POLITECNICO DI MILANO

School of Industrial and Information Engineering

Master's degree in Management Engineering

An overview of global value chains in Africa: their characteristics and their impact on development

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Abstract

This work focuses on the effects of the entry of global value chains on some African countries. The first part regards the main general issues associated with the GVCs: the main trends of different world regions and sectors, the problem of double counting in the measurement and some theoretical cues from previous works. After that we made an analysis of the main benefits and risks for a nation involved in GVCs and a description of different methods for an upgrading along the chains. The second part deals specifically with the African situation looking at the general economic and social context. The author chose for his analysis Tunisia, Namibia, Mauritania, Mozambique and South Africa, based on a computation done to find the countries more involved in GVCs. Each country is described with general information. In the third chapter the author does a multiple linear regression in order to understand if the entry into global value chains of those countries has affected (positively or negatively) their economic growth. After several regressions with different variables (and assumptions), the results can be quite surprising. In fact, not only the participation to GVCs (measured in several ways) does not seem correlated in a significant way to the economic growth, but even the simple trade with foreign countries (an index of the opening of borders) brings a negative effect on growth. These results show the difficulty to arrive to common conclusions with other researches and the need to examine further the topic, especially to find better solutions to enhance development.

Sommario

Questo lavoro si focalizza sugli effetti dell'ingresso nelle catene del valore globali su alcuni paesi Africani. La prima parte riguarda Ie principali questioni generali associate alle CVG: le principali tendenze di diverse regioni e settori, il problema del doppio conteggio nella misurazione e alcuni spunti teorici da lavori precedenti. Si passa quindi ad un'analisi dei principali benefici e rischi per una nazione coinvolta nelle CVG e ad una descrizione dei diversi metodi per la promozione lungo le catene. La seconda parte affronta specificatamente la situazione Africana guardando al contesto economico e sociale generale. L'autore ha scelto per la sua analisi Tunisia, Namibia, Mauritania, Mozambico e Sud Africa, basandosi su un calcolo fatto per trovare le nazioni più coinvolte nelle CVG, ed ogni nazione viene descritta con informazioni di carattere generale. Nel terzo capitolo l'autore svolge una regressione lineare multipla per capire se l'ingresso nelle catene del valore globali di queste nazioni ha influenzato (positivamente o negativamente) la loro crescita economica. Dopo diverse regressioni con diverse variabili (e assunzioni), i risultati possono essere abbastanza sorprendenti. Infatti, non solo la partecipazione alle CVG (misurata in diversi modi) non sembra essere correlata in maniera significativa alla crescita economica, ma persino il semplice commercio con paesi stranieri (un indice dell'apertura dei confini) ha un effetto negativo sulla crescita. Questi risultati mostrano la difficoltà ad arrivare a conclusioni comuni con altri lavori e il bisogno di esaminare ulteriormente l'argomento, specialmente per trovare soluzioni migliori per accrescere lo sviluppo.

Contents

Introduction

This work fits in the new part of the literature that tries to analyze the implicit and explicit characteristics of the global value chains and their effects. The simple trade between nations, which has been a common usage since the ancient times with exports and imports, developed in much more complex and structured ways until it reached the actual form of global value chains. This term represents the all set of activities that a firm undertakes to produce a service or a product, from the beginning of the process to the final sale. Firms are no more compelled to organize themselves within the origin country borders but they deploy their chains into various nations and even various continents, making them global. To understand and study global value chains means to understand and study the rules and the characteristics of the current and the future world economy; the fundamental importance of such an investigation is evident. This pattern regarding the economic globalization is not a temporary phenomenon; since it will certain lasts at least for many years, the economists must deeply understand the consequences of such a revolution of the world economy.

In particular, this work focuses on what were the effects of the entry of some African countries into the global value chains mechanisms, in terms of some of their economic macro-variables. Africa is the continent less investigated in these macroeconomic studies for several reasons. A lot of papers focus on what are the domestic effects of firms deciding to dislocate production. Given that the majority of these firms are headquartered in Europe or America, these works focus here. Others point out the great rise of Asian countries of the last decades. Few works concentrate on potentiality of Africa but fortunately the trend is changing, and this work tries to be part of this change. The analyzed countries are Tunisia, Namibia, Mauritania, Mozambique and South Africa. Two countries from Northern Africa and three from the Southern Africa help us to identify some common characteristics in different geographical contests and economies. Furthermore, they are more involved in commercial relationships with other countries as shown in the work (also because they are coastal countries).

As already said, the phenomenon is still not clear in all its aspects, being part of a revolution that took shape entirely not many years ago. For this reason, in the first chapter the author tries to give a comprehensive view of the main issues and open questions related to it, by dividing it in many parts. Following a theoretical definition, the problem of the effective measure of the participation of a country

in the GVCs occupies the initial part of the chapter. The second part talks about the benefits and the risks associated with the globalization of a country economy. The last part of the chapter is dedicated to the problem of "upgrading" into the chain, participating into more "value-adding" activities. This problematic is essential to be solved for the development of the African economies highlighted in this work. Furthermore, this work tries to put together different views about main issues (price, productivity, etc.) in the new asset, by comparing different papers and authors opinions about the topic.

The second chapter focuses on Africa; it is shorter and it begins with an overall view about investments, trade and economy, underlying the differences among different African regions and with other continents. In fact, before looking at the specific nations, the paper looks at macroeconomic data of different types. They regard trade flow among different regions and a sum up of the participation of a group of countries to GVCs, measured with one possible method illustrated in the first chapter. After that, the author concentrates on few particular countries, chosen based on some specific characteristics, and try to analyze them. The chapter fulcrum describes the main features of each nation and some main numbers concerning population and economy in the last years. It serves as an introduction for the third chapter.

The third chapter is the core of the work. With the assumption of the presence of a linear relationship between the independents and the dependent variable, the author builds a multiple linear regression in order to understand the effect of the participation at the GVCs on the five countries. The scope is to find the coefficients and to quantify this relationship with numbers. The dependent variable represents what the GVCs and FDI should affect (positively or negatively). In particular, the work focuses on the principal positive benefit in an economy, the GDP per capita growth. The independent variables represent economical aspects of the country but there is included also population and a "control" variable, specific for each country, which is the average GDP per capita.

The results of this regression can surprise for some aspects. They say that not only the participation in GVCs apparently is not correlated to an improvement of average wealth, but that even the simple opening of borders brings a negative outcome, despite economic theories say the opposite. Unfortunately, some lack of data impeded to carry on a more specific research on other sides of this thematic, but it restricted the analysis only to a simple multiple linear regression. Even the lack of data is an information; it shows how the enormous and not exploited potentialities of African countries are

buried under layers of underdevelopment and undeclared work. Of course, wars, dictatorships and natural disasters contribute to it but often they are the effects and not the causes of bad economic situations. A new chapter of economics studies and researches is necessary to catch and deeply understand the real needs and actions to be taken in order to invert the trend. Benefits of global value chains are not achieved unconditionally, but they need a healthy economic context to emerge. Evidently, the African economic context is still not ready or mature to catch them.

1. A general view of global value chains: main issues

The concept of global value chains is relatively new regarding the history of economics. This new perspective changed some of the concept of economics that were rooted for decades, revolutionizing the patterns and structure of international trade. Nowadays, the study and the comprehension of the dynamics underlying the trend of economies of countries and regions are strictly interconnected with the global value chains. Reflecting this newness of the phenomenon, also the academic literature has to update and deal with new problems and challenges, thinking about the fact that now often goods and services are not from "somewhere" but from "everywhere".

Several papers and studies tried in the past years to give solutions and provide empirical data in order to better focus and analyze these themes developed below.

1.1 The problem of double counting in value-added trade

GVCs brought uncertainties in measuring the exports and imports of a country, with the highlighted problem of the "double counting". When country A imports intermediate goods from a country B, it uses these goods in the assembly or production of the "final" good, which is exported to country C. Normally, the gross value of the exports of country A is the total value of the good, but here is the problem of "double counting". Since a part of the value of the good comes from the imports from country B, the value of the NET exports should be skimmed from this value, considering only the "added value" part of the exports, otherwise we are counting two times the value of intermediate goods, one in imports and one in exports.

Several authors focused on the problem, from a quantitative and qualitative point of view. Among the others, in the work of Johnson (2014), he pointed out that "*we need to follow goods through the global supply chain from input producers to final consumers, allocating the value added in final goods to producers at each stage*". Actually, this paper specifies that nowadays the double counting in trade data is present in a larger way than in the past, since the value of value-added exports is 70% of value of gross exports, while in '80s was more than 80%. However, this value is extremely various among different countries and regions. This decline, according to Johnson, is coincident with the massive trade liberalization and the reduction of international trade costs, which brought to a great use of foreign

suppliers for intermediate goods instead of domestic ones. Therefore, value added trade within blocs having agreements tend to be lower than average.

In this work, taking as example the US exports, an important statement is that "*A dollar of US exports does not generate a dollar of US value added. As a result, the ratio of exports to GDP will overstate how much GDP falls when exports decline."* This happens because the traditional method considers the exports as produced entirely within the exporting country, which often is not true. This method is quite inaccurate and has important flaws: the distortion is clarified with an example: US exports inputs to Germany that are used to produce German goods consumed in Italy. Thus, the US economy is more exposed to changes in Italian demand than gross exports would indicate.

How to deal with this uncertainty? Johnson proposed two alternative approaches:

- **First approach**: write down the model entirely in value-added terms, ignoring trade in intermediate inputs entirely. On the supply side, producers combine primary factors to produce value-added. On the demand side, consumers directly purchase and consume value added originating from different source countries.
- **Second approach**: embrace input trade, and write down the model in gross terms. In this case, producers would combine primary factors with intermediate inputs to produce gross output, which may be dedicated to either final or intermediate use.

If we decide to use the first approach, there are some implications to consider: all countries appear as less affected by foreign expenditure changes and, of course, the importance of some countries arise while some other decrease their strategic importance, especially in the case of demand shocks.

In the work by Timmer e al. (2014), there is underlined the necessity to use **Input-Output Database** to measure value added in global value chains. Inputs require inputs themselves in order to be produced. The entire world economy is an input-output model divided in countries and industries. In this way, we can calculate the percentage of domestic and foreign value added in each product. These tables are huge, but very detailed and precise for their objective.

Baldwin and Lopez-Gonzalez (2013) used another approach to describe this topic in their work. In the context of "globalization's 2nd unbundling" (which allowed many small countries to join existing supply chains instead of creating new ones), many economists and policymakers are misunderstanding the

pattern of GVCs. What is the problem? The problem is the lack of information about the usage of goods that are inputs to other goods. The paper suggests three solutions to find trustable data (page 6):

- **First**: use the custom classification to address the usage problem. Many authors used it before 2011. Nevertheless, this approach is fallacious, since some "parts" or "components" (as CC classifies them) can be used both as intermediates and as final goods. Thus, this approach does not solve the problem.
- **Second**: use Input-Output tables to keep track of usage explicitly. In this case, there would be a lower disaggregation into product categories.
- **Third**: for some nations, there is a record for intermediates that are used entirely for production of goods that will be later exported.

Furthermore, there are important concepts not to underestimate when we discuss about GVCs. Three different paths can amplify the problem of measuring: importing to produce, importing to export and value added trade. In particular, in I2E foreign intermediate goods are used to produce goods that will be later exported; in this case, the concept of "double counting" is extremely pervasive given that is a recursive concept. Country imports can contain imports from a third country and so on. It is extremely important to unravel the chain of trade and to understand where is the "value added". In order to understand the sale value, we can simply sum the cost of all the intermediate inputs plus the value added by the final seller; in another way, we can calculate the value added in each stage of the production process. This second approach, as pointed out in this paper, has the credit of clarifying in a better way, to governments, which could be the best policies to implement for their countries.

Also the work of De Backer and Miroudot (2014) points out an important concept: for the current trade statistics, which are collected in gross terms, the role of final producers is overestimated, while the countries exporting intermediaries are overlooked. Again, the optimal framework used in these cases is **Inter-Country Input-Output** (ICIO), developed by OECD, in collaboration with WTO. It analyzes 58 countries, accounting for more than 95% of world output, for 37 industries.

1.2 How the participation to GVCs of countries is measured?

There are several indicators:

- one is **"VS share",** which measures the value of imported inputs in the overall exports of a country**,** and it looks backward in the value chain.
- another is "**VS1 share**", the percentage of exported goods and services used as imported inputs to produce other countries' exports.
- the third one, which is a sort of sum up of the two, is the "**participation index**", the share of foreign inputs (or domestic inputs) used in third country exports. In this index there is concentrated the problem of double counting, since it is not based on value-added trade.

We can understand how "long" is the value chain by computing the number of production "stages" involved in the chain. It is called the "**length index**" and it takes the value of 1 if there is only one stage in the final industry, while it increases when the number of stages increases.

Once we have understood by how many stages is composed the chain, we must clarify at which point the countries are located in the value chain, close to the final customer or upstream. In order to do that, it has been developed a new index, which can be called "**distance index**". This index measures the number of stages remaining to arrive to the final customer for that country.

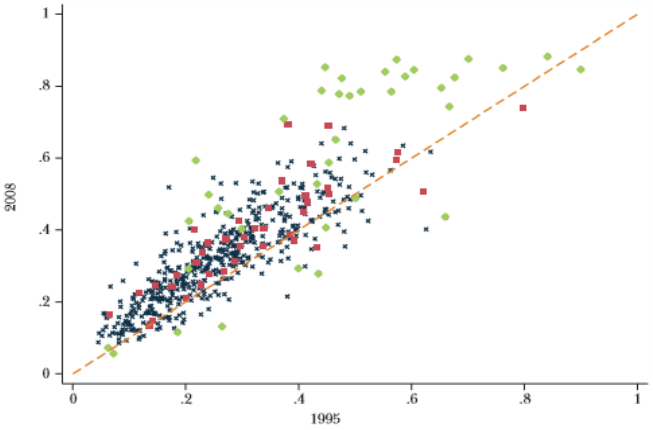
A problem of the "participation index", as quoted from the World Trade Report 2014, is that it has to assume that "*the production network is composed of at least three different stages or steps performed sequentially in different countries. The participation index does not capture the involvement in GVCs of countries that import intermediate goods that are assembled into final goods consumed domestically*". Here comes back the problem highlighted by Baldwin and Gonzalez, the missing information about the final usage of input goods.

1.3 What are the global trends as regards GVCs? Which are the continents and regions that most participate?

Although GVCs are a quite new phenomenon, along the years they have been subject to changing, affected (and affecting) by global economy trends and facts. In Timmer e al. (2014) the authors identified four major trends:

1. **International fragmentation**, increased since 1990s, was a constant trend that accompanied the economy growth in the last 20 years. With the decrease of costs of coordination and communication, it increased the profitability of a deployment of the production process among different states. As a demonstration, looking at the Figure 1.1, which used data from Input-Output table, it can be noticed that for 85% of the product chains, the foreign value-added has increased, with an average of 34% foreign inputs. The fragmentation is very consistent in petroleum products and electronic products, less in food industry.

Figure 1.1: Foreign Value-Added Shares in 560 Global Value Chains, 1995 and 2008



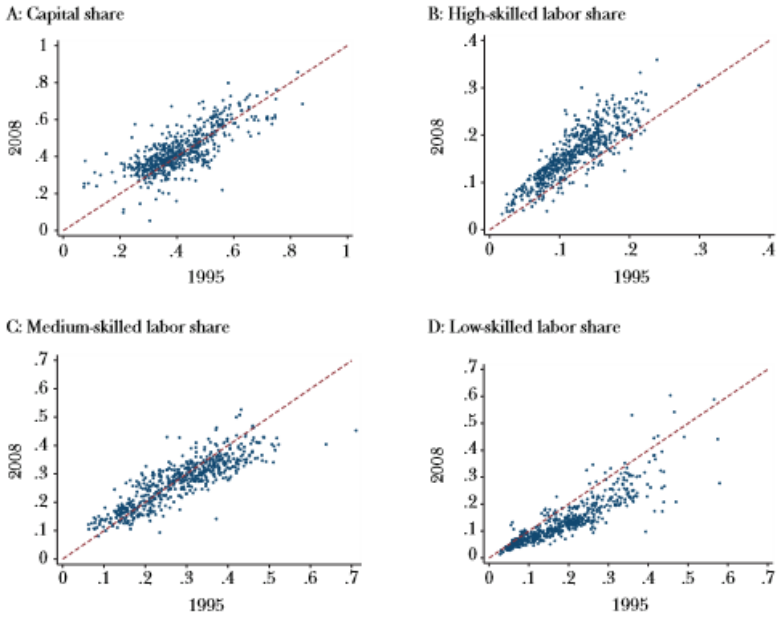
Source: Authors' calculations based on World Input-Output Database, November 2013 Release.
Notes: Each dot represents the share of foreign value added in output of a manufactures global value chain in 1995 and 2008. Shares are plotted for 560 global value chains, identified by 14 manufacturing industries of completion in 40 countries. Squares indicate global value chains of electrical equipment (ISIC rev. 3 industries 30–33), and diamonds indicate petroleum refining (ISIC 23). The dashed line is the 45-degree line.

Source: Timmer e al. (2014)

It started with a heavy concentration in three macro-regions: European Union, North America and Asia. Then, in the 2000s, the value chains became global with the important entrance of developing economies. The most important factors relevant for the continuation of this trend are the development of wages, the cost of transportation and coordination and the strength of linkages among the several parts of the chain.

2. **In most GVCs, there is a strong shift towards value added by capital and high skill labor, and away from low skill labor**. This is mainly driven by a change in the relative price, although the income shares for medium and low-skilled labor dropped in many value chains. As reported by the same work, which considered over than 560 manufacturers chains (Figure 1.2), "the average decline was 5% with occasional declines of more than 10%" and "the shares of value added by capital and high-skilled workers increased at this aggregate level". This brought to a decline of bargaining power of labor around the world.

Figure 1.2: Factor Shares in Value Added of 560 Global Value Chains of Manufactures, 1995 and 2008



Source: Authors' calculations based on World Input-Output Database, November 2013 Release.
Notes: Factor shares in value added of 560 global value chains, identified by 14 manufacturing industries of completion in 40 countries, in 1995 (x-axis) and in 2008 (y-axis). The dashed line is the 45-degree line.

Source: Timmer e al. (2014)

3. **Advanced nations carry on activities done by high skilled labor**. According to Heckscher-Ohlin model of trade, a country specializes in activities carried on by the resources/factors in which is abundant. Thus, the more advanced countries are abundant with high skilled labor, the more they will use it; in fact, the capital and high-skill labor value-added share increased in all the advanced countries, as Table 1.1 shows. Actually, even in the other countries the trend is confirmed and the direction of investments points more to intellectual

capital and brand names. The final effect of this trend is that there will be a decline in jobs inside manufacturing and increase of jobs outside manufacturing.

Table 1.1: Factor Shares in Global Value Chains of Manufactures, by Region

Value added in value chains of manufactures	*1995*	*2008*	*2008 minus 1995*
In high-income countries (billion US$)	**$4,863**	**$4,864**	**$1**
By:			
capital (%)	35.9%	38.7%	2.9%
high-skilled labor (%)	16.8%	21.8%	5.0%
medium-skilled labor (%)	33.3%	30.3%	−3.0%
low-skilled labor (%)	14.0%	9.1%	−4.9%
In other countries (billion US$)	**$1,723**	**$3,820**	**$2,097**
By:			
capital (%)	55.2%	58.4%	3.2%
high-skilled labor (%)	5.4%	7.1%	1.7%
medium-skilled labor (%)	15.6%	17.0%	1.4%
low-skilled labor (%)	23.8%	17.5%	−6.3%
Worldwide (billion US$)	**$6,586**	**$8,684**	**$2,098**

Source: Authors' calculations based on World Input-Output Database, November 2013 Release.
Notes: Shares of production factors in total value added in a region, based on all global value chains of manufactures. Value added by a region is sum of value added by labor and capital on the domestic territory. High-income countries include Australia, Canada, and the United States; Japan, South Korea, and Taiwan; and all 15 countries that joined the European Union before 2004. Value added and expenditure is at basic prices (hence excluding net taxes, trade, and transport margins on output). It is converted to US dollars with official exchange rates and deflated to 1995 prices with the US Consumer Price Index. Figures may not add due to rounding.

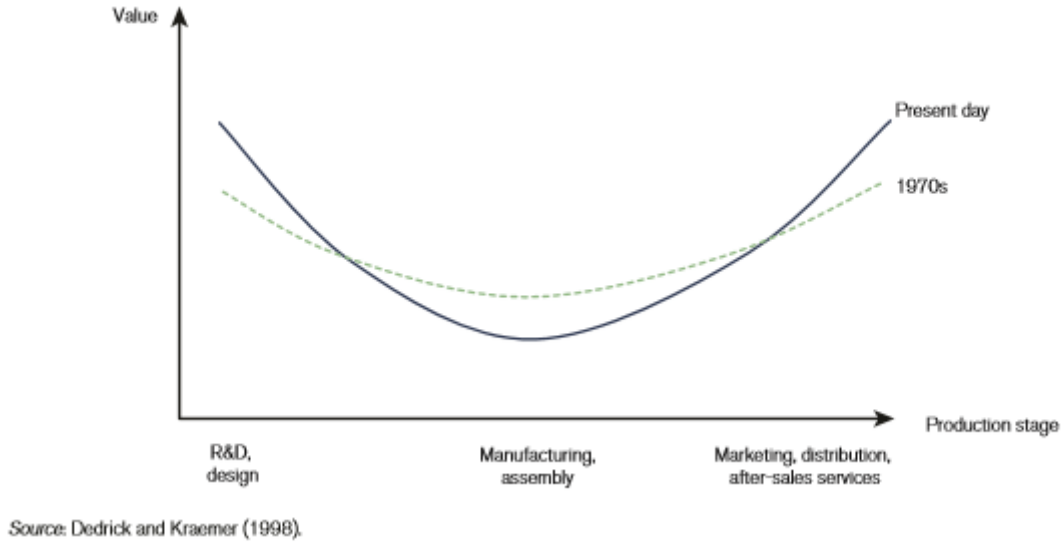
Source: Timmer e al. (2014)

4. **Emerging economies specialize in capital-intensive activities. Share of capital increasing, low skill labor decreasing**. The trend explained by Heckscher-Ohlin would seem to bring developing countries to a massive use of low-skill labor and, consequently, to an increase of value added by these ones. Actually, although the number of low-skills workers is huge in those countries, their value added is still lower than average, confirming the trend above mentioned.

The "smile curve" (Figure 1.3) is an illustrated framework that assigns to each part of the value chain a different value added share. Normally the central part, composed by manufacturing and assembly, is the "least important" for the share of value added and it is the entrance stage for many developing

countries, which are entering into the GVCs for the first time. In fact, those activities are easily replicable and the completion is higher among suppliers; instead, for the initial stage (marketing, R&D, design) and the final part (marketing, distribution, after-sale services) the knowledge and the skills required are higher and the value added to the final product is much more relevant. This difference, just highlighted by the smile curve, was less relevant in the 70s, as shown by WTR 2014.

Figure 1.3: The smile curve



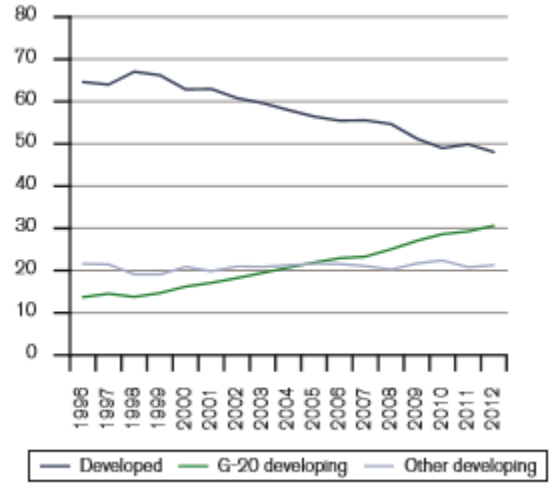
Source: WTO (2014)

The trend of the last years has been a gradual bending to the center, highlighting the difference between the central phases of the chain and the others. Why this change? The paper identified three main causes of this change:

1. The first reason is pretty logic; the activities are offshored to these countries precisely because their production costs can be lower. Given the low cost, for these stages also the value-added will be low as well.
2. Relative market power: the increase of competition and the increase of efficiency by those countries keep value added low
3. International mobile technology: the cost savings related to coordination costs, lowered value added even more

Regarding the difference between developed and developing countries, WTR 2014 identifies different trends inside the phenomenon of global value chains, most of all represented with a graphical difference between two different times.

Figure 1.4: Share in imports of parts and components by country group, 1996-2012 (per cent)



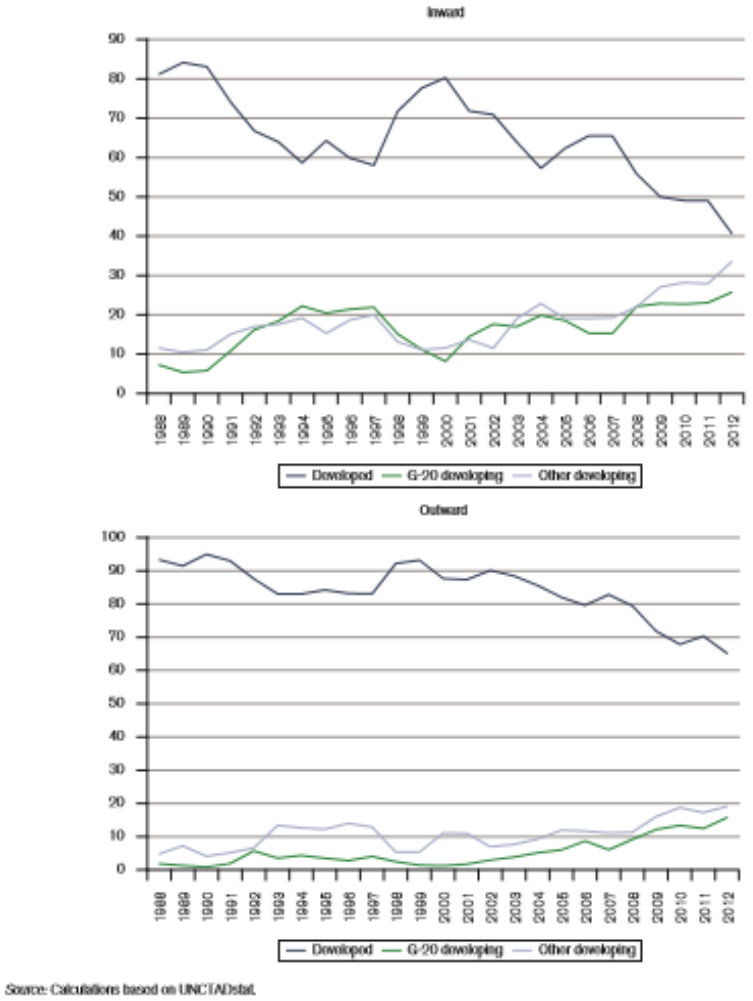
Source: UN Comtrade, WTO Secretariat.

Source: WTO (2014)

In the Figure 1.4 the world is divided into three macro-areas (developed, G-20 developing and other developing countries) and for each area a line defines the trend of the share in imports of parts and components by country group, from 1996 to 2012. While the share of developed countries has decreased a lot, passing from 65% to 49%, the G-20 has gained consistently and passed from 15% to over 30%. This change is significant and it is the first macro-trend observable in this kind of analysis. Among the G-20 economies, China is the main driver of this increase. The other developing countries share remained flat, showing the great difficulty of poor countries to enter and participate in GVCs. Another way to measure the involvement of a country into the GVCs is to measure the amount of FDI inward and outward.

Looking at Figure 1.5, which represents the share of outflows and inflows of FDI, the conclusion traces the one from the previous table: the share of developed economies is decreasing over time especially for the inward FDI. This is understandable: developing economies (especially the G-20) are growing and they must attract FDI if they want to develop. Also for the outward FDI, the share of FDI of developed countries is decreasing (even if in a lighter way) in favor of developing countries. What does it mean? It means that the purchasing and economic power of G-20 has increased over time; not only, but the poorest countries (the “other developing countries” of the table) are impressively pushing for the FDI and their share is over the G-20 one.

Figure 1.5: Share of outflows and inflows of FDI, 1988-2012 (percentage of total world)

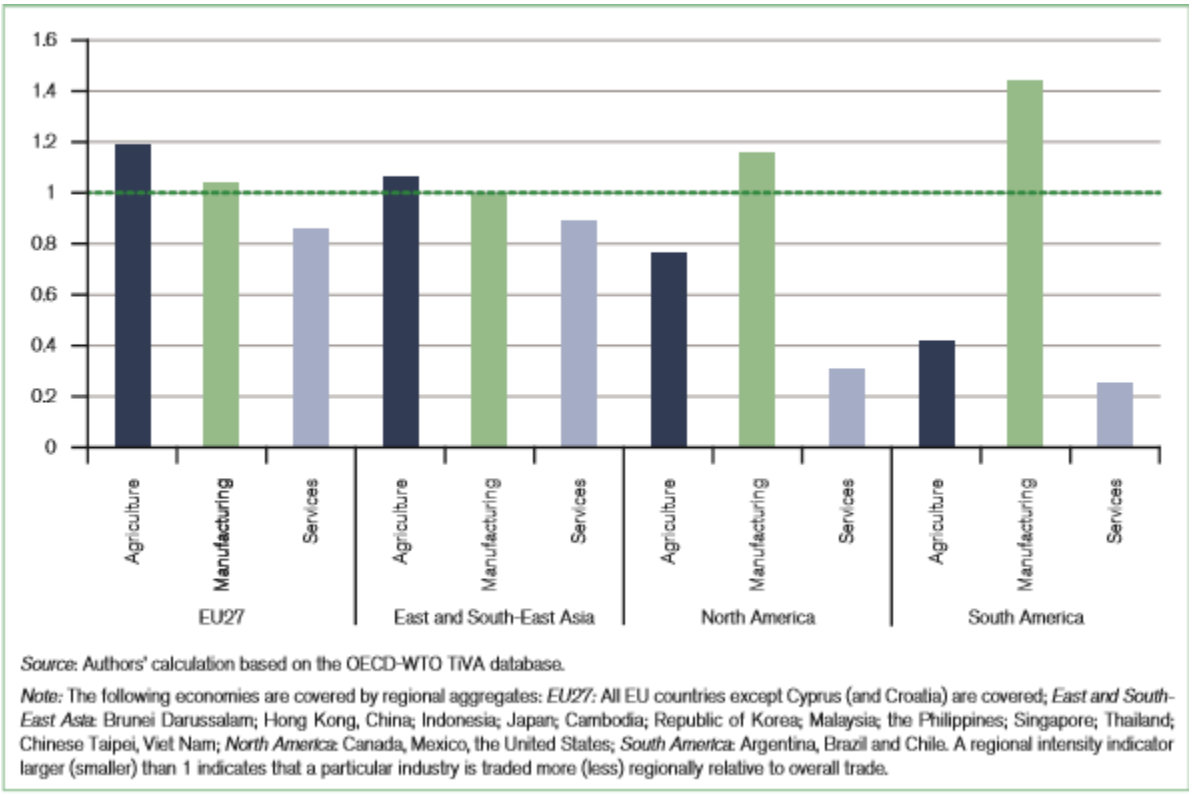


Source: Calculations based on UNCTADstat.

Source: WTO (2014)

A different but equally interesting analysis compares the regional intensity of trade with the global one, according to different sectors in Figure 1.6. The important conclusion from this analysis is that, in all four regions object of the analysis, manufacturing trade is more regionalized than overall trade (especially in North and South America), while services tend to be traded more in a global perspective.

Figure 1.6: Regional intensity of exports by aggregate industries for selected regions, 2008 (ratio of shares)



Source: Authors' calculation based on the OECD-WTO TiVA database.

Note: The following economies are covered by regional aggregates: *EU27:* All EU countries except Cyprus (and Croatia) are covered; *East and South-East Asia*: Brunei Darussalam; Hong Kong, China; Indonesia; Japan; Cambodia; Republic of Korea; Malaysia; the Philippines; Singapore; Thailand; Chinese Taipei, Viet Nam; *North America*: Canada, Mexico, the United States; *South America*: Argentina, Brazil and Chile. A regional intensity indicator larger (smaller) than 1 indicates that a particular industry is traded more (less) regionally relative to overall trade.

Source: WTO (2014)

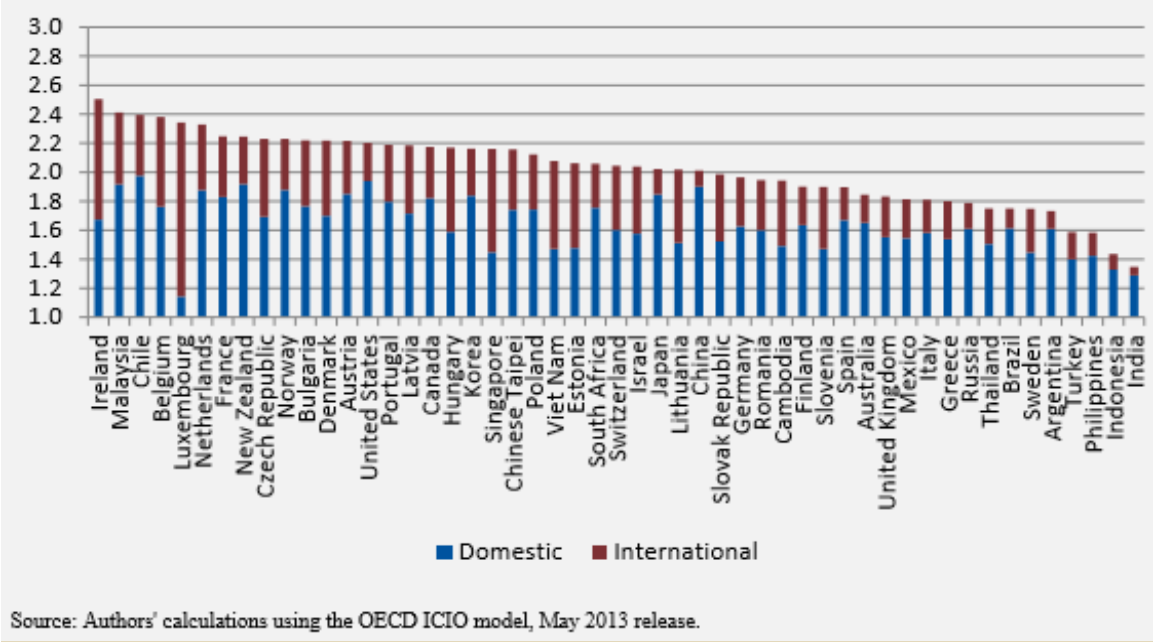
The global value chains are present in almost all industrial sectors, with different characteristics and countries involved. De Backer and Mirodout (2014) conducted an analysis in which they tried to extrapolate the basic characteristics, trends and the differences of some specific industries. The results and the suggestions will be different because the point of view changes from the previous kind of investigation. This work allows us to investigate the world of GVCs from a different perspective.

