How Does Trade Cause Growth?

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Abstract

There has been a large literature emphasizing the role of international trade in fostering economic growth. This paper goes one step further and explores how international trade can affect output growth. In particular, international trade can lead to higher growth to the extent that it translates into greater factor accumulation or productivity increases, especially those associated with technology diffusion and knowledge spillovers. We empirically analyze the different channels of growth, considering the trade relations between a country and its main trading partner and to "world growth poles." Our findings suggest that two characteristics of trading relations are particularly important: which industries are involved and how traded products are produced. A positive spillover effect on economic growth is observed the larger the trade in similar industries, the greater the extent of upstreamness in exports (suggesting insertion in global value chains), and the higher the human-capital intensity embedded in the traded goods. Importantly, the type of products traded, e.g. whether commodities or high-tech goods, does not seem to matter in explaining what lies behind the trade-growth nexus. A decomposition of growth suggests that these factors work mostly through their effects on productivity (TFP) rather than on factor accumulation. Lastly, we provide strong evidence on the importance for economic growth of having trade linkages to one of the major "world growth poles", and particularly when the pole is a developed country.

JEL Classification Codes: F15, F43, O40

Keywords: international trade, economic growth, aggregate productivity, growth pole, value chain

"No nation was ever ruined by trade"
Benjamin Franklin

1. Introduction

Over the past century, the vast majority of developing countries did not show any convergence towards the standard of living of high-income countries. The East Asian Tigers (namely Hong Kong, Singapore, South Korea, and Taiwan) however are some of the few exceptions to this trend. They have escaped the "Middle Income Trap" and have been converging towards high-income levels at a rapid pace since the 1970s. The "growth miracle" in these countries was based on a combination of accumulation of factors and technological progress—high investment rates supported by high domestic savings interacted with high levels of human capital accumulation in a stable, market-oriented environment that was conducive to the transfer of technology and thus productivity growth (Stiglitz and Yusuf, 2001; World Bank, 2003).

Perhaps less well-known is the fact that the Tigers' "growth miracle" was not independent of the strong connections they forged with Japan and among themselves. Japan was a nearby fast-growing neighbor with impressive technological progress in the postwar era that acted as a major growth pole, fostering growth in the East Asian economies for a long period of time. As shown in Figure 1 Panel A, at the height of the growth spur of the East Asian countries, Japan was indeed one of their main trading partners, for instance representing more than 20 percent of trading for South Korea.[1] Also suggestive of the active role of Japan as a growth pole, i.e. source country for growth, its output comovement with those of the Tigers had been particularly high during most of the 1980s (Figure 1, Panel B). Many observers have in fact described how the Tigers "*learned-by-doing"* from their commercial relation with Japan: trading of similar goods while at the same time integrating into their process of production.

Is the Japan-East Asian Tigers experience an idiosyncratic episode or is a connection to a growth pole key in systematically triggering positive spillovers that may lead to higher growth rates? A very large literature has actively discussed the role of trade in fostering economic development. For instance, Frankel and Romer (1999) showed with data for 1985 that differences in the value of bilateral trade across countries

[1] The simple average of bilateral trade of Indonesia, Thailand, Korea, Malaysia, Philippines, Taiwan, Singapore and Hong Kong was 21.1% in 1990.

were positively correlated with the levels of GDP per capita. Irwin and Tervio (2002) confirm those results when including zero-trade data for a sample covering the period between 1913 and 1990. While those authors have included a geographically-related instrument for trade, some papers later on derived a more proper specification of the gravity equation as they put in evidence an important set of omitted variables, namely the different institutional arrangements across countries. Taking into account these differences in institutions across countries in the gravity equation lead to the lack of statistical significance of the coefficient of trade on growth, as in for instance Acemoglu et al. (2001) and Rodrik et al. (2004). However the debate has not settled with these papers, a number of papers keep pondering on the question of whether trade causes growth. For example, Alcalá and Ciccione (2002) examined variables in PPP terms, rather than in nominal terms, and while still using a gravity equation for trade and institutions, they found positive effects of these two variables on productivity. Dollar and Kraay (2002) argues that both trade and institutions are important in the very long run, but there is relatively larger role for trade over shorter horizons. Brückner and Lederman (2012) provide evidence that trade causes growth for Sub-Saharan countries using a different set of instruments (volume of rainfall). Noguer and Siscart (2005) argue that geographical controls must enter in the trade-growth equation to avoid estimation biases, and re-estimate the fundamental equation with a greater number of countries. They find that international trade does indeed promote growth.

The way in which trade effectively induces growth however remains largely under-tested in the literature, particularly in a global context. Perhaps the mixed evidence with respect to the trade-growth nexus is a reflection of the different nature of the trade relation across countries. International trade can be beneficial for a country's economic development to the extent that it translates into greater factor accumulation or productivity increases, especially those associated with technology diffusion and knowledge spillovers. A direct mechanism of spillovers from one country to another is export demand, the simple absorption of exports from given country fosters the expansion of its exporting industries. Another direct mechanism of spillovers is through the technology embodied in the goods (both in physical and human capital) that are exchanged between countries. Nevertheless, the indirect channels can impact economies in a more significant way to the extent that it disseminates knowledge. Through the trade channel, imports may

contain intermediate goods and technologies unavailable to the recipient country. The greater the quantity of these imports, the greater will potentially be the spillovers from trade. Exporters might also receive feedback from importing nations (Blundell, Griffith and Reenen, 1995). Through FDI flows, technologies and knowledge more broadly can be diffused from foreign parents to subsidiaries (directly or indirectly through intermediate inputs), which may in turn spill to other firms in the host country through labor turnover for instance (Aizenman and Sushko, 2011). Lastly, labor mobility, not only migration but also short-term business travel, can promote knowledge spillovers by facilitating the diffusion of tacit technological knowledge (Oettl and Agrawal, 2008).

Hence, in light of these spillover channels, the hypothesis of this paper is that some forms of trade relations are more beneficial to long-term growth than others. In other words, this paper analyzes the nature of trade relations and its effects on economic development. In particular, we focus on the industry composition underlying the goods traded ("the industry channel"), the process of production of these goods, and the type of products traded. To study the "industry channel", we focus on the degree of intra-industry trade (IIT) between countries--various papers highlight that IIT is a good proxy for technological diffusion and knowledge spillovers (Helpman and Krugman, 1989; Bernstein and Nadiri, 1988; Melitz, 2003; Bitzer and Geishecker, 2005; and Badinger and Egger, 2010). Actually, the reallocation of firms towards more intra-industry contributes to an increase in aggregate industry productivity. Another important aspect of the industry channel explored here is the upstreamness embedded in goods traded from different industries as a proxy for a country's position in global production chains as for example in Antrás et al. (2012). UNCTAD's 2011 World Investment Report emphasizes that in addition to being an important driver of trade flows around the world, global value chains bring not only direct benefits (employment generation, direct local value added, and export generation), but most importantly, indirect ones. They can act as catalysts for not only technology and knowledge enhancement but also capacity-building and economic development more widely, thus leading to virtuous cycles. Insertion into global value chains can thus affect the extent to which trade fosters economic growth.

On the process of production channel, local producers can learn a great deal from the international trade integration. Global buyers can induce how to improve production processes, attain consistency and high quality, and increase the speed of the reaction to shocks (Keesing and lall, 1992; Piore and Ruiz Durán, 1998; Schmidtz and Knorringa, 2000). Hausmann et al. (2007) and Helpman (2008) argue that economies grow when their firms or industries move into higher-value-added products through a process of discovering new economic activities in which they can profitably engage. We examine whether some processes of production are more prone to positive spillover effects than others--e.g. those relying on skilled labor versus those relying on unskilled labor.

However, Hausmann et al. (2007) and Helpman (2008) defend that the technology, capital, institutions, and skills needed to make these upgraded products are more easily adapted in some industries than in others. Which brings to our last channel, the type of products traded. These authors, along with many others, have argued that commodity production for instance is inherently associated with fewer positive "spillover" effects to the extent that it creates less potential than other industries for developing linkages or upgrading to more differentiated, higher-quality, higher-value products. Consistently, greater tech-content of imports has been associated with positive effects on economic development (Grossman and Helpman, 1991; Eaton and Kortum, 2002; Rivera-Batiz and Romer, 1991). In this paper, we analyze whether the type of products traded plays any role in the way trade can lead to economic growth.

In the context where the composition of industries, the processes of production, and the types of goods traded play an important role in the extent to which trade fosters economic growth, we also explore whether different trading partners affect the trade-growth nexus. In fact, the successful experience of the connection between the East Asian Tigers and Japan gives rise to an interesting hypothesis: whether trade relations between a country and its main trading partner has similar effects to that of a country and a "world growth pole." The term "growth pole" should be understood in this text as a country (and its industries) that is able to foster growth in other periphery countries through trade - rich linkages, multipliers, and spillover effects are the key elements according to Adams-Kane and Lim (2011). Arora and Vamvakidis (2004) shows in a panel estimation that trading partners' growth and relative income level have a strong effect on domestic

growth. We look for refining this result by showing that "world growth pole" has a particular effect on growth than any main trade partner.

Our findings highlight that the nature of trade plays a key role in explaining the trade-growth nexus, thus going one step further than the traditional estimates of trade and growth. We provide some evidence that the industries involved in bilateral trade relations have a substantial impact on growth. The more a country exchange goods in the same industry with his commercial partners, the greater the impact on income levels. This effect is further enhanced when such a relation takes place between the country and a world growth pole. In addition, we also find that countries that export goods with a greater upstreamness potential typically have greater income levels. Once more, this effect particularly important for the goods traded between a country and world growth pole. Not only the industry channel, but also the process of production, though not the types of goods per se, matter for overall economic development. Our findings suggest that exports of goods that use skilled labor (hence, are intensive in human-capital) in their production process are the prone to lead to positive growth spillovers than goods using unskilled labor. Moreover, there is strong evidence that the effects of the nature of trade on income works mostly through total factor productivity (TFP) rather than through the accumulation of physical or human capital. Lastly, we

The rest of the paper is organized as follows. Section 2 explains the methodology followed while Section 3 describes the data used. Section 4 discusses the results. Finally, Section 5 concludes and draws some policy implications.

