

# Effects of MI on Economic Growth in SSA: The issue of transmission channels and resilience to shocks

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**International Conference UEMOA/FERDI**

13 December 2016

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# The Monetary Union in Africa : A long time story

- ▶ Independence and Monetary balkanization (Obstacle to trade and economic integration by **OAU**).
- ▶ **Monetary integration** for strengthening economic integration (trade, financial, ...)
- ▶ MI projects supported by **African** and **international institutions** (**AEC, RECs**).
- ▶ **However, it raises several questions**
  - ▶ Does this trend **suitable** for African countries?  
**Growth? Countries' resilience to shocks?**
  - ▶ What kind of monetary integration (MI)?  
**EURO? / CFA? / RMA?**
  - ▶ What is the implications of the **recent crisis** within the Euro area? (**MI  $\Rightarrow$  stability?**)

## But ... several **Questions**

Contradictory and mitigated results from empirical literature.

- ▶ Positive : [Devarajan and De Melo \(1987, 1991\)](#).
- ▶ Mixed : [Elbadawi and Madj \(1996\)](#).
- ▶ Not significant : [Patillo et al. \(2008\)](#) and [Guillaumont \(2013\)](#).
- ▶ Negative : [Ghura and Hadjimichael \(1996\)](#).

⇒ **Discrepancy** between the **theoretical benefits** of MI and **empirical evidences**.

⇒ **Shortcoming** : the estimated effect is an **average effect**, **do not take into account the transmission channels**

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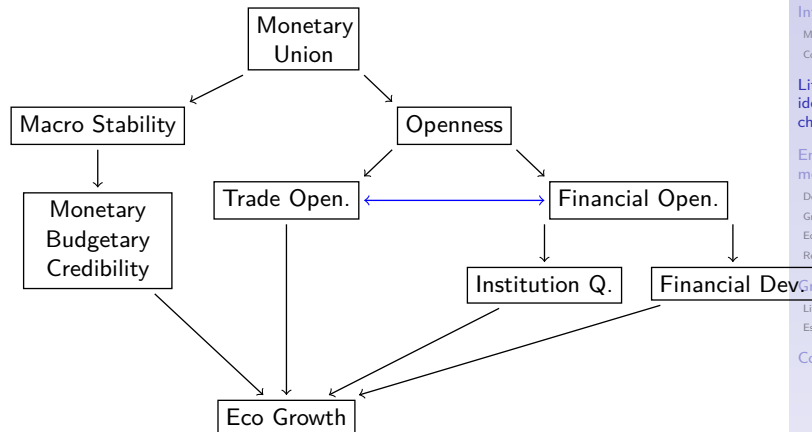
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- ▶ Explaining **discrepancy** between the **theory** and **empirical evidence**.
  - ▶ Evolution of exchange rate (ER) regimes in **counterfactual group**.
  - ▶ Analyzing the potential **transmission channels**.
- ▶ Studying the **resilience to shocks** :
  - ▶ Terms Of Trade (TOT) shocks (External).
  - ▶ Political (Conflicts) and Natural shocks (Internal).

## Potential transmission channels



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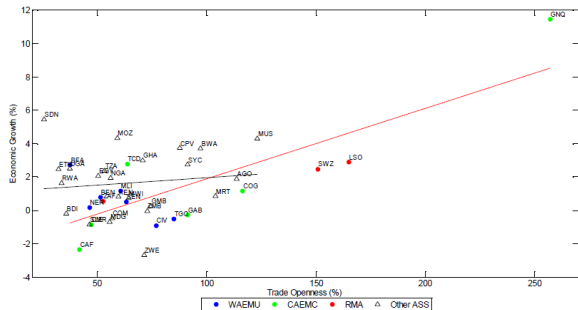
Descriptive statistics (**Goups : MI vs Other ASS**)

FIGURE : Trade openness, MI and Growth

- ▶ ↗ fiscal discipline ; ↗ International trade ; ↗ Financial Integration ⇒ **greater economic growth**.
- ▶ **Moderate inflation** and **lower outstanding debt** also.
- ▶ **Counter-intuitive results** for financial development and institutional quality.