1.4 Global value chains in different sectors

1.4.1 Agriculture industry

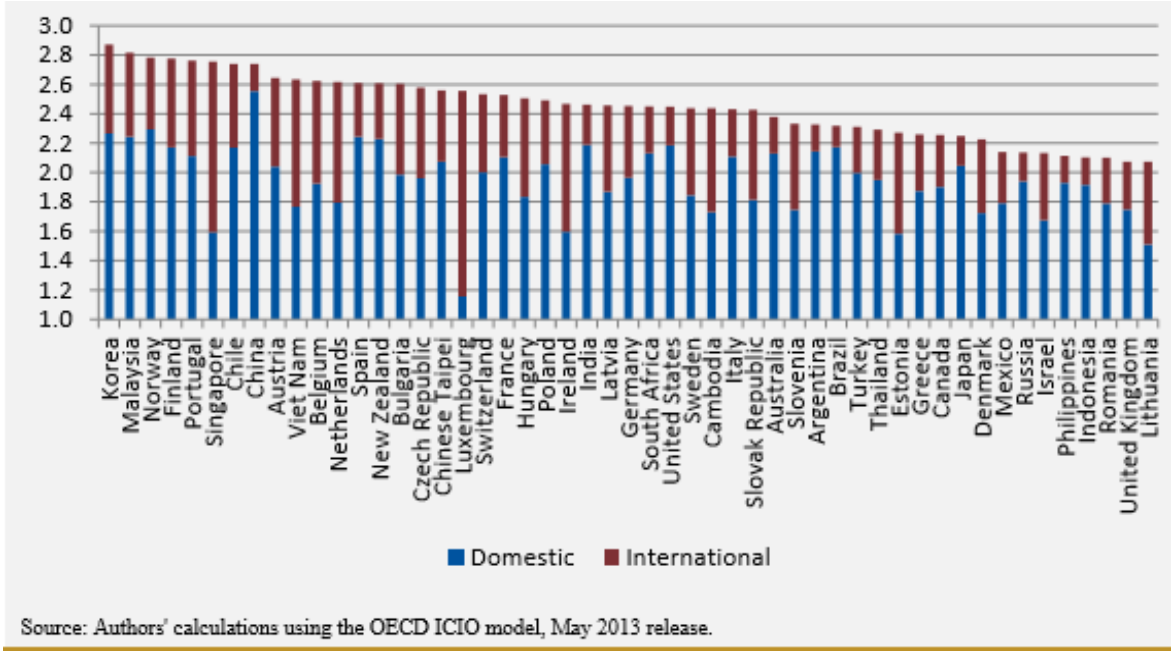
The agriculture and food industry structures its organization around GVCs led by food processors and retailers. Customers, nowadays more than ever, want safety and quality for food, and this is reflected on the high quality standards that distributors and supermarkets put on their suppliers among all the global value chains. In this chain the number of emerging economies involved is higher and the chain is relatively long (Figure 1.7 and Figure 1.8). An important take-away from the analysis of this chain is that countries are not confined in specific roles based on their level of development. For example, China and Sweden are upstream in the agriculture value chain (Figure 1.9), while Germany and Viet Nam are both downstream in the food products value chain (Figure 1.10), despite their level of development is completely different. South Africa is the only African country present in this analysis with a distance from the final demand quite low in the domestic chain and almost null in the international one, regarding agriculture chain. It is the other way round for food products.

Figure 1.7: Length Index – Agriculture – By country (2009)



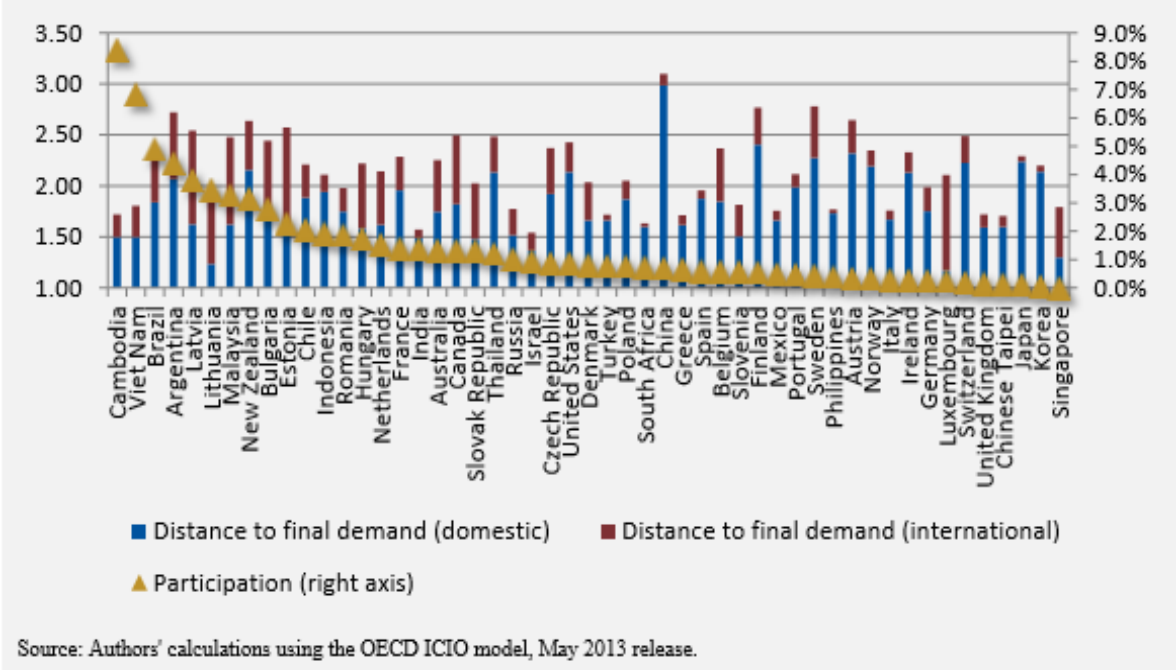
Source: De Backer and Mirodout (2014)

Figure 1.8: Length Index – Food products – By country (2009)



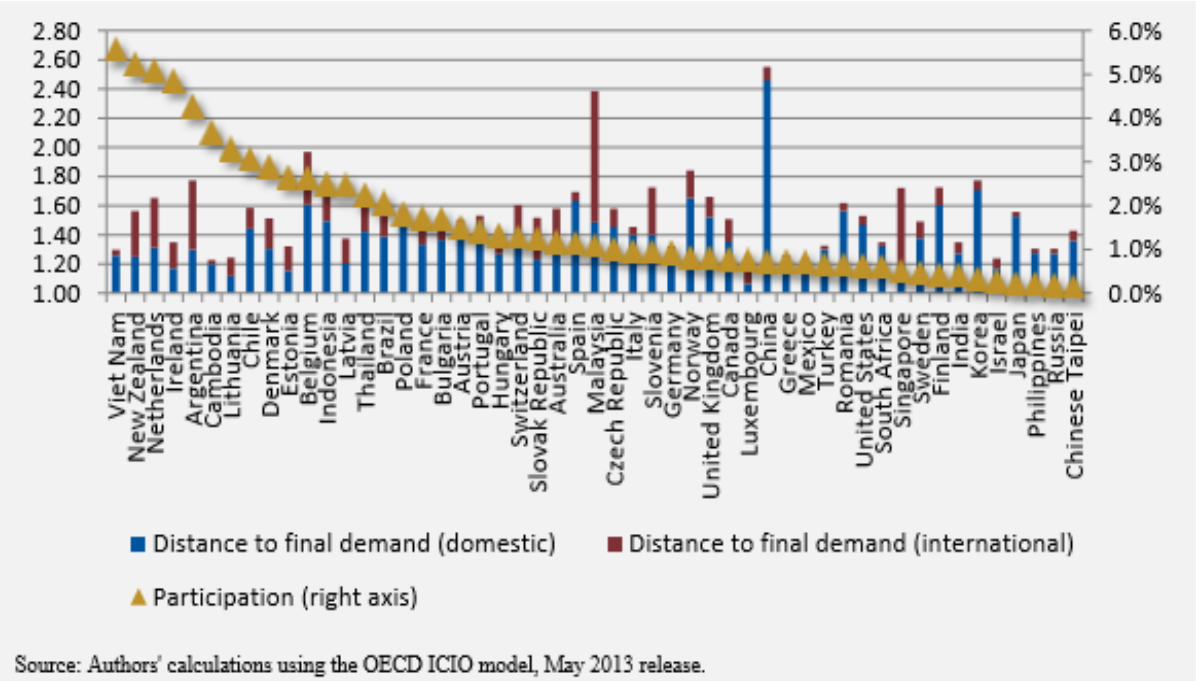
Source: De Backer and Mirodout (2014)

Figure 1.9: Participation and distance to final demand – Agriculture – By country (2009)



Source: De Backer and Mirodout (2014)

Figure 1.10: Participation and distance to final demand – Food products – By country (2009)



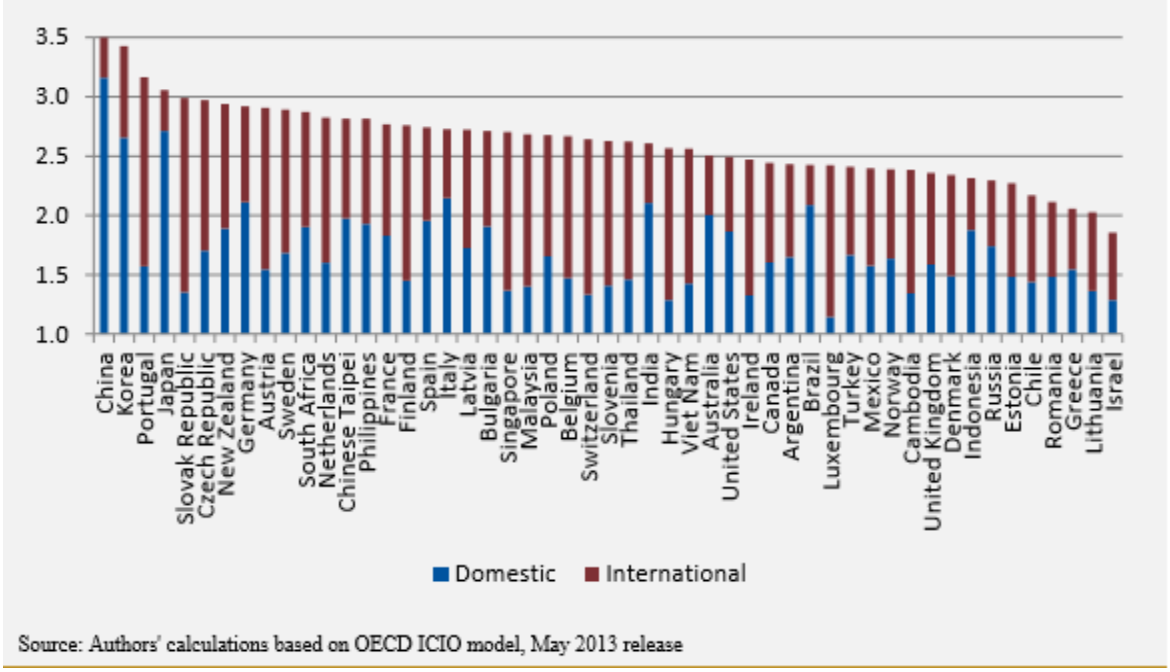
Source: De Backer and Mirodout (2014)

1.4.2 Motor vehicles industry

In this industry, completely different from the previous one, outsourcing by companies have pushed the international fragmentation of production quite far. The structure is mainly hierarchical; the leading firms are responsible for design and branding and they rely on global suppliers, since the more complex needs of lead firms require the global presence. However, regional production and sourcing are still very important in the motor vehicles industry within the three main regional blocs (Asia, Europe and NAFTA), because of high costs of transportation, especially in downstream activities, and the political risks. The average "length" of the GVC is over 2.5, meaning a quite long chain fragmented internationally (Figure 1.11). As depicted in Figure 1.12, South Africa relies on Europe for most of its chain but a considerable part is taken from the "rest of the world", which includes African countries.

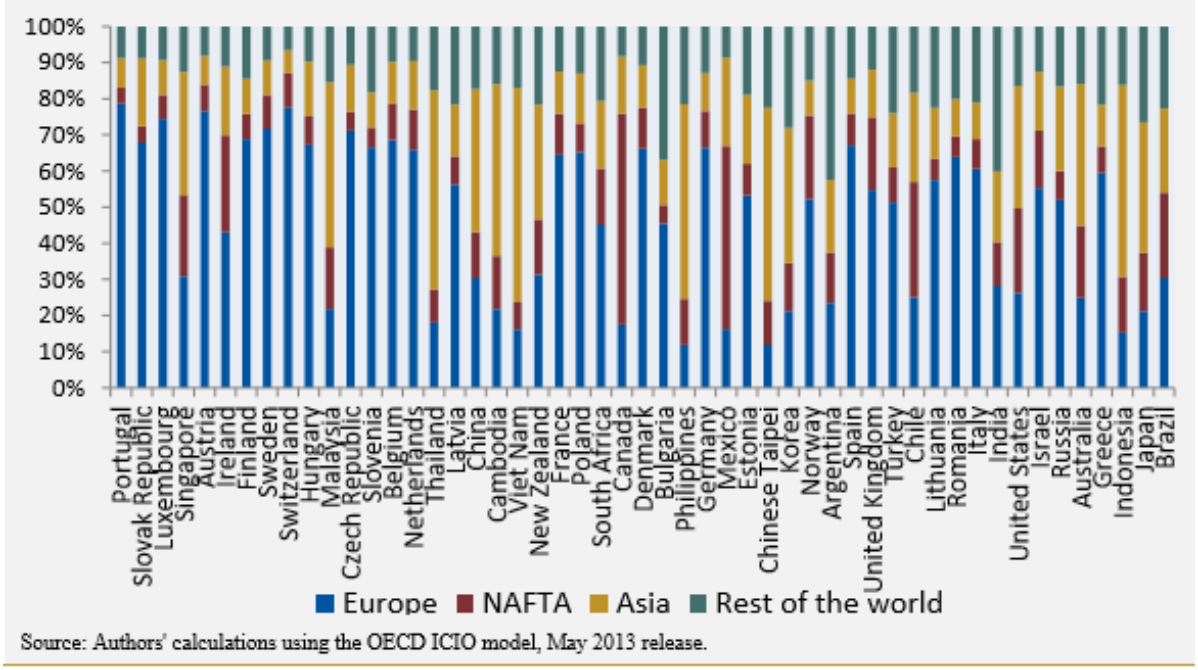
Figure 1.13 shows the participation and the distance to the final demand of the analyzed countries. As can be seen, China upstream position is similar to its agriculture chain and also South Africa is quite distant to the final demand.

Figure 1.11: Length index – Motor vehicles industry – By country (2009)



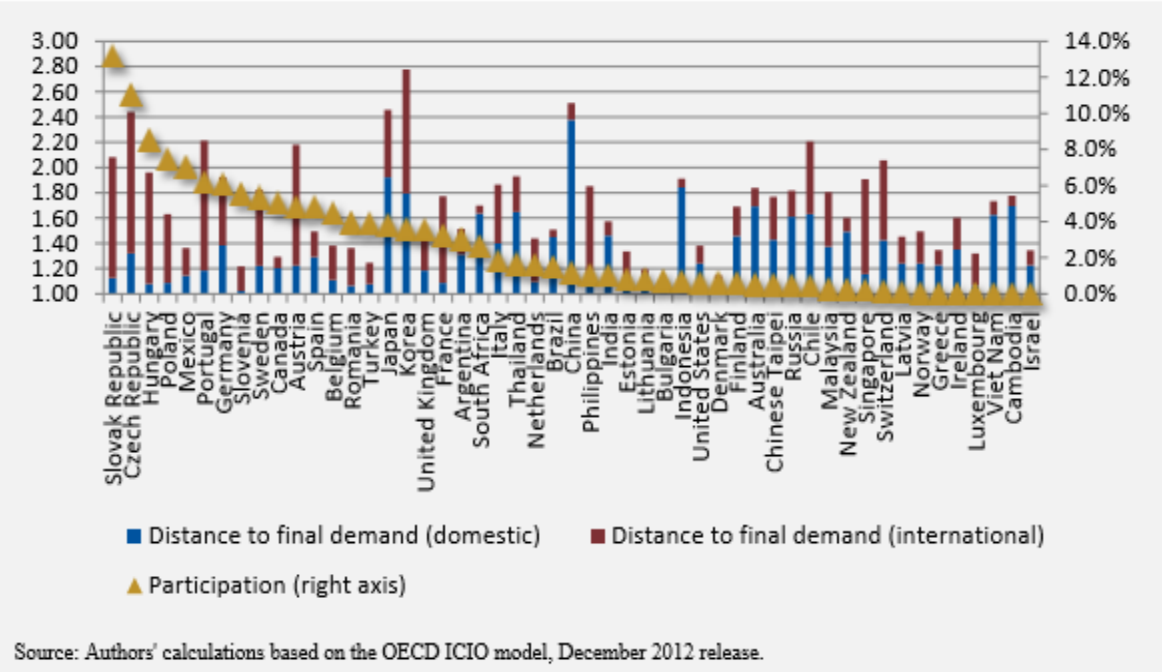
Source: De Backer and Mirodout (2014)

Figure 1.12: Import content of exports by country of origin, motor vehicles industry (2009)



Source: De Backer and Mirodout (2014)

Figure 1.13: Participation and distance to final demand – Motor vehicles industry – By country (2009)



Source: De Backer and Mirodout (2014)

1.4.3 Services industry

There are two ways of services trade, according to WTR 2014: traded directly across borders or embodied in goods and traded "indirectly" trough them.

The supply of services is less dependent by GVCs, and in particular by foreign inputs, since this sector is abundant of small companies providing directly their domestic consumers. However, the process of focusing more on their core competencies brought many firms to outsource and offshore an increasing number of business services previously supplied internally. Although they are a very particular industry, services are what tie together the different parts of the global value chains. There are several kinds of business services:

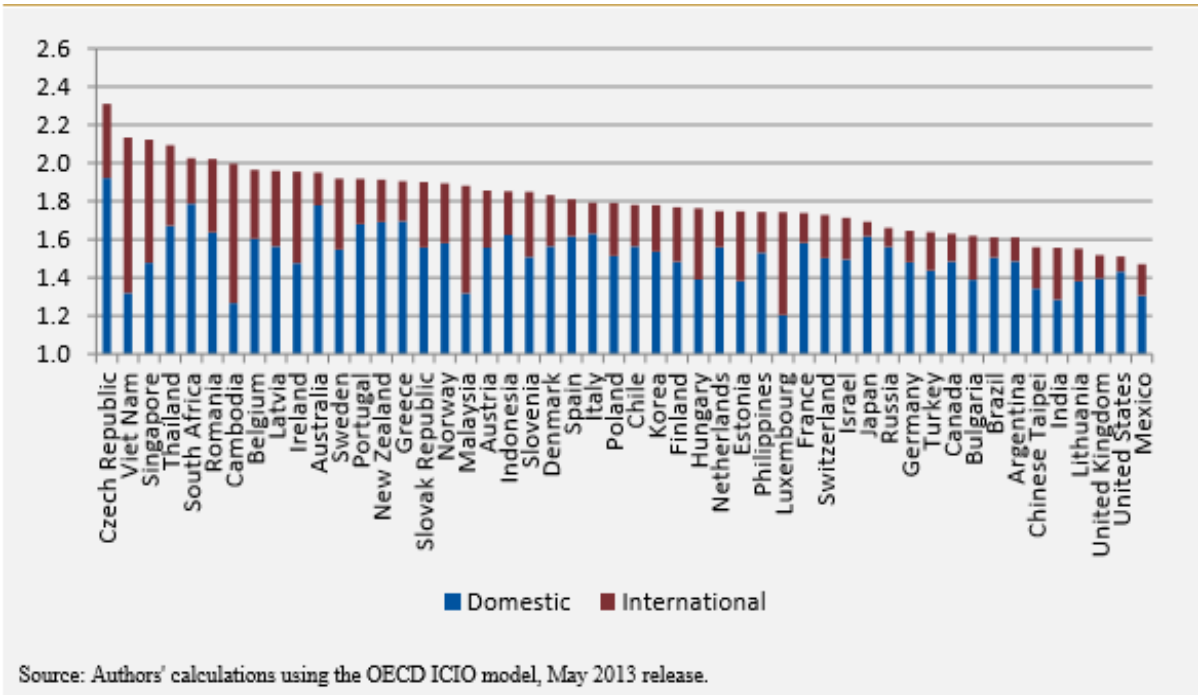
- **Horizontal**: they are activities that every company needs: IT services, knowledge process outsourcing, business process outsourcing.
- **Vertical**: they are services corresponding to specific value chains in the manufacturing sector.

Normally, the firm's headquarters (where all the activities are coordinated in a global perspective in order to reach economies of scale) are in developed countries, but the recent trend moved part of these

services in emerging economies where human skills can be found at lower price. This is the "global delivery model". Pervading all the chain, there are other horizontal supporting activities, as human resource management, accounting and IT. The authors divided the services in two categories: "**computer services**" and "**other business services**". The first ones refer to information technology outsourcing, software and infrastructure services. The second ones correspond to all the rest of the horizontal activities.

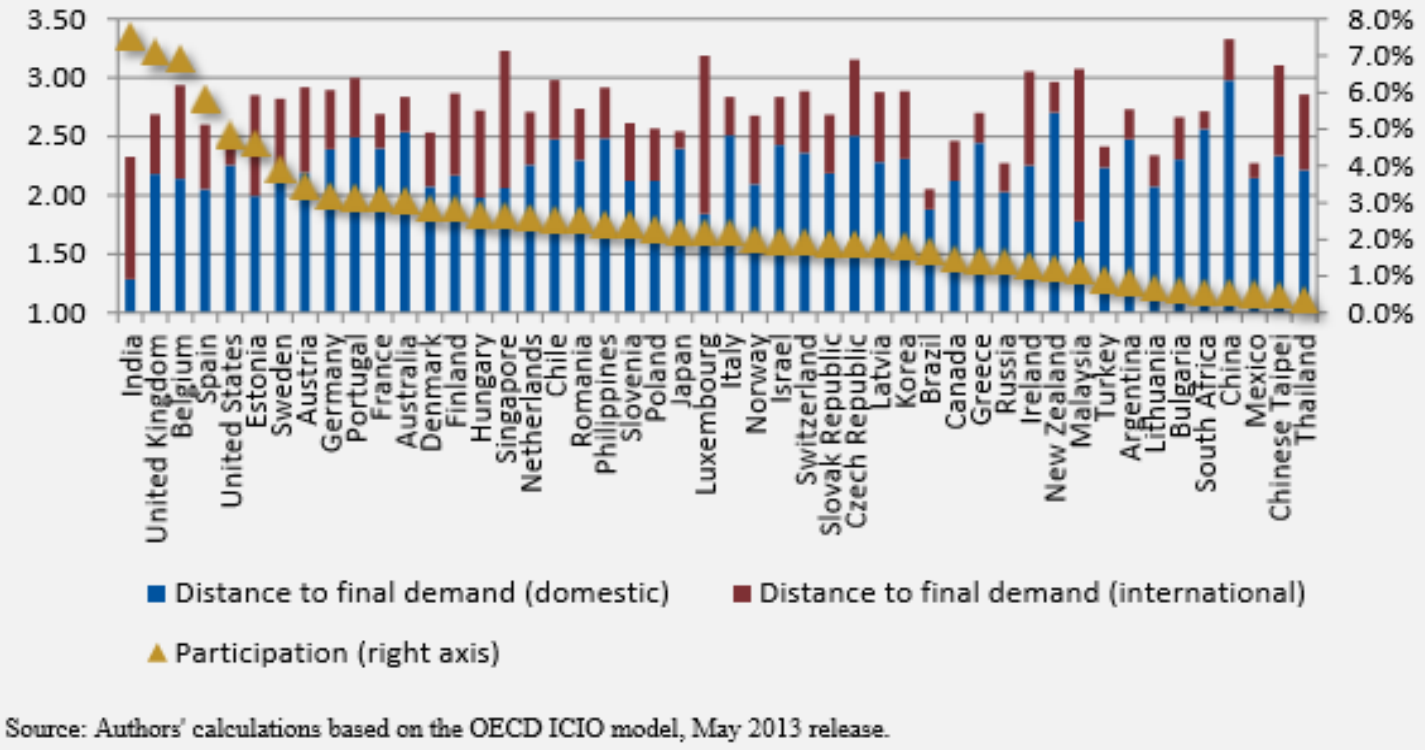
Looking at other business services, as shown in Figures 1.14 and 1.15, value chains can be quite long in the industry and the distance to final demand tends to be high. This is not surprising, since many business services are provided at the beginning of the value chain. Different nations in terms of participation can have a very different positioning. For example, South Africa has high domestic distance but almost null international distance, while Malaysia has almost opposite values.

Figure 1.14: Length index – Other business services – By country (2009)



Source: De Backer and Mirodout (2014)

Figure 1.15: Participation and distance to final demand – Other business services – By country (2009)



Source: Authors' calculations based on the OECD ICIO model, May 2013 release.

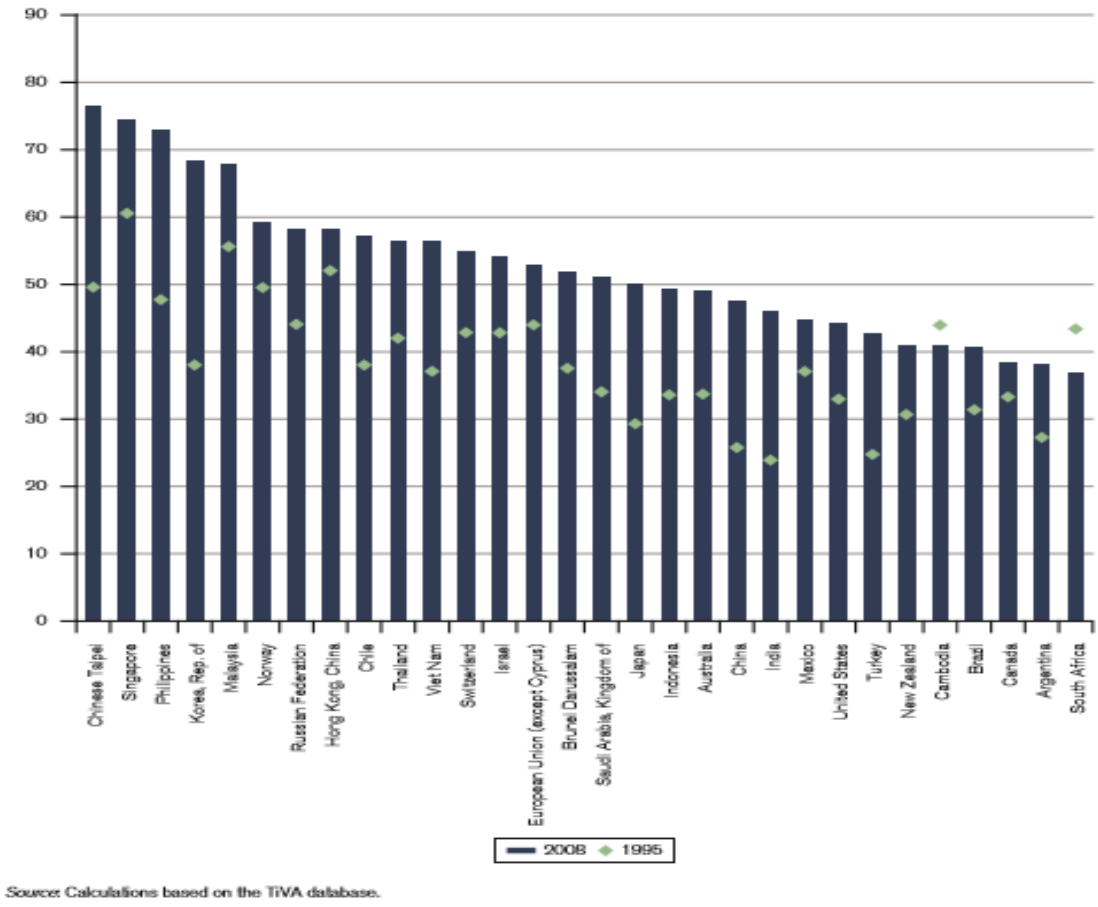
Source: De Backer and Mirodout (2014)

1.5 A view on regions involved into GVCs

After having analyzed the major trends and characteristics of the GVCs, we will focus on what are the countries and regions that are most involved in the GVCs phenomenon.

Using some of the indexes analyzed before to track the participation of countries to GVCs, it is possible to observe the evolution of the economies more involved in this phenomenon. The participation index applied analysis, brilliantly done by WTO (2014), gave the results of Figure 1.16.

Figure 1.16: Participation Index in GVCs, 1995 and 2008 (percentage of participation)



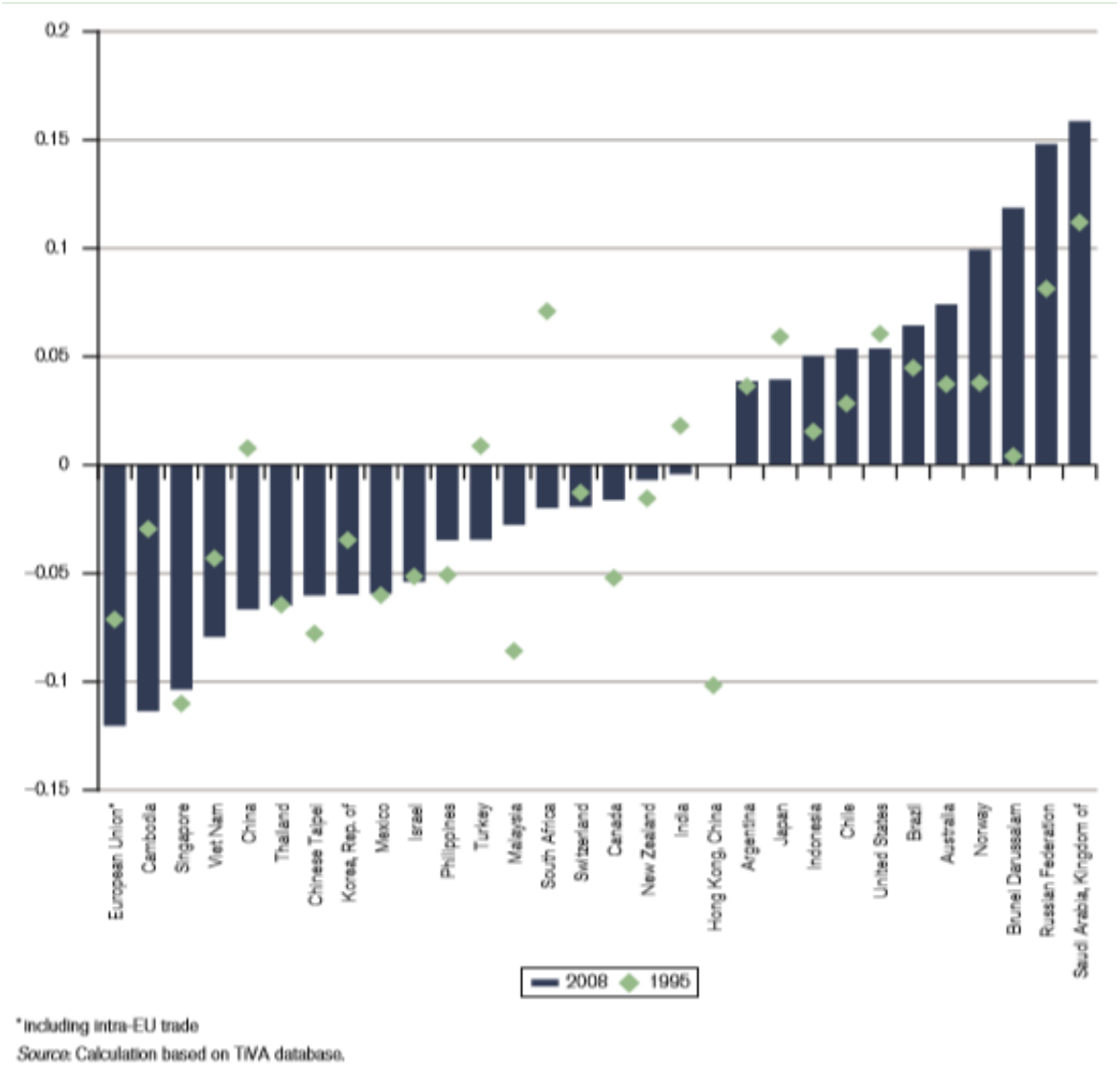
Source: Calculations based on the TiVA database.

Source: WTO (2014)

For almost all the countries of the study the participation increased, which is a logical consequence of the world globalization process that assumed huge proportion in the 90's and first years of 00's. China, South Korea and Chinese Taipei almost doubled their percentage of participation, confirming the trend well expressed before. A curious exception is South Africa (again the only African country present in the

analysis). The Figure 1.17 shows the position index analysis applied to the countries from all over the world, with an overall "score" for the European Union. Here the general results are less predictable, since many countries changed their position passing from being upstream to downstream or vice versa. It is impressive the change of China, Hong Kong, Malaysia and South Africa, which changed their economic structure radically.

Figure 1.17: GVC position index for selected economies, 1995 and 2008



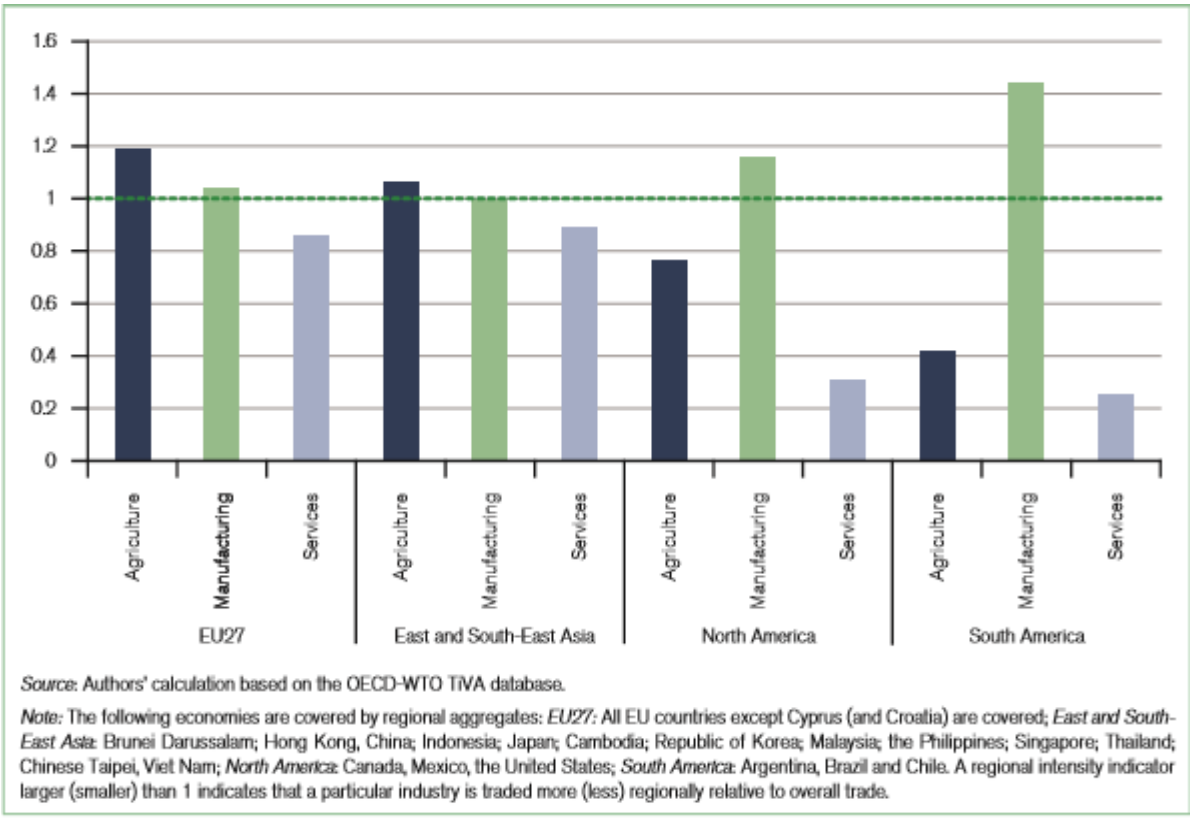
*including intra-EU trade

Source: Calculation based on TiVA database.

Source: WTO (2014)

The Figure 1.18 offers an interesting point of view, computing the regional intensity of exports by aggregate industries for some selected regions. It is interesting to notice that for agriculture and manufacturing the intraregional trade is far more important and significant than the global trade; instead services tend to be traded more globally, i.e. exported to countries outside the region.

Figure 1.18: Regional intensity of exports by aggregate industries for selected regions, 2008 (ratio of shares)



Source: Authors' calculation based on the OECD-WTO TiVA database.

Note: The following economies are covered by regional aggregates: *EU27:* All EU countries except Cyprus (and Croatia) are covered; *East and South-East Asia*: Brunei Darussalam; Hong Kong, China; Indonesia; Japan; Cambodia; Republic of Korea; Malaysia; the Philippines; Singapore; Thailand; Chinese Taipei, Viet Nam; *North America*: Canada, Mexico, the United States; *South America*: Argentina, Brazil and Chile. A regional intensity indicator larger (smaller) than 1 indicates that a particular industry is traded more (less) regionally relative to overall trade.

