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Why NAFTA Might Be Discriminatory

Lionel Fontagné

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La mise en place de l'ALENA et l'élargissement à 15 pays de l'Union Européenne ont relancé le débat relatif à l'opposition entre régionalisme et multilatéralisme. Globalement, les estimations économétriques mettent en évidence le caractère "super-naturel" des unions régionales : les pays membres entretiennent entre-eux des relations bilatérales d'échange plus intenses que ce que la seule considération de leur proximité, taille ou revenu suggèrerait. L'effet de détournement de commerce ainsi identifié ne remet toutefois pas en cause les bénéfices supposés de l'intégration régionale, dès lors que les effets dynamiques de celle-ci sont intégrés dans l'analyse ; au demeurant, chaque étape de la régionalisation est suivie par une étape de multilatéralisation, accordant des compensations aux pays-tiers se sentant lésés. En ce sens, régionalisme et multilatéralisme ne s'opposent pas, mais s'entretiennent mutuellement.

Au début des années quatre-vingt dix, la combinaison des succès enregistrés par le processus de régionalisation et de l'enlisement des négociations d'Uruguay a fait naître des craintes apparaissant aujourd'hui infondées : la signature de Marrakech a relancé le multilatéralisme. L'OMC, espace naturel de discussion, est aujourd'hui renforcée dans son action multilatérale par les négociations entre unions régionales (qui s'apparentent à du multilatéralisme). L'accord de Madrid, entre représentants américains et européens, ouvre la perspective d'un renouveau de la coopération atlantique, en dépit de l'effet d'annonce négatif associé à l'abandon du terme TAFTA, donc de l'idée d'une zone de libre-échange à court-terme.

Après une négociation d'une année entière dans laquelle l'opposition des pays du Sud de l'Union européenne a été forte, Bruxelles a accordé les compensations nécessaires aux Etats-Unis victimes du dernier élargissement ; le moment est donc opportun pour évoquer en retour les éléments de discrimination associés à l'ALENA.

La question des interactions stratégiques dans une union régionale comprenant des règles d'origine pour les produits est particulièrement pertinente dans le cas de l'ALENA. En effet, l'existence d'écarts importants de niveaux de développements entre pays membres, associé à une concurrence sur ce grand marché entre firmes multinationales américaines et des pays tiers, ouvre des perspectives théoriques intéressantes.

Suivant l'analyse des clauses de contenu local et politiques commerciales stratégiques en concurrence imparfaite initiée par Krishna et Itoh [1986], Richardson [1991] Spencer et Jones [1991], enfin Lopez de Silanes, Markusen et Rutherford [1993], nous illustrons ces questions par un modèle de commerce international comprenant trois pays et trois biens (2 biens intermédiaires et un final), dans lequel des multinationales en situation de duopole sur le marché final discriminent entre les marchés. Au sein de l'union régionale, un pays (les Etats-Unis, par exemple) a un avantage comparatif en amont, et l'autre (le Mexique) en aval. Le leader du marché, qui possède un avantage absolu de coût pour la production d'un des biens intermédiaires est une multinationale originaire d'un pays tiers (européen) ; ce leader dispose d'une filiale d'assemblage au sein de l'ALENA, ici au Mexique.

Nous démontrons que le leader maximise son profit global en acceptant de fournir en bien intermédiaire son concurrent américain, mais en pratiquant à cette occasion une discrimination de prix. En imposant une règle d'origine, l'ALENA déplace partiellement la rente de situation du leader vers la multinationale américaine. Les consommateurs américains en sont victimes, car les prix intérieurs augmentent. Cette augmentation des prix fait que les rentes du leader européen diminuent moins que n'augmentent celles de la multinationale américaine. Nous démontrons que l'écart de prix entre libre-échange et union régionale avec règle d'origine est une fonction croissante du taux d'intégration locale imposé aux firmes et du poids des consommations intermédiaires dans la valeur du produit final.

Au Mexique, la production de la filiale d'assemblage de la multinationale européenne décline. Il en va donc de même des importations intermédiaires de ce second pays de l'union. Mais dans le même temps, les règles d'origine imposent une substitution d'importations intermédiaires : cette filiale d'assemblage utilise des quantités moins importantes de consommations intermédiaires plus onéreuses, ce qui se traduit par une affectation inefficace des ressources. Cette substitution de consommations intermédiaires est sans équivoque un détournement de commerce. Nous retrouvons donc des conclusions similaires à celles de Lopez de Silanes, Markusen et Rutherford [1994] simulant les effets sectoriels potentiels de ces clauses discriminantes de la NAFTA. Cette convergence de résultats devrait inciter à inscrire l'examen de ces clauses au programme des futures négociations transatlantiques.

Indexation JEL : F12, F13, F15.

SUMMARY

The completion of the NAFTA on the one hand, the enlargement of the EU to 15 countries on the other hand, touch on the traditional regionalism vs. multilateralism debate. On the whole, econometric estimates indicate that regions are "super-natural": nations belonging to the same region are engaged in bilateral trade flows which surpass what proximity, size, and income would suggest. Nevertheless, the trade diversion effect associated with this diagnosis does not disqualify the regionalisation process, as far as dynamic effects soften it. Moreover each process of regionalisation, appears to be the very basis for a multilateral discussion on compensations as third countries feel threatened. In this sense, regionalism and multilateralism are complements rather than alternatives.

In the early nineties, great fears were associated with the success of regional arrangements, while the Uruguay Round was in trouble. Five years later, it appears that these fears were not founded: the Marrakech approval of the GATT 94 was the starting point of a renewal of multilateral discussions. The WTO is naturally the centre place for these negotiations, but bilateral negotiations between regions (which have more than a taste of multilateralism) that were launched by US and EU representatives in Madrid in December 1995 are potentially highly fruitful, even if the acronym TAFTA seems to be buried.

As far as Brussels, after a year-long negotiation, and despite opposition of Southern members of the EU, did correct the diversion effect of the last enlargement by giving important concessions to the US, it is certainly time now to address the question of the discriminatory practices of the NAFTA.

Strategic interactions in the context of regionalisation entailing rules-of-origin are a topic of great relevance to the NAFTA experience. More specifically, the case for internal development differentials (Mexico *versus* North America) coupled with firms originating from the north and competing with (foreign) multinationals, based in the region but originating from third countries, opens fascinating theoretical puzzles.

Following the analysis of local content requirements and strategic trade policies in an imperfect competition framework of vertically sliced up processes initially developed by Krishna and Itoh [1986], Richardson [1991] Spencer and Jones [1991], and Lopez de Silanes, Markusen and Rutherford [1993], this paper illustrates these puzzles with a 3 countries - 3 commodities (2 intermediate goods, 1 final good) model of international trade, in which duopolists discriminate between markets. Two countries out of the three establish a trade bloc. One country in the region has an upstream comparative advantage (the United-States for example), and the other one a downstream comparative advantage (Mexico). The leader, a multinational firm based in a third (European) country, has an assembling affiliate in NAFTA. This firm also has an absolute cost advantage in the production of one intermediate good.

It is demonstrated that the leader will not foreclose the follower, but squeeze it. As NAFTA imposes rules-of-origin on the (European) leader, it will shift rents towards the American multinational, at the expense of the European one and domestic consumers. The profits of the American firm increase, while a part of the rent of the European multinational is shifted, as a result of the local content scheme. But the rents of the former increase by more than the decrease of those of the latter, as the price paid by the consumer increases. The paper states that the differential between the managed trade and the free trade price increases with the local content on the one hand, and with the unit input for the intermediate goods concerned on the other hand.

In Mexico, the production of the European affiliate decreases and so do its intermediate imports from all origins. But rules-of-origin impose a substitution of intermediate imports, at a higher price: this affiliate uses smaller amounts of more expensive intermediate products, which is clearly inefficient. This substitution diverts trade. The paper therefore reaches similar conclusions to Lopez de Silanes, Markusen and Rutherford [1994], who simulated the sectoral potential effects of these provisions of the NAFTA. This convergence of results push towards incorporating NAFTA discriminatory practices on the "TAFTA" agenda.

