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**“Regionalism in a Multilateral World”**

by

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# **Regionalism in A Multilateral World**

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# Regionalism in A Multilateral World

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**Abstract:** Recent regional initiatives have been addressed from a Vinerian perspective of regional integration as a combination of trade creation and trade diversion. This is true both of policy-oriented economists, who tend to be critical of the initiatives, and of theorists, who have added dynamic and game-theoretic elements to the Vinerian structure. This paper describes the stylized facts of much recent regional integration, and develops an alternative model. The analysis suggests that regional integration, far from threatening multilateral liberalism, may in fact be a direct consequence of the success of past multilateralism and an added guarantee for its survival.

**Keywords:** Direct investment, regionalism, multilateralism, policy reform

**JEL Classification Codes:** F15, F13, F23

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# Regionalism in A Multilateral World

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## I. Introduction

REGIONALISM RULES. This was not true until recently: With the notable exception of Western Europe, the numerous regional initiatives of the 1950s and 60s eventually amounted to virtually nothing. But the late-1980s attempt of the European Community to complete its internal market by the end of 1992 has induced (or preceded) a new global wave of regional integration. Most notably:

- The U.S.–Canada Free Trade Agreement and the subsequent incorporation of Mexico in the NAFTA,
- The entrance of Austria, Finland and Sweden into the European Union,
- The Europe Agreements between the European Union and former communist states of central Europe,
- The Mercosur customs union between Brazil, Argentina, Paraguay and Uruguay.

These are prominent examples. But dozens of other initiatives—whether negotiation, sincere intention, or vague aspiration—have appeared in most parts of the world. More than a hundred regional arrangements, accounting for well over half of world trade, now exist.

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Trade theorists have not been slow to respond. Responses have centered on two questions. (i) Will the division of the world into regional trading blocs raise or lower welfare? So far, answers have been mixed.<sup>1</sup> (ii) Will regionalism help or hinder multilateral trade liberalization? Answers have basically been negative, though with some qualifications.<sup>2</sup> Common to these responses has been the treatment of regional integration as exogenous.<sup>3</sup> Also common has been a Vinerian perspective on regional integration as a combination of trade creation and trade diversion.<sup>4</sup>

By contrast, economists concerned with trade policy have been much less ambiguous. The dominant view is now strongly negative: the increase in regional arrangements reflects frustration with the process of multilateral liberalization (e.g., the prolonged pains of the Uruguay Round negotiations) and poses a serious threat to the continued existence of the present liberal trade order.<sup>5</sup>

The Vinerian perspective was a response to the “old regionalism” after World War II. But the international environment greeting the “new regionalism” that has emerged since the late 1980s differs from that experienced by the old regionalism in critical ways.

- Multilateral liberalization (at least of trade in manufactures among the industrial countries) is much more complete now.
- Scores of economically less advanced countries have abandoned basically autarkic, anti-market, policies and are now actively trying to join the multilateral trading system.

So one can also make a *qualitative* distinction between the old regionalism and the new. For example, the Vinerian paradigm of trade creation versus trade diversion

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<sup>1</sup>See Bhagwati and Panagariya (1996) and Krugman (1991).

<sup>2</sup>See Bond and Syropoulos (1996) and Bagwell and Staiger (1997a, 1997b).

<sup>3</sup>Some recent contributions do endogenize regional integration: see Baldwin (1997), Freund (1997), Yi (1996), and , for a nontechnical survey of some recent developments, Ethier (1998).

<sup>4</sup>For other developments in the Vinerian tradition see Anderson and Blackhurst (1993), de Melo and Panagariya (1993), and Ethier and Horn (1984).

<sup>5</sup>I have the impression that, in North America at least, the general public believes professional economists to be much more in favor of regional arrangements than they in fact are. Perhaps this is because the highly visible debate over NAFTA degenerated into (or was elevated into) a debate over the merits of liberal trade.

drove analysis of the former, but it is by no means clear that it should drive analysis of the latter. Yet it *has*—this is central to the ambiguity noted above. This paper attempts to develop an idea of what the *qualitative* new regionalism should<sup>6</sup> be.

The next section describes the salient characteristics of the new regionalism, and how they differ from those of the old regionalism motivating the Vinerian perspective. Section 3 then presents an elementary model of trade and trade policy incorporating these characteristics—or capable of doing so—and section 4 contributes a rudimentary theory of multilateralism. Section 5 then investigates the potential role of regional arrangements in such a framework.

The analysis suggests a radically different interpretation of regionalism: a theoretical structure far removed from the Vinerian perspective, and a policy implication at odds with the common negative view. In particular, three possibilities emerge.

(i) Regionalism is an endogenous response to the development of the multilateral trading system, and treating it as exogenous is misleading. (ii) The primary purpose of regionalism is to adapt to multilateral developments. Thus the paper suggests a presumption that regional integration facilitates multilateral liberalization.<sup>7</sup> (iii) Regionalism promotes the successful entry of reforming countries into the multilateral trading system in a way that multilateralism by itself cannot do.

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## 2. What The New Regionalism Is

The following characteristics do not apply to all current regional initiatives, which are quite diverse, but do apply in varying degree to most of the more important ones.

- Contemporary regionalism typically features one or more small countries linking up with a big country.

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<sup>6</sup> We cannot expect the temporal and qualitative distinctions to correspond exactly to each other. Presumably some characteristics of the (qualitatively) new regionalism are relevant to earlier regional initiatives, and—more importantly, for present purposes—features of the (qualitatively) old regionalism remain relevant today. But I am interested in the nature of the new (qualitatively) regionalism.

<sup>7</sup> Chichilnisky (1994) also argues that, in the presence of economies of scale, regional integration may foster multilateral liberalization. But her argument is quite different from what follows.

In the above examples, Mexico and Canada are each small, economically, relative to the US; the new members of the EU are tiny compared to the EU itself; so are the central European adherents to the Europe Agreements; Brazil dominates Mercosur.

- Very often the small countries have recently made, or are trying to make, significant unilateral reforms.

This is most dramatically true of the central European countries—who had abandoned communism—of Mercosur and of Mexico. But it also characterizes, to a lesser degree, the small industrial-country participants in the above examples. Canada had turned away from Trudeau-style economic nationalism, and the Scandinavian applicants to the EU (except Norway, which significantly declined to join) had made notable reforms in some sectors (e.g., agriculture, banking). In Mercosur, unlike the other examples, the large country, Brazil, is also attempting unilateral reform.

- Regional agreements seldom address only trade barriers: they usually involve what is known as “deep” integration.

This is another reflection of the fact that the new regionalism is taking place in a context of wide economic reform.

- A dramatic move to free trade between members is *not* what it’s all about: The degree of liberalization is typically modest. Thus the Vinerian paradigm is not a natural starting point.

The trade relations of Austria, Finland and Sweden with the EU are virtually identical to what they would have been had they decided not to join the latter! NAFTA provides only modest liberalization: US tariffs were already low and NAFTA hedges sensitive sectors. Canada and Mexico have done more, but the most significant measures (largely Mexican) were unilateral. The Europe Agreements provide for little in the way of concrete liberalization. Mercosur is admittedly more ambitious, but even here the liberalization is small relative to the members’ unilateral liberalizations.

- The liberalization that is achieved is due primarily to concessions by the small countries: The agreements are one-sided.

The moderate liberalization in NAFTA is due much more to “concessions” by Mexico and Canada than by the United States (Ross Perot notwithstanding). In negotiations

over enlargement, the EU has been flexible on financial responsibilities and periods of adjustment, but has always maintained a take-it-or-leave-it attitude regarding the nature and structure of the EU itself. The Europe Agreements involve virtually no “concessions” by the EU: Indeed the EU instituted antidumping measures against some new partners even as the initial agreements were coming into effect! Mercosur does not display this asymmetry (perhaps because its big country is also a reformer?).

More typically the small countries get only small tariff advantages—often because the large countries have small tariffs to begin with. More important to the small countries is exemption from future acts of contingent protection—antidumping law, safeguards, etc. But usually they don’t get much here either: The Europe Agreements were mentioned above; NAFTA does not give Canada and Mexico exemption from US administered protection; as members of the EA, Austria, Finland and Sweden would not have been subject to EU administered protection in any case.

In summary, *regional integration consists of reform-minded small countries “purchasing,” with moderate trade concessions, deep links with large countries that confer relatively minor trade advantages.* So, why<sup>8</sup> do the small countries do it?

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### 3. The Model

My first building block is a simple trade model in which to embed the stylized facts described above. I use a modified version of the familiar, many-country, specific-factors model.

Suppose, first,  $N$  (almost) identical industrial countries, each endowed with  $H$  units of human capital,  $L$  skilled labor and  $U$  unskilled labor. Second, assume  $M$  (almost) identical less developed countries.