Source: WTO (2014)

1.6 Theoretical views about global value chains

Since the first evidences of the changes in the structure of world economy into the GVCs, there was the need of some theoretical frameworks and models that could explain the effects, benefits and risks of adopting this economic structure. In particular, there are some commons points addressed by several models, which could be interesting to adopt in order to analyze later the benefits and risks of GVCs.

- **Effect on prices**

  In Grossman and Rossi-Hansberg (2006) there is the relative-price effect. However, the model focuses on the effects on the headquarter country, where the improvement of technology for offshoring will induce a fall in the relative price of the labor-intensive good, bringing a disadvantage to low-skilled labor. This does not influence the high-skilled labor tasks. In Feenstra and Hanson (1996), the change in factor prices brings to a rise of price index of Northern inputs compared to the South ones.

- **Effect on salaries**

  This is one of the biggest issues talking about globalization and GVCs. What are the effect of the change of this kind of economic model on salaries and wages? The classic Heckscher-Ohlin said that trade in goods raises income inequality in rich countries but lowers it in poor ones. Feenstra and Hanson (1996) supposed a movement of capital between the North (which is the "rich" country) and the South (the poorer country, which we can assume to be Africa in our case). This movement can be considered as an approximation of investment for establishing a GVC. In this case, they demonstrated that there is a rise in the relative wages of skilled workers and an increase of the gap with the unskilled workers in both countries. This does not mean necessarily that they are worse off in real terms. This is negative in the short term, because large part of the African workforce is composed by low value-added labor; however, this could bring in the future a shift towards more high value-added activities.

- **Effect on productivity**

  In Grossman and Rossi-Hansberg (2006), the productivity effect is an important part of the model. "*As the technology for offshoring improves the cost of performing the set of L-tasks declines in both industries*". The rise of productivity brings to an increase of demand for low-skilled labor and to a consequent boost of their wages. Again, this is referred to the home country.

- **Change in composition of workforce**

  Feenstra and Hanson (1996) (p.28), in the case of a capital increase in the South, affirm: "*the ratio of skilled/unskilled labor used in total production in each country is unchanged or increases*". If we consider South as an African nation this could be positive for the economy, bringing to an increase of more high value added activities and developing the economy, moving

to higher stages of the chain. This is confirmed also by the rise of non-production/production workers ratio. Non-productive workers are normally associated with higher value-added jobs.

When offshoring is possible, optimal policy should target tasks, not goods. This suggests that trade taxes should be levied on imported and exported value added, not on the full value of traded goods. Moreover, the non-physical nature of much of this trade raises enforcement problems for the tax authorities).

From a theoretical point of view, there are different schools of thought and it's difficult to find common starting points and results. However, despite the increasing complexity in doing such an analysis, it is crucial to verify, from a qualitative and quantitative point of view, the relation between GVCs expansion, as economic model, into nations and regions and the GDP growth of the above-mentioned economies. More important, if the growth is actually proved, is it a healthy growth, with benefits for the entire economy or the positive effects are concentrated on a small percentage of population or is not sustainable?

Taking the cue from the old theories and looking at newer data and views, in particular to the *World Economic Report 2014*, we provide a general explanation of benefits and risks of participation in GVCs.

1.7 Benefits

Generally, the GVCs are a big opportunity for developing economies to enter the world economy and try to cover a path towards the reaching of economic development; however, what are the precise benefits of entering into GVCs? First, the opening to international trade can be an important driver of growth and productivity, given by access to foreign knowledge, technology and economies of scale. In addition, there is an easier access to cheaper and higher-quality inputs, which allows a more efficient allocation of resources. This happens for three reasons:

- Price effect: a stronger competition between inputs producers lowers the price
- Supply effect: there is an increase of variability
- Productivity effect: new inputs can fit better the final good technology and can spur the innovation

About employment, GVCs participation does not affect the total employment level (which is more affected by macroeconomic variables and dedicated institutions) but it affects its composition. The offshoring of certain activities can bring to a correspondent decline of its employment. At the same time, it raises the productivity and the competitiveness of the remaining ones. This effect can counterbalance the job losses of the offshoring but the new composition will be different. Another positive effect is the better working conditions of employees; even if the bargaining power of workers decrease (given by competitiveness and pressure on wages), the working conditions improve thanks to minimum standards required by MNEs and to the improvement of technology and knowledge of the production processes.

When a country manages to respect the quality, technology and efficiency standards required by MNEs, it could overcome the thresholds. When it reaches the later stages of development, an upgrading to high value added activities can further drive the development. In fact, countries with favorable business environment and low tariffs participate largely in GVCs. For other nations, whose level of development is still too low, there are external sources of help. For example, **Aid For Trade**, an assistance provided by The European Union through the European Commission, helps to reduce the lack of infrastructures and custom barriers in emerging countries. Its budget in 2013 was 11,7 bn€.

For developing economies, the importance of GVCs is still higher. As said in the report from OECD, WTO and World Bank Group (2014), the disaggregation of productive chain allows their firms to find a place in the "ladder" (another way of representing the value chain) and to move up when their knowledge and skills improve. GVCs reward this improvement; in fact, nations that are able to overcome obstacles to GVCs grow 2% more than average. Not only have they received investments in production of goods and services but also in the research and development, design and innovation. Big economies, like China and India, have a certain degree of local knowledge capabilities and they are large domestic markets, where the growing skills of an emerging middle class coincide with the rising incomes of those same producers and consumers. Also small economies can obtain several benefits from the participation, given the strong framework conditions, sometimes combined with attractive incentive packages and a good skills base. It is the case of Costa Rica, which is a favorable location for manufacturing in small scale and high value-added production (for example medical devices). The continuous relocation offers the opportunity to low-wages countries to participate and create new opportunities of growth and learning. For example, the textiles industry moved from China (that has upgraded in the value chain) to

Viet Nam. Some developing countries have benefited from the increasing participation in international production networks through, among others, movement of new technologies and know-how; others have ramped up the density of their production structure, and some have done both.

1.8 Risks

Nevertheless, there are some considerations to do.

First, not all the countries manage to integrate into the world economies through GVCs. The big MNEs, which are responsible for relocation, often require high quality standards and a minimum set of competences and knowledge in order to proceed with an FDI. This can exclude some countries, whose development is still too low to be competitive, even in low value-added stage of the value chain. This has been, and is still now, the problem of many African countries.

Second, the participation to GVCs does not imply automatically an improvement for the country economy. It can provide a shift from an agriculture economy to an industrial one, with manufacturing and services, that takes an important share of the GDP but there are some risks to consider.

In the WTR 2014, there is a study that analyses 6 risks in particular, which are considerable for countries participating in GVCs.

1. **Increasing vulnerability to global business cycles**: by opening its economy to GVCs, a nation becomes vulnerable to the global economic cycles especially considering the recent global crisis. The solution can be a sort of "diversification", in order to decrease the exposition to uncertainties and to local recessions.
2. **Vulnerability to supply disruption**: disruptions can happen for several reasons, even the most unpredictable. For example, earthquakes or floods/tsunami that can hit a particular region where the production of a particular component is concentrated; it has effects on production or on final demand and in all the value chain involving that region.
3. **Relocation and investments risks**: when a country bases its economy on GVCs, it also accepts the risk of relocation, given the higher level of competition and the trade-off between

production costs and transaction costs. In particular, the countries that are more "at the base" of the value chain, are more in risk of a relocation, given the low level of specialization and knowledge required. If a country is not able to attract investors and to build a solid structure for investments, the relocation risk is high and the investments themselves can be risky (especially the public ones).

4. **Risks related to labor and environment**: the developed and developing countries has several differences concerning the labor requirements, standards and rules. Normally, the leading firm of a developed country requires higher standards (example: an ISO certification). This can be a problem when a supplier from a developing country does not comply with these standards. In the last years the public opinion and the sensitivity regarding environmental issues and workforce rights has increased dramatically, obliging MNEs to adopt stricter regulations. Often, the respect for these rules requires a certain amount of costs and a developed technology (especially for environmental issues). Developing countries, whose aim is to enter quickly in the GVCs, prefer to use cheaper methods, which sometimes are not compliant with these rules. This misalignment can cause some problems.
5. **Risks related to income inequality within countries**: the inequality among countries, in terms of bargaining power and economic conditions, brings to unequal distribution of gains of GVCs. Together with the progressive industrialization of the country in those sectors, there is an impact towards the wages and, inevitably, the country needs an improvement of tertiary services and education.
6. **Narrow learning**: when the skills involved in the activities performed by a country are very particular, they cannot be transferred to other activities and the region becomes "dependent" from this set of tasks, impeding the creation of economies of scale and an "upgrading" into the value chain. The learning for these countries is narrow, thus the participation to GVCs does not guarantee the upgrading. This can be caused by MNEs, which are not willing to integrate the suppliers, in order to avoid the risk of knowledge spillovers.

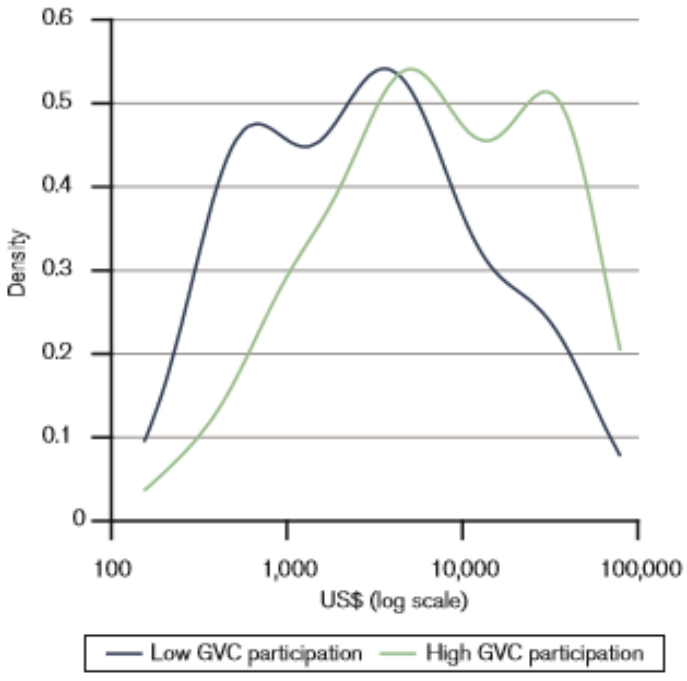
For this reason, entering the GVCs is a process that requires time and right policies by the governments. Nevertheless, at the same time, a "mercantilism" policy would be ineffective, since it would oblige

domestic firms to find more expensive or qualitatively inferior inputs, causing them to be uncompetitive in the world market.

There are some examples of countries that successfully entered into GVCs and developed their economies in a huge way: China, Japan and South Korea. They started learning and this process brought to a stable industrialization and growth of the country.

Having considered also some collateral effects caused by the entrance into GVCs, evidences seem to show this conclusion: GVC participation does not automatically cause a higher growth, but is associated with it. Countries with high-participation index are generally richer than countries with low-participation index but the gains are not immediate and they can be associated with collateral effects (Figure 1.19).

Figure 1.19: Distribution of GDP per capita by high and low participation in GVCs, 2012



Source: Calculations based on UN Comtrade data and Penn World Table 8.0 (Feenstra et al., 2013).

Note: Countries with a share of imports in parts and components above (below) the sample median are classified as high (low) participation countries.

Source: WTO (2014)

What is the fundamental requirement to enter into a GVC? A country needs to be competitive in the activity it wants to perform. The entry into the GVCs can stimulate the country to improve its capabilities as a broad concept (organizational methods, managerial quality, international standards, etc.). The country starts moving its labor and capital into manufacturing or services; normally the first activities made in initial stages of development are related to the apparel sector, because they have a low degree of capabilities and knowledge required; in fact, the huge economic growth of East Asia started from this point.

The gains distribution among partners is still a problem especially for "new" countries. As reported in the WTR 2014, 95% of personnel in the apparel value chain receive less than 10% of the product's value. It is just an example of how the relative bargaining power matters a lot between business partners in defining what the division of gains is.

1.9 Upgrading in global value chains

New countries participating to value chains must find a way to upgrade their own position on the value chain. It implies climbing up the value added curve (smile curve). Countries want to move on from activities where the value added is low and competition is very high. In Cheng e al. chapter of REO 2015, they underline the fact that, overall, upstream economies tend to capture a larger share of the value added generated in GVCs than downstream economies. This happens in a more significant way in high-tech manufacturing industry than in low-tech. Why? Because activities as R&D are upstream and they play a big role in high-tech manufacturing. The economic complexity too plays an important role in the capture of a larger share of the value added from GVCs; economies that are more complex are in a better position. As Baldwin said before, it is difficult to establish who precisely gets more benefits from entering into GVCs and surely, in the beginning, you are not in a favorable position. An important point, which makes the difference between difference countries, is that SMEs face more difficulties in entering and participating into GVCs than MNEs and big firms. Why? Because they have lower access to the market, to training and they have few collaborative horizontal and vertical linkages. Furthermore, the access to external financial resources is far more difficult; they do not spend too much in training and for this reason they struggle to reach the quality standards required to join efficiently GVCs. In fact, WTR 2014 has established that the rapid rise of East Asian economies was driven by this shift.

There are different "kinds" of upgrading:

1. **Process upgrading**: improvements in the efficiency of the production process, by reducing wastes, improving the quality control process or simply adopting new technologies. The improvement of the process brings surely to a productivity gain; Harding and Javorcik (2012) demonstrated that the poor countries could gain considerably from the quality improvement; in particular, they found a positive relationship between the amount of FDI received by some

sectors and the price of the exports of those sectors. The assumption is that price is an indicator of quality, while FDIs received are a sign of the participation of the country to GVCs.

2. **Product upgrading**: it consists in introducing new products or improving the quality (or changing the design) of the already existing ones. However, as it happens with process upgrading, there can be a "dark" side of this upgrading: often the suppliers and the workers do not benefit totally from it, but part of the "power" goes to the lead firm, which can exploit the higher margin of the suppliers to make that stage even cheaper. If this supplier serves also the domestic economy, the developing country can benefit from the lower price, partially mitigating the lack of power increase of the supplier. The conditions for an upgrading vary from sector to sector; sometimes the achievement of the upgrading is an objective of the lead firm; otherwise, is the supplier itself that pushes for these initiatives. An important instrument used to achieve upgrading are the standards, which are often asked by lead firms. Standards can reduce trade barriers, access to information and compliance costs. However, they tend to be excessively expensive for small firms (especially standards by private firms, harder to achieve), excluding them from the market. In developing countries, where this kind of firms can constitute a big part of the GDP, this can be a problem for the development of the economy.
3. **Functional upgrading**: moving into different stages of production or function within a given GVC. Often nations pursue functional upgrading as the most direct way of increasing the value of their participation in these chains. Normally, it implies a passage to more difficult-to-replicate activities, more directly connected with the brand of the lead firm. The suppliers want to move on from activities (like basis manufacturing) where the competition is high (especially from new entrants). With functional upgrading, the firm increase its importance and its power along the value chain and the IMF (2013b) found a correlation between functional upgrading and higher growth. The lead firms could impede or impose limitation to this growth, because it is in their interest that supplier focuses only on one activity and do not improve. This pressure towards the "immobility" varies depending on sectors. If the supplier does not put at risk the core competences of the lead firm, the latter shows more availability to the improvement. The most difficult improvement is the upgrade into original brand name manufacturing, because it implies a direct competition with the lead firm. However, the paper shows three ways to achieve the functional upgrading:

- Service to smaller customers in addition to multinational clients is a way to achieve functional upgrading independently from the principal chain
- Activity in more value chain simultaneously; different structures, technologies and inputs can stimulate the upgrading. Furthermore, the firm can use the knowledge and the skills acquired in one chain in another chain.
- Activity at different levels: local, regional, national and global. Some sectors require knowledge and improvement at local level, while some weak countries require a regional integration as an intermediate step to reach a satisfying level of global integration.

To foster functional upgrading, especially for small firms, a very important help can be given by clusters, which provide a wide range of contacts, services, suppliers and knowledge useful to upgrade.

4. **Intersectorial/chain upgrading:** it is the entry of a firm into a completely new value chain using knowledge acquired in the production of another product or service. It is difficult to achieve, since it requires multiple upgrading strategies to occur simultaneously in order to be a success. It can work through the establishment of vertical backward linkages, whose aim is the integration of suppliers in the value chain; in this case, the benefits for suppliers consist in technology spillovers. Finding these products or activities is a "trial and error" process, but it can bring long-term competitiveness to the country, especially when production is concentrated on "big hits".

Taking a cue from the work of Fernandez-Stark e al. (2012), there is also another kind of upgrading: the **end market upgrading**. It is the entry into new higher value end market segments, which may involve geographic or industry shifts, such as textile suppliers moving from apparel manufacturers to customers in the medical, defense or construction industries. Then the analysis proceeds; the upgrading trajectories are divided in country level and firm level. A country upgrades when a considerable part of its firms upgrades as well. Normally, in product-based chains, like agriculture and manufacturing, the development is linear and the "leapfrogging" is not common. Instead, for services many upgradings can occur simultaneously.

2. The recent evolution of African economies

2.1 African challenges

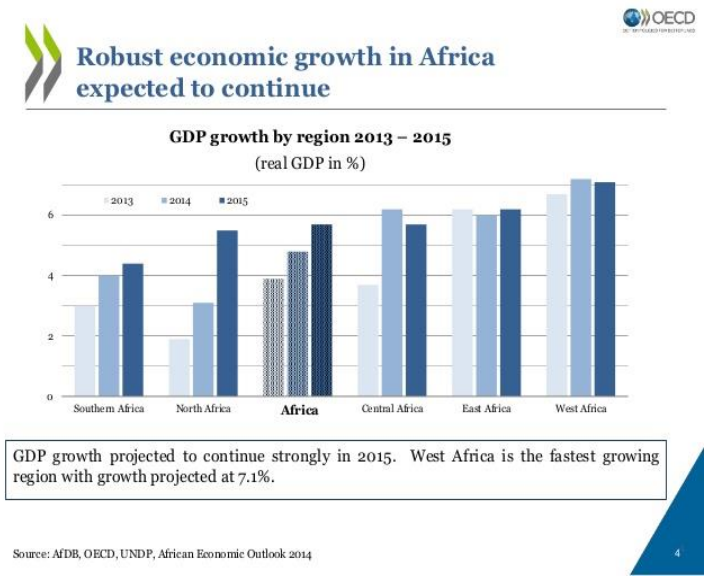
Africa is a continent with huge problems: civil wars, carnages, people starving, bad diseases and several military dictatorships. All these difficulties impeded the economic and social development of this continent. The current global environment (with a slowing China, anemic growth in Europe, fall of commodity prices, and major risks of global financial volatility related to normalization of monetary policy conditions) will be more challenging than in the recent past. Global value chains contain a sort of promise of employment boost and structural transformation that entails the resources shift to more productive activities. Lower tariffs, a better access to credit for the private sector and a more conducive business climate are initiatives to support more intense trade flows and better insertion into GVCs, as do efforts to improve education outcomes. These are the main levers on which governments have control. According to the AEO 2014, there are several challenges to undertake:

- **Competitiveness challenge**: the wealth and the center of global economy is shifting to the East and South of the world. Africa is part of this shifting, given that the most important G-20 economies are investing a lot in the continent.
- **Employment challenge**: by 2040, the African workforce will surpass China and India, making it the future of the world. Even if education and skills are improving, the major part of the population remains low skilled. This challenge is much more important for young people, who will constitute the spine of the rebirth of the African continent.
- **Structural transformation challenge**: Africa's structural transformation has started, but it has not improved enough to guarantee a solid production activity, which would sustain a consistent economy growth needed by African countries. They need an acceleration in this process to reduce unemployment and poverty.

From a macroeconomic point of view, Africa is growing. Its total GDP (from AEO 2014), grew 3,9% in 2014 and is expected to grow even more in 2015 (4,5%) and 2016 (5%). After a period of slow increase,

given by the world crisis, it is reasonable to assume that African countries will continue their growth, catching levels of pre-crisis growth.

Figure 2.1: GDP growth by region 2013 – 2015 (real GDP in %)



Source: AE0 (2014)

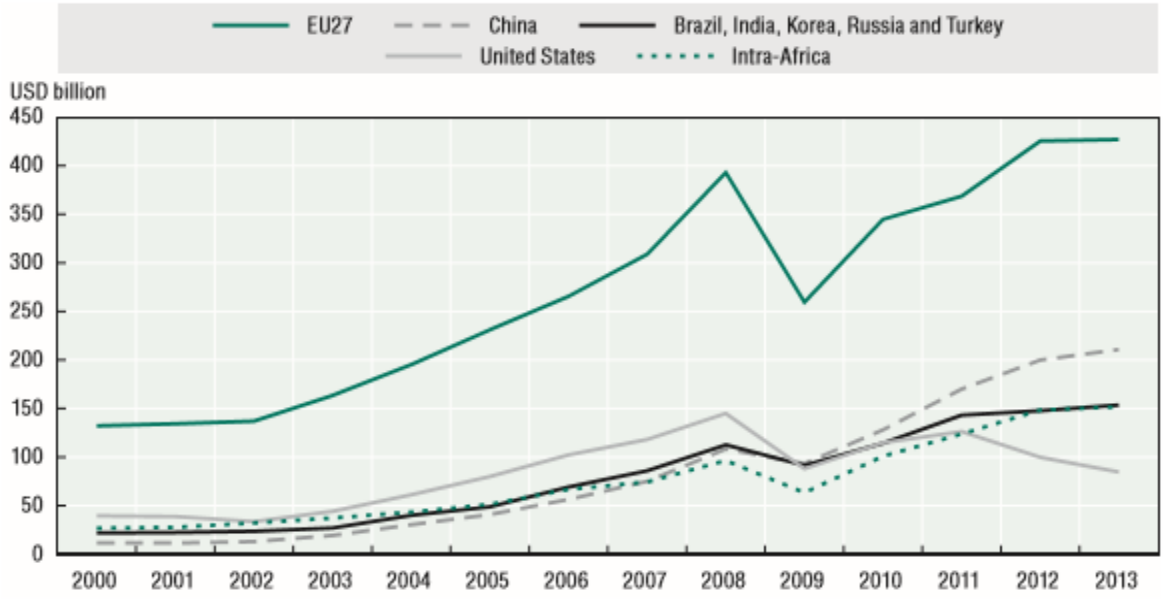
According to the Figure 2.1, West Africa is the fastest growing region, while Southern Africa is the slowest growing one. This can seem in contradiction with the fact that South Africa is the most developed nation in Africa; however, once a nation has reached a certain level of development is difficult to maintain a great level of economic growth and the economy settles down a little.

It is fundamental that an upgrading of infrastructures supports GVC integration. Without it, integration brings the risk of downgrading; in fact, the initial decline in the share of domestic value added is not a problem, as long as there are high grow rates of domestic activities and employment. Behind the infrastructures problem there is often a failure or a guilty lack of inefficient governments.

The biggest possible threats for African countries is to remain locked into low value-added stages without spillovers from foreign investors. The lack of human capital (educated, skilled and healthy workers) is serious and, nowadays, more than 80% of the African workforce is engaged in traditional agriculture and in the informal sector, both low productivity activities. Intra-African investments play an important role in the development of the continent but has still to grow (as shown in Figure 2.2). Between 2007 and 2013, South Africa was the biggest African investor in the rest of the continent. Many countries, which are not important commodity producers, rely on African investments: for

example, Burundi (79%), Namibia (42%), Rwanda (62%), South Sudan (64%) and Uganda (45%). In the end, the obstacle to a durable growth are mainly political.

Figure 2.2: Africa's total trade flows with selected and intra-African partners, 2000-13



Source: Authors' calculations based on UN COMTRADE (database), http://wits.worldbank.org/wits/.
StatLink http://dx.doi.org/10.1787/888933206682

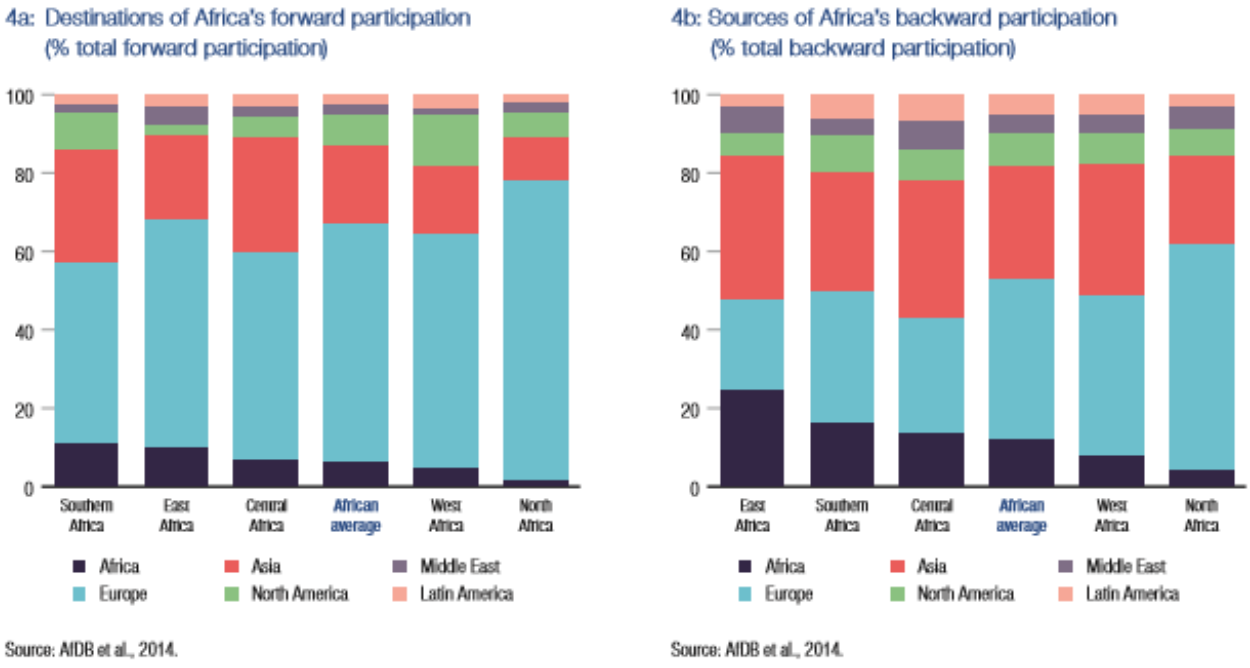
Source: AEO (2014)

What does Africa need? It needs low-skilled jobs for activities, like basic manufacturing and agriculture, in which the current competencies are relatively close to the global ones. An unexpected help could come from China: in fact, the Chinese economy, normally considered for years the world "ultimate" manufacturing hub, is losing competitiveness because of the wage increase; its leaders started a plan for the development of the service sector. Thus, there is a demand for manufacturing jobs that can be satisfied by Africa, even if such a huge shift (more than 85 million of jobs) is difficult to achieve. There is still a debate about the real effect of GVCs on African economies, if it is positive or negative. In a survey for the previous edition of this report, 93% of responding experts on African countries considered global value chains to be an opportunity rather than a threat.

In GVCs participation (Figure 2.3), African countries rely consistently on European countries, especially for the forward but also for the backward participation; great part of the trade relationship is the inheritance of the colonial period. It is interesting to notice that, after Europe, it is Asia (sometimes

even overtaking Europe) and not Africa itself the most important partner. This means that African countries do not trade with each other a lot, as seen also for intra-African investments before; in particular North African countries intra trade is almost null.

Figure 2.3: Africa's participation in GVCs, 2011



Source: Conde e al. (2015)

2.2 African trends

How does Africa fit the world mechanism of global value chains? Before entering into this topic and answering the question, an analysis of African problems and trends is necessary. In particular, WTO identified four trends affecting African economies in the last decade:

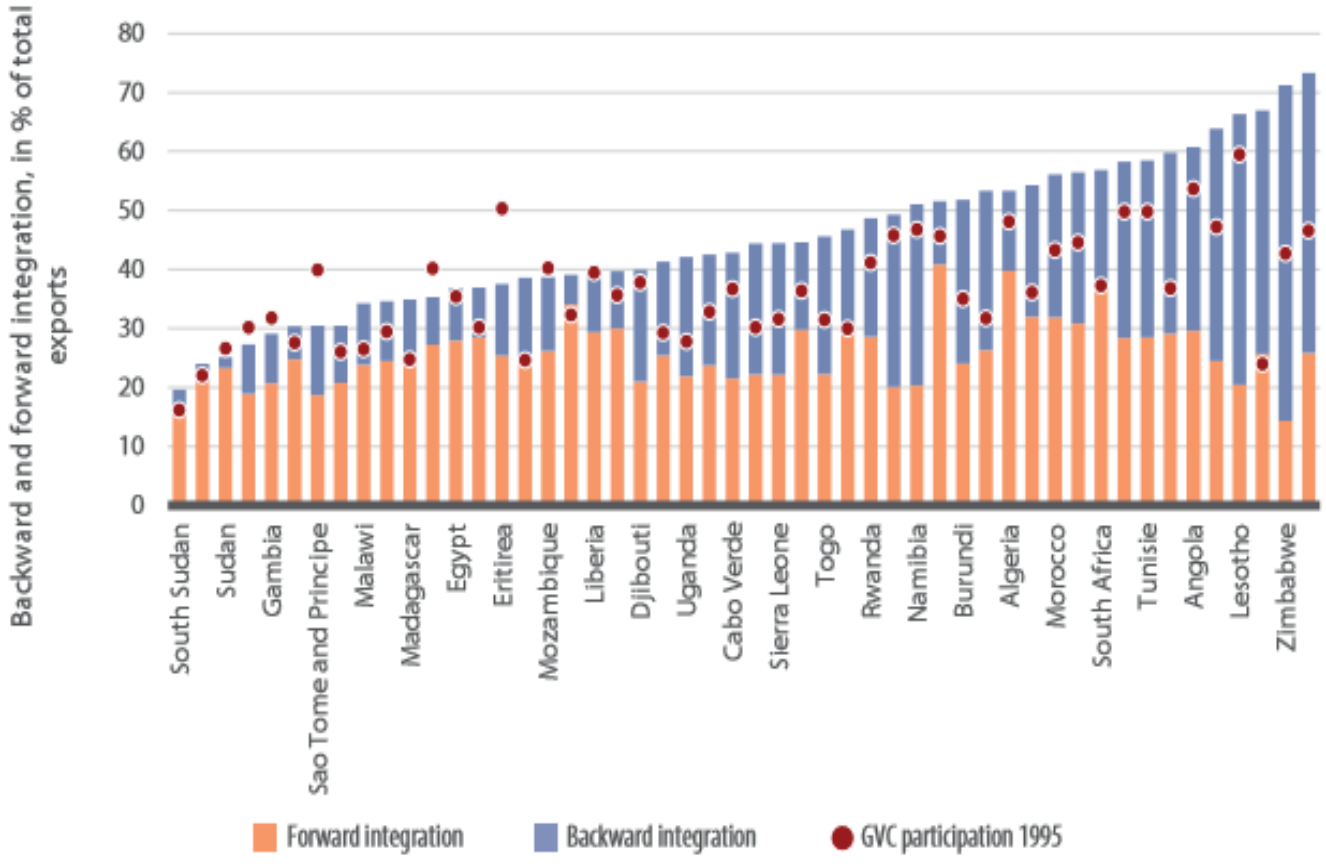
1. An integrated world economy brings to an increase of the crisis in case of global shocks but it helps also the recovery and he reduction of volatility
2. Although the distance in income gap between emerging and developed countries is reducing year by year (especially thanks to the commodities), Africa is still lagging behind
3. Changing prices of commodities exports: the global commodity price has been in profound reduction for five years. This has a huge impact on two third of African exports, that fell down in the last years. In fact, oil producers and South Africa make a big part of the total exports of

Africa; this highlights the great need of diversification and industrialization that brings to economic development

4. Expansion of GVCs, although African firms are struggling to participate significantly

Africa until now captured only a small part of the value-added of the global value chains. However, the great advantage of the global value chain for a developing country or region is the possibility of developing only one stage of the production chain of a product, the one that will be performed in that country. This possibility was not available in the past with the entire production in only one country or region. As noticed in Figure 2.4, in the following page, the Southern region of Africa (Zimbabwe, Lesotho and Angola) is the most integrated one, mostly upward. Also North Africa (represented by Tunisia and Morocco) is well integrated and Europe is the main destination.

Figure 2.4: GVC participation by country, backward and forward integration, 1995 and 2011

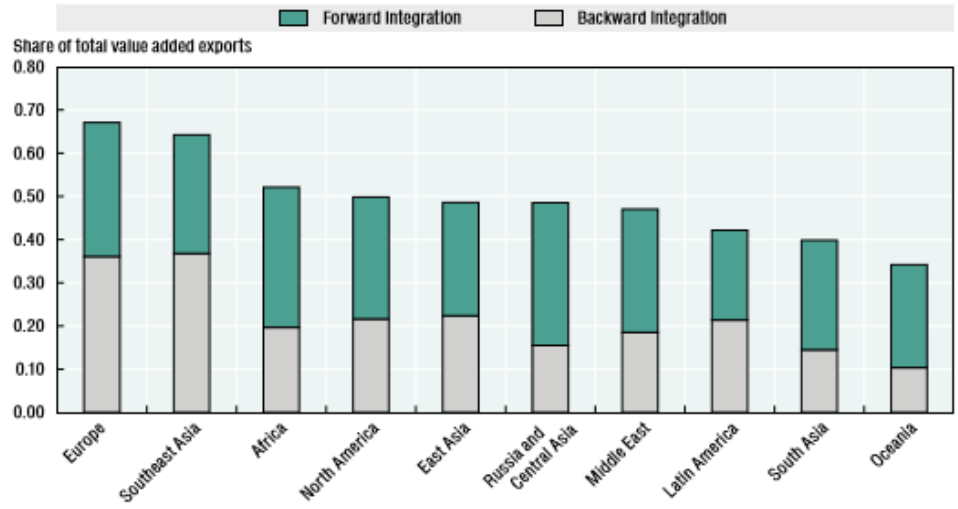


Source: ECA's calculations based on UNCTAD EORA Database.

Source: United Nations Economic Commission for Africa (2015)

Taking a wider perspective, the Figure 2.5 shows the degree of integration into GVCs of each continent. Europe and Southeast Asia are more backward integrated, meaning that they are closer to the final customers, while the rest of the world (including Africa) hold more upstream positions, being more forward integrated.

Figure 2.5: Integration of world region into global value chains, 2011



Note: Backward integration is measured by the share of foreign value added embedded in a country's exports. Forward integration is measured by the share of a country's exported value added that is further exported by the importing country.
Source: Authors' calculations based on UNCTAD-EORA GVC database (2014).
StatLink http://dx.doi.org/10.1787/888933033270

Source: AEO (2014)

2.3 Countries choice for the analysis

In order to have a general idea of how African countries fit the global value chains, we can look at the data supplied by Comtrade that, after a solid computation by the author, can show us the percentage of intermediate inputs imported and exports of final goods for many African countries. Given the above-mentioned problems, some data are not very recent and some data do not even exist about some countries. Instead of looking at all African countries, which could have been a massive and huge work, we chose to analyze only some of these countries, thinking that they are more representative and they fit more the international trade. The drivers of the choice were two: their level of general insertion in GVCs and the largeness of the country. Furthermore, the author wanted to choose all coastal countries,

because they are more receptive and involved in international trade. The analysis does not include Libya, since the recent events have modified and "corrupted" data along with the perception of this country.

The choice was difficult because of the lack and uncertainty of data and the high number of countries. In the end we made this choice: the work analyzed two North African countries (Tunisia and Mauritania), the ones less involved in the recent war and terrorist facts; furthermore, they are deeply involved in trade with European countries. Then we moved to the southern part of Africa where we analyzed South Africa (a rare example of a relative rich African country) and its two neighbored countries, Mozambique and Namibia. These two countries are more involved in trade with Asian countries, in particular with China. In this way, we have a general view of different parts of Africa and of how the perspective and the economic effects of GVCs can change according to different structure and geography of the economy.

Here is, in Table 2.1, a small piece of this analysis, with two indicative years related to the final five countries.