JEL classification: F12, F13, F15

WHY NAFTA MIGHT BE DISCRIMINATORY

Lionel Fontagné[1]

INTRODUCTION

The Regionalism versus Multilateralism debate has often been discussed, especially in the early nineties which were characterised by a failure to finalise the Uruguay Round negotiations and the completion of new regional arrangements. This debate raises has led to a few but similar conclusions in all analyses: basically, regionalisation is tinted by protectionism, even if discrimination on a regional basis is tackled in the key article XXIV of the GATT[2] (contrary to the "non-discrimination "cornerstone of this agreement)[3].

The empirical evidence associated with this feature is certainly the fact that regions are "super-natural": regions are more integrated, as far as trade and investment flows are concerned, than would be suggested by the combination of geographical and cultural distances together with income per capita or factor endowments.

Following the debate initialised by Krugman [1991][4], it must be asked if regionalism is justified on the grounds of natural determinants: in a world characterised by high transport and transaction costs, regionalism could be justified. It appears nevertheless in numerous empirical studies that the bilateral intensity of regional trade is too high, even when controlling for "natural" determinants of regional integration:

- Frankel, Stein and Wei [1993] used a gravitational model[5], which explains the logarithm of bilateral trade with the following independent variables: size, geographic distance, adjacency, language. Interpreting regionalisation in "continental" rather than institutional terms[6], they underline that regionalism has surpassed its "natural" boundaries.

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[2] As it is well known, the article authorises departures from the MFN provision.

[3] R.Ruggiero, recently pointed out that of over 108 agreements notified to the GATT, and the 80 already examined, only 6 (in which the EU does not appear) were compatible with multilateralism. (WTO, Press 25, 16 October 1995, p.13).

[4] This debate must be distinguished from the « is bilateralism bad » question posed by Krugman, of which the anwer, formulated in terms of sub-optimality of a three « regions » game, raises doubts over the current evolution towards an UE-NAFTA-APEC world. .

[5] 6 estimates on cross sectional data 1965-1970-..1990.

[6] America, Europe, Asia-Pacific.

- Eaton and Tamura [1994] analyse Japanese and U.S. bilateral trade and FDI flows with a hundred of partner countries, over the 1985-90 period. They also use a gravitational model, but with panel data. The explaining variables (population, income per capita, density, human capital) do not include the traditional geographic distance, the latter being replaced by a vector of dummies associated with regions. An important result is the positive sign of the (significant) parameter associated with regionalism, as far as trade *and* investment are concerned.
- Frankel and Wei [1993], still using a gravitational modelling, quantify this "super-naturality" of regions: controlling for other determinants, two members of the APEC will trade together 4.4 to 5 times more than they would have done in a multilateral world. Concerning the EC, the associated variable in not significant for 1980, but becomes significant in 1985 at the 1% level. Nevertheless, in this case, the increase of intensity in trade is "only" of 50%. On a time basis, the effect decreases for the former region and increases for the latter (effect of the Single Market?).
- Bayoumi and Eichengreen [1995] confirm the trade diversion effect associated with trade creation, for the European regionalisation experience. Using a first order difference specification[7] of a very simple gravitational model, they explain global[8] bilateral trade flows among 21 industrial countries over 1953-1992. They capture the trade creation vs. diversion effects by using dummies for the EEC and EFTA. They shed light on the fact that trade diverting issues are a concern specifically related to the starting period of regional arrangements. Trade among countries of the sample has been diverted more by EC creation, than by the implementation of the EFTA. Moreover, each enlargement of the former has replicated a combination of trade creation and trade diversion effects.

Therefore, as far as regions appear to be "supernatural" they might led to decrease overall world welfare in comparison to a generalised multilateralism. This concern is highly relevant, as underlined by Bayoumi and Eichengreen - in a world characterised by an expanding number of sovereign nations - as far as transaction costs associated with multilateral negotiations increase dramatically compared to regional ones.

Nevertheless, losses associated with trade diversion are smoothed (Krugman-1991, de la Torre and Kelly-1992) by additional gains linked with the reduction of consumption distortions, and the enhanced efficiency associated with increased market size (economies of scale, positive externalities, increased competition, a better investment climate). Moreover the generally referred to "terms of trade effect" may be questioned, on the basis of decreasing costs in the region. The latter are then translated into price cuts of the region's exports, compensating for the expected deterioration of third countries' terms of trade due to the increasing world market power for member countries.

Moreover, and notwithstanding this trade diversion effect underlying regional integration, it appears at the same time that *each enlargement of existing regions is followed by a round of multilateral negotiations*. By trying to soften trade and

[7] For the logarithms; obviously, all explanatory factors which are constant over time disappear. The main advantage is that all variables potentially affecting trade but having no time dimension may be omitted.

[8] i.e. no sectoral disagregation.

investment diversions, this negotiations ultimately deepen multilateral liberalisation. As it pushes towards multilateralism, regionalisation does respect the spirit, if not the letter, of a global move towards free trade.

The emerging interest for a TAFTA, highly supported by Leon Brittan, replicates this traditional sequence: regionalisation-diversion-multilateralisation. Effectively, two recent events have raised doubts over two potential, stong diversion effects:

- on the one hand the latest enlargement of Europe to 15 countries, with the integration of Finland, Austria and Sweden, has led to an increase of numerous customs duties as the latter countries adjusted their tariffs to Europe's tariff: US representatives claimed this caused a $1.7 billion loss in trade;
- on the other hand, the implementation of the NAFTA casts doubts overa policy opting for multilateralism on the other side of the Atlantic.

Finally, EU and US representatives decided in Madrid in December 1995 to commit themselves to reducing or eliminating remaining barriers for trade in goods and services, and barriers to capital flows, between the two sides of Atlantic. Taking into account European fears for a displacement of American economic concerns towards the Pacific zone, President Clinton said that the US "(...) will remain as firmly engaged in Europe in the post-Cold War era as we have been for the past 50 years" [9].

The agreement reached calls for a bi-annual review of progress concerning key issues: telecommunications, television, mutual recognition of product standards, certification procedures are the first questions to be tackled by the negociations. Canada and "other countries" will be invited to the discussions. As expected by analysts [10], sensitive issues related to agriculture and steel were left out the agreement. Aeronautics is obviously another difficult issue. Moreover, as far as the American Congress seems to be unready to finalise a third trade agreement (after the NAFTA and the GATT94), the expected acronym of TAFTA has been changed to a less risky *NTAM*, i.e. a *New Trans-Atlantic Marketplace*.

Notwithstanding these slight difficulties, progress has been already made in EU-US trade relationships, in as much as Brussels [11] has simultaneously decided to implement compensation for US and Canada, as a result for the trade diversion effects associated with the EU's last enlargement concerning: semi-conductors and other computer products, 200 chemical products, rice and various grains and ice-skates. It will avoid a North American complaint to the WTO.

What are the potential effects of regionalisation on both rivers of Atlantic? Concerning the enlargement of Europe, the mechanisms involved are well known, as far as it is not the first enlargement. In contrast, the NAFTA, signed on 17 December 1992, appears to be an original mix of characteristics, raising new questions:

[9] *The Wall Steet Journal Europe* , 4 December 1995.

[10] See for example, *Le Figaro*, 1 December 1995 « Interrogations sur l'Accord Transatlantique ».

[11] More precisely, foreign ministers of the Members; the agreement has to be approved by the French Parliament before end 1995.

- first, NAFTA is highly asymmetric, a phenomenon generally referred to as a "Hub and Spokes" configuration, a feature which has never been the case in intra-European trade;
- second, NAFTA has been signed by countries at different levels of development; briefly, it is certainly the first "North-South" Free Trade Agreement, as the "economic distance" between partners is much higher than between the Northern and Southern European countries;
- third, potential effects of this FTA are not driven by trade only, but also by Foreign Direct Investment (FDI) originating from Northern member countries and, as far as Japanese and European investors are concerned, from Third countries. In contrast, it could be argued that for Europe investment effects are mainly intra-regional, as recently demonstrated by the stong impact of the Single Market on intra-European mergers and acquisitions;
- last but not least, NAFTA will change dramatically the competition framework in key sectors: automobile, textiles and apparel, agriculture etc. are precisely those related to sensitive products.

More specifically, as far as trade theory is concerned, NAFTA raises two questions related to the "regionalism" versus "multilateralism" debate referred to above: the first concerns the magnitude of trade creation versus trade diversion effects, and the second concerns the rules-of-origin and their potential effects.