#### Developed Countries

Each developed country  $i$  can produce one output,  $x_i$  (which I call a *good*), using human capital and skilled labor, and another output,  $z_i$  (which I call a *commodity*), requiring skilled labor and unskilled labor. The respective goods are imperfect substitutes. Goods are tradeable but commodities are nontraded.

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<sup>8</sup>Perroni and Whaley (1994) provide a very different answer, from what follows, to a related question.



**Production.** Production of each good is a two-stage process, with one stage, using only human capital, necessarily performed at home. The other stage, using only skilled labor, can be performed anywhere; that is, the home firm can employ labor located in any country (foreign direct investment) to perform this stage. If this is done abroad, the resulting unfinished goods must be exported from the foreign subsidiary. If  $a_i$  and  $b_i$  denote the levels of operations of the respective stages, final output is:

$$x_i = f(a_i, b_i) \quad (1)$$

where  $f$  is a conventional neoclassical production function. Stage operations are:

$$a_i = H_i \quad (2)$$

and:

$$b_i = kL_{bi} \quad (3)$$

where  $H_i$  denotes the stock of human capital,  $L_{bi}$  the skilled labor allocated to stage  $b_i$ , and  $k = k(\sum_{i=1}^N L_{bi})$  with  $k' > 0$ . Operation of each  $b_i$ -stage thus entails increasing

returns to scale that depend on the size of global second-stage activity for all  $N$  goods. I assume that these are external to the individual firm, and that goods are produced in perfectly competitive markets. Furthermore, these scale economies are international in origin, that is, they depend on the *global* size of the labor employed in producing all  $b_i$ , not the labor employed in a single country. For international economies of scale, see Ethier (1979, 1982). As argued there, such economies will require trade in intermediate goods: trade in inputs to the various  $b_i$  themselves. But introducing this trade would complicate the model to no purpose, so I abstract from it.<sup>8</sup>

Production of the nontraded commodity,  $z$ , is by competitive firms operating under constant returns to scale:

$$z = g(U, L_z) \quad (4)$$

Here  $g$  is also a standard neoclassical production function,  $U$  denotes the stock of

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<sup>8</sup>Henceforth I dispense with the commodity/country subscript  $i$  whenever this generates no confusion.

unskilled labor and  $L_z$  the amount of skilled labor allocated to commodity production. Thus

$$L = L_b + L_z. \quad (5)$$

**Consumption.** Each country behaves as though it has the utility function

$$u = N^{-\epsilon} \sum_{i=1}^N \frac{\epsilon}{\epsilon-1} y_i^{\frac{\epsilon-1}{\epsilon}} + z \quad (6)$$

where  $y_i$  denotes consumption of the good produced by country  $i$  and  $z$  consumption of the local commodity. The above function will be used to measure the social welfare of developed countries. The implied demand for good  $i$  in each country is

$$y_i = \frac{1}{N} p_i^{-\epsilon} \quad (7)$$

where  $p_i$  denotes the relative price of  $y_i$  in terms of  $z$ . All other income is spent on  $z$ .

**Free-trade equilibrium for the developed countries.** To fix ideas, consider a symmetric free-trade equilibrium between the developed countries in which all goods are produced equally, sell for the same price, and are consumed equally by all countries. Each country performs  $b$ -stage production equal to the total production of precisely one good, and the allocation of  $b$ -stage activity among countries is indeterminate (so cross-penetration of direct investment may take place) but inconsequential. So assume each  $x_i$  is produced by integrated firms located entirely in country  $i$ .

From (1), (2), and (3), the integrated production function for each country's good is

$$x = f(H, kL_b). \quad (8)$$

Designate  $z$  as numéraire and let  $\omega$  denote the wage of skilled labor. Since skilled labor is paid the value of its marginal product in each use,

$$\omega = pf_L(H, kL_b)k \quad \text{and} \quad \omega = g_L(U, L_z) \quad (9)$$

where subscripts denote partial differentiation.<sup>9</sup> Thus

$$pf_L(H, kL_b)k - g_L(U, L_z) = 0. \quad (10)$$

Equations (5), (8) and (10) determine the supply function for each good:

$$x = x(p, L; L_b(N-1)), \quad (11)$$

where  $L_b(N-1)$  denotes the total labor allocated to  $b$ -stage production by the other  $N-1$  countries. I assume that the response of the integrated production function to the second-stage input is sufficiently curved, relative to the degree of economies of scale in the  $b$ -stage, that

$$\sigma_f > \frac{\frac{\sigma_k}{N}}{1 + \frac{\sigma_k}{N}}, \quad (A1)$$

where

$$-\frac{kL_b f_{LL}}{f_L} \equiv \sigma_f \quad \text{and} \quad \frac{NL_b k'}{k} \equiv \sigma_k.$$

This will ensure that  $x_p > 0$ .

International equilibrium is determined by the requirement that world supply  $x$  of each good equal the world demand implied by (7):

$$y = p^{-\epsilon}. \quad (12)$$

Note that

$$\left. \frac{L}{p} \frac{\partial p}{\partial L} \right|_x = - \frac{L}{p} \frac{x_L}{x_p} = -L \frac{g_{LL}}{-pf_L k} = - \frac{\sigma_g}{\lambda_z} < 0. \quad (13)$$

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<sup>9</sup>The term  $k$  is treated as a parameter by  $b$  producers, since the economies of scale are external to the firm.

where

$$\sigma_g = - \frac{L_z g_{LL}}{g_L} \quad \text{and} \quad \lambda_z = \frac{L_z}{L}.$$

Thus an increase in the available supply of skilled labor shifts the supply curve to the left, raising equilibrium  $x$  and lowering  $p$ . This change in output in one country will generate international spillovers, and consequent changes in foreign production will in turn generate repercussions in the original country.

**Protection in the industrial world.** I assume that each developed country levies an ad valorem tariff,  $t$ , on the imports of each foreign good (and its own  $b$ -stage output, if that stage is performed abroad). I assume all developed countries are identical, and I shall confine attention to symmetric equilibria, so  $t$  will be the same for all countries and all goods. The tariff revenue is distributed to the public in lump-sum fashion (and so spent on  $z$ ).

I assume that the commercial policy of each industrial country is the outcome of a political process in which unskilled labor attempts to secure rents. This will not be modeled explicitly. Instead I simply assume that the political process operates as if the country were maximizing a social welfare function that trades off labor's wage against aggregate welfare:

$$V = rw + (1 - r)u \tag{14}$$

where  $w = g_U(U, L_z)$ . The parameter  $r$  thus reflects the influence unskilled labor has over the political process. Detail concerning the constraints under which  $V$  is maximized will be supplied below, when I consider explicit international commercial systems.

### Less Developed Countries

Each less developed country implements a commercial policy which is the outcome of a political process in which special interests attempt to secure rents. As with the industrial countries, this process will not be modeled explicitly. I am concerned not with marginal changes in protection, but in the possibility of fundamental economic reform. For this reason, I assume that the government of each less developed country must choose between just two possible policies: autarky or reform. With autarky, the

special interests secure their rents. But if the social welfare benefit  $R$  of reform is expected to be sufficiently great, the government will attempt reform; let  $r^*$  denote the minimum the expected value of  $R$  must attain for the government to be tempted to forsake autarky for reform. The parameter  $r^*$  thus reflects the influence special interests have over the political process.

The only aspect of the less developed countries that I need model explicitly for what follows is the potentially open sector, where  $R$  is generated. This potentially open sector contains an initial stock  $L_A^*$  of skilled labor which, in autarky, can be used to produce, for local consumption, a rudimentary good:

$$x^* = k(L_A^*)L_A^*. \quad (15)$$

The function  $k(\cdot)$  is the same as that pertinent to the developed countries, but is evaluated as a function of local input alone, since the less developed country is in autarky and not part of the multilateral trading system. Finally, local goods are rudimentary because their production is undertaken without benefit of the sophisticated  $a$  stage.

If the less developed country reforms successfully, firms from the developed countries will establish subsidiaries there which employ some quantity,  $F$ , of skilled labor for their own  $b$ -stage production. This production will then be exported for final assembly, and some portion of that will be paid to  $F$  as wages. Because final output has not been customized for the less developed countries, assume that the latter regard the finished goods of the various developed countries as perfect substitutes for each other; because their own rudimentary goods are indeed rudimentary, assume that they regard one unit of the latter as a perfect substitute for  $\alpha$  units of any developed-country good, where  $\alpha < 1$ . The direct investment involves the transfer of global technology, so the subsidiaries' output will be  $b^* = kF$ , where  $k$  depends upon the total amount of labor allocated to  $b$ -stage production by developed country firms, including that of their subsidiaries in the less developed countries. In addition, with the less developed country now part of the multilateral trading system, global technology spills over to the production of rudimentary goods (valued in terms of finished goods):  $y^* = \alpha(L^* - F)k$ , with  $k$  given by its international value and with  $L^*$  the stock of skilled labor in the open sector in the event of successful reform.

