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BACKGROUND PAPER

ON THE COMPLEMENTARITY OF REGIONAL AND GLOBAL TRADE

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On the Complementarity of Regional and Global Trade

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Abstract

Sourcing intermediate goods efficiently is essential for a country's production capacity. Countries located in a neighborhood providing a wide range of intermediate goods cheaply available can take advantage of scale economies to reduce their production costs and improve their global competitiveness. Many empirical works have documented the sharp increase in intra-industry trade and particularly trade in intermediate goods within developed neighborhoods such as the EU, North America and Northeast Asia. What about developing neighborhoods? This paper proposes a closer look at the issue using COMTRADE aggregate exports of capital goods, intermediate goods, consumer goods and raw materials for 2002-06 to evaluate the impact of a country import of intermediate goods from its neighbors on its global export performance using a granger-causality test based on an extended-gravity model. For Sub-Saharan African countries particularly, we find a strong positive correlation between countries previous regional import of intermediate goods and their current exports, indicating that developing neighborhoods are also experiencing such complementarity between regional and global trade, the relation being stronger beyond a threshold of global competitiveness. These results call for a two-pronged policy action encompassing regional and global integration and putting a sub-set of Sub-Saharan countries close to that global competitiveness threshold at the heart of a neighborhood growth strategy.

J.E.L. Classification: F10, F15, O54, O55

Keywords: neighborhood of countries, intermediate goods, market access, granger-causality

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1 Introduction

Many scholars have long argued that intraregional trade in developing regions has no potential (Foroutan and Pritchett (1993); Bhagwatti, Greenaway and Panagarya (1998)). If so, improving the quality of regional roads would have no impact on intraregional trade. But it does. Coulibaly and Fontagne (2005) show that by modeling explicitly geographical disadvantages in a trade model, one can simulate a threefold increase in West African intra-regional trade by paving interstate roads that are not paved, coupled with a boost of their global trade. Buys et al. (2006) show that upgrading Sub-Saharan Africa road network could expand overland trade by about $250 billion over 15 years. Shepherd and Wilson (2007) estimate a 30 percent increase in Eastern Europe and Central Asia intra-regional trade by upgrading roads in just Albania, Hungary, and Romania.

The regional vs. global integration debate is not new. Viner (1950) showed that a customs union intrinsically can do harm (trade diversion) or good (trade creation), hence a second-best policy compared to global integration. Meade (1955) emphasized on price-elasticity before and after the creation of a customs union to evaluate its welfare impact. Balassa (1967) and Aitken (1973) provided the first empirical evaluations of the trade impact of the European Community and both found ambiguous results. Yet, the recent proliferation of free trade agreements in the late 1980s re-launched a new debate that can be summarized by the entrenched position of those seeing in this “new regionalism” a competitive liberalization process supporting global integration (Baier and Bergstrand (2004); Bond (2005); Evenett (2005); Bergstrand (2006)), and those seeing in it the emergence of “spaghetti bowls” impeding global integration (Bhagwatti (1995); Bhagwatti, Greenaway and Panagarya (1998); Krishna (1998)).

In this debate, the ultimate challenge of developing countries is market access. Indeed, it is now well established that countries with better access to world markets have higher per capita income than countries with limited access, and that transport and communication infrastructures as well as institutions’ quality have a stronger impact on both export levels and the likelihood of a country to export than variation in tariffs (Redding and Venables (2004), Francois and Manchin (2007), Mayer (2008)). Elbadawi and al. (2006) show that African firms export less than their counterparts in other regions because of their adverse geography and poor institutions. It is also estimated that the improvement of port efficiency and airport infrastructures increase considerably trade flows, while restrictions on the provision of port services and collusive carrier arrangements significantly affect maritime transport costs. Open sky agreements also appear to reduce significantly air transport costs and increase the share of import arriving by air (Clark and others (2004), Fink and others (2002), Micco and Serbrisky (2006)).

Krugman (1991) and Frankel et al. (1996) have shown that when inter-continental transport costs are higher than intra-continental ones, regional integration can be the first-best compared to global integration. This point was further developed by Carrere (2005) showing that when new technologies in the transport sector allow for scale economies, a regional integration among developing countries favoring the adoption of such technologies followed by global integration is more welfare-improving than the developing countries opting directly for global integration. There are also non-economic gains to regional integration initiatives. Schiff and Winters (1998) show that these non-economic motives are sometimes more important in the decision to sign regional integration agreements. More recently, Martin et al. (2007) estimated that countries involved in a regional integration process are less likely to have a conflict with each other than countries mainly trading with distant partners. This paper aims at reframing the regional vs. global integration debate by bringing geography (human, physical and political) at the core of a regional-cum-global integration process, using the New Economic Geography framework in

which proximity can be an asset because of scale economies and location specific costs. Regional integration can help to build viable neighborhoods of countries that will ultimately help them secure an increasing share of world markets.