The former is a very general topic, largely addressed theoretically and empirically[12] in the literature: but despite the interest for this expected effect, one could argue that trade diversion effects do not constitute an important issue for NAFTA:

- it is difficult to imagine that Mexico could trade more (in percentage terms) with its US partner;
- the trade relationships between Canada and the United States seem not have been boosted by the previous free trade agreement;
- there is no foundation for huge trade flows between Canada and Mexico.

Such a conclusion is nevertheless inappropriate, as far as the nature of economic integration between the three countries, and the basic features of the agreement, are concerned:

- integration is based on a combination of trade and investment flows which has organised a very specific division of labour in the region: a prominent feature of this division of labour is certainly the fact that processes are sliced up on a vertical basis, following a principle of specialisation in intermediate goods or assembly;
- at the same time, precisely because NAFTA is not a custom union, certain procedures have been implemented that relate to the local content of products sold on the Northern American market, and which address stimulating theoretical questions;

[12] See for example Bhagwati (1992), and Roland-Holst D.W., Reinert K.A., Shiells C.R. "A General Equilibrium Analysis of North American Economic Integration", in J.F.François et C.R.Shiells (1994).

- last but not least, foreign companies emanating from third countries are leading competitors in numerous activities concerned by the two previous remarks.

The latter question raised by the NAFTA -namely the rules-of-origin and their potential effects- is more specific and addresses theoretical questions related to trade in intermediate goods, to competition in a strategic context, to unfair commercial practices and, last but not least, to the use of commercial policies for a strategic purpose. Therefore, the present paper will focus on this second question.

The paper begins with the new set of questions raised by the NAFTA, namely asymmetry, large economic distance and high flows of intermediate goods. It then considers stylised facts, underlining the "discriminatory dimension" of this arrangement. Based on this, the paper turns to a theoretical approach [13], providing a simple framework: it illuminates the complex mechanisms linking trade, market structures and strategic policies when trade in intermediate goods is added to trade in final products, as a result of production processes splitting up vertically. Such questions are highly relevant in a context of globalisation characterised by "the ability of producers to slice up the value chain" (Krugman -1995).

Finally, as will be demonstrated below, these questions are not simply theoretical, as they are highly policy oriented: *NAFTA might be discriminatory, especially as far as foreign firms are concerned*. This paper demonstrates that, in such a context, regionalisation can used in order to shift rents inside a duopoly, to the cost of foreign countries or firms.

New discussions thus stand out as a top priority, in order to replace the rules responsible for these effects by transparent ones. Such discussions should be integrated in the agenda of the future NTAM negotiations: obviously, it would be a bad strategy for EU negotiators to discuss sensitive issues like television or telecommunications without obtaining a reciprocal concession on the topics referred to here.

The recent agreement on compensation for the EU enlargement to 15 countries opens the door to such discussions. In as far as the EU can no longer be suspected of using regionalisation for strategic purposes, its NAFTA partners must now face their own responsibilities.

2. A NEW SET OF QUESTIONS

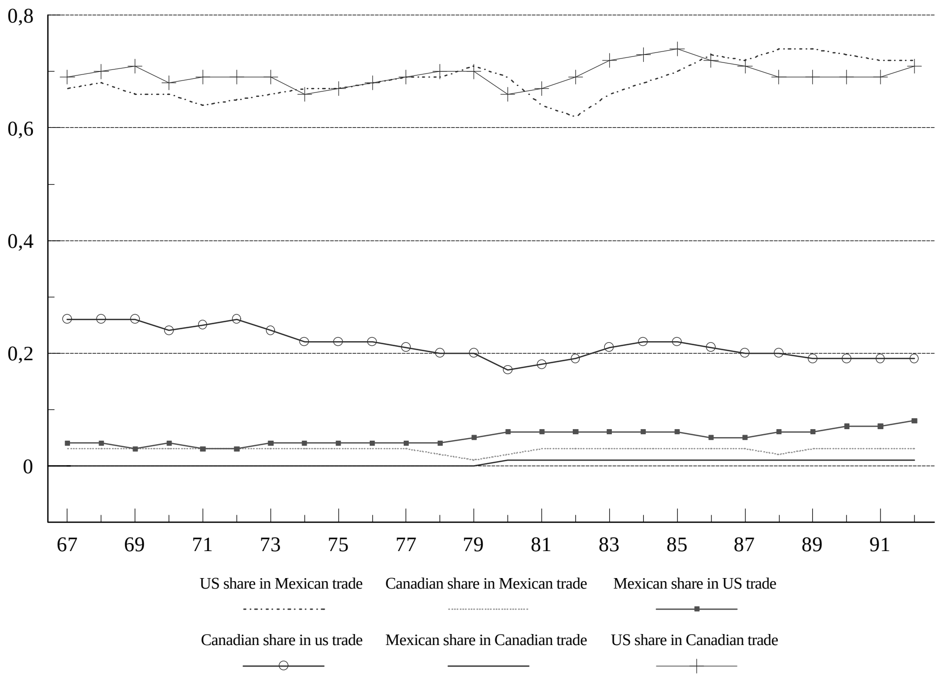
2.1. Regional integration among countries engaged in highly asymmetric trade flows

NAFTA has often been characterised as an "Hub and Spokes" agreement, as far as its highly asymmetric trade relationships are concerned. Moreover its original combination of Canadian natural resources, US capital and Mexican labour, which has been systematically addressed by analysts, makes NAFTA an original experience when compared with Europe.

[13] It means that the measurement of potential related effects will not be addressed.

As it is not necessary to replicate these analyses, some empirical evidence of this basic asymmetry is simply given here, by comparing the 6 ratios of bilateral, intra-NAFTA trade for the three countries. The figure below deserves some comment: for Canada and Mexico, the US is the leading market for exporters. In contrast, the Mexican share in US trade is anything but important, attaining less than 10%, whereas the Canadian share in US trade is declining, and is three times lower than the reciprocal one. Finally, Canada and Mexico have practically no commercial relationships.

Share of NAFTA partners in member'total trade



Source: Author's calculations, data CEPII-CHELEM

2.2. Regional integration among countries separated by a high economic distance

By adopting a very simple theoretical framework, NAFTA can be viewed as an opening to free trade of countries separated by a high "economic distance" [14]. In the line of the "World Integrated Equilibrium" paradigm [15], this means that trade will imply *specialisation* of the partner countries, especially regarding sensitive sectors. Trade could be of an inter-industry rather than an intra-industry nature.

The fact that NAFTA might increase the intensity of trade in parts and components - as a result of an in-depth, *vertical* division of labour - does not mean that trade would in this case be of an intra-industry nature. At a sufficiently disaggregated

[14] In as far as CAFTA was already implemented

[15] See Helpman and Krugman (1985)

level of trade statistics, it would simply mean a slicing up of the production process, associated with specialisation, rather than with intra-industry trade.

Specialisation has a social cost, which is the counterpart of gains to free trade: specialisation means a reallocation of resources, workers and other productive resources shifting from contested activities into new areas, along the line of comparative advantages. Were it to be the result of a vertical division of labour, specialisation would have the same potential effects on resource allocation. The European integration process[16] concerns countries with fairly high and similar incomes (with the exception of Greece, Ireland and Portugal and at a lesser extent Spain). In comparison, NAFTA raises new questions related to competition between national labour markets, specially concerning blue collar workers.

The third original feature of this FTA is the role played by FDI. Even if it is possible to advocate that US FDI played an important role in the European integration process in the early sixties, orders of magnitude of the figures are completely different. Neither is it necessary to recall the prominence of US FDI in Canada, especially in sensitive sectors like automobiles, nor does the role played in Northern America by Japanese investors in the same sectors need to be documented.

