NBER WORKING PAPER SERIES

FREE TRADE AGREEMENTS AS PROTECTIONIST DEVICES: RULES OF ORIGIN

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Working Paper No. 4352

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
April 1993

The author is indebted to Martin Bronfenbrenner, Peter Dohlman, Ömer Gokcekus, Bernard Hoekman, Kala Krishna, Richard Snape and members of the International Economics Workshop at Duke for helpful comments on an early version of this paper. This paper is part of NBER's research program in International Trade and Investment. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research.

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ABSTRACT

In this paper it is argued that there is an important protectionist bias inherent in free trade agreements which is not present in custom unions. In any customs union or free trade agreement, one of the critical issues concerns "rules of origin." In a free trade agreement rules of origin have an important function because, without one, each imported commodity would enter through the country with the lowest tariff on each commodity. The criterion for duty-free treatment is important in determining the economic effects of the rule of origin. It is shown that rules of origin in fact extend the protection accorded by each country to producers in other free trade agreement member countries. As such, rules of origin can constitute a source of bias toward economic inefficiency in free trade agreements in a way they cannot do with customs unions.

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Until recently, little attention was paid to free trade agreements (FTAs), and most theory regarding preferential trading arrangements focussed on customs unions (CUs). With the recent negotiation of the NAFTA treaty, however, attention is turning to FTAs. Most analysts have regarded FTAs as being little different in their trade effects from CUs, and the NAFTA has mostly been analyzed in the traditional CU framework. For example, it has been argued that the U.S.-Mexican FTA is probably "natural" and hence likely to be trade creating, increasing economic efficiency[1] and thus enhancing welfare.[2]

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[1] Throughout, economic efficiency will be used to describe the relationship between marginal rates in domestic production in trade in value added terms. A situation will be regarded as economically more efficient when resources are combined in ways that produce greater value added evaluated at international prices. It is well known that IVA is maximized, and hence the economy economically most efficient, when the international marginal rates of transformation (IMRTs) (which equals international price ratios in the absence of monopoly power in trade) among commodities equal the domestic marginal rates of transformation (DMRTs). However, welfare also increases when consumers are enabled to attain larger consumption bundles. It is well known that one might have a customs union where the divergence between the IMRT and DMRT increased, but consumer welfare improved because of lower post-FTA prices. For that reason, it is important to distinguish between economic efficiency and economic welfare. If economic efficiency increases, welfare must increase. If efficiency decreases, welfare could either increase or decrease.

It is the purpose of this paper to argue that there is an important protectionist bias inherent in FTAs which is not present in CUs. To make the case, it is first necessary to sketch the traditional analysis of the welfare effects of CUs and FTAs. Thereafter, attention turns to the fact that external tariffs differ among countries in FTAs, and that rules of origin (ROOs) can therefore can automatically extend the protection of one trading partner to another FTA member. A straightforward model of incentives under an FTA is then presented, along with an arithmetic example of "exported protection" via an FTA.

Conventional wisdom has been that a country can avoid the potential trade-diversion losses of an FTA if it has very low, or no, trade barriers when it enters into an FTA. Examination of the implications of ROOS, however, suggests that not only must a country's trade barriers be low, but so also must its partner's, to insure that these costs are avoided. A final section then considers some aspects of the political economy of FTAs and of protection via ROOs.

1. Traditional CU-FTA Theory

It has long been recognized that the net welfare effects of customs unions and free trade areas

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[2]See Summers (1991) for an application of this analysis to the proposed Western Hemisphere Free Trade Agreement (WHFTA).

are ambiguous. To analyze the problem of the welfare effects of CU, theorists have abstracted from the question of changes in the effects of average protection relative to excluded countries by assuming that a CU is formed among countries which then set a common external tariff equal, in some sense, to the average tariff in place in the individual countries pre-union.

