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Regulatory Protectionism, Developing Nations, and a Two-Tier World Trade System

ARMY GENERALS, it is said, are always preparing to fight the last war they won. Is the World Trade Organization (WTO) in danger of following the same logic? The WTO-GATT (General Agreement on Tariffs and Trade) has all but won the war against tariffs. Tariffs on imports of OECD-manufactured goods—which account for more than two-thirds of world merchandise trade—are to average only 3.8 percent when the Uruguay Round cuts are fully implemented, with duty-free treatment applying to fully two-fifths of these trade flows. As in all wars, victory is never total. Tariffs on rich nations' food and clothing imports and poor nations' industrial imports are still high, as table 1 shows, but these items account for little of world trade. Moreover, the industrial tariffs of poor nations, at least, seem to be falling of their own accord. Trade is nonetheless far from unfettered.

"Regulatory protection" is but one name for the tens of thousands of cost-raising, behind-the-border measures that continue to substantially inhibit trade. Most of these measures are seemingly innocuous when viewed individually, but tangled together they are able to significantly fragment world markets. This point is not new. The last time "globalization" was in fashion—when it was called internationalization and interdependence—Robert Baldwin wrote, "[t]he lowering of tariffs has, in effect, been like draining a swamp. The lower water level has revealed all the snags and stumps of non-tariff barriers that still have to be cleared away."¹ The intervening thirty years have witnessed completion of the swamp draining, but the stumps have started to grow; three

1. Baldwin (1970, p. 2).

Table 1. Post–Uruguay Round Protection, Percent Tariff Equivalents^a

<i>Item</i>	<i>NAFTA</i>	<i>EU</i>	<i>EFTA</i>	<i>South America</i>	<i>Asia Pacific</i>	<i>Japan</i>	<i>North Africa</i>	<i>Sub-Saharan Africa</i>	<i>Central Europe</i>	<i>Rest of world</i>
Grains	2	71	59	2	17	184	18	20	3	2
Other primary agriculture	38	52	63	3	20	39	6	6	11	14
Forestry products	1	0	0	7	5	0	17	10	1	14
Fishery products	1	5	0	19	11	3	42	8	4	15
Primary mining	1	0	0	4	4	0	17	10	1	16
Processed food, beverages, and tobacco	5	13	16	2	16	73	6	5	3	35
Textiles	8	7	1	15	29	5	35	16	8	51
Clothing	19	10	2	23	21	9	39	20	13	15
Lumber, pulp, and paper	1	0	0	9	9	1	24	12	5	24
Processed petroleum products	1	1	2	12	12	1	17	5	7	25
Chemicals, plastics, and rubber	7	12	0	13	12	2	20	8	6	17
Primary steel	7	3	0	11	9	1	17	12	7	14
Primary nonferrous metals	3	1	0	7	9	1	24	14	3	17
Fabricated metal products	6	2	0	16	19	1	30	13	8	33
Transport equipment	3	5	1	18	23	0	25	10	14	17
Other machinery and equipment	13	7	0	19	11	0	24	6	7	13
Other manufactures	5	3	0	18	17	6	28	14	8	33

Source: Center for Global Trade Analysis, Purdue University, Global Trade Analysis Project, database version 3 (1996).

a. Based on 1992 trade weights. Low protection levels may therefore indicate low trade flows for high-tariff items, instead of zero protection.

decades of ever tighter regulation of goods—most of which was adopted for purely domestic policy aims—have escalated regulatory protection.

Trade nevertheless is, overall, much freer than it was when GATT was signed. Somewhat paradoxically, this means that remaining barriers have a more important, not less important, impact on production. The magnification effect of globalization is the name for this. Falling tariff levels, teamed with lower transportation and communication costs, have cleared away many man-made and natural obstructions to trade, making the international playing field flatter than it has ever been.² This very flatness, however, means that even a slight tilt tends to have large effects on the location of production. In particular, seemingly minor differences in technical norms can have an outsized effect on production. While it is easy to exaggerate the international footloose character of production, one thing is clear. As the field gets flatter, regulatory protection's influence on production will continue to grow, forcing its liberalization ever higher on the negotiators' agendas.

The main thesis of this paper has five steps: technical barriers to trade (TBTs) are important; liberalization of TBTs will continue; this liberalization will involve hegemonic harmonization or mutual recognition of rules and test; such liberalization will almost surely entail preferential arrangements among rich nations, creating in essence a two-tier system of market access with developing nations in the second tier. The final step is to conclude that the WTO should be modified to address the potentially discriminatory aspects of regional TBT liberalization initiatives. The WTO, in short, should be gearing up to “fight” the battle of frictional barrier liberalization.