## Growth model (1)

$$y_{it} = c + \alpha_i + \eta_t + \gamma D_{MI} + \beta_j X_{it,j} + \theta T_{it} + \gamma_{cro} D_{MI} T_{it} + \xi_{it} \quad (1)$$

$y_{it}$ =growth rate in country ( $i=40$ ) over the period ( $t=6$ );

$c$ =constant;  $\alpha_i$ =country specific effects;  $\eta_t$ =time effects;

$X_{it,j}=j^{th}$  control variable. Several variables indicated in the literature (Sala-i-Martin, 1997; Durlauf et al., 2005).

**Choice of  $X_{it,j}$**  : BMA framework developed by Fernández et al. (2001), Brock and Durlauf (2001) and Sala-i-Martin et al. (2004).

⇒ **In this study** : Initial GDP; Investment; Human Capital (Life); Terms of trade growth ( $\Delta TOT$ ) using the **LIBMA** of Tsangarides (2005).

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## Growth model (2)

$D_{MI}=1$  if the country belongs to a monetary union and 0 otherwise.

$T_{it}$ =potential transition variables.

⇒ Trade and Financial openness (TO and FI);

⇒ Institutional and financial development (IQ and FD);

⇒ **Four** macroeconomic instability indicators :  $\sigma_{Inflation}$ ,  $\sigma_{GOVS}$ , outstanding debt (Debt) and current account balance (CA).

**Hypothesis to test** :  $\gamma$  and  $\gamma_{cro}$  significant ?  $> 0$  ? or  $< 0$  ?

⇒ Marginal effect of MI :  $\hat{\gamma} + \hat{\gamma}_{cro} * T$ .

⇒ Potential threshold :  $T^* = -\hat{\gamma}/\hat{\gamma}_{cro}$ .

**Econometric methodology** : **FGLS** ; Hausman and Taylor (**HT**) and System GMM (**SysGMM**).

## Direct effect of MI

VARIABLES	(1) FGLS	(2) HT	(3) SysGMM	(4) FGLS	(5) HT	(6) SysGMM
Initial GDP	-0.37*** (0.12)	-0.38* (0.22)	-0.30 (0.67)	-0.40*** (0.13)	-0.35 (0.23)	-0.14 (0.74)
Investment	0.15*** (0.02)	0.21*** (0.02)	0.16*** (0.05)	0.16*** (0.02)	0.22*** (0.02)	0.16*** (0.06)
Life	-0.02 (0.03)	0.05 (0.05)	0.02 (0.04)	-0.02 (0.03)	0.04 (0.04)	0.02 (0.04)
$\Delta TOT$	0.07* (0.04)	0.06* (0.03)	0.07* (0.04)	0.08* (0.04)	0.06** (0.03)	0.07* (0.04)
$D_{MI}$	<b>-0.64</b> (0.51)	<b>-0.69</b> (1.03)	<b>-0.58</b> (1.07)			
$D_{CAEMC}$				-0.89 (0.84)	-1.81 (1.54)	-1.73 (1.84)
$D_{WAEMU}$				-0.18 (0.65)	0.18 (1.23)	-0.36 (1.63)
$D_{RMA}$				-1.23 (0.87)	-1.16 (1.67)	-0.67 (1.36)
Constant	3.58 (2.25)	-1.46 (3.55)	0.44 (5.74)	3.93* (2.33)	-1.35 (3.53)	-1.10 (6.06)
Observations	188	226	226	188	226	226
Prob. Hausman test		0.00			0.00	
Prob. Hansen			0.276			0.306
Prob. AR(2)			0.473			0.482

Note : \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$  and Standard errors in parentheses.