2. Methodology

To analyze the effects of the nature of trade on growth, we consider an extended version of the specification of Frankel and Romer (1999) by incorporating new developments in the literature. In particular, given our focus on the effects of trade on growth, we add as a control variable the different institutional arrangements across countries. We also take into account the size of the country by controlling for the size of the working population and a country's area. Equation 1 shows the estimated equation:

$$ln\left(\frac{Y_i}{N_i}\right) = \alpha_0 + \alpha_1 Trade_i + \alpha_2 ln(Pop_i) + \alpha_3 ln(Area_i) + \alpha_4 Institutions_i + u_i \qquad (1)$$

where $\left(\frac{Y_i}{N_i}\right)$ stands for GDP divided by the active population, $Trade_i$ is the share of trade over GDP, Pop_i captures the scale of production using the working population, $Area_i$ refers to the land area in square miles, and $Institutions_i$ stands for the institutional quality. The variation of income not captured by our variables is thus summarized in u_i.

This income equation cannot be estimated consistently through ordinary least-squares because trade is endogenous to income. We therefore rely on a two-stage least-squares estimation and we create a instrument for trade based on geographical components. As Frankel and Romer (1999), we estimate:

$$\begin{aligned}\tau_{ij} \equiv \ln\left(\frac{t_{ij}}{Y_i}\right) = {} & \alpha_0 + \alpha_0 \ln(distance_{ij}) + \alpha_0 \ln(pop_i) + \alpha_0 \ln(pop_{ij}) + \alpha_0 \ln(area_i) \\ & + \alpha_0 \ln(area_j) + \alpha_0 landlock_{ij} + \alpha_0 border_{ij} + \alpha_0 border_{ij} * \ln(distance_{ij}) \\ & + \alpha_0 border_{ij} * \ln(population_i) + \alpha_0 border_{ij} * \ln(population_j) \\ & + \alpha_0 border_{ij} * \alpha_0 \ln(area_i) + \alpha_0 border_{ij} * \ln(area_j) + \alpha_0 border_{ij} \\ & * \text{landlock}_{ij}\end{aligned} \qquad (2)$$

This equation states that the value of bilateral trade between country *i* and *j* (denoted t_{ij}) over the GDP of country *i* is function of the distance between the two countries, their populations, their area, whether they have a common border or not, whether one or both are landlocked and of multiple interactions of those variables wither the border variable. The second step of this approach aggregates bilateral trade shares predicted by the gravity equation estimated in the first stage to obtain a geography-based instrument for trade.

$$\widehat{T}_i = \sum_{i \neq j} \exp(\hat{\tau}_{ij}) \qquad (3)$$

Given our focus on the nature of trade in affecting income, we control for institutions through the fraction of population speaking one of the five main European languages (namely English, French, German, Portuguese, and Spanish), as in Noguer and Siscart (2005).

To overcome the endogeneity problem of trade and income, while at the same time including a control for institution, we estimate the following Equation:

$$ln\left(\frac{Y_i}{N_i}\right) = b_0 + b_1\widehat{T_i} + b_2\, ln(Pop_i) + b_3\, ln(Area_i) + b_4 EuropeanLanguages + b_5 Share\ of\ Trade_{ij} + b_6 \ln(nature\ of\ trade) + u_i \quad (4)$$

In addition to the independent variables described above, we also include in our specification variables on the nature of trade. As explained in more details below, they aim to capture three main channels through which trade can cause growth: the industry channel, the process of production channel, and the type of products traded channel. These channels deal mainly with the characteristics of trade, we also control by the Share of Trade with the partner considered.

Finally, to understand how the economic activity is affected by the nature of trade, we decompose GDP per worker into its components. We follow the literature and assume a Cobb-Douglas production function, which is given by Equation 2:

$$Y_i = K_i^{\alpha}[e^{h_i} A_i N_i]^{1-\alpha} \quad (5)$$

where K_i and N_i are physical capital and labor, h_i is a function of the average years of schooling and A_i is a productivity term. We can re-write Equation 2 to express the log of output per worker as the contribution its three components: physical capital (or capital intensity measured through *k/y*), human capital, and TFP, as shown in Equation 3:

$$ln\left(\frac{Y_i}{N_i}\right) = \frac{\alpha}{1-\alpha} ln\left(\frac{K_i}{Y_i}\right) + h_i + ln(A_i) \quad (6)$$

We then re-estimate Equation (1) using as dependent variables these three components behind a country's income per capita to shed light on how the nature of trade impacts economic development.

3. Data

One of the major novelties of our gravity model is the use data from 2000 to 2007, whereas most of the literature has focused on past data, mostly from the 1980s and in few instances from the 1990s. To measure the openness at country level, we use bilateral trade at the aggregate level for each country-pair from the International Monetary Fund's Direction of trade Statistics. Following Irwin and Terviö (2002), we added zero-trade values between the two countries in each country-pair that did not report trade statistics. Indeed, no trade between two countries is an important piece of information to understand the factors behind countries choice of their commercial partners. Our results however are robust to the exclusion of these zero-trade observations.

From the Penn World Tables, Mark 7.0, we obtain data on GDP in US$ and workforce.[2] Country's area is taken from the World Development Indicators and is measured as the surface area in thousand square miles. From Rose (2004), we obtained data on distance, landlocked countries, and common borders, variables that we assumed constant and unchanged since 1999 for our sample of the 2000s.[3] Our main proxy for institutional quality is constructed using indicators from Kaufmann, Kraay, and Zoido-Lobatón (1999). As in Alcalá and Ciccione (2004), we averaged the three indicators closer to the government anti-diversion policy (GADP) index used by Hall and Jones (1999): government effectiveness, rule of law, and graft.

To construct detailed indicators of how countries trade, we used trade statistics disaggregated at industry level from the World International Trade Statistics (WITS) of the *United Nations*. An important aspect of our work resides in examining whether trading with a world growth pole is quantitatively similar to trading with any other country (captured by countries' main trading partner). To this aim, we separate our industry-level indicators in "overall", that is, it captures a characteristic of trading relations between a country and all its trading partners, and "with partner" which alternatively captures the nature of trading relations between a country and its most important (in terms of volume of trade) world growth pole.

[2] Workforce is obtained by dividing PPP GDP per capita by PPP GDP per worker and multiplying the result by population.
[3] The variable capturing landlocked countries takes the value of 0, 1, or 2 for each country-pair.

To calculate the intra-industry trade index, we used data classified according to the SITC Rev.1 at the 2-digit level. The details of the basic index are given in Grubel and Lloyd (1975).[4] We simply adapted it to the bilateral trade data. An index value of 0 represents a pure inter-industry trade, whereas an index value of 1 indicates a pure intra-industry trade.

Another important variable to understand the importance of the industry structure in a country's welfare is the distance from final use of their exports, or what we have been referring to the upstreamness potential embedded in a country's exports. Such upstreamness measure is a proxy for a country's position in global production chains as for example argued in Antrás et al. (2012). We used data disaggregated the 3-digit level from SITC Rev. 3. The index takes values that range from 1 (final use output such as car and footwear) to 4.65 (processing of raw materials, petrochemical).

We also study the influence of the process of production on growth. We used the classification of Hinloopen and Van Marrewijk (2008) on factor intensity to determine which products are human-capital intensive (as cutlery and watches). The data is extracted from SITC Rev. 3 at the 3-digit level.

Finally, we also examine whether the types of products traded have an influence on the overall level of economic development. To deal with the notion of exports of commodities, we used the classification of Lall (2000) that we adapted to SITC Rev. 1 data at the 3-digit level. Our classification considers 45 industries as commodity-industries. With respect to the high-technology product as for instance aircraft or antibiotics, the classification is taken from Eurostat for SITC Rev. 3 at 3-digit level.

In addition to exploring whether the nature of international trade can have an effect on economic development, we examine whether trading with a world growth pole plays a particularly important role. Few countries can be considered as world growth poles. We follow Adams-Kane and Lim (2011) in this regard. The relevant growth poles over "the broad course of the history" have been the United States, China, and

[4] We used the IIT index adjusted by trade imbalances. For a country *j*, $GL_i = \frac{\sum(X_i+M_i)-\sum|X_i-M_i|}{\sum(X_i+M_i)-|\sum X_i-\sum M_i|}$, with i the industry at level 2-digit, X_i the exports of country *j* of product *i* to its trade partners and M_i the imports of country *j* of product *i* from its trade partners.

Western Europe[5]. This choice is supported by the fact that over our period of study (2000-2007), those countries represented 48% of the world GDP and 36.8% of total bilateral exchanges.

Lastly, the methodology implemented to decompose the level of income per capita, and thus total factor productivity (TFP), follows Easterly and Levine (2001), Daude and Fernández-Arias (2010), and Daude (2011), while considering some methodological insights from Hall and Jones (1999) and Klenow and Rodríguez-Clare (1997). Equation 3 displays the functional form used to decompose GDP per capita into its three components. First, we assume that the production function parameter α is the same across countries, and equal to 0.3. Second, the capital series are constructed using the Penn World Tables 7.0. In particular, following Easterly and Levine (2001), we use the perpetual inventory method to construct the capital stock. That is, we use:

$$K_t^i = (1-\delta)K_{t-1}^i + I_t^i \tag{4}$$

where K_t^i is the stock of capital in period t for a country *i*, I_t^i is investment in period t for a country *i*, and δ is the depreciation rate, assumed to be 0.07 for all countries. From Equation 4, and assuming *steady state* conditions, the initial capital to GDP ratio is computed as:[6]

$$\frac{K_0^i}{Y_0^i} = \frac{i_0^i}{g+\delta} \tag{5}$$

where i_0^i is the average investment-output ratio for the first ten years of the sample for country *i* and *g* is the weighted average between world growth (weight of 0.75) of 4.23% and the average growth of the country (weight of 0.25) for the first ten years of the sample.[7] Then, to obtain the initial capital stock K_0^i we multiply Equation 5 by the average output of the first three years of the sample.

And lastly, for human capital, we follow Daude and Fernández-Arias (2010) coupled with the standard approach of Hall and Jones (1999). We construct the human capital index *h* as a function of the average years of schooling given by:

[5] We proxy *Western Europe* by Germany, France, and United Kingdom.
[6] We are assuming that the initial capital-to-GDP ratio is the steady state one. Daude and Fernández-Arias (2010) present some robustness checks showing that from 1970s onwards TFP measures are not very sensitive to initial conditions and assumptions.
[7] For all the countries in our sample, we use 1970 as the starting point in order to avoid differences coming from the sample size.

$$h_t^i = \exp(\varphi(s)) \quad (6)$$

where the function $\varphi(s)$ is such that $\varphi(0) = 0$ and $\varphi'(s)$ is the Mincerian return on education. We approximate this function with a piece-wise linear function. Based on Psacharopoulos (1994), we assume the following rates of return for all the countries: 13.4 per cent for the first four years of schooling, 10.1 per cent for the next four years, and 6.8 percent for education beyond the eight year. For each country in our sample, we use the Barro-Lee (2010) data on the average years of schooling for the population older than 15 years.