Under those assumptions, a CU could be trade creating or trade diverting. Trade creation would take place when producers in member countries reduced the output of their industries previously protected against imports from CU partners and the rest of the world, and instead imported from lower-cost member countries. Trade diversion would occur when countries replaced imports from low-cost non-member countries with higher-cost production from member countries.[3]

When trade creation predominates sufficiently, there is a strong presumption that welfare of the member country or countries for which trade is "created" will improve. This is because the "created"

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[3]The classic analysis is by Lipsey (1960). There is considerable evidence emerging in developing countries that increased competition subsequent to trade liberalization may result in increases in X-efficiency. That can surely happen as well subsequent to the formation of CUs and FTAs, but if ROOs do increase protection to some industries, there is no increase in competition in those cases, and the issue is therefore not pertinent to the analysis in this paper.

trade shifts production from the higher-cost home country to the lower-cost partner country.[4] When trade diversion dominates for a given country, there is a presumption of welfare loss for the country in question, as the country shifts from low-cost sources of imports in the rest of the world to sourcing its imports from its partner country, whose production is protected by the external tariff. Unless consumption gains from the arrangement are large enough (because of lower prices to consumers) to offset the trade diversion effects, trade diversion leads to a welfare loss to the importing country.

To be sure, trade diversion could represent a welfare loss for one CU/FTA country and a welfare gain for another. An assessment of overall welfare effects for individual members of the CU could require a weighting of trade diversion, trade creation, and consumption effects, as well as the effects of any terms of trade gain achieved by the trading partners vis-a-vis the rest of the world.[5]

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[4]If the partner's costs are nonetheless above costs in the rest of the world, the gain to the home country would be even greater if it liberalized multilaterally.

[5]Kemp and Wan (1976) have shown that it is always possible for a pattern of tariffs to be established post-union which would insure at least the same level of imports and exports from the CU with the rest of the world; in that case, the CU would clearly be

The general view has been that CUs and FTAs are equivalent in these effects: that while CUs differ from FTAs in having a common external tariff, the trade diversion and trade creation effects can be analyzed in similar fashion. Because countries retain their pre-existing external tariffs in the case of FTAs, however, it was not thought necessary to assume that the average tariff remained the same after CU as before: since no tariff was changed, it was assumed that that happened. Moreover, that implied that a country that itself practiced free trade could only benefit from forming an FTA with another country: it would gain access to the other country's markets and pay no costs, since its zero tariffs would lead producers to choose the low-cost source.

2. Rules of Origin and the Average Height of Tariffs[6]

In any CU or FTA negotiation, one of the critical issues concerns "rules of origin" (ROO). The ROOs specify a criterion, or criteria, under which commodities imported by one CU or FTA partner will be

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trade-creating.

[6]The considerations discussed here are relevant for Canada, the U.S. and Mexico. However, the argument that much support for the FTA with Mexico is protectionist in intent is based on the Mexican case. Hence, to simplify discussion, only the ramifications of U.S.-Mexican trading relations are considered here.

deemed to have originated from within the CU or FTA and thus be eligible for duty-free treatment.

For a CU, ROOs determine eligibility for duty-free entry from the partner; the tariff is common to members.[7] In an FTA, however, ROOs have an important additional function. Without a ROO, each imported commodity would enter through the country with the lowest tariff on each commodity. If the rule were simply that some value should have been added in the country of origin, anything - the addition of a label, the final assembly or even the painting of a product - would qualify an item for duty-free entry to the other country.

The criteria adopted in ROOs can take a variety of forms. One simple and frequently-used ROO is that, in order to qualify as originating in the partner country, the item must change tariff classifications.

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[7] The European Community, for example, has protected its semiconductor industry by determining that origin is assigned to the country where "a product has been wholly obtained or where it has undergone its last substantial working or processing". It then defined the "last substantial processing" to have taken place with diffusion. Diffusion, however, is such an early stage that it is not technically feasible to initiate fabrication in any place other than where diffusion is performed. The net impact was that non-EC producers had to invest in fabrication facilities within the EC to avoid border duties. See Official Journal of the European Community, Vol. 32, February, 1989, P. 23.

Another is that the item must have undergone "substantial transformation". Yet another is that a specified percentage of the commodity's sales price must consist of value added in the partner country. A fourth ROO specifies a percentage of purchased parts and components that must be purchased from CU or FTA members.

The criterion for duty-free treatment is important in determining the economic effects of the ROO. The incentives provided to producers hoping to export to their trading partners obviously vary with the ROO as well as with the structure of tariffs: if materials, but not labor, are counted in establishing origin, there is an incentive to substitute materials. If domestic labor, but not capital, is included in the calculation, the incentive to substitute labor for capital is evidently present.

