Global Value Chains and Local Sourcing:
An empirical analysis on Sub-Saharan Africa and Vietnam

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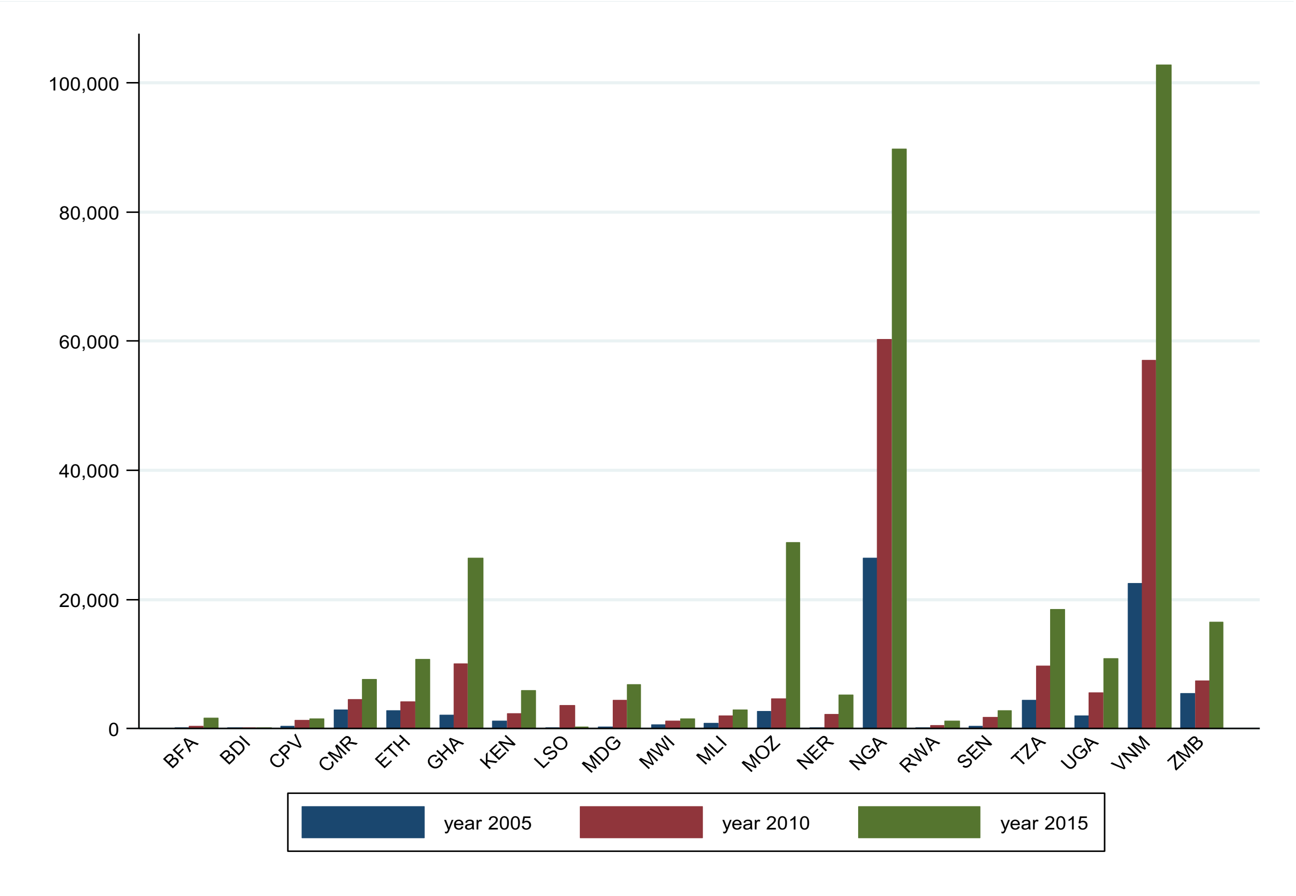
Motivation

1) In the last 15 years, Foreign Direct Investment (FDI) has more than doubled, reaching US$1,75 bn in 2016;
   - Developing countries have been the main beneficiaries of this upsurge of FDI inflows, reaching US$646 bn in 2016;
2) Through their participation in Global Value Chains (GVCs), firms in developing countries have become fully qualified participants in the global market, joining the production chain in specific stages of the production process:
   - The opportunity of specializing just in one or few specific segments of the value chain is of particular relevance for countries with a limited manufacturing base, such as many Sub-Saharan African (SSA) countries, where this strategy of participation in the global market can represent a "*golden opportunity*" (IMF, 2015: 56).

