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desirable?**

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Is a monetary union in caricom desirable?

1. Introduction

At present, four monetary unions are active in the world. Except the European experience, they concern developing countries in Africa, where two monetary unions operate, and in the Caribbean region. These monetary initiatives were not the result of ambitious political steps, as in Europe, but arose from a will to limit the cost of independence, to take advantage of monetary assistance of former colonial powers and to ensure the economic viability of these new countries.

These arrangements have indirectly contributed to perpetuate the monetary community created by the former colonial powers. These unions didn't permit those countries to get over the antagonisms, sometimes numerous, and didn't promote the market integration of their member countries; the common currency is only a veil masking the difficulties developing countries have to undergo. Their strong external dependence and the weak relations established between these economies are often considered as major hindrances. They have given rise to doubts concerning the efficiency of such monetary arrangements between developing countries.

Despite all these uncertainties, the idea to form a monetary union in CARICOM has been suggested¹. As soon as CARICOM was created, the member countries have acknowledged that monetary stability was essential for the good working of the common market². This necessity gave birth to the establishment of a compensation procedure aimed at favouring the use of currencies of member countries. Unfortunately, this attempt failed. Nevertheless, the different heads of governments, conscious that the development of the common market was subordinated to the establishment of a strong monetary cooperation between member states, asked their central bankers to study if the 2 creation of a monetary union could be possible between CARICOM states. This report given in March 1992 explains the steps necessary to form a monetary union in 2000. This new stage in the economic cooperation is far from crowning the successes of CARICOM. It appears as a way to boost a process that some are not afraid to qualify as dead. The relevance of this project is also questioned; indeed all

¹ CARICOM (CARibbean COMmunity and Common Market) was created in 1 August 1973 according to the Chaguaramas treaty signed one month earlier. First member states are Barbados, Guyana, Jamaica and Trinidad & Tobago. OECS countries and Belize joined the community in 1 May 1974. The Bahamas became the thirtieth member state the 4 July 1974, followed by Surinam the 4 July 1995 and Haiti in 1997. OECS (Organization of Eastern Caribbean States) was created in 1983. There are seven member states Antigua, Dominica, Grenada, Montserrat, St Kitts-Nevis-Anguilla, Sainte Lucia and Saint Vincent. These countries share a common currency, the East Caribbean dollar (EC\$).

² Article 43 of the annex of the Chaguaramas treaty: 'the member states, acknowledging that the fixedness of exchange rates among themselves is compulsory for the good working of the common market, agree(...) to examine the ways in order to harmonize their policies in terms of currencies, exchange rates and payments towards the good working of the common market (...). They agree to have all the necessary measures taken by their central bankers or their monetary authorities and to have the notes and coins of each of them exchanged on the other" territory at the official parity without commission, to elaborate the co-operation agreements for other monetary issues such as the implementation of a clearing agreement between the central monetary authorities.'

CARICOM countries, involved in the dollar zone, have currencies which are closely related to US\$. At last, the advantages of the creation of a single currency seem limited.

The aim of this paper is to evaluate the opportunity of a monetary unification between CARICOM states. We will link up our ideas around three main lines. The first one will describe CARICOM and the potential advantages of a monetary union. Emphasis will be paid on the actual trade policies in these states. It is widely accepted that the adoption of a single currency would favour trade, allowing an optimum assignment of the factors of production and increase welfare. Considering all these a priori, we will put our interest in trade potentials between these countries, comparing their degree of economic specialisation. Finally, we will undertake some econometrics tests, which will allow us to examine the efficiency of a monetary union between CARICOM states.

2. A monetary union for CARICOM: why and how?

Criticisms against CARICOM are particularly severe as gains from economic integration are quite limited. The lack of a formal space to surround the necessary monetary cooperation is an obvious illustration. The adoption of a single currency could boost the economic integration by creating a public common good which will only be sustainable if there is a convergence of national interest.

2.1. The mitigated results of CARICOM

Twenty seven years after the treaty Chaguaramas was signed instituting CARICOM, the economic results are modest, even pathetic according to some comments (Celimene and Watson (1991)). This reality increases the risks of dislocation of this group.

2.1.1. The failures of trade

CARICOM encountered difficulties like most of economic organizations between southern countries during the 1980s (Boxill (1993)). These institutions, whose aim is to promote economic cooperation, faced the decline of worldwide trade and a paradoxal non-cooperative behaviour of their member states. This latter expressed through the fierceness of commercial rivalries, the dissensions about foreign policy and an obvious predisposition to break off concluded agreements. Several reasons could explain these facts: the existence of trade barriers, and the difficulty to abolish them, commercial conflicts between nations, which were created or worsened by economic crisis and an evident lack of political goodwill. CARICOM didn't succeed in unifying the differing national interests of its member states³. As evidence, no intergovernmental meeting was organized during the 1970s up to the 1982 meeting.

Out of the different integration movements between the southern countries, CARICOM has the worst performances regarding intra-zone trade. For example, the commerce inside CARICOM rose by 8% per year between 1980 and 1987 compared to 14% for the commerce between countries of the Latin American Integration Movement (which includes the ten south american countries and Mexico), 22% for the countries of the Central American Common Market CACM (whose members states are Costa Rica, El Salvador, Guatemala, Honduras et Nicaragua) and 50% for the economies of the Association of South East Asian Nations. These modest results seem to show the strong competitive and non-complementary nature of CARICOM members states economy.

³ Speaking about the balkanisation of the Caribbean area at the end of the 1960s, Lewis suggested the hugeness of the task (Lewis (1968)).

2.1.2. The failures of industrial cooperation

Concerning industrial cooperation, CARICOM doesn't seem to have reached its objectives of 1973. Although tax harmonization between member countries and free circulation of factors of production were inscribed in the Chaguaramas treaty, they never became reality. Economic initiatives were never clearly extended or their materialization was incomplete.

For instance, in early 1980s, the creation of two large-scale aluminium production units was planned. The first plant was to be set up in Trinidad and Tobago and was to be owned by the governments of Jamaica, Guyana and Trinidad and Tobago (respectively at 33%, 33% and 34%). The bauxite was to be supplied by Jamaica and Guyana whereas the natural gas was to be brought by Trinidad and Tobago. The second plant was to be established in Guyana, powered by hydroelectric energy and owned by Guyana (52%), Jamaica (24%) and Trinidad and Tobago (24%). Both projects failed because of the unilateral decision of Jamaica to trade bauxite for oil with Venezuela.

2.1.3. The failures of the common commercial policy

Within the common market, quantitative or tariff restrictions could not have been defined in a uniform way. This is also the case for the Common External Tariff (CET) which contrarily to its name has never been common to all countries. The CET was supposed to be implemented since 1985 but, at present, like in early 1990s, there are still four custom tariffs; one for the more developed countries named MDCs (Barbados, Guyana, Jamaica, Trinidad), one for the OECS countries, one for Montserrat and a last one just for Belize⁴.

2.1.4. The failures of monetary cooperation

In order to promote trade development between CARICOM countries, a monetary compensation system, the CARICOM Multilateral Clearing Facility (CMCF) was instituted between member countries.

This system, which was bilateral first, became multilateral in 1977. The bilateral system was limited because it forced each state to hold an account for each of its trade partners, which had to be balanced at the end of the credit period.

The CMCF was supposed to favour the use of currencies internal to CARICOM for the settlement of transaction and was intended to promote monetary cooperation and banking relations between member states. Each currency of

⁴ OECS countries are described in note 1

CARICOM was valued in US\$ and each member state could use a credit line whose limits were clearly defined (Table 1). At the end of the credit period, the debit balance of a country had to be credited in US\$ to the countries with a credit balance. Trust was such that the initial credit period of three months was extended to six months and the overall limit which was fixed at US\$ 40 million was extended to US\$ 100 million between 1977 and 1982. The ambient optimism brought the idea that the increase of regional trade with inflows of currencies coming from third countries would insure the system liquid assets.