Last but not least, NAFTA's effects will concentrate on sensitive sectors, whereas the first step of European integration, up until the Single Market, led very smoothly to an integrated zone through two-way trade in similar products. As the latter pattern of trade involves only microeconomic adjustments, France exported automobiles to Germany, and Germany to France; the firms of the two countries facing benefiting from increasing returns to scale, and the consumers of the countries being offered a greater variety of products. Newcomers, such as Spain or Portugal, were "absorbed" by the market without significant damage. Even if a vertical division of labour has been promoted by regional integration in Europe, this process has had a rather balanced nature, based on complementarities at a very detailed level: intra-industry trade of intermediate goods is an important characteristic of the picture in this case [17]. NAFTA could be a different story. Mexico could transform into a huge "screwdriver plant" assembling parts and components from third countries at very low labour costs, then exporting and crowding out the Northern producers in the regional market, irreversibly the damaging environment, and driving up unemployment among American and Canadian blue collar workers. This would be notwithstanding the damaging macroeconomic spillovers of an indebted neighbour facing dramatic external constraints.

Echoing these American and Canadian fears, worries could be found on the Mexican side, presenting NAFTA as the end of "economic independence", destroying small businesses while concentrating national economic interests in foreign hands etc. For Canada and Mexico, these fears are magnified by the disproportionate (growing, in the Mexican case) weight of trade relations with the United States in their national income (see the figure below).

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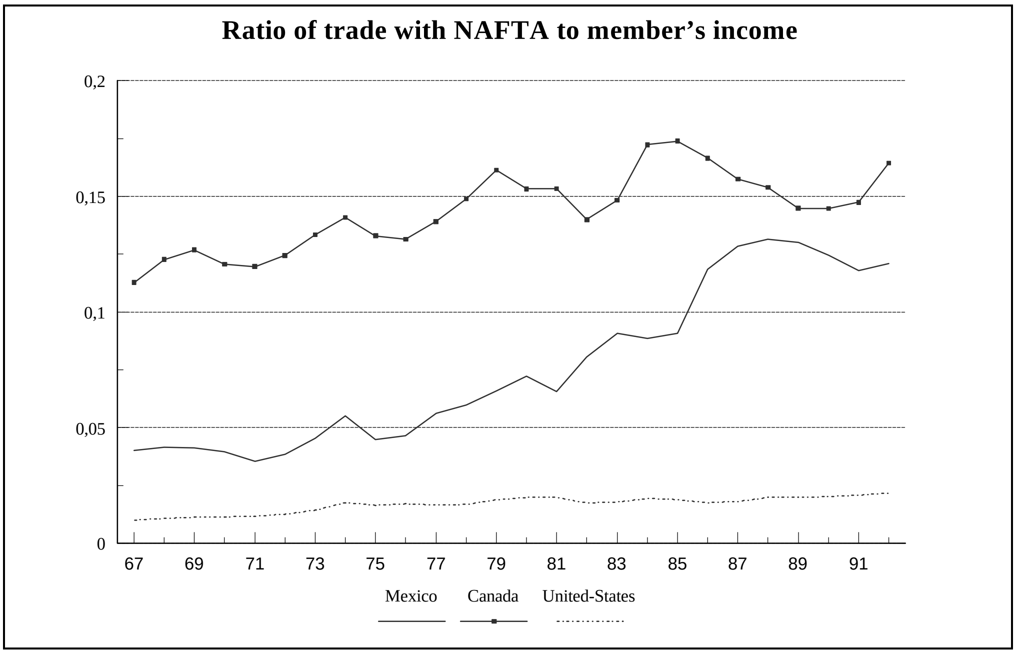
[16] This is true until now. In the near future it will change with the enlargment to the former socialist European countries.

[17] See Fontagné-Freudenberg-Ünal Kesenci [1995].



Source: Author's calculations, data CEPII-CHELEM

This apocalyptic presentation has fired the debate in member countries, raising social concerns, while negotiators have tried to incorporate provisions responding to these risks in the final draft, which has been done in accordance with previous agreements.

2.3. Integration between countries exchanging high volumes of intermediate goods

If the US specialisation is characterised by the stages of the production processes *vis-à-vis* its commercial partners, the following observations can be made using the "contribution to the external imbalance" index developed by the CEPII:

- the US economy has horizontal advantage over Europe;
- in contrast, Canada has an upstream advantage over the US economy and a downstream disadvantage; as often pointed out, the North American division of labour is based on Canadian natural resources and US transforming activities;
- with respect to Japan, the US economy is exactly in the opposite situation;
- Mexico has an advantage over the US economy upstream for activities that are intensive in natural resources, and downstream for labour intensive activities;
- finally, the US economy is on the whole specialised in transformed and intermediate products, whereas it is slightly dependent on imports of primary products, and largely dependent on imports of final products.

US specialisation by stage of the production processes

0/00 of GDP *all industries*

US facing:	Primary	Processed	Parts	Final products	Total
World	**-0.1**	2.0	6.3	**-8.2**	0.0
EC	0.9	0.8	1.6	1.2	4.6
Mexico	**-0.4**	1.3	1.2	**-0.1**	2.0
Canada	**-1.1**	**-1.0**	2.5	1.0	1.3
Japan	1.4	0.3	**-2.0**	**-5.9**	**-6.2**

Source: Fontagné, Freudenberg, Ünal Kesenci [1995]

Established on a global basis, this diagnosis can be refined using sectoral data, on a bilateral country basis. In decreasing order of magnitude, the US economy is specialised in aeronautic equipment, chemicals, agriculture, machinery, food industries, wood and paper. For chemicals, this result is obtained notably over its NAFTA partners, as is also the case for machinery. In each case, this is an horizontal advantage. In contrast, Canada is advantaged over the US economy in wood and paper, to the benefit of transformed products (as opposed to final ones).

Main US revealed comparative advantages, 1992, and position *vis-à-vis* NAFTA members where necessary

0/00 of GDP

US facing:	Primary	Processed	Parts	Final products	Total
			Other transport equipment		
World		0.0	1.5	4.3	5.8
			Chemicals		
World	0.0	3.6	**-0.1**	**-0.1**	3.3
Canada	0.0	0.7	0.0	0.2	0.9
Mexico	0.0	0.5	0.0	0.1	0.6
			Agriculture		
World	3.1	0.0		0.1	3.2
			Machinery		
World		0.0	1.6	1.5	3.0
Canada		0.0	0.5	0.8	1.3
Mexico		0.0	0.1	0.3	0.5
			Food industries		
World	0.2	0.6		0.7	1.5
			Wood and paper		
World	0.2	0.1	0.0	0.6	0.8
Canada	0.0	**-1.4**	0.0	0.3	**-1.1**

Source: Fontagné, Freudenberg, Ünal Kesenci [1995]

Main US revealed comparative disadvantages, 1992
and position *vis-à-vis* NAFTA members where necessary

0/00 of GDP

US facing:	Primary	Processed	Parts	Final products	Total
			Textiles		
World	0.0	0.1	0.0	**-5.8**	**-5.8**
			Automobiles		
World			1.3	**-5.9**	**-4.7**
	(see detail below for bilateral relationships)				
			Extractive industries		
World	**-3.9**	0.0		0.0	**-3.9**
Mexico	**-0.6**	0.0		0.0	**-0.6**
Canada	**-1.1**	0.0		0.0	**-1.1**
			Industries n.c.e		
World	0.0	**-0.6**	0.0	**-2.0**	**-2.5**
			Coal and refined products		
World	0.0	**-0.6**		0.0	**-0.6**
			Metallurgy		
World	0.2	**-0.8**	0.1	0.1	**-0.5**

Source: Fontagné, Freudenberg, Ünal Kesenci [1995]

The role of trade in intermediate products inside the NAFTA is established more in the disadvantaged industries of the US. Leaving aside textiles for which the responsibility of Asia and NICs in the American deficit is clearly established, the second US deficit is for automobiles: in this case NAFTA relationships are concerned, notwithstanding the huge deficit facing Japan, which accounts for 94% of their total trade imbalance. The third largest deficit is in extractive industries, as far as the US economy is largely dependent on natural resources coming from its Northern and Southern NAFTA partners.

3. STYLISED FACTS

3.1. NAFTA's general features

NAFTA is fundamentally an enlargement and an in-depth completion of the previous Canada-United States-Free Trade Agreement, the CAFTA signed in 1988. Enlargement to the South, which raises specific questions; completion by the inclusion of new topics[18] such as property rights, services etc. Bilateral tariffs and non-tariff barriers (NTBs) between Canada and the US will be abolished following the 1988 schedule, whereas bilateral barriers to trade with Mexico will be eliminated over a 10 to 15 year transition period[19].

[18] Also adressed on a multilateral basis during the Uruguay Round.

