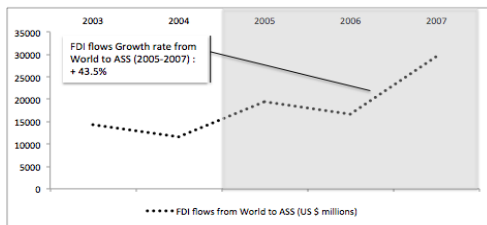
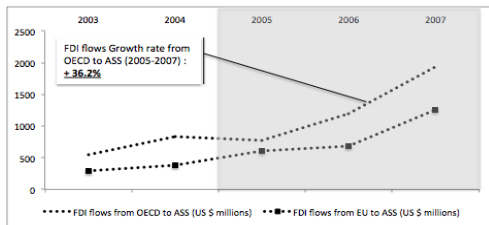
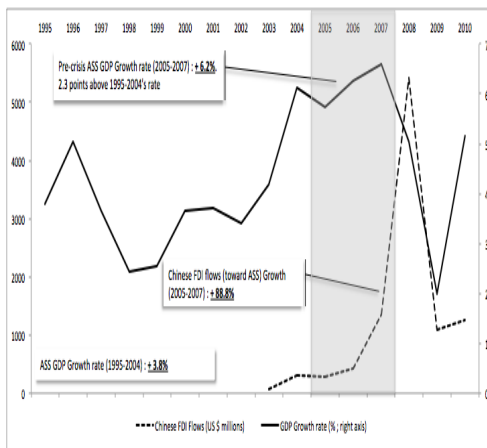
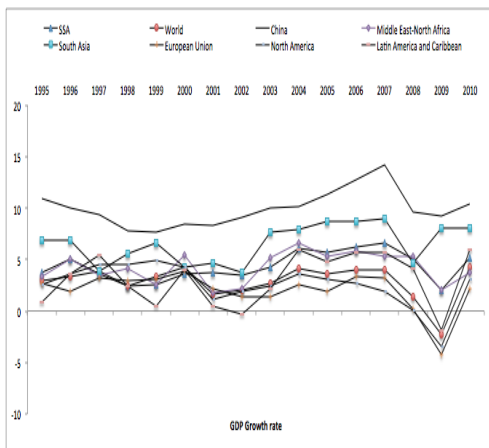


The Outline of the Presentation

- 1 THE ISSUE
- 2 ESTIMATION STRATEGY
- 3 2-STEP_s PANEL QUANTILE
- 4 RESULTS
- 5 POLICY IMPLICATIONS



SSA Growth Performance in a context of Chinese FDI flows

- On pre-crisis (2005-2007), chinese *CFDI* toward Sub-Saharan Africa's countries grows up remarkably : + 88%.
 - FDI flows growth from OECD's countries : + 36.2%.
 - FDI flows growth from the World : + 43.5%.
- On the period, the SSA growth rates was among the worldwide highest rate : + 6.2% (against + 2.3 point of percent over 1995-2004).
 - North America : + 2.5% ; European Union : + 2.8% ; Latin America & Caribbean : 5.3% ; Middle East & North Africa : 5.4%.
- A simple question : Did *CFDI* contribute to SSA's growth performance? Can we figure out its specific contribution?

In SSA, CFDI target economic growth driving factors

- China relationship with SSA impacts overall demand and fosters economic growth (*Besada, Wang & Whalley, 2008*).
 - Consumption - The Balance of Trade - Investment.
- *CFDI* in infrastructure help SSA to fill the gap. Infrastructure is well know as one of the main support of growth.
 - According to *The World Bank & French Development Agency*, quantity & quality of infrastructures matter for growth loss around 50%.
 - China involvement in African infrastructure reached \$9 billions (*ICA, annual report 2011*).
 - SSA's countries draw substantial benefit from *CFDI*, and in each of these countries, its foster economic growth. (*Mlachila & Takebe, 2011*).