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## Indirect effects : Openness and Macro instability

VARIABLES	(1) FGLS	(2) HT	(3) SysGMM	(4) FGLS	(5) SysGMM
Initial GDP	-0.26** (0.13)	-0.30 (0.28)	-0.40 (0.49)	-0.42*** (0.12)	-0.47* (0.27)
Investment	0.08 (0.05)	0.10*** (0.03)	0.12** (0.05)	0.16*** (0.02)	0.19*** (0.02)
Life	0.01 (0.03)	0.13*** (0.05)	0.03 (0.04)	-0.02 (0.03)	0.03 (0.06)
$\Delta TOT$	0.07* (0.04)	0.04 (0.03)	0.10*** (0.03)	0.09** (0.04)	0.05 (0.06)
$D_{MI}$	<b>-4.32***</b> (1.45)	<b>-5.39***</b> (1.99)	<b>-2.34</b> (1.76)	<b>-1.97***</b> (0.63)	<b>-4.44*</b> (2.27)
Open (TO)	<b>-0.01</b> (0.01)	<b>0.01</b> (0.01)	$-0.2 * 10^{-3}$ (0.01)		
$D_{MI} * TO$	<b>0.05***</b> (0.02)	<b>0.06***</b> (0.02)	<b>0.02*</b> (0.01)		
$\sigma_{Inflation}$				$-0.1 * 10^{-3}$ (0.00)	$0.1 * 10^{-3}$ (0.01)
$D_{MI} * \sigma_{Inflation}$				<b>0.28***</b> (0.09)	<b>0.77**</b> (0.32)
Constant	3.36 (2.36)	-4.79 (3.94)	1.69 (4.51)	4.48** (2.22)	2.60 (4.05)
Observations	188	225	225	188	226
Prob. Hausman test		0.00		0.65	
Prob. Hansen			0.276		0.515
Prob. AR(2)			0.473		0.124

Note : \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$  and Standard errors in parentheses.

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## Summarized results

1. Growth **lower but not significantly different** in countries belonging to a MU.
2. Comparing SSA countries  $\Rightarrow$  fixed regime vs intermediate regime.
3. The **marginal effect** of MI on growth depends on :
  - ▶ The **level** of both trade openness (86%) and financial openness (217%).
  - ▶ **Macroeconomic instability** (Inflation and Current account balance).
  - ▶ Financial development (33%), **but not robust**.
4. Not through the quality of institutions

↘ **resilience to shocks** : Exchange rate as instrument and monetary autonomy (Meade, 1951 ; Friedman, 1953).

**Example** : Negative TOT shock  $\Rightarrow$  ER Misalignment and CA deficit.

↗ **resilience to shocks** : Flexible regime not efficient when institutions and financial system are weak (LDCs).

Other shock (ER volatility) ↗ economic cycle and ↘ growth Bailliu et al. (2003). See also Couharde et al. (2013).

**Equilibrium correction Model** (Edwards and Levy-Yeyati, 2005) :

$$y_i = c + \beta_j X_{i,j} + \epsilon_i \quad (2)$$

$$\Delta y_{it} = a + \lambda(y_{it-1} - \hat{y}_i) + \phi_k Z_{it,k} + \omega_{it} \quad (3)$$

$\Delta y_{it}$ =variation of growth ;  $\lambda$ =disequilibrium correction term ;

$Z_{it,k}$ =the matrix of shocks ;  $\omega_{it}$ =error term.

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## Summarized results

1. Terms of trade shocks  $\Rightarrow$   $\nearrow$  economic growth
2. **Asymmetric effect** of TOT shocks in countries having a MU regime unlike other SSA countries.
3. Political and natural shocks  $\Rightarrow$   $\searrow$  economic growth
4. Monetary Integration helps **absorbing natural shocks** but not political ones.

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## Conclusion and Policy implications

1. Monetary integration **has failed to increase** the growth rates in sub-Saharan Africa.
2. However, the more a country is opened to **international trade and financial transactions**, the more it could benefit from the monetary integration
3. **Asymmetric effect** of TOT shocks mainly due to the pegging to external currency  
⇒ Monetary union with a **common flexible currency could be a solution**

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Thank you for your attention

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