Even in these relatively simple cases, further elaboration of the ROO is needed. When the ROO is stated in terms of fraction of parts and components, for example, the question then is shifted back one step to determining how much domestic value added there must be in a given part or component for it to count as domestic.[8] When domestic value added is the criterion, the precise criterion for attributing

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[8]This was the issue in the now-famous Honda case where the U.S. challenged the eligibility of Canadian-produced Hondas to quality for duty-free treatment into the American market.

capital costs must be specified.[9] Even accounting practices for allocating joint costs must be agreed upon.

Until negotiation of the NAFTA agreement, the United States used the percentage of domestic value added as its criterion for duty-exempt eligibility under the U.S.-Canada FTA, but counted only labor costs, and not any imputed capital costs.[10]

ROOs agreed upon in forming an FTA in fact extend the protection accorded by each country to producers in other FTA member countries. As such, ROOs can constitute a source of bias toward economic inefficiency in FTAs in a way they cannot do with

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[9] Under NAFTA, it has evidently been agreed that a part or component that is more than 50 percent domestic value added will be counted as domestic value added, and interest costs on machinery used in production will also constitute domestic value added.

[10] How rules of origin are actually administered may also affect their protective content. If, for example, the U.S. authorities take the average value added within the FTA over all a firm's output of a product in question, there could even be a reduction in earlier Mexican exports to third countries as it was no longer profitable to export when purchasing intermediate goods from the U.S. It is reported that EFTA producers appear willing to pay duties averaging at least six percent of price in order to avoid the paperwork needed to establish origin. See Hoekman and Leidy (1992b), p. 19.

customs union.[11] Moreover, a country with a zero-tariff level pre-FTA could find its producers post-FTA diverting their imports from low-cost third-country sources to the partner country in order to be eligible for FTA treatment of their exports to the partner country. ROOs governing treatment of Mexico's exports to the United States, for example, can induce efficient Mexican producers to shift their imports from low-cost third country suppliers to higher-cost United States sources, EVEN IF THERE ARE NO MEXICAN TARIFFS ON THE IMPORTS OF THOSE COMMODITIES.[12]

The United States can, at least in theory, therefore use an FTA agreement to gain protection for its industries in Mexican markets! Rather than inducing Mexican firms to switch to U.S. tariff-free sources because they are then cheaper than low-cost but tariff ridden world sources - the traditional trade diversion case - an FTA could induce Mexican producers to shift their purchases of intermediate inputs knowingly from a low-cost world supplier to a higher cost U.S. supplier in order to qualify for

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[11]Rules of origin are also present in customs union and can, of course, bias production decisions. But since external tariffs are similar across countries, they cannot generate the sort of bias discussed here. They then become equivalent to domestic content requirements. See Grossman (1981) for an analysis.

[12]This could not happen in the case of a customs union because the external tariff would be common.

duty-free importation of the final product into the U.S. market. Additional Mexican imports to the U.S. might be incorrectly regarded as trade-creating when in fact they would result from the protection in U.S. tariffs being extended to Mexican products entering the U.S. An FTA can also induce the development of production facilities in an FTA partner, even when the partner's own external tariff would make such facilities uneconomic.

ROOs can thus provide protection to one country's higher cost producers in another country's markets even when the latter's tariff structure, when taken by itself, results in imports from the rest of the world being lower cost.

3. Profit-Maximizing Behavior under ROOs

Customs unions have rules of origin[13] but when there is an FTA, the issue is especially important

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[13]However, the phenomenon noted here, i.e. the ability of a rule of origin to make it profitable to switch from a lower-cost source to a higher-cost source, could not happen under a customs union because the external tariff rates would be common to both countries. While a Mexican producer might therefore find himself with higher input costs after a customs union than before, any shift to a U.S. source would be the normal trade diversion variety. Under an FTA, it is the difference in tariff rates, combined with the rule of origin, that gives rise to the possibility of a profitable shift to a source which is higher-cost to the buyer.

because, by definition, external tariffs differ between partner countries. A ROO may make it profitable to establish production facilities in Mexico, even though at pre-existing Mexican tariff rates such facilities are uneconomic. Alternatively, it may pay Mexican producers to pay more for some or all of their intermediate goods from higher-priced U.S. sources than to pay less to lower-cost world sources. The choice will clearly depend on relative costs in Mexico and the U.S., and analysis is straightforward.