Table 2.1: Imports of intermediate goods and exports of final goods

	imports of intermediate goods				exports of final goods			
	2011		2014		2011		2014	
	dollars	%GDP	dollars	%GDP	dollars	%GDP	dollars	%GDP
Tunisia	1,513E+10	32,97%	1,63E+10	34,34%	8,41E+09	18,32%	7,27E+09	15,26%
Namibia	2,672E+09	21,53%	3,19E+09	24,58%	1,63E+09	13,14%	2,05E+09	15,79%
Mauritania	1,044E+09	20,38%	1,21E+09	23,92%	3,98E+08	7,76%	5,75E+08	11,37%
Mozambique	3,138E+09	23,90%	4,04E+09	25,36%	5,02E+08	3,82%	3,64E+08	2,30%
South Africa	5,122E+10	12,29%	5,15E+10	14,70%	2,13E+10	5,12%	2,13E+10	6,10%

Source: our elaboration on Comtrade data

As can be seen, the percentage related to imports has increased in all the countries, while the exports of final goods is still lower and in Tunisia and Mozambique has decreased. This is a signal of how in general Africa struggles to become part of the higher stages of value chains.

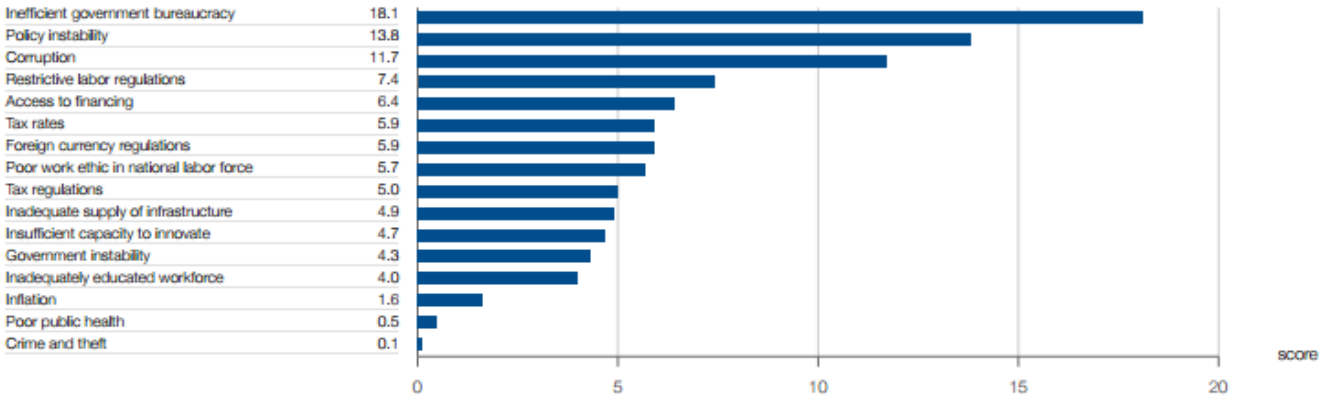
Tunisia

Main country data (2015)			
CAPITAL	Tunis	**GDP growth**	0.80%
POPULATION	11,107,800	**GDP per capita (US$)**	3,872.51
PRESIDENT	Beji Caid Essebsi	**Unemployment rate**	13.3%*
OFFICIAL LANGUAGES	Arabic	**FDI net inflow (%GDP)**	2.33%
CURRENCY	Tunisian dinar	*2014	

At the end of the 90's, the start of the national program for upgrading industry allowed Tunisia to become competitive and to enter into the world of GVCs. Two sectors are particularly significant since the 70's: textile and clothing; many foreign firms have plants and assets here (Nike, Adidas, Barbara Lingerie, etc.). More recently, the country has developed the electrical, engineering and electronics industries (with establishments from Sony Corp. and Philips for example). Nowadays, it remains well integrated in GVCs especially in three sectors: agriculture, electronics and textiles. Since the 1970s, Tunisia has opted for an economic model oriented toward exports (More than 75% of exports regards these three sectors) and industrialization, and the structure of Tunisia's economy has moved radically towards industry and services. Imported inputs constitute a significant portion of those exports, which mainly consist of intermediate products.

A recent agreement with EU, the **EU-Tunisia Deep and Comprehensive Free Trade Agreement (DCFTA)**, has established a more partial liberalization of trade with the condition of complying with the international standards as well as real workers' mobility. However, despite a good positioning in international rankings for private investments, from the revolution of 2011 Tunisia attractiveness decreased constantly. In 2013 foreign investments declined by 25% and 19% compared respectively to 2012 and to 2010. The lowest peak was in 2011, due to the "Arab springs" revolution and the worsening of security situation. This has also affected growth, which is not expected to exceed 0,5%. The situation has improved a little in the following years but it remains critical. A recent poll has synthetized the main problems for firms doing business in Tunisia, shown in Figure 2.6.

Figure 2.6: Most problematic factors for doing business in Tunisia

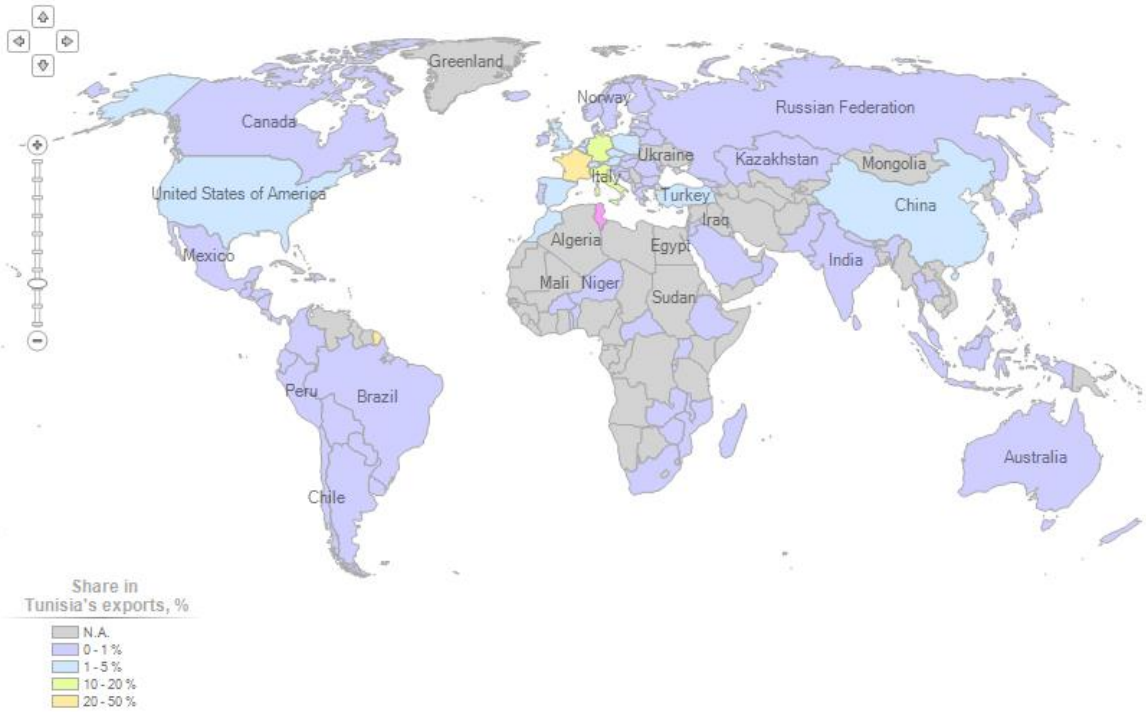


Note: From the list of factors, respondents to the World Economic Forum's Executive Opinion Survey were asked to select the five most problematic factors for doing business in their country and to rank them between 1 (most problematic) and 5. The score corresponds to the responses weighted according to their rankings.

Source: Global Competitiveness Report (2016)

Although the progressive integration into GVCs has fostered growth in Tunisia with the creation of many jobs and exports, the strong dependency on Europe (Tunisia's top client with 71.3% of exports and top supplier with 55.5% of imports) and the inequalities in territorial development remain two important problems to be addressed by appropriate policies**.** In Figure 2.7 the problem of dependency on Europe is well highlighted.

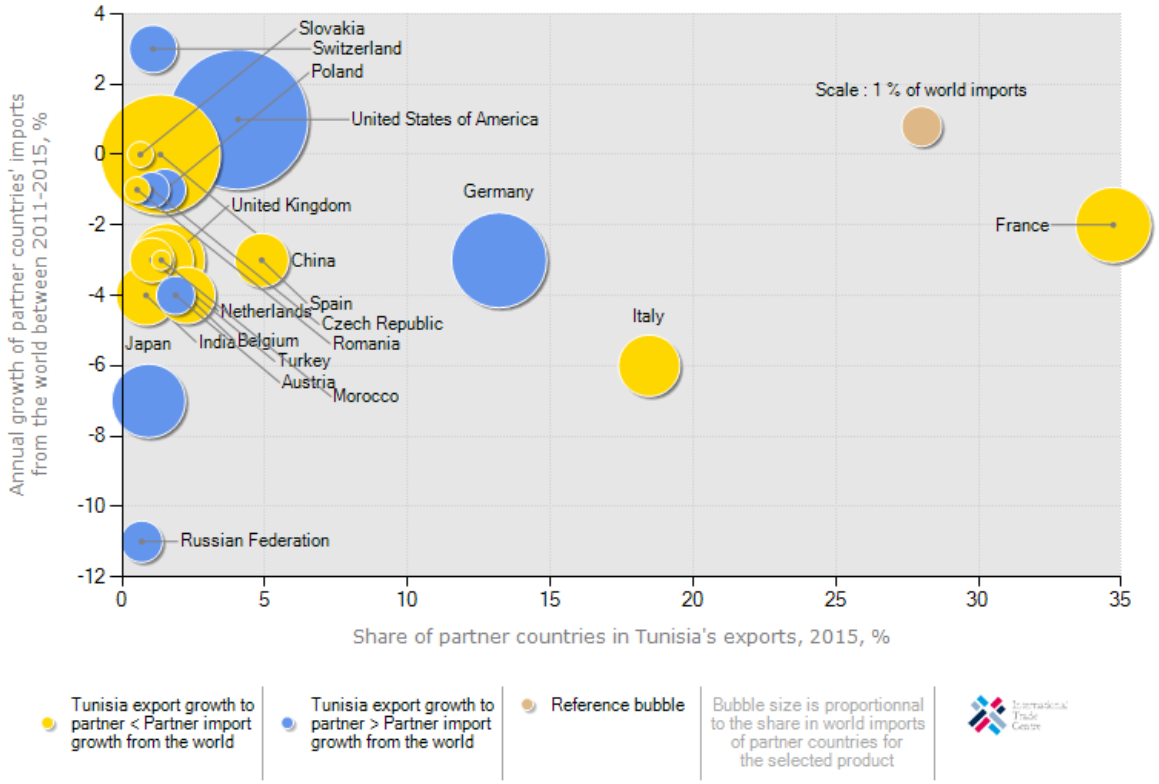
Figure 2.7: Map of importing markets for a product exported by Tunisia in 2015



Source: www.intracen.org

France, Italy and Germany constitutes more than half of the exports of the country (Figure 2.8) and, especially in this period of crisis of euro area, this affects heavily its economy. The yellow spheres for Italy and France are probably caused by the crisis of these two countries; Germany, less hit by the crisis, has increased its imports from Tunisia.

Figure 2.8: Prospects for market diversification for a product exported by Tunisia



Source: www.intracen.org

Tunisia's participation in GVCs has even other difficulties as well as the whole economy, such as a workforce no more adapted to the needs of the market, the political, economic and social uncertainty and insufficient logistical infrastructures (the port of Radès is saturated).

Nevertheless, various sectors offer the potential of major development for Tunisia, such as local transformation of products that are usually exported untreated (hydrocarbons or agricultural products), or the creation of niche products with high value added from traditional sectors (for example technical textiles). Many opportunities exist in the medium term.

To encourage this development, the Tunisian authorities must make considerable efforts in order to improve the business climate, the industrial capacities and logistical infrastructure, and to make important reforms for the education sector. The new government, that took office in February 2015, has continued the economic recovery plan launched in 2011, with an increase of 21.6% in investment in 2015. Another important issue will be the fight against corruption at every level, especially in the public sector (one of the main problems for firms). Tunisia has many support structures for enterprises,

and many public and private institutions engaged in the process of creation and development but their effectiveness is limited.

The final aim of this strategy is to transform Tunisia into an innovative and high-level Euro-Mediterranean center of competitiveness. This passes through the diversification of partner countries and the development of new markets, also to increase of bargaining power with the EU.

The Table 2.2 is a summary of expectations (done in 2014) for some macroeconomic data for Tunisia.

Table 2.2: Macroeconomic indicators of Tunisia

Macroeconomic indicators

	2014	2015(e)	2016(p)	2017(p)
Real GDP growth	2.3	0.5	2.0	2.4
Real GDP per capita growth	1.1	-0.6	0.9	1.3
CPI inflation	5.5	5.0	4.0	3.5
Budget balance % GDP	-4.4	-4.2	-3.9	-3.7
Current account % GDP	-9.0	-7.6	-5.9	-5.8

Source: Data from domestic authorities; estimates (e) and projections (p) based on authors' calculations.

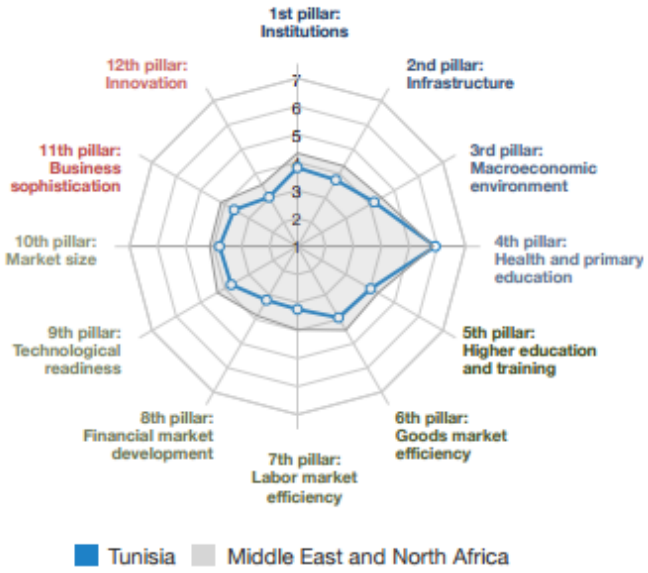
Source: AEO (2014)

Its infrastructures are surely in a good situation compared to other African countries, but the situation overall lacks efficiency and expertise. As the Figure 2.9 shows, Tunisia is in line (or slightly below) with the North African countries and Middle East for the overall performances. Its main strength points are the “health and primary education”, where it is ranked 59th and the “market size” ranked 69th. The labor market efficiency is the most serious lack (133th) confirming the result of the survey about the problems of doing business in Tunisia.

Figure 2.9: Tunisia performance overview

	Rank / 138	Score (1-7)	Trend	Distance from best
Global Competitiveness Index	95	3.9		
Subindex A: Basic requirements	79	4.4		
1st pillar: Institutions	78	3.8		
2nd pillar: Infrastructure	83	3.7		
3rd pillar: Macroeconomic environment	99	4.2		
4th pillar: Health and primary education	59	5.9		
Subindex B: Efficiency enhancers	103	3.7		
5th pillar: Higher education and training	93	4.0		
6th pillar: Goods market efficiency	113	3.9		
7th pillar: Labor market efficiency	133	3.2		
8th pillar: Financial market development	119	3.2		
9th pillar: Technological readiness	80	3.7		
10th pillar: Market size	69	3.8		
Subindex C: Innovation and sophistication factors	104	3.3		
11th pillar: Business sophistication	101	3.6		
12th pillar: Innovation	104	3.0		

Edition	2013-14	2014-15	2015-16	2016-17
Rank	83 / 148	87 / 144	92 / 140	95 / 138
Score	4.1	4.0	3.9	3.9



Source: Global Competitiveness report (2016-2017)

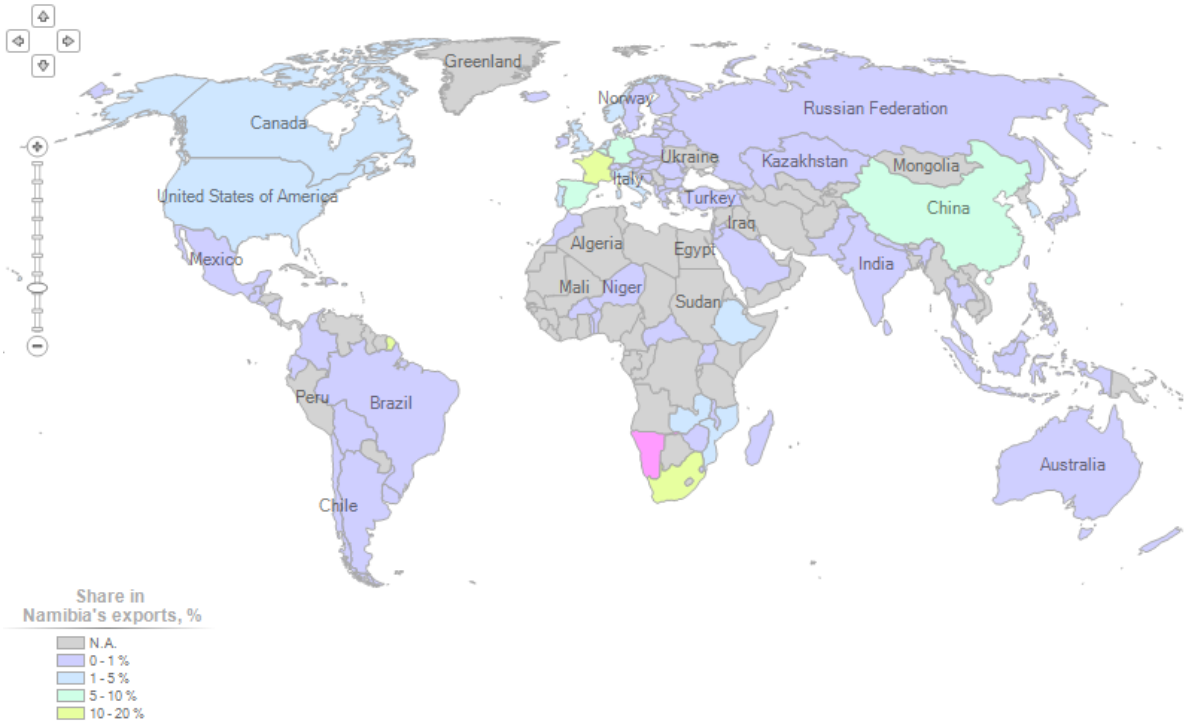
Namibia

Main country data (2015)			
CAPITAL	Windhoek	**GDP growth**	5.66%
POPULATION	2,458,830	**GDP per capita (US$)**	4,695.76
PRESIDENT	Hage Geingob	**Unemployment rate**	18.6%*
OFFICIAL LANGUAGE	English	**FDI net inflow (%GDP)**	2.24%
CURRENCY	Namibian dollar	*2014	

Namibia's participation in GVCs is difficult to measure due to the lack of data but the rise of GVCs is perceived as an opportunity for the country. Particularly in the mining sector because it has abundant natural resources; among minerals, it has diamonds, uranium, lead, gold, copper and zinc. In addition, the country has also large deposits of oil, iron and coal and, for this reason, it has a unique opportunity to expand its operations in GVCs, especially in mineral exploitation but also fishing and agro-processing. Many important mining firms are operating on the country: AngloGold Ashanti Ltd., De Beers Consolidated Mine Ltd and Namibian Minerals Corp.

Namibia contributes to both global and regional trade by exporting to its traditional trading partners in Europe and the SADC region (Figure 2.10). The two major partners are South Africa and France; also China has an important share, to confirm its involvement in African investment.

Figure 2.10: Map of importing markets for a product exported by Namibia in 2015

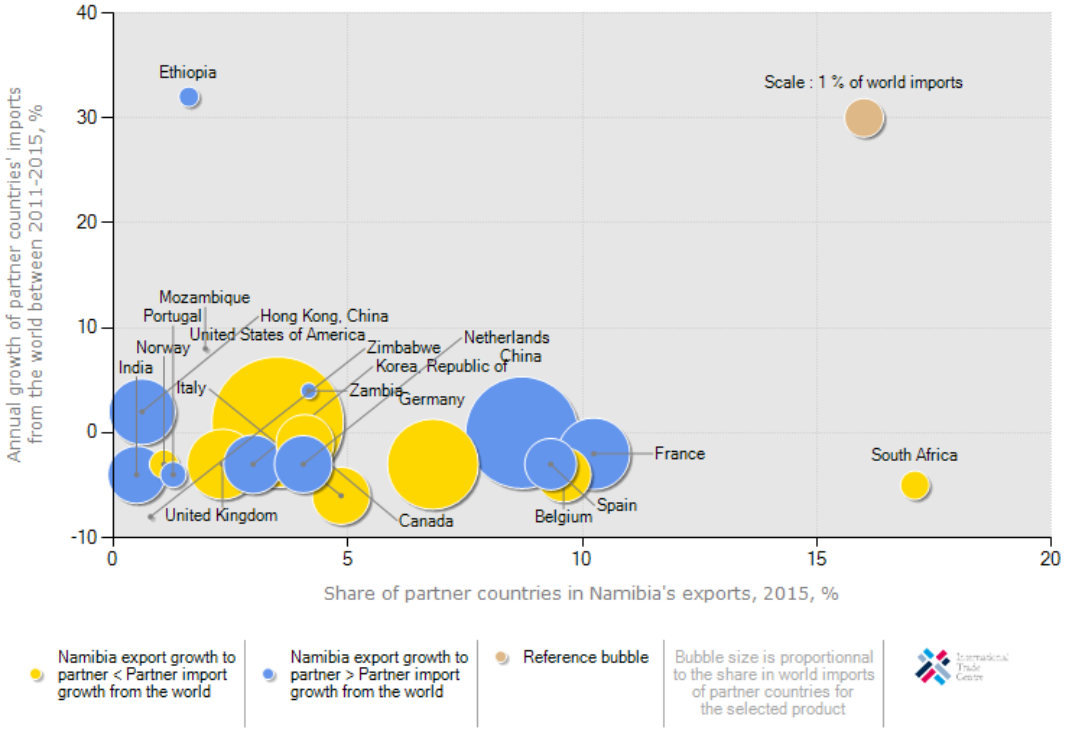


Source: www.intracen.org

Going more into details, in Figure 2.11 there is a graphical representation of the all the trade partners of Namibia. It is interesting to notice that the principal export destination is South Africa, which actually is decreasing its imports from Namibia; European countries and China, who has increased their share from Namibia consistently, follow it.

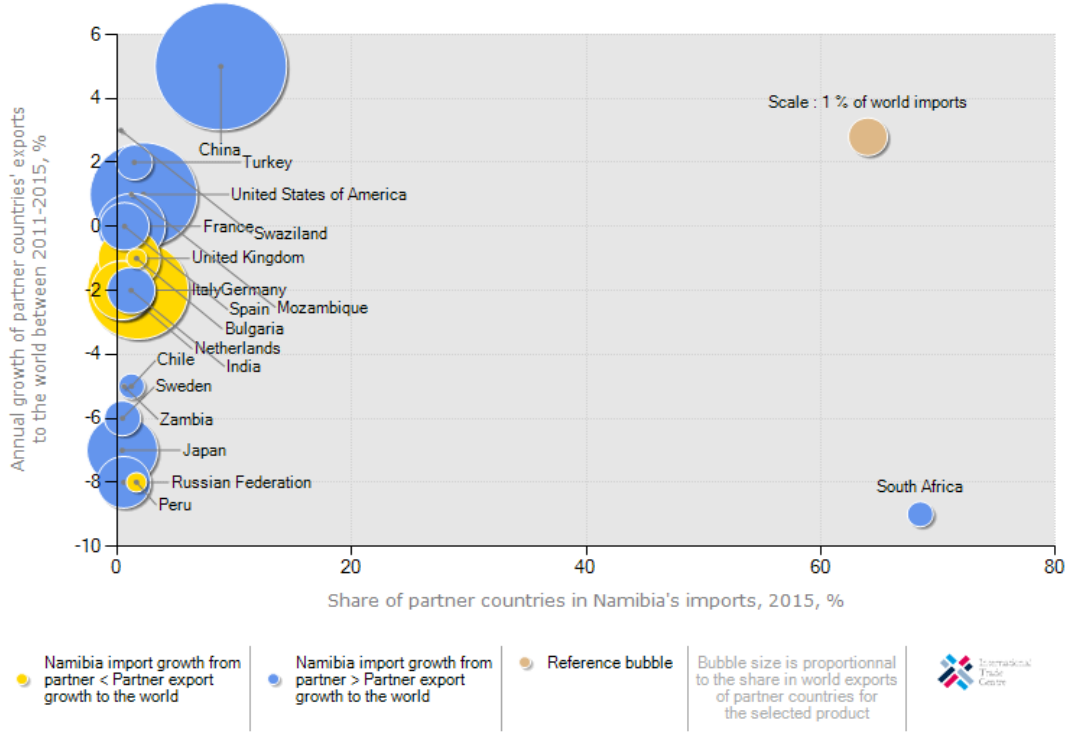
Analyzing the opposite graph (Figure 2.12), we notice that Namibia relies heavily on South Africa for its imports. The other countries are well detached in terms of numbers. The great majority of blue spheres shows that Namibia is increasing its imports all over the world, meaning that it is increasing its participation into global value chains.

Figure 2.11: Prospects for market diversification for a product exported by Namibia



Source: www.intracen.org

Figure 2.12: Prospects for market diversification for a product imported by Namibia



Source: www.intracen.org

Namibia has a good geographical position to take advantage from GVCs, thanks to several factors.

- The proximity to South Africa makes easier the access to higher-skilled workers, technology, developed infrastructures and financial services.
- Through the **Walvis Bay Corridors**, a network of transport corridors principally comprising the Port of Walvis Bay, the Trans-Kalahari Corridor, the Trans-Caprivi Corridor, the Trans-Cunene Corridor, and the Trans-Oranje Corridor, the country is connected to southern African countries, Europe and Americas. Namibia is gradually diversifying its export markets to include regional neighbors, such as Botswana and Zambia, and global players, such as China.
- Thanks to its strategic position, it could become the regional leader in the logistics and distribution sector. The quality of overall infrastructure is generally good, ranked 4th and 11th in Africa by the 2013-14 *GCR* and the AfDB's 2013 Africa Infrastructure Development Index, respectively.

Overall, Namibia has succeeded in establishing a relatively peaceful and secure environment in which to do business; the political stability and reliable macroeconomic management are promoting investor confidence. Thus, Namibia has the potential for a deep integration into the GVCs, both regional and global ones. This positive sensation goes in pair with the expected growth of GDP for the next few years (Table 2.3), with a peak in 2017.

Table 2.3: Macroeconomic indicators of Namibia

Macroeconomic indicators

	2014	2015(e)	2016(p)	2017(p)
Real GDP growth	6.4	4.4	4.2	6.0
Real GDP per capita growth	4.0	2.1	1.9	3.8
CPI inflation	5.3	3.5	3.9	5.5
Budget balance % GDP	-4.3	-3.8	-3.1	-3.7
Current account % GDP	-10.4	-8.1	-11.3	-11.1

Source: Data from domestic authorities; estimates (e) and projections (p) based on authors' calculations.

Source: AEO (2014)

However, Namibia has to deal with several problems, challenges and uncertainties that has mined so far the complete development of the country. Among the others:

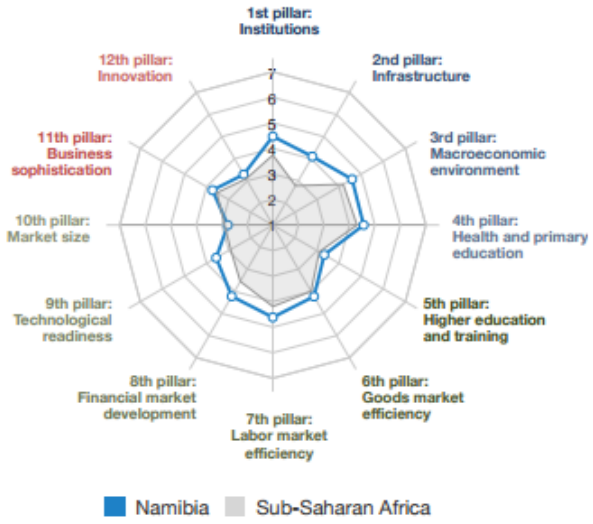
- Education and skills must improve to achieve a more competitive and inclusive economy.
- The country is facing skills shortages across all sectors of the economy, especially middle-level skills. The situation is further worsened by mismatches between available skills and job vacancies in the labor market and stiff labor laws and regulations
- The business environment in Namibia is still relatively less attractive than the one in near countries (like South Africa). A wide range of policy, legal, regulatory and institutional weaknesses places the country at a competitive disadvantage compared to South Africa and Botswana.
- There is still excessive bureaucracy, regulatory bottlenecks and a weak PPP framework.
- Access to financial services, particularly for business start-ups and micro, small and medium-sized enterprises, is a challenge.
- Although Namibia has relatively developed financial systems in sub-Saharan Africa, high bank-user charges and fees, high transaction costs, low levels of financial literacy, lack of appropriate and innovative finance products (such as microfinance) and instruments, and lack of entrepreneurial and business management skills are key factors limiting access to finance.

In Figure 2.13 we have the overall performances of the country. The situation of Namibia is better than Tunisia regarding institutions (ranked 39th) and infrastructures (ranked 66th). Especially it has an optimal "labor market efficiency", ranked 32th. The weak areas regard "health and primary education", "higher education and training" and "market size", where it is far worse than Tunisia, even if it is above the average of the Sub-Saharan Africa.

Figure 2.13: Namibia performance overview

	Rank / 138	Score (1-7)	Trend	Distance from best
Global Competitiveness Index	84	4.0		
Subindex A: Basic requirements	75	4.4		
1st pillar: Institutions	39	4.5		
2nd pillar: Infrastructure	66	4.1		
3rd pillar: Macroeconomic environment	74	4.6		
4th pillar: Health and primary education	121	4.6		
Subindex B: Efficiency enhancers	94	3.8		
5th pillar: Higher education and training	110	3.3		
6th pillar: Goods market efficiency	79	4.2		
7th pillar: Labor market efficiency	32	4.6		
8th pillar: Financial market development	49	4.2		
9th pillar: Technological readiness	87	3.6		
10th pillar: Market size	113	2.8		
Subindex C: Innovation and sophistication factors	77	3.5		
11th pillar: Business sophistication	83	3.7		
12th pillar: Innovation	74	3.3		

Edition	2012-13	2013-14	2014-15	2015-16	2016-17
Rank	92 / 144	90 / 148	88 / 144	85 / 140	84 / 138
Score	3.9	3.9	4.0	4.0	4.0



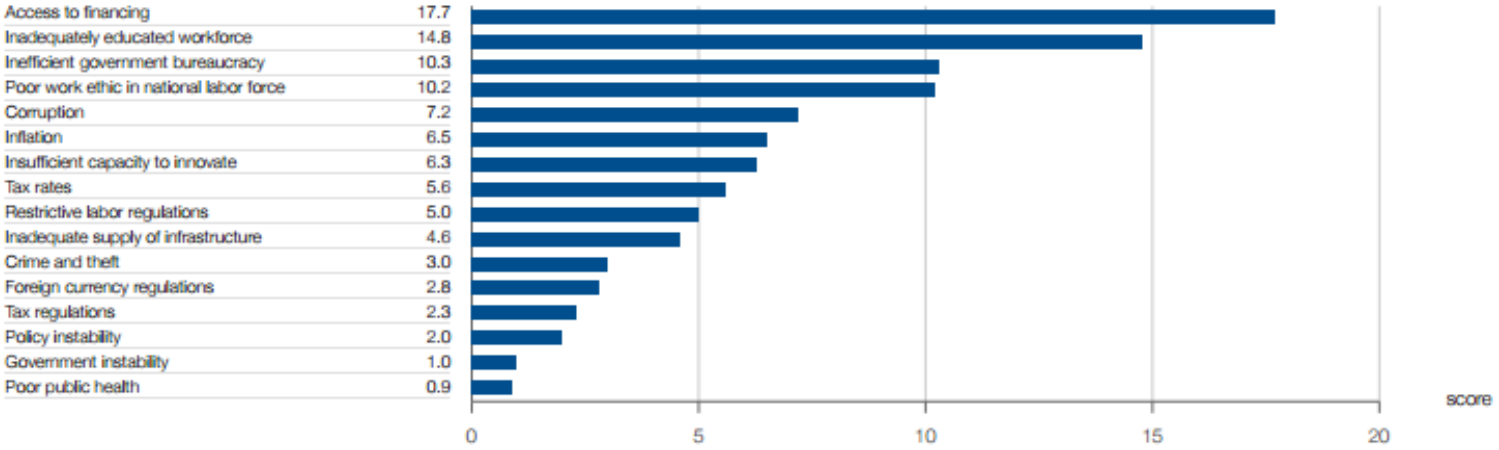
Source: Global Competitiveness Report (2016)

There are several challenges that need to be addressed in order to enhance Namibia's competitive advantage. The government is aware of this need and it is implementing several policies to reduce the high cost of doing business, removing some bottlenecks in infrastructure and investing in skills as part of a broader diversification strategy. The focus of policies must be on how the country can take advantage of its strategic position as a coastal state with relatively well-developed port facilities to promote increased regional trade with other countries such as the Democratic Republic of Congo and Zambia.

For example, it has established an **Export Processing Zone**, which offers export-oriented manufacturers a range of internationally competitive advantages.

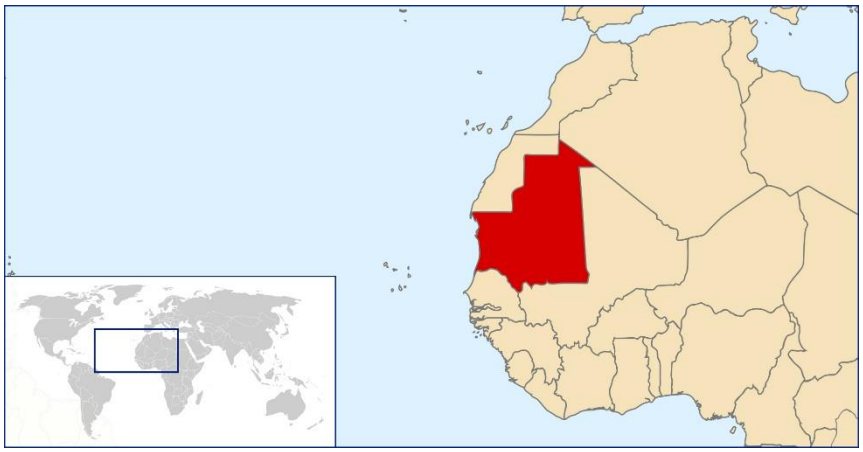
What are the most problematic factors for exporting or importing in Namibia? In Figure 2.14 we have the answer. According to a survey, the identification of markets and buyers is the most relevant problem for exporting. For importing instead, the imports procedures partially block the flow of trade impeding the complete insertion of the country in the GVCs.