If  $\omega^*$  denotes the wage, in terms of finished goods, paid by the foreign subsidiaries, the value  $R$  of successful reform, also in terms of finished goods, is  $y^* + \omega^*F - \alpha x^*$ . If the labor market is competitive,  $\omega^* = \alpha k$ , and suppose that  $L^*$  is a nondecreasing function of  $w^*$ . Thus  $R$  is determined by

$$R(k) = \alpha [L^*(\alpha k) k - x^*]. \quad (16)$$

The less developed country will be tempted to undertake reform if and only if the global economy is sufficiently productive that  $\rho R(k) \geq r^*$ , where  $\rho$  equals the probability that reform will succeed ( $\rho$  will be endogenized in a subsequent section).

Reform is successful if and only if the country succeeds in attracting foreign direct investment.

I assume that the less developed countries differ from each other in only one way: the propensity  $r^*$  to favor special interests. There are distinct classes of less developed countries, and I denote the value of  $r^*$  pertinent to class  $j$  by  $r_j^*$ , number the classes from 0 to 1, and rank them so that  $r_j^*$  rises as  $j$  rises. Let  $M(j)$  denote the number of (identical) less developed countries in class  $j$ , that is, the number of countries for whom  $r^* = r_j^*$ . I will simplify the following analysis by assuming a continuum of classes: the more relevant case of a finite number of classes is straightforward but tedious.

Let  $M_R^*(\rho, k)$  denote the number of less developed countries that, given  $\rho$  and  $k$ , would attempt reform. Then

$$M_R^*(\rho, k) = \int_0^1 M(j) \quad \text{where} \quad r_j^* = \rho R(k). \quad (17)$$

$M_R^*(\rho, k)$  is clearly increasing in each of its arguments.

## 4. Multilateralism

This section develops a simple theory of multilateralism, the second basic building block of this paper.

### Unilateralism

First I describe an international equilibrium in which  $r$  and  $r^*$  are sufficiently large that  $F = 0$  in each less developed country, and in which each developed country sets

some arbitrary (but equal)  $t$ . Then I proceed to the symmetric Nash equilibrium in which the choice of  $t$  is optimal, given that every other developed country chooses the same  $t$  and that the less developed countries all choose autarky. This characterizes unilateralism.

**A symmetric protectionist equilibrium.** Suppose each developed country levies a common ad valorem tariff  $t$  on imports of each of the  $N - 1$  foreign goods. Then equilibrium for each good is given by

$$f(H, k(NL_b)L_b) = \frac{p^{-\epsilon}}{N} + \frac{N-1}{N} [p(1+t)]^{-\epsilon} = \frac{p^{-\epsilon}}{N} [1 + (N-1)(1+t)^{-\epsilon}]. \quad (18)$$

An increase in  $t$  shifts the demand curve down, moving equilibrium along the supply curve, with  $x$  and  $p$  both falling. But the supply curve itself will also shift due to changes in  $b$ -stage production by the remaining  $N - 1$  countries. Differentiate (18) and (10) to obtain the final effects:

$$\begin{aligned} \hat{L}_b &= -\epsilon X \frac{\lambda_z}{\Delta} \frac{dt}{1+t} \\ \hat{p} &= -\epsilon X \frac{\left( \lambda_b \sigma_g + \lambda_z (1 + \sigma_k) \left[ \sigma_f - \frac{\sigma_k}{1 + \sigma_k} \right] \right)}{\Delta} \frac{dt}{1+t}, \end{aligned} \quad (19)$$

where

$$\begin{aligned} \Delta &\equiv \epsilon \lambda_b \sigma_g + \lambda_z (1 + \sigma_k) \left[ \theta_{Lx} + \epsilon \left( \sigma_f - \frac{\sigma_k}{1 + \sigma_k} \right) \right], \\ \theta_{Lx} &\equiv \frac{wL_B}{px}, \quad X \equiv \frac{x - \frac{p^{-\epsilon}}{N}}{x}. \end{aligned}$$

Suppose the following condition is met.

$$\sigma_f > \frac{\sigma_k}{1 + \sigma_k} \quad (A2)$$

Then an increase in the tariff does lower both  $p$  and  $L_b$ . Note that **(A1)** does not imply **(A2)**, so that, with **(A1)** alone, global protection could conceivably raise  $L_b$  and influence  $p$  in either direction. But, with **(A2)**, which does imply **(A1)**,  $p$  falls proportionately less than the tariff itself: the domestic price of imported goods rises. In a symmetric equilibrium there are no terms of trade effects, and the reduction in  $L_b$  worsens the distortion due to the presence of an externality, so the welfare of each country is reduced, relative to free trade.

**A Nash equilibrium in policy: unilateralism.** Consider next the conduct of trade policy in a single developed country, given the policies of the remaining  $N - 1$  countries. I assume that  $N$  is sufficiently large that the single country behaves as though its actions have no effect on the world prices of traded goods or on the global size of  $b$ -stage production.<sup>10</sup> Then the equilibrium of such a country corresponding to a choice of  $t$  is described by

$$\begin{aligned} f(H, kL_b) &= \frac{p^{-\epsilon}}{N} + \frac{P}{p} \frac{N-1}{N} [P(1+t)]^{-\epsilon} \\ pf_L(H, kL_b)k - g_L(U, L - L_b) &= 0. \end{aligned} \tag{21}$$

Production of the national good equals domestic demand plus the exports required, at world prices, to pay for imports.  $P$  denotes the relative price, in terms of home commodities, of each of the  $N - 1$  foreign goods. The small-country assumption is that the home government proceeds as though  $k$  and  $P/p$  are exogenous. Then **(21)** gives:

$$\begin{aligned} \hat{L}_b &= -\epsilon X \frac{\lambda_z}{\Delta'} \frac{dt}{1+t} \\ \hat{P} = \hat{p} &= -\epsilon X \frac{[\lambda_z \sigma_f + \lambda_b \sigma_g]}{\Delta'} \frac{dt}{1+t} \end{aligned} \tag{22}$$

where  $\Delta' \equiv \lambda_z \theta_{Lx} + \epsilon [\lambda_z \sigma_f + \lambda_b \sigma_g]$ . Thus an increase in  $t$  lowers both  $p$  and  $L_b$ . The

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<sup>10</sup>Each country conducts trade policy by separately choosing  $N - 1$  import constraints, symmetry assuring that the  $N - 1$  choices are all the same; no deliberate export policy is chosen. This is important: while the small country assumption can be appealed to as justification for each country perceiving no influence in each of its import markets or on global economies of scale, the country is nonetheless the sole supplier of its own good.



reductions in  $p$  and  $P$  constitute a rise in the price of nontraded commodities relative to traded goods. Protection deflects spending from imported goods to commodities, raising their price and drawing skilled labor away from the production of goods. This in turn raises the reward of unskilled labor:

$$\hat{w} = \epsilon X \frac{\lambda_b \sigma_{gx}}{\Delta'} \frac{dt}{1+t}, \quad (23)$$

where

$$\sigma_{gx} \equiv L_z \frac{g_{UL}}{g_L}.$$

With terms of trade effects and external scale effects both absent, the effect of a tariff change on utility, measured in terms of the numéraire, is simply the change in import volume multiplied by  $tp$ , the excess of the social value of a marginal import over its social cost:

$$\frac{du}{dt} = (tp) \frac{d\left(\frac{N-1}{N} [(1+t)p]^{-\epsilon}\right)}{dt}. \quad (24)$$

The effect on the government's objective is  $\frac{dV}{dt} = r \frac{dw}{dt} + (1-r) \frac{du}{dt}$ . Note that  $\frac{dV}{dt} > 0$  if  $t = 0$ : The government will always wish to institute some protection

because, with  $t$  initially zero, protection will produce a first-order increase in the wage of unskilled labor with no first-order effect on utility. Using (23) and (24),

$\frac{dV}{dt} = 0$  when:

$$t^2 + \Lambda t - \frac{r}{1-r} \frac{X}{L_z} = 0, \quad (25)$$

with  $\Lambda \equiv X\Delta' + \Delta' - X$ . The positive solution to this quadratic equation defines the optimum (unilateral) tariff:

$$t^U = \frac{\left( \Lambda^2 + 4 \frac{r}{1-r} \frac{x}{L_z} \right)^{\frac{1}{2}} - \Lambda}{2}. \quad (26)$$

The symmetric noncooperative equilibrium is given by **(10)**, **(18)** and **(26)**, which simultaneously determine  $L_b$ ,  $p$  and  $t$ .