[19] For details, see Hufbauer and Schott (1993).

3.1.1. Discrimination

The discriminatory foundation of the move to free trade on a regional rather than multilateral basis, in accordance with GATT's Article XXIV, raises difficult questions as regionalisation is necessarily discriminatory against third countries, the latter being crowded out *de facto* of the tariffs cuts.

The extent of the discrimination differs with the type of regionalisation: a FTA, which does not entail a common external tariff, will be faced with the problem of the rules-of-origin for products exchanged inside the region. As a result, and contrary to the EU, NAFTA has gone very far in the direction of discrimination, especially in sensitive sectors such as textiles and apparel on the one hand, and automobiles on the other hand. Textiles and apparel illustrate a balanced negotiation, in which negotiators tried to kill two birds with one stone: trade with a low wage country is liberalised whereas local content rules, qualifying products for the benefit of the Agreement are highly restrictive. This could lead to trade diversion effects, NAFTA being detrimental to third (low wage) countries.

The local content requirements in the NAFTA are twofold:

- a general principle, adopted for most sectors, identifies the American origin of a product by the "re-classification" of components or parts under new customs headings as a result of transformation or assembly. This principle of "substantial transformation" is simple enough for a large number of cases.
- for specific cases, namely textiles and apparel and automobiles, the general principle referred to above is reinforced by specific rules, as a result of the lobbying of potentially harmed interests. The "yarn forward rule" applies to the former. It is a very simple, but highly discriminatory rule, since it means that "NAFTA made products" must be derived from "NAFTA made yarns" in order to fulfil local content requirements. The "net cost rule" designed for the automobile sector is more restrictive than the CAFTA rule, since it increases the content to 62.5% from 50% [20], and changes the calculation in order to prevent roll-up practices (see below).

Conversely, NAFTA has adopted a common external tariff for the computer industry, and therefore does not need any specific rules-of-origin for it. This illuminates the specific problems of trade arrangements which do not entail a common external tariff.

3.1.2. Assessment

An assessment leads to an important point: the literature on regional agreements establishes that a common external tariff always dominates a FTA, the latter being subject to trans-shipments. The lowest tariff country is an opened door for third countries exporting to the regional market.

This traditional result is no longer valid when local content rules are implemented, since member countries can prevent such trans-shipments even in presence of "screw-driver plants" in the region. But in the latter case, regionalism conflicts with multilateralism contrary to a custom union, as the price to pay for

[20] The two figures are however not strictly comparable for technical purposes.

regional cohesion is a misallocation of resources, implying losses for the world as a whole.

Conversely, it could be advocated that the multilateral context of competition is no longer competitive, world trade being controlled by multinational firms, notably through intra-firm trade. In this context of globalisation, firms organise the international division of labour to their own benefit, and extract rents.

Rent shifting, at the expense of foreign multinationals operating in the region, could therefore be a new motivation for local content rules [21]. And this could be done to the benefit of regional multinationals: the related provisions would finally be a tool of industrial policy, used by the region in order to protect its "champions" in sensitive sectors.

3.2. The automotive sector

A good example of a context linking trade, market structures and strategic policies to trade in intermediate and final goods is provided by the automotive sector, for which trade in intermediate products might be a strategic issue involved, as has been pointed out above. This industry accounts for a large part of North-American bilateral trade. Firms involved in the sector are big multinational firms, having real market power. For example, the "Big Three", are three out the four biggest *Mexican* exporters.

NAFTA trade in the automotive sectors can be divided into three types of products: parts and components (i.e. intermediate goods, or "middle products"), cars and trucks.

The vertical division of labour inside the NAFTA is highly developed and points the picture of national specialisations. With respect to the world, US is largely disadvantaged. Following the recent work conducted by the CEPII [22], it may be seen that this situation stems from a downward comparative disadvantage that is partially balanced by an upward one. By disaggregating these figures by partner country, the US appears to have an horizontal (i.e. for each stage) comparative disadvantage *vis-à-vis* Japan and the EC, partially offset by an advantage on parts and components obtained on a regional basis. Trade in intermediate goods is therefore a strategic issue for American firms, which explain the concern over this topic in the final draft of the NAFTA.

U.S. Revealed Comparative Advantages
Automotive Industry-1992

U.S. facing:	Stage of the production process		
	Intermediate	Final	Total
World	1,3	-5,9	-4,7
Mexico	0,5	-0,5	0
Canada	1,1	-1,9	-0,8

[21] See Hollander (1993) for an appraisal of this argument in a DFS model embodying a continuum of middle products.

[22] See previous footnote.

Japan	-0,6	-3,8	-4,4
EC	-0,1	-0,6	-0,6

Source: Fontagné, Freudenberg, Ünal Kesenci [1995]

3.2.1. Trade flows and institutional context

The three countries are heavily involved in the automobile industry, even for institutional and comparative advantage reasons.

The Mexican automotive industry has been built up behind commercial policies which imposed domestic content requirements or trade balancing requirements. These in turns constrained sellers to produce locally, prohibited second-hand imports etc [23].

On the Northern side of the NAFTA, the Canadian experience has been derived from plants built by American companies, then from the Canada-US Auto Pact, and finally from the CAFTA. The Auto-Pact was a sectoral FTA, designed to solve US-Canada disputes related to Canadian industrial policy in this sector. As a result, two regulatory tools were implemented: a "production-to-sales ratio" on the one hand, a "domestic value-added test" on the other hand. Freeing firms which met these standards for tariffs, even for products coming from third countries, meant that these disposals were potentially dangerous for the Big Three from the perspective of Japanese transplants exporting to the United States, and the delivery of Japanese-made cars to the Canadian market. The CAFTA changed these rules for new-comers, as only one Japanese firm, Suzuki, was "in the place" due to a joint venture with General Motors. A content requirement of 50% was introduced, replacing previous Canadian rules.

Lastly, the United States adopted entirely different strategies for facing the Japanese threat; voluntary export restraints, "voluntary purchase" arrangements, etc.

Trade flows associated with these regulations are reported in the table below. Huge flows of final products between Canada and United States are recorded (around 70% of the total), while relationships between the latter and Mexico are dominated by intermediate products (around 60% of the total): Mexico essentially exports final products to the United States, while intermediate products make up 90% of imports from the latter. In line with the "Hub and Spokes" scheme referred to above, Canadian-Mexico bilateral relationships are far or less developped.

Finally, the main regional flows are those between Canada and the US, Mexico being at this stage a relatively minor partner.

[23] See Berry, Grilli and Lopez-de-Silanes (1992)

Table: Matrix of NAFTA trade in the automotive sector (1993, harmonised flows)

Total : 100			Exports			intra-NAFTA
			United-States	Canada	Mexico	trade
Imports	Parts and components	United States	"	9.4	3.6	
		Canada	16.0	"	0.6	36.0
		Mexico	6.2	0.1	"	
	Cars	United States	"	28.2	4.8	
		Canada	9.9	"	1.0	44.2
		Mexico	0.2	0.0	"	
	Trucks	United States	"	13.7	1.0	
		Canada	4.7	"	0.1	19.9
		Mexico	0.3	0.0	"	

Source: Author's calculations, data CEPII-CHELEM

Conditional to the success of macroeconomic adjustments, Mexico could be the leading automotive market in Northern America. The success of NAFTA negotiators in opening the door of this highly protected market is therefore of great significance in the medium term, even if progress in market access will only be progressive. This slow pace of opening was advocated by Mexico, as its parts and components producers are unable to reach regional competition standards in the short run.

As a result, Mexican commercial policies towards the sector will progressively be smoothed out over a 5 to 10 years transitory period, ruling out tariffs and non tariffs barriers: Mexican domestic-content requirements will be phased out following a 10 year calendar; trade-surplus requirements ($2 exported for each $1 imported in the sector), are immediately cut down to less than 1 to 1, and will disappear over a ten year transitory period. Quotas are cancelled, while the "producer-rule" that forces sellers to invest locally in production plants will be maintained over the whole transitory period. Finally, the prohibition of used cars imports will be maintained over a longer period.