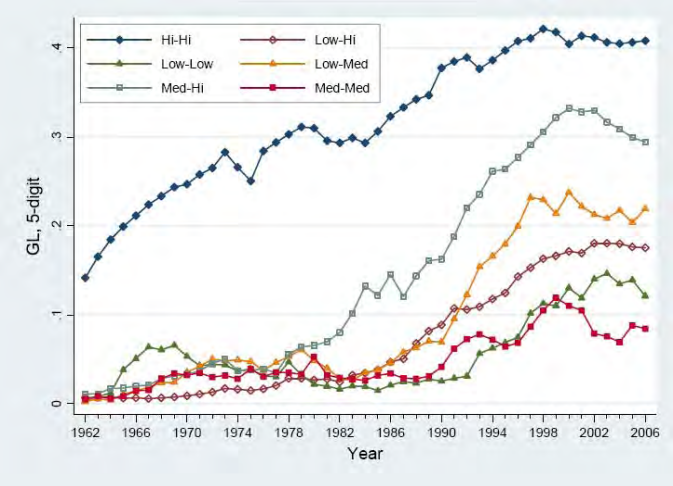
We first look at a country's import of intermediate goods from its neighbors and then assess how this impacts its global export performance. The data indicate that regional import of intermediate goods granger-causes countries' export performance when controlling for relevant other bilateral trade determinants. Interestingly, this relation appears to be non-linear for Sub-Saharan African countries: for regional imports of the intermediate goods lower than a threshold, the correlation is weaker and sometimes negative; but above the threshold, the positive correlation becomes stronger. This suggests that for Sub-Saharan African, regional import of intermediate goods and exports are complements, and policy interventions aiming to increase regional trade beyond a threshold can improve these countries' global competitiveness.

The paper is organized as follows. Section 2 presents some stylized facts on the correlation between lagged regional import of intermediate goods and countries' export performance, while Section 3 uses an extended-gravity model to inquire further this relation and draw some intrinsic difference between regional and global trade. Section 4 reframes the regional vs. global integration debate based on these findings and the insights of the new economic. Section 5 concludes the paper.

2 Stylized facts on regional and global trade complementarity

Sourcing intermediate goods efficiently is essential for a country's production capacity. Countries located in a neighborhood providing a wide range of intermediate goods cheaply available can take advantage of scale economies to reduce their production costs and improve their global competitiveness. Brulhart (2008) documents the sharp increase in intra-industry trade and particularly trade in intermediate goods within developed neighborhoods such as the EU, North America and Northeast Asia, while developing neighborhoods are mainly trading on an inter-industry base. Figure 1 below report the Grubel-Lloyd index of intra-industry trade using the COMTRADE 5-digit SITC product categorization.

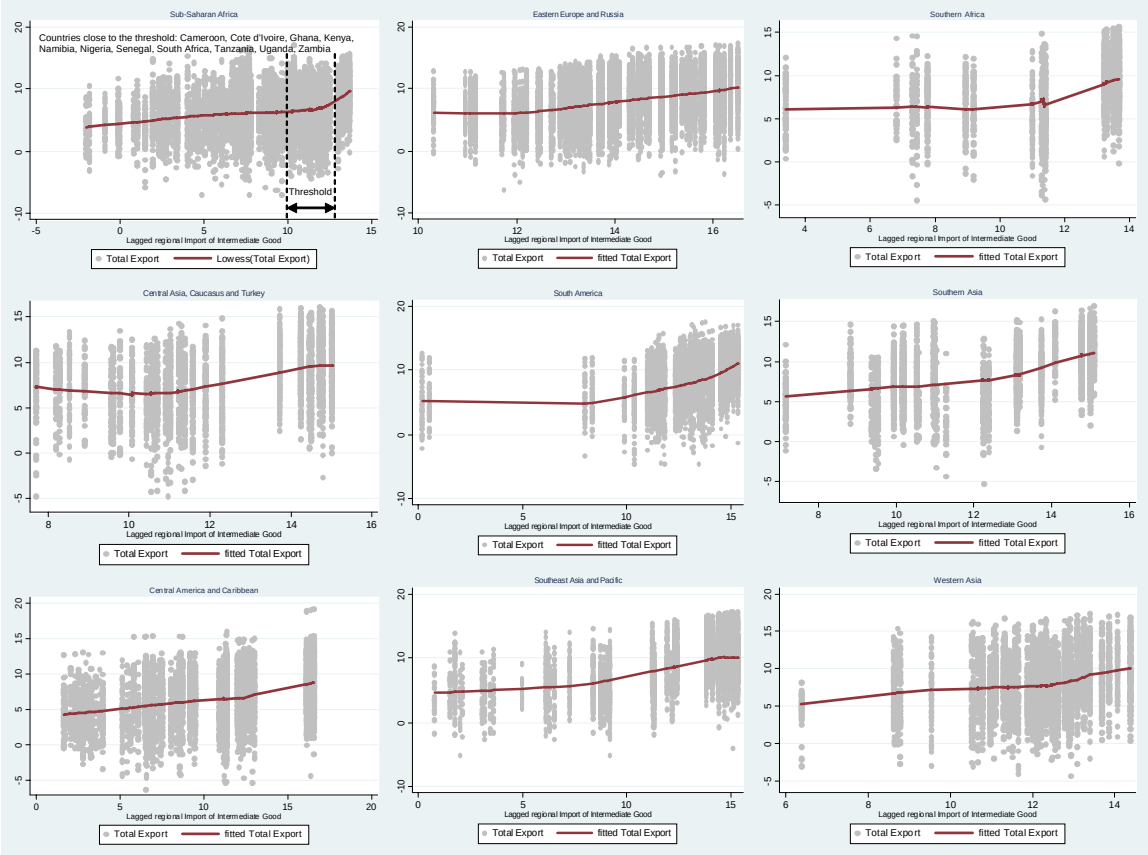
Figure 1: Evolution of global intra-industry trade by income group, 1962-2006