### Multilateralism

I now consider the possibility of multilateral trade liberalization by the developed countries. In such a multilateral equilibrium, each developed country adopts the policy that is optimal, if all other developed countries adopt the *same* policy, given the policies adopted by the less developed countries. That is, the developed countries jointly choose a common  $t$ . The less developed countries do not participate in the multilateral process, and I continue to assume that each has chosen a policy of autarky.

**Multilateral equilibrium.** Let  $t^M$  denote the optimal multilateral tariff, and let  $t^\circ$  denote what this tariff would be if the developed countries ignored all terms of trade effects and scale effects of a tariff reduction, but otherwise took account of the fact that equations **(19)**, rather than **(22)**, indicate the effects on  $L_b$  and  $p$  when a tariff reduction is multilateral rather than unilateral. Because of the symmetry there will, in fact, be no terms of trade effects. If **(A2)** is met, however, a reduction in  $t$  will raise the common  $L_b$ , producing a positive scale effect. Since a small reduction of  $t$  below  $t^\circ$  will have a zero first order effect on each government's objective function other than the positive scale effect, it must be that  $t^M < t^\circ$  as long as **(A2)** holds.

Next,  $t^\circ$  is, by definition, given by formula **(26)** with  $\Delta'$  replaced by  $\Delta$ . Thus  $t^\circ < t^U$  if  $\Delta > \Delta'$ , and, given **(A2)**, a sufficient condition for this is

$$\theta_{Lx} > \frac{1}{1 + \sigma_k}. \quad (A3)$$

Thus **(A2)** and **(A3)** provide sufficient (but by no means necessary) conditions that multilateralism produce a common tariff lower than that resulting from unilateral tariff setting.

**Multilateralism: summary.** Proposition 1 summarizes the results of this section.

**Proposition 1 (Multilateralism).** *Suppose that (A2) and (A3) hold, and that each less developed country chooses a policy of autarky. Then, if a symmetric unilateral equilibrium among the developed countries is replaced by a symmetric multilateral equilibrium,*

- *The common tariff falls,*
- *b-stage production of each good rises, enhancing scale effects,*
- *The welfare of each developed country increases.*

**Remarks.** This section has developed, as a basic building block, a rudimentary theory of multilateralism. To be useful for the model, the theory must mimic, in a stylized and transparent way, the essentials of post World War II experience. I now try to indicate the distinctive features of this theory.

*First*, in this model no country attempts to manipulate the terms of trade to its advantage. I ensure this by abstracting from export policy and by imposing a small country assumption, but it really reflects a belief that such attempts have just not been important in practice.<sup>11</sup> For this reason I want to make it clear that I do not *require* terms-of-trade manipulation; introducing such manipulation would strengthen further the incentive for multilateral cooperation and so would complicate the model to no purpose.<sup>12</sup> The absence of terms-of-trade manipulation does imply a critical role for special interests: countries would otherwise adopt free trade unilaterally.

*Second*, national concern for social welfare also plays a key role. Countries would have no incentive to enter into multilateral arrangements otherwise.

*Third*, the purpose of multilateralism in this model is to internalize an externality: The development of a multilateral trading system confers benefits of technological spillovers, external economies of scale, and so forth, on all participants. Jointly setting their commercial policies allows countries collectively to address this. This model expresses these beneficial effects in terms of the single technology parameter  $k$ . Consequently it is tempting to index the benefits as:

$$B = k^M - k^U$$

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<sup>11</sup>For an alternative view, see Bagwell and Staiger (1996).

<sup>12</sup>See Yi (1996) for a very different model in which endogenous integration is driven by the presence of terms-of-trade manipulation.

where  $k^U$  and  $k^M$  respectively denote the value of  $k$  in the unilateral equilibrium and in the multilateral equilibrium.

*Fourth*, the theory assumes, unlike much recent literature,<sup>13</sup> that individual countries can in fact credibly commit themselves to the multilateral policy even though, *ex post*, each government will not be doing the best it can—according to its own objective function—given the policies of the other governments. In practice, this has simply not been a significant problem with respect to the GATT-sponsored rounds of multilateral tariff reductions by the industrial countries.<sup>14</sup> When these countries have retreated from liberal trade, they have done so not by repudiating in violation of the GATT the tariff bindings they have undertaken, but by utilizing other, internationally accepted tools (safeguards, antidumping duties, etc.) or by stepping outside the GATT structure (voluntary export constraints). Consideration of these latter possibilities is not needed for the purposes of this paper, and I want to keep the model of multilateralism as simple as possible.<sup>15</sup> Also, I would stray too far from my purpose were I to introduce features (e.g., trigger strategies in a repeated-game framework) to furnish explicit support for the multilateral equilibrium. So I simply assume that credible commitment to the latter is provided by something exogenous to the model. Presumably a higher value of the benefits index  $B$  would, other things equal, render such commitment easier, but consideration of such issues is beyond the scope of this paper.

## 5. Regionalism

The previous section assumed both that  $r_1^*$  was sufficiently large that  $R(k) < r_1^*$  for the  $k$  determined in the unilateral equilibrium, and that the less developed countries did not participate in the multilateral process. These assumptions in effect excluded the

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<sup>13</sup>For example, Bond and Syropoulos (1996) distinguish multilateralism from regionalism by assuming that in the former countries cannot precommit.

<sup>14</sup>It has sometimes been a problem in other contexts, such as China and intellectual property protection.

<sup>15</sup>An earlier version of this paper did in fact contain administered protection not determined multilaterally, but I deleted it because it had no fundamental effect on the theory of regionalism developed below.

latter from the model. Now I bring them back in. I assume the following sequence of moves. Initially, the developed countries are in a unilateral equilibrium and the less developed countries have each chosen autarky. Then the developed countries, without participation by the less developed, negotiate the multilateral equilibrium and implement it. Next, the less developed countries observe  $t^M$  and the multilateral equilibrium value of  $k$  and *individually* decide whether to reform or not, taking  $t^M$  and  $k$  as given. Finally, the reform efforts are made, they succeed and/or fail, and a new international equilibrium emerges, with  $t$  still fixed at  $t^M$  but  $k$  determined endogenously.

### Multilateralism and the Less Developed Countries

**Implications of multilateralism for the less developed countries.** With **(A2)** and **(A3)**, multilateralism will produce a lower tariff, and this could affect the less developed countries' unilateral choices of policy. From **(19)**, the lower tariff will increase  $L_b$ , causing  $k$  to rise.  $R(k)$ , increasing in  $k$ , also increases: Multilateralism increases the motivation for the less developed countries to reform. Interest centers on the case in which  $R$  rises enough so that some countries do indeed embark on reform. So make the following assumption.

$$R(k^U) < r_1^* < R(k^M). \quad (\mathbf{A4})$$

**(A4)** ensures that all less developed countries choose autarky in the unilateral equilibrium, and that some will attempt reform in the multilateral equilibrium if the probability of success  $p$  is sufficiently high.

An attempted reform in a less developed country will succeed if and only if some firms from the developed countries undertake direct investment there, so turn to this question next. Direct investment will introduce trade in  $b$ -stage products, so developed country barriers to such trade must now be considered. Suppose that imports of  $b$  into the developed countries are subject to protection at the (possibly negative) rate  $t_b$ . I postpone discussion of how  $t_b$  is determined.

If there is no direct investment, the cost, in terms of  $b$  of obtaining a marginal unit of  $b$  by production in the home developed country is  $\omega/pk = f_L(H, kL_b)$ , and the cost of obtaining it by establishing a foreign subsidiary in some less developed country is  $\omega^*(1 + t_b)/k = \alpha(1 + t_b)$ . Thus direct investment will be undertaken—and a reform attempt by some less developed country will be successful—if, in the multilateral equilibrium with no direct investment,  $f_L(H, kL_b) > \alpha(1 + t_b)$ .

**Proposition 2.** Suppose **(A2)**, **(A3)** and **(A4)** hold. Then if the developed countries shift from a unilateral equilibrium to a multilateral equilibrium, some less developed countries will attempt reform if the probability of success is high enough. Such an attempt would be successful in some countries if, in the multilateral equilibrium,  $f_L(H, kL_b) > \alpha(1 + t_b)$ .

**International equilibrium.** Next, consider a symmetric equilibrium in which the developed countries undertake direct investment in a set of reformed less developed countries. Let  $m$  denote the total employment of skilled labor by the foreign subsidiaries of each developed country. Assume an interior solution in which the developed countries transfer some, but not all,  $b$ -stage employment of skilled labor abroad, and not all of the skilled labor of the reformed less developed countries is employed by foreign subsidiaries. Equilibrium for each good is described as follows.

$$\begin{aligned} f(H, k(N(L_b + m))(L_b + m)) &= \frac{p^{-\epsilon}}{N} [1 + (N - 1)(1 + t)^{-\epsilon}] + \alpha k(N(L_b + m))m \\ f_L(H, k(N(L_b + m))(L_b + m)) &= \alpha(1 + t_b) \\ pf_L(H, k(N(L_b + m))(L_b + m)) &= g_L(U, L - L_b) \end{aligned} \quad (27)$$

The first equation of **(27)** requires that the supply of each good equal the total of demand at home, demand from other developed countries and demand from less developed countries; the second that direct investment proceed until the cost of skilled labor to the firm is the same abroad as at home; the third that the value of the marginal product of skilled labor be equated across alternative uses at home.