Table 1: Exchange rate and credit line in millions of US \$

| | Exchange rate Per US\$ | Credit line June 1977 | Credit line February 1978 | Credit line June 1980 | Credit line March 1982 |
|-----------------------------------|---------------------------|--------------------------|------------------------------|--------------------------|---------------------------|
| Barbados | 2 | 5.5 | 11 | 14 | 10 |
| Belize | 2 | 5 | 10 | 12 | 8 |
| Guyana | 2.55 | 8.5 | 19 | 25 | 29.5 |
| Jamaica | 0.91 | 9.5 | 18 | 23 | 27.5 |
| Trinidad and T. | 2.4 | 6 | 6 | 6 | 2 |
| West Indies States Association | 2.7 | 5.5 | 16 | 20 | 23 |
| Total | | 40 | 80 | 100 | 100 |

Source: Freckleton and Lalta (1993)

Thanks to benevolence of Barbados and Trinidad and Tobago, the CMCF worked. Unfortunately in the early 1980s, the external positions of Barbados, Trinidad and Tobago began to deteriorate. The inability of Guyana to settle its debts and the impossibility for Barbados to grant new terms of payment caused the CMCF to stop (Table 2).

Table 2: Situation in April 1983 in millions of US \$

| | Debit balance | Credit balance |
|-------------------------------|---------------|----------------|
| Barbados | - | 65.1 |
| Belize | - | 0.7 |
| Guyana | 98.6 | - |
| Jamaica | 2.3 | - |
| Trinidad and Tobago | - | 25.2 |
| West Indies State Association | - | 9.9 |
| | 100.9 | 100.9 |

Source: Freckleton and Lalta (1993)

2.2. A particular monetary organisation

The reflections concerning monetary union in CARICOM show the sub-optimality of current situation. The monetary division is detrimental to CARICOM countries because they have to adopt the US dollar as an invoicing device and they are also subjected to strong financial restraints which limit the exports of US dollar. The idea of a single currency, when the economic integration has hardly started, is different from the one that led to the European unification. It leads to the

question of the efficiency of a monetary unification before or after a achieved economic integration. On this, a theoretical debate is open. In the economists view, economic cooperation should occur only after a series of satisfactory conditions is met; it's the crowning theory. In the monetarists view, the implementation of a monetary part could be the driving force behind the economic integration between Caribbean states (Pisany-Ferry (1994)).

2.2.1. The diversity of the exchange regimes

The countries of CARICOM can be classified in several families according to the characteristics of their exchange policy, fixed or flexible, and according to the currency to which their national currency is attached. Three categories can be distinguished. First, the OECS countries whose currency is the East Caribbean Dollar (EC\$). This currency is strictly attached to the US\$ at the rate 1 US\$ to 2.7 EC\$. Second, the currencies of the Bahamas, Barbados and Belize which are also strictly attached to the US\$, at the rate of 1 US\$ to one unit of the national currency for the Bahamas, and 1 US\$ against 2 units of national currency for Barbados and Belize. At last, currencies of Haiti, Guyana, Trinidad and Tobago, Jamaica and Surinam which freely fluctuate on the exchange markets. However, it is important to notice that none of the countries of CARICOM has adopted the US\$ as an official currency.

2.2.2. The advantages of a single currency

According to the literature about monetary unification, the disappearance of exchange dealings and risk of exchange should ease trade relations. Therefore the economies should also benefit the home bias, as agents increase trade with operators sharing the same currency. For the profits of the unification to be significant, the exchange rate fluctuations between moneys of CARICOM have to be important, but only five countries float their currency, all the other currencies are linked with the US\$.

Losing monetary independence is described as the major drawback. Nevertheless for the disappearance of monetary autonomy to be a problem, the interest to have it available has to be manifest. But the authorities of the countries choosing the fixed rate of exchange are not quite free to manage independent monetary policies. The authorities can use the monetary instrument for conjectural political purposes only by means of quantitative measures restricting the liquid assets in circulation in the economy.

2.2.3. Is CARICOM an optimum monetary zone?

Traditional theories on optimum monetary areas have emphasized that the degree of mobility of the factors of production and the characteristics of international trade are important ingredients to determine whether a zone is a optimum monetary area.

For Mundell (1961), the pioneer of such analysis, the main factor is the degree of input mobility, especially labour force. When two countries produce different goods, any transfer of demand from a country to the other will lead to changes in these economies. An increase in unemployment and a trade deficit will characterize the country which produce the good for which demand has contracted. In a Keynesian world where prices and exchange rates are fixed, migration of workers from the country in crisis towards the expanding one, is the only way to adjust both economies. The territorial discontinuity is a natural hindrance and the lack of political will to liberalise the movements of CARICOM nationals is obvious. According to this contribution, the geographic and administrative hindrances to migration alter the ability for CARICOM countries to support fixed exchange rates⁵.

According to Mac Kinnon (1963), the more an economy is open, the greater its interest in choosing fixed exchange rates in order to avoid fluctuations in the relative prices between traded goods and non-traded goods. Moreover, the internal aim of price stability can not be reached if a significant fraction of the locally consumed goods is imported and subject to large price swings because of the variation in exchange rates. On this point, all CARICOM countries are characterised by a very important degree of opening⁶. If the small countries of CARICOM have chosen fixed exchanges, the larger ones have adopted regimes of floating exchange rates. In these cases, fixed exchange rates are defined according to the US\$. Indeed, for a majority of the countries, the United States is the main trading partner. Fixed exchange rates with the first trading partner is therefore widely established as Mac Kinnon suggested.

According to Kenen (1969), the more specialised a country is, the bigger its interest in leaving its currency float. If world demand decreases, those countries must be able to adjust their exchange rates to boost external demand for their export products, if this demand is related to price level. Despite this rule of decision, main specialised developing countries choose fixed exchange rates because they believe that fixing the exchange rates has no real effects on their competitiveness. According to Semedo (1998), this choice has insured the full

⁵ Article 38 of the Chaguaramas treaty argue: 'No arrangements of the present treaty will be interpreted as forcing a member state to give the right to free movement people on his territory even if they are citizens of other member states.' As a matter of fact, a citizen of the European Union had easier access to a CARICOM country than a CARICOM citizen.

⁶ The opening degree of CARICOM countries are superior to 90% except Haiti and Saint Lucia.

transmission on the export benefits of price fluctuations observed in world markets of basic products.

3. The trading flows between CARICOM countries

Recent analyses about optimum monetary zones have suggested that the countries whose bilateral exchange rates are fixed shouldn't encounter asymmetric shocks. Indeed, if a country is hit by a specific shock of supply or demand and it can not use an accommodating monetary policy or an active trade policy, its needs in terms of stabilization policy will go far from those of the other members of the monetary zone. Mundell had mainly considered this second hypothesis based upon asymmetric shocks.

At the same way, a consensus was established that monetary unification reinforces economic relationships between states. But from two competing analyses emerge two opposite conclusions about the impact of this intensification of trade relationships upon the economic convergence. The first conforms with conclusions of the European Commission Report (1990) about the monetary unification in Europe; it upholds the idea that the convergence of the economies goes together with the reinforcement of trade. The second analysis is shared between Eichengreen (1990) and Krugman (1993), and upholds that trade integration increases the risks for a specific shock to occur. This analysis is often called the Eichengreen-Kenen-Krugman view. This controversy will be the starting point of the second part of this paper. During this part, focusing on the characteristics of trade inside CARICOM and the specialisation of the member states, we'll try to see the impact of a potential intensification of trade between states of CARICOM on the economic structures. Can we expect a reinforcement of the economic correlation or should we be afraid of an increase in the number of asymmetric shocks?

3.1. The European Commission against Eichengreen-Krugman

In its preparatory report for the adoption of a single currency, the European Commission has insisted on the advantages of monetary unification. It favours the development of trade inside Europe by suppressing exchange rate risks. The specific demand shocks, emphasized by Mundell, would appear less and less as the commerce inside Europe is widely a commerce inside branch and inside industry. As argued DeGrauwe (1999): 'This commerce is based on scale economy and on the defects of competitiveness caused by the differentiation of the products'. So the European countries trade similar goods, this closeness of productive structures reduce the probability of demand or supply shocks.