Source: Brulhart (2008)

Given the importance of access to efficient supplier of intermediate goods, this may suggest that the global competitiveness prospect of developing countries is jeopardized. We propose another look at this issue by focusing on the potential complementarity between regional and global trade. We use the COMTRADE database to identify for a given country *i* the correlation between its one-year lagged import of intermediate goods from its neighbors, labeled RMI_{t-1}, and its current total exports. We define the neighbors of country *i* as countries sharing a border with country *i* or located at a distance less than the EU-15 average bilateral distance. These two variables are plotted in Figure 2 for some neighborhoods of country covering developed and developing countries (see Appendix 1 for a map describing these neighborhoods).

Figure 2: Regional imports of intermediate goods foster more exports past a threshold



Source: COMTRADE database and author's calculations

For these neighborhoods, the one-year lagged imports of intermediate goods from neighbors appear to be positively correlated with current total export, with a threshold beyond which the correlation becomes noticeably stronger. The graphs indicate a complementarity between regional import of intermediate goods and total exports. The non-linearity is more apparent for Sub-Saharan Africa. Countries close to the threshold of global competitiveness (Cameroon, Cote d'Ivoire, Ghana, Kenya, Namibia, Nigeria, Senegal, South Africa, Tanzania, Uganda, and Zambia) could benefit from coordinated intervention to breakthrough world markets. Indeed, this suggests that policy interventions to increase regional import of intermediate goods can boost

countries global competitiveness of Sub-Saharan African countries. These intermediate goods do not need to be high-tech goods in the beginning. Indeed, Brulhart (2008) shows that except for the mineral fuels sector, all the other sectors have experienced an increase in intra-industry-trade over the period 1962-2006, with the "food and live animals" sector exhibiting a nine-fold increase in its IIT index. Before developing this policy recommendation, let us first test econometrically the underlining complementarity between regional and global trade in Sub-Saharan Africa.

3 Econometric estimation

We check econometrically the correlation between regional and global trade by estimating an extended-gravity model including country *i* imports of intermediate goods from its neighbors (RMI_{t-1}) as explanatory variable in addition to the usual gravity model variables. We also include three variables controlling for the drivers of agglomeration, namely scale economies, factor mobility and transport costs. The scale economies driver (SE_{ijt}) is proxied by the number of 6-digit products exported by country *i* accumulated over all its trading partners using the COMTRADE database. The factor mobility driver (FM_{ijt}) is proxied by the number of citizens of country *j* living in country *i* using the World Bank bilateral migration database. The transport costs driver (TC_{ijt}) is proxied by a linear combination of the number of documents required in country *i* to export plus the number of document required to import in country *j*, the number of days its takes to process an export in country *i* plus the number of days to process an import in country *j*, and the cost to export a container in country *i* or import a container in country *j* whichever is larger, using the Doing Business database. The baseline equation we estimate is the following:

$$\begin{aligned}\ln X_{ijt} = {} & a_1 \ln RMI_{ij,t-1} + a_2 \ln Dist_{ij} + a_3 \ln GDP_{it} + a_4 \ln GDP_{jt} + \\ & a_5 \ln POP_{it} + a_6 \ln POP_{jt} + a_7 \ln SE_{ijt} + a_8 \ln FM_{ijt} + a_9 \ln TC_{ijt} + a_0 + \varepsilon_{ijt}\end{aligned} \quad (1)$$