Finally, following Mankiw, Romer, and Weil(1992) and Alcalá and Ciccione (2004), we dropped countries for which the ratio of thousands of barrels of oil produced per day to GDP exceeded 200,000 in 1985. Consistent with the criteria in Alcalá and Ciccione (2004), the major oil producers in our sample are Angola, Gabon, Congo, Iraq, Oman, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates.

4. Main Results

4.1 The basic empirical model

As described in Section 2, we adopt an instrumental variable approach to deal with the endogeneity of trade and income. First, we construct a geography-based instrument for trade. We construct this instrument estimating the gravity model described in equation 2 and regress the bilateral degree of openness (captured by exports plus imports) on variables such as distance, population, and area.

Table 1 reports estimates of the first stage equation. While consistent with the findings in the literature, we find evidence suggesting significant changes on the relationship of openness with geographical variables in recent years. For comparison purposes we report in the first column the results from Frankel and Romer (1999), while the second column shows the results of Noguer and Siscart (2005), both from 1985 and without zero-trade data included. To show the consistency of our results with those found in the existing literature, we report in the third column our own estimation of equation 2. Our estimates show similar patterns to those in columns (1) and (2).[8] We construct an instrument for trade in the 2000s by estimating equation 2 for every year in our sample. The fourth column shows our estimation for 2005 as an example,

[8] The differences in the results are due to an increase number of observations for 1985 made possible with the actualization of the *Penn World Tables*, Mark 7.0.

though the estimations are qualitatively similar for the other years in our sample. The more recent period study and the inclusion of zero-trade data as in Irwin and Terviö (2002) modify slightly the results respect to 1985.[9] Column (4) presents our bilateral equation for 2005[10]. The effects are generally higher than in the benchmark results. Distance seems to play a stronger negative role in 2005 than in 1985, in line with the results of Brun, Carrère, Guillaumont and de Melo (2005). Population of the trading partner plays greater role when zero-trade values are included.

[Insert table 1]

From the bilateral equation, we retrieve fitted values for bilateral trade, aggregated at the country level, to obtain a geographic-based instrument for trade, as shown in equation 3. We then estimate the second stage of the 2SLS approach by estimating a between effects panel regression over the entire sample period.

4.2 The Nature of Trade and Its Effects on Output

In this section, we provide evidence that not only the volume of trade is important, but also its nature. By nature of trade, we refer to the industries involved in the exchange of goods (the "industry" channel), the process of production of the traded goods (the "process of production" channel), and the types of products traded (the "type of products" channel).

Table 2 gives the benchmark of our work, showing the regression of equation 4 without any variables on the nature of trade. Column (1) gives the results when the share of trade with the main partner is integrated in the regression whereas column (2) integrates the share of trade with the main world growth. The coefficient of trade is similar in both columns; an increase of one percentage point in trade openness would lead to an increase of 3 percent of the GDP per capita for an average country. We introduce the log of population and the log of area in our estimates as Irwin and Tervio (2002). The share of trade is the only *partner-specific* variable of this regression. We note that the more important the main partner is over the total

[9] Frankel and Romer (1999) dropped zero-trade data information. Irwin and Tervio (2002) show values of trade of zero are an important piece of information that should not be dropped from the regression estimations. We follow the authors and add to all the value of bilateral trade one dollar that is insignificant for the value when trade really and that permit us to introduce a very small value of trade that we could approximate to zero.
[10] Our sample that extends from 2000 to 2007.

trade of a country, the worse it is for its GDP per capita. The diversity of trading partners seems to be positively correlated to the growth of the outcome per capita. Nevertheless, when we consider the share of trade with the main world growth pole, diversity is not statistically significant. This result suggests that diversifying the partners is positive whereas in the case of the partner is a world growth pole. Finally, the institution control is strongly significant in each regression.

[Insert table 2]

To examine the "industry channel", we focus on two indexes. First, we analyze the degree of intra-industry trade between countries. Second, we evaluate the upstreamness embedded in goods traded from different industries as a proxy for a country's position in global production chains.

Table 3 presents the results for the IIT index. Results in table 3 are extensions of the benchmark model presented in column 1 of Table 2. We add the IIT index for country against all its partners (called "IIT – Overall"). The index evaluates at which level a country exports and imports in the same industry: an index value of 0 represents a pure inter-industry trade, while an index value of 1 indicates a pure intra-industry trade. The index is calculated with a disaggregation of the data at 2-digit level that permits a consistent definition of the IIT in order to interpret the index as a way of learning for a country. For instance, coffee, tea and cocoa are considered in the same industry. The first column of table 3 shows a strong coefficient highly significant on the GDP per capita. A marginal increase of the overall IIT, i.e. a global movement to more intra-industry for a country, contributes to an average increase of 3.1 percent of the GDP per capita. The effect is well-known in the literature.

One of the goals of this paper is to demonstrate that a privileged relation with a world growth pole is central. In order to stand out the influence of the Pole, we take as benchmark the relation of the country with its main commercial partner, defined very simply as the partner country with which the imports and exports are the most important. The IIT index is then recalculated between the country and its main partner. This index is called "IIT – with partner" and the results are reported in Column (2). The magnitude of the effect on the GDP per capita is similar as the IIT overall. Interestingly, the third column shows that when both IIT

overall and IIT with the main partner are regressed simultaneously, only the coefficient associated to the later is statistically significant. This is a first step to understand the importance of the IIT in a bilateral relation.

The results from the second panel of results titled "World Growth Pole" are presented in columns (4) to (6) and change only the bilateral variable to the world growth pole from main commercial partner. We define the world growth pole of each country by the maximum bilateral trade between the country and one of the three following poles: the USA, China or Western Europe. Annex 1 shows for each country, the main partner and the main world growth pole considered for 2005[11]. There are some countries for which the two partners are the same. For instance, Mexico's main partner and main world growth pole are the United States of America. But this is not always the case. For example, the main partner of Afghanistan is Pakistan which is not as a world growth pole. As a consequence, the United States of America is the main world growth pole for Afghanistan. Column (4) is similar to Column (1) respect to the IIT index overall, as only the variable *Share of Trade* differs between both regressions. The fifth column presents the results of the estimates of the coefficient of IIT with the partner, which is in this case the main growth pole. The coefficient associated is very high and imply that a marginal increase of the intra-industry trade with the pole would raise in average the GDP per capita of 3.8 percent. This result is statistically significant at one percent. Finally, Column (6) shows the interaction of the IIT overall and of the IIT with the main world growth pole. Only the coefficient of IIT associated with the main world growth pole is statistically significant and not *IIT Overall*.

We find evidence that having a high coefficient of IIT with a partner (being the Main Partner or the Growth Pole) is always better for growth than having a high intra-industry trade in overall (which is in turn better than not having intra-industry trade with anybody!). Nevertheless, an interesting fact is that the effect of IIT with the world growth pole is higher than the effect of IIT with the main partner, suggesting that trading in the same industry as a pole is more prone to generate output than any other trade relation. Column (5) shows a coefficient of IIT with pole much stronger than the IIT with main partner (Column 2). A marginal increase of the IIT with the pole contributes to an average increase nearly 30 percent superior than a marginal increase of the IIT with the main partner. Column (6) induces that the IIT with the Pole is more

[11] The selection of the main partner and of the main world growth pole has been realized for each year of the panel

important than the overall, and in a magnitude superior to Column (3). This result can be interpreted as a higher efficiency of the main world growth pole to transmit technology, process of production, and more generally knowledge to a specific industry of a country. By importing and exporting products of the same industry, countries learn from the most efficient firms in the firm (that are without doubts located in the USA, China and Western Europe).

[Insert table 3]

Table 4 reports the results when we consider the effective upstreamness embedded in a country's trade. Controlling for the degree of commodity in the bilateral trade, we report in the first column the level of upstreamness in the export and in the imports over all the commercial partners of the country. The upstreamness value of the value chain refers to the distance to the final good of a product, one being the final good and 4.65 the maximum value. Academic research remains in its early stages to interpret this coefficient. Antrás et al. (2012) provides the most advance equation of the index (that we are currently using) and a beginning of interpretation in the trade area. We aim to go further in the analysis. The value of the upstreamness in the value chain is far from being linear. Exporting high upstream good can be negative (if commodities are involved) or positive (if petrochemical are considered) from the point of view of learning by trading. Nevertheless, those two kinds of goods have the same high value of upstreamness. In the same way, importing high upstream good can be negative if it is from any country (as it would mean that the country is not integrated to the value chain) or positive if it is from a world growth pole (as we can believe that the very upstream product can be highly technological, as petrochemical for instance). In other words, interpreting those results should be done very carefully and should not be dissociated from our others regressions[12].

As in the previous table, we divide our analyze between the variable bilateral being with the main partner from column 1 to 3 and with the main world growth pole in Column 4 to 6. As noted earlier in the text, Column (1) and (4) remains very similar as they do not involve variables that refer to a partner more than the share of trade. We control our results by the share of commodity products in the bilateral trade. As

[12] Our results on upstreamness reflect does not solely reflect the degree to which a country in inserted in value chains through its exports of commodities. Although not reported, if we add as controls in these regressions the volume of commodity exports, our findings on the effects of upstreamness are in fact reinforced.

we analyze later, none of the coefficient associated is statistically significant, with the exception of the bilateral value of trade of commodities with the main world growth pole. The upstreamness in the value chain of exported products seems positive and weakly statistically significant whereas the upstreamness in the value chain of imported products appears negative. Being at the top of the chain value in its products exported is positive as it demonstrates a strong integration to the international production, always when it is not about commodities. At the opposite, importing very high upstream products is probably negative if we consider all the trade partners of the country[13], as we can imagine that a high share of those products are commodities. This result is in a sense confirmed in the second column. When we focus on a particular bilateral relationship between the country and its main partner, the value of upstreamness in the exports as in the imports is not anymore statistically significant. It is not in a *special* relationship that upstream products are not beneficial to growth (after all, basic products will ever be needed to all productions), the problem appears when products traded are *always* basics. Column (3) does not differ from the previous column: the overall index of upstreamness mimics the first column but no variable associated with the main partner is statistically significant.

At the contrary, the fifth column added an information respect to the value of upstreamness in the exports. The index showing the relationship with the main world growth pole is statistically significant at one percent. A marginal increase in this index would lead to an increase of 2.8 percent of the country's GDP. This value is positive and statistically significant. We can interpret this effect by inferring that high upstream products exported to a world growth pole could have the advantage of having the feedback of countries able to bring growth. Indeed, those products respond to a demand and carry in themselves a value added of being required in an international process of production. On the other hand, the upstreamness of the value chain in the imports is not statistically significant. Column (6) includes all the variables. If the variable with the main world growth pole are not anymore statistically significant, they remain with the right sign, and the overall value are still statistically significant.