For Eichengreen-Krugman, the reinforcement of trade will lead to an increased specialisation of the economies; this movement would be guided by the

exploitation of scale economies allowed by the large European market. The relocation of production units and their integration in given geographical spaces will, by nature, favour the appearance of asymmetric shocks. This analysis is closely related to Kenen's which argued that only diversified economies could accept fixed exchange rates. There are two major objections to this argument. First of all, the movement of geographical integration can take place in border zones such that if an industry is hit by a specific shock, it will concern more than one country. Secondly, the authors seemed to have insisted on supply shocks which considering the increasing specialisation are destined to be less correlated between countries (Frankel and Rose (1996)). But a priori a demand specific shock can spread to its neighbours through the propensity to import, despite the increased specialisation of the economies. The recession experienced by a country reduces its import capacity and limits the exports of its partners.

Concerning the CARICOM countries, it seems that the increased specialisation at an individual level has been one of the main objectives of the countries that signed the Chaguaramas treaty. Then, according to Jainarain (1976), the individual specialisation was to be the basis of a collective diversification: 'The larger market should also increase competition and efficiency through increased specialisation in individual partner, while stimulating the diversification of production in the region as a whole. Finally, integration should improve the international bargaining position of the partners vis-à-vis third countries'. The territorial discontinuity doesn't allow much room for a geographic concentration in the frontiers of the member states. Only the continuation of the industrial integration could have prevented the specialisation from reinforcing the appearance of a specific supply shock. But as we've said before, very few experiences of industrial cooperation have reached the end.

At this stage of thought, it is particularly difficult to decide which one of the two analyses is the best to fit the CARICOM members. Only the study of commerce inside CARICOM and of the levels of states specialisation will allow us to be more precise in our conclusions about the possible impact of a trade reinforcement.

3.2. The weight and the evolution of the commerce inside CARICOM

The intensity of trade is often the argument for increased integration and for the abolishment of hindrances to free circulation of goods and people; economic operators needs guide political choices. It's an opposite situation in the Caribbean where the trade movements are rather small and weak to inspire the integration dynamics.

The intensity of the trading flows is often taken as an indicator of the complementary degree or of competition between economies. Thus the analysis of the commerce inside CARICOM would particularly reveal the difficulties to create sustained relationships between those states.

3.2.1. The evolution of the commerce inside CARICOM between 1968 and 1996

The contribution of Intra-CARICOM trade to overall trade of CARICOM countries has clearly increased during the last 25 years, it grew up from 5% to 13%. Nevertheless this increase is still modest considering what was announced initially and the willingness to reinforce trade between those countries (Table 3).

Table 3: Contribution of Intra CARICOM trade to overall trade of CARICOM countries

| Years | Percentages |
|-------|-------------|
| 1968 | 5% |
| 1980 | 8.9% |
| 1985 | 11.1% |
| 1990 | 10.5% |
| 1996 | 13% |

Source: CARICOM

Three main sub-period can be identified. Between 1968 and 1981, a strong increase in trade between Caribbean countries is observed. Thanks to CARIFTA agreements (CARibbean Free Trade Association), the commerce increased on average by more than 20% a year between 1973 and 1980. The average yearly growth rate reaches its highest point at 27% between 1971 and 1976 and comes back to 11% a year between 1977 and 1981. The massive direct investments, thanks to the strategy of import substitution and of industrialisation at invitation, have favoured the trade of manufactured goods. But from 1977, Jamaica and Guyana faced large deficits in their balance of payments and limited their imports from CARICOM by establishing quotas. Under the pressure of the International Monetary Fund, their currencies were devalued. Two official exchange rates were defined for the Jamaican \$, the former exchange rate was reserved for the governments operations, for bauxite export and for basic products and drugs imports. A new devalued exchange rate was installed for the import of basic consumer goods called non fundamental and the export of goods coming from favoured sectors (Célimène and Watson (1991)). These measures of structural adjustment have increased the divisions and made the economic integration of CARICOM states more delicate.

Between 1981 and 1986, a strong decrease in the volume of trade is noticed. The average yearly downturn is 11.8%. Trading inside CARICOM contracted during the 1980s particularly because of the difficulties linked to the debt of some countries, the decrease of import ability of Trinidad and Tobago due to the fall in the oil price and the collapse of the multilateral compensations system. The forced import restrictions have been harsher for the commerce inside CARICOM as it concerns consumer goods, which can be locally produced. The export outside CARICOM

concern mainly capital goods which exchanges can not be limited without altering the capacity of production of the economy concerned.

Between 1987 and 1996, the revival of the commerce inside CARICOM is obvious. It progresses on average by 4.5% a year with an increase of 10% between 1990 and 1995. It is led by the economic renewal in the early 1990s.

The evolution of the commerce inside CARICOM intensify the trends of the total commerce of the member states. Indeed, in a period of trade expansion, the commerce inside zone increases more than the total commerce and in a period of trade contraction, the commerce inside the zone decreases more than the gross volume of trade (Table 4).

Table 4: The average yearly growth rate of the commerce inside CARICOM and of the total commerce

| Period | Trade inside CARICOM | Total Trade of the member states |
|-----------|----------------------|----------------------------------|
| 1981-1996 | 1.9% | 0.1% |
| 1981-1986 | -11.8% | -10.3% |
| 1987-1996 | 4.5% | 3.1% |

Source: CARICOM

3.2.2. The commerce inside CARICOM per countries

The contribution of the commerce inside CARICOM varies from a country to another (Table 5).

Table 5: Contribution of the commerce inside CARICOM to the total commerce of the member states

| Country | 1980 | 1985 | 1990 | 1995 |
|-----------------------|-------|-------|-------|-------|
| Antigua and Barbuda | 37.4% | N.D. | N.D. | N.D. |
| Barbados | 20.1% | 17.5% | 19.1% | 21.1% |
| Belize | 3.2% | 2.6% | 6.3% | 4.3% |
| Dominica | 32.7% | 29.4% | 22.5% | 31.2% |
| Grenada | 27.8% | 25.9% | 24.2% | 27.7% |
| Guyana | 18.8% | 22.8% | 9.4% | N.D. |
| Jamaica | 6.6% | 5.0% | 5.2% | 5.8% |
| Montserrat | 59.6% | 27.6% | 17.8% | N.D. |
| Saint Kitts and Nevis | 19.9% | 22.5% | 14.1% | 16.5% |
| Saint Lucia | 24.6% | 19.3% | 17.7% | 20.6% |
| Saint Vincent | 32.1% | 37.3% | 25.9% | 35.9% |
| Surinam | ... | ... | ... | 7.3% |
| Trinidad and Tobago | 5.8% | 9.1% | 10.3% | 15.0% |

Source: CARICOM

Trinidad and Tobago is the only country whose trade with the other members is increasing, it went from 5.8% to 15% between 1980 and 1995. The other countries have encountered wide fluctuations during that period. Generally speaking, the contributions of the commerce inside CARICOM in 1980 are quite similar to that in 1995.

Three groups can be distinguished. First, countries in which the commerce inside the zone reaches a higher level than 30%; Saint Vincent and Dominica (group 1). Second, countries in which the commerce inside the zone is bounded between 15% and 30%; Barbados, Grenada, Saint Lucia, Saint Kitts and Nevis, Trinidad and Tobago (group 2). At last, countries in which the commerce inside the zone reaches a lower level than 15%; Belize, Jamaica, Surinam (group 3).

These three groups contribute unequally to the commerce inside CARICOM (Table 6).

Table 6: Contribution of the three groups to the commerce inside CARICOM in 1996

| | Percentages |
|---------|-------------|
| Group 1 | 7.4% |
| Group 2 | 67.5% |
| Group 3 | 25.1% |

Source: CARICOM

Larger countries (Jamaica, Trinidad and Tobago, Suriname) are the ones for whom intra-CARICOM trade is the less important.