Aim of the paper and research questions

- The establishment of direct backward linkages between foreign and domestic firms, consisting in local sourcing of different inputs and intermediate products, is considered as one the main channels of FDI spillover;
- We investigate the determinants of backward linkages established by foreign investors in a group of 19 Sub-Saharan African (SSA) countries and in Vietnam, including two measures of the involvement of the host countries into value chains:
  - Do the **degree of GVC participation** and the **position within the GVC** is associated with the quantity of the local sourcing? In which way?
- A joint analysis of **Vietnam and SSA countries** allows to compare a region still relatively poorly attractive to FDI with a country which has recently been central in the rapid expansion of the global fragmentation of production.

FDI stocks in SSA and Vietnam (millions of US$)



Related literature

- Backward linkages with local suppliers are key transmission channels through which spillovers may happen and exert a positive and significant impact on the host countries (Blomstrom and Kokko, 1998);
- Farole et al. (2014) identify two possible connected effects of backward linkages:
  - The demand effect: multinationals demand for better inputs and require local suppliers to respect product quality, delivery time and technological efficiency;
  - The assistance effect resulting in intentional transfer of knowledge, technology, and managerial capacity, due to multinationals' propensity to help their local suppliers, to be assured that their requirements are met;
- FDI spillovers are more likely to materialize if some mediating factors are in place, including characteristics of domestic and foreign firms, as well as host country factors (i.e. institutional, political and economic framework).
- A few studies have also highlighted the importance of integration in GVCs in shaping the potential spillovers of FDI, including those connected to local sourcing (Paus and Gallagher, 2008; Farole and Winkler, 2014).

Our hypotheses

- **GVC participation** exposes domestic firms to the requirement of the international markets, to a more sophisticated demand and to learning opportunities:
  - An intensive GVC participation should positively impact on the establishment of backward linkages between domestic suppliers of intermediate inputs and foreign investors;
- **GVC position** defined in terms of specialization in more upstream (i.e. far from the final demand) rather than downstream (i.e. close to the final demand) stages of the production process:
  - An <u>upstream position</u> implies a specialization in the manufacturing of intermediate products, which can be associated with a high propensity to domestic sourcing by foreign investors;
  - A <u>downstream position</u> likely corresponds in developing countries to a concentration in the assembly phase of imported inputs, mainly exploiting the low-cost local labor force and therefore offering less opportunities for domestic sourcing.