The Bandwagon Effect in Investment, thanks to CFI

- *CFI* serve as an engine for the efforts of the others investors : Here we have a good news for SSA.
 - *CFI* seems managed by less-risk-averse actors (*Sanfilippo, 2010*).
 - The continent moves to meet again the confidence of investors.
- Main sectoral orientation of the *CFI* is not a surprise : oil, natural gas, mining.
 - China is a natural resources seeker for strategic objectives (*Asche & Schuller, 2008*).
 - But the most important for SSA are the gains of these investments : royalties, taxes, etc.
 - SSA's countries need, by themselves, to promote a better governance in managing these resources. That is the key point.

Figure out CFDI impact on SSA economic growth in 3 Steps

1 Compilation of Total Capital Stock ($K_{i,t}$) with *PIM* approach.

- *PIM* help in case of the lack of reliable data following *Berthelemy & Soderling (2001)*, *Bosworth & Collins (2003)*.
- $K_{i,t} = I_{b,i,t} + (1 - \delta)K_{i,t-1}$; $I_{b,i,t}$ as Gross Fixed Capital Formation.
- A Geometric Depreciation rate $\delta = 0.5$ for developing countries following *Nehru & Ashok (1993)*.

2 Recalculate ($K_{i,t}$) without *CFDI* flows contribution : $\bar{K}_{i,t}$

- $K_{i,t} = \sum FDI\ flows_{j,i,t} + (1 - \delta)K_{i,t-1} \rightarrow \bar{K}_{i,t} = K_{i,t} - FDI\ flows_{China,i,t}$

3 Estimation of competitive models : with/without *CFDI* flows.

- $Economic\ Growth_{SSA} = \beta_1 K_{i,t} + Z'\alpha + \epsilon$ [1]
- $Economic\ Growth_{SSA} = \beta_2 \bar{K}_{i,t} + Z'\alpha + \epsilon$ [2]
- Then compare coefficients spread if they are significative.

Quantile estimators for estimations : the pros and the cons

$$\text{Panel Estimation "with"} : q_{\tau}(Y_{i,t}) = \beta(\tau)K_{i,t} + \gamma Z + \epsilon_{i,t} \quad [1]$$

$$\text{Panel Estimation "without CDFI flows"} : q_{\tau}(Y_{i,t}) = \beta(\tau)\bar{K}_{i,t} + \gamma Z + \epsilon_{i,t} \quad [2]$$

■ The Pros.

- Robust even in presence of Outliers, more than an estimator based on mean effects.
- Efficient as *OLS* estimator when errors follow Gaussian distribution.
- More efficient than *OLS* estimator when errors do not match Gauss distribution (*Koenker & Bassett, 1978*).

■ The Incidental Parameters Problem in Panel data model.

- The structural parameters (*related to predictor variables number*) are in fixed number, against fixed effects which number rises with panel size.
- That is jeopardizing the quantile estimators significance (*Lancaster, 2000*).

An approach to quantile regression for panel (Canay, 2011)

① Solving the Incidental Parameters Problem...

- Given a Quantile Panel data model :

$$Y_{i,t} = X_{i,t}\beta(\tau) + \alpha_i + v_{i,t}(\tau) ; E(v_{i,t}|X_i, \alpha_i) = 0$$

- According to *Canay (2011)* theoretical model, α_i is a pure location shift effect.
- This means that α_i captures all unobserved covariates $U_i'\beta(\tau)$ that enter the model and are constant over time.
- Such variables must have coefficients that are constant across τ , that is, $\beta = \beta(\tau)$ for all τ .
- Then, α_i can be a part of $Y_{i,t}$'s conditional mean, shifting its location.

An approach to quantile regression for panel (Canay, 2011)

② The Two Estimation Steps...

- ① Run a *OLS within* estimation and extract the fixed effects.