The interesting case is when the U.S. has a significant cost advantage relative to Mexico but a cost disadvantage vis-a-vis the rest of the world in an intermediate commodity, and is able implicitly to extend her tariffs (or other protective devices) to the Mexican market through a ROO. The exact specification of the ROO was one of the last sticking points of the NAFTA agreement.[14] In those negotiations, the United States was supporting a more stringent ROO while Canada and Mexico were in favor of a lower percentage and a broader definition. It therefore seems evident that the United States was indeed attempting to provide protection to some U.S. producers in the Mexican market, thus "exporting" American protection despite low Mexican tariff rates.

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[14]The Chapter on ROOs of the NAFTA was 193 pages long in the draft of September 6, 1992.

This can readily be seen. Profit-maximizing producers of cloth in Mexico choose f, the fraction of textiles purchased from the U.S., to maximize

$$\pi_m = P^c_{us} - P^x_{us} f y - P^x_w (1-f) y \qquad (1)$$

where p is price

t is the tariff rate (or tariff equivalent)

w and us subscripts denote the world and the U.S.

c, x superscripts denote clothing and textiles

f = fraction of textiles purchased from U.S. sources

y = international value of textiles purchased per dollar of clothing at international prices ($y < 1$)

r = rule of origin stated as a proportion of sale price of clothing

$$P^x_{us} = (1+t^x_{us}) P^x_w$$

$$P^c_{us} = 1 \text{ if } P^c_{us} - P^x_w (1-f) y < r$$

$$P^c_{us} = 1 + t^c_{us} \text{ if } P^c_{us} - P^x_w (1-f) y \geq r$$

The world price of textiles, P^x_w, can be used as a numeraire and set equal to one. Then, it is evident that producers in the FTA partner country will choose to satisfy the rule of origin whenever

$$1 + t^c_{us} - (1+t^x_{us}) fy > 1-fy \qquad (2)$$

But the left-hand side of equation (2) is nothing other than the protection to domestic value added in the United States; while the right hand side is value added per unit of cloth output at international prices. Dividing through by the right hand side yields:

$$\frac{1 + t_{us}^{c} - (1 + t_{us}^{x}) fy}{1 - y} > 0 \qquad (3)$$

which is the criterion for positive effective protection in the United States.

The higher the effective rate of protection in the United States for a given commodity, the more it will pay Mexican producers to buy intermediate goods from U.S. sources despite lower foreign (Mexican tariff-inclusive) prices. To be sure, as Mexican producers increase their sales in the U.S., the price of their export in the U.S. will fall while the marginal cost of production in Mexico will rise. An equilibrium eventually will be reached in which the ex-ante profits are eliminated, but it may well be an equilibrium in which Mexican producers continue to buy from U.S. sources to enable them to sell at tariff-inclusive prices.

This result can be illustrated with an arithmetic example. It is assumed that the United States is exporting its protection on intermediate goods to Mexico, although a similar example could readily be constructed for Mexico to be doing the same

thing: indeed, it is possible that rules of origin in an FTA could export protection in some markets in each country to the other country. Table 1 gives some hypothetical numbers for Mexican and U.S. tariffs and inputs of intermediates before and after an FTA comes into effect.

The assumptions are all listed at the top of Table 1. It is assumed that the ROO is set in terms of a percentage of purchased parts and components. To assume a value added criterion would complicate the example needlessly, but the principle would remain unaltered.

It is assumed that, pre-FTA, Mexico imports all components duty-free from the rest of the world (ROW) at international prices, and assembles autos, using $600 of components (valued at either world or domestic prices) to make an auto. In the United States, automobiles are subject to a 50 percent tariff, while brakes and motors are subject to 40 percent nominal tariff and tires and batteries 50 percent. This gives rise to a 61.25 percent effective rate of protection for American automobile manufacturers: they must pay $855 for their components, or 42.5 percent more than the world price but they receive 1.5 times the world price for their output.

After the formation of an FTA, Mexican producers have two choices. On one hand, they can continue to buy all their inputs in the world market; if they do so, they do not meet the ROO. Hence their product is

subject to a 50 percent duty on entry into the U.S, and they receive $1000 per auto exported. On the other hand, they can shift from purchasing components from the ROW to purchasing enough of them in the U.S. to meet the ROO.