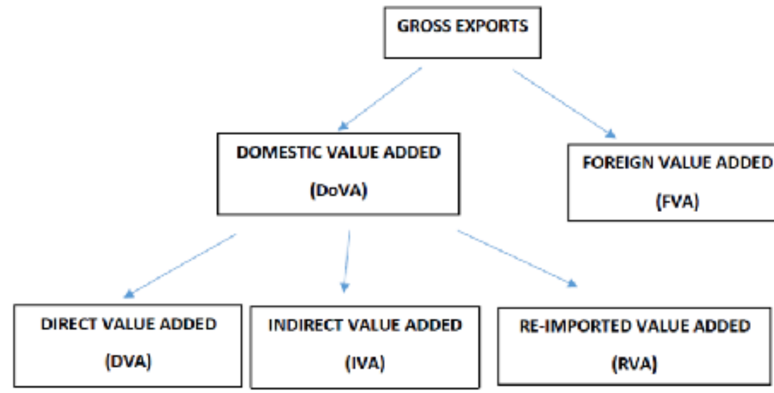
Data

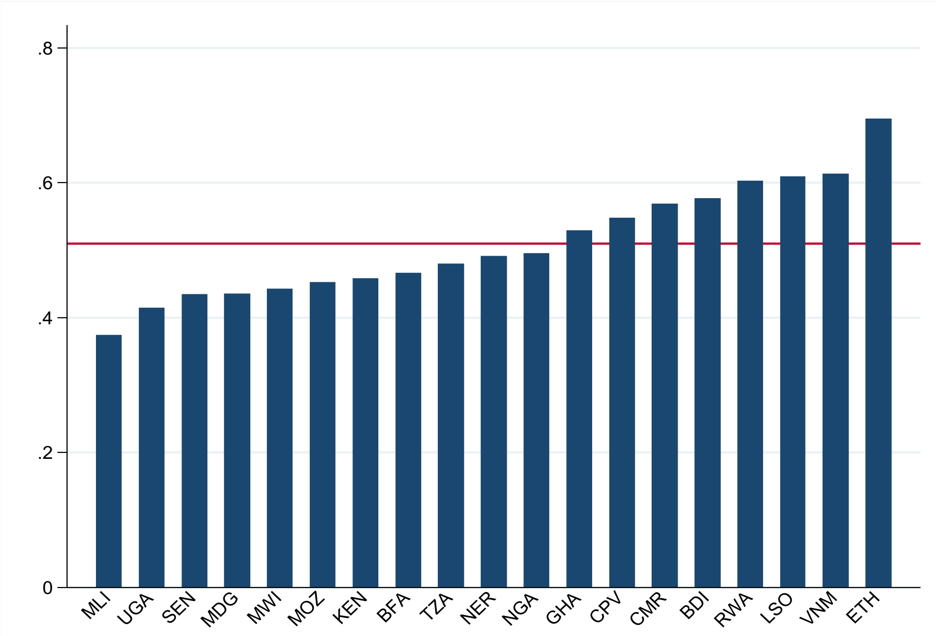
- Two UNIDO firm-level surveys: a) African Investor Survey)1,900 foreign firms in 19 SSA Countries); b) Vietnam Investor Survey (600 foreign firms);
- Focus only on manufacturing (excluding construction and utilities);
- Final sample: 1,915 foreign investors (42% in Vietnam);
- Information about:
  - Share of inputs which are supplied by domestic firms (local sourcing);
  - Assistance offered to local suppliers by foreign investors, if a linkage is in place;
  - Other information on foreign investors (organizational structure, country of origin, motivation for investing, location factors, linkages to the local producers, support received by host institutions).

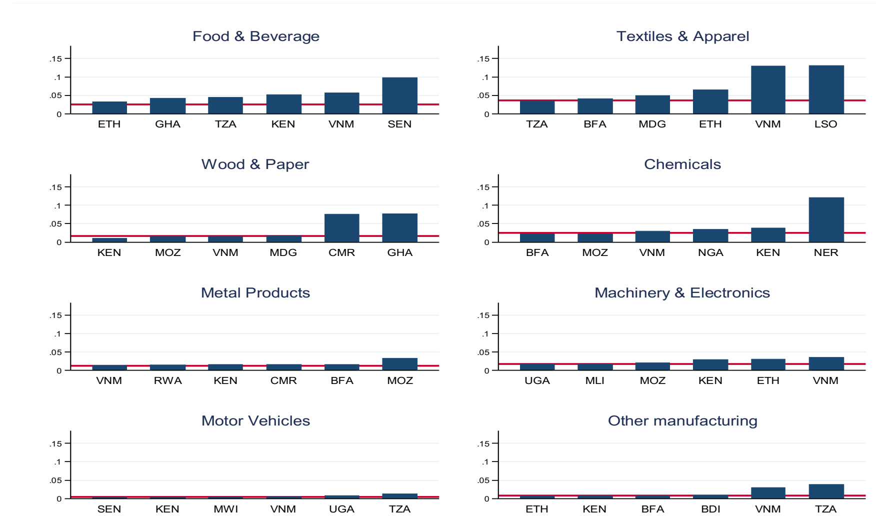
GVC participation (EORA MRIO)

$$GVC\ PARTICIPATION_{jn} = FVA_{jn} + IVA_{jn}$$

The index measures the involvement of a sector in a given country in the cross-national trade of <u>intermediates</u>, both at the downstream (as a buyer of foreign intermediates) and at the upstream level (as a supplier of domestic intermediates to foreign countries) (Koopman et al, 2011).