Figure 2.14: Most problematic factors for exporting/importing for Namibia



Source: Global Competitiveness Report (2016)

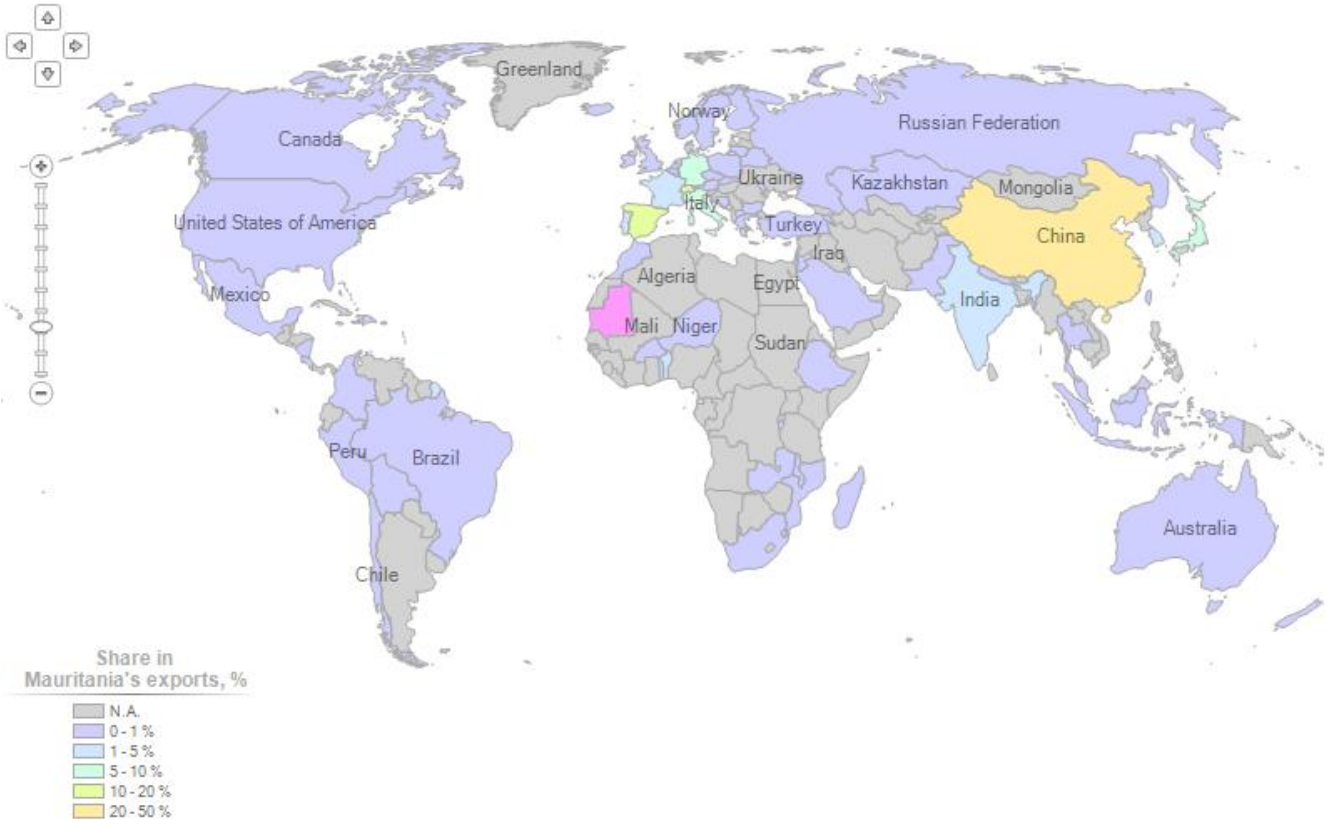
Mauritania



Main country data (2014)			
CAPITAL	Nouakchott	**GDP growth**	4.21%
POPULATION	4,067,564	**GDP per capita (US$)**	1.371,00
PRESIDENT	Mohamed Ould Abdel Aziz	**Unemployment rate**	31%
OFFICIAL LANGUAGES	Arabic	**FDI net inflow (%GDP)**	9.24%
CURRENCY	Ouguiya		

Mauritania participates to GVCs thanks to the unprocessed exports of iron, oil, copper, gold and fish to other countries, where they are used as inputs into their value chains. The main partner is China followed by Spain and other European countries. (Figure 2.15). The most important foreign mining firm is First Quantum.

Figure 2.15: Map of importing markets for a product exported by Mauritania in 2015

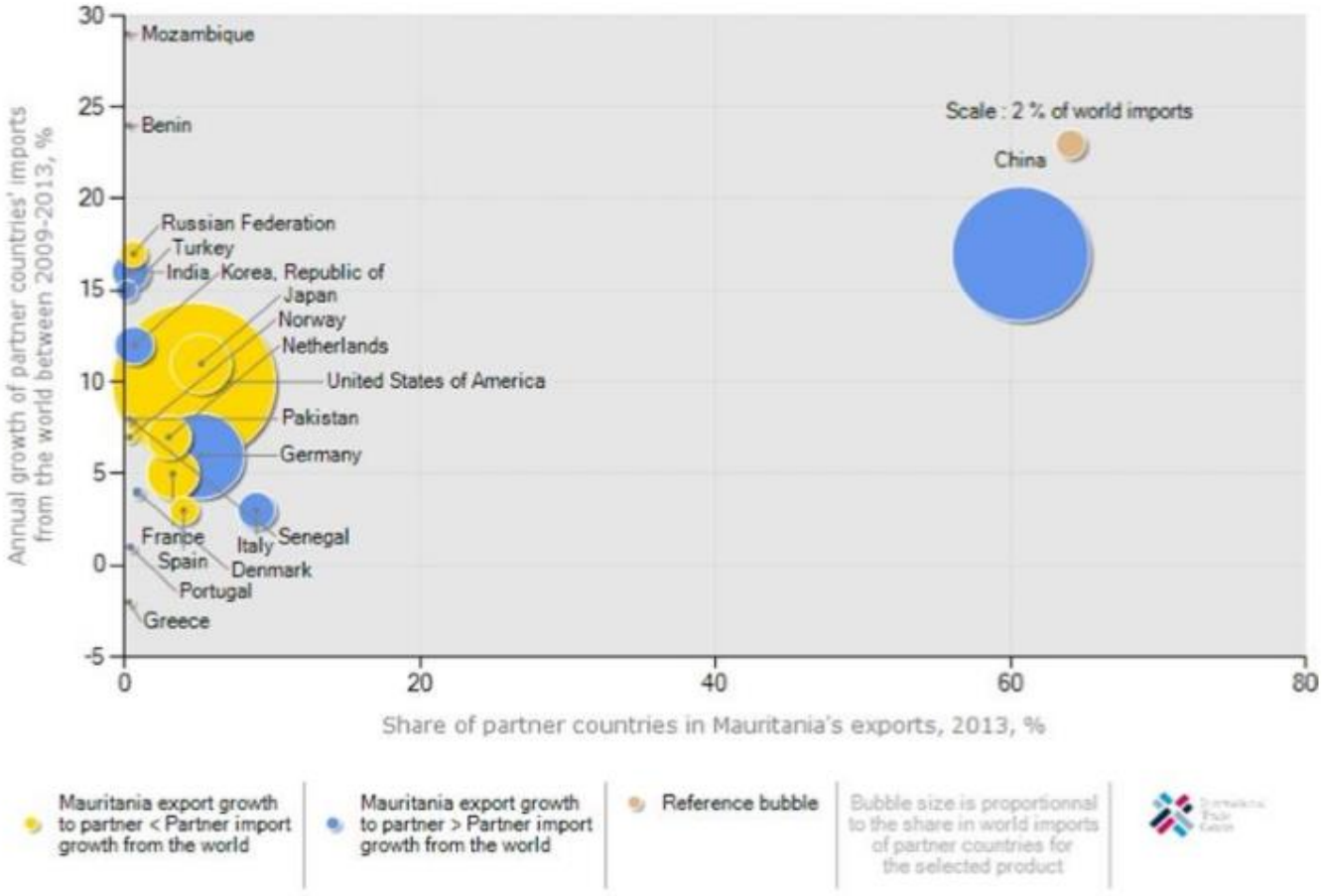


Source: www.intracen.org

The mining activities managed by the SNIM (**Société Nationale Industrielle et Minière**), the main employer in Mauritania's productive sector and the second largest iron-ore producer in Africa, play a leading role in exports and imports. Mauritania can also exploit the free zone in Nouadhibou in order to receive firms that are seeking relocation and to bring the country to higher GVC levels.

Looking at data of 2013 (the most recent one) in Figure 2.16, it is clear the prominent role of China as buyer of Mauritania products.

Figure 2.16: Prospects for market diversification for a product exported by Mauritania



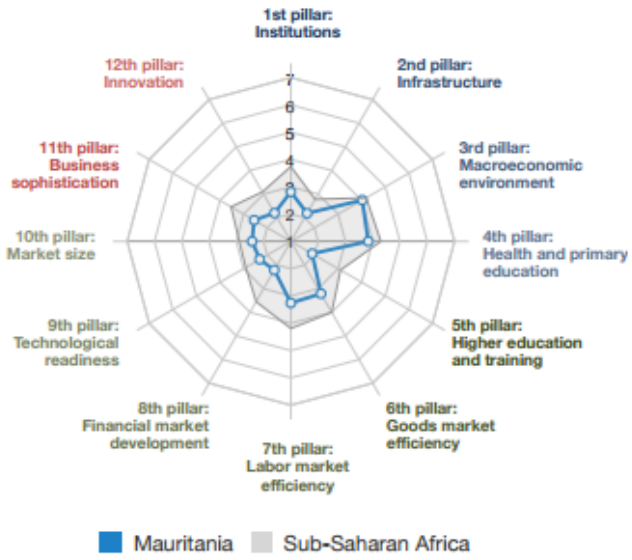
Source: www.intracen.org

Regarding the Global Competitiveness Index, the situation for Mauritania is seriously deficient (Figure 2.17). In almost all the indexes, Mauritania is among the worst ten countries analyzed in the world, especially in higher education and financial market development (where is ranked respectively 138th and 137th).

Figure 2.17: Mauritania performance overview

	Rank / 138	Score (1-7)	Trend	Distance from best
Global Competitiveness Index	137	2.9		
Subindex A: Basic requirements	131	3.2		
1st pillar: Institutions	135	2.8		
2nd pillar: Infrastructure	129	2.2		
3rd pillar: Macroeconomic environment	106	4.0		
4th pillar: Health and primary education	130	3.8		
Subindex B: Efficiency enhancers	138	2.6		
5th pillar: Higher education and training	138	1.9		
6th pillar: Goods market efficiency	136	3.2		
7th pillar: Labor market efficiency	131	3.3		
8th pillar: Financial market development	137	2.2		
9th pillar: Technological readiness	133	2.3		
10th pillar: Market size	128	2.4		
Subindex C: Innovation and sophistication factors	138	2.4		
11th pillar: Business sophistication	138	2.6		
12th pillar: Innovation	137	2.2		

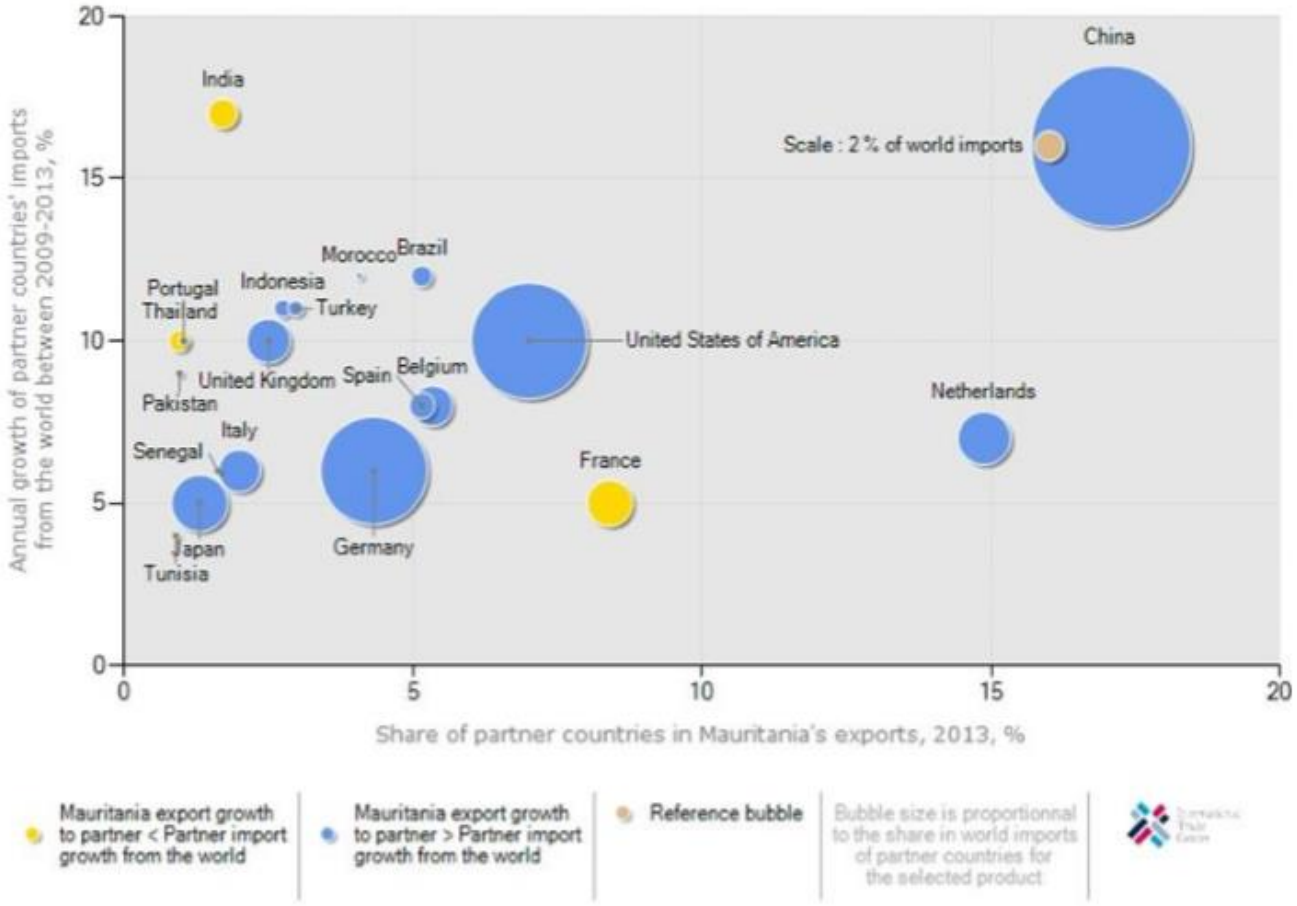
Edition	2012-13	2013-14	2014-15	2015-16	2016-17
Rank	134 / 144	141 / 148	141 / 144	138 / 140	137 / 138
Score	3.3	3.2	3.0	3.0	2.9



Source: Global Competitiveness Report (2016)

Regarding imports (Figure 2.18), the presence of China is predominant again, but in a less heavy way. The Netherlands and France are on the podium of trade partners, followed by USA, whose role for Mauritania imports is increasing.

Figure 2.18: Prospects for market diversification for a product imported by Mauritania



Source: www.intracen.org

However, as other African countries, several obstacles actually slow down Mauritania's participation in GVCs or prevent it from moving upwards into GVCs.

- The country's deficient electricity supply, despite the ongoing construction of the 120 MW combined-cycle power station in Nouakchott.
- Access to finance remains difficult for firms (see later).
- The country's workforce is mainly low-skill labor and is not fluent in foreign languages.

The problems are highlighted also by the general bad quality of infrastructures, which worsens the reputation and the attractiveness of the country.

Despite the problems and the challenges, the country can catch three great opportunities under the development of GVCs:

- A greater integration in international trade with more exports and more diversification.
- Great potential for local job creation.
- Great attractiveness for foreign direct investment, already present in the mining sector.

Furthermore, in all the sectors of Mauritania economy there are opportunities related to GVCs. In the primary sector (fisheries and forestry included), they should develop new supply chains related to milk and meat, integrating in rice cultivation and livestock. In the secondary sector, branches such as leather (tanneries) and cement (gypsum mine) should be developed with an international view into GVCs. In the tertiary sector, tourism and restoration are the main keys to improve.

If the country began to process in a more advanced way the mining products before export, it would give them higher value and it would move up in the GVCs. This would encourage the development of domestic enterprises around all the activities generated by these processes. GVCs could improve the competitiveness and diversification of country production, for exports into regional and international markets and represent a great opportunity for GVCs. As Table 2.4 shows, the great GDP growth in 2014 will be followed by some less growing years, but the current account will be decreasing, sign that maybe the country is getting stronger on the market and on the exports.

Table 2.4: Macroeconomic indicators of Mauritania

Macroeconomic indicators

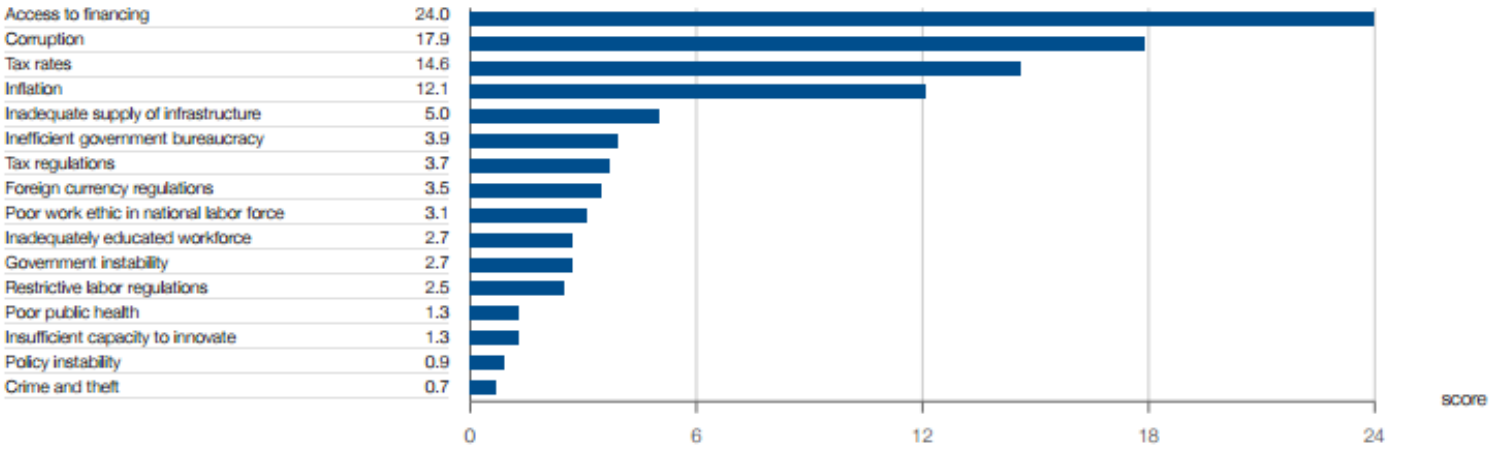
	2014	2015(e)	2016(p)	2017(p)
Real GDP growth	6.6	3.1	3.5	4.5
Real GDP per capita growth	4.1	0.7	1.0	2.2
CPI inflation	3.5	1.5	6.7	6.1
Budget balance % GDP	-3.7	-2.9	-2.4	-2.2
Current account % GDP	-30.0	-22.2	-20.3	-19.3

Source: Data from domestic authorities; estimates (e) and projections (p) based on authors' calculations.

Source: AEO (2014)

As depicted in Figure 2.19, the most important problems in Mauritania are the lack of financing resources and the corruption.

Figure 2.19: Most problematic factors for doing business in Mauritania



Note: From the list of factors, respondents to the World Economic Forum's Executive Opinion Survey were asked to select the five most problematic factors for doing business in their country and to rank them between 1 (most problematic) and 5. The score corresponds to the responses weighted according to their rankings.

Source: Global Competitiveness Report (2016)

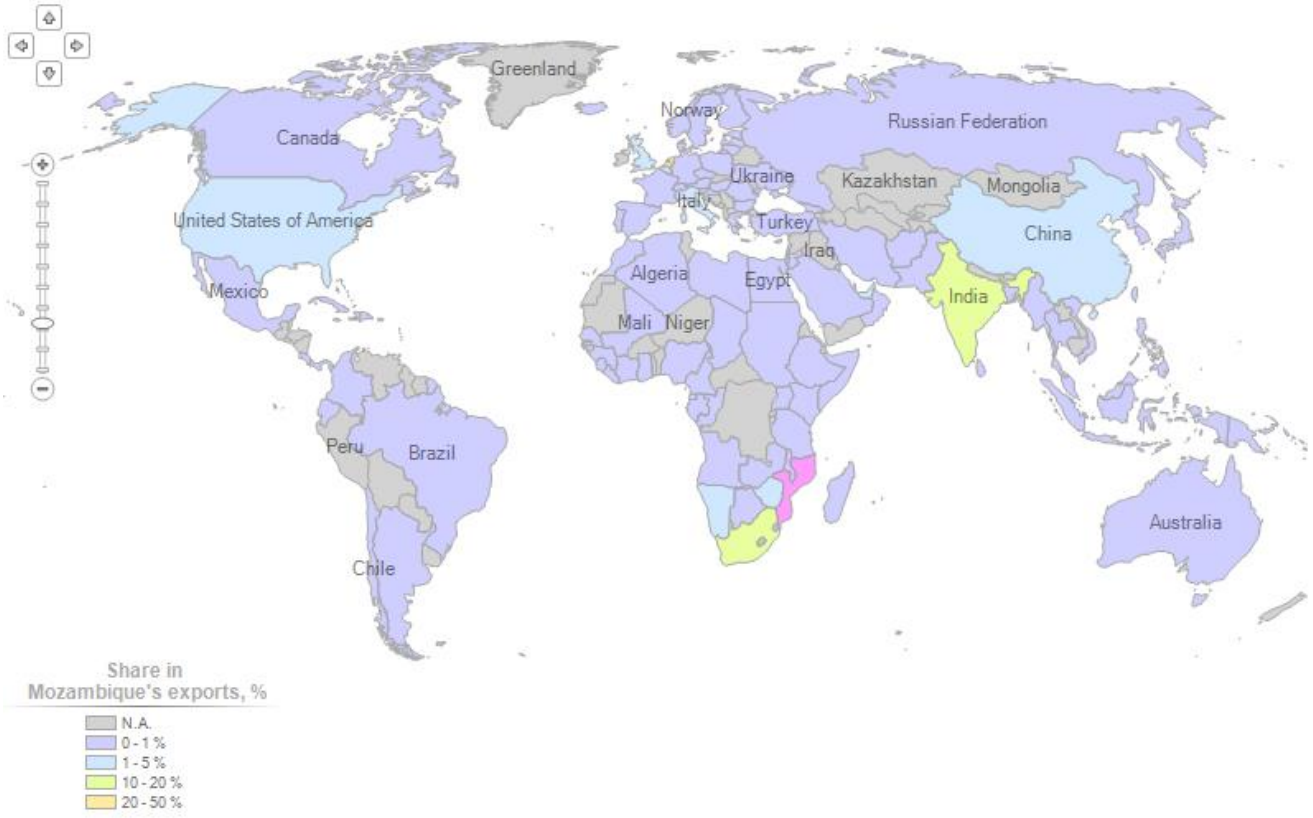
Mozambique

Main country data (2015)			
CAPITAL	Maputo	**GDP growth**	6.27%
POPULATION	27,977,863	**GDP per capita (US$)**	525
PRESIDENT	Filipe Nyusi	**Unemployment rate**	22.6%*
OFFICIAL LANGUAGES	Portuguese	**FDI net inflow (%GDP)**	25.27%
CURRENCY	Mozambican	*2014	

Mozambique has an economy focused on the primary sector, in particular the extractive industries. The most integrated industry in GVCs is the aluminum one, thanks to the **Mozal megaproject**. Established in 1999, the aluminum smelter plant is currently the second largest in Africa. The plant takes advantages from the country geographic favorable position, the availability of low cost electricity (provided from Mozambican hydropower sources) and extensive fiscal incentives. Moreover, Mozambique benefited from the European Union under the Lomé Convention, which allowed aluminum to be exported to Europe tax-free. Aside from aluminum, Mozambique mostly exports unprocessed agriculture products (cashew, cotton, shrimp, wood and tobacco) even if the export market is limited and the main trade partner is South Africa, especially for food, beverages and fabricated metal products. Asia (in particular

China) provides a market for wood products. As shown in Figure 2.20, the main trade partners are South Africa and India even for imports of exported goods.

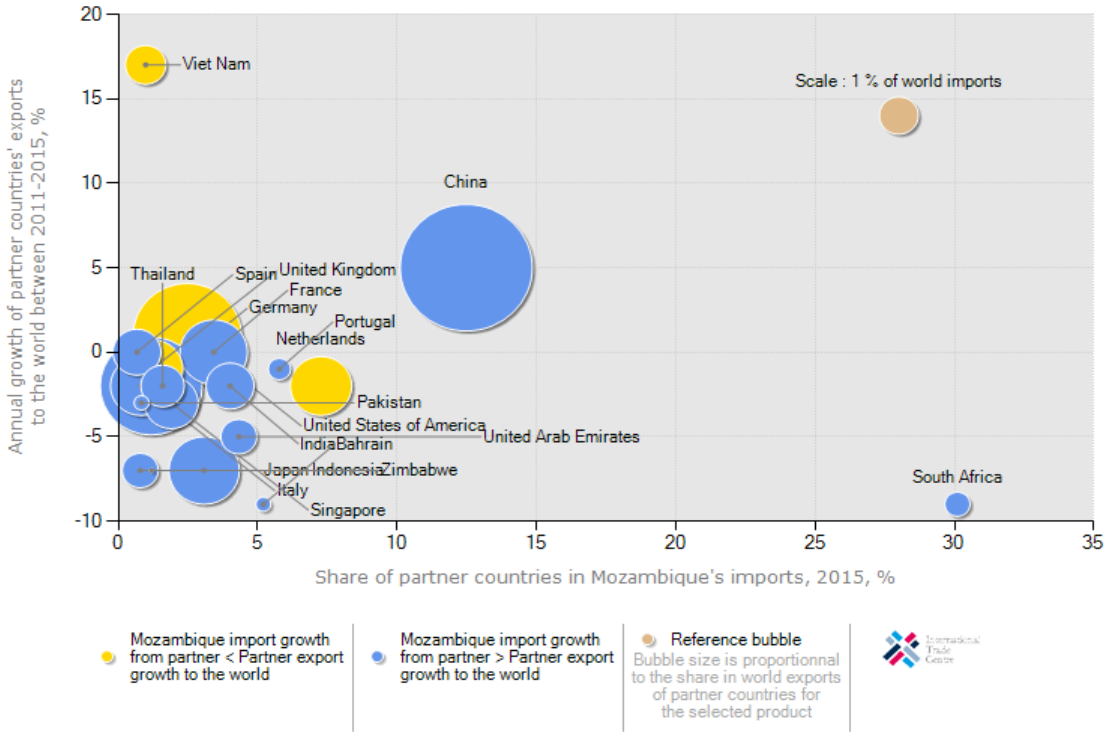
Figure 2.20: Map of importing markets for a product exported by Mozambique in 2015



Source: www.intracen.org

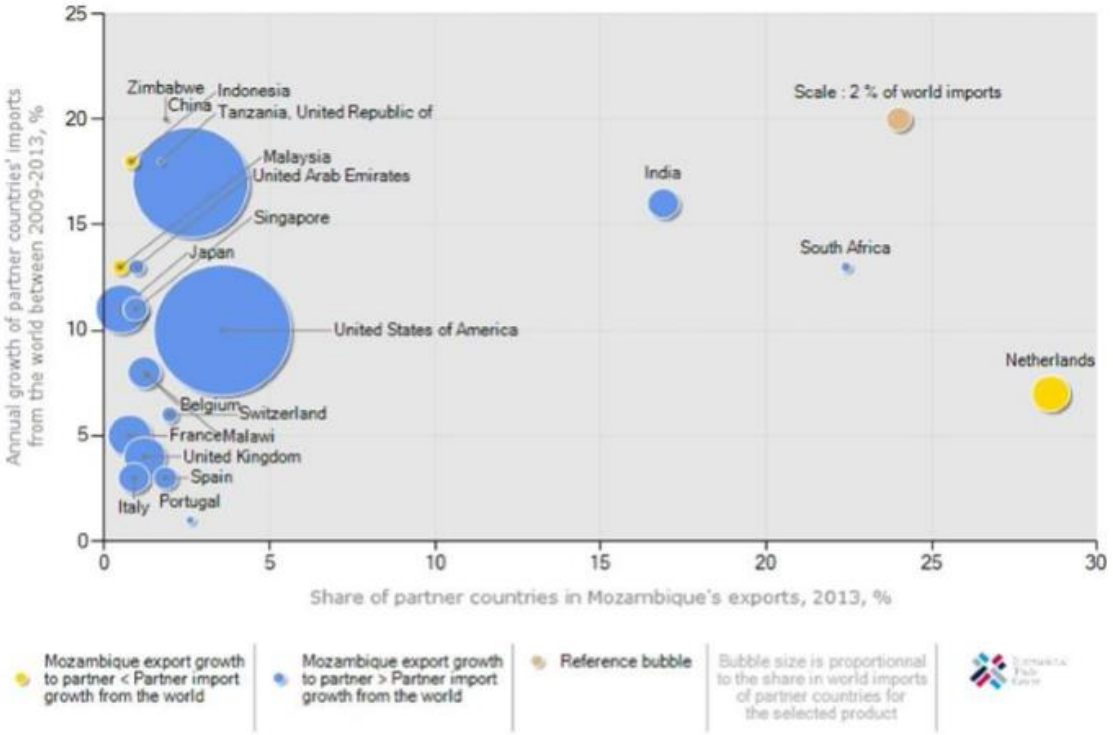
Figure 2.21 shows the dependency from South Africa regarding imports, followed by China. China is increasing its exports towards Mozambique more than any other country. For export of 2013 (Figure 2.22), the three major partners are The Netherlands, South Africa and India, but the Dutch quota is decreasing, while the USA quota is heavily increasing. As seen in the Enabling Trade Index, Mozambique has “better results” than the average of Sub-Saharan Africa in terms of market access, infrastructures and environment.

Figure 2.21: Prospects for market diversification for a product imported by Mozambique



Source: www.intracen.org

Figure 2.22: Prospects for market diversification for a product exported by Mozambique



Source: www.intracen.org

Nevertheless, about this megaproject, there are some problems. Despite Mozal's success, there are low fiscal revenue generated for the country and a limited positive links with the country's economy. Some studies noted a 5% increase in GDP in the early years, but a less than 0.5% increase in Gross National Income. The average productive capacity of Mozambique is lower today than in 1975 and the country presents one of the lowest productivity levels of sub-Saharan Africa; recent evidences indicates that imports of intermediary products by SMEs decreased between 2006 and 2011, signaling a possible decrease in links to GVCs. The recent growth of the extractive sector has brought a little transformation but the economic activity brings little value-added both from the upstream and the downstream processes. What are the main constraints impeding a full integration of Mozambique in GVCs? They are:

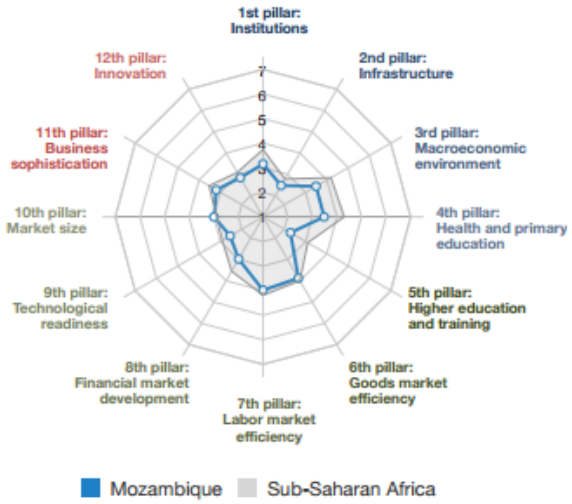
- The lack of qualified human resources (see later)
- Poor infrastructures that impede the country's connectivity (classified 124th in infrastructures)
- Lack of knowledge of SMEs about potential markets
- High tariffs and non-tariffs barriers
- Mozambique's ranking dropped in the United Nations Development Programme's 2015 Human Development Index. It showed rising disparities between regions and stressed the underdevelopment of rural areas.
- Mozambique's GDP growth declined in 2015 to 6.3% because of lower export earnings and public expenditure but is expected to expand to 6.5% in 2016.

In Figure 2.23 we have a general view of the overall performances of the country. Its total rank (133th) reflects the difficulties of development and its level of underdevelopment compared to its neighbors. In particular, "health and primary education" (134th) and "higher education and training" (135th) are the most impellent problems to be solved.

Figure 2.23: Mozambique performance overview

	Rank / 138	Score (1-7)	Trend	Distance from best
Global Competitiveness Index	133	3.1		
Subindex A: Basic requirements	133	3.2		
1st pillar: Institutions	124	3.2		
2nd pillar: Infrastructure	124	2.5		
3rd pillar: Macroeconomic environment	125	3.5		
4th pillar: Health and primary education	134	3.5		
Subindex B: Efficiency enhancers	131	3.1		
5th pillar: Higher education and training	135	2.3		
6th pillar: Goods market efficiency	118	3.9		
7th pillar: Labor market efficiency	92	4.0		
8th pillar: Financial market development	128	3.0		
9th pillar: Technological readiness	127	2.5		
10th pillar: Market size	102	3.0		
Subindex C: Innovation and sophistication factors	124	3.0		
11th pillar: Business sophistication	128	3.2		
12th pillar: Innovation	117	2.8		

Edition	2012-13	2013-14	2014-15	2015-16	2016-17
Rank	138 / 144	137 / 148	133 / 144	133 / 140	133 / 138
Score	3.2	3.3	3.2	3.2	3.1



Source: Global Competitiveness Report (2016)

Only recently, some progresses have been made in integrating Mozambique into the global value chains. A deal was signed in 2013 between Mozal and Midal Cabos, a subsidiary of the Bahrain-based Midal Cables, for the first aluminum processing industry in the country to be built in an industrial park beside the Mozal plant. The development of an efficient infrastructure network and the creation of an efficient logistical structure would facilitate trade; particularly, the main target is the SADC region, and hinterland countries as Botswana, Zambia, Malawi and Zimbabwe. However, the free trade zone also exposes Mozambique to lack of competitiveness, specifically due to low productivity and the currently overvalued currency. The recent discoveries of large-scale natural gas reserves allowed the construction of a multi-billion dollar LNG plant but the negotiations between the authorities and the LNG operators on new projects are longer than expected. Lower oil and gas prices are a further concern for the development of the project and this has held up final investment decisions now expected in late 2016. Exploiting the extensive coal basins, there is a significant possibility of developing value-added products locally, such as iron, steel, power and several downstream hydrocarbons related industries. Also the agricultural sector presents good opportunities, in particular the more developed crops of cashew, cotton and tobacco. The government has prepared its new **National Development Strategy** (ENDE) for 2014-2017, focusing on the country's industrialization, and its main relative policies. If the

ENDE plan will work, the results will be the one shown in Table 2.5 with a constant GDP growth between 6% and 7%.

Table 2.5: Macroeconomic indicators of Mozambique

Macroeconomic indicators

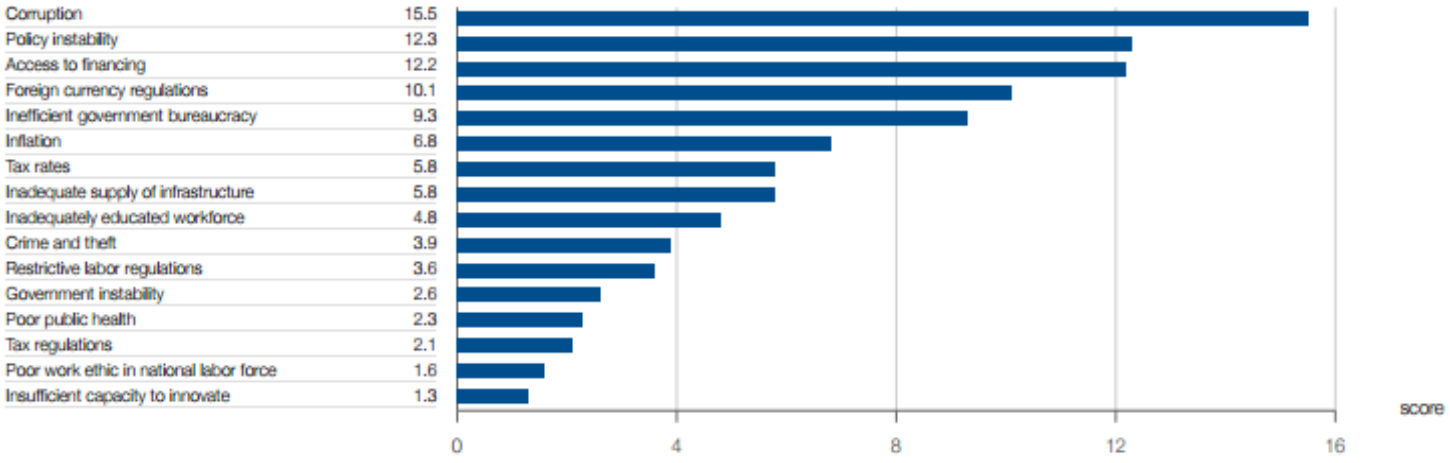
	2014	2015(e)	2016(p)	2017(p)
Real GDP growth	7.2	6.3	6.5	7.5
Real GDP per capita growth	4.4	3.5	3.7	4.7
CPI inflation	2.3	2.0	5.7	5.2
Budget balance % GDP	-6.6	-5.4	-3.7	-2.4
Current account % GDP	-41.6	-44.0	-46.1	-47.9

Source: Data from domestic authorities; estimates (e) and projections (p) based on authors' calculations.