where X_{ijt} is the export of country *i* to country *j* in year *t*, RMI_{ijt-1} is country *i* imports of intermediate goods from its neighbors in year *t-1*, $Dist_{ij}$ is the geographical distance between country *i* and *j*, GDP_{it} is the GDP of country i in year *t*, POP_{it} is the total population of country *i* in year *t*, SE_{ijt} is the scale economies proxy of country *i* in year *t*, FM_{ijt} is the factor mobility proxy between country *i* and *j* in year *t*, TC_{ijt} is the transport costs proxy between country *i* and *j* in year *t*, a_0 is a constant and ε_{ijt} is an error term. Let us mention that including RMI_{t-1} as explanatory variable provides a granger-causality test between export and regional import of intermediate goods. Indeed granger-causality, which is a kind of statistical feedback, is absent when $f(x_t/x_{t-1},y_{t-1})$ equals $f(x_t/x_{t-1})$. Therefore, a statistically significant coefficient of RMI_{t-1} would suggest that regional import of intermediate goods granger-cause exports.

Equation (1) is estimated for various specifications allowing for country-pair effects. We also use instrumental variables technique to control any potential endogeneity problem on RMI_{t-1}. We use as instruments a set of variable affecting regional imports but not necessarily total exports: the sum of the GDP of country *i* and its neighbors, the sum of the population of country *i* and its neighbors, and the sum of the distance between the neighboring countries. Table 1 presents the results for a set of specifications. The estimations are corrected for heteroskedasicity using the White/Hubber error correction method included in STATA. For Instrumental Variables specifications, we perform two diagnosis tests. First, we test for the endogeneity of RMI_{t-1} using the Durbin-Wu-Hausmann test described in Davidson and Mackinnon (1993). Then, we test for validity of the instruments using the approach suggested by Staiger and Stock (1997): regress the instrumented variable on all the instruments and check for an F-statistics higher than 10. In all the

IV specifications, RMI_{t-1} appeared to be endogenous, and the validity of the instruments used was confirmed. We therefore use the instrumental variable specifications as our preferred estimations.

The results are presented in Table 1. We only display country-pair random effects specifications which appear to be better fitted than country-pair fixed effects. Specifications 1 and 3 are simple GLS estimations of equation (1), while specifications 2 and 4 instrument RMI_{t-1} as described earlier. Specification 2 encompassing more than 150 countries worldwide indicates that recent import of intermediate goods from neighbors granger-cause total export, although not positively as suggested by Figure 2. These results are confirmed when raw materials, intermediate goods, capital goods, and consumer goods exports instead of total exports (see Appendix 2).

Table 1: Country-pair random effect estimation of equation (1)

Dept var: $LnExport_t$	All countries		Sub-Saharan Africa	
	(1) GLS	(2) GLS-IV	(3) GLS	(4) GLS-IV
$LnRMI_{t-1}$	0.03[a]	-0.06[a]	-0.04[c]	-0.01
	(2.96)	(-4.41)	(-1.68)	(-0.28)
$LnDist_{ij}$	-1.23[a]	-1.25[a]	-1.80[a]	-1.81[a]
	(-54.54)	(-55.14)	(-17.93)	(-17.68)
$LnGDP_{it}$	0.68[a]	0.75[a]	0.91[a]	0.90[a]
	(25.64)	(32.08)	(10.42)	(10.23)
$LnGDP_{jt}$	0.80[a]	0.80[a]	0.80[a]	0.80[a]
	(46.68)	(54.09)	(16.43)	(17.30)
$LnPOP_{it}$	0.08[a]	0.06[a]	-0.23[a]	-0.23[a]
	(4.45)	(3.29)	(-2.68)	(-3.11)
$LnPOP_{jt}$	-0.02	-0.02	-0.02	-0.02
	(-0.90)	(-1.12)	(-0.29)	(-0.32)
$LnTC_{ijt}$	-0.69[a]	-0.66[a]	-0.95[a]	-0.94[a]
	(-8.77)	(-6.28)	(-3.54)	(-3.77)
$LnSE_{ijt}$	0.40[a]	0.47[a]	0.38[a]	0.37[a]
	(16.93)	(23.28)	(5.20)	(5.21)
$LnFM_{ijt}$	0.20[a]	0.20[a]	0.28[a]	0.28[a]
	(24.13)	(26.84)	(9.45)	(9.48)
Const.	-20.83[a]	-21.79[a]	-14.74[a]	-14.67[a]
	(-33.85)	(-40.60)	(-7.55)	(-7.06)
Obs.	37,535	37,535	4,508	4,508
P-value	0.00	0.00	0.00	0.00
R^2	0.72	0.72	0.48	0.47

Note: [a] estimated coefficient significant at the 1 percent level; [b] significant at the 5 percent level; [c] significant at the 10 percent level. T-statistics are in parenthesis.