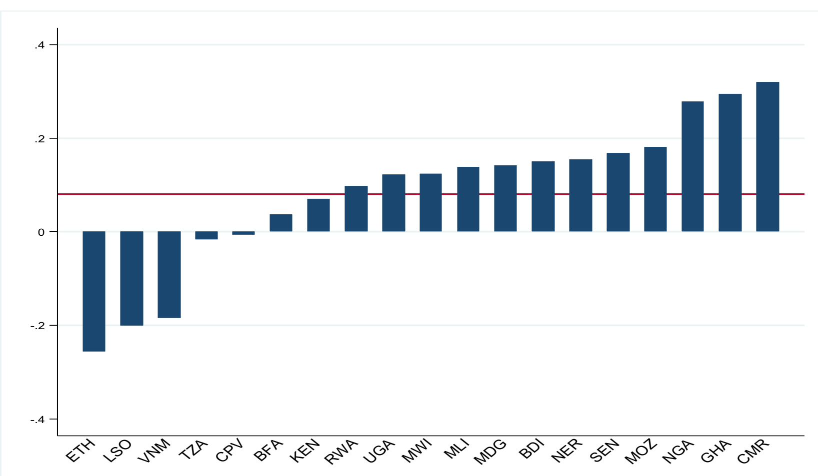




GVC position (EORA MRIO)

$$GVC\ POSITION_{jn} = Ln(1 + IVA_{jn}) - Ln(1 + FVA_{jn})$$

Positive values indicate an upstream specialization in GVC phases of the production process far from the final demand (e.g. production of intermediates used by other countries in their exports) and negative values indicate a downstream specialization in phases close to the final demand (e.g. use of intermediates to produce final good for exports).



The empirical analysis

$$Y_{ijn} = \alpha\, GVC\ PARTICIPATION_{jn} + \beta GVC\ POSITION_{jn} + \sum \gamma\, X_{ijn} + \delta_x + \lambda_n + \nu_j + \varepsilon_i$$

- Y_{ijn} measures local sourcing intensity as the share of inputs locally bought by the foreign investor *i* in sector *j* and country *n*;
- X_{ijn} is a vector of investor and investment characteristics ;
- Fixed effects for the origin and destination countries of the foreign investor *i* (δ_x and λ_n, respectively) and for the destination sector *j* (ν_j) to take into account unobserved heterogeneity, which could jointly affect the degree of GVC participation and the firm propensity to undertake local sourcing.