Source: AEO (2014)

As shown in Figure 2.24, corruption, policy instability and access to financing are the most impelling problems, that is not surprising. In particular, corruption stands always among the first 4/5 problems for an entrepreneur in those African countries, meaning that, in general, it is a problem far beyond from finding its solution; probably because it is often based on single persons' decisions. Hopefully, the new National Development Strategy will help to solve the issue of policy instability in Mozambique in the next few years.

Figure 2.24: Most problematic factors for doing business in Mozambique



Source: Global Competitiveness Report (2016)

South Africa

Main country data (2015)			
CAPITALS	Pretoria (executive) Bloemfontein (judicial) Cape Town (legislative)		
POPULATION	54,956,920	**GDP growth**	1.28%
PRESIDENT	Jacob Zuma	**GDP per capita (US$)**	5691.69
OFFICIAL LANGUAGES	see below *	**Unemployment rate**	25.1%**
CURRENCY	South African rand	**FDI net inflow (%GDP)**	0.50%

* Afrikaans, English, Ndebele, Northern Sotho, Sotho, Swazi, Tsonga, Tswana, Venda, Xhosa, Zulu

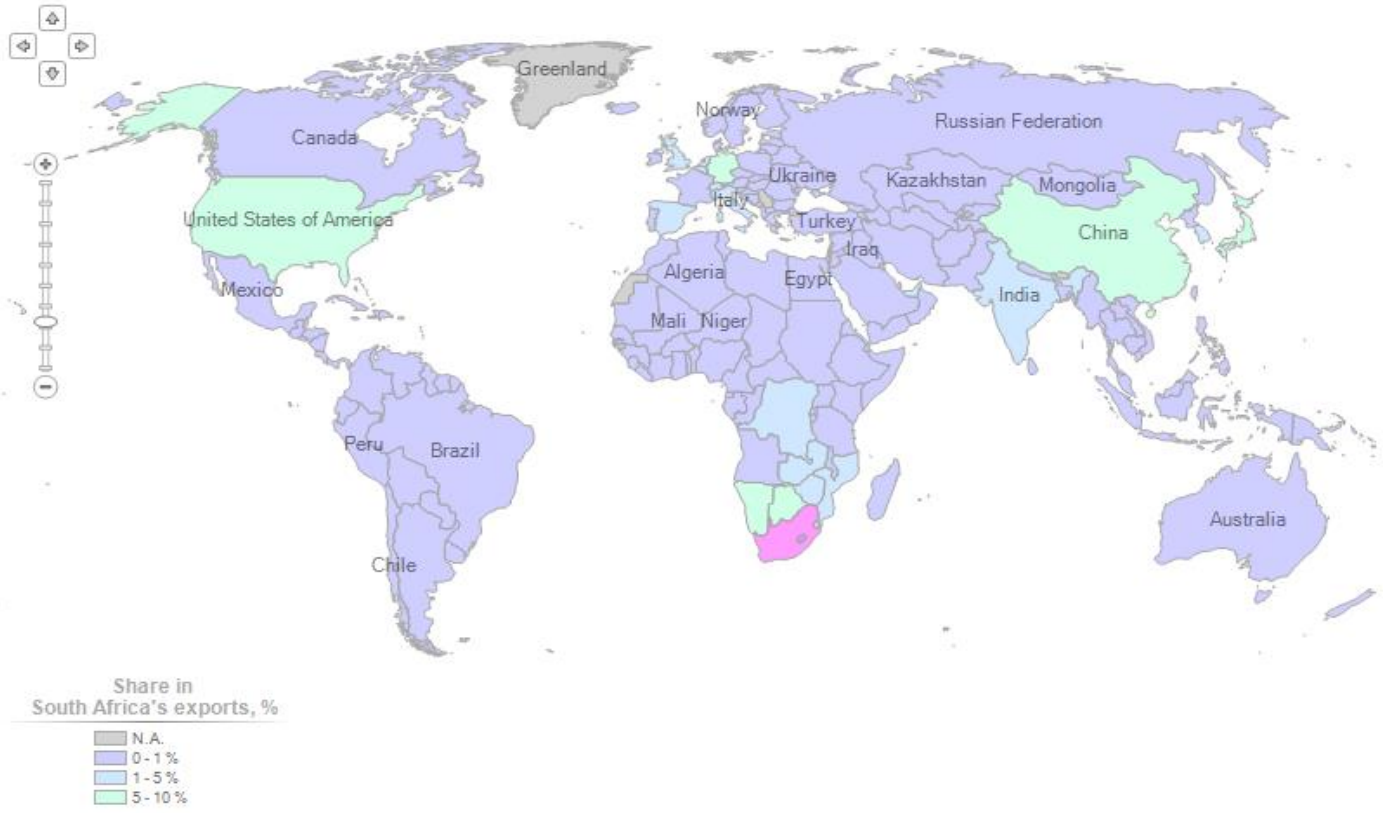
** 2014

By reasoning about Africa and its development, it is impossible to exclude South Africa, the country that represents one of the peaks of economic development of the entire continent. South Africa integrates several GVCs in its economy, particularly in the automobile, mining, finance and agriculture industries. It is almost the unique African country to possess the efficiency and scale to drive and lead a global value chain. Being the largest African economy, it is also an important regional hub and landmark for the near countries especially in retail, finance and telecommunications. South Africa ranks 2nd amongst

the BRICS countries in terms of the content of foreign value added to exports (from Trade in Value Added database by OECD WTO) with 16%, second only to China.

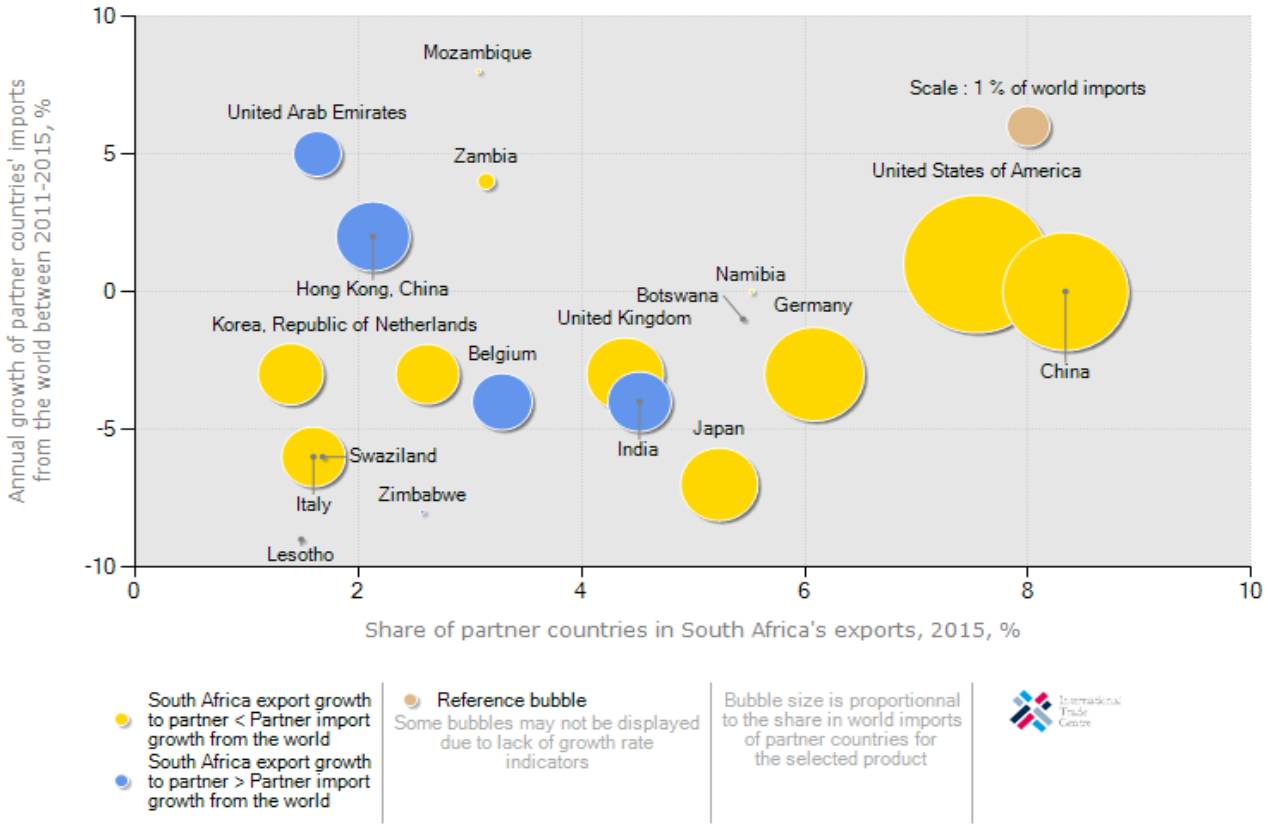
Differently from the majority of other African countries, South Africa, for imports, has not a principal partner of which is dependent but several equal partners, such as near countries and China and USA. (Figure 2.25). This market diversification can be considered as a sign of an economic maturity and strength. Looking at Figure 2.26, this disaggregation is confirmed. The major export destination are China and USA, followed by Germany and Namibia. The high number of yellow spheres shows that South Africa is decreasing its shares of exports towards these countries and concentrating on new countries, as India, Belgium, Hong Kong and United Arab Emirates.

Figure 2.25: Map of importing markets for a product exported by Mozambique in 2015



Source: www.intracen.org

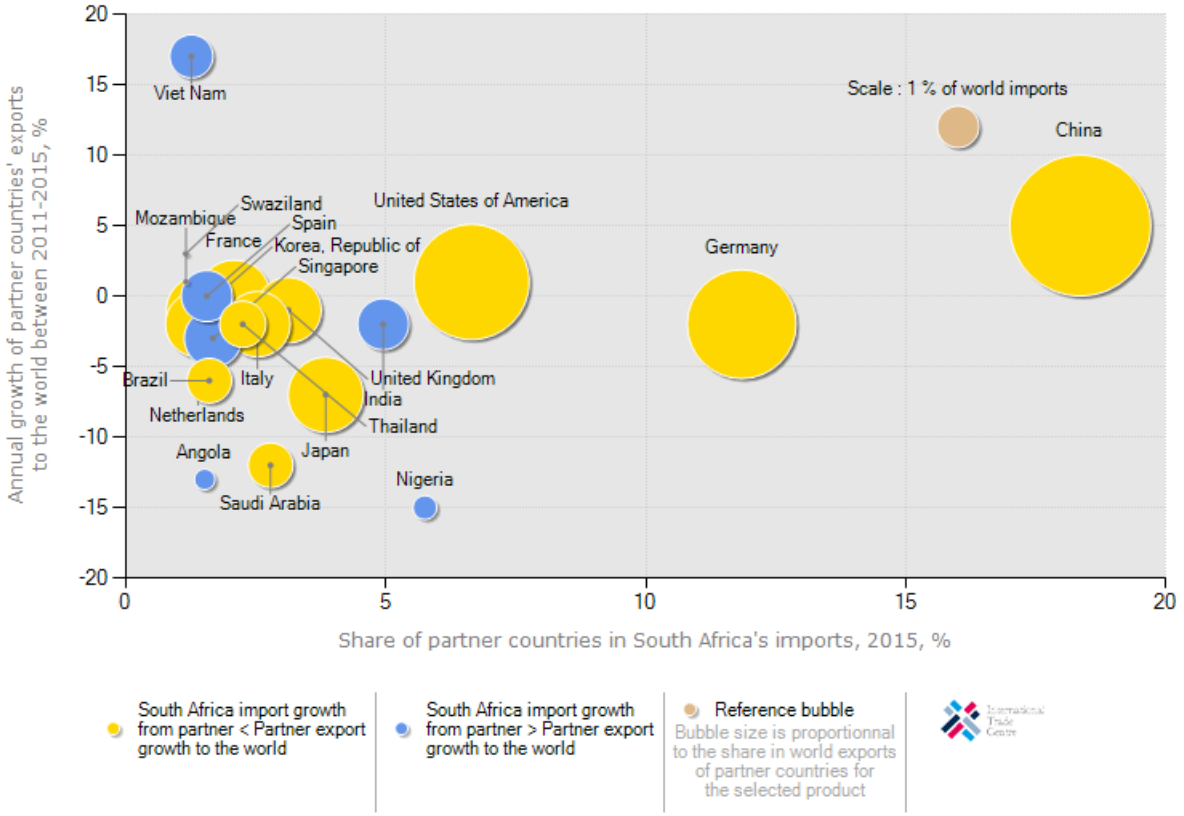
Figure 2.26: Prospects for market diversification for a product exported by South Africa



Source: www.intracen.org

Instead, looking at Figure 2.27, related to South African imports partners, we notice a big distance between the three major countries (China, Germany and USA) and the other partners. The first African nation here is Nigeria, which probably provides oil, gas and other petroleum products. The yellow spheres confirm the release in some GVC by South Africa.

Figure 2.27: Prospects for market diversification for a product imported by South Africa



Source: www.intracen.org

Some important industries are finance and retail but the most important one are automotive and mining. The country has attracted many of the largest international car manufacturers of the world to set up assembly operations, including General Motors, Mercedes Benz, Nissan and Toyota. South Africa is an assembly hub for Africa (even if they have the left-hand steering). Some of the models produced in South Africa are also exported to the US market. The large assembly presence is useful to attract component manufacturers producing parts alongside the automobile plants. These manufacturers are large international firms that control all the value chain from R&D to after-sales services. For this reason, many intermediate products are imported to be assembled in South Africa. Local firms continue to learn to spillover knowledge and experience in order to become exporters themselves of components. South Africa's automotive industry accounts for more than 6% of its GDP and 12% of its manufacturing exports (AEO 2015).

The high value of domestic content in mining exports reflects the industry's long history, local ownership and extensive backward integration into the wider South African economy. Furthermore, the money spent by the mining sector circulates throughout the economy and has a big impact on other

sectors (steel, timber and rail, for example), close to 19% of South Africa's GDP (thanks to purchases and use of electricity and rails) and mining accounts for over 16% of formal sector employment. Going on, the South African firms are leader in vast mining services including geological services, shaft sinking and other operation services; these sectors became important exporters on their own. The firms form a cluster around Johannesburg and suppliers around East Rand. In these areas, development is strong and comparable to other specialized countries as Chile and Australia without receiving any direct government subsidy in any development stage.

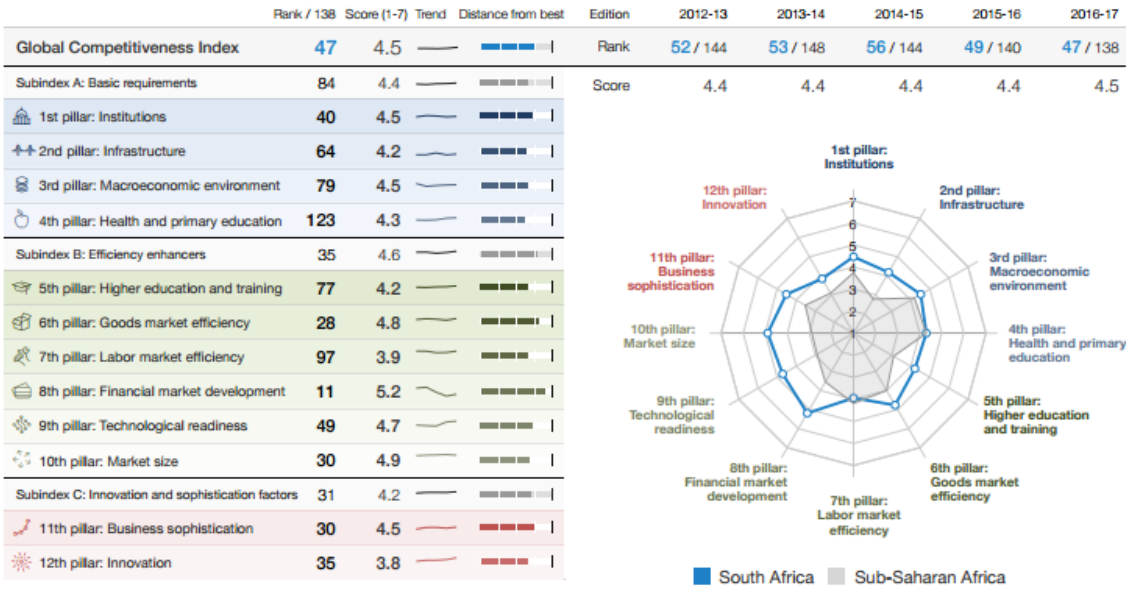
The finance and retail industries have deep value chains with an expanding presence in other African countries. The four major banks (Standard Bank, FirstRand Bank, NedBank, Barclays Africa Group Limited) are amongst the top players on the continent and South African retailers are branching out into neighboring countries. South Africa's advantages in global value chains pertain to skills (especially experiential skills), well established companies with leading products and competencies, public research linked to firms, sophisticated customers, well-developed and dense networks of local supply industries and services, and geographical clustering. These regional value chains offer important opportunities to create value in key industries, boost employment opportunities, and improve economic growth.

However, some problems emerged in the last years. Skilled engineers and artisans are missing, with many firms stating that standards are declining. There is a decline in links between firms and science councils. Publicly funded research has fallen significantly and the innovation policies are ignoring GVCs related activities. The lack of new investments in global value chains in South Africa is impeding the prospects for technological advancement for local suppliers. Improving the capacity of specific value chains, and on a globally competitive scale, is a critical part of an important diversification strategy. The percentage of FDI inflow remains too low, even considering the fact that South Africa is well more developed than its neighbors' countries.

South Africa would stand to benefit from the diversification promoted by linkages and spillovers between industries. In order to increase the depth and stability of value chains, government has to push for measures that target skills development, expansion of technological capabilities and access to capital. The strength of South Africa relies particularly in the quality of its financial market development, classified 11th and in a good market efficiency ranked 28th (Figure 2.28). However, overall in these

indexes relies the strength and the superiority of South Africa over its neighbors' countries. The only aspect in which South Africa is in line with the average of its neighbors and has to improve, are the health, primary education and the labor market efficiency.

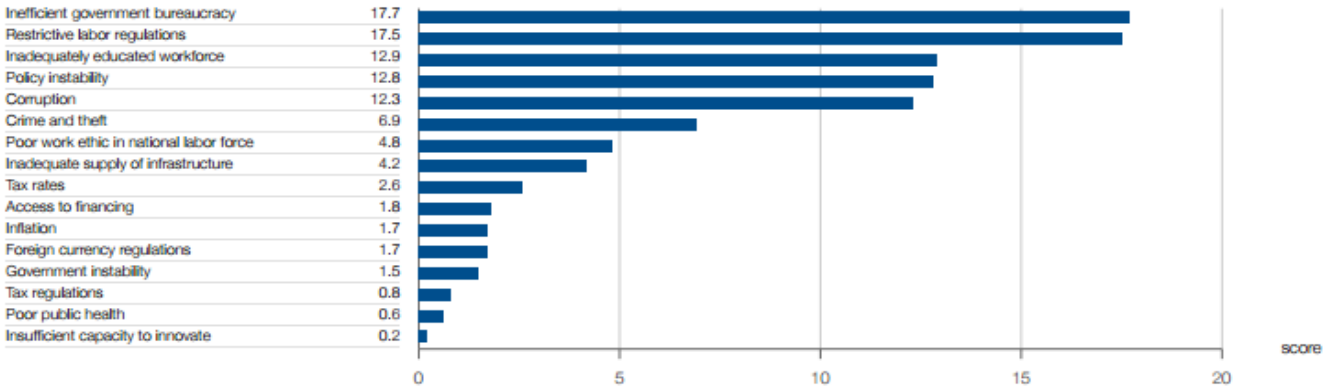
Figure 2.28: South Africa performance overview



Source: Global Competitiveness Report (2016)

We can figure out the main problem of South Africa firms referring to this survey (Figure 2.29). The inefficiency of government and the restrictive regulations of labor limit the potential of the economy. From a wider perspective, the high inflation and the limping GDP per capita growth prediction (Table 2.6) constitute the main concerns.

Figure 2.29: Most problematic factors for doing business in South Africa



Note: From the list of factors, respondents to the World Economic Forum's Executive Opinion Survey were asked to select the five most problematic factors for doing business in their country and to rank them between 1 (most problematic) and 5. The score corresponds to the responses weighted according to their rankings.

Source: Global Competitiveness Report (2016)

Table 2.6: Macroeconomic indicators of South Africa

Macroeconomic indicators

	2014	2015(e)	2016(p)	2017(p)
Real GDP growth	1.5	1.3	0.7	1.8
Real GDP per capita growth	0.5	0.3	-0.2	0.9
CPI inflation	6.1	4.6	6.8	7.0
Budget balance % GDP	-3.6	-3.9	-3.3	-3.1
Current account % GDP	-5.4	-4.3	-4.1	-4.0

Source: Data from domestic authorities; estimates (e) and projections (p) based on authors' calculations.

Source: AEO (2014)

Summary table

Table 2.7: Summary table of African countries

	FDI inflow (%GDP) (2014)	market access (score)	real GDP growth (2014)	CPI inflation (2014)	Unemployment Rate trend (2005-2014)	Infrastructure score trend (2007-2016) (World Bank)	Trade/GDP (2014)
Tunisia	2,20%	3,9	2,30%	5,50%	-0,9%	-0,39	102,12%
Namibia	6,80%	4	6,40%	5,30%	-1,6%	+0,76	104,63%
Mauritania	22,20%	3,3	6,60%	3,50%	-1,1%	-0,66	103,72%
Mozambique	40,10%	4,2	7,20%	2,30%	0%	+0,16	106,54%
South Africa	2,30%	3,6	1,50%	6,10%	+1,3%	+0,36	64,36%

Source: elaboration on previous tables

In Table 2.7, we can synthetize some patterns related to those countries previous analyzed. It is quite impressive the score of Mozambique. Despite its low infrastructure quality score, it has a big FDI inflow, with the highest GDP growth and the lowest CPI inflation of this group of countries. The market access score probably facilitates these positive numbers, although its level of unemployment did not reduce but stayed high. However, given the big difference of GDP between the richest country (in this case South Africa) and Mozambique, the numbers must be read keeping in mind the different stage of the economy of these two countries. It is curious to notice that, in 10 years, the unemployment rate did not manage to improve but actually decreased only slightly, even increasing in South Africa. A lot of people did not benefit from the general growth, staying in a non-productive condition, while others increased their wealth following the positive trend. Along with a positive CPI inflation, this brings inevitably to a rise of inequality among different social classes, which is the principal problem of this kind of situation.

3. The effects of global value chains on African countries: an empirical analysis

The objective of chapter three is to answer the question at the base of this work. Are these countries well inserted into global value chains? If yes, what are the effects of this participation? In order to do that, the author took the data seen in the previous chapters and put them into an empirical analysis, the most used instrument in this kind of studies.

In order to obtain for each nation a wider perspective (compared to chapter two), a macro trend analysis is necessary. We will focus on the period going between 2005 and 2015; ten years in which there have been many changes and a huge economic crisis, affecting most of all developed countries. Have these changes affected in the long-term the mechanisms of the economy of these countries? In the first part, we will look at some macro-data of the selected countries in order to catch a sort of pattern for each variable. In the second part, we will proceed with a multiple regression, for a demonstrative purpose of some of the effect of the global value chains explained in the first theoretic chapter.

For the first part, we will use these indexes/variables:

- Unemployment level
- GDP per capita
- FDI net inflow (% GDP)
- Purchasing power parity with US
- Manufacturing value added

We use real capital inflows, not growth of capital inflows, since when the levels of capital flows are near zero a small uptick in capital inflows might cause a large jump in growth of capital flows, as pointed out by Calderon and Nguyen (2015).

Given the specificity of some indexes and researches, some data are missing; part of the thoughts and the conclusions described here are the result of assumptions or interpolation of the few numbers available. Taken singularly, none of these statistics can describe accurately the general path of the

economy, but each one accounts for a different side. However, if we combine all these interesting perspectives, we can have a wider view and an answer to the main question in a quite reliable way.

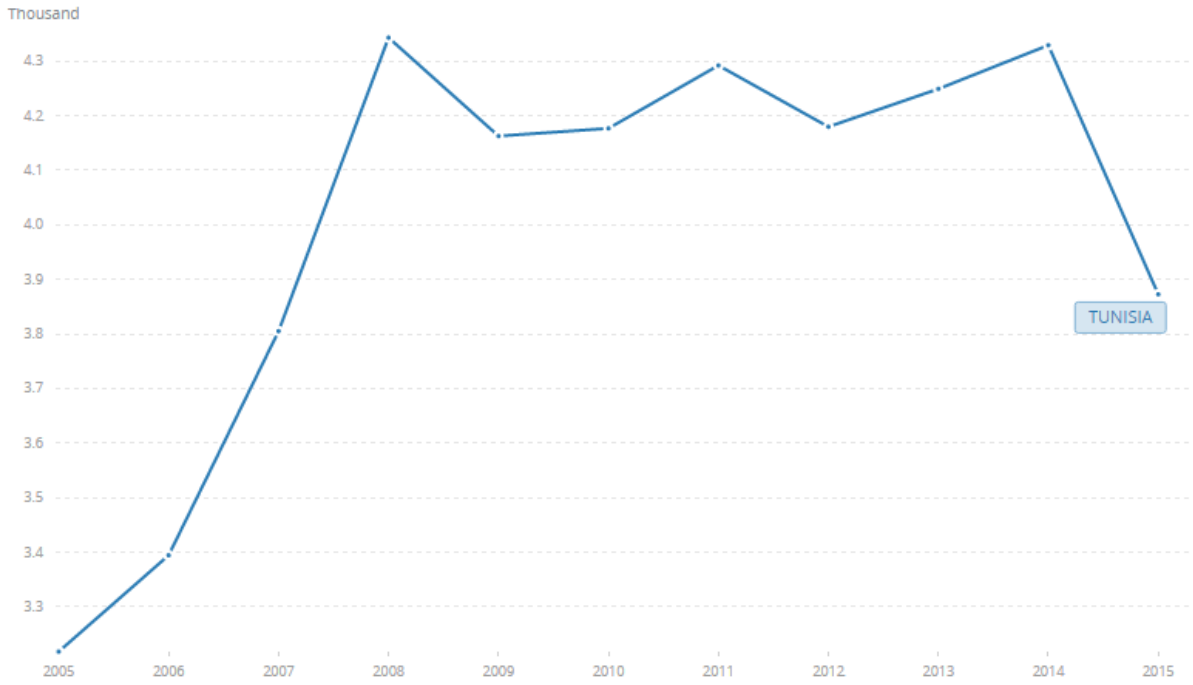
3.1 Macroeconomic data

3.1.1 GDP per capita

This indicator is the most common to indicate the level of economic development of a country. It indicates the average "wealth" for each person.

Starting from Tunisia (Figure 3.1), we notice that from 2008 to 2014 the GDP per capita has remained substantially flat. It is curious to notice that the crisis of 2011 has heavily affected the level of FDI inflow but it did not affect the GDP per capita too much. Instead we have a big drop in 2015.

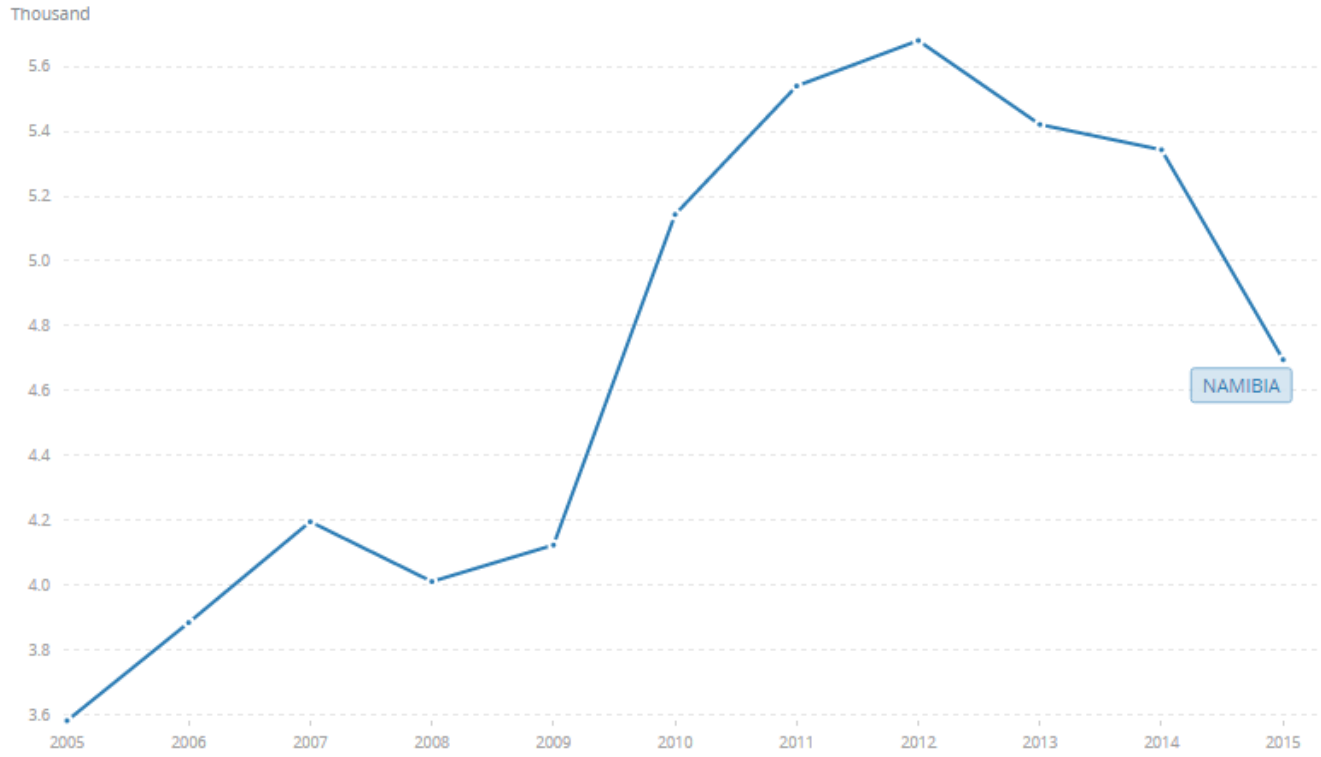
Figure 3.1: Tunisia GDP per capita (current US$)



Source: World Bank

Looking at Namibia (Figure 3.2), we notice a different pattern. From 2009 to 2012 there was a constant rise that brought GDP over 5.6k dollars. However, after reaching the peak, it started to decline without interruption.

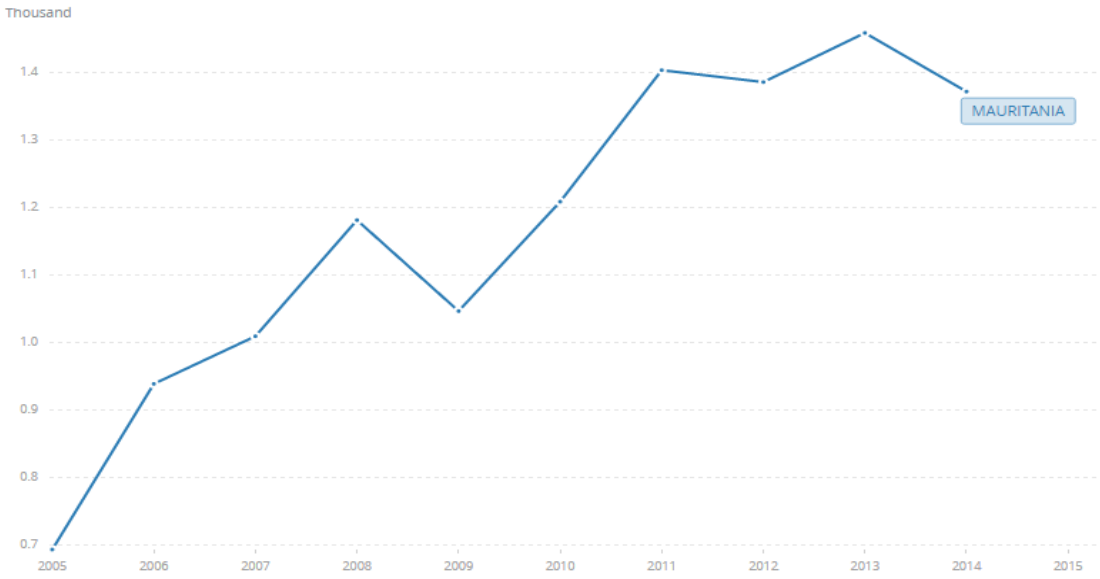
Figure 3.2: Namibia GDP per capita (current US$)



Source: World Bank

GDP per capita of Mauritania (Figure 3.3) did not know stops from 2005 to 2013, when it had a little decrease. Even if the level of FDI following the crisis of 2011 has decreased a lot, the country has managed to stay stable from this point of view.

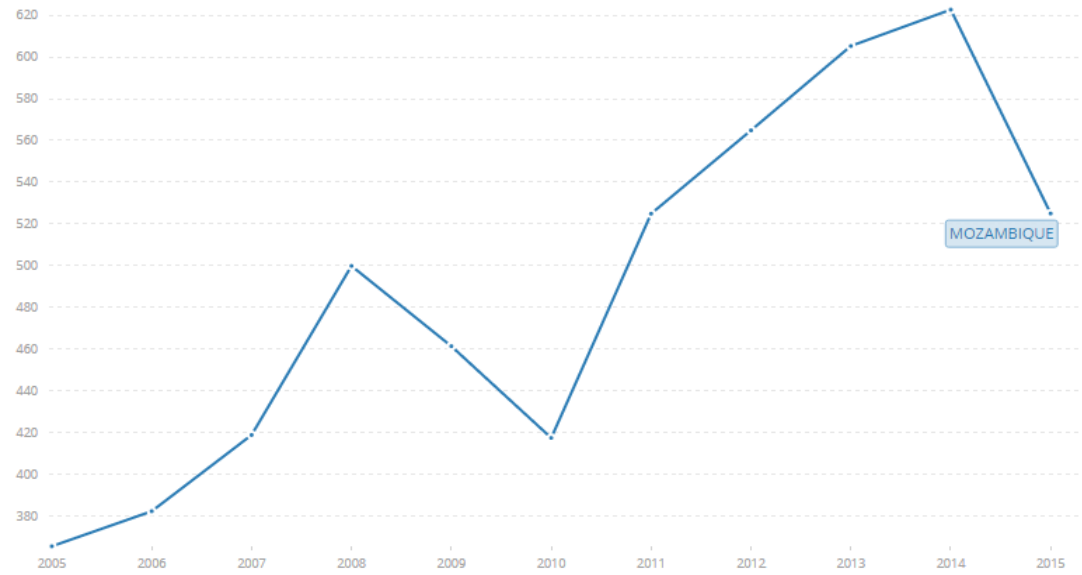
Figure 3.3: Mauritania GDP per capita (current US$)



Source: World Bank

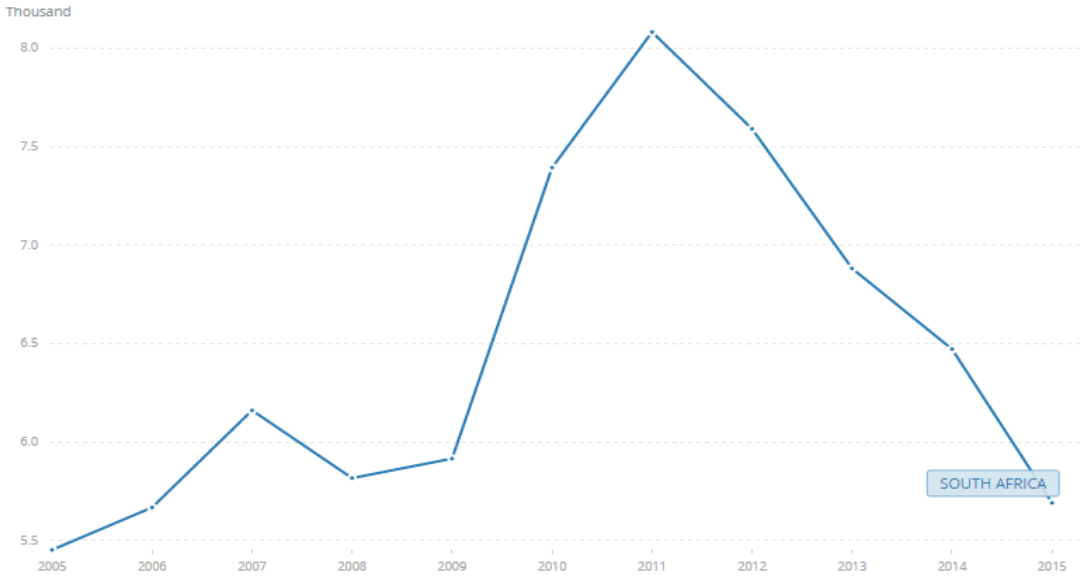
For Mozambique (Figure 3.4) the situation is fluctuating, but also here we notice a decrease in 2015 after a long period of rise. For South Africa (Figure 3.5), instead, from 2011 the situation has worsened without recovery reaching the low level of 2005. Looking up at the macro picture, even with many differences, the five countries have a common recent trend regarding 2015: their GDP per capita decreased no matter their previous situation.