The rules-of-origin adopted in Chapter 4 of the NAFTA establish a local content of 62.5%[24], compared with 50% in the CAFTA[25]. This means that a vehicle embodying this share of Northern America value-added will be shipped duty-free between all of the NAFTA members. Conversely, a vehicle unable to meet this requirement will face the import duties, which are rather high in Canada, and Mexico, as well as in the United States for trucks or cars reclassified as trucks ("vanettes").

An important point concerns roll-up practices, allowed in the CAFTA, and now abolished. Formally, the roll-up takes into account as 100% "regional", any component

[24] Autos, light trucks, engines, transimissions. 60% otherwise.

[25] In order to be compatible with CAFTA rules, this rules-of-origin will be imposed progressively to firms already operating under the CAFTA rules.

embodying at least 50% of domestic value-added in one of the member countries. To illustrate this loophole, a component whose US value-added is $51 would be accounted for as a component with a $100 local content when shipped to Canada by a Japanese affiliate. If a $80 Japanese component there is then added and the product returns to the United States worth $180, its Japanese value-added would be [(49+80) /(100+80)]=72% although it would fulfil the local content requirement[26]. NAFTA takes into consideration such practices and adjusts its calculation principles in order to avoid them[27].

3.2.2. Potential effects

Lopez de Silanes, Markusen and Rutherford [1994] simulated the sectoral potential effects of these provisions of the NAFTA, for three activities: engines, other components, and assembly. Results reveal a huge impact on the competition between multinational companies operating in North America: a 71% fall of employment for Mexican affiliates of third countries specialised in engines; and a 31% fall for American affiliates, will affect the Mexican automotive industry. This will only be partially offset by a 97% increase of employment in American affiliates assembling in Mexico. At the same time, third countries assembling in Mexico will suffer a 28% decrease of their employment.

These figures have a straightforward explanation, which is twofold :

- the Mexican liberalisation, freeing firms of previous constraints, will boost a reallocation of resources based on comparative advantages in the region: Mexican workers specialising in assembly, and American or Canadian ones in upstream activities;
- the rules-of-origin discriminate between suppliers of intermediate products, opening the way towards less competition and a counter-productive re-allocation of resources.

4. THEORETICAL APPRAISAL

As suggested in the previous section, NAFTA, while unleashing the market on its southern border, raises barriers to inter-regional trade in intermediate goods in a policy cocktail potentially detrimental to the north American consumer, who might pay higher prices, and potentially detrimental to employees of European and Japanese affiliates in north America, who might lose their jobs. On the whole, a 1% decrease of the sectoral output is simulated by Lopez de Silanes, Markusen and Rutherford [1994], compared with a 1% increase without this policy.

Conversely, in a strategic competition context, local content requirements can be imposed (as underlined above) as a response to unfair foreign practices, and/or as a policy shifting rents to the benefit of regional firms (Krishna and Itoh-1986, Richardson -1991 or Lopez de Silanes, Markusen and Rutherford -1993).

[26] [(51+49)/(100+80)]>50%

[27] Formally, foreign components are traced, and one takes into account the real local content they embody.

More generally, firms and countries compete with new strategic tools as far as the splitting up of the production process is technically possible. Spencer and Jones [1991] have asked the question of what kind of a commercial policy is relevant for a country, given the upstream vertical advantage of its domestic firms. Conversely, for a country subject to unfair practices of foreign upstream suppliers, it must be asked what kind of commercial policies are available in order to counter a foreclosure or a squeeze [28]. Referring to the former, Spencer and Jones investigate the case for a tariff on the final product, as a tool able to guarantee vertical supply. An alternative policy will be investigated here, based on local content requirements for foreign firms operating in a regional market.

We use a highly stylistic model of international trade with firms acting in a strategic context, in order to analyse the effects of local content schemes on the one hand, and strategic sourcing decisions on the other hand.

4.1. Three countries, two of them belonging to a "region"

In order to represent a *region* competing with a third country, three countries are needed among which an international, vertical, division of labour is implemented within an imperfect competition framework.

In order to account for factor mobility, a framework will be considered in which the foreign competitor (emanating from a third country) has already established a subsidiary in the region, to the specific benefit from its vertical advantage.

In such a context, it will be seen that the Spencer and Jones tariff on the final good is no longer relevant: the only tool available concerns the rules-of-origin, imposing a local content constraint on the foreign affiliate assembling inside the region.

This policy shifts rents inside the international duopoly. A reciprocal squeeze - each competitor charging higher prices to the external buyer- and (unilateral) dumping complicates the diagnosis of the impact on consumers.

As intuitive reasoning would suggest, it is demonstrated that the final payer is the consumer, inside the region imposing local content rules. The foreign competitor, acting here as a Stackelberg-leader, is not dramatically affected by the combination of all these events, at least as far as its profits are concerned.

A simple theoretical context is proposed (1) before it is applied to free trade (2) versus managed trade regionalism (3).

[28] At this stage the following definitions of the relevant strategies will simply be used, the detailed pricing/procurement strategies being given *infra* :

-foreclosure: in a world of differing conditions of production for a key intermediate product, foreign suppliers can use the choice to supply their competitors or not as a strategic tool. In the latter case, the domestic competitors suffer from a vertical foreclosure. This strategy is obviously particularly relevant for a foreign, vertically integrated, competitor choosing to boost (foreclosure) or lower (vertical supply) its competitors' costs.

-squeeze: in the same way, price discrimination can be implemented, which is detrimental to the external buyer, namely the domestic competitor in our example.

4.1.1. Assumptions

Let us consider three countries : "home" (H) the domestic country, "partner" (P) the second member of the regional agreement, and finally "third" (T) the foreign competitor. It is assumed that the competition in the market for a final homogeneous product is highly imperfect, two firms A and B competing for the world market.

Firm A originates from "home" and B is a multinational company, originating from "third", assembling the final product in the region.

For simplicity, it is assumed that the final product is commercialised in H and T but not in P, where the purchasing power is assumed to be too low.

The final product is the output of a production process split into two stages: upstream and downstream.

Upstream, two intermediate goods (*1* and *2*) are produced in a very simple way (stars for T):

[1] $$C(I_1) = m' I_1 ; C(I_2) = m'' I_2 ; C(\overset{*}{I}_1) = m'^* I_1 ; C(\overset{*}{I}_2) = m''^* I_2$$

It should be noted that P is not an "upstream competitor": intermediate goods are only produced in "home" and in "third", which are countries with high per capita incomes.

Downstream, the two intermediate goods are re-introduced into the production process, and assembled at a fixed cost, a marginal cost -constant-, plus the intermediate inputs.

[2] $$C(Q_i) = C + mQ_i + u'C(I_1) + u''C(I_2) + (1 - u')\,C(\overset{*}{I}_1) + (1 - u'')\,C(\overset{*}{I}_2); \;\; i = A, B$$

where u' and u'' are location-dummies.

The input-output framework is based on intermediate products having explicitly no final use and final products having no intermediate use. Moreover there is no intra-consumption. Finally, α units of *1* and β units of *2* are simply needed to produce one unit of final product. There is neither absolute nor comparative technological advantage at this level: *a* and *b* are given everywhere for everybody. As far as only one final product is taken into account, the two intermediate goods are *de facto* specific to it.

The two firms discriminate in the final product market, namely between the H and T.

4.1.2. Vertical versus horizontal comparative advantage

The literature on trade in intermediate products has established a clear distinction between vertical and horizontal comparative advantage.

In the former case, international differences in costs arise between downstream and upstream activities, leading to trade in intermediate goods. In the latter case in contrast, these differences arise between final products, leading to trade in final products as in the traditional approach to inter-industry trade.

As far as only one product is sold to final consumers in this model, the analysis will concentrate on the first type of advantage: assuming that T bears higher costs downstream, the question of downstream activities must be addressed as an issue only concerning H and P.

In order to have two assembly lines in the region without cost differences between them, it has been assumed either that B is located in P as a result of attraction by regional or national policies, or that P is more efficient while the relocation of downstream activities implies the internalisation costs cancelling the differential of efficiency between H and P[29].

Finally B and A face the same downstream costs, and the competition is transferred upstream. It is considered that B, to the benefit of its original location in T, has an absolute advantage for *2*, this intermediate product being considered as strategic and with which strategic choices are associated. Alternatively, there is no advantage for the production of *1*, A in H and B in T sharing the same costs.

4.1.3. MNEs strategies

What will be the game of this duopoly, producing in three countries and selling final products to two of them?