Apart from the limited contribution of the commerce inside the zone, the sparseness of the bilateral export and import matrices is a second element confirming the relative weakness of the trade relationships between the member states. The number of bilateral relationships less than 30 000 EC dollars for exports and imports is stable between 1980 and 1995. But it represents almost 15% of the potential trade flows between CARICOM states⁷. Montserrat and Belize are typical cases. Montserrat is the country which exports the less within CARICOM while Belize has few trade contacts either with imports or exports (Table 7).

Table 7: Trading flows inside CARICOM inferior to 30 000 EC dollars

⁷ The data about the Bahamas don't appear in table 7. One hundred and thirty two bilateral import or export relations can be established in 1980, 1985 and 1990. This number increased to 156 since Surinam became member state in 1995.

| Number of exports flows | 1980 | 1985 | 1990 | 1995 |
|-------------------------|--|------------------------------------|--|---|
| 8 | | | Montserrat | |
| 7 | | Belize | | |
| 6 | | Montserrat | | Montserrat |
| 5 | Belize | | Belize | Surinam |
| 4 | Grenada | Grenada | | |
| 3 | Montserrat | Saint Kitts and Nevis | | Belize Saint Kitts and Nevis |
| 2 | Antigua and Barbuda Saint Kitts and Nevis Saint Vincent and Grenadines | Saint Vincent and Grenadines | Grenada | Grenada Saint Vincent and Grenadines |
| 1 | Dominica Saint Lucia | Antigua and Barbuda Saint Lucia | Guyana Antigua and Barbuda Dominica Saint Kitts and Nevis Saint Vincent and Grenadines | |
| Total | 20 | 24 | 20 | 21 |

| Number of import flows | 1980 | 1985 | 1990 | 1995 |
|------------------------|--|--|--|--|
| 7 | Guyana | | Belize | |
| 6 | Belize | Belize | | |
| 5 | | | | Surinam Belize |
| 4 | | | | |
| 3 | | Guyana Jamaica Saint Vincent and Grenadines | | Grenada |
| 2 | Grenada Montserrat Saint Kitts and Nevis | Montserrat Grenada | Guyana Grenada Montserrat | Jamaica Saint Kitts and Nevis Saint Vincent and Grenadines |
| 1 | Saint Vincent and Grenadines | Antigua and Barbuda Saint Lucia Trinidad and Tobago Dominica Saint Kitts and Nevis | Barbados Jamaica Trinidad and Tobago Dominica Saint Kitts and Nevis Saint Lucia Saint Vincent and Grenadines | Dominica Saint Lucia |
| Total | 20 | 26 | 20 | 21 |

Source: CARICOM

3.3. Specialisation and trade inside CARICOM

3.3.1. The nature of trade inside CARICOM

The crude oil exports from Trinidad and Tobago constitute the main item of the commerce inside CARICOM. The strong decrease in trade observed in 1990 is linked to the decrease in crude oil price and to oil purchases by Guyana outside CARICOM (Venezuela). The trading of manufactured products (products 6 to 8)

increased at a yearly growth rate of 45% between 1970 and 1981. The increase of the products 5 and 6 is noteworthy between 1980 and 1995 (Tables 8).

Table 8: Composition of the commerce inside CARICOM per sections SITC (Standard International Trade Classification)

| SECTIONS S.I.T.C. | 1980 | | 1985 | | 1990 | | 1995 | |
|---|-----------|------|-----------|------|-----------|------|-----------|------|
| | Value | % | Value | % | value | % | value | % |
| 0 – Food, living animals | 266 234 | 18.7 | 219 650 | 17.8 | 242 337 | 17.6 | 372 501 | 16.5 |
| 1 - Drinks and Tobacco | 36 122 | 2.5 | 38 645 | 3.2 | 90 301 | 6.6 | 143 301 | 6.3 |
| 2 - Inedible crude equipments | 13 468 | 0.9 | 11 843 | 1 | 14 770 | 1.1 | 8 066 | 0.4 |
| 3 - Fuels, minerals and lubricants | 620 217 | 43.4 | 623 367 | 50.7 | 289 580 | 21 | 825 213 | 36.6 |
| 4 - Oil, animal and vegetable fat | 12 255 | 0.9 | 4 554 | 0.4 | 21 754 | 1.6 | 18 238 | 0.8 |
| 5 - Chemicals | 141 677 | 9.9 | 112 200 | 9.2 | 208 420 | 15.1 | 279 634 | 12.4 |
| 6 - Manufactured items | 125 471 | 8.8 | 119 672 | 9.8 | 293 476 | 21.3 | 383 802 | 17 |
| 7 - Transport machines and equipments | 66 112 | 4.6 | 32 492 | 2.7 | 76 450 | 5.6 | 88 381 | 3.9 |
| 8 - Various manufactured items | 143 965 | 10.1 | 58 232 | 4.8 | 135 833 | 9.9 | 138 360 | 6.1 |
| 9 - Unclassified items and transactions | 2 374 | 0.2 | 5 171 | 0.4 | 3 264 | 0.2 | 289 | 0 |
| All sections (in thousands of EC\$) | 1 427 895 | 100 | 1 225 826 | 100 | 1 376 185 | 100 | 2 257 785 | 100 |

Source: CARICOM

Between 1980 and 1995, the share of manufactured goods in CARICOM trade increases irregularly and represented more than quarter of overall trade in 1995 (Table 9).

Table 9: Ventilation of trade inside CARICOM between basic products and manufactured goods

| | 1980 | 1985 | 1990 | 1995 |
|---|-------|-------|-------|-------|
| Manufactured products (Sections 6 to 8) | 23.5% | 17.2% | 36.8% | 27.0% |
| Base products including crude oil (Sections 0 to 4) | 66.4% | 73.3% | 47.9% | 60.6% |
| Others (Sections 5 et 9) | 10.1% | 9.6% | 15.4% | 12.4% |
| TOTAL | 100% | 100% | 100% | 100% |

Source: CARICOM

3.3.2. The degree of specialisation within CARICOM countries

The degree of trade specialisation inside CARICOM and of each member state can be estimated using traditional Herfindhal index, which is defined as the sum of the contribution squares of each export product.

$$H_{i,t} = \sum_{j=1}^{10} \left(\frac{x_{i,j,t}}{\sum_{j=1}^{10} x_{i,j,t}} \right)^2$$

This index is calculated for the country i and for the period t, j points out the SITC category. The stronger the index (near 1), the more specialised the country, the weaker the index (near 1/10), the more the country has a diversified structure of its

foreign trade. The inferior value of the Herfindhal index is 1/10 because exports are ventilated on the basis of the SITC with 10 posts.

The decrease in the contribution of the crude export automatically resulted in the reduction of the degree of specialisation of exchanges inside CARICOM (Table 10)

Table 10: Evolution of the Herfindhal index for trade inside CARICOM

| | 1980 | 1985 | 1990 | 1995 |
|--|-------|-------|-------|-------|
| Herfindhal index | 0.254 | 0.311 | 0.161 | 0.215 |
| Herfindhal index (excluding section 3) | 0.204 | 0.225 | 0.187 | 0.200 |

Source: Authors estimates

The same index, H will be used to evaluate the degree of specialisation of the member states of CARICOM. Their export structure will be used to calculate the H index. Barbados has the more diversified structure in CARICOM (Table 11).