[13] The coefficient associate with the upstreamness in the import is not significant in the first column, but it is in column (4). We choose to interpret the coefficient column 4 as they are closed.

To sum up, our estimations provide evidence that greater the upstreamness potential embedded in a country's exports is positively and significantly associated with high income levels, thus suggesting the positive spillover effects of being inserted into global value chains. Importantly, the effect on a bilateral basis is significant only when the trading relation concerns the country and a world growth pole.[14] The degree of upstreamness in a country's import has no statistically significant effect on the level of income per capita across countries. A probable explanation is that furnishing a world growth pole, the country will learn from its clients and will ameliorate its production.

The second channel though which trade can have an effect on growth is through the process of production. For instance, local producers can learn a great deal from the international trade integration. Global buyers can induce how to improve production processes, attain consistency and high quality, and increase the speed of the reaction to shocks. Hausmann et al. (2007) and Helpman (2008) argue that economies grow when their firms or industries move into higher-value-added products through a process of discovering new economic activities in which they can profitably engage. We examine whether some processes of production are more prone to positive spillover effects than others--e.g. those relying on skilled labor versus those relying on unskilled labor.

[Insert table 4]

Table 5 shows that producing goods with a high intensity of human-capital factors is positively associated with greater levels of income per capita. Column (1) as Column (4) show a similar regression where more skilled-labor intensive goods are traded more the consequences are positive on the output per capita. This result, even if it is smaller, remains true when the trade with only the main partner is analyzed (column 2). Nevertheless, when both products with high human-capital intensive product on the overall and with the main partner are introduced, no variables are anymore statistically significant, as shown in Column (3).

The regressions involving main world growth pole give stronger and higher results. The coefficient reported in the fifth column is 18 percent higher than the one reported in the second column: trading products for which the process of production requires high-skill labor generates 18 percent more increase of

[14] In Annex 2, we report the results of the decomposition of the upstreamness index in exports by fringes.

the GDP per capita if the trade is realized with the main world growth pole than with the main partner. Moreover, this coefficient remains statistically significant after the introduction of the overall index (column 6). The lesson that can be drawn is clear and analogous to the findings on the industry channel. The positive spillover effects of the process of production underlying in the goods traded with the main world growth pole dominates the overall effects of characteristics of the overall process of production embedded in exported goods or in goods exported to the main trading partner. A reason can be that countries, importing human-capital intensive products, can learn from them. At the same time, exporting the same kind of product, countries can use their learning from the imports or/and *learning by doing*. This process will lead those countries to increase the skill of their human capital.

[Insert table 5]

The process of production however captures a different effect than that of the type of products exported. There could be in theory differences in these way trade affect income if trade is concentrated in a particular set of goods than in others. For instance, Hausmann et al. (2007) and Helpman (2008) defend that the technology, capital, institutions, and skills needed to make these upgraded products are more easily adapted in some industries than in others. Which brings to our last channel, the **type of products traded**. These authors, along with many others, have argued that commodity production for instance is inherently associated with fewer positive "spillover" effects to the extent that it creates less potential than other industries for developing linkages or upgrading to more differentiated, higher-quality, higher-value products. Consistently, greater tech-content of imports has been associated with positive effects on economic development (Grossman and Helpman, 1991; Eaton and Kortum, 2002; Rivera-Batiz and Romer, 1991). We analyze whether the type of products traded plays any role in the way trade can lead to economic growth.

Results in Tables 6 show the results of regressions including high-technology products in the countries' trade. Column (1) and (4) show a positive coefficient of tech-product trade over all the partners. Nevertheless, the relation is not statistically significant. Results reported in column and showing the bilateral trade of tech-products with the country main partner are neither not statistically significant. Results column (3) are trickier to analyze. The results of the simultaneous introduction of the tech-product coefficients

overall and with the main partner are both statistically significant. The fifth column shows a positive coefficient not statistically significant for the high-tech exchange product with the main world growth pole. The simultaneous regression column (6) confirms that the high technological content of the goods exchanged with the main world growth pole is not important.

Results of Table 7 shows the influence of products exchanged on the other side of the chain value, i.e. of the commodity products. Column (1) and (4) shows a coefficient negative but not significant statistically. When the exchange with the main partner of commodity product is shown in the second column, no more significant can be inferred. With respect to the introduction to both coefficient overall and by main partner, the result is similar. Column (5) reports the results of the introduction of commodities' trade with the main world growth pole. Even if the coefficient is negative, it is not statistically significant. It can be weakly inferred that trading commodities with the main growth pole is worse than trading with the main partner, perhaps because it can be waited further deeper consequences of trading with a world growth pole that commodity trade cannot permit.

The results in Tables 6 and 7 show respectively that neither high-technology nor commodity products have a significant effect on income per capita. Indeed, these results suggest that it does not matter exactly which products a country trades, but rather how these products are being produced and whether learning and technology spillovers are taking place in the trade relations.

[Insert table 6 and 7]

4.3 By which element of the GDP the Poles generates Growth

Going deeper in the understanding of how trade can lead to greater economic development, we study the effect of our variables of interest on the different components of income per capita. Table 8 shows the regressions of the industry channel on the level of human capital and on TFP. [15] Table 9 presents the results of the process of production and the type of products traded.

[15] Results on the level of physical capital are not reported as no statistically significant result was found.

Table 8 shows that the IIT index plays an important role on both the accumulation of human capital and on TFP, while the upstreamness embedded in a country's exports works through its effects on TFP. [16] Two components of the GDP per capita are considered: from column (1) to (6) we use human-capital as our dependant variable, whereas columns (7) to (12) uses the TFP. As previously, the table shows the same regressions two times changing only the type of partner involved: in the first three columns of each set the term "partner" has to be understood as the main trading partner of the country, while in the last three columns it represents the main world growth pole. One difference from the last sub-section is that we pooled the results and we report all the impact of the industry channel in a single table. Also, column (1) and (4) reports the coefficient of the IIT and the upstreamness in the exports over all other trading partner on human-capital. The effect of the IIT is positive and statistically significant, whereas the effect of the upstreamness in the exports is not. Comparing the introduction of the IIT using the two types of partners give similar results; column (2) and (4) show that only the IIT influence the human-capital accumulation, but that this effect is bigger when we use the main world growth pole in comparison to the main partner. Column (3) and (6) confirm that the channel through the main world partner is stronger as only the coefficient associated with the IIT with the growth pole is significant. With respect to the upstreamness in the exports, no coefficient is statically significant on the human accumulation. Finally, with respect the upstreamness in the imports, only the overall index is statistically significant and strongly negative. This reinforces the idea that importing too many basic products doesn't have a a positive effect in the process of learning by doing.

From Column (7) to (12), we are interested in understanding the role of our variables of interest on TFP. Globally, results are stronger and more significant. From columns (7) and (10) we can infer that only the overall partner effect of IIT can influence the TFP, contrary to the overall partner effect of the upstreamness in the exports. The effect of the IIT overall partners on TFP is more than five times the effect on the human-capital. When we focus on the bilateral index with the partners (column 8 and 11), the regression with the main world growth pole seems to be stronger than the regression with the simple main partner for two

[16] Regressions showing only IIT are qualitatively similar.

reasons. First, the coefficient of IIT with partner is near forty percent bigger. Moreover, the upstreamness in the exports coefficient associated with the main world growth pole is statistically significant whereas it is not for the main partner. Column (9) and (12) confirm our hypothesis of a strong implication of the main growth pole relation through the industry channel on the country productivity. One more time, the overall coefficient of upstreamness in the imports is strongly negative. The fact of exporting simple products has anegative effect on productivity. The industry channel is particularly strong when it concerns the trading relations with a growth pole, and importantly, its effects on TFP are rather large, suggesting the importance of the composition of traded goods between a country and a world growth pole for its economic development.

Finally, Table 9 provides evidence on the channels through which the processes of production and the type of products affect a country's income per capita. Columns (1) to (3) present the results of the regression on the human-capital of bilateral variables with the main partner. If the skilled-labor intensive production is important in the products traded with all the partners, the effect is important and statistically significant. The bilateral effect with the main partner is also important although less important than the overall one on the accumulation of human-capital. Interestingly, column (5) provides results supporting the fact that trading skilled-labor products with the main world growth pole have greater effects than any other partner on the learning of the country. When looking at column (7) to (12) showing regressions on productivity, we can remark a strong influence of the goods produced with human-intensive factor. One more time, this effect is reinforced when we are focusing on the main world growth pole relation. On the product channel, we can see that neither trading high-tech nor commodities products have a statistically significant influence on either human-capital or TFP. The only coefficient statistically significant are in column (3) and (9); and show that when high-tech product overall partner and with partners are regressed at the time, both coefficient are significant and the explanation is the same as in the last sub-section.

Similarly to the findings in the previous section, only the process of production has a statistically significant effect on the accumulation of human capital and TFP. The effect is one time more particularly strong when the pole is considered instead of the main trading partner. With respect to the type of products exported, no coefficient is statistically significant.

[Insert table 9]

4.4 Differentiating World Growth Poles: Developed versus Emerging poles

As we mentioned in the introduction, the aim of the paper is to investigate whereas the Tiger's growth is an idiosyncratic episode or if a connection to a growth pole is key in systematically triggering positive spillovers that may lead to higher growth rates. Up to this point, we analyzed the importance of trading with a world growth pole in general, without distinguishing between the countries we considered. As explained in the data section, we defined the world growth pole following Adams-Kane and Lim (2011). The relevant growth poles over "the broad course of the history" have been the United States, Western Europe and China. Nevertheless, the success story of the Tigers is perhaps not independent from the pole to which they have been linked. Indeed, Japan was more developed that the East Asian countries. In this section, we decided to test whether the level of development of the world growth pole influences the spillover of the trade's nature on growth. For this, we separated the world growth poles in two categories: the *developed* growth poles which combine the United States and the Western Europe; and the *emerging* growth pole defined by China. Our hypothesis resulting from the successful connection between Japan and the Tigers is that a developed pole is more prone to help impulse a sustainable growth.