If, instead of an interior solution, each developed country shifts all  $b$ -stage production abroad,  $L_b = 0$  and the third equation of **(27)** is dropped. If, on the other hand, all the skilled labor of each reformed less developed country is employed by foreign firms,  $m = M_R L^*/N$ , where  $M_R$  denotes the number of countries undertaking successful reform, and the first equation of **(27)** is dropped.

Equations **(27)** determine  $p$ ,  $m$ , and  $L_b$ , given  $N$ ,  $t$ ,  $t_b$ , and the endowment of each developed country. Note that **(27)** is independent of the number of less developed countries that undertake ( $M_R^*$ ) or successfully implement ( $M_R$ ) reform, and that **(27)** does not determine how the total direct investment  $Nm$  is distributed among the reformers. A symmetric equilibrium would allocate  $Nm$  among all  $M_R^*$  in equal amounts  $F = Nm/M_R^*$ , thus ensuring that  $M_R = M_R^*$ . But there is no reason to expect this outcome because, from the viewpoint of the investing firms, all less developed countries are identical. So I assume that, when all potential hosts are equivalent,

investing firms decide where to invest, among all potential hosts, by some random process.

If  $Nm > (M_R^* - 1)L^*$ , at least some investment must go to each potential host, so  $\rho = 1$  and  $M_R = M_R^*$ . But otherwise distributions of  $Nm$  that leave some potential hosts without foreign subsidiaries do exist. With the location of direct investment determined at random,

$$\rho(M_R^*, m) = \phi \left( \frac{Nm}{(M_R^* - 1)L^*} \right), \quad (28)$$

where  $\phi$  reflects the random process by which investment is allocated. Assume that  $\phi = 0$  if  $m = 0$ ,  $\phi = 1$  if  $Nm > (M_R^* - 1)L^*$ , and  $\phi' > 0$  otherwise. Clearly  $\rho$  is decreasing in  $M_R^*$  and increasing in  $m$  whenever its argument is less than unity.

Equations (27) determine  $k$  and  $m$ , and (17) and (28) then simultaneously determine  $\rho$  and  $M_R^*$ , and thus  $M_R = \rho M_R^*$  as well. Since  $\rho$  and  $M_R^*$  are positively related in (17) and negatively related in (28), the solution is unique. Thus a switch from unilateralism to multilateralism induces some  $(M_R)$  less developed countries to reform successfully, some  $(M_R - M_R^*)$  to attempt reform and fail, and some

$\int_{i'} M(j)$  where  $r_i^* = \rho R(k)$  and  $r_{i'}^* = R(k)$  to wish to reform but to refrain from

trying because of the fear of failure. The condition for this is the following.

$$\begin{aligned} \text{With multilateralism and no investment: } f_L(H, kL_b) &> \alpha(1 + t_b); \\ \text{with multilateralism and investment: } Nm &< (M_R^* - 1)L^*. \end{aligned} \quad (A5)$$

Summarizing,

**Proposition 3 (Unilateral reform).** Suppose (A2), (A3), (A4) and (A5) hold.

Then if the developed countries shift from unilateralism to multilateralism, some less developed countries will attempt reform and succeed, some will attempt reform and fail, and some will wish to reform but not attempt it.

**Implications of reform for the multilateral system.** Successful reform by some less developed countries will influence the international equilibrium and

thereby impact the developed countries. To investigate, suppose  $m = 0$  initially and ask what effect an introduction of direct investment ( $dm$ ) will have on  $L_b$ . This can be deduced by differentiating the first and third equations of (27), solving, and evaluating at  $m = 0$ :

$$dL_b = - \frac{\lambda_z \theta_{Lx} \left( \sigma_k + 1 - \frac{w^*}{w} \right) + \epsilon \lambda_z [\sigma_f(1 + \sigma_k) - \sigma_k]}{\lambda_z \theta_{Lx} (\sigma_k + 1) + \epsilon \lambda_z [\sigma_f(1 + \sigma_k) - \sigma_k] + \epsilon \lambda_b \sigma_g} dm. \quad (29)$$

It thus follows from (A1) (or from (A2)) that  $dL_b < 0$  but  $dL_b + dm > 0$ . Reform causes the developed countries to lose second-stage jobs for skilled workers, but it creates such jobs worldwide. As a consequence,  $k$  rises, and, therefore,  $B$  also.

**Proposition 4.** *Suppose (A2), (A3), (A4) and (A5) hold. Then if the developed countries shift from unilateralism to multilateralism, the successful reforms by some less developed countries that follow will lower developed-country employment in  $b$ -stage production and increase world employment.*

There are two important implications. *First*, reform raises the social welfare of the developed countries and the income of unskilled workers: both components of the government's objective function rise. *Second*, the implied increase in  $k$  means that the benefit index  $B$  of being part of the multilateral system increases. Presumably this would enhance the strength of the commitment to that system.<sup>16</sup>

Thus far I have treated  $t_b$  as arbitrary, but in what follows it will prove convenient to know something of its magnitude. Also, the emergence of positive direct investment in this section suggests the possibility that the developed countries' objective function be modified to reflect the fact that direct investment has long been a contentious policy issue.

The multilateral negotiations cannot have determined  $t_b$ , since any nonnegative value is consistent with the multilateral equilibrium with all less developed countries in autarky. Also, setting  $t_b = t^M$  is not satisfactory: As will be clear below, this will in general give each developed country an incentive unilaterally to reduce  $t_b$ . Instead I proceed as follows.

First, add to each developed-country government's objective function a third component, non-positively related to  $m$ .<sup>17</sup> Second, suppose that  $t_b$  is at its symmetric

<sup>16</sup>This statement is speculative since this paper does not model any commitment mechanism.

<sup>17</sup>Note that this is consistent with a zero weight, that is, with continuing to use (14).



Nash equilibrium value in the equilibrium described by (27). That is,  $t_b$  maximizes each developed country's objective function, in (27), given the multilateral solution  $t = t^M$  and given that every other developed country has implemented the same  $t_b$ .<sup>18</sup>

Since reform affects the international equilibrium, it will induce the developed countries to renegotiate the multilateral tariff, and this would in turn induce a reconsideration in some less developed countries of whether to reform, and so on. One could analyze the outcome of such a sequence of events, or, equivalently, analyze the multilateral process on the assumption that all countries correctly forecast the equilibrium response of the less developed countries and take this into account. The world negotiates the full equilibrium initially and directly implements it.

But this exercise is left to the reader: My interest is the direct implication of multilateral liberalization by the developed countries for policy reform in the less developed countries. There are two reasons. First, consideration of the full equilibrium promises to add nothing of interest. If the developed countries accurately forecast the equilibrium response of the less developed countries they will negotiate a multilateral tariff,  $t^F$ , no higher than if they do not:  $t^F \leq t^M$ . This is because they anticipate (correctly) that a given reduction in  $t$  will produce a larger increase in  $k$  when less developed countries are induced to reform than when they are not. Propositions 1 to 4 (as well as Propositions 5 and 6 to come) continue to hold, with  $t^F$  replacing  $t^M$ , so that the message of this paper would be unchanged. Working back to write down the equations determining  $t^F$  is a purely technical exercise. Second, the limited sequence described in this paper appears to parallel history better than would an initial negotiation of the final outcome.

## Regionalism

I next introduce the possibility of regional arrangements between developed countries and less developed countries. Assume that such arrangements can be initiated after the developed countries switch from the unilateral equilibrium to the multilateral one, and while the less developed countries are considering whether to reform or not. I define such an arrangement as follows.

**Definition (Regionalism).** *A regional arrangement is an agreement between one developed country and one less developed country in which:*

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<sup>18</sup>This does not require that  $t_b > 0$ . This can be assured by giving significant negative weight to  $m$  in the government's objective function, or by adding other components to that function reflecting the welfare of human capital or of skilled labor. I do not assume this, however.

*The less developed country agrees—*

- ◆ *To attempt reform,*
- ◆ *To levy a tariff of  $t^L$  on imports of goods from all developed countries other than those of its partner, whose goods will not be subject to duty;*

*The developed country agrees—*

- ◆ *To make a marginal reduction,  $dt_b < 0$ , in the duty applicable to  $b$ -stage output imported from its partner country.*

Note that this definition is motivated directly by the stylized facts described in section 2. Writing the reform attempt into the agreement reflects deep integration, making the developed country tariff reduction marginal reflects asymmetric liberalization, etc.