Table 11: Herfindhal index for the member states of CARICOM in 1996.

| Countries | Herfindhal index |
|------------------------------|------------------|
| Barbados | 0.180 |
| Intra-CARICOM | 0.216 |
| Bahamas | 0.248 |
| Trinidad and Tobago | 0.326 |
| Jamaica | 0.329 |
| Haiti | 0.368 |
| Guyana | 0.393 |
| Suriname | 0.398 |
| Dominica | 0.443 |
| Saint Kitts and Nevis | 0.454 |
| Montserrat | 0.462 |
| Saint Lucia | 0.489 |
| Grenade | 0.561 |
| Antigua and Barbuda | 0.604 |
| Saint Vincent and Grenadines | 0.618 |
| Belize | 0.636 |

Source : Authors estimates

The seven countries of the OECS are among the eight countries whose structure of foreign trade is the more specialised. Rose and Engel (2000) have shown that the H index was systematically higher for the countries sharing the same currency, a proof according to them that the monetary unification and the polarisation of the productive base go together. Nevertheless they don't mention the relations of cause and effect and don't conclude that the monetary unification would lead to an increasing specialisation of the productive system. Besides, they suggest that the characteristics of the productive structure would be prior to the monetary unification.

The national export structures confirm the strong specialisation of the states. Thus, a single category covers at least 31% of the total export and 79% for the maximum. The national situations are rather different. Almost 80% of the foreign trade of Belize, Saint Vincent and Grenadines and Antigua and Barbuda rests on a single item of export. Lastly, the category 0, which includes Food and living animals, appears in the first or second position in the hierarchy of export for 13 of the 15 countries of CARICOM ⁸(Table 12).

⁸ The non alcoholic drinks are among the 10 first export posts for 7 CARICOM countries, sugar is among the first 3 export for 5 of the 15 CARICOM countries.

Table 12: Structure of national export

| | Number of S.I.T.C. categories to cover 70% of exports | S.T.C.I. categories which cover at least 70% of exports | Corresponding percentage of exports | Contribution of the main export post |
|------------------------------|---|---|-------------------------------------|--------------------------------------|
| Intra-CARICOM trade | 4 | 3-6-0-5 | 84% | 36% |
| Barbados | 4 | 0-6-7-3 | 73% | 31% |
| Bahamas | 3 | 0-7-2 | 81% | 37% |
| Jamaica | 3 | 2-0-8 | 89% | 50% |
| Trinidad and Tobago | 3 | 3-5-6 | 86% | 50% |
| Dominica | 2 | 0-5 | 94% | 48% |
| Grenada | 2 | 0-6 | 84% | 74% |
| Guyana | 2 | 0-9 | 77% | 55% |
| Haiti | 2 | 8-0 | 76% | 55% |
| Saint Kitts and Nevis | 2 | 0-7 | 91% | 59% |
| Saint Lucie | 2 | 0-8 | 79% | 68% |
| Suriname | 2 | 2-0 | 80% | 58% |
| Montserrat | 2 | 7-0 | 94% | 57% |
| Belize | 1 | 0 | 79% | 79% |
| Saint Vincent and Grenadines | 1 | 0 | 78% | 78% |
| Antigua and Barbuda | 1 | 7 | 77% | 77% |

Source : Authors estimates

As the countries are quite strongly specialised, and intra-CARICOM trade is rather diversified, it seems possible to make the assumption that current possibility of trade inside CARICOM is widely exploited. It is still true that the economic similarities restrict the exchanges and the weakness of the economic complementarities limit trade between states to a part of their production, which can be exported towards its neighbours.

3.4. The economic correlations

The insertion of the states of CARICOM into the international division of labour is quite similar. This closeness reduces the probability of specific demand and supply shocks for a certain number of countries. Nevertheless the productive structures are not strictly identical. Trinidad & Tobago, which is an oil exporter, and Barbados, which is an oil importer, can not react the same way to a change of the crude oil prices on the world-wide market. Even the natural disasters which can cause important supply shocks don't have the same consequences in all the states of CARICOM considering how far they are from each other. In fact, it seems important to value the correlation degree of the economies of CARICOM countries.

The study of the correlation coefficients of the growth rates and of the inflation rates puts forward another feature of these states. The correlation degrees of the growth rate of real GDP are quite low even negative, the inflation rates are strongly correlated. We should also notice that almost all the correlation coefficients of the inflation rates between the OECS countries are significant at the 1% level (Table 13).

Table 13 : Correlation coefficients of real GDP growth and inflation in CARICOM

| | Barbados | Guyana | Jamaica | T-Tobago | Belize | A-Barbuda | Dominica | Grenada | St Kitts | St Lucia | St Vincent |
|------------|----------|--------|---------|----------|--------|-----------|----------|---------|----------|----------|------------|
| Barbados | - | 0.18 | -0.06 | 0.57* | 0.73** | 0.62** | 0.81** | 0.90** | 0.85** | 0.79** | 0.83** |
| Guyana | 0.06 | - | -0.55* | 0.29 | 0.15 | 0.44 | 0.01 | 0.14 | -0.06 | 0.03 | -0.06 |
| Jamaica | -0.07 | -0.32 | - | -0.42 | -0.06 | -0.27 | 0.01 | -0.09 | 0.01 | 0.03 | -0.05 |
| T-Tobago | -0.25 | 0.47 | -0.02 | - | 0.54* | 0.48* | 0.58* | 0.68** | 0.58* | 0.52* | 0.61** |
| Belize | -0.01 | 0.06 | 0.72** | 0.01 | - | 0.77** | 0.92** | 0.85** | 0.89** | 0.79** | 0.84** |
| A-Barbuda | 0.53* | -0.05 | -0.02 | -0.55* | 0.03 | - | 0.78** | 0.71** | 0.64** | 0.73** | 0.57* |
| Dominica | 0.07 | -0.07 | 0.18 | -0.14 | 0.09 | 0.26 | - | 0.87** | 0.93** | 0.88** | 0.86** |
| Grenada | 0.37 | -0.18 | 0.14 | -0.21 | 0.27 | 0.44 | 0.29 | - | 0.92** | 0.83** | 0.87** |
| St Kitts | 0.50* | 0.10 | -0.09 | -0.03 | 0.20 | 0.43 | 0.38 | 0.46 | - | 0.89** | 0.92** |
| St Lucia | 0.29 | -0.32 | -0.07 | -0.44 | 0.13 | 0.38 | 0.34 | 0.35 | 0.41 | - | 0.85** |
| St Vincent | 0.02 | -0.28 | 0.11 | -0.27 | 0.26 | -0.11 | 0.56* | 0.07 | 0.26 | 0.62** | - |

Notes:

(1) Above main diagonal, correlation coefficients of growth rate; below main diagonal, correlation coefficients of inflation rates.

(2) * significant at 5% level

(3) ** significant at 1% level

However, the weakness of the real correlations mustn't lead to the hasty conclusion that a single currency wouldn't be viable inside CARICOM. Besides, the growth rates were not one of the convergence criterion in the European union treaty. Moreover, the inflation rates have converged between 1980 and 1996 excepted for Jamaica. The inflation gap between the more and the less inflationist countries which was 16.3 in 1980 was only 5.3 in 1996, excluding Jamaica in this latter case. Note that only three countries, Jamaica, Belize and Saint Vincent and Grenadines, do not meet the rule required in the European union treaty in terms of inflation⁹.

4. The econometrics implementation

In this third part, we will introduce the econometric methodology kept to check the nature of the existing relations between the economies correlations and the importance of trade flows. We will test the hypothesis that the reinforcement of trade increases the economies correlations and reduces the probability of

⁹ In Europe, to enter the monetary union, national inflation was not exceed of more than 1.5% the average of the 3 most virtuous countries.

asymmetric shocks. The method used follows the work of Frankel and Rose (1996 and 1998)¹⁰. It is based upon the following relation:

$$\text{Corr}_{ij,t} = a \times \ln \text{Trade}_{ij,t} + b + \epsilon_{ij,t} \quad (1)$$

where Corr_{ij} is a correlation index between economy i and economy j , and Trade_{ij} is an index of trade intensity between country i and country j .

