,t-1}, ΔOPEN_{i,t-1}, and ΔSCHOOL_{i,t-1}.

For Case 4, the following instrumental variables for GMM are used: dynamic panel instruments are LY_{i,t-j}, (j = 1,2,...); other instruments are ΔFI2_{i,t-1}, ΔFI2_{i,t-1}, ΔINVEST_{i,t-1}, ΔOPEN_{i,t-1}, and ΔSCHOOL_{i,t-1}.

(Δ denotes the first-difference values).

Summary of empirical results

- ❑ Financial inclusion and economic growth: positive, irrespective of measure of FI
- ❑ Financial inclusion and poverty reduction: inverse relationship between increase in FI and poverty levels (given thresholds)
- ❑ Financial inclusion and income inequality: financial and monetary policy framework
- ❑ What are the important supportive factors?
 - Primary school education
 - Open to international trade (incl FDI)
 - investment
- ❑ Implications for Financial regulation: Basel versus peer regulation

Concluding remarks

- ❑ A broader definition of financial inclusion, based on flow of funds
- ❑ Financial inclusion is good for growth
- ❑ Financial inclusion works for poverty reduction:
But, more factors need to be considered
- ❑ The role of financial inclusion on income inequality is critical for Africa
- ❑ Policy implications: Start with financial inclusion – growth, poverty and inequality

Areas for further work?

- ❑ Flow of funds – Substitution effects: Zellner (SURE) estimator
- ❑ Taking into account institutional quality to observe differing effects of financial inclusion on growth, poverty and inequality, using Dynamic Panel Threshold methods
- ❑ Determinants of financial inclusion taking into account demographic characteristics (e.g. gender, age...)
- ❑ Implementing empirical analysis for the subsamples of African countries (e.g. oil exporter, CEMAC..)
- ❑ Stochastic policy simulation

END

- Thank you!