A less developed country which attempts reform without entering into a regional initiative is assumed to set  $t^L = 0$  without discrimination. Thus a less developed country is now allowed to choose between two roads to reform: unilateral, nondiscriminatory free trade, or bilateral preferential trade.<sup>19</sup> Assuming that  $t^L > 0$  only with regionalism avoids stacking the deck in the latter's favor.

**A regional initiative.** The first task is to enquire whether any such regional arrangements will be negotiated. Suppose, then, that the developed countries have moved from a unilateral to a multilateral equilibrium and that **(A4)** and **(A5)** hold. Then some less developed countries will want to attempt reform, but  $\rho < 1$ . Consider how a regional arrangement would affect such a country.

Such an arrangement would commit the country to undertaking reform. This is a big commitment, but the country wants to do it anyway. The trade preference implies that all imports will come from the partner country, so that  $t^L$  will be prohibitive—regardless of its positive level. This might cause the country's trade pattern to differ greatly from what it would be without a regional arrangement, but, again, this is of no consequence since the less developed country regards all goods as perfect substitutes. But the preferential reduction in  $t_b$ , though only marginal, is much more significant. From the point of view of firms considering direct investment to produce  $b$ -stage output for the partner country's good, all less developed countries choosing reform are completely equivalent, except for this marginal preference. Thus it serves to attract all such investment.<sup>20</sup> This ensures that the reform effort will succeed: in

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<sup>19</sup>It is easy to see that a nondiscriminatory  $t^L > 0$  will not in general be consistent with a Nash equilibrium for the less developed countries. Thus consideration of a nondiscriminatory protective policy would require that the model be given more structure.

<sup>20</sup>Provided, of course, that  $L^*$  is large enough to accommodate all such investment. Boundary solutions will be left to the reader.

effect  $p$  becomes equal to unity when the country signs the regional arrangement because of the “investment diversion” that the latter implies.

There will also be “investment creation.” Distinguish variables pertaining to the developed country entering the regional arrangement by a “ $^\circ$ ”. Then equilibrium is described by:

$$\begin{aligned}
 f(H, k((N-1)(L_b + m) + L_b^\circ + m^\circ)(L_b^\circ + m^\circ)) &= \frac{(p^\circ)^{-\epsilon}}{N} [1 + (N-1)(1+t)^{-\epsilon}] \\
 &\quad + \alpha k((N-1)(L_b + m) + L_b^\circ + m^\circ)m^\circ \quad (30) \\
 f_L(H, k((N-1)(L_b + m) + L_b^\circ + m^\circ)(L_b^\circ + m^\circ)) &= \alpha(1 + t_b^\circ) \\
 p^\circ f_L(H, k((N-1)(L_b + m) + L_b^\circ + m^\circ)(L_b^\circ + m^\circ)) &= g_L(U, L - L_b^\circ)
 \end{aligned}$$

$$\begin{aligned}
 f(H, k((N-1)(L_b + m) + L_b^\circ + m^\circ)(L_b + m)) &= \frac{p^{-\epsilon}}{N} [1 + (N-1)(1+t)^{-\epsilon}] \\
 &\quad + \alpha k((N-1)(L_b + m) + L_b^\circ + m^\circ)m \quad (31) \\
 f_L(H, k((N-1)(L_b + m) + L_b^\circ + m^\circ)(L_b + m)) &= \alpha(1 + t_b) \\
 p f_L(H, k((N-1)(L_b + m) + L_b^\circ + m^\circ)(L_b + m)) &= g_L(U, L - L_b)
 \end{aligned}$$

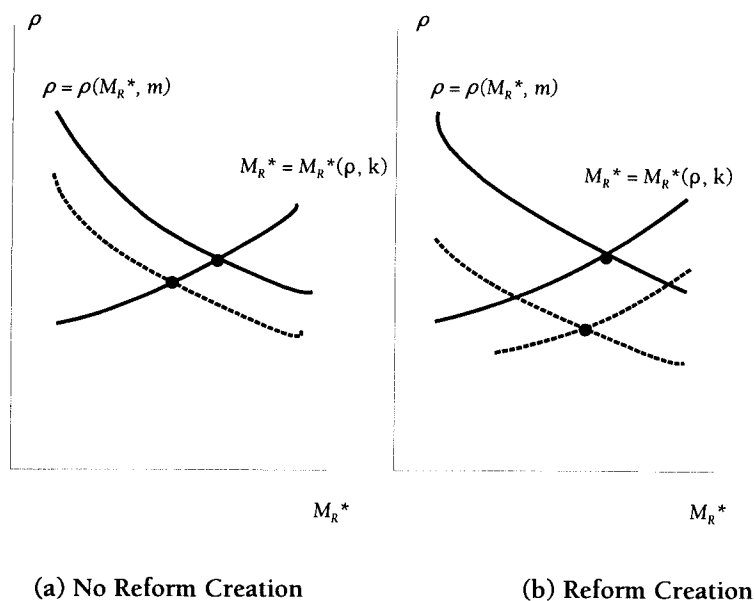
Equations **(30)** describe equilibrium for the developed country that is entering into a regional arrangement, and **(31)** describes the equilibrium of each of the remaining  $N-1$  developed countries. To see the effect of a regional initiative, suppose that **(30)** and **(31)** are initially identical, and differentiate them, with  $dt_b^\circ < 0 = dt_b$ . From the second equation of **(30)** and the second equation of **(31)**:

$$\begin{aligned}
\frac{d(L_b^\circ + m^\circ)}{L_b^\circ + m^\circ} &= - \frac{N + (N-1)\sigma_k}{\sigma_f N(1 + \sigma_k)} \frac{dt_b^\circ}{1 + t_b} > 0 \\
\frac{d(L_b + m)}{L_b + m} &= \frac{\sigma_k}{\sigma_f N(1 + \sigma_k)} \frac{dt_b^\circ}{1 + t_b} < 0 \\
\frac{N-1}{N} \frac{d(L_b + m)}{L_b + m} + \frac{1}{N} \frac{d(L_b^\circ + m^\circ)}{L_b^\circ + m^\circ} &= - \frac{1}{\sigma_f N(1 + \sigma_k)} \frac{dt_b^\circ}{1 + t_b} > 0.
\end{aligned} \tag{32}$$

Thus the total labor allocated, worldwide, to production of the good of the partner developed country increases and the labor devoted to production of all other developed countries' goods falls, but the former effect dominates, so that  $k$  increases, with the international spillovers this implies. The first and third equations of (30) imply that this will come about via an increase in  $m^\circ$  and a smaller fall in  $L_b^\circ$ . These effects will not be large—we're talking about marginal changes here—but the direction is unambiguous.

Now consider the effect of a regional arrangement from the point of view of a potential developed country partner. Such a country obtains a secure less developed country market for its good as a result of the preference it receives. But this may be of no real consequence: in equilibrium its export of goods to all less developed countries must equal the wage bill paid by its foreign subsidiaries, whether there is a regional arrangement or not. The developed country benefits from the agreement because of the investment creation it generates. This will produce a favorable effect on *social* welfare, but the marginal change in  $t_b$  will have a zero first order effect on the *government's* objective function, since  $t_b$  has been assumed to have been optimally set. The principle gain to the government is merely the assurance that it will not find itself facing a tariff of  $t^L$ —and thus higher production costs for its good—in the event that all reforming less developed countries conclude regional arrangements with other developed countries. Thus the government of a developed country may see little to gain from a regional arrangement. But it has nothing at all to lose, and its potential partner has much to gain. Thus it is reasonable to expect that, if necessary, a side payment by the latter would produce such an agreement. For this reason I assume that developed countries would agree to enter into regional arrangements. Furthermore, other developed countries should not object to the regional arrangement, because the only effect on them will be the favorable rise in  $k$ .

But the regional arrangement will not be uniformly benign. Other less developed countries wishing to reform will be harmed. Suppose one less developed country enters into a regional arrangement, and suppose that this is a country that would undertake reform even in the absence of such an arrangement. Then the direct investment producing  $b$ -stage output for that country's partner will all be diverted there. Thus the numerator of the argument of  $\phi$  in equation (28) falls by  $m$ ; the



**Figure I Reform Destruction**

denominator is unaffected since the less developed country with the regional arrangement still remains a potential host for other direct investment. Therefore each value of  $M_R^*$  now corresponds to a lower value of  $\rho$  in equation (28) than before: the function shifts down. See Figure I(a). Equation (17) is unaffected. Accordingly, (17) and (28) now jointly determine lower values of both  $\rho$  and  $M_R^*$  than without the arrangement. Regionalism produces “reform destruction” by causing fewer countries to attempt reform and lowering the proportion of those who succeed.