4.1. The variables used

The correlation indicators used as proxy of the correlation degrees between the economies are based on the growth rates of the real GDP (g) and on the inflation rates (π). The lack of statistics on labour and industrial production indices forces us to limit our work to these macroeconomics data. Thus the five following correlation indicators will be successively used:

$\text{CORR}(1)$ is the opposite of what we call the economic distance between two countries. The stronger the distance, the less important the correlation.

$$\text{CORR}(1)_{ij} = -\sqrt{(g_i - g_j)^2 + (\pi_i - \pi_j)^2}$$

$\text{CORR}(2)$ et $\text{CORR}(3)$ are binary variables, the relations in which they are set will be estimated with a probit model.

$$\text{CORR}(2)_{ij} = \begin{cases} 1 & \text{if } |g_i - g_j| < 1\% \\ 0 & \text{else} \end{cases}$$

$$\text{CORR}(3)_{ij} = \begin{cases} 1 & \text{if } |\pi_i - \pi_j| < 1\% \\ 0 & \text{else} \end{cases}$$

$\text{CORR}(4)$ is the opposite of growth rate differential, the weaker this differential, the stronger the correlation.

$$\text{CORR}(4)_{ij} = -|g_i - g_j|$$

$\text{CORR}(5)$ is the opposite of inflation rate differential, the weaker this differential, the stronger the correlation.

$$\text{CORR}(4)_{ij} = -|\pi_i - \pi_j|$$

Six indicators of trade intensity will be used, they will be established from the combination of the following variables:

¹⁰ This method is also presented in Frankel (1999) and Rose (1999).

$X_{ij,t}$: Exports from country i to country j in t

$X_{i,t}$: Total exports from country i in t

$X_{j,t}$: Total exports from country j in t

$M_{ij,t}$: Imports of country i from country j in t

$M_{i,t}$: Total imports of country i in t

$M_{j,t}$: Total imports of country j in t

$$\text{TRADE}(1)_{ij,t} = \frac{X_{ij,t}}{X_{i,t} + X_{j,t}}$$

$$\text{TRADE}(2)_{ij,t} = \frac{M_{ij,t}}{M_{i,t} + M_{j,t}}$$

$$\text{TRADE}(3)_{ij,t} = \frac{X_{ij,t} + M_{ij,t}}{(X_{i,t} + X_{j,t}) + M_{i,t} + M_{j,t}}$$

$$\text{TRADE}(4)_{ij,t} = \frac{X_{ij,t}}{X_{i,t}}$$

$$\text{TRADE}(5)_{ij,t} = \frac{X_{ij,t}}{X_{i,t} + M_{j,t}}$$

$$\text{TRADE}(6)_{ij,t} = X_{ij,t}$$

Thirty regressions will be implemented using with these five indicators of economic correlations (indexed by k) and these six indicators of trade intensities (indexed by l) :

$$\text{Corr}(k)_{ij,t} = a \times \ln \text{Trade}(l)_{ij,t} + b + \epsilon_{ij,t} \quad (2)$$

4.2. The estimation results

The results in the following table have been obtained from the estimation of the relation (1)¹¹. Only the coefficients a and their respective t-student have been reported in the following table (Table 14).

¹¹ 2244 available data of bilateral trade for 12 CARICOM countries between 1980 and 1996 are used.

Table 14 : Econometric estimations for parameter a

| | CORR(1) | CORR(2) | CORR(3) | CORR(4) | CORR(5) |
|-------------|--|-------------------------|------------------------|--|--|
| ln TRADE(1) | 0.5545 ** (3.561) $R^2=0.009$ | 0.07488 ** (3.40488) | 0.03426 ** (3.7707) | 0.1922 ** (3.34108) $R^2=0.0084$ | 0.5202 ** (3.513) $R^2=0.0086$ |
| ln TRADE(2) | 0.1463 * (0.904) $R^2=0.0005$ | 0.05061 * (2.31695) | 0.03192 (1.6351) | 0.01247 (0.21918) $R^2=0.00035$ | 0.2056 (1.3252) $R^2=0.00119$ |
| ln TRADE(3) | 0.0765 (0.472) $R^2=0.0001$ | 0.06977 ** (2.87629) | 0.01701 (0.83906) | 0.08530 (1.42732) $R^2=0.00151$ | 0.05887 (0.3762) $R^2=0.00009$ |
| ln TRADE(4) | 0.3593 * (2.345) $R^2=0.0038$ | 0.04088 (1.97758) | 0.02603 (1.37259) | 0.11705 * (2.1238) $R^2=0.00319$ | 0.3520 * (2.4126) $R^2=0.0038$ |
| ln TRADE(5) | 0.2865 (1.7997) $R^2=0.002$ | 0.06208 ** (2.28471) | 0.0509 ** (2.62199) | 0.0838 (1.46371) $R^2=0.00159$ | 0.3107 * (2.0422) $R^2=0.00288$ |
| ln TRADE(6) | -0.5749 ** (-4.7499) $R^2=0.014$ | 0.04099 * (2.56788) | -0.01354 (-0.94678) | -0.0632 (-1.4777) $R^2=0.0013$ | -0.5162 ** (-4.4132) $R^2=0.01138$ |

Notes:

* significant at 5% level

** significant at 1% level

Apart from 4 coefficients, all of them are positive. Of the 17 coefficients significant at 5% of risk, 15 are positive. Moreover, all the negative values concern the bilateral exchange indicator LTRADE (6). We can thus admit the hypothesis that the a parameter is positive. This result is not very surprising and only confirms former results, it transposes to the Caribbean case the conclusions of the European Commission which said that trade intensification lead to high economic correlation.

Thus it appears that:

- The economic distance reduces between countries when trade intensifies (column 1).
- The probability that the growth rate differential is inferior to 1% increases with the trade flow (column 2). It is the same with the inflation rate differential (column 3). Nevertheless trade have a more important impact on the probability of the growth rate differentials to be inferior to 1%; the coefficients of column 2 are systematically superior to the ones in column 3.
- The inflation rate differential is more sensitive to trade intensification than the growth rate differential (columns 4 and 5). The impact of exchanges on the convergence of inflation rates would be stronger than the real growth rates.

The influences of two dummies are also tested DUMMYOECS¹² and DUMMYFIX¹³. They are supposed to indicate the impact of pertaining to OECS and the impact of adopting a fixed exchanges rate on economic correlations.

The indicative variables are successively introduced in relations following the pattern:

$$\text{Corr}(k)_{ij,t} = a \times \ln\text{Trade}(l)_{ij,t} + \mu \times \text{DUMMY} + b + \epsilon_{ij,t} \quad (3)$$

They are both significant at the level of 1% in the regressions of CORR(1), CORR(4) and CORR(5). The indicative variables sensibly improve the R2 of the regressions in which they are introduced. But the quality improvement of the regression is far more sensitive with DUMMYFIX.

However, let's not rush to conclude that a single Caribbean currency and its corollary and the reinforcement of trade relationship can remove the probability of asymmetrical shock. Indeed, let's not forget that commerce inside CARICOM takes up a marginal place in the overall commerce of the states of the zone. This marginal characteristic and the strong dependence of the countries towards foreign trade partners (the United States of America) or international markets conditions (the world-wide market of oil and sugar) can obviously influence the apparent positive relationship between the economic correlations and the intensity of trade flows. In case of a recession in the U.S. of America, the American imports will contract and the Caribbean will witness a fall in their exports, which would prevent them from stocking up and would cause them to limit their trade relations with their partners. In order to take into account these potential influences, we'll estimate relation (1) using the instrumental variables methods and using the gravity model of international trade.

4.3. The gravity model

The gravity model explains the basics of international trade with a set of variables representing the attraction and resistance forces to trading between countries¹⁴. Many assumptions are used when the gravity model is applied to international trade. The transactions between two countries are mapped to the gross domestic product of both the economies considered (Y_i and Y_j), their population size (L_i et L_j) and their development level represented by the gross domestic product per capita (y_i et y_j). The resistance forces are represented by transports costs which

¹² Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Lucia, Saint Kitts and Nevis and Saint Vincent.

¹³ The OECS countries to which Barbados and Belize are added.