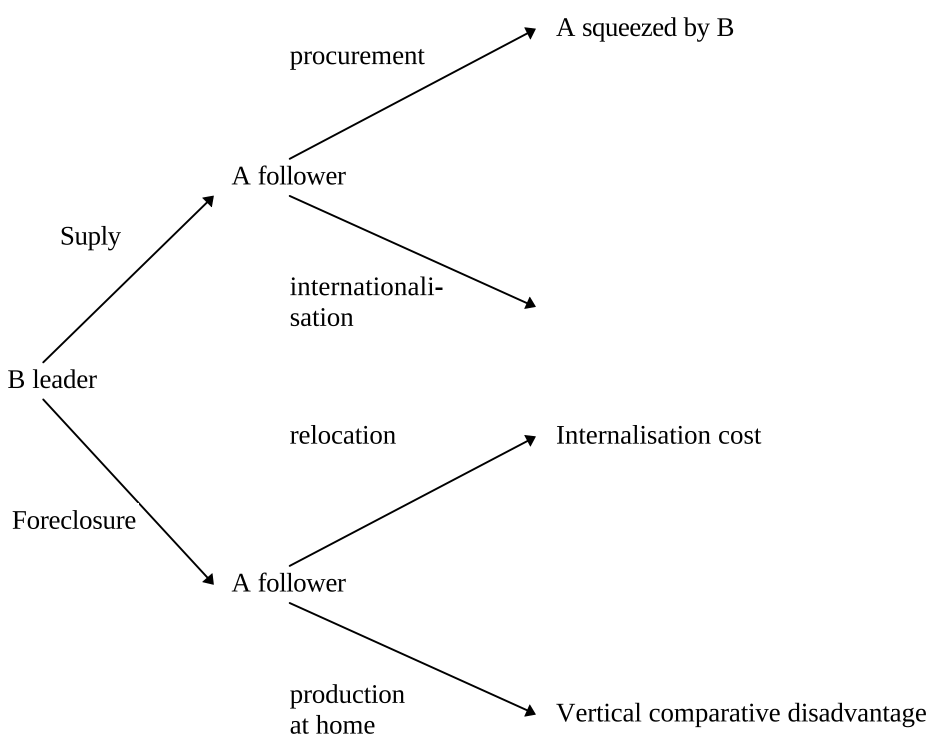
As shown elsewhere, the benefit of an advantage for the strategic component places B in the role of leader, taking its decisions (foreclosure, squeeze, quantities of final product sold on each market) before A, and therefore measuring the consequences of its own decisions.

The follower takes B's decision as given: A can produce *2* at home, import it at conditions defined by B, or relocate its production of *2* in T, in order to capture the comparative advantage. But in the latter case A will produce in T at a higher cost than B, due either to internalisation costs associated with the relocation, or to a firm-specific advantage of B.

With each player maximising its profit, it is necessary to find the optimal strategies, calculate the country's external imbalances, namely the effective and apparent trade balances, and consider the price finally paid by the consumer. A numerical solution (see appendix) illustrates the main results of the model, but these results are established on an analytical basis, and are therefore unconditional to parameter values.

[29] Similary Davidson *et al.* charge a prohibitive tariff on final imports in order to justify the assembly in the region by a foreign multinational. In any case, as far as we are not concerned by trade in final products *per se* but rather on trade in intermediate goods, our assumption is perfectly acceptable.

Figure: the game



4.2. Free trade

4.2.1. Traditional results

Recent developments[30] analyse trade in intermediate goods as the result of either a vertical comparative advantage or a differentiation. In each case a new gain of international trade is added to the efficiency gains traditionally associated with specialisation, understood as a "specific gain of process split up".

In this renewed perspective of specialisation, it is more efficient to split up the process and to specialise affiliates in component production or in assembly, rather than carrying out all the processes in each country.

If the costs of production for A are compared using a vertical *versus* horizontal division of labour, this specific gain G is given by the unit input in *2*, and the unit cost difference between the two alternative locations. The relationship between G and the

[30] See for example Sanyal (1983), Lassudrie-Duchêne (1985), Fontagné (1991-b).

unit input for the importable intermediate good has often been referred to in the literature on effective protection. But now, this basic relationship faces microeconomic strategies which disconnect cost conditions from the effective availability of the intermediate good on the world market, and moreover from the price paid for it when available.

[3] $$G = \beta(m''-m''*)$$

More explicitly, in as far as A captures this specific gain in a perfect competition context, B has a clear motivation to use its market power in order to shift this gain to its own benefit.

4.2.2. Strategic game

Jones and Spencer (1989) have demonstrated that a country can impose a strategic, negative, protection to its commercial partner, by inflating its intermediate export prices by a tariff. One can interpret this as a strategic negative protection imposed on the commercial partner[31]. In the same way, B will try to boost its profits through the choice between foreclosure and squeeze.

When choosing the *foreclosure*, the leader leads the follower to produce *2*. The latter has therefore to compare the internalisation costs (r), associated with the relocation, with the comparative vertical disadvantage of H [32].

When the latter is relatively high, A chooses to locate the production of *2* in T, such that:

[4] $$\begin{aligned} Q_A &= Q_A* = \left[z - m'' * \beta(1+2r)\right] / 3b \\ Q_b &= Q_A* = \left[z - m''\beta * (1+2r)\right] / 3b \\ P &= P* = \left[a + 2m + m'\alpha) + m'' * \beta(2+r)\right] / 3 \\ z &= a - m - m'\alpha \end{aligned}$$

As [4] illustrates, the initial location advantage gives B a higher market share at the world level: the leader sells more on each market.

H exports and imports the final good: there is an intra-industry-trade of the final good. But as the national deficit on the final product is increased by imports of *2* (internalised to A), H has a strong trade imbalance. In other words, the import content of H exports is high, while H has a net apparent deficit in its intra-industry trade for this product. Note that this intra-industry trade is not bilateral since P exports the final product to H (and to T) whereas H exports it to T. Finally T exports the two intermediate goods to P (flows internalised to B) and the good *2* (internalised to A) to H.

[31] Cf. Fontagné (1991-b).

[32] Given by $d \equiv \dfrac{m''-m''*}{m''*}$.

In contrast, when the comparative vertical disadvantage of H for the good *2* is low, A chooses to produce the latter at home. One gets:

$$
[5] \qquad \begin{aligned}
Q_A &= Q_A^* = [z + \beta(m''^* - 2m'')] / 3b \\
Q_B &= Q_B^* = [z + \beta(m'' - 2m''^*)] / 3b \\
P &= P^* = [a + 2(m + m'\alpha) + \beta(m''^* + m'')] / 3
\end{aligned}
$$

This strategy *increases* the apparent domestic trade imbalance, contrary to the intuition, whereas it cuts the effective imbalance.

The second part of the alternative is for the leader to *squeeze* B: profits are higher for B *and* for A in this case. Effectively, such a strategy is sustainable under the condition $SB<r$ where SB accounts for the unit squeeze. A result similar to [4] is obtained by replacing r with SB. Under this constraint, this strategy Pareto-dominates the foreclosure, which is an interesting result and leads to decreasing expectations of unfair practices of this type.

B records a profit increase due to the squeeze, while its profit simultaneously decreases as the market share of A *increases* in a market where prices are driven down.

Globally consumers and firms are better off. But the price to pay for it is a huge increase in "home's" trade imbalance: H, from a public policy point of view, may prefer a relocation abroad of the upstream activity (intermediate good *2*) of its domestic firm . But as far as the squeeze has been decided by the leader in the first part of the game, this eventual preference has no practical consequence. Through the strategy of B, a disappearance of activities of the domestic firm is imposed on H, not a relocation. B now controls all the output of good *2*.

Facing unfair practices of B, H has a clear motivation for implementing a commercial policy that seeks to counteract this detrimental result on its external accounts. An element of complexity must nevertheless be taken into account : H is not alone when choosing to impose a local content, as P will be concerned it while gaining from the presence of the B affiliate, assembling locally to re-export to H and T.

4.3. Managed trade: the rationale for local content

Once again, any rule adopted by H must be accepted by P. It means that a policy reducing the domestic trade imbalance must not be detrimental to the less developed partner, the latter being clearly in favour of free trade: as P is the location of the B's affiliate in the region, P has nothing to gain from a policy detrimental to B, but must at the same time preserve free access for its final products sold to H.