A restriction on Sub-Saharan African exporters yields a non-significant coefficient. The result is different when we split the database to highlight the structural break suggested by Figure 2. Indeed, as suggested by Figure 2, there is a threshold beyond which regional import of intermediate goods start mattering more in Sub-Saharan African countries' export performance. This threshold can be approximated by *THRESHOLD=exp(12)* given that Figure 2 plots the log values of both lagged regional import of intermediate goods and total exports. Table 2 confirms the structural break suggested by Figure 2: the estimated coefficients of the RMI_{t-1} appear to be nearly ten times larger when $LnRMI_{t-1} \geq 12$. If the restrict on the instrumental variables specifications (3 and 4), Sub-Saharan Africa depicts a strong threshold effect below which regional and global trade are disconnected but beyond which they are complementary. This

suggests that coordinated policy interventions between neighboring Sub-Saharan African countries to increase intermediate goods trade could boost the global competitiveness of these countries. These interventions could include trade and transport facilitations reforms, mutual recognition or harmonization of standards and conformity assessment, or even liberalization of regional trade in services that are in many instances intermediate services.

Table 2: Estimating the threshold effect using instrumental variables method

	Sub-Saharan Africa			
Dept var: $LnExport_{it}$	(1) $LnRMI_{t-1}<12$ GLS	(2) $LnRMI_{t-1}\geq12$ GLS	(3) $LnRMI_{t-1}<12$ GLS-IV	(4) $LnRMI_{t-1}\geq12$ GLS-IV
$LnRMI_{t-1}$	-0.06[b]	0.50[a]	-0.06	0.62[a]
	(-2.42)	(3.51)	(-1.35)	(2.98)
$LnDist_{ij}$	-1.72[a]	-2.48[a]	-1.71[a]	-2.48[a]
	(-15.71)	(-12.00)	(-14.86)	(-13.99)
$LnGDP_{it}$	0.41[a]	2.26[a]	0.41[a]	2.36[a]
	(3.28)	(4.92)	(3.24)	(4.85)
$LnGDP_{jt}$	0.77[a]	0.81[a]	0.77[a]	0.81[a]
	(14.42)	(8.91)	(14.80)	(10.08)
$LnPOP_{it}$	-0.13	-3.82[a]	-0.13[c]	-4.10[a]
	(-1.50)	(-4.47)	(-1.64)	(-4.86)
$LnPOP_{jt}$	-0.0001	0.16	-0.0006	0.17[c]
	(0.00)	(1.51)	(-0.01)	(1.75)
$LnTC_{ijt}$	-0.81[a]	-3.21[a]	-0.81[a]	-3.23[a]
	(-2.68)	(-6.06)	(-2.84)	(7.54)
$LnSE_{ijt}$	0.35[a]	0.15	0.35[a]	0.08
	(4.69)	(0.55)	(4.49)	(0.24)
$LnFM_{ijt}$	0.26[a]	0.20[a]	0.26[a]	0.20[a]
	(7.91)	(3.41)	(7.96)	(3.55)
Const.	-5.48[c]	22.08[b]	-5.41[c]	23.55[a]
	(-1.92)	(2.52)	(-1.83)	(3.18)
Obs.	3,450	1,058	3,450	1,058
P-value	0.00	0.00	0.00	0.00
R^2	0.36	0.68	0.36	0.68

Note: [a] estimated coefficient significant at the 1 percent level; [b] significant at the 5 percent level; [c] significant at the 10 percent level. T-statistics are in parenthesis.

In all these specifications presented in Tables 1 and 2 our proxies for scale economies and factor mobility and transport costs appear to significantly impact trade. When we distinguish between regional and global trade (regional trade being trade with neighbors as defined previously, and global trade being trade with the remaining trade partners), we notice a differentiated impact of these three drivers of agglomeration. Figure 3 plots regional-global difference of the estimated coefficients for each of these three variables. It appears that scales economies and transport costs impact quite differently regional and global trade, while factor mobility has more or less the same impact on regional and global trade. Except for the Easter Europe and Central Asian region (ECA), scales economies matter more for regional trade than global trade. However regional trade in Latin America (LAC), ECA and Middle East and North Africa (MNA) appears to be more affected by transport costs, while global trade of Sub-Saharan Africa (SSA), South Asia (SAR) and East Asia (EAP) is more affected by transport costs. These results are confirmed when using as dependent variable export of capital goods, intermediate goods, and consumer goods.