¹⁴ For a survey and some developments concerning the gravity model, the reader will refer to Fontagné, Pajot and Pasteels (2000).

can be studied by the distance in kilometre (D_{ij}). Non-economics factors are also considered. For example, cultural elements such as language or common history (P_{ij}). The formulations usually considered are the following:

$$X_{ij,t} = \alpha_0 Y_{i,t}^{\alpha_1} Y_{j,t}^{\alpha_2} L_{i,t}^{\alpha_3} L_{j,t}^{\alpha_4} D_{ij}^{\alpha_5} P_{ij,t}^{\alpha_6} e^{u_{ij,t}} \quad (4)$$

$$X_{ij,t} = \beta_0 Y_{i,t}^{\beta_1} Y_{j,t}^{\beta_2} L_{i,t}^{\beta_3} L_{j,t}^{\beta_4} D_{ij}^{\beta_5} P_{ij,t}^{\beta_6} e^{v_{ij,t}} \quad (5)$$

$$X_{ij,t} = \delta_0 Y_{i,t}^{\delta_1} Y_{j,t}^{\delta_2} L_{i,t}^{\delta_3} L_{j,t}^{\delta_4} D_{ij}^{\delta_5} P_{ij,t}^{\delta_6} e^{w_{ij,t}} \quad (6)$$

The closeness of CARICOM states and the geographic discontinuity of the whole avoids taking into account particular difficulties linked to the non-equivalence between the distance in kilometre and the transport restraints¹⁵.

The GDPs of the exporting and importing country are supposed to be positively linked to trading between both countries. The gross domestic product of the exporting country (Y_i) shows the productive ability and the aptitudes of the country to take part in international trade. The gross domestic product of the importing country (Y_j) shows the absorption capacity of this economy.

The import and export abilities are not closely linked to the gross domestic products. Indeed, of the three countries with the highest gross domestic product in CARICOM namely Trinidad and Tobago, The Bahamas and Jamaica, only Jamaica is among more open countries according to the export and import rates per capita¹⁶. In the same way, the three countries with the lowest gross domestic product, namely Montserrat, Dominica and Saint Kitts, don't have the lowest import and export rate per capita¹⁷.

The signs of the coefficients related to the population of both countries are ambiguous. The population gives an indication of the size of the country and on the degree of diversification of the economy. But the more an economy is diversified, the less it should participate to international trade because the economy meets the demand of its local population. Assuming this, the population should be negatively linked to international trade. Nevertheless, the supply of the wide local market can lead to a certain specialization of the economy, the domestic market allowing to reach a critical size. The will to exploit the scale economies supplying foreign markets would be strong: under these conditions, the relation between the population and trade should be positive. The more

¹⁵ Several types of difficulties can emerge, the goods can not follow a direct trajectory, natural hindrances can oblige to consequent detours.

¹⁶ In fact, Jamaica is the third one, Trinidad and Tobago are fifth and the Bahamas are eighth.

¹⁷ Classified in an increasing order of their export rate per inhabitant, these countries are fourth, ninth and twelfth. Classified in an increasing order of their import rate per inhabitant, these countries are seventh, tenth and twelfth.

populated countries of CARICOM, namely Haiti, Jamaica and Trinidad et Tobago, seem to confirm the positive correlation¹⁸.

The GDP per capita is a proxy of the development degree. The more important the wealth per inhabitant, the more it is expected that the necessary infrastructures are present. The relation would therefore be positive. But the inhabitants can show more sensibility towards the quality of the products proposed and to search for differentiation. It is not certain that CARICOM countries can meet the need of differentiation of the countries when GDP is the highest. As a proof, the three countries who GDP per capita is the highest, namely The Bahamas, Barbados and Trinidad et Tobago, don't trade that much in CARICOM.

Distance is a resistance factor to international trade, the higher the distance, the weaker the trade relations should be¹⁹. The relation to be estimated is:

$$\ln \text{TRADE}(l)_{ij,t} = \alpha_0 + \alpha_1 \ln Y_{i,t} + \alpha_2 \ln Y_{j,t} + \alpha_3 \ln Y_{i,t} + \alpha_4 \ln Y_{j,t} + \alpha_5 \ln D_{ij} + \varepsilon_{ij,t} \quad (7) =$$

The estimation results of the six relations are reported in Table 15.

Table 15 : Econometric estimations for gravity equation

| | ln TRADE(1) | Ln TRADE(2) | ln TRADE(3) | ln TRADE(4) | ln TRADE(5) | ln TRADE(6) |
|----------------|-------------------------|-------------------------|------------------------|-------------------------|--------------------------|--------------------------|
| R ² | 0.454 | 0.499 | 0.609 | 0.559 | 0.484 | 0.680 |
| α_0 | -2.1524 (-1.923) | 0.6068 (0.583) | 0.1496 (0.170) | -0.9458 (-0.965) | -0.5440 (-0.507) | 11.3200 (12.293) ** |
| α_1 | 0.6466 ** (19.796) | 0.3192 ** (10.629) | 0.562 ** (22.173) | 0.240 ** (8.470) | 0.7912 ** (25.449) | 1.375 ** (50.053) |
| α_2 | 0.1273 ** (3.930) | 0.8426 ** (27.844) | 0.5637 ** (22.218) | 0.8189 ** (28.652) | 0.2147 ** (6.890) | 0.8058 ** (29.620) |
| α_3 | -0.4673 ** (-4.721) | 0.092 (1.031) | -0.2493 ** (-3.216) | -0.229 ** (-2.650) | -0.5801 ** (-6.1327) | -1.036 ** (-13.4164) |
| α_4 | 0.4123 ** (4.215) | -0.832 ** (-9.212) | -0.2718 ** (-3.505) | -0.0085 (-0.1021) | 0.1123 (1.2167) | 0.0191 (0.2403) |
| α_5 | -1.2666 ** (-29.159) | -1.2844 ** (-31.549) | -1.386 ** (-42.037) | -1.3122 ** (-34.344) | -1.2663 ** (-30.2509) | -1.3318 ** (-36.3046) |

Notes:

(1) t-student in parenthesis

(2) * significant at 5% level

(3) ** significant at 1% level

The coefficient signs are the identical ones for the different trade intensity indicators with two exceptions: the two gross domestic products per capita. Both real gross domestic products are positively correlated to trade indicators and distance negatively influences bilateral trade flows. There still is an ambiguity for

¹⁸ Except for Haiti which is an atypical case, Jamaica is second, Trinidad and Tobago are fifth considering their export and import rate per capita.

¹⁹ Distances will be calculated apart from the positions in latitude and longitude of the capitals of CARICOM countries. To calculate distances in kilometres, one must know that 1° in latitude on the same meridian or 1° in longitude on the same parallel equals 40.000 km/360°, around 111 km.

the coefficient signs affected to both gross domestic products per capita. The gross domestic product per capita of the importing country negatively affects trade confirming the idea that CARICOM products are essentials. They can be replaced by items of higher quality as soon as the purchasing power allows it.

The R^2 are similar to Thoumi's results (1992) who found R^2 between 0.515 and 0.721 in similar study. But they are inferior to standard gravity models results, generally between 0.65 and 0.85. Thoumi explained it by the weakness of the relations inside CARICOM. Trade inside CARICOM would be insensitive to the evolutions of macroeconomic variables because the main trade partners would be outside the zone. There should be other determinants to the intensity of trade between countries.

The dummy variable DUMMYOECS is significant at 1% in all the regressions in which it is introduced. The DUMMYFIX variable is significant only twice in the regressions of LTRADE (1) and LTRADE (5).

4.4. The estimation results by the method of instrumental variables

The results are far more ambiguous. Only eight coefficients are significant at 5% and the signs are far more fluctuating since eight out of thirty coefficients are negative. Among the coefficients significant at 1% level, there are positive elements as well as negative ones. The R^2 are also weak even weaker than previously.