4.3.1. A commercial policy directed towards middle-products

Clearly, a commercial policy directed towards trade in final products is no longer relevant, contrary to the implementation of a rules-of-origin regime for products sold in the region. The latter implies a local content [33] for products assembled by the B's

[33] Krishna and Itoh (1986), Davidson *et al.* (1987) and Richardson (1991) introduce local content provisions in oligopolies with only one intermediate.

affiliate in P.

Different types of local contents are used in practice. For the limited purpose of this paper, a content *C* expressed in % of the value of intermediate consumption incorporated in the final product is used.

The comparative advantage of the countries in the region is now a relevant topic when trying to fulfil this new constraint at the lower cost. As P is disadvantaged for both intermediate goods and H disadvantaged only for the good *2*, it is rational to buy *1* in the region, and in H. But this procurement is limited to products sold in the region. When B re-exports from P to its market of origin, the local content is no more binding, and B will therefore import *1* from its domestic production unit. Therefore, B will incorporate *c*% of its intermediate consumption of *1* when producing in P for the regional market.

For H the benefit is obvious: this policy reduces B's market power in the region, to the benefit of the domestic firm A. At the same time, "home" will export *1* to P as a result of the local content, reducing its trade imbalance. Last but not least, A is now in the same position as B, regarding its market power in intermediate goods: B must import a part of its intermediate goods from H and has no production unit there, as in free trade this location has no cost advantage over T. But relocating part of its production of *1* in H carries a cost for B, which sees its production costs inflated by the cost of internalisation when investing abroad. Another possibility for B is to buy *1* to its competitor, which is a solution without internalisation costs. But in the latter case, A will obviously adopt a strategic behaviour, squeezing B as a response (*SA*) to the squeeze already imposed by B on the procurement of good *2*.

A is clearly constrained by the level of *r* when choosing *SA*, and A will prefer the squeeze to foreclosure, for the reasons referred to above for B's symmetric decision.

B will finally incorporate a fraction *c* $(0 < c \leq 1)$ of its intermediate consumption of *1*, reaching a local content *C* given by [6].

$$[6] \qquad C = cm'(1+S_A)\alpha\left[cm'(1+S_A)\alpha + (1-c)m'\alpha + m''^*\right]^{-1}$$

As the two firms discriminate in markets, only the "home's" final product market may be considered, without loss of generality. The combination of the local content and the squeeze by A induces a reduction of B's sales in H. Symmetrically A increases its domestic sales (see [7]). Clearly, this policy does not affect the positions in T's market, each firm selling the same quantities at the same price as before.

4.3.2. Potential effects

The final domestic product price increases by $m'acS_A / 3$. This difference is the price paid by the consumer in order to protect domestic upstream activities. This differential between the managed trade and the free trade price increases with the local content on the one hand, and with the unit input for the intermediate good concerned on the other hand.

$$[7]\quad \begin{aligned} Q_A &= \left[a - m - m'\alpha(1 - cS_A) - m''*\beta(1 + 2S_B)\right] / 3b \\ Q_B &= \left[a - m - m'\alpha(1 + 2cS_A) - m''*\beta(1 - S_B)\right] / 3b \\ P &= \left[a + 2(m + m'\alpha) + m'\alpha c S_A + m''*\beta(2 + S_B)\right] / 3 \end{aligned}$$

A sells at a lower price in T than on its domestic market, which means dumping, which is not reciprocal.

The profits of the domestic firm increase, while a part of B's rent is shifted [34] as a result of the local content scheme. But the rents of A increase by more than the decrease of those of B, as the price paid by the consumer increases.

H cuts its apparent *and* effective trade imbalances.

These results do not match traditional conclusions of the effective protection theory, which is not surprising given the imperfect competition framework examined here. As far as a local content scheme must be interpreted in terms of negative effective protection, the theory would suggest a detrimental impact on the domestic economy, contrary to our results: the protected industry increases its output and A boosts its profit, while H reduces trade imbalances.

Finally, what about P ? The production of the foreign affiliate decreases; as a result, *ceteris paribus*, intermediate imports, from T and from P, decrease. But rules-of-origin impose a substitution of *1* imported from H, at a higher cost due to the squeeze, relative to previous imports from T. This substitution is clearly trade diverting. The subsidiary uses smaller amounts of more expensive intermediate products. P exports less to H in volume, but at a higher price. It imports less from T, but imports from H, the latter flow being a novelty. Finally, the trade balance is smoothly affected in P [35].

On the whole, rules-of-origin are slightly detrimental to the assembling country of the region, while the country initiating this policy shifts rents from the third country to the benefit of its national firm. The price of this policy is paid by the consumer, who buys less, at a higher price.

[34] Lopez de Silanes and al. (1993) reach the same result, but with a foreign firm assembling in the economy imposing the local content.

[35] More precisely, the global effect for P is a slight cut in the value of both imports (-0.20%) and exports (-1.86%): the decrease in global trade surplus finally reaches 3.17%.

CONCLUSION

NAFTA raises original questions related to trade policy, since it is an original experience of FTA between countries at different level of development. In sensitive sectors, where globalisation is deep, or where the potential effects on labour markets are high, it has been necessary to implement rules smoothing the predictable reallocation of resources.

Rules-of-origin, which imply a certain level of regional content in intermediate products, act as a effective counter-protection, raising the price paid by producers for components. From the viewpoint of competition, this policy would be highly detrimental to the region, affecting output and welfare. But the rationale for it has to be revisited in an imperfect competition framework, where local content can be viewed as a response to unfair practices of foreign firms on the one hand, and as a tool to shift rents detrimental to them on the other hand.

The argument opposing regionalisation and multilateralisation are not incompatible: since each trade diversion associated with the former induces a new round of the latter, as a compensation. World trade liberalisation thus "walks on two legs" at a slightly regular pace.

After a review of what has been decided in the NAFTA agreement, the rationale for this kind of commercial policy has been demonstrated rationally, using a three countries world-two countries region model. Notwithstanding the highly stylised character of this construction, the role of competition in intermediate products has been underlined, when production processes can be split. At the same time, regional content schemes appear to reach the objectives they are designed for: they magnify the discriminatory principles of regionalisation. But the cost of this misallocation of resources is partially paid by the final consumer in the region, who could prefer a combination of free trade with competition policies pursuing unfair practices. As is often the case, trade policy appears to be a second best policy: it illustrates why economists remain "free-traders" (Krugman-1993), despite a burgeoning literature on strategic trade policy.

These highly stylistic proofs of the potential for discriminatory practices associated with the implementation of the NAFTA suggest that a new round of multilateralisation is now necessary, following the traditional sequence referred to above. It could be undertaken to the benefit of the NTAM initiative, aiming at softening the detrimental effects of trade diversion entailed in NAFTA's seminal rules.

As far as the EU has corrected for the diversion associated with the last enlargement to 15 members, nothing hinders further progress on this topic in the near future. It is therefore the responsability of European negotiators to detect this loophole in trade liberalisation and to initiate a discussion on it.

APPENDIX: NUMERICAL SIMULATION

Parameters values: a=10; b=0,03; m=2; m'=2,5; m"=5; m*=2; m'*=2,5; m*"=3,5; r=0,25; SB=0,2; SA=0,2; α=0,5; β=0,5; c=50; local content: C=15% in value imposed on B, as a result of the rules-of-origin, to integrate c=48,75% of H products in its intermediate consumption value of good *1* when producing for the region.

All results are obtained by maximising profit in a discriminating Cournot duopoly.

		trade in final products only	trade in intermediate goods B squeezes A	local content scheme reciprocal squeeze	B forecloses A without local content (dominated strategy)
World Market	A	0,378	0,446	0,455	(0,431)
Shares	B	0,622	0,554	0,545	(0,569)
Domestic	Price	6,917	6,783	6,824	(6,813)
Economy (H)	apparent trade imbalance	-172,917	-79,139	-63,072	(-99,349)
	effective trade imbalance	-172,917	-279,806	-225,094	(-259,766)
Total	A	40,741	86,963	97,815	(76,042)
Profit	B	194,907	195,463	186,971	(169,010)

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