Suppose now that the less developed country is one that, in the absence of the regional arrangement, would not have attempted reform at all. This can be termed “reform creation.” Then the numerator of the argument of  $\phi$  in equation (28) still falls by  $m$ , but the denominator now also rises by  $L^*$  since the number of potential hosts increases by one. Thus (28) shifts down even more than before, tending to reduce both  $\rho$  and  $M_R^*$  more than before. But, in addition, (17) now shifts to the right

by one, again because the number of potential hosts increases by one. This tends to nullify the fall in  $M_R^*$  but further accentuate that in  $\rho$ . See Figure I(b). Thus the probability of success falls even more than before, but the number of countries attempting reform may either rise or fall, depending on the balance between reform creation and reform destruction.

**Proposition 5 (Regionalism).** *Suppose (A2), (A3), (A4) and (A5) hold. Then if the developed countries shift from unilateralism to multilateralism, both the developed countries and the less developed countries would each wish to enter into regional arrangements. If one such arrangement takes place,*

- *The less developed participant will successfully implement its reform by attracting all direct investment intended to supply  $b$ -stage output to its partner (investment diversion);*
- *The opportunity to enter into the arrangement may induce a less developed country to reform that would otherwise not have attempted to do so (reform creation);*
- *The arrangement will induce the developed country partner to invest more abroad (investment creation);*
- *Equilibrium  $k$  will rise, conferring spillover benefits on all developed countries and on all less developed countries that successfully reform, and increasing the benefit  $B$  of multilateral liberalization;*
- *The number of less developed countries—other than the participant—that attempt reform will fall, as will their probability of success (reform destruction).*

**Regional equilibrium.** Proposition 5 describes the consequences of a single regional arrangement. But all developed countries would be willing to participate in such an arrangement, and all less developed countries that attempt reform will wish to do so. Furthermore, the reduction in  $\rho$  brought about by one initiative would, if anything, strengthen the resolve of the other less developed countries to do the same thing, and individual developed countries would also become more tempted as more less developed countries link up with other developed countries. So consider the international equilibrium that would emerge if all countries are allowed freely to enter into such arrangements. The fact that regional arrangements have become so widespread suggests that analysis of such a regional equilibrium is more important than that of a single arrangement.

I have defined a regional arrangement as one between a single developed country and a single less developed country. But I do not mean to exclude the possibility that

one country might enter into several arrangements with different partners, thus, in effect, allowing larger groupings. Then, regardless of the relative number of developed and less developed countries, all can potentially participate in some arrangement. But there are some possible constraints.

The first is that, if many less developed countries enter into arrangements with a single developed country, these arrangements may not guarantee the success of their reform efforts. This is because, although the arrangements will divert investment from nonparticipants to participants, there is nothing to guarantee that it will be distributed among all participants. Suppose that  $M_{RR}$  less developed countries establish regional arrangements with one developed country. For these arrangements to guarantee the success of each country's reform effort, it is necessary that  $m > (M_{RR} - 1)L^*$ . A less developed country will never enter into a regional agreement that violates this condition if an agreement with some other developed country would not violate it. Thus regional groupings would emerge in such a way as to satisfy the requirement, if that is possible. The number of less developed countries that would wish to undertake reform if they could be certain of its success is  $M_R^*(1, k)$ . Then the condition that guarantees that it is possible to accommodate all less developed countries that wish with regional arrangements that guarantee the success of their reforms is the following.

$$N \left( \frac{m}{L^*} + 1 \right) > M_R^*(1, k). \quad (\text{A6})$$

The second possible constraint concerns whether a country which has already entered into one regional arrangement would be willing to enter into another arrangement as well. Consider first the decision of a developed country. If its partner is not large enough to supply fully its need for  $b$ -stage goods from abroad, this country will have every reason to take on another partner. But with an interior solution, the developed country has nothing to gain from a second arrangement. It has nothing to lose either, and its potential partner has much to gain. Thus it is again reasonable to expect that a side payment by the latter would produce such an agreement, and I accordingly assume that developed countries would agree to enter into multiple arrangements.

Now consider whether a less developed country would be willing to undertake additional arrangements. These would attract more investment, but, with the success of its reform effort already guaranteed by one arrangement, there is no benefit to this. The less developed country has nothing to gain from additional arrangements, but nothing to lose either. The developed country, on the other hand, now has much to

gain. With all less developed countries linked to developed countries through regional arrangements, the developed country without such a link will find its exports of goods required to pay for the labor employed in its foreign subsidiaries subject to the tariff of  $t^L$ , even though it must pay the same wage as everyone else. Since one party has much to gain and the other nothing to lose, I again assume that such an arrangement would be negotiated.

The nature of the regional equilibrium should now be apparent. With **(A6)**, all developed countries, and all less developed countries that wish to reform if  $\rho = 1$ , will be involved in regional arrangements that guarantee the success of all the reform efforts. Reform destruction will not take place, but reform creation will.

**Proposition 6 (Regional equilibrium).** *Suppose **(A2)**, **(A3)**, **(A4)** and **(A5)** hold. Then if the developed countries shift from unilateralism to multilateralism and **(A6)** also holds, and if regional arrangements are freely allowed, a regional equilibrium with the following characteristics will emerge.*

- *The  $N$  developed countries will establish regional arrangements with  $M_R^*(1, k)$  less developed countries;*
- *Relative to the equilibrium without regionalism, more less developed countries undertake reform and more (i.e., all) of these succeed (reform creation);*
- *Relative to the equilibrium without regionalism, more foreign direct investment takes place (investment creation),  $k$  is greater and so is the benefit  $B$  of multilateral liberalization;*
- *Relative to the equilibrium without regionalism, both social welfare and the value of each developed country's objective function are higher;*
- *Exports of goods from the developed countries to the less developed countries are free of duty.*

**Remarks.** Several distinct features of this approach to regionalism should be noted. *First*, the major role of regionalism in this model is to facilitate reform in the less developed countries. A secondary role (because it is done marginally) is to stimulate investment.

*Second*, the relation between multilateralism and regionalism in this model is benign. Regionalism is the consequence of multilateral success, not failure, and it in turn strengthens rather than undermines the basis for a commitment to the multilateral order.

*Third*, I have used the terms "investment creation" and "investment diversion" to acknowledge one way in which the present theory does parallel the Vinerian paradigm. But in fact the analogy is much more apparent than real. For example, trade



diversion is the major negative influence in the Vinerian world, but investment diversion is strongly positive here, as the force behind the major benefit of regionalism.

*Fourth*, in this model regional arrangements are how reforming countries compete among themselves for direct investment. In reality they of course can compete in other ways as well, such as with subsidies, tax holidays, and the like. If these methods are used *in addition to* regionalism the concerns of this paper remain relevant. Not so if they are used *instead*. There are two reasons to expect that this will not be so. Regionalism is a costless way to compete. But this could be only an artifact of my special assumptions, so the second reason is more important. Regardless of whether other incentives are present, direct investment will be sensitive to the credibility of the announced reform effort. Analysis of this would require additional modeling, but one suspects that such an analysis would complement and reinforce the present one. A regional arrangement establishes an external commitment to reform that (weakly, perhaps) binds future governments, thereby making the future preservation of reform (slightly, perhaps) more credible. This in turn makes the country more attractive for direct investment, relative to similar countries without such external commitments. The role of deep integration in this model is to write a commitment to reform into an arrangement with a big country that is a natural enforcer and which, as a result of the investment induced by the arrangement, has an interest in enforcing it. Only regionalism has this property, so it can be expected to be employed even if other tools are used as well.

*Fifth*, in this model the global interest is served if reform is as widespread as possible, that is, if direct investment flows to all those countries that want to reform. But no agent has an interest in ensuring this: there is another externality here. The regional equilibrium serves as an invisible hand inducing competition among reforming countries in a form that effectively disperses direct investment.

*Sixth*, the discussion following Proposition 4 pointed out that a full equilibrium had not been described, and suggested that multilateral liberalization could be stronger if it were performed by countries correctly anticipating the equilibrium responses of reformers who also correctly anticipated the nature of the final equilibrium. The same discussion applies now. Furthermore, the full equilibrium multilateral tariff when a regional equilibrium is correctly anticipated,  $t^{FR}$ , could well differ from the full equilibrium when it is correctly anticipated that regionalism will not be allowed,  $t^F$  again. The regional equilibrium maximizes the extent of successful reform. Then a given reduction in  $t$  can be expected to cause  $k$  to rise by no less if a regional equilibrium is correctly anticipated than it would if the world were constrained away from that equilibrium. Thus I expect  $t^{FR} \leq t^F \leq t^M$ . An equilibrium with a lower  $t$  is

characterized by a larger  $k$ , a larger  $B$ , and a larger  $M_R^*(1,k)$ , yet another sense in which multilateralism and regionalism are mutually beneficial.