TBT Liberalization Is Important

TBTs result from norms (regulations and standards) that control the sale of goods in a particular market by specifying required product characteristics or production processes.³ There are two distinct aspects of this control: content of the norm and testing procedures necessary to demonstrate that a product complies with the norm. TBTs thus come in two basic forms, content-of-norm TBTs and testing TBTs. The mind-numbing minutiae and technical complexity behind most regulations and standards make it difficult to speak of

2. See Baldwin and Martin (1999) for a detailed comparison of current and pre–World War II levels of openness.

3. According to common usage, regulations are mandatory, while standards are voluntary.

TBTs as a whole. Some examples may help. We start with a content-of-norm example.

All cars sold in Sweden must have wipers on the headlights. This policy may have started as a meritorious safety regulation (Swedes keep their lights on at all times for safety's sake, and in the old days Sweden had lots of dusty roads). Today it mainly serves to raise the relative price of imported cars. From the drawing board onward, Volvos and Saabs—and their factories—are designed with headlight wipers in mind. For other carmakers—Renault for example—the Swedish market is too small to really matter, so Renaults are not optimized for headlight wiper installation. Thus, while it is expensive to put headlight wipers on both Swedish and French cars, the regulation raises the relative cost of French cars in Sweden. This gives the Swedish carmakers an edge in Sweden. Indeed, the outcome may well be that Renault will only export to Sweden its luxury models for which headlight wipers are already an option, so the regulation may act as a zero import quota for low-end cars.

Testing can also lead to TBTs. A frequent source of U.S.-Japan trade tensions in the 1990s was asymmetric testing procedures. For example, Japanese manufacturers, who were trusted by Japanese regulators, could establish compliance with regulations by having a few units tested periodically while foreign firms had to have each import shipment tested.⁴

Vertical and Horizontal TBTs

It is useful to classify content-of-norm TBTs into two subtypes, horizontal and vertical. Vertical-norm TBTs involve norms that can readily be characterized as being more or less stringent. For example, the United States adopted a law (the so-called Corporate Average Fuel Economy [CAFE] standard) requiring each car company's fleet to attain certain maximum levels of emissions when averaged over all company models sold in the United States. This norm would have forced European carmakers to invest in more emission abatement than their U.S. rivals since U.S. auto makers lower their average, in part, by selling small-engine cars while European car companies sell mainly high-end cars with big motors. Europe also has much stricter rules than the United States on the permissible level of growth hormones in beef. TBTs stemming from such "vertical norms" generate much emotion and media attention since they can be portrayed as protecting local consumers from low-quality imports.

4. Sykes (1995, p. 25).

Horizontal norm differences, however, are probably more common. Many TBTs arise when a nation, or subnational government, adopts the specifications of the local firm's differentiated product as its norm. For example, France and Germany regulate the nature of permissible electric plugs (both have two round pegs, but the German pegs are wider). The two plugs are equally safe and equally expensive to produce, but they are different. This raises the French firm's cost of selling in Germany (since German firms do not have to modify their product to meet the regulations while French firms do). It also raises the cost of German firms selling in France, so TBTs based on horizontal norm differences tend to create reciprocal trade barriers.

It is easy to see why horizontal TBTs arise so often. Citizen concern and industrial efficiency demand product norms, and a typical rich nation will have tens of thousands of standards and regulations. Most are highly technical, and a large fraction covers intermediate inputs—products unknown to most voters. Owing to their technical complexity and political invisibility, product norms are often written, directly or indirectly, by domestic firms to which they apply. Quite naturally, these firms write the norms in a way that favors their varieties or at least disfavors foreign varieties. The result is a horizontal content-of-norm TBT.

Of course, the mere fact that standards and regulations inhibit trade and competition is by no means an argument for their removal. Good governance requires regulation to protect the health, safety, and well-being of citizens, animals, and plants as well as to facilitate market transactions. The main problem with TBT liberalization is that it is difficult to know whether a particular norm serves the public interests or protectionists' interest, and, indeed, both motives are often combined in a single TBT.

Modeling TBTs

As the examples show, product norms and testing procedures can distort trade when they raise foreign firms' costs relative to those of domestic firms. Of course, in certain industries, the impact of TBTs is radically more complex. In industries with network externalities, like mobile telephones, standards can be manipulated to throw up barriers against nonlocal firms. In industries with patent races, like pharmaceuticals, a regulation that merely delays the introduction of foreign goods can radically alter the market outcome in favor of home firms. In industries with learning curves, product standards that apply to only a fraction of the market—government or military purchases, for example—can have large effects on the market equilibrium. Modeling TBTs in such

Figure 1. Compliance Costs Profile over Time

“sexy” industries will certainly be the focus of much future work, but in this chapter I focus on mundane industries where TBTs act by raising the costs of foreign firms more than the costs of local firms.