The right hand side of table 1 shows ex-ante profits from shifting components purchases from ROW to the U.S. in response to a ROO of 80 percent. At that ROO, Mexicans auto assemblers could sell in the U.S. market at $1,500 buying motors and brakes from the U.S. at prices 40 percent above that of their foreign suppliers. That would meet the ROO, even though batteries and tires (with a 50 percent duty) were still purchased abroad. At a 90 percent ROO, tires purchases would be shifted toward FTA-member origin. And, at 100 per cent ROO, it would pay Mexican producers to purchase all components in the U.S. in order to be eligible for duty-exemption on auto exports to the U.S.

To see how a higher rule of origin is more protective, note that an 80 percent ROO extends the 40 percent nominal rate of protection to the Mexican market, but leaves batteries and tires unprotected. With a 90 percent ROO, tires are subject to 50 percent nominal protection in Mexico as well as in the U.S. Clearly also, a higher rate of protection on intermediate goods, or a lower nominal rate of protection on the final commodity in the U.S. market would be consistent with inducing Mexican producers to

shift from world sources to higher-cost (to them, as well as to the country) U.S. sources.

Rules of origin can have similar effects even if there is positive effective protection in Mexico prior to the FTA, provided that the Mexican price of the final good is below the U.S. price pre-FTA.

If one ex-ante attempted to assess the trade creation and trade diversion aspects of the FTA with respect to textiles and clothing, from a U.S. perspective, there would appear to have been trade creation as Mexican exports of clothing to the U.S. increased. From a Mexican perspective, there might appear to have been trade creation if total imports of textiles increased (because the volume of clothing production increased as exports to the U.S. expanded) or trade diversion (despite the absence of an external tariff).

More generally, producers of a final good in an FTA would find it advantageous to purchase higher-cost (protected) inputs from other FTA members than to purchase from lower cost ROW sources whenever: 1) the effective rate of protection in the partner country was greater than in the home country; and 2) the rule of origin would not be satisfied without such purchases.

4. How Protectionist is the NAFTA?

It has often been argued that such a high fraction of Mexico's trade is with the United States

that Mexico is bound to gain by an FTA. That judgment may well be correct. But there are some indications that American intent was to secure as much advantage for U.S. producers in the Mexican market as possible. One piece of evidence is the report that American negotiators evidently tried to insist that Mexico not lower her tariff structure any further from its present average of about 9 percent.[15] The higher are Mexican tariffs, the more advantage U.S. firms have relative to foreign competitors in the Mexican market, and the more trade diversion is likely to occur.

But ROOs were also a major issue in the negotiations. The full text of the NAFTA agreement has not yet been made public, but enough details are known to be suggestive. In at least two key sectors, ROOs are clearly important and were a major point of contention until the final hours of negotiations. First, for automobiles and parts, the ROO was set at 62.5 percent, a number which will be reached gradually over eight years starting at 50 percent (the number in the U.S. Canada Agreement[16]) when the pact goes into

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[15]Financial Times, June 9, 1992, P. 14.

[16]To see how important administration can be, the United States is reported to have achieved the 62.5 percent rule, but to have conceded on how it is calculated. The full cost of processing materials, and interest costs on machinery and equipment had not been counted as part of domestic value added under the earlier U.S.-Canada interpretation and would be under the new ruling. This, in effect, would mean that Honda

effect.[17] Both Mexico and Canada had attempted to bargain for lower numbers.[18] Expectations evidently are that Volkswagen will locate more operations in Mexico in order to comply with the requirement, while Japanese firms will have greater difficulty in meeting it, and potential new Mexican producers will be greatly discouraged from entry.[19] It is noteworthy that Canada agreed to the higher ROO only after the United States accepted a revision of the way in which FTA value added is calculated: the U.S. agreed to include interest and other capital costs, as well as labor costs.[20]

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had met the 50 percent FTA origin rule and would not be liable for duties, as it would have been had the old U.S. formula continued to prevail. New York Times, August 15, 1992, P. 26.

[17] New York Times, August 13, 1992, p. C3. The ROO for new contracts is somewhat more restrictive. See Hufbauer and Schott (1992) for a discussion.

[18] See Financial Times, July 24, 1992, P.4.

[19] Financial Times, June 18, 1992, P. 6.

[20] The Honda dispute with Canada was over interpretation of rules of origin. The U.S. Customs Department "found that the engine blocks, produced in Marysville, Ohio, and exported to Canada for re-export to the U.S., did not contain sufficient North American content." It was further reported that Canadian and American authorities were still in disagreement over what constituted domestic content. See Financial Times, March 3, 1992.