Figure 3.4: Mozambique GDP per capita (current US$)



Source: World Bank

Figure 3.5: South Africa GDP per capita (current US$)



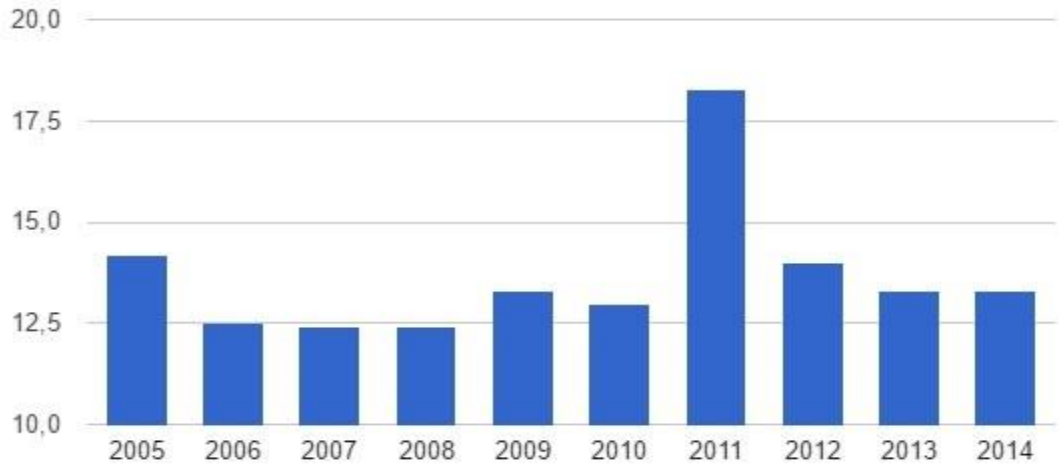
Source: World Bank

3.1.2 Unemployment level

The level of unemployment reflects more the state of "health" of the economy, more than its development.

For Tunisia (Figure 3.6) the unemployment fluctuated always between 12 and 15% in the last 10 years, except for 2011, when it raised over 17%. The conclusion is that the country has managed to remain pretty stable from this point of view, even if it has not been capable of reducing it towards lower levels.

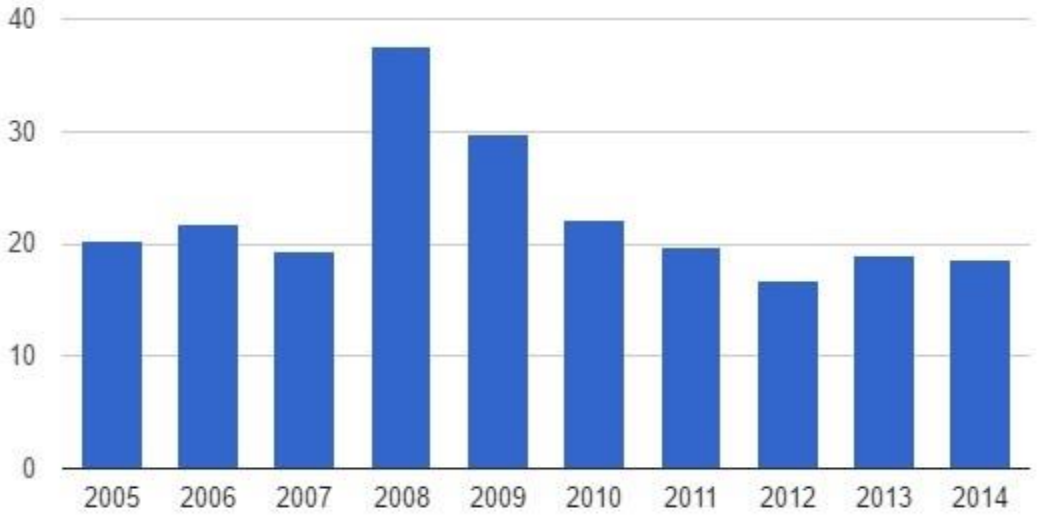
Figure 3.6: Tunisia unemployment trend



Source: the Global Economy, World Bank

For Namibia, (Figure 3.7) the path of decrease started in 2008, when there was a peak of unemployment that reached almost 40% of the population, almost 20% more than the previous one. After that disastrous year, the economy recovered well (even with a boost of GDP per capita in the previous figure) and stabilized itself within a range of 20% of unemployment, which is actually still high.

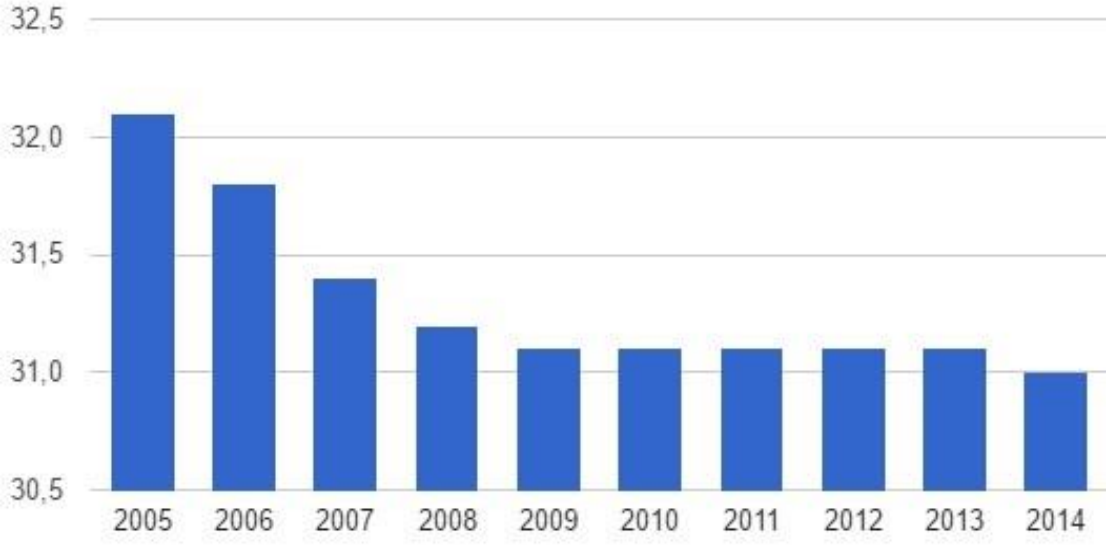
Figure 3.7: Namibia unemployment trend



Source: the Global Economy, World Bank

Mauritania (Figure 3.8) is surely one of the most stable countries of our analysis regarding the unemployment rate. From 2005 to 2014 the unemployment rate decreased constantly from 32,1% to 31%, which actually is not a great improvement. However, together with the constant increase of GDP per capita, it shows that the country is moving (very slowly) to a better situation and it is trying to cover the path towards the full economic development.

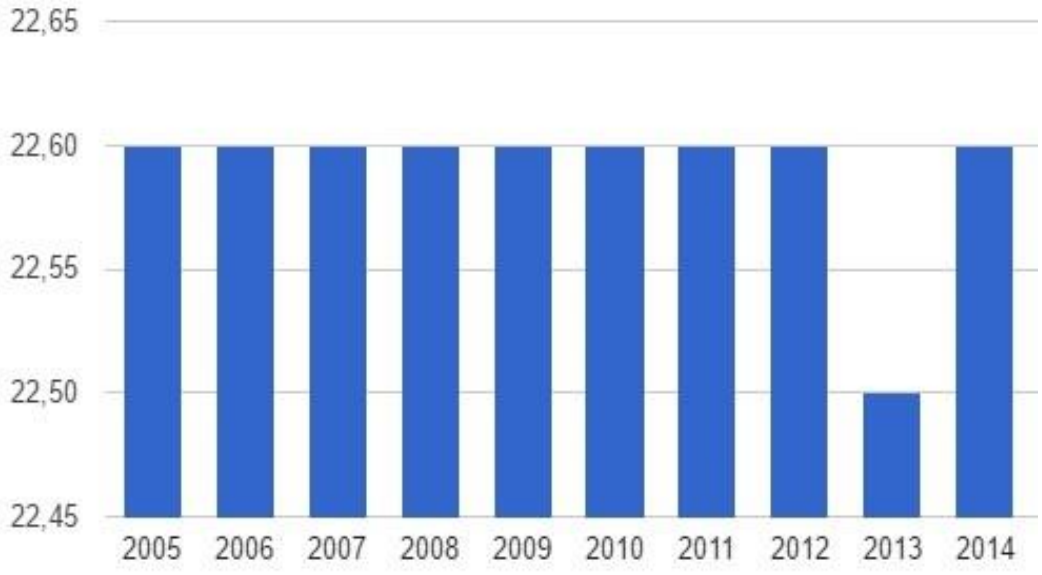
Figure 3.8: Mauritania unemployment trend



Source: the Global Economy, World Bank

If Mauritania seemed a “stable” country, Mozambique (Figure 3.9) seems actually a completely blocked country. According to the data of World Bank, unemployment rate did not move from 22,6%. This stability contradicts the data regarding the GDP per capita where it fluctuates a lot. These two aspects are very different forming an unusual situation for a country. Another way to explain this suspicious stability is the lack of precise data regarding employment in Mozambique; it is possible that part of the population has moved to uncovered sectors, where the official statistics do not arrive.

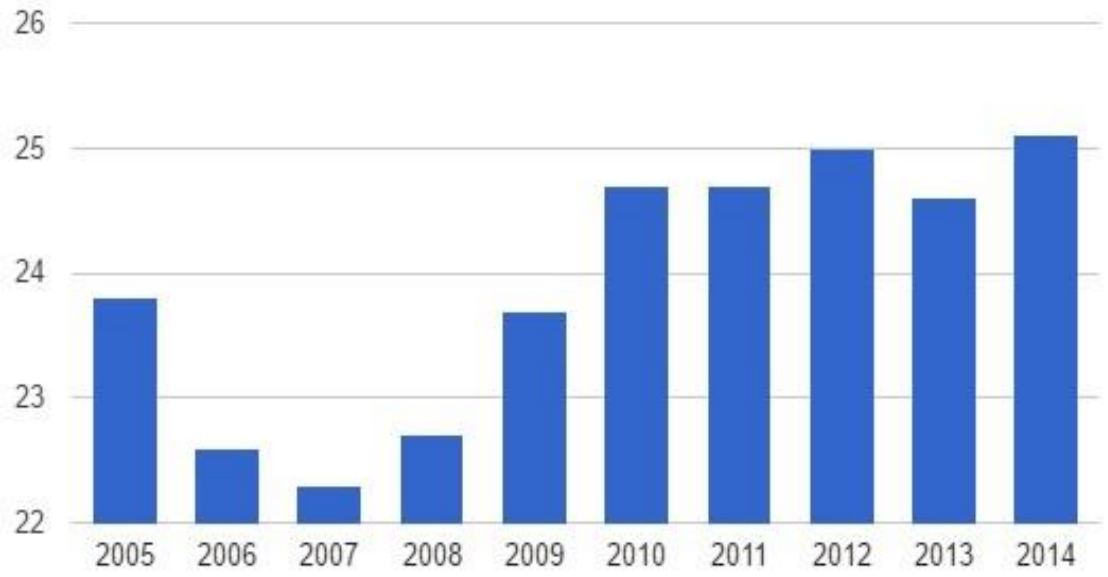
Figure 3.9: Mozambique unemployment trend



Source: the Global Economy, World Bank

Completely opposite is the situation of South Africa (Figure 3.10). The negative trend regarding GDP per capita (decreasing constantly from 2011) is confirmed by the data about unemployment, which is increasing since 2007 towards 25% and is still high for an economy that is part of the BRICS and wants to play an important role in the future world.

Figure 3.10: South Africa unemployment trend



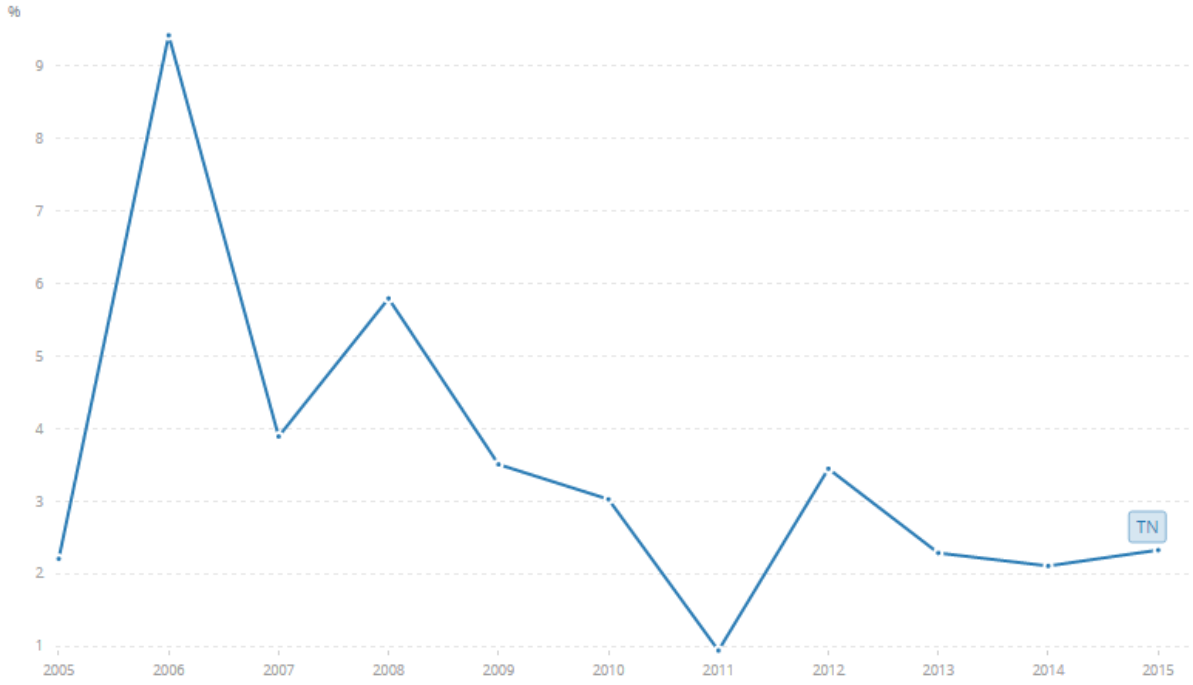
Source: the Global Economy, World Bank

3.1.3 FDI net inflow

The FDI net inflow shows us the commitment that foreign countries and MNEs put in the investments in that particular country. The calculation is computed considering the percentage of local GDP, in order to compare different countries with different economic situation.

In Tunisia (Figure 3.11), from the peak of 2006, when the FDI net inflow reached 9% of GDP, the level has constantly decreased, also because the GDP has grown, especially after 2007. The country is still struggling to obtain the trust of foreign firms after the crisis of 2011.

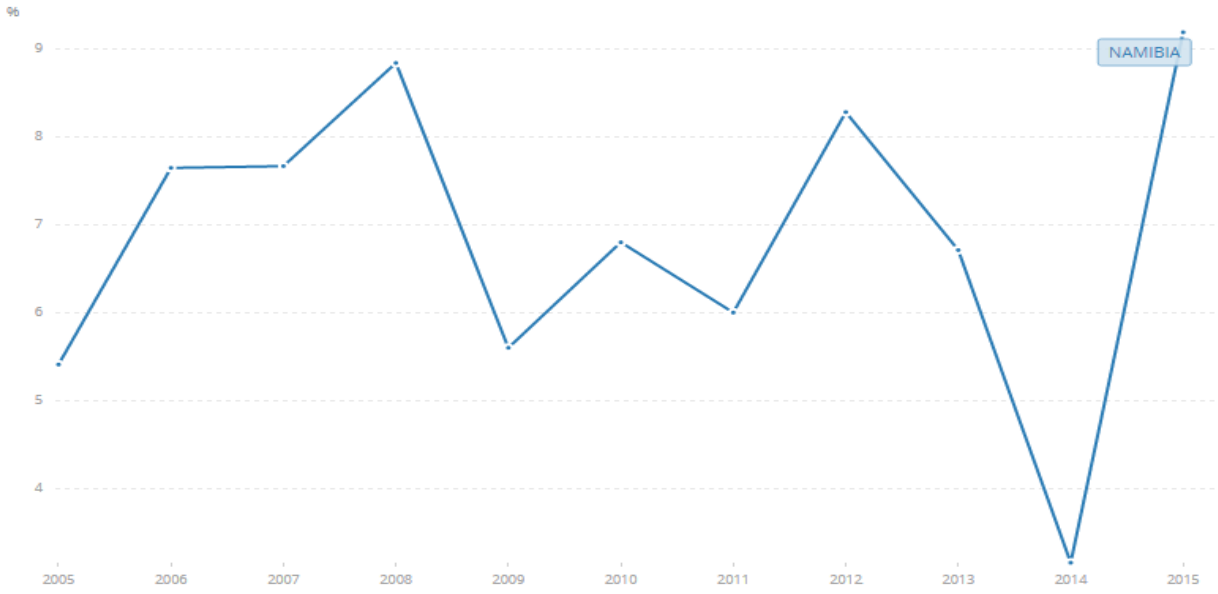
Figure 3.11: Tunisia net FDI inflow (% GDP)



Source: World Bank

Regarding Namibia (Figure 3.12), the situation remained stable in the last 10 years until 2014 where the level dropped significantly and raised again in 2015 towards the highest value of the decade.

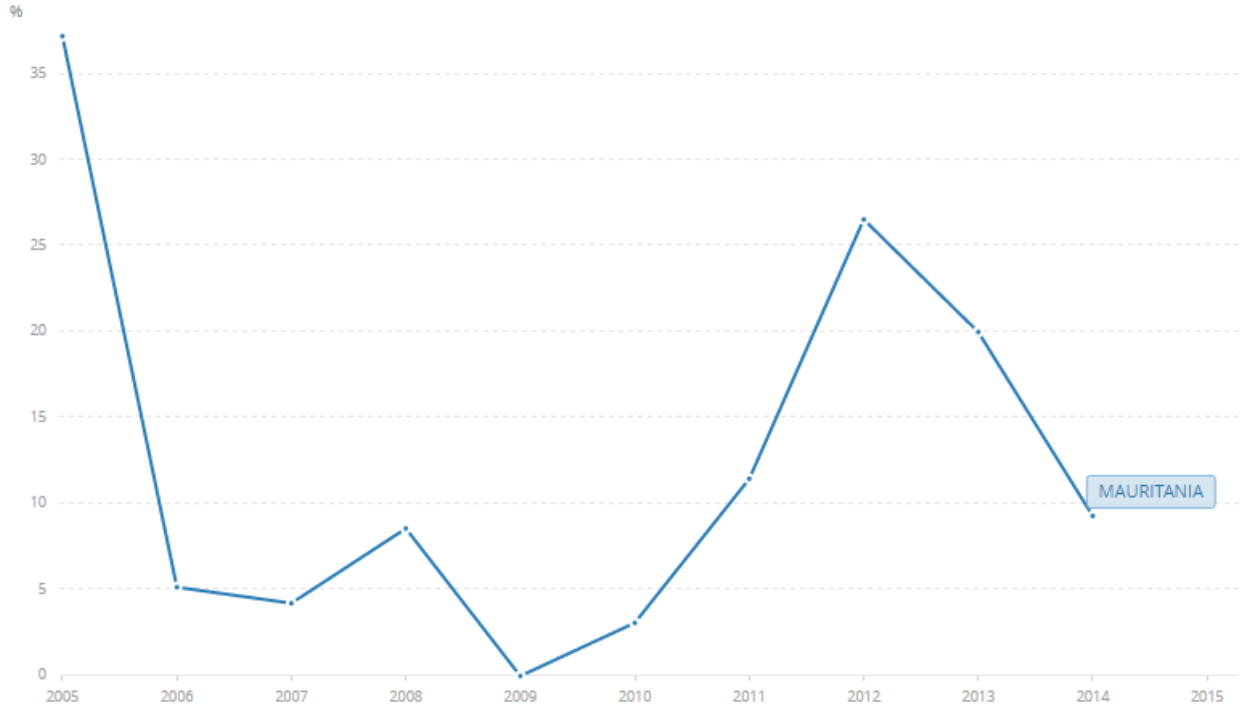
Figure 3.12: Namibia net FDI inflow (% GDP)



Source: World Bank

In Mauritania (Figure 3.13) GDP has grown a lot and this means that the percentage of FDI has decreased, but it is still consistent, with 10% in 2014.

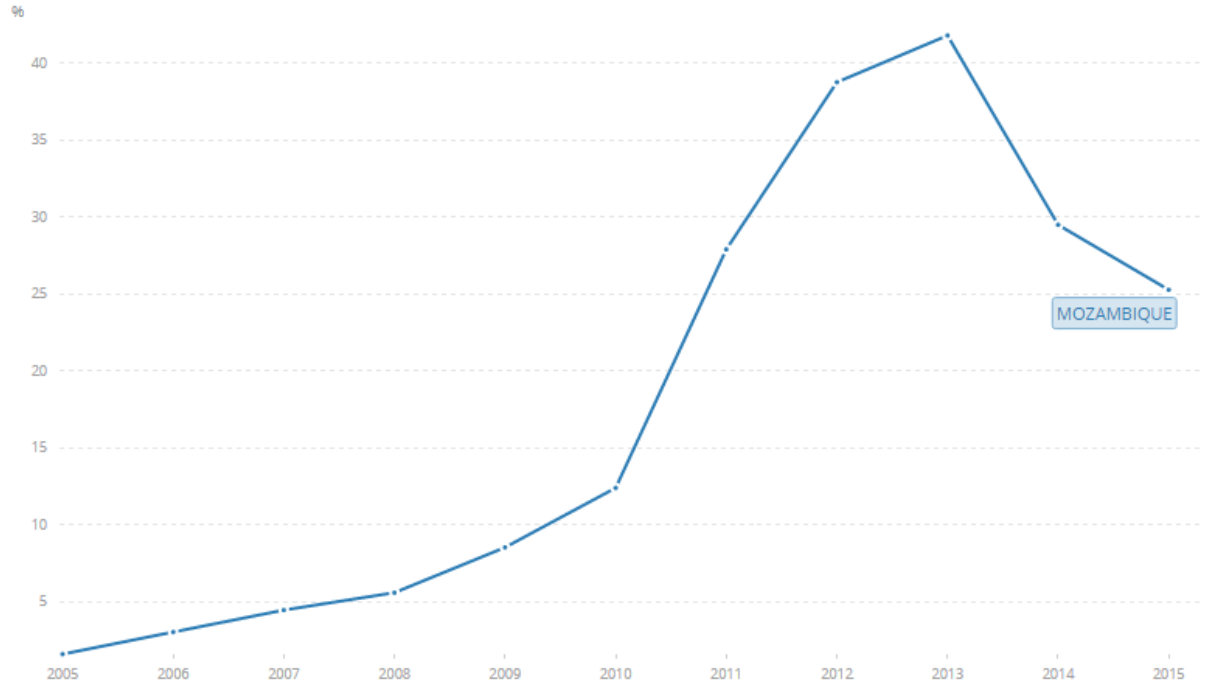
Figure 3.13: Mauritania net FDI inflow (% GDP)



Source: World Bank

Mozambique (Figure 3.14) instead had a constant growth until 2013, when it touched 40%, and then had a decrease of 15%. As we can notice, different countries have totally different patterns.

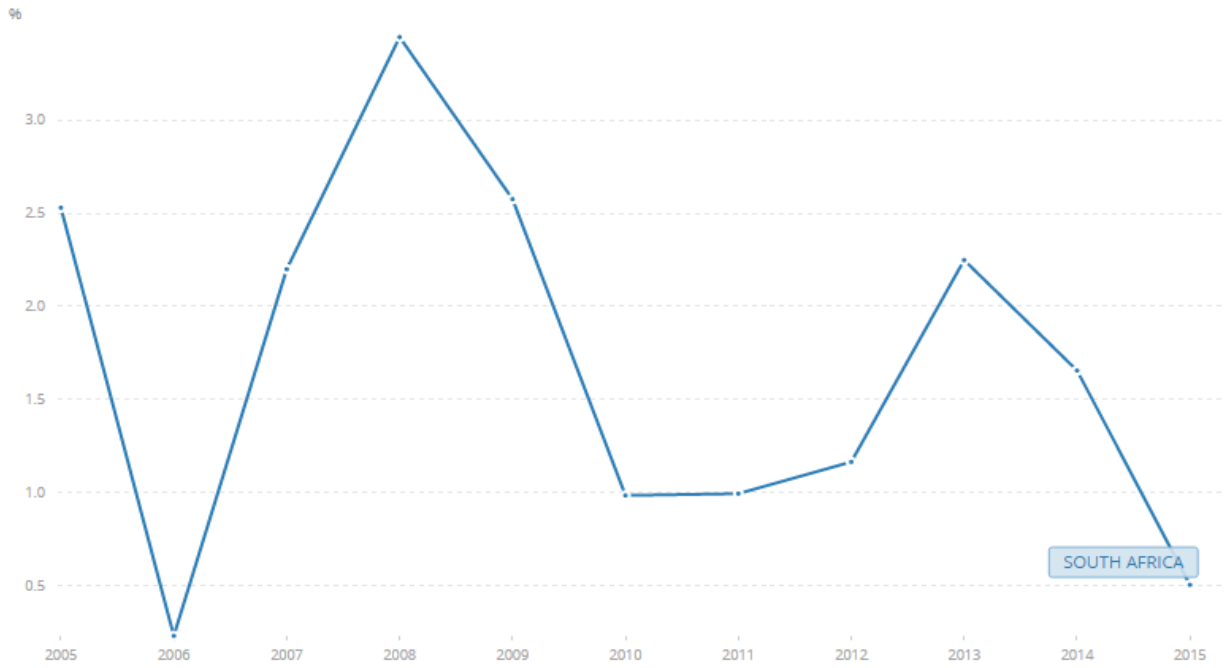
Figure 3.14: Mozambique net FDI inflow (% GDP)



Source: World Bank

For South Africa, the data reflect the difficult situation of the country in the last years. The FDI net inflows are limping on low percentages (Figure 3.15) and they are very fluctuating and mostly not superior to 3%.

Figure 3.15: South Africa net FDI inflow



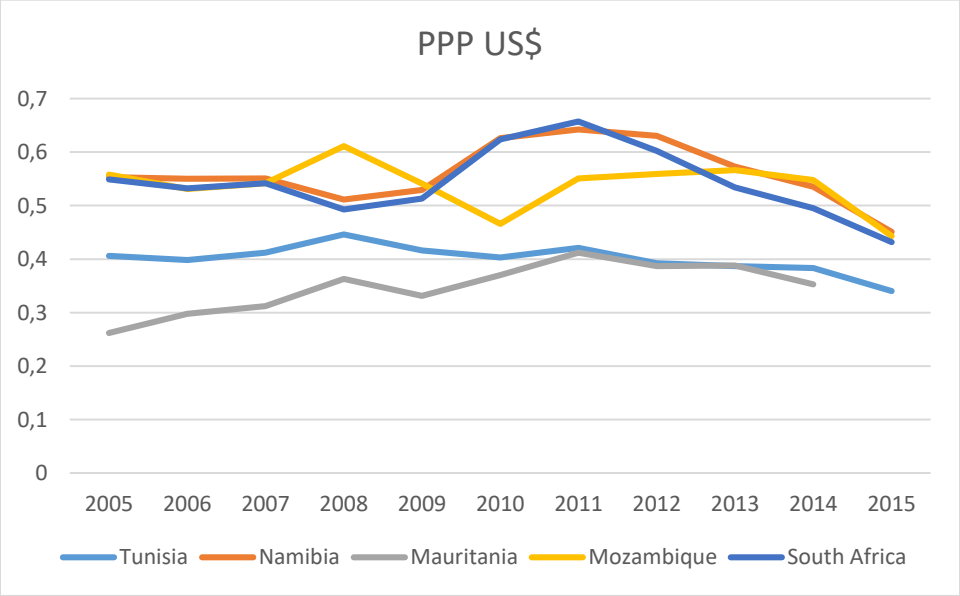
Source: World Bank

3.1.4 Purchasing power parity

Another interesting framework to use is PPP. Purchasing power parity is a theory that assumes that a basket of goods would cost the same in different countries, having considered the exchange rate. This framework is used to establish the level of development of the country, having as an objective the developed country par excellence, the United States. The purchasing power parity reflects the path of the inflation of the local currency. When the PPP is closer to one, it means that, having kept in mind the exchange rate, a basket of goods would cost the same on both countries. Normally, when the purchasing power parity index increases, it means that the economy is developing, since the internal consumes are increasing and there is positive inflation.

We notice from the graph in Figure 3.16 that the highest level of PPP reached in the last ten years is about 0,65 by South Africa and Namibia. Most of the countries stay between 0,3 and 0,6. The path of development is still long. From the graph is clear also that, starting from 2011, the PPP index has declined for all our countries. In particular, South Africa and Namibia have declined their prices a lot.

Figure 3.16: Purchasing power parity



Source: computation on World Bank data

3.1.5 Problem of inequality

The problem of inequality is well spread in all African realities. It is difficult to measure because, unfortunately, data are incomplete and poor about African countries. For this reason, there can be no sure conclusion after this analysis, but only suppositions and reasoning. We can partially overcome this problem by computing some analysis that can give us an idea of the relevance of the problem.

The real economic situation for workers is difficult to establish for many reasons. Different types of workers have different wages, and the problem of inequality is much more severe than in developed economies, making problematic to compute a realistic average. Furthermore, the lack of data impedes a complete overview about the different indicators and the economic situation. For example, wages refer only to employees, which are a small category of the total workers in developing countries.

Anyway, doing with some assumptions, a trial is possible. In order to understand if, during the last 10 years, the inequality among different social classes has been reduced or increased, it is possible to look at several data. We use two of them:

- The **statutory minimum gross monthly wages** (from The International Labor Organization) for some categories of workers, different ones from nation to nation.
- **GDP per capita**

The data below arrive from the International Labor Organization and they are the Statutory Nominal gross monthly minimum wage in local currencies. With the exchange rate computation in dollars, we can compare these results with the GDP per capita of the same years. The assumption is that the minimum wages (not compulsory by law but done by the average) of the other jobs categories not included in these data do not deviate too much from these ones. Is this true?

Unfortunately, Namibian data were not available and some years were not covered. Even if Namibian data are missing, the other results are clear. The statutory minimum wage in local currencies increased in all the countries quite constantly but let's see more closely each nation.

In Tunisia, even if the statutory wage in local currency (Table 3.1) seems to increase every year, the exchange rate gives back a flat slope (Figure 3.17), which is slightly increasing its deviation from the

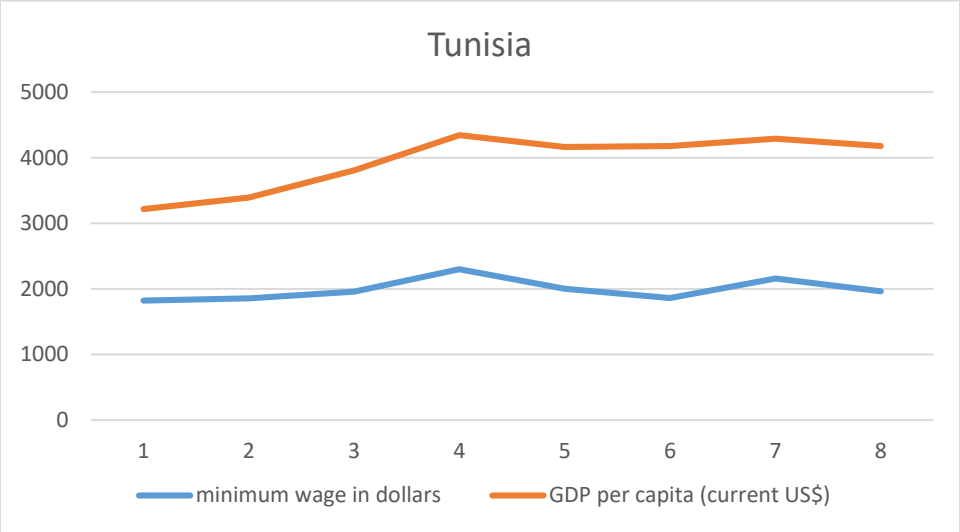
average GDP per capita. It could be a sign of an increase of inequality rise and mean that the distance between the poorest segment of the population and the “middle class” is increasing.

Table 3.1: Tunisia minimum wage in local currency (excluding agriculture)

2005	2006	2007	2008	2009	2010	2011	2012
200	206	213	223	225	235	246	259

Source: ilo.org

Figure 3.17: Tunisia minimum wage and GDP per capita trend



Source: computation from ILO data

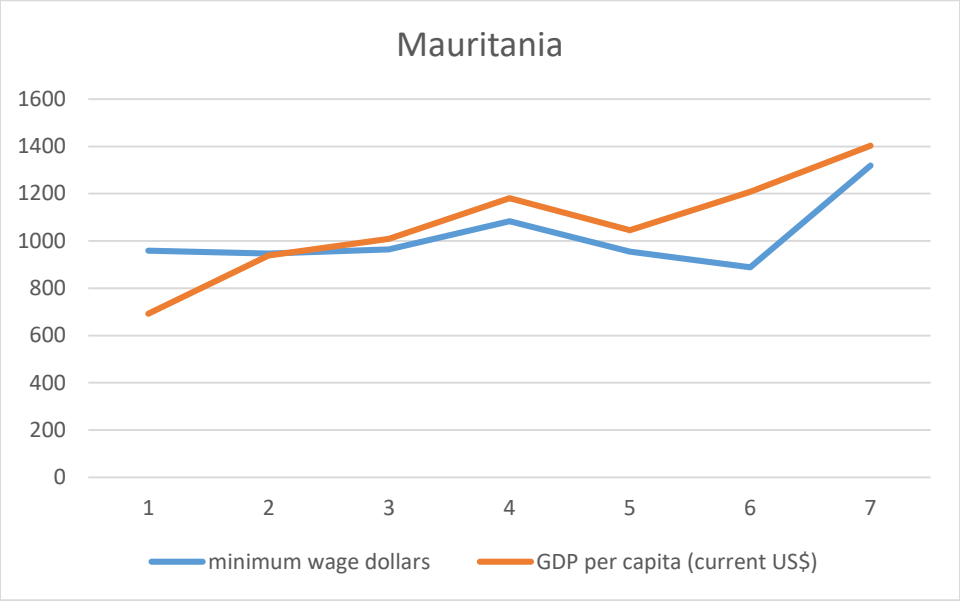
In Mauritania, the minimum wage in local currency has remained the same for many years (Table 3.2), until 2011 when it increased. Looking at the corresponding wage in dollars (Figure 3.18), the trend maintains quite constant values until 2011, but is near or above the average GDP per capita. This situation can be interpreted in different ways. From one side, if we suppose that the private sector is the one with major amount of FDIs, it means that the MNEs actually improve the working conditions of their workers, bringing their wages in line or above the national average. On the other side, the country is undeveloped and its average GDP per capita is very low; the entry of foreign capital did not improve the conditions of workers outside the private sector.