Table 10 provides evidence in favor of our hypothesis. The results are separated in two parts: after the lines of controls, we categorize the bilateral indicators alternatively with developed countries and with emerging countries. Overall the columns, we remark that the share of trade with developed countries tends to be positive and sometimes statistically significant whereas the share of trade with emerging countries is constantly negative although never significant. This is a first step to distinguish between the effect of trading with USA and Western Europe or with China. The first column of Table 10 provides the results of the intra-industry trade index with the two alternative partners considered. Only the coefficient associated with developed countries is statistically significant. It is estimated that a marginal increase of the IIT index leads to an increase of more than 3.3 percent in the GDP per capita. On the contrary, the index of IIT in relation with emerging countries is not significant. Going further in our analysis, the column (2) provides results of the

other part of the industry channel. Controlling by the export of commodities, we remark that no variables of upstreamness are statistically significant when we consider bilateral relation with a developed country. However, the value of the coefficient of the upstreamness in the imports is statistically significant at 1 percent when we consider the relation with an emerging country. This reinforces a hypothesis previously issued: importing highly upstreamned products (i.e. the one at the top of the value chain) from an emerging country is not positive for the growth of output per capita. In fact, we can imagine that coming from a developed country, the very upstream product can be more beneficial as they can be petrochemical or so. Nevertheless, coming from emerging market, those upstream products are without doubts much closer to commodities or very primary products.

The third column provides results of what we called the "process of production" channel. Trading products intensive in skills with a developed country pole has a positive and statistically significant effect on the growth of the income, while the same trade with emerging countries is not statistically significant. This result is crucial at the time to understand the difference between the levels of development of growth poles. The group of skilled-labor intensive goods is a reduced one (at the difference of intra-industry trade defined much broader at 2-digit level for instance). Also, results in column (3) prove that even if the labor intensity is similar between both trade, a country will learn more from the trade with the developed country than from the trade with the emerging one. Finally, the last channel used defined in our work is the product one. Along the paper, we did not find a clear evidence of statistic significance of this channel. The fourth column of table 10 reinforces our previous conclusions with one notable exception: the coefficient of high-tech products in the bilateral with a developed country is statistically significant. Also, it can be inferred that the only way of learning by the kind of products traded is through the developed pole chain.

[Insert table 10]

5. Conclusions

While the linkages between financial integration and economic performance have received much attention in recent years, especially in the aftermath of the global financial crisis, in this paper we highlight the importance

of trade in goods for growth. We provide robust evidence that trade significantly affects income, and that some ways of trading are more beneficial than others. Using a two-stage least-square methodology, we explored three main characteristics of trading relations and to what extent they explain how trade causes growth: the industry (capturing the composition of exports and imports between countries), the process of production (proxying for instance the intensity of skilled labor used in the production of traded goods), and the types of products traded. These three characteristics are explored against three dimensions of trading partners: the overall aggregate trade characteristics underlying a country's trading relations with the rest of the world, with its main trading partner, and with its main world growth pole partner. Overall, we find that the nature of trading relations (products and partners) matter a great deal to whether (and thus how) trade causes growth. In particular, trading with a world growth pole, particularly a developed country ones, leads to greater growth spillovers than trading with any other commercial partner. This relation is reinforced when a country and its main world growth pole trade similar products (i.e. in the same industry) and when they trade high-skilled products. In addition, being part of value chains is also beneficial to growth, especially when a country in on the supplier side through its exports with large upstream potential. Such an effect holds even if we control for the share of commodity products being exported. In fact, no statistically significance was found in trading any particular type of good per se, be it commodity or high-tech products, suggesting that it is not the type of product traded that is important, but rather the process of production underlying traded goods. Moreover, these results indicate that the process of learning is a key underlying channel through which trade causes growth. For instance, trading goods within the same industry, being integrated into value chains, and exchanging high-skilled goods have all been shown to significantly affect the trade-growth relation, and thus pointing towards a more specific type of trading relations more prone to generate learning.

These findings have many policies implications. On the one hand, many developing countries are relatively closed, in their early phases of integration into the global goods trade. For these countries, finding the optimal conditions under which trade generates growth allows them to better design their policies and shape incentives in a compatible manner to avoid much of the downsides associated with greater integration into world markets. For instance, our paper has highlighted the importance of trading with a world growth

pole in generating output per capita growth. The intra-industry trade is also a process that enhances growth spillovers. On the other hand, for countries already integrated into global markets, our results suggest that policies should be focused more on production upgrades, in moving towards products with greater value added to the extent that there is greater scope for learning from their partners, particularly form the world growth poles. This seems particularly important for commodity exporters. Nonetheless, the results in this paper suggest that trade can lead to a sustainable growth to the extent that it is associated with technology transfer and learning across countries, independent of their stage of development.

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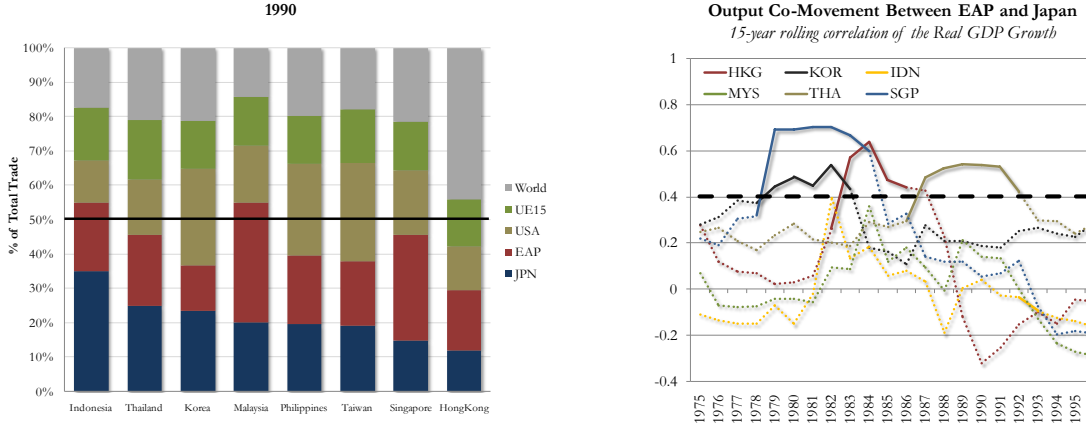
Figure 1. The Connection of Japan and the East Asian Countries



Notes: The graph on the left corresponds to the output correlation between East Asian Tigers and Japan. The graph on the right presents the main trade partners of the Tigers for 1990. The sample of UE15 includes: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal , Spain, Sweden and the United Kingdom; the sample of EAP countries includes Hong Kong, Indonesia, Korea Rep., Malaysia, Philippines, Singapore, Taiwan and Thailand. Sources: WITS and WDI.

Table 1. The Bilateral Equation

	1985			**2005**
	Without zeros included			With zeros included
	(1)	(2)	(3)	(4)
ln(distance)	-0.85***	-1.14***	-1.185***	-2.173***
	(0.04)	(0.03)	(0.04)	(0.0484)
ln (population)	-0.24	-0.14	-0.0884***	0.624***
	(0.03)	0.02	(0.02)	(0.0301)
ln(population_partner)	0.61**	0.96**	1.041***	1.729***
	(0.03)	0.02	(0.02)	(0.0301)
ln(area)	-0.12	-0.16	-0.143***	-0.276***
	(0.02)	(0.02)	(0.02)	(0.0241)
ln(area_partner)	-0.19*	-0.23*	-0.235***	-0.460***
	(0.02)	(0.02)	(0.02)	(0.0241)
Landlock	-0.36	-0.81*	-0.728***	-1.790***
	(0.08)	(0.06)	(0.06)	(0.0645)
Border	5.10	0.39	0.72	7.390*
	(1.78)	(1.37)	(2.56)	(4.067)
Border*ln(distance)	0.15	0.60	0.979**	2.033***
	(0.30)	(0.29)	(0.43)	(0.568)
Borber*ln(population)	-0.29	-0.21	-0.17	-0.508**
	(0.18)	(0.15)	(0.15)	(0.241)
Borber*ln(population_partner)	-0.14	-0.22	-0.24	-0.639***
	(0.18)	(0.14)	(0.15)	(0.241)
Border*ln(area)	-0.06	-0.03	-0.05	-0.316
	(0.15)	(0.15)	(0.18)	(0.261)
Border*ln(area_partner)	-0.07	0.00	-0.06	-0.0971
	(0.15)	(0.16)	(0.18)	(0.261)
Border*Landlock	0.33	1.05	0.378	1.482***
	(0.33)	(0.20)	(0.24)	(0.345)
Observations	3220	8906	9108	19,100
R-squared	0.36	0.35	0.384	0.295

Notes: The dependant variable is openess. All regressions indude a constant. Standard deviations are in parentheses. ***significant at 1 percent; **5 percent; * 10 percent.

Table 2. Benchmarks

Partner:	Main Partner	Main World Growth Pole
	(1)	(2)
Openess	3.090**	3.071**
	(1.382)	(1.412)
ln(population)	0.155	0.197*
	(0.105)	(0.108)
ln(area)	0.000658	-0.0147
	(0.117)	(0.116)
Share of Trade - with partner	-4.829***	2.461*
	(1.391)	(1.401)
European Languages	2.047***	1.492***
	(0.336)	(0.360)
Number of Countries	151	151

Notes: The dependant variable is the logarithm of GDP per worker. All regressions include a constant. Standard deviations are in parentheses. ***significant at 1 percent; **5 percent; * 10 percent.

Table 3. The Industry Channel: Intra-Industry Trade

Partner:	Main Partner			Main World Growth Pole		
	(1)	(2)	(3)	(4)	(5)	(6)
Openess	2.759*	2.325	2.433*	2.641*	1.732	1.926
	(1.495)	(1.483)	(1.429)	(1.474)	(1.416)	(1.268)
ln(population)	-0.0431	-0.0415	-0.0660	-0.0213	-0.0912	-0.0909
	(0.125)	(0.112)	(0.121)	(0.128)	(0.112)	(0.114)
ln(area)	0.141	0.102	0.135	0.137	0.124	0.139
	(0.0987)	(0.103)	(0.0946)	(0.0981)	(0.0928)	(0.0884)
Share of Trade - with partner	-4.105***	-4.706***	-4.329***	2.006	1.495	1.558
	(1.591)	(1.408)	(1.537)	(1.315)	(1.172)	(1.213)
European Languages	1.676***	1.648***	1.613***	1.162***	0.977***	1.003***
	(0.389)	(0.359)	(0.374)	(0.368)	(0.333)	(0.327)
IIT - Overall	3.081**		1.762	3.222***		1.156
	(1.315)		(1.504)	(1.248)		(1.555)
IIT - with partner		2.982***	1.756*		3.792***	2.804**
		(0.944)	(0.961)		(0.933)	(1.130)
Number of Countries	142	142	142	142	142	142

Notes: Data reported are the results of a panel between 2000-2007. The dependant variable is the logarithm of GDP per capita. All regressions include a constant. Standard deviations are in parentheses. ***significant at 1 percent; **5 percent; * 10 percent.