Table 3. Global Value Chain, Local Sourcing and Support to Local Suppliers

Dep. Variable:	LOCAL SOURCING								ANY SUPPORT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
AGE	0.015***	0.017***	0.017***	0.043***	0.017***	0.003	0.012***	0.012***	-0.111
	(0.002)	(0.002)	(0.002)	(0.005)	(0.002)	(0.002)	(0.002)	(0.002)	(0.096)
FOREIGN SHARE	-0.124***	-0.128***	-0.130***	-0.160***	-0.129***	-0.179***	-0.068***	-0.071***	0.36
	(0.006)	(0.006)	(0.006)	(0.015)	(0.006)	(0.005)	(0.006)	(0.005)	(0.229)
SIZE	-0.031***	-0.031***	-0.031***	-0.061***	-0.031***	-0.024***	-0.027***	-0.014***	0.137**
	(0.001)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)	(0.067)
LABOR PRODUCTIVITY	-0.014***	-0.014***	-0.013***	-0.027***	-0.013***	-0.012***	-0.008***	-0.009***	0.078**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.035)
EXPORT	0.034***	0.033***	0.027***	0.105***	0.027***	0.037***	0.041***	0.012***	0.195
	(0.004)	(0.005)	(0.004)	(0.012)	(0.005)	(0.004)	(0.004)	(0.004)	(0.151)
GREENFIELD	0.006	0.006	0.009	-0.030**	0.008	0.024***	0.003	0.001	0.04
	(0.006)	(0.006)	(0.006)	(0.014)	(0.006)	(0.005)	(0.005)	(0.005)	(0.134)
MARKET SEEKING	-0.025***	-0.024***	-0.022***	-0.082***	-0.022***	-0.020***	-0.029***	-0.028***	0.277***
	(0.006)	(0.006)	(0.006)	(0.012)	(0.006)	(0.005)	(0.005)	(0.005)	(0.077)
GVC PARTICIPATION	0.415***		2.049***	0.697**	2.549***	-14.409***			2.295
	(0.069)		(0.074)	(0.327)	(0.085)	(0.079)			(3.02)
GVC POSITION		0.473***	2.191***	2.501***	2.670***	-18.834***			5.585*
		(0.067)	(0.074)	(0.398)	(0.089)	(0.087)			(2.93)
RULE LAW*GVC PARTICIPATION					0.852***				
					(0.158)				
RULE LAW*GVC POSITION					0.767***				
					(0.171)				
EDUCATION*GVC PARTICIPATION						0.719***			
						(0.004)			
EDUCATION*GVC POSITION						0.901***			
						(0.004)			
EXPORT*GVC PARTICIPATION							-1.754***		
							(0.069)		
EXPORT*GVC POSITION							-1.317***		
							(0.07)		
SIZE*GVC PARTICIPATION								-0.958***	
								(0.011)	
SIZE*GVC POSITION								-1.062***	
								(0.011)	
LOCAL SOURCING									1.047**
									(0.531)
LOCAL SOURCING^2									-1.139**
									(0.566)
Origin country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Host country FE	YES	YES	YES	YES	YES	YES	NO	NO	YES
Sector FE	YES	YES	YES	YES	YES	YES	NO	NO	YES
Host country-sector FE	NO	NO	NO	NO	NO	NO	YES	YES	NO
Observations	1655	1655	1655	923	1655	1593	1655	1655	978

Notes: results in columns 1-8 are obtained using a Tobit model; those in column 9 using a Probit model. Robust standard errors, clustered by investment destination country-sector pair, are reported in brackets. *<0.1, **<0.05, ***<0.01.

Main findings: the quantity of linkages

- Higher GVC participation contributes to expand the domestic supply of local inputs to meet the requirements of foreign investors;
- GVC Upstream specialization (far from the final demand) is associated with higher shares of local sourcing from foreign investors;
- Sound local institutions and high education spending amplify the effects of GVC participation and of an upstream position on local sourcing.

Main findings: the quality of linkages

- Dependent variable: a dummy for the assistance that foreign investors offer to their local suppliers, which can be considered as a proxy for *intentional* transfers of resources;
- Foreign investors involved in sectors more upstream in the value chains are more likely to assist their suppliers:
  - more upstream stages, being in the early phases of the production process of production, are those at higher risks of failure along the production chain. Especially when performed in less advanced economies, local suppliers require more assistance than in downstream activities (Costinot et al. 2013).

Conclusions

- GVC participation and upstream GVC position are associated with higher levels of local sourcing;
- Countries specializing in more upstream stages of production not only attract foreign investors with higher sourcing potential, but also those more willing to offer support to their local suppliers;
- This is especially relevant for countries—including several SSA countries—where the production process is still concentrated in low-value added phases, which are more upstream in the GVC;
- Enhancing the domestic business environment, by offering foreign firms a better investment climate and, specifically, improving the rule of law and human capital can magnify the positive relation between GVC involvement and local sourcing;
- Yet, achieving high levels of GVC involvement is not a guarantee for attracting FDI with high sourcing potential (e.g. Lesotho);
- Policies supporting stronger interactions with local suppliers, their upgrading and raising the local content, are therefore necessary to avoid such occurrences.

Thank you

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