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## 6. Concluding Remarks

This paper described the stylized facts of the new regionalism and then constructed a simple formal model suggested by those facts. Analysis of that model generated a theory of regionalism, quite different from the standard Vinerian perspective, with strong conclusions about the nature and implications of regional integration.

The argument which is suggested consists of several components which give crucial roles to the success of post-war multilateralism, the role of direct investment, and policy reform in many countries.

- The small-country participants in regional arrangements have embarked on programs of policy reform intended, at least in part, to enhance the role of international trade.
- Direct investment has been surging since the late 1980s.
- Reforming countries anxious to join the multilateral trading system as soon as possible see the attraction of foreign direct investment as a key step.
- Attracting foreign direct investment requires making the country attractive relative to other, similar potential hosts, not relative to source countries.<sup>21</sup>
- Regional arrangements can give a small country a marginal advantage—over other, similar, small countries—in attracting direct investment because they

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<sup>21</sup>See Brainard and Riker (1997) and Riker and Brainard (1997) for relevant evidence that workers in foreign affiliates of multinational firms compete for jobs primarily with workers in other affiliates located in countries with similar characteristics, rather than with workers in dissimilar host countries.

obtain marginally more favorable access to a large market than other nonparticipating small countries.

- The regional arrangements help spread the benefits of the multilateral trading system around the globe and enhance its value to all participants, thereby reinforcing, rather than undermining, support for multilateralism.

This paper developed a very special model and then imposed specific assumptions on its parameters, so I should offer some comments on robustness. *First*, assumptions **(A2)**, **(A3)**, **(A4)**, **(A5)** and **(A6)** are sufficient conditions for my results, not necessary conditions. Furthermore, possible consequences of their failure can be examined in a straightforward way and do not threaten the validity of the basic approach of this paper.

*Second*, my results are obviously sensitive to the very special structure of my model. But that structure was chosen neither at random nor with a view to obtaining the present results. Instead it is intended to reflect—accurately but in sharp relief—just those features that I argued do in fact define the new regionalism. Indeed, relaxing some of the assumptions would likely strengthen the conclusions: allowing countries to manipulate directly their terms of trade just increases the motivation for multilateralism; allowing other subsidiaries themselves to experience some of the externalities conferred on host countries by direct investment would cause that investment to cluster in fewer locations, thereby accentuating the basis for competition between reforming countries for direct investment. But I want to emphasize two features of the model that I believe are of special importance for the relevance of the paper's conclusions. These are the assumptions that the less developed countries regard all goods as perfect substitutes and that the developed countries regard all the less developed countries as perfect substitutes for the location of *b*-stage production. The consequences of these assumptions are that harmful trade diversion does not emerge, and that investment diversion is not harmful in the regional equilibrium. Harmful trade diversion is not absent from my model because countries, in Kemp-Wan (1976) fashion, choose to avoid it; it's absent because I do not let it in. So relaxation of these assumptions has the potential to introduce a downside to regionalism that is at present not in the model. My prime reason for making these assumptions is to abstract from Vinerian concerns and to focus sharply on what is new here. But a consequence of the dramatic change in the world trading environment between the 1950s and the 1990s is that trade diversion is much less important. There may be a huge volume of such diversion—indeed it may well be at an all-time high—but the welfare significance is not of the same order of magnitude as it would have been forty

years ago.

*Third*, the formal model described the small-country participants as less developed, and modeled them differently than the “large” industrial countries, but only some of the small countries in the examples that motivated this paper can be described as less developed. I suspect that the present analysis applies, in whole or in part, to the other cases as well. For example, the former communist countries of central Europe are eager to attract direct investment, the ultimate success of their reform efforts remains both in doubt and dependent on their ability to attract such investment, and the Europe Agreements have given them a small advantage over other, similar, countries: not by trade preferences, but by a higher implicit likelihood of future integration into the EU. For small industrialized nations, joining the EU, the problem is not so much to attract new direct investment as to remain attractive sites, in an increasingly integrated world, for activities currently conducted there. The small advantage they obtain is not additional preference, but future participation in EU decision making.<sup>22</sup>

*Fourth*, the structure of the model I developed was motivated very strongly by the five stylized facts I described. So the relevance of the model is limited by the relevance of the stylizations. I think this relevance compelling, but I acknowledge that my list of stylized facts is neither universal nor exhaustive. There’s a lot of diversity out there.

This paper suggests the following relation of regionalism to multilateralism.

- The new regionalism is a direct result of the success of multilateral liberalization.
- Regionalism is the means by which new countries enter the multilateral system and a means by which small countries already in it exploit its success.
- Regionalism is creating new industrial groups with an interest in preserving the liberal trade order.

Of course, any changes—regional initiatives are no exceptions—offer protectionists new scope for their efforts. An argument that regional initiatives reflect causes much more benign than a desire to divide the globe into several highly protected blocs does not establish that the latter will not in fact be the ultimate result.

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<sup>22</sup>For more on this, see Baldwin and Flam (1994).

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## References

- Anderson, K. and R. Blackhurst [eds.] (1993), *REGIONAL INTEGRATION AND THE GLOBAL TRADING SYSTEM* (New York: St. Martin's).
- Bagwell, K. and R. W. Staiger (1997a), *Multilateral Tariff Cooperation During the Formation of Free Trade Areas*, *INTERNATIONAL ECONOMIC REVIEW* 38 (2), May, pp 291-319.
- Bagwell, K. and R. W. Staiger (1997b), *Multilateral Tariff Cooperation During the Formation of Customs Unions*, *JOURNAL OF INTERNATIONAL ECONOMICS* 42 (1/2), February, pp 91-123.
- Bagwell, K. and R. W. Staiger (1996), *Reciprocal Trade Liberalization*, unpublished manuscript.
- Baldwin, R. E. (1997), *The Causes of Regionalism*, *THE WORLD ECONOMY* 20 (7), November, pp 865-888.
- Baldwin, R. E. and H. Flam (1994), *Enlargement of the European Union: the Economic Consequences for the Scandinavian Countries*. CEPR Occasional Paper No. 16.
- Bhagwati, J. and A. Panagariya (1996), *Preferential Trading Areas and Multilateralism: Strangers, Friends or Foes?* University of Maryland Center for International Economics Working Paper No. 22.
- Bond, E. and C. Syropoulos (1996), *Trading Blocs and the Sustainability of Inter-Regional Cooperation*. In Canzoneri, M., W. J. Ethier and V. Grilli [eds.], *THE NEW TRANSATLANTIC ECONOMY* (Cambridge: Cambridge University Press), pp 118-141.
- Brainard, S. L. and D. A. Riker (1997), *Are U. S. Multinationals Exporting U. S. Jobs?* NBER Working Paper No. 5958.
- Chichilnisky, G. (1994), *Trading Blocks with Endogenous Technology and Increasing Returns*, unpublished manuscript.
- de Melo, J. and A. Panagariya [eds.] (1993), *NEW DIMENSIONS IN REGIONAL INTEGRATION* (Cambridge: Cambridge University Press).
- Ethier, W. J. (1979), *Internationally Decreasing Costs and World Trade*, *JOURNAL OF INTERNATIONAL ECONOMICS* 9 (1), February, pp 1-24.
- Ethier, W. J. (1998), *The New Regionalism*, *THE ECONOMIC JOURNAL*, forthcoming.
- Ethier, W. J. (1982), *National and International Returns to Scale in the Modern Theory of International Trade*, *AMERICAN ECONOMIC REVIEW* 72 (3), June 1982, pp 389-405.
- Ethier, W. J. and H. Horn (1984), *A New Look at Economic Integration*. In: H. Kierzkowski (ed.), *MONOPOLISTIC COMPETITION AND INTERNATIONAL TRADE*, (Oxford: Oxford University Press) pp 207-29.

- Freund, C. (1997), *Multilateralism and the Endogenous Formation of PTAs*, unpublished manuscript.
- Kemp, M. C. and H. Y. Wan (1976), *An Elementary Proposition Concerning the Formation of Customs Unions*, JOURNAL OF INTERNATIONAL ECONOMICS 6 (1), February, pp 95-97.
- Krugman, P. (1991), *Is Bilateralism Bad?* In: E. Helpman and A. Razin [eds.], INTERNATIONAL TRADE AND TRADE POLICY (Cambridge: MIT Press).
- Perroni, C. and J. Whalley (1994), *The New Regionalism: Trade Liberalization or Insurance?* NBER Working Paper No. 4626.
- Riker, D. A. and S. L. Brainard (1997), *U. S. Multinationals and Competition from Low Wage Countries*, NBER Working Paper No. 5959.
- Yi, S.-S. (1996), *Endogenous Formation of Customs Unions under Imperfect Competition: Open Regionalism Is Good*, JOURNAL OF INTERNATIONAL ECONOMICS 41 (1/2), August, pp 153-177.