Table 4. The Industry Channel: Rank in the Channel Value of the Product

	Main Partner			Pole		
	(1)	(2)	(3)	(4)	(5)	(6)
Openess	3.073*	2.923**	2.935*	3.050*	2.832**	3.016**
	(1.644)	(1.354)	(1.635)	(1.603)	(1.222)	(1.466)
ln(population)	0.265**	0.119	0.254*	0.343***	0.235**	0.346***
	(0.132)	(0.117)	(0.134)	(0.133)	(0.116)	(0.130)
ln(area)	-0.0325	0.0199	-0.0305	-0.0601	-0.0271	-0.0669
	(0.132)	(0.134)	(0.128)	(0.126)	(0.125)	(0.130)
Share of Trade - with partner	-3.906**	-4.741**	-4.759***	2.976*	3.826**	3.979**
	(1.668)	(1.936)	(1.816)	(1.537)	(1.577)	(1.671)
European Languages	1.788***	1.929***	1.739***	1.204***	1.505***	1.369***
	(0.373)	(0.354)	(0.404)	(0.373)	(0.340)	(0.394)
Commodity product - Overall	-2.559		-3.424	-2.776		-1.079
	(2.456)		(3.468)	(2.330)		(2.829)
Commodity product - with partner		0.210	2.829		-6.974**	-6.300
		(3.289)	(5.071)		(3.286)	(4.650)
Upstreamness in Exports - Overall	3.320*		3.997**	4.061**		3.368*
	(1.969)		(1.801)	(1.933)		(1.964)
Upstreamness in Exports - with partner		0.263	-1.272		2.810***	0.849
		(1.155)	(1.250)		(0.997)	(1.330)
Upstreamness in Imports - Overall	-6.181		-7.138	-8.359**		-8.143*
	(3.862)		(4.584)	(3.874)		(4.215)
Upstreamness in Imports - with partner		-0.519	0.404		-1.745	0.295
		(1.834)	(2.004)		(2.671)	(2.934)
Number of Countries	140	140	140	140	140	140

Notes: Data reported are the results of a panel between 2000-2007. The dependant variable is the logarithm of GDP per capita. All regressions include a constant. Standard deviations are in parentheses. ***significant at 1 percent; **5 percent; * 10 percent.

Table 5. Process of Production: Technological Intensity of Factors of Production

Partner:	Main Partner			Main World Growth Pole		
	(1)	(2)	(3)	(4)	(5)	(6)
Openess	3.615**	3.362**	3.477***	3.453**	3.382**	3.420**
	(1.422)	(1.327)	(1.333)	(1.444)	(1.383)	(1.392)
ln(population)	0.0887	0.0981	0.0820	0.130	0.151	0.141
	(0.108)	(0.106)	(0.107)	(0.110)	(0.108)	(0.109)
ln(area)	0.0768	0.0354	0.0626	0.0569	0.0461	0.0530
	(0.126)	(0.121)	(0.122)	(0.124)	(0.121)	(0.122)
Share of Trade - with partner	-4.997***	-4.516***	-4.759***	1.506	1.570	1.422
	(1.596)	(1.574)	(1.588)	(1.538)	(1.508)	(1.525)
European Languages	1.841***	1.816***	1.799***	1.317***	1.438***	1.390***
	(0.359)	(0.351)	(0.355)	(0.368)	(0.361)	(0.366)
Skilled-Labor Intensive Goods - Overall	9.134***		5.477	8.854***		3.382
	(2.287)		(3.475)	(2.385)		(3.619)
Skilled-Labor Intensive Goods- with partner		5.877***	3.028		6.893***	5.065**
		(1.425)	(2.315)		(1.622)	(2.543)
Number of Countries	143	143	143	143	143	143

Notes: Data reported are the results of a panel between 2000-2007.The dependant variable is the logarithm of GDP per worker. All regressions include a constant. Standard deviations are in parentheses. ***significant at 1 percent; **5 percent; * 10 percent.

Table 6. Product Channel: Technological products

Partner:	Main Partner			Main World Growth Pole		
	(1)	(2)	(3)	(4)	(5)	(6)
Openess	2.498	3.033*	1.797	2.390	2.642*	1.985
	(1.850)	(1.576)	(1.664)	(1.836)	(1.419)	(2.110)
ln(population)	-0.00593	0.129	-0.0942	0.0346	0.0818	-0.00339
	(0.168)	(0.132)	(0.156)	(0.174)	(0.127)	(0.193)
ln(area)	0.0791	0.0160	0.0745	0.0640	0.0558	0.0629
	(0.0951)	(0.108)	(0.0862)	(0.0954)	(0.107)	(0.0965)
Share of Trade - with partner	-4.604***	-5.085***	-4.925***	2.271*	2.906*	2.165
	(1.636)	(1.716)	(1.472)	(1.335)	(1.531)	(1.407)
European Languages	1.829***	2.007***	1.693***	1.269***	1.286***	1.225***
	(0.422)	(0.383)	(0.377)	(0.393)	(0.374)	(0.391)
High Technological product - Overall	3.863		11.48***	3.636		4.958
	(3.944)		(4.000)	(3.876)		(6.763)
High Technological product - with partner		-0.352	-6.114***		2.153	-0.487
		(2.280)	(1.825)		(1.783)	(3.067)
Number of Countries	143	143	143	143	143	143

Notes: Data reported are the results of a panel between 2000-2007.The dependant variable is the logarithm of GDP per worker. All regressions include a constant. Standard deviations are in parentheses. ***significant at 1 percent; **5 percent; * 10 percent.

Table 7. Product Channel: Commodity Products

Partner:	Main Partner			Main World Growth Pole		
	(1)	(2)	(3)	(4)	(5)	(6)
Openess	2.898	3.212**	2.845	2.799	2.888*	3.036
	(1.801)	(1.544)	(1.829)	(1.774)	(1.495)	(1.902)
ln(population)	0.103	0.120	0.0992	0.136	0.134	0.140
	(0.111)	(0.114)	(0.113)	(0.114)	(0.111)	(0.116)
ln(area)	0.0409	0.0349	0.0418	0.0309	0.0395	0.0398
	(0.126)	(0.133)	(0.124)	(0.123)	(0.126)	(0.128)
Share of Trade - with partner	-4.493***	-4.684***	-5.414***	2.371	3.111*	3.305**
	(1.611)	(1.779)	(1.704)	(1.552)	(1.718)	(1.683)
European Languages	1.888***	1.958***	1.815***	1.331***	1.424***	1.477***
	(0.392)	(0.360)	(0.427)	(0.400)	(0.363)	(0.456)
Commodity product - Overall	-0.959		-2.588	-0.929		0.705
	(1.906)		(3.173)	(1.832)		(2.715)
Commodity product - with partner		0.567	4.605		-4.089	-5.177
		(2.942)	(5.228)		(3.249)	(4.896)
Number of Countries	140	140	140	140	140	140

Notes: Data reported are the results of a panel between 2000-2007.The dependant variable is the logarithm of GDP per worker. All regressions include a constant. Standard deviations are in parentheses. ***significant at 1 percent; **5 percent; * 10 percent.

Table 8. Impact of the Industry Channel on the Decomposition of GDP

Dependant Variable:	**ln(H)**						**TFP**					
Partner:	*Main Partner*			*Main World Growth Pole*			*Main Partner*			*Main World Growth Pole*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Openess	0.605**	0.432*	0.561**	0.589**	0.378*	0.488**	1.308*	0.768	1.266*	1.284*	0.495	0.748
	(0.254)	(0.254)	(0.239)	(0.250)	(0.223)	(0.200)	(0.712)	(0.715)	(0.720)	(0.704)	(0.595)	(0.570)
ln(population)	0.00502	-0.0384*	-0.00607	0.00479	-0.0449**	-0.0106	0.0623	-0.0336	0.0428	0.0885	-0.0477	0.0232
	(0.0282)	(0.0208)	(0.0268)	(0.0283)	(0.0219)	(0.0251)	(0.0864)	(0.0680)	(0.0861)	(0.0870)	(0.0635)	(0.0750)
ln(area)	0.0423**	0.0462*	0.0445**	0.0416**	0.0449**	0.0387*	0.0286	0.0158	0.0309	0.0193	0.00866	-0.00550
	(0.0211)	(0.0237)	(0.0210)	(0.0211)	(0.0225)	(0.0205)	(0.0665)	(0.0760)	(0.0693)	(0.0670)	(0.0655)	(0.0614)
Share of Trade - with partner	-0.600*	-0.765***	-0.636**	-0.346	-0.480**	-0.474*	-1.563	-2.186**	-1.804*	0.829	0.260	0.392
	(0.328)	(0.291)	(0.317)	(0.278)	(0.243)	(0.266)	(0.971)	(0.893)	(0.965)	(0.869)	(0.714)	(0.772)
European Languages	0.194***	0.213***	0.197***	0.169**	0.185***	0.161***	0.594***	0.746***	0.629***	0.368*	0.479***	0.401**
	(0.0686)	(0.0668)	(0.0681)	(0.0657)	(0.0600)	(0.0606)	(0.210)	(0.206)	(0.216)	(0.202)	(0.171)	(0.177)
IIT - Overall	0.401		0.290	0.506**		0.160	2.097***		1.277	2.135***		0.0825
	(0.252)		(0.281)	(0.228)		(0.296)	(0.731)		(0.896)	(0.679)		(0.881)
IIT - with partner		0.434**	0.245		0.677***	0.431*		2.026***	0.855		2.785***	2.451***
		(0.185)	(0.283)		(0.161)	(0.247)		(0.533)	(0.683)		(0.468)	(0.799)
Upstreamness in Exports - Overall	-0.00273		0.245	0.00672		0.223	0.936		1.524	1.287		1.478*
	(0.261)		(0.283)	(0.263)		(0.292)	(0.797)		(0.938)	(0.800)		(0.874)
Upstreamness in Exports - with partner		-0.0889	0.164		0.163	-0.151		0.541	-0.638		1.416**	0.279
		(0.192)	(0.198)		(0.176)	(0.232)		(0.638)	(0.788)		(0.551)	(0.750)
Upstreamness in Imports - Overall	-2.344***		-2.216***	-2.365***		-2.555***	-6.260**		-6.682**	-6.592**		-4.850*
	(0.845)		(0.840)	(0.849)		(0.807)	(2.640)		(3.010)	(2.681)		(2.574)
Upstreamness in Imports - with partner		-0.268	0.140		-0.158	0.552		-0.256	1.218		-0.527	0.819
		(0.334)	(0.357)		(0.490)	(0.478)		(1.223)	(1.429)		(1.330)	(1.388)
Number of Countries	115	115	115	115	115	115	96	96	96	96	96	96

Notes: Data reported are the results of a panel between 2000-2007. All regressions include a constant. Standard deviations are in parentheses. ***significant at 1 percent; **5 percent; * 10 percent.