Table 3.2: Mauritania minimum wage in local currency (private sector only)

2005	2006	2007	2008	2009	2010	2011
21041	21041	21041	21041	21041	21041	30000

Source: ilo.org

Figure 3.18: Mauritania minimum wage and GDP per capita trend



Source: computation from ILO data

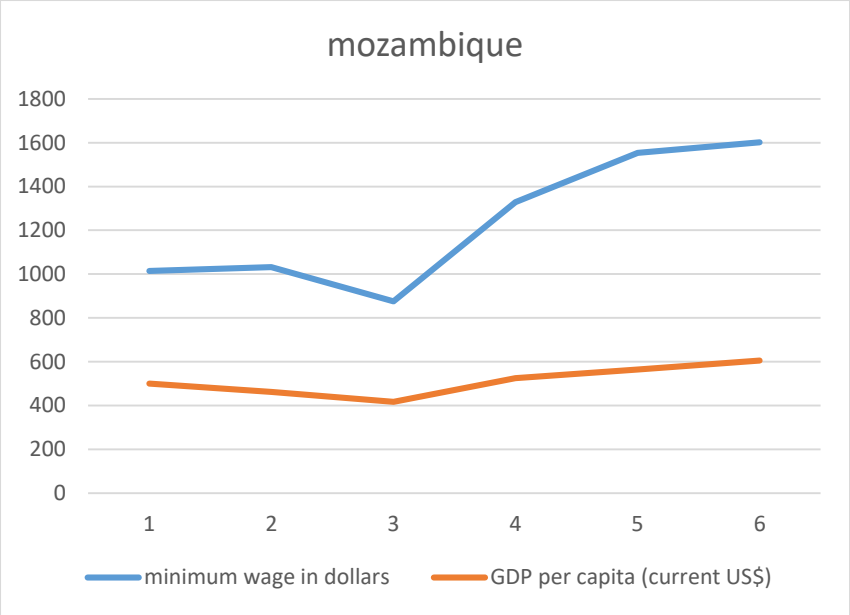
In Mozambique, the minimum wage has increased constantly (Table 3.3); probably, the big amount of foreign investments has increased the expectations and lifestyle of manufacturing workers. This increase is remarked also by the increasing gap with the average GDP per capita of the country (Figure 3.19). According to these data, the manufacturing seems to be a sort of "rich oasis" for workers and the MNEs have done a good job in increasing the minimum wealth level of their workers.

Table 3.3: Mozambique minimum wage in local currency (manufacturing only)

2008	2009	2010	2011	2012	2013
1975	2300	2497	3100	3585	3943

Source: ilo.org

Figure 3.19: Mozambique minimum wage and GDP per capita trend



Source: computation from ILO data

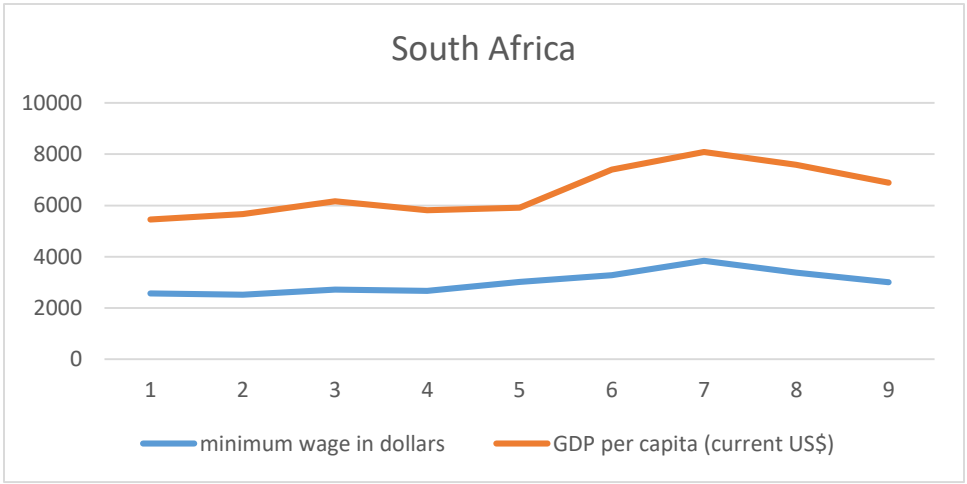
In South Africa (Table 3.4 and Figure 3.20), looking only at this parameter, about wealth inequality, the situation seemed not to be worsened in the last years but did not improve. It stayed flat, as the unemployment rate.

Table 3.4: South Africa minimum wage in local currency (wholesale and retail only)

2005	2006	2007	2008	2009	2010	2011	2012	2013
1425	1505	1595	1737	1947	2084	2159	2299	2474

Source: ilo.org

Figure 3.20: South Africa minimum wage and GDP per capita trend



Source: computation from ILO data

There are other ways to measure economic inequality. One surely is the Gini index. The other can be the income share held by specific parts of the population. The Gini coefficient represents the income distribution of a nation's residents. When its value is zero, it means that there is perfect equality in the country and all the residents have the exact same wealth. When its value is 1 (or 100%) there is perfect inequality: one person has all the income or consumption and the others have nothing. Of course both these extreme situations are only theoretical. This data come from the Poverty and Equity Database 2015 and from the World Bank.

Tunisia

The number of greenfield investments in the country was much higher in 2013 (20), than it was in 2014 and 2015 (11 and 13).

- Income share held by highest 20% of the population:
    - 2005: 44,66%
    - 2010: 42,92%
- Income share held by lowest 20% of the population
    - 2005: 6,44%
    - 2010: 6,73%
- Gini index
    - 2005: 37,73
    - 2008: 37,48
    - 2010: 35,81
    - 2013: 36,1

However, taking the income share data and the Gini index, they tell us that the situation about the disparity problem is kept under control. The Gini index, computed on three years, reflects the situation of a country where the disparity is not an issue, compared to other neighbored nations.

Namibia

- Income share held by highest 20% of the population:
    - 2009: 66,44%

- Income share held by lowest 20% of the population
    - 2009: 3,27%
- Gini index
    - 2009: 60,97%
    - 2013: 63,9%

The low level of information and data reflects the state of low development of the country. Here, the only “trend” we can obtain comes from the Gini index that increased, reaching a very high value. The disparity between the rich and the poor is evident and clear and the situation seems worsening during the years. Namibians rely a lot on informal economics where there are starvation wages. In 2014, half of population lived below the poverty line with 70% of GDP controlled by only 5% of the population. The entry of global value chains brings the disadvantage of privatizations, neoliberalism and the big risk of corruption and wealth transferring to few people at the expense of the majority.

Mauritania

As testified by the Gini index of two years, the situation of inequality and disparity in Mauritania has actually increased, even if the data remain incomplete and partial.

- Income share held by highest 20% of the population:
    - 2008: 44,04%
- Income share held by lowest 20% of the population
    - 2008: 6,38%
- Gini index
    - 2008: 37,48
    - 2013: 40,5

Mozambique

- Income share held by highest 20% of the population:
    - 2008: 51,42%
    - 2009: 51,46%
- Income share held by lowest 20% of the population

    - 2008: 5,22%
    - 2009: 5,23%
- Gini index
    - 2008: 45,58
    - 2009: 45,66
    - 2013: 45,7

All three set of data confirm a sort of “paralysis” of Mozambique society from 2008 to 2013, the last year covered by the Gini index.

South Africa

Despite being the second most important economy of the African continent (after Nigeria), South Africa has the problem of the massive wealth inequality inside its society which still derives from the Apartheid regime. Despite these difficulties, South Africa has managed to attract 172 new investments in 2013, 120 in 2014 and 130 in 2015.

The income share of GDP and the Gini index highlight very well the issue of social inequality in South Africa. The numbers are impressive: 20% of the population hold about 70% of the wealth produced in the country; instead, the lowest 20% hold not even 3%. The situation has not improved substantially over years; in fact, its Gini index has been the highest of the world for many years.

- Income share held by highest 20% of the population:
    - 2006: 71,05%
    - 2008: 68,68%
    - 2011: 68,94%
- Income share held by lowest 20% of the population
    - 2006: 2,58%
    - 2008: 2,60%
    - 2009: 2,70%
    - 2011: 2,47%
- Gini index
    - 2006: 64,79

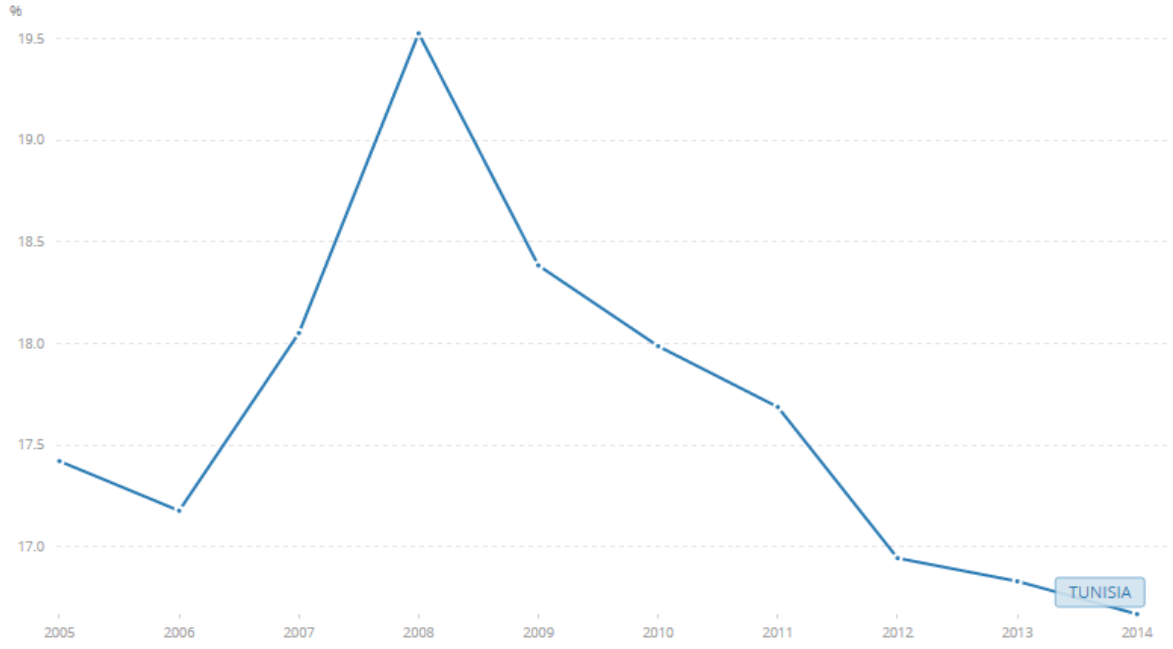
- 2008: 63,01
- 2009: 63,14
- 2011: 63,38
- 2013: 63,1

3.1.6 Manufacturing value added

The global value chains for African countries could mean a faster industrialization that brings to a higher value added of manufacturing part of GDP. Actually the result seems to be pretty different for all the countries involved.

After a peak in 2008, the value of manufacturing value added in Tunisia (Figure 3.21) decreased constantly below 17%.

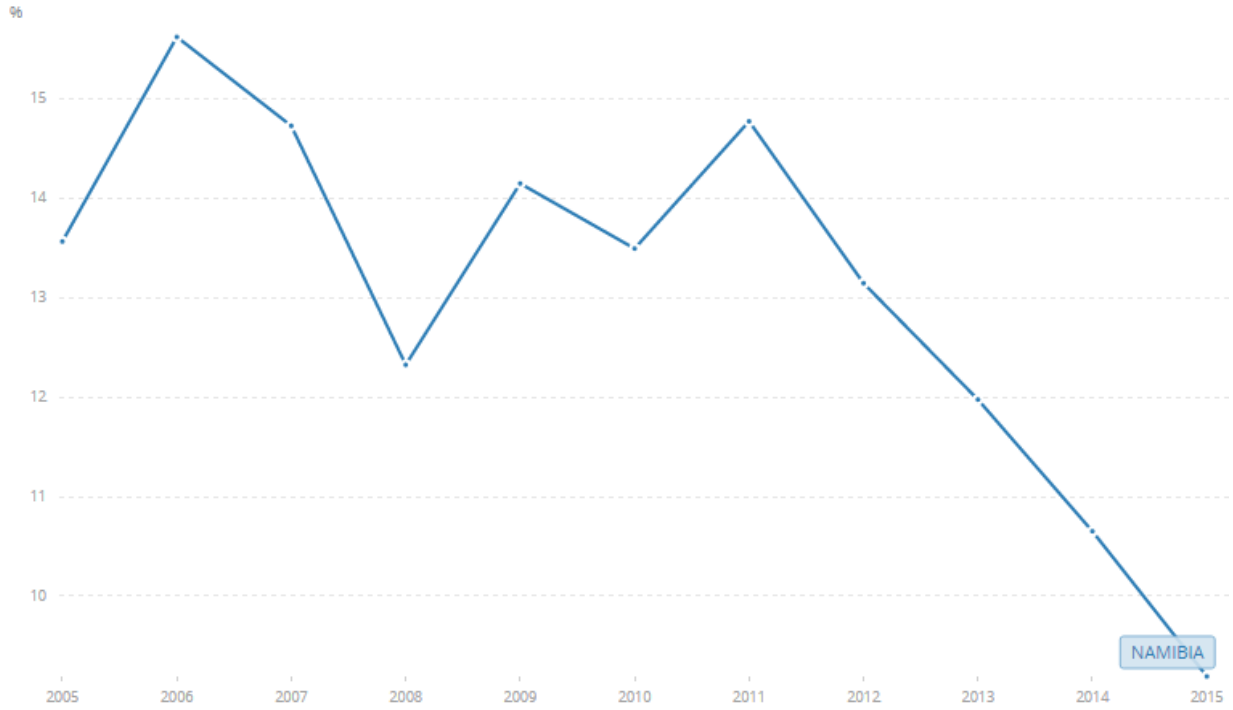
Figure 3.21: Tunisia manufacturing value added (% GDP)



Source: World Bank

The situation of Namibia is even more critical (Figure 3.22). The Namibian manufacturing value added was low and become lower after 2011, starting to decrease to under 10%. The number of greenfield investments has decreased during the years (15 in 2013, 10 in 2014, 8 in 2015).

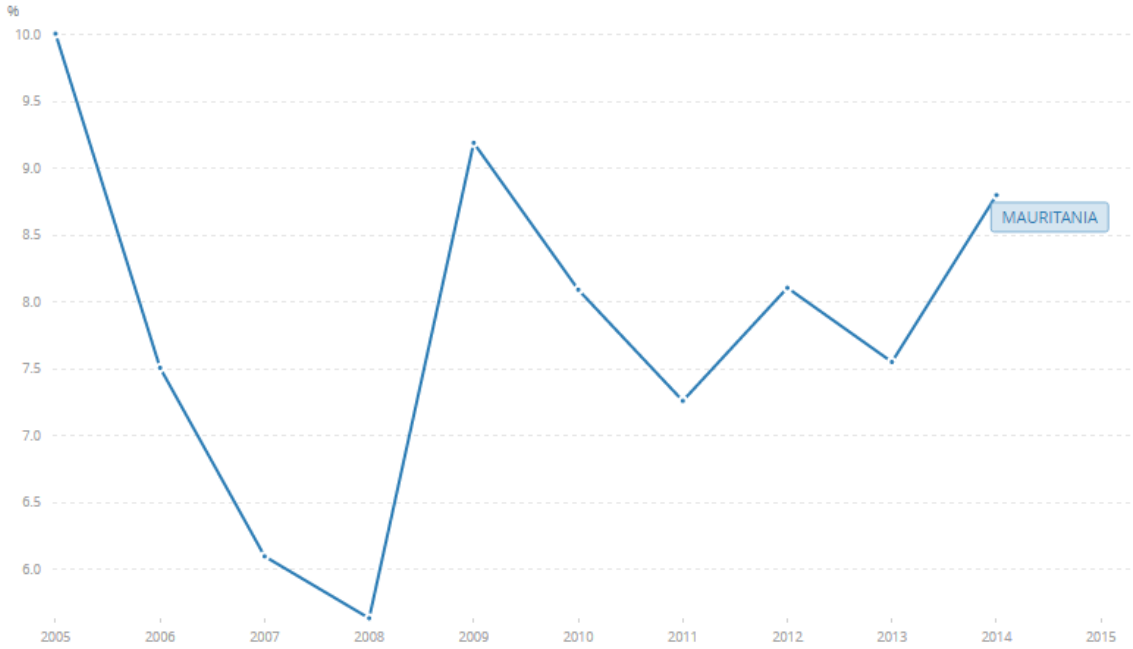
Figure 3.22: Namibia manufacturing value added (% GDP)



Source: World Bank

The manufacturing value added of Mauritania (Figure 3.23) had a fluctuating path in the last 10 years but still a very low value, which remained under 10% of GDP.

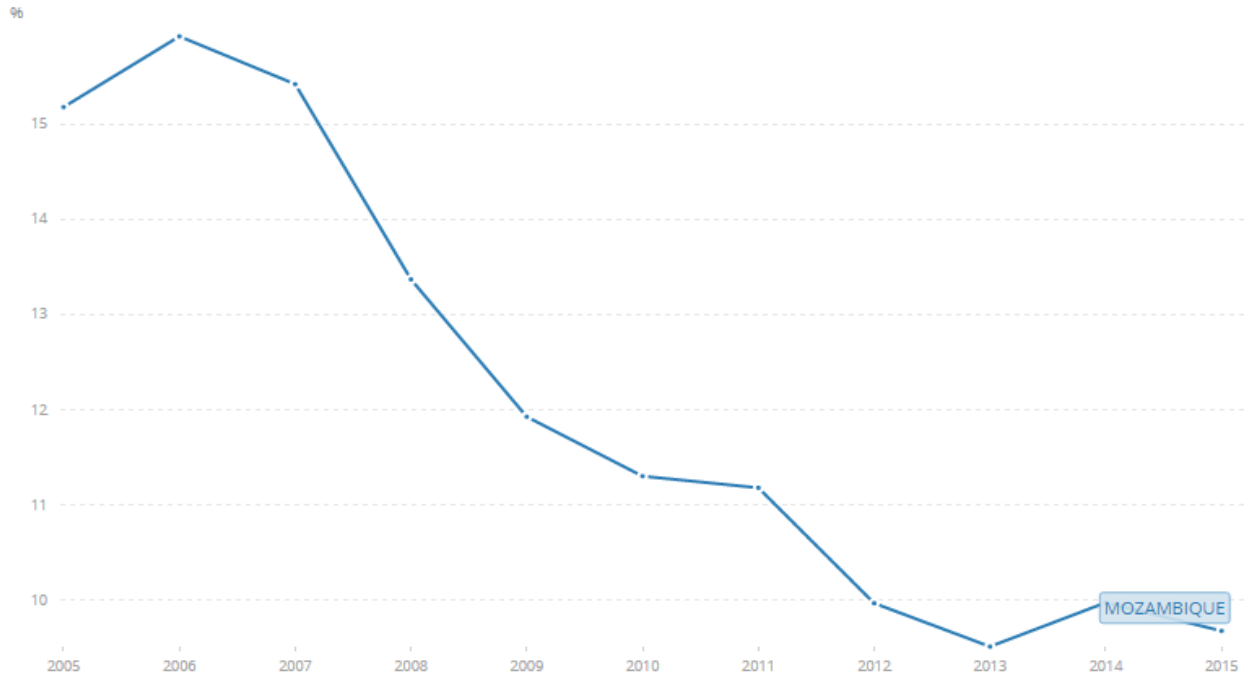
Figure 3.23: Mauritania manufacturing value added (% GDP)



Source: World Bank

About Mozambique (Figure 3.24), the manufacturing value added has always been low and it started decreasing even more after 2006, reaching barely 10% in 2015. The number of greenfield investments in Mozambique has reached its peak in 2014 (with 50 new investments after the 40 in 2013), but it has decreased to 32 in 2015. It followed the general path of net FDI inflows.

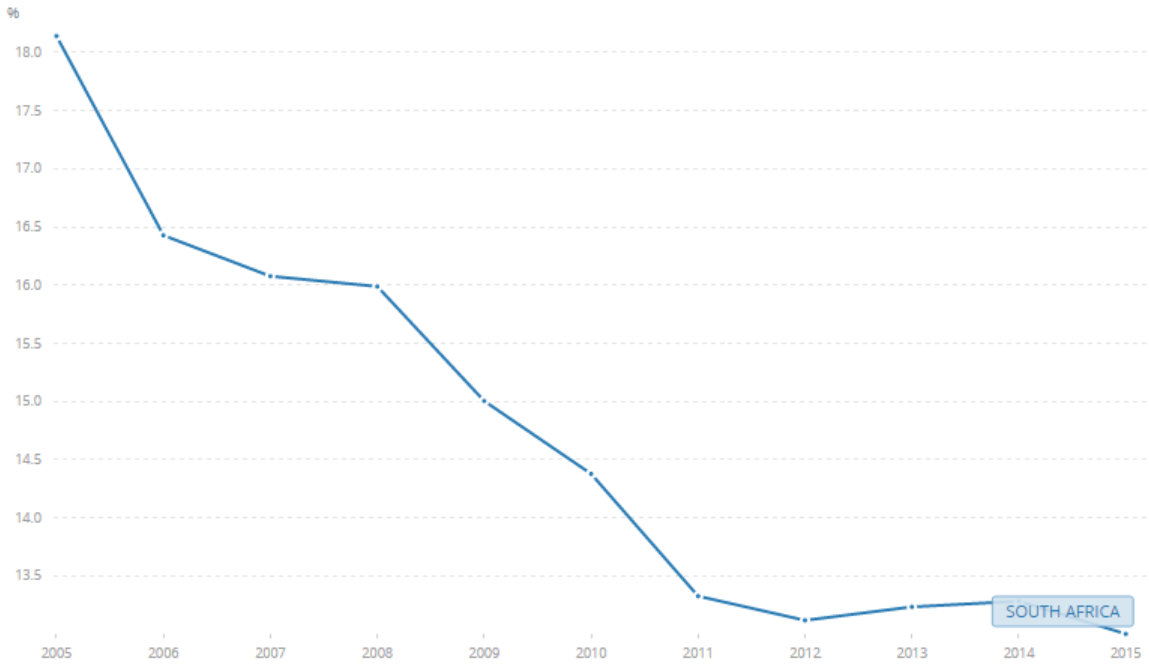
Figure 3.24: Mozambique manufacturing value added (%GDP)



Source: World Bank

Since 2005, in South Africa (Figure 3.25) the manufacturing value added has been decreasing, from 18% to below 13% in 2015. Linked to other economic variables also declining, this view testifies the crisis of South Africa and its economy.

Figure 3.25: South Africa manufacturing value added



Source: World Bank

3.2 Regressions analysis and results

After having looked at the trends regarding some important economic variables, in this final part we want to understand what is the linear connection between the entry of a country in the GVCs and its effects. In the first chapter, we have seen that there are many risks and benefits concerning this topic; however, for the sake of simplicity, we want to focus on only one benefit. We will develop a "formula" that allows us to establish (with a certain degree of elasticity) their mathematical relationships. The inspiration for this model comes from a recent paper of Calderon and Nguyen (2015) focused on the topic; it analyzed 38 countries in order to find a relation between growth of output and foreign investments. The paper conclusion is that output (or GDP) growth in Sub-Saharan countries does not attract capital inflows but the reverse relationship is true. Aid and foreign direct investment inflows enhance growth.

We take the cue of a mathematical expression that they used to come to their results (p. 14) and we adapt it for our scopes. As a hypothesis, we assume that the relation will be linear, in order to find the coefficients $\beta_1, \beta_2,$ etc.

As a benefit we choose to analyze the increase of productivity of host country, or GDP per capita.

We will use this formula:

$$\Delta \frac{GDP}{Pop} growth\ (\%) = cost + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \varepsilon$$

This is a multiple linear regression. Its scope is to model the relationships among two or more independent variables and a response variable. In this case, it attempts to find the coefficients β linking the various X and the unique Y. More than the exact value (which would be impossible to find, given that this analysis is an approximation), the focus will be on the sign of the coefficient, which will show if the "cause" (in poor words, the globalization) bring positive or negative "effects" on the country (its GDP per capita).

The author did several regressions in order to have different views from which he could arrive to a conclusion.

Here is the method used to do all the regressions. The dependent variable, or Y, is the GDP per capita growth and it covers the period between 2005 and 2015. The independent variables, which are more than one considering that this is a multiple regression, cover the period between 2004 and 2014. Why this choice? Because the economic factors that we took as "causes" show their effects in a long period of time, not immediately. It is unconvincing to think, for example, that a growth in direct investments will affect the growth in GDP immediately. For this reason, the author assumes a time lapse of one year between the causes (trade, FDI, etc.) and the effect (growth of GDP per capita).

Unfortunately, data for some years and/or some countries were not available. The calculations are done on the years in which all the data required in the regression are present, otherwise that particular year is skipped by the analysis.

3.2.1 First regression: main variables of interests

In this first trial, our 4 independent variables are:

- FDI net inflow (%GDP)
- Imports of intermediate goods/gross exports (which is an approximation of the GVCs backward participation of the nation)
- Average GDP per capita, which operates as a control variable for each nation in order to let the regression work for different countries
- Population of the country

The table 3.5 shows the results:

Table 3.5: First regression results (dependent variable: GDP per capita growth)

Variables	*Coefficients*	*Standard error*	*t stat*
Intercept	0,06096	0,01450	4,20349
FDI net inflow (%GDP)	0,02645	0,04217	0,62721
Imp int goods/gross exp	-0,03779	0,02419	-1,56201
Average GDP per capita	-4,06E-06	1,86E-06	-2,18249
Population	-1,33E-10	1,74E-10	-0,76132

Regression statistics	
R squared	0,24505
Standard error	0,01937
Observations	46

Looking at *t stat*, we can notice that two of these variables are not statistically significant: population and, most important, FDI net inflow. This means that, according to this result, FDI net inflow does not impact significantly the GDP growth. The data displayed here do not show us a significant linear relationship between those two variables. Looking at the other two variables, the relationships coefficients are negative. The *t stat* demonstrates that the data are quite reliable for doing the regression. Therefore, even if the result is quite surprising, the conclusion coming from this regression is this. Net of all the other variables not taken into consideration in this model that affect the growth of GDP per capita, the participation to the GVCs (intended only as backward participation) has a slight negative effect on the growth of GDP per capita. Given this outcome, not quite expected, it is appropriate to do other checks with other computations and see if the results will change or not.

3.2.2 Second regression: total trade instead of backward participation

In the second attempt the author turns the table. Instead of the variable referring to the backward participation of countries to GVCs, which was revealed to bring a negative contribute to the growth of GDP per capita, there is the percentage of "general" trade (total exports plus total imports) on GDP. There is a slight but importance difference between the two: the second one refers to a general participation to global trade and it is an approximation only of opening of borders and opening to globalization. Here are the four variables:

- FDI net inflow
- Total trade/GDP
- Average GDP per capita
- Population

In table 3.6 we have these results:

Table 3.6: Second regression results (dependent variable: GDP per capita growth)

Variables	*Coefficients*	*Standard error*	*t stat*
Intercept	0,15051	0,02934	5,13039
FDI net inflow (%GDP)	0,22521	0,04422	5,09336
Total trade/GDP	-0,13323	0,02919	-4,56464
Average GDP per capita	1,35E-06	2,15E-06	0,62827
Population	-1,33E-09	3,17E-10	-4,19235

Regression statistics	
R squared	0,43770
Standard error	0,02282
Observations	54

The R squared shows that the overall regression synthetizes discretely well the trend exposed. Analyzing the error in *t stat*, we notice that the only variable which has a low *t stat* is the average GDP per capita, that is the control variable. The others are statistically reliable and significant. The FDI net inflow seem to have a positive correlation with the growth of GDP per capita (confirming the result of the first regression). The population instead has a negative impact on Y. What can be surprising is the sign of the coefficient of the opening of trade, which is negative. The common sense seems to suggest that the more a country opens its borders to international trade and globalization, the more it will

develop and grow. Actually, this does not seem the case of African countries, which maybe still suffer from the low level of development and infrastructures.

3.2.3 Third regression: putting together total trade and adding-value trade

The third regression adds an independent variable and wants to put together the general trade on GDP and the "adding-value" trade on GDP, which is the most relevant for GVCs participation.

In table 3.7 we have the results:

Table 3.7: Third regression results (dependent variable: GDP per capita growth)

Variables	*Coefficients*	*Standard error*	*t stat*
Intercept	0,16087	0,03078	5,22640
FDI net inflow (%GDP)	0,22436	0,04506	4,97905
trade imp+exp/GDP	0,03463	0,04319	0,80181
Total trade/GDP	-0,14938	0,03529	-4,23362
Average GDP per capita	-2,81E-07	2,62E-06	-0,10727
Population	-1,34E-09	3,18E-10	-4,22433

Regression statistics	
R squared	0,45376
Standard error	0,02280
Observations	53

Again, the *t stat* reports an implicit lack of meaningfulness in the second and in the fourth variable. Even now, the opening of borders seems to bring negative effects to growth of GDP per capita, because the coefficient is negative. The population variable affects negatively the average GDP per capita, even if its effect is very light. In order to have a further demonstration of this effect, another test is necessary.

3.2.4 Fourth regression: total trade and backward participation

In this fourth regression the author puts a variable representing the backward participation of the countries to GVCs (imports intermediate goods/gross exports) and again the total trade on GDP for an approximation of the country opening to the general global trade. The other variables remain the same. In table 3.8 the results.

Table 3.8: Fourth regression results (dependent variable: GDP per capita growth)

Variables	*Coefficients*	*Standard error*	*t stat*
Intercept	0,13013	0,02396	5,43196
FDI net inflow (%GDP)	0,10866	0,04454	2,43933
Total trade/GDP	-0,09398	0,02742	-3,42745
Imp int goods/gross exp	-0,00300	0,02381	-0,12584
Average GDP per capita	-1,75E-06	1,79E-06	-0,97767
Population	-1,00E-09	2,97E-10	-3,36929

Regression statistics	
R squared	0,41643
Standard error	0,01724
Observations	46

At a first look, we notice that the imports of intermediate goods on gross exports (which should be the most important variable in this analysis) is not reliable. This brings to some questions: is this non-reliability caused by not accurate data available or is caused by the fact that there is not an evident connection between GVCs and development? It is hard to answer but in the first regression we saw that the same variable gave back a more reliable outcome, and the relationship was negative. Again the total trade on GDP seem to bring a negative effect. The cause of this "strange" outcome could be the lack of development of infrastructures, which does not allow the full integration into the mechanisms of benefits brought by globalization and obliges the African countries to remain blocked into low value-added productions and incomes.

3.3 Discussions of the results

The first part of the chapter was useful to understand what are the basis on which the author developed its analysis. We have seen that PPP and GDP per capita decreased in all the mentioned countries in the last year; instead, other variables (like unemployment rate and FDI) vary from nation to nation. So, actually the premises were not indicating clearly a common trend even if they seemed to be correlated.

Concluding this chapter, the results have partially disregarded the premises. In fact, the regression has showed that there is not a clear connection between the participation to GVCs of a country and its development. The *t stat* of these variables demonstrated that the linearity among data was not statistically significant, even if the coefficient was positive. Given this result, the author tried a wider approach, by considering an explanatory variable representing simply an opening of borders and to global trade, without focusing on value-adding and internal investments. Thus it was used the total trade on GDP. The coefficient found was negative in all the attempted regressions and the result was even more surprising given the fact that, according to basic economics theorems, the opening of borders to global trade brings positive effects to the economy itself. In the last two attempts, the author has put together the two most relevant variables but the result does not change. Even considering all the assumptions and the implicit approximations in this kind of analysis, this outcome must be the starting point for a reflection that will bring maybe to a switch in the way of thinking globalization and its effects towards developing regions.

Conclusions

In this work the author studied the phenomenon of global value chains and its practical implications in Africa. Starting with a theoretical understanding, he wanted to summarize all the information split in many papers and researches in order to obtain a wider and roughly complete view of the topic. He described the several ways in which the researchers calculate the "participation" of countries to GVCs; then he passed to an analysis of which benefits and which risks are related to the globalization of a country for the country itself. Passing to a horizontal analysis by different sectors, the reader can understand how different and how pronged are the choices and the specializations of each country and region. The author wanted to focus on a not fully examined part of the GVCs topic: the African situation. This continent has been (and still is) overwhelmed by huge problems that impeded its social, cultural and economic growth. The author considered to be interesting a study on how much globalization insertion of some African countries (taken as a sample) has affected and it's affecting their economic growth. After the description of the main features of the selected economies in the second chapter, which help to clarify the "starting point" conditions, the real empirical study is made in the third chapter. Through a multiple linear regression, the author wanted to understand if the insertion into GVCs and in global mechanisms (represented by several independent variables) really helped those countries to achieve a greater growth and to increase their wealth. In order to achieve a more complete view of the relationship, the author did several regressions, by changing some variables and confronting results. Those results are quite surprising. In fact, the benefits connected to GVCs participation highlighted in the first chapter do not find validation as the evidence shows. This is a conclusion which retraces what was found by Kummritz (2015) in its analysis of the real benefits of GVCs on domestic economies. He found that there are positive spillovers for high-income and middle-income countries, but African ones (which are low-income) on average do not benefit.

From all the regressions done, it comes out that actually the participation to GVCs (in the ways in which author measured it) has a negative impact on economic growth of these countries. In fact, the coefficients are negative or, when positive, statistically insignificant. This result brings new questions and doubts about the role of globalization in the process of economic normalization of the developing world.

It will be appropriate further studies and works to determine the real connection and binding between the economic development in the country and its involvement in a path that hosts foreign investments and brings more and more value added to the MNEs. There are additional elements to include in the analysis in order to give a more precise view of this complex relationship; these elements could be the technological level of the production processes and the level of infrastructures (roads, rails, etc.) measured with a score. The further step could go in two directions: try to understand the current relationship or try to create a total new model in which all the variables inserted contribute to create a plausible outcome that adhere significantly to reality. It is not only an academic research, because it has to do with the growth and the development of an entire continent, still wounded and limping, struggling to cover the same path that, many years ago, did some Asian countries.

Appendix

Sources of data used in the regression

- FDI net inflow: World Bank data
  - http://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS?end=2015&locations=TN-MR-MZ-NA-ZA&start=2004
- Imports of intermediate goods: Comtrade, based on UN Trade Statistics subdivision
  - https://comtrade.un.org/data/
  - http://unstats.un.org/unsd/tradekb/Knowledgebase/Intermediate-Goods-in-Trade-Statistics
- Exports of final goods: Comtrade, based on UN Trade Statistics subdivision
  - https://comtrade.un.org/data/
  - http://unstats.un.org/unsd/tradekb/Knowledgebase/Intermediate-Goods-in-Trade-Statistics
- Average GDP per capita: computation based on World Bank data
  - http://data.worldbank.org/indicator/NY.GDP.PCAP.CD?end=2015&locations=TN-MR-MZ-NA-ZA&start=2004
- Trade/GDP (%): World Bank data
  - http://data.worldbank.org/indicator/NE.TRD.GNFS.ZS?end=2015&locations=TN-MR-MZ-NA-ZA&start=2004
- Population: World Bank data
  - http://data.worldbank.org/indicator/SP.POP.TOTL?end=2015&locations=TN-MR-MZ-NA-ZA&start=2004

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Websites

- Big database for economic and social statistics
  - https://data.oecd.org/
- Site where there are inequality economic data such as income held by particular parts of the population and Gini index, used in the second chapter
  - https://knoema.com/WBPED2016/poverty-and-equity-database-2015
- Site with data regarding trade, in particular imports and exports details used in the second chapter
  - www.intracen.org
- Site for Namibian inequality problem
  - http://www.namibian.com.na/index.php?id=128985&page=archive-read

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