Table 16 : Econometric estimations for method of instrumental variables

| | CORR(1) | CORR(2) | CORR(3) | CORR(4) | CORR(5) |
|-------------|--------------------------------------|-----------------|----------------------|----------------------------------|------------------------------------|
| ln TRADE(1) | 0.83 ** (4.39) $R^2=0.010$ | 0.045 (1.69) | 0.005 (0.219) | 0.13 ** (1.93) $R^2=0.002$ | 0.85 ** (4.64) $R^2=0.011$ |
| ln TRADE(2) | -0.013 * (-0.07) $R^2=3^{E-6}$ | 0.032 (1.24) | -0.054 * (-2.28) | 0.023 (0.36) $R^2=0.00007$ | 0.023 (0.13) $R^2=9^{E-6}$ |
| ln TRADE(3) | 0.26 (1.44) $R^2=0.0011$ | 0.039 (1.50) | -0.036 (-1.55) | 0.06 (0.93) $R^2=0.0004$ | 0.0301 (1.68) $R^2=0.0015$ |
| ln TRADE(4) | 0.289 (1.66) $R^2=0.0015$ | 0.035 (1.44) | -0.025 (-1.11) | 0.06 (0.988) $R^2=0.0005$ | 0.32 (1.90) $R^2=0.0019$ |
| ln TRADE(5) | 0.295 (1.57) $R^2=0.001$ | 0.037 (1.40) | -0.032 (-1.33) | 0.06 (0.94) $R^2=0.0005$ | 0.32 (1.79) $R^2=0.0017$ |
| ln TRADE(6) | -0.88 ** (-6.77) $R^2=0.025$ | 0.011 (0.59) | -0.092 ** (-5.22) | -0.091 (-1.95) $R^2=0.002$ | -0.82 ** (-6.51) $R^2=0.022$ |

Notes:

(1) t-student in parenthesis

(2) * significant at 5% level

(3) ** significant at 1% level

Considering the significance of DUMMYOECS and DUMMYFIX in the initial equation and in the trade intensities. We will introduce it in the new correlation equation. Considering their strong similarity, the two can not be introduced efficiently without altering the significance of one of them. The final relation to estimate is the following:

$$\text{Corr}(k)_{ij,t} = a \times \ln \text{Trade}(l)_{ij,t} + \mu \times \text{DUMMYFIX} + b + \epsilon_{ij,t} \quad (8)$$

Table 17 : Econometric estimations for method of instrumental variables and DUMMYFIX

| | | <i>a</i> | μ | <i>b</i> | <i>R</i> ² |
|---------|-------------|---------------------|----------------------|-----------------------|-----------------------|
| CORR(1) | ln TRADE(1) | 0.754 ** (4.49) | 10.003 ** (22.20) | -10.26 ** (-9.32) | 0.227 |
| | ln TRADE(2) | 0.599 ** (3.63) | 10.32 ** (22.55) | -11.04 ** (-9.75) | 0.224 |
| | ln TRADE(3) | 0.684 ** (4.19) | 10.262 ** (22.61) | -10.74 ** (-10.10) | 0.226 |
| | ln TRADE(4) | 0.596 ** (3.879) | 10.20 ** (22.52) | -12.03 ** (-14.57) | 0.225 |
| | ln TRADE(5) | 0.65 ** (3.92) | 10.21 ** (22.54) | -10.80 ** (-9.68) | 0.225 |
| | ln TRADE(6) | 0.25 * (1.96) | 10.46 ** (20.96) | -17.09 ** (-15.27) | 0.220 |
| CORR(2) | ln TRADE(1) | 0.044 (1.65) | 0.093 (1.27) | -0.885 ** (-5.016) | |
| | ln TRADE(2) | 0.038 (1.467) | 0.114 (1.54) | -0.909 ** (-5.012) | |
| | ln TRADE(3) | 0.043 (1.642) | 0.109 (1.487) | -0.898 ** (-5.272) | |
| | ln TRADE(4) | 0.038 (1.56) | 0.106 (1.451) | -0.975 ** (-7.381) | |
| | ln TRADE(5) | 0.0406 (1.525) | 0.107 (1.453) | -0.904 ** (-5.060) | |
| | ln TRADE(6) | 0.027 (1.29) | 0.142 (1.752) | -1.39 ** (-7.56) | |
| CORR(3) | ln TRADE(1) | -0.001 (-0.07) | 0.839 ** (11.42) | -1.39 ** (-8.22) | |
| | ln TRADE(2) | -0.012 (-0.51) | 0.833 ** (11.236) | -1.47 ** (-8.36) | |
| | ln TRADE(3) | -0.008 (-0.36) | 0.836 ** (11.339) | -1.44 ** (-8.87) | |
| | ln TRADE(4) | -0.004 (-0.182) | 0.838 ** (11.378) | -1.407 ** (-10.79) | |
| | ln TRADE(5) | -0.008 (-0.33) | 0.837 ** (11.36) | -1.441 ** (-8.314) | |
| | ln TRADE(6) | -0.011 | 0.821 ** | -1.29 ** | |

| | | | | | | | |
|---------|-------------|----------------|----|------------------|----|--------------------|----|
| | | (-0.575) | | (10.29) | | (-7.37) | |
| CORR(4) | ln TRADE(1) | 0.11 (1.77) | | 1.82 (10.40) | ** | -4.97 (-11.59) | ** |
| | ln TRADE(2) | 0.13 (2.12) | ** | 1.89 (10.65) | ** | -4.80 (-10.91) | ** |
| | ln TRADE(3) | 0.13 (2.15) | ** | 1.87 (10.62) | ** | -4.85 (-11.72) | ** |
| | ln TRADE(4) | 0.11 (1.95) | | 1.86 (10.57) | ** | -5.12 (-15.93) | ** |
| | ln TRADE(5) | 0.12 (1.97) | * | 1.86 (10.58) | ** | -4.88 (-11.24) | ** |
| | ln TRADE(6) | 0.13 (2.63) | ** | 2.05 (10.59) | ** | -6.80 (-15.66) | ** |
| CORR(5) | ln TRADE(1) | 0.79 (4.79) | ** | 9.56 (21.53) | ** | -7.21 (-6.65) | ** |
| | ln TRADE(2) | 0.61 (3.78) | ** | 9.88 (21.90) | ** | -8.14 (-7.29) | ** |
| | ln TRADE(3) | 0.70 (4.41) | ** | 9.82 (21.97) | ** | -7.79 (-7.44) | ** |
| | ln TRADE(4) | 0.62 (4.12) | ** | 9.77 (21.88) | ** | -9.10 (-11.19) | ** |
| | ln TRADE(5) | 0.67 (4.12) | ** | 9.78 (21.89) | ** | -7.85 (7.14) | ** |
| | ln TRADE(6) | 0.26 (2.10) | * | 10.04 (20.39) | ** | -14.40 (-13.10) | ** |

Notes:

(1) t-student in parenthesis

(2) * significant at 5% level

(3) ** significant at 1% level

5. Conclusion

The appearance of monetary part in the CARICOM countries agenda shows their willingness to carry on the integration process started in early 1970s. The adoption of a single currency would be political proof that CARICOM wants to improve cooperation between member states. Unfortunately, on basis of the economic criteria the attempt is almost groundless. Individually taken, the economies are more competitive than complementary. Trade potential among them seems to be already exploited.

Moreover, some of these economies have currencies linked to the US\$ in a stable way. For these countries, leaving their actual account unity could be done only by favouring a unity stronger than the current one or a unity which exchange rate towards the dollar is fixed. Considering these evolutions and economic specialisations, the needs in terms of conjectural policy are sensibly different and are hardly affected by the trade volume between these countries. It seems delicate at the moment to disagree with opponents to monetary union. As Worrell (1995) argued 'whatever the emotional or political attraction for the common currency (...) there is little economic justification for it...'. Nevertheless, such an attempt can finally provide the members states with the lacking collective public good. Managing this monetary unity could be the catalyst of integration policy and the cradle of a new interest community.

Monetary unification is a strong political act which economic benefits can be important only if the unification is accompanied by measures aiming at increasing the industrial integration and the economic cooperation between members states.

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