Figure 3: Difference in estimated impact of scale economies, factor mobility, trade and transport costs and distance on regional and global exports

4 Policy implication: reframing the regional vs. global integration debate

The new economic geography shows that scale economies in the productive sectors, facilitated by factor mobility and reduced transport costs, increase competitiveness and lead to faster growth. This is as true for regions as for countries. Because proximity to markets matters, regional trade might be more sensitive than global trade to the three drivers of agglomeration. The stylized facts and econometric analysis conducted in this paper indicate that regional trade in intermediate goods can boost exports overall, suggesting large pay-offs from cross-country infrastructure investments and trade-related reforms. Scale economies and factor mobility increase export flows, while higher transport costs reduce them. Firms exporting to regional markets are hurt more by power outages and inefficient border crossing procedures than are firms exporting to global markets (Yoshino (2007)). So, domestic supply constraints seem more binding for the efficiency of regional trade, which mainly involves local and regional entrepreneurs. This illustrates well the findings of the heterogeneous firm framework where efficiency differences constrain some firms to service only the domestic markets, while others serve both regional and domestic markets, with the most efficient involved in domestic, regional, and international exports. A sound regional integration policy can solve the supply problems of domestic and regional firms, and global integration, the demand problems of all three types of firm.

Based on this framework, we can reframe the regional vs. global integration debate in a two-pronged policy approach encompassing regional and global integration: regional integration to scale up local supply capacity, and global integration to scale up market and supplier access. Indeed, in the today just-in-time and global specialization world, proximity is an asset if countries manage to build neighborhoods in which they can all reap the benefit of scale economies, factor mobility and low transport costs to sustain their production capacity. However, for any developing countries, the demand-led growth will come from trade with developed countries where the world's strongest demand comes from and where the most efficient input suppliers are located.

Regional and global integration can be thought of as complements. Regional integration policies that help to build up the supply capacity of a region through targeted multi-country infrastructures

as well as policy reforms facilitating cross-border activities can boost individual countries' economic performance. Global integration policies are essential to scale up the demand faced by developing countries and provide them access to efficient intermediate goods' suppliers. This complementarity is confirmed both by an increasing number of empirical works, and the experience of today developed neighborhoods. Indeed, successful neighborhoods of developed countries provide useful clues from the design and implementation of regional and global integration initiatives: think global, start small, and compensate the least fortunate members.

Think global. For all the developing world regions, the markets to conquer and the most efficient suppliers are outside, not inside. Korea, Mexico, and Romania are lucky enough to be located close to one of these large world markets, but the most are not. The goal of any regional integration process should thus be to increase the share of global markets through a sound export-led growth policy. Indeed, the success factor of regional integration agreements is "open regionalism," setting low external tariffs and suppressing all the internal ones.[1] This should be the key difference from the first wave of regionalism initiated in the 1970s to protect regional markets engaged in the inward-looking import-substitution industrialization policies. But in thinking global, do not lose sight of the incredible regional trade potential in these regions. For instance, staple foods are most of the time available at low cost and of good quality just across border. This is why regional trade agreements should aim to eliminate internal tariff and non-tariff barriers, facilitate trade and transport, and provide the necessary regional public goods that can help to scale up the regional supply capacity.

Start small. A sound regional integration policy does not require a full integration package at once, or involved a whole continent at once. The Latin American and Sub-Saharan integration experiences in the 1970s show that very comprehensive agreements involving a large number of countries are initially very likely to remain "paper agreements."[2] The EU started with the European Coal and Steel Council pooling resources of the members in a common market between Belgium, France, Germany, Italy and Netherlands first. NAFTA started with a free trade agreement on automobiles between the US and Canada first.[3] East Asia regionalization process started with Japan exporting plants, equipment, technology, construction materials, and machine parts to China in return for coal and crude oil in the 1970s. Because regional integration implies coordinated policy actions by many countries, the larger the number of participants, the more complex is the coordination, and the most likely is the failure of coordination. Specific agreements based on countries' interest can build variable-geometry regional integration where countries deepen their cooperation at their own speed. Such cooperation initiatives in trade and or non-trade issues can slowly build a stronger neighborhood. But this is not incompatible with undertaking specific continent-wide initiatives if daunting fixed costs make this approach the only cost efficient one, as with launching a satellite.

Compensate the least fortunate. Regional integration of different countries is likely to produce winners and losers.[4] For instance, Coulibaly (2006) shows that if two countries with different

[1] World Bank (2005a); UNCTAD (2007).

[2] Also in the 1970's SSA was made up of vast countries, mostly rural with a few isolated, densely populated areas (mostly on the coast) and no interconnecting infrastructure, hardly conducive to regional integration. ECOWAS/OECD (2005).

[3] The current WTO rules impose that regional trade agreements should cover substantially all sectors, which excludes sector-specific trade deals for today developing countries. But the principle of starting with very focused areas of cooperation is still valid.