In textiles and clothing, as well, ROOs were an important issue. There, the agreement calls for duty-free treatment of Mexican garments only if the yarn is made, the cloth woven, and all cutting and sewing is done in North America.[21]

To be sure, there are other sectors of the American economy that will be opened, at least to some degree, as a result of the NAFTA agreement. U.S. restrictions on Mexican fruit and vegetables appear to have been relaxed considerably, and that will almost certainly result in trade creation. Financial liberalization, tariff reductions, and other measures will also move in that direction.

Overall, however, it is clear that there are some fairly strong measures designed to provide protection to U.S. producers in the NAFTA agreement. Despite Mexico's position as a "natural" trading partner, one must question the extent to which the NAFTA is truly a step toward a more open, multilateral trading system, or whether it is a step toward greater U.S. protectionism encompassing not only the United States but all of North America.

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[21]New York Times, Aug. 13, 1992, P. C3. Canada evidently won a partial exemption from this "bottoms up" rule for clothing.

5. What is the Political Economy of Rules of Origin?

There remains a political economy puzzle. That is, conventional wisdom is that tariffs are escalated, with higher nominal rates of protection of final commodities than of intermediate goods, and higher nominal rates on intermediate goods than on raw materials. Yet, at first sight it would appear that the chief gainers in the United States from ROOs would be U.S. producers of intermediate goods. Why should U.S. producers of final products, such as automobiles, be "gleeful"[22] at higher ROOs for eligibility for entry into the U.S. market? For that matter, why was it widely believed that a higher ROO would exclude Japanese automobile producers, such as Nissan, from the U.S. market?

The answer must lie, at least in part, in production relations, and the ways in which parts and components must be "designed in" to final products. To the extent that Nissan, for example, is designed with specifications of Japanese parts and components, an attempt to shift to a Mexican, Canadian, or U.S. supplier would involve the start-up of a new production facility. Such a facility may not be able to produce at the same costs as are incurred in Japan; moreover, if there is monopolistic competition, and fixed costs to be covered in the production of parts and components, the North American market for Nissan

[22]Financial Times, August 18, 1992, P. 4.

autos may not be large enough to permit profitably averaging fixed costs and still be profitable. If any of these speculations are correct, the ROO does protect producers of the final product in avoiding competition from those with access to cheaper intermediate goods. The price to the final producers of receiving that protection, however, is that they must share part of it with producers of intermediate goods in the FTA.[23]

As producers of final commodities avoid some competition and receive protection, they are presumably willing to pay higher prices for purchased inputs to continue to enjoy that protection. Once that is recognized, a rule of origin may be a device through which producers of final goods and those of intermediate goods can be induced to support an FTA. If so, then the political economy of FTAs suggests that they are as likely to be protectionist as they are to be trade creating.

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[23]See Hoekman and Leidy (1992a) for an alternative interpretation, focussing upon sharing rents between producers at various stages of production.

Table 1. Hypothetical Rule-of-Origin Induced Shift to Higher-Cost U.S. Suppliers

Assume : Motors, brakes, tires, and batteries are used in fixed proportions in making automobiles.

World prices of these items are:

auto	$1,000.
motor	250
brakes	200
tires	100
battery	50

Hence, international value added in assembling an auto is $400. Assume that Mexico has zero tariffs on autos and on each component, and assembles autos, importing all components pre-FTA.

Let U.S. nominal tariffs be as follows:

auto	50%
motor	40
brakes	40
tires	50
battery	50

Note that the effective rate of protection for auto producers in the U.S. is 125 percent. Let the ROO be that 80 percent of components, valued at purchasers' prices, must

Table 1 (continued):

be produced within NAFTA. Then Mexican producers will be confronted with the following choices:

	Import Parts	Buy parts in U.S. to meet 80 percent ROO
Selling price of auto in U.S.	1000	1500
Cost of components	600	motor: 350 (from U.S.) brakes 280 (from U.S.) tires 100 (imported) battery 50 (imported) Total components: $780
Return to domestic labor and capital	400	720

Note that a 90 percent ROO would protect American tire manufacturers. But even with a 100 percent ROO, it clearly pays Mexican producers to purchase parts from higher-cost U.S. sources than to import duty-free from non-NAFTA members, unless it is cheaper to produce those parts in Mexico than to buy them in the U.S.

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