Table 9. Impact of the Process of Production and of the Products Traded on the Decomposition of GDP

Dependant Variable:	**ln(H)**						**TFP**					
Main Partner:	*Trade Partner*			*World Growth Pole*			*Trade Partner*			*World Growth Pole*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Openess	0.693*	0.633**	0.491	0.660*	0.679**	0.546	1.347	1.328	0.706	1.235	1.465	1.037
	(0.403)	(0.291)	(0.325)	(0.394)	(0.323)	(0.418)	(1.108)	(0.827)	(0.931)	(1.102)	(0.913)	(1.089)
ln(population)	-0.00725	0.00562	-0.0284	-0.00735	0.000276	-0.0176	0.0120	0.104	-0.0199	0.0200	0.0820	0.00657
	(0.0326)	(0.0231)	(0.0268)	(0.0327)	(0.0256)	(0.0352)	(0.0868)	(0.0711)	(0.0735)	(0.0872)	(0.0735)	(0.0878)
ln(area)	0.0406*	0.0211	0.0393**	0.0377*	0.0297	0.0342*	-0.00172	-0.0810	-0.0300	-0.0102	-0.0303	-0.0210
	(0.0217)	(0.0227)	(0.0183)	(0.0213)	(0.0220)	(0.0200)	(0.0642)	(0.0693)	(0.0580)	(0.0638)	(0.0668)	(0.0606)
Share of Trade - with partner	-0.875**	-0.766**	-0.965***	-0.527*	-0.707	-0.868**	-2.028*	-2.339**	-3.010***	0.0839	-0.759	-1.223
	(0.381)	(0.342)	(0.307)	(0.302)	(0.451)	(0.374)	(1.045)	(1.061)	(1.004)	(0.985)	(1.457)	(1.224)
European Languages	0.250***	0.257***	0.198**	0.213**	0.258***	0.198**	0.685***	0.748***	0.525***	0.484**	0.626***	0.514**
	(0.0934)	(0.0749)	(0.0794)	(0.0850)	(0.0846)	(0.0921)	(0.223)	(0.212)	(0.195)	(0.214)	(0.225)	(0.220)
Skilled-Labor Intensive Goods - Overall	1.579***		1.560**	1.807***		1.216	7.768***		4.633*	7.987***		3.244
	(0.484)		(0.645)	(0.505)		(0.761)	(2.130)		(2.625)	(2.405)		(2.810)
Skilled-Labor Intensive Goods- with partner		0.713**	-0.306		1.264***	0.505		4.401***	1.002		5.652***	3.653**
		(0.295)	(0.418)		(0.406)	(0.614)		(0.999)	(1.378)		(1.502)	(1.727)
High Technological product - Overall	-0.529		1.273*	-0.271		0.507	1.554		5.479**	2.032		3.471
	(0.986)		(0.758)	(0.924)		(1.128)	(2.802)		(2.379)	(2.655)		(3.076)
High Technological product - with partner		-0.698	-1.302***		-0.332	-0.510		-0.364	-3.136***		0.210	-1.350
		(0.506)	(0.365)		(0.509)	(0.437)		(1.510)	(1.113)		(1.593)	(1.348)
Commodity product - Overall	-0.216		-0.297	-0.176		-0.359	0.947		-0.796	1.168		0.145
	(0.326)		(0.378)	(0.324)		(0.370)	(0.995)		(1.266)	(1.003)		(1.197)
Commodity product - with partner		-0.115	0.344		0.300	0.840		3.056	4.290*		3.158	3.346
		(0.652)	(0.804)		(0.762)	(0.860)		(2.009)	(2.502)		(2.312)	(2.658)
Number of Countries	115	115	115	115	115	115	96	96	96	96	96	96

Notes: Data reported are the results of a panel between 2000-2007. All regressions include a constant. Standard deviations are in parentheses. ***significant at 1 percent; **5 percent; * 10 percent.

Table 10. World Growth Poles: Developed versus Emerging Countries

	(1)	(2)	(3)	(4)
Openess	4.038	3.780**	4.188**	4.181*
	(2.724)	(1.711)	(1.779)	(2.280)
ln(population)	0.0421	0.421**	0.124	0.149
	(0.215)	(0.171)	(0.127)	(0.194)
ln(area)	0.171	0.0118	0.148	0.160
	(0.130)	(0.129)	(0.147)	(0.136)
Share of Trade - with developed countries	1.154***	0.556	1.297***	1.062**
	(0.435)	(0.413)	(0.412)	(0.434)
Share of Trade - with emerging country	3.876	13.96***	6.882	9.715*
	(4.904)	(5.112)	(5.048)	(5.666)
European Languages	-4.197	-2.607	-3.951	-4.611
	(3.367)	(3.625)	(2.715)	(3.652)
Main Growth Pole = Developed Countries				
IIT - with developed countries	3.349***			
	(0.831)			
Upstreamness in Exports - with developed countries		0.723		
		(0.551)		
Upstreamness in Imports - with developed countries		-1.495		
		(1.822)		
Skilled-Labor Intensive Goods- with developed countries			7.554***	
			(1.688)	
Commodity product - with developed countries		-14.58		-4.922
		(11.93)		(11.06)
High Technological product - with developed countries				3.697*
				(2.112)
Main Growth Pole = Emerging Countries				
IIT - with emerging countries	-1.175			
	(1.138)			
Upstreamness in Exports - with emerging countries		-0.161		
		(0.243)		
Upstreamness in Imports - with emerging countries		-3.169***		
		(0.755)		
Skilled-Labor Intensive Goods - with emerging countries			-2.851	
			(1.831)	
Commodity product - with emerging countries		4.214		2.109
		(8.669)		(8.725)
High Technological product - with emerging countries				-1.999
				(2.710)
Number of Countries	138	139	142	139

Notes: Data reported are the results of a panel between 2000-2007. The dependant variable is the logarithm of GDP per capita. All regressions include a constant. Standard deviations are in parentheses. ***significant at 1 percent; **5 percent; * 10

Annex 1: Main Partners in 2005

	Main Partner	Main World Growth Pole
Aruba	United States of America	United States of America
Afghanistan	Pakistan	United States of America
Angola	United States of America	United States of America
Albania	Italy	Western Europe
Netherlands Antilles	Venezuela	United States of America
Argentina	Brazil	United States of America
Armenia	Russia	Western Europe
Australia	Japan	China
Austria	German Federal Republic	Western Europe
Azerbaijan	Italy	Western Europe
Burundi	Belgium	Western Europe
Belgium	German Federal Republic	Western Europe
Benin	France	Western Europe
Burkina Faso	France	Western Europe
Bangladesh	United States of America	Western Europe
Bulgaria	German Federal Republic	Western Europe
Bahamas	United States of America	United States of America
Bosnia-Herzegovina	Croatia	Western Europe
Belarus	Russia	Western Europe
Belize	United States of America	United States of America
Bermuda	France	Western Europe
Bolivia	Brazil	United States of America
Brazil	United States of America	United States of America
Barbados	United States of America	United States of America
Brunei	Japan	United States of America
Central African Republic	Belgium	Western Europe
Canada	United States of America	United States of America
Switzerland	German Federal Republic	Western Europe
Chile	United States of America	United States of America
China	United States of America	United States of America
Cameroun	France	Western Europe
Congo, Rep.	China	China
Colombia	United States of America	United States of America
Comoros	France	Western Europe
Cape Verde	Portugal	Western Europe
Costa Rica	United States of America	United States of America
Cuba	Venezuela	China
Cyprus	Greece	Western Europe
Czech Republic	German Federal Republic	Western Europe
German Federal Republic	France	Western Europe
Djibouti	India	China
Dominica	United States of America	United States of America
Denmark	German Federal Republic	Western Europe
Dominican Republic	United States of America	United States of America
Algeria	United States of America	Western Europe
Ecuador	United States of America	United States of America
Egypt	United States of America	Western Europe
Spain	France	Western Europe
Estonia	Finland	Western Europe
Ethiopia	China	China
Finland	German Federal Republic	Western Europe
Fiji	Australia	United States of America
France	German Federal Republic	Western Europe
United Kingdom	German Federal Republic	Western Europe
Georgia	Russia	Western Europe
Ghana	Nigeria	Western Europe
Guinea	United States of America	Western Europe
Gambia	China	China
Guinea-Bissau	India	Western Europe
Equatorial Guinea	United States of America	United States of America
Greece	German Federal Republic	Western Europe
Grenada	United States of America	United States of America
Greenland	Denmark	China
Guatemala	United States of America	United States of America
Guyana	United States of America	United States of America
Hong Kong	China	China
Honduras	United States of America	United States of America
Croatia	Italy	Western Europe
Haiti	United States of America	United States of America
Hungary	German Federal Republic	Western Europe
Indonesia	Japan	United States of America
India	United States of America	United States of America
Ireland	United Kingdom	Western Europe
Iran	Japan	Western Europe
Iceland	German Federal Republic	Western Europe
Israel	United States of America	United States of America
Italy	German Federal Republic	Western Europe
Jamaica	United States of America	United States of America
Jordan	United States of America	United States of America
Japan	China	China
Kazakhstan	Russia	Western Europe
Kenya	United States of America	Western Europe
Kyrgyz Republic	Russia	China
Cambodia	United States of America	United States of America
Saint Kitts and Nevis	United States of America	United States of America
Korea	China	China
Kuwait	Japan	United States of America
Lebanon	Italy	Western Europe
Libya	Italy	Western Europe
Saint Lucia	United States of America	United States of America
Sri Lanka	United States of America	United States of America
Lithuania	Russia	Western Europe
Luxembourg	Belgium	Western Europe
Latvia	Lithuania	Western Europe
Morocco	France	Western Europe
Moldova	Russia	Western Europe
Malagasy	France	Western Europe
Maldive Islands	Singapore	Western Europe
Mexico	United States of America	United States of America
Mali	France	Western Europe
Malta	Italy	Western Europe
Myanmar	Thailand	China
Mongolia	China	China
Mozambique	South Africa	Western Europe
Mauritius	United Kingdom	Western Europe
Malawi	South Africa	United States of America
Malaysia	United States of America	United States of America
Niger	France	Western Europe
Nigeria	United States of America	United States of America
Nicaragua	United States of America	United States of America
Netherlands	German Federal Republic	Western Europe
Norway	United Kingdom	Western Europe
Nepal	India	United States of America
New Zealand	Australia	United States of America
Pakistan	United States of America	United States of America
Panama	United States of America	United States of America
Peru	United States of America	United States of America
Philippines	United States of America	United States of America
Papua New Guinea	Australia	China
Poland	German Federal Republic	Western Europe
Portugal	Spain	Western Europe
Paraguay	Brazil	China
Romania	Italy	Western Europe
Russia	German Federal Republic	Western Europe
Rwanda	Kenya	Western Europe
Sudan	China	China
Senegal	France	Western Europe
Singapore	Malaysia	United States of America
Solomon Islands	China	China
Sierra Leone	Belgium	Western Europe
El Salvador	United States of America	United States of America
Somalia	Djibouti	China
Suriname	United States of America	United States of America
Slovakia	German Federal Republic	Western Europe
Slovenia	German Federal Republic	Western Europe
Sweden	German Federal Republic	Western Europe
Seychelles	Spain	Western Europe
Chad	United States of America	United States of America
Togo	France	Western Europe
Thailand	Japan	United States of America
Tajikistan	Russia	United States of America
Turkmenistan	Ukraine	United States of America
Tonga	New Zealand	United States of America
Trinidad	United States of America	United States of America
Tunisia	France	Western Europe
Tanzania	China	Western Europe
Uganda	Kenya	Western Europe
Ukraine	Russia	Western Europe
Uruguay	Brazil	United States of America
United States of America	Canada	China
Uzbekistan	Russia	China
Saint Vincent and the Grenadines	France	Western Europe
Venezuela	United States of America	United States of America
Vietnam, Democratic Rep.	Japan	China
Vanuatu	Thailand	Western Europe
Western Samoa	Australia	United States of America
South Africa	German Federal Republic	Western Europe
Congo, DR - Zaire	Belgium	Western Europe
Zambia	South Africa	Western Europe