- $\hat{\alpha}_i \equiv T^{-1} \sum_{t=1}^T [Y_{i,t} - X'_{i,t} \hat{\beta}]$

- ② Compute a new dependent variable which is been drained out of fixed effects. Then estimate the new model.

- $\hat{Y}_{i,t} \equiv Y_{i,t} - \hat{\alpha}_i$

The new estimator of Quantile with Panel data is...

$$\hat{\beta}(\tau) \equiv \arg \left(\underbrace{\text{Min}}_{\beta} (nT^{-1}) \sum_{t=1}^T \sum_{i=1}^n [f_{\tau}(\hat{Y}_{i,t} - X'_{i,t} \beta)] \right)$$

Add some controls and run estimations over 2003-2010

- Dependent variable is *GDP growth per capita*.
- Competitive/Alternative variables of interest.
 - $K_{i,t}$ (with)
 - $\bar{K}_{i,t}$ (without CFDI flows)
- A set of Controls variables.
 - Openness
 - Terms of trade
 - Financial development
 - Financial instability
 - Political instability
 - HIV mortality
 - Carbon emissions
 - Agricultural productivity
 - Government balance
 - Education expenditure

The summary table of results of estimations

CFDI contributes to Subsaharan african's countries economic growth, but the impact seems quite low.

Table. 2-STEPs PANEL QUANTILE ESTIMATIONS.

Dependent : GDP growth per capita (*in percent*).

	Significative coefficient β_1 “with” [1]	Significative coefficient β_2 “without ” [2]	Spread
Quantile	Interest variable : Total Capital stock	Interest variable : Capital stock (<i>CFDI flows excluded</i>)	
$q = 0.25$	1.832 ***	1.820 **	0.012
$q = 0.50$	1.960 ***	1.954 ***	0.006
$q = 0.75$	1.487 *	1.475 *	0.012

Capital stocks ($K_{i,t}$ & $\bar{K}_{i,t}$) are in logarithm.

Bootstrapped Standars errors

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Improve on measurement of CFDI flows

- Improve on measurement of *CFDI* flows toward SSA can help to capture a greater impact on economic growth.
 - China's statistical system (*MOFCOM, NDRC, SAFE*) do not take into account all flows : for instance, exit Small size entrepreneur.
 - The failure in registration of flows matters : exit Reinvested earnings (only first Equity investment is taken into account) ; enterprises struggle with administrative procedures and choose bypassing strategy.
 - The aim of the system : keep control on China's economic residents rather than improve statistical registration or openness (*Pairault, 2011*) : chinese enterprises which invest abroad must provide, at first, fiscal informations.

MOFCOM : Ministry of Commerce (*Ministère du commerce*)

SAFE : State Administration of Foreign Exchange (*Bureau national des devises*)

NDRC : National Development and Reform Commission (*Commission nationale au développement et à la réforme*)

Promote a better allocation and foster coordination among different investors/financiers' goals

- As *CFDI*'s impact on SSA's growth seems small, it must be allocated in the sector where it can contribute more.
 - Government have to better plan for the development strategy/plan : what sector must primarily benefit from investment efforts? Can specific sectoral reforms be implemented?
- Fostering coordination among investors/financiers (*Schiere, 2010*) can paved the way for a more robust growth.
 - Channeling *CFDI* into infrastructures and job creation.
 - Funds from others financiers to undertake the reforms (*framework of rules for investment*) necessary to enable economic progress.

A Proposal to foster Chinese investment trend/level and avoid some risks

- Make ongoing efforts for liberalization/openness.
 - Trade preferences/facilities granted to developing countries by developed (*reciprocal or in exchange of improvement of economic/political governance*) can attract *CFDI* ;
 - The goal is to use SSA as platform of (re) exportations.
- Avoid fiscal competition between SSA's countries, when attracting *CFDI*.
 - Ongoing efforts in Fiscal harmonization is a solution.
- Avoid one-sided investment contract for not jeopardize potential gain of this investment.

THANKS TO YOU / MERCI

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