[4] Venables (2003) shows that regional integration between low income countries tends to lead to income divergence between the least developed and the relatively more advanced member countries. Goyal and

levels of domestic infrastructure integrate, the country with the better infrastructure will attract more industrial activities, and this uneven spread of economic activities will increase as the regional integration deepens. So, to build a sustainable neighborhood encompassing different countries, there must be a compensation mechanism to ensure equitable sharing of the gains from the regional integration initiative. In the EU the rich members subsidize the poorer ones' infrastructure development. In NAFTA, the US government favored the politically risky relocation of American firms in the Mexican's Maquiladoras. In Northeast Asia where regional integration has been led by markets, the Japanese industrial sector ended up spilling over neighboring countries to take advantage of location-specific cost advantage. Do developing-world regions have such leverage?

The straightforward approach would be to establish customs unions pooling Customs duties and redistributing them according to each member development need, but this is too much a deep integration for countries literally fighting to survive on very tight government revenues. The West African Economic and Monetary Union, which adopted a common external tariff on January 1, 2000, introduced a one percent levy on all third-party imports to build a compensation fund. By September 2006 compensation of $500 million (of which Côte d'Ivoire and Senegal contributed up to 60 percent) was paid (with Côte d'Ivoire and Senegal receiving only 12 percent of the funds). This may not be the most attractive incentive, but it is certainly one of the ways to go. Such initiatives could be strengthened with the involvement of a developed country as an external partner willing to subsidize the integration process. The Economic Partnership Agreements currently under negotiation between the EU and ACP countries is intended for such North-South-South interaction. It remains to see how effectively both the EU and its developing partners will engage in this development-oriented trade cooperation.

Aid with conditionality can also be an instrument to enforce cooperation between different countries. The World Bank European reconstruction loans were the first external supports to Europe after World War II, preparing the way for the Marshall Plan. This support from the international community helped launch the European integration led by France and Germany through the European Coal and Steel Council. The East Asian economic renaissance is acknowledged to have been led by the emergence of China to complement Japan's economic leadership in the region. Donors can use aid to help developing countries with the potential to grow and spill over their neighborhood. Such special aid program could favor the emergence or the expansion of regional champions through targeted investments to unleash their economic potential and improve their connections to world markets, with conditionality: regional champions would be encouraged to take the lead in goods and factors markets integration in their neighborhood. This can be done by redesigning Aid for Trade initiatives such as AGOA and EBA to simplify their rules of origin and increase the timeframes of their applicability to include the countries close to the global competitiveness threshold as depicted in Figure 2.[5]

5 Conclusion

This paper proposes a genuine look at the regional vs. global trade debate, by looking at the correlation between countries regional import of intermediate goods and their exports. It uses

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Staal (2004) show that small countries are more in favor of integration while large countries prefer integrating with countries of equal size.

[5] See Collier and Venables (2007), Cadot and De Melo (2007), and Hoekman and Njinkeu (2007) for further discussion on rules of origin issues.

COMTRADE data to unveil the underlining relation between these two trade flows, and estimates an extended-gravity model in a granger-causality type of analysis. Various specifications of the model lead to same results: previous import of intermediate goods significantly and positively affect current exports. For Sub-Saharan Africa particularly, the relation appears to be non-linear: beyond a threshold value of regional import of intermediate goods, the complementarity between regional and global trade is amplified. This suggests that policy interventions to increase regional trade can also improve the global competitiveness of developing countries, calling for a two-pronged policy action: a regional integration policy to scale up countries supply capacity, and a global integration policy to scale up the demand they face.

Sourcing intermediate goods efficiently is essential for a country's production capacity. Countries located in a neighborhood providing a wide range of intermediate goods cheaply available can take advantage of scale economies to reduce their production costs and improve their global competitiveness. Many empirical works have documented the sharp increase in intra-industry trade and particularly trade in intermediate goods within developed neighborhoods such as the EU, North America and Northeast Asia. This paper shows that the same process is underway in developing neighborhoods, although the non-linearity of the process does not allow many of them to fully take advantage of this driver of global competitiveness. This calls for coordinated policy interventions in these neighborhoods to jumpstart and exploit the complementarity between regional and global trade in at least some countries close to the threshold of global competitiveness.