Annex 2. The Industry Channel: Decomposition of the Upstreamness index of the Exports

	Main Partner												Pole											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Openess	3.084**	3.047**	2.761*	2.615*	2.265	2.279	2.338	2.280	2.750*	2.755*	2.438*	2.264*	3.136**	3.122**	2.640*	2.496*	1.616	1.601	1.754	1.592	2.136*	2.131*	1.917	1.763
	(1.479)	(1.505)	(1.492)	(1.417)	(1.482)	(1.495)	(1.474)	(1.449)	(1.458)	(1.498)	(1.420)	(1.321)	(1.488)	(1.529)	(1.474)	(1.393)	(1.336)	(1.356)	(1.402)	(1.367)	(1.200)	(1.246)	(1.301)	(1.208)
ln(population)	0.0135	0.00391	-0.0425	-0.0623	-0.0308	-0.0384	-0.0386	-0.0516	-0.00795	-0.0155	-0.0647	-0.0879	0.0532	0.0446	-0.0227	-0.0438	-0.0378	-0.0560	-0.0884	-0.106	-0.00753	-0.0270	-0.0894	-0.109
	(0.126)	(0.128)	(0.124)	(0.119)	(0.109)	(0.111)	(0.111)	(0.110)	(0.123)	(0.127)	(0.120)	(0.113)	(0.132)	(0.135)	(0.127)	(0.122)	(0.104)	(0.107)	(0.111)	(0.109)	(0.110)	(0.114)	(0.115)	(0.108)
ln(area)	0.102	0.117	0.140	0.137	0.0778	0.0947	0.0991	0.0873	0.0928	0.110	0.133	0.121	0.0864	0.103	0.139	0.134	0.0543	0.0801	0.121	0.115	0.0571	0.0891	0.135	0.131
	(0.107)	(0.104)	(0.102)	(0.0954)	(0.107)	(0.104)	(0.106)	(0.100)	(0.104)	(0.101)	(0.0989)	(0.0916)	(0.106)	(0.103)	(0.102)	(0.0946)	(0.0916)	(0.0904)	(0.0948)	(0.0898)	(0.0901)	(0.0891)	(0.0920)	(0.0863)
Share of Trade - with partner	-3.480**	-3.426**	-4.136***	-3.842**	-4.344***	-4.495***	-4.763***	-4.185***	-3.630**	-3.625**	-4.362***	-3.885***	2.354*	2.217	1.990	2.060	1.922*	2.100*	1.418	1.426	2.048*	2.073*	1.560	1.528
	(1.735)	(1.738)	(1.543)	(1.517)	(1.453)	(1.458)	(1.397)	(1.386)	(1.689)	(1.708)	(1.504)	(1.486)	(1.380)	(1.373)	(1.337)	(1.271)	(1.111)	(1.138)	(1.173)	(1.138)	(1.191)	(1.215)	(1.264)	(1.170)
European Languages	1.741***	1.749***	1.676***	1.587***	1.592***	1.612***	1.651***	1.665***	1.665***	1.696***	1.614***	1.555***	1.299***	1.344***	1.168***	1.085***	0.921***	0.916***	0.981***	0.960***	1.053***	1.076***	0.991***	0.961***
	(0.394)	(0.397)	(0.392)	(0.367)	(0.366)	(0.368)	(0.359)	(0.351)	(0.394)	(0.405)	(0.377)	(0.346)	(0.377)	(0.386)	(0.382)	(0.348)	(0.315)	(0.320)	(0.333)	(0.323)	(0.316)	(0.330)	(0.346)	(0.307)
IIT - Overall	2.567**	2.498*	3.101**	3.197**					1.401	1.230	1.765	1.586	2.395*	2.226*	3.184**	3.320***					0.345	0.496	1.165	1.116
	(1.289)	(1.325)	(1.412)	(1.254)					(1.534)	(1.621)	(1.658)	(1.470)	(1.257)	(1.325)	(1.362)	(1.190)					(1.481)	(1.541)	(1.604)	(1.480)
IIT - with partner					2.896***	2.877***	3.040***	2.946***	1.583	1.663	1.772*	2.017**					3.709***	3.434***	3.862***	3.947***	2.978***	2.597**	2.881**	2.978***
					(0.913)	(0.920)	(1.020)	(0.925)	(0.990)	(1.022)	(1.044)	(0.944)					(0.870)	(0.887)	(1.004)	(0.900)	(1.098)	(1.121)	(1.161)	(1.104)
Upstreamness in Exports - Overall -[1-2]	-1.037*								-0.975*				-1.462***								-0.977**			
	(0.530)								(0.558)				(0.506)								(0.492)			
Upstreamness in Exports - Overall -[2-3]		0.875*								0.915				1.341***								0.798		
		(0.517)								(0.558)				(0.495)								(0.509)		
Upstreamness in Exports - Overall -[3-4]			0.138								0.0758				-0.234								0.368	
			(1.250)								(1.312)				(1.301)								(1.402)	
Upstreamness in Exports - Overall -[4-4.65]				5.030*								3.470				5.454*								2.064
				(2.771)								(3.356)				(2.809)								(4.251)
Upstreamness in Exports - with partner - [1-2]					-0.799				-0.212								-1.626***				-1.040**			
					(0.532)				(0.608)								(0.421)				(0.500)			
Upstreamness in Exports - with partner - [2-3]						0.403				-0.0290								1.351***				0.853		
						(0.509)				(0.611)								(0.415)				(0.524)		
Upstreamness in Exports - with partner -[3-4]							0.331				0.0792								0.370				0.0803	
							(1.023)				(1.080)								(0.902)				(1.057)	
Upstreamness in Exports - with partner - [4-4.65]								3.968**				2.372								3.527**				2.357
								(1.647)				(2.084)								(1.483)				(2.603)
Number of Countries	143	143	143	143	143	143	143	143	143	143	143	143	142	142	142	142	142	142	142	142	142	142	142	142

Notes: The dependant variable is the logarithm of GDP per worker. All regressions include a constant. Standard deviations are in parentheses. ***significant at 1 percent; **5 percent; * 10 percent.

Annex 3. Impact of the Intra-Industry Trade Index on the Decomposition of GDP

	ln(H)						TFP					
	Main Partner			*World Growth Pole*			*Main Partner*			*World Growth Pole*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Openess	0.584*	0.522*	0.554*	0.565*	0.396	0.442*	1.157	0.827	0.993	1.062	0.376	0.414
	(0.301)	(0.317)	(0.302)	(0.295)	(0.297)	(0.256)	(0.822)	(0.855)	(0.811)	(0.807)	(0.789)	(0.705)
ln(population)	-0.0365	-0.0336	-0.0383	-0.0379	-0.0515**	-0.0505**	-0.0679	-0.0501	-0.0752	-0.0592	-0.103	-0.103
	(0.0242)	(0.0221)	(0.0240)	(0.0242)	(0.0220)	(0.0222)	(0.0726)	(0.0659)	(0.0702)	(0.0728)	(0.0632)	(0.0641)
ln(area)	0.0552**	0.0476**	0.0541**	0.0550**	0.0492**	0.0528***	0.0690	0.0311	0.0623	0.0657	0.0317	0.0357
	(0.0220)	(0.0238)	(0.0218)	(0.0220)	(0.0216)	(0.0198)	(0.0701)	(0.0728)	(0.0681)	(0.0705)	(0.0658)	(0.0612)
Share of Trade - with partner	-0.670*	-0.772**	-0.701**	-0.412	-0.501**	-0.494*	-1.852*	-2.202**	-1.973**	0.614	0.333	0.334
	(0.347)	(0.304)	(0.339)	(0.279)	(0.253)	(0.263)	(0.995)	(0.898)	(0.957)	(0.865)	(0.752)	(0.759)
European Languages	0.233***	0.235***	0.230***	0.208***	0.185***	0.190***	0.738***	0.751***	0.720***	0.503**	0.464**	0.465**
	(0.0790)	(0.0743)	(0.0779)	(0.0736)	(0.0676)	(0.0663)	(0.224)	(0.208)	(0.217)	(0.212)	(0.183)	(0.184)
IIT - Overall	0.427		0.284	0.550**		0.193	2.210***		1.333	2.342***		0.170
	(0.268)		(0.295)	(0.241)		(0.320)	(0.752)		(0.884)	(0.693)		(0.916)
IIT - with partner		0.381*	0.177		0.653***	0.478*		1.953***	1.012		2.778***	2.628***
		(0.214)	(0.208)		(0.191)	(0.249)		(0.584)	(0.661)		(0.549)	(0.782)
Number of Countries	115	115	115	115	115	115	96	96	96	96	96	96

Notes: The dependant variable is the logarithm of GDP per worker. All regressions include a constant. Standard deviations are in parentheses. ***significant at 1 percent; **5 percent; * 10 percent.