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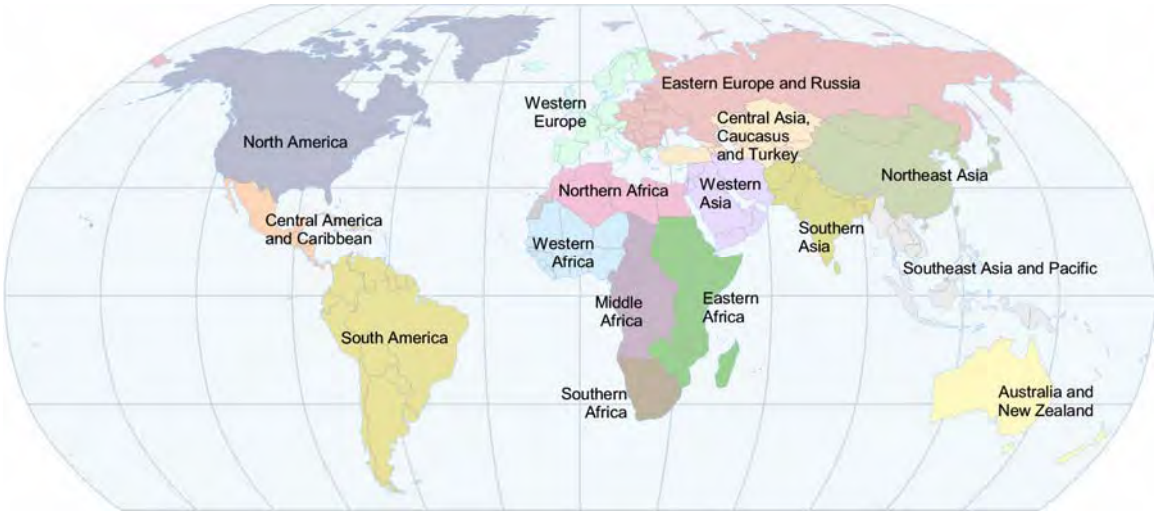
Appendix 1: Map representing world neighborhoods of countries



Source: WDR (2009)

Appendix 2: Estimations using the Broad Economic Categories of the WTO

Dep var:	Capital goods		Intermediate goods		Consumer goods		Raw materials	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln(export)	GLS	GLS-IV	GLS	GLS-IV	GLS	GLS-IV	GLS	GLS-IV
Ln(RMI_t-1)	0.05[a]	-0.05[a]	0.07[a]	-0.02	-0.01	-0.03[b]	-0.02	-0.25[a]
	(2.98)	(-2.82)	(4.20)	(-1.18)	(-0.77)	(-2.02)	(-1.26)	(-10.74)
Ln(dist)	-1.30[a]	-1.31[a]	-1.38[a]	-1.39[a]	-1.54[a]	-1.54[a]	-1.06[a]	-1.10[a]
	(-50.47)	(-50.47)	(-49.76)	(-50.20)	(-59.30)	(-58.58)	(-32.46)	(-33.36)
Ln(gdpi)	0.93[a]	1.00[a]	0.65[a]	0.71[a]	0.73[a]	0.74[a]	0.47[a]	0.68[a]
	(29.48)	(34.37)	(19.48)	(23.22)	(22.85)	(26.33)	(12.73)	(18.61)
Ln(gdpj)	0.65[a]	0.65[a]	0.70[a]	0.71[a]	0.70[a]	0.70	0.85[a]	0.85[a]
	(34.02)	(37.47)	(32.31)	(37.78)	(34.79)	(39.98)	(33.21)	(37.86)
Ln(popi)	-0.35[a]	-0.38[a]	0.13[a]	0.11[a]	0.08[a]	0.08[a]	0.38[a]	0.31[a]
	(-15.97)	(-18.70)	(5.93)	(5.16)	(3.73)	(4.01)	(13.89)	(12.04)
Ln(popj)	0.05[a]	0.05[b]	0.13[a]	0.13[a]	-0.08[a]	-0.09[a]	-0.04	-0.05[c]
	(2.08)	(2.18)	(5.01)	(5.76)	(-3.43)	(-4.01)	(-1.31)	(-1.71)
Ln(TC)	-0.70[a]	-0.66[a]	-0.76[a]	-0.73[a]	-0.81[a]	-0.80[a]	-0.94[a]	-0.86[a]
	(-8.33)	(-8.29)	(-7.96)	(-8.58)	(-9.02)	(-10.06)	(-8.02)	(-8.32)
Ln(SE)	0.82[a]	0.91[a]	0.39[a]	0.47[a]	0.58[a]	0.61[a]	-0.13[a]	0.005
	(26.71)	(33.66)	(13.08)	(17.13)	(19.24)	(25.28)	(-3.86)	(0.16)
Ln(FM)	0.21[a]	0.21[a]	0.20[a]	0.20[a]	0.20[a]	0.20[a]	0.26[a]	0.26[a]
	(21.88)	(24.90)	(19.44)	(21.78)	(19.96)	(22.45)	(20.27)	(22.90)
Const.	-23.88[a]	-24.90[a]	-21.72[a]	-22.59[a]	-18.57[a]	-18.69[a]	-18.97[a]	-21.44[a]
	(-35.52)	(-38.98)	(-29.71)	(-33.55)	(-26.47)	(-29.55)	(-21.85)	(-26.22)
Obs.	33,020	33,020	33,060	33,060	35,344	35,344	28,876	28,876
P-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R2	0.71	0.71	0.63	0.63	0.67	0.67	0.51	0.51

Note: [a] estimated coefficient significant at the 1 percent level; [b] significant at the 5 percent level; [c] significant at the 10 percent level. T-statistics are in parenthesis.