The cost-raising aspects of TBTs can affect foreign firms’ fixed costs of selling to the regulated market as well as their marginal costs of doing so. Figure 1 shows how a typical TBT involves up-front, one-time costs—for example, of learning about the regulation and bringing the product into conformity—as well as ongoing costs, such as periodic testing, or higher marginal production costs that stem from a low scale of production.

The Economics of Regulatory Protection

Surprisingly little work has been done on the economic effects of TBTs, even at an abstract level. Most trade economists working in the subject tend to assume that TBTs affect trade in the same way as frictional barriers (that is, tariff-like measures that generate no revenue or rents). Most of the simulation studies of the European Union’s (EU) 1992 program, for example,

modeled the liberalization effects as lowering the real cost of intra-EU trade by about 2 percent.⁵ The industrial organization literature has focused on the impact of standards on a narrow range of industries, namely, industries marked by network externalities such as mobile phones, consumer electronics, computers, and the like. As the survey by Carmen Matutes and Pierre Regibeau argues, the general presumption is that harmonization of standards within a single market can be manipulated by incumbents to raise barriers to entry.⁶ In such industries, regional TBT liberalization—which usually involves some form of harmonization of standards—would be presumed to act as a trade barrier to outsiders. While these network industries tend to attract a lot of attention, they cover only a fraction of the trade affected by TBTs.

A BASELINE MODEL

TBTs can affect fixed costs as well as variable costs, so even a minimalist model requires imperfect competition and increasing returns. With these elements, however, almost anything can happen theoretically. As Elhanan Helpman and Paul Krugman show, quotas can lower prices, export subsidies can improve welfare, and small countries can have positive optimal tariffs. Clearly then, one should not be surprised that, theoretically, TBTs have an ambiguous impact on trade flows and welfare.⁷

To highlight the main sources of ambiguity, a baseline model is helpful. Specifically, consider an industry marked by Cournot oligopolistic competition with firms facing constant marginal costs and two types of fixed costs, a firm-specific fixed cost of setting up production (unrelated to TBTs) and a fixed cost of selling to each market (related to TBTs). To allow discrimination, we need three nations: home (*H*), partner (*P*), and rest of world (*R*), assumed ex ante identical to reduce complexity. The inverse demand function of a typical nation is $p_j = 1 - Q_j$, where p_j and Q_j are the price and total sales in market i ($i = H, P$, or R). The total quantity in market j is $(\sum n_i q_{ij})$, where q_{ij} is sales of a typical i -based firm in market j ; n_i is the corresponding number of i -based firms. Marginal production costs are normalized to zero. The three markets are assumed to be segmented.

Here we focus on TBTs based on horizontal norm differences and model them as simply as possible; nonlocal firms face higher variable costs or fixed costs (or both) when selling to the local market. Specifically, firms located in

5. Gasiorek, Smith, and Venables (1992, p. 45).

6. Matutes and Regibeau (1996, pp. 183–209).

7. Helpman and Krugman (1989).

home (called *H*-based firms for short) face no additional costs when selling to the home market. Partner-based (*P*-based) firms face a specific cost $0 \leq \tau$ when selling to the *H*-market. Rest-of-world-based (*R*-based) firms in the home market face per unit cost, τ^* , that is initially identical to τ . The home and partner nations are always identical. TBTs may also impose an additional fixed cost on nonlocal firms. To capture this simply, we assume that each market has its own norm, and complying with these costs F in each market. (F is the same in each market since we are addressing horizontal norm differences.)

The equilibrium is found by solving the nine segmented market first-order conditions for the nine levels of sales. The model's linearity allows us to find solutions for prices, consumption, welfare, the numbers of firms, trade flows, and so on. In particular, the equilibrium price in market *H*, p_H , equals the sum of two terms. The first term, $1/(1 + \sum n_i)$, reflects the level of overall competition. The second term, $(\sum n_i c_{iH})/(1 + \sum n_i)$, reflects the average marginal cost of firms active in the market (c_{iH} is the market-specific marginal cost, normalized to zero for *H*-based firms, to τ for *P*-based firms and to τ^* for *R*-based firms).⁸ The focus of my inquiry, however, is on the distortionary impact of TBTs, so I highlight the "trade bias," defined as the difference between home's imports from wholly *P*-based firms and home's imports from wholly *R*-based firms; this roughly corresponds to a preference dummy in a gravity model equation. When TBTs among all nations are symmetric (that is, there is no discriminatory dimension favoring *P*-based firms over *R*-based firms), the bias equals zero. Specifically,⁹

$$\text{Trade Bias} = p_H(n - n^*) - (n\tau - n^*\tau^*) \quad (1)$$

where n is the number of home and partner firms (always identical in the exercises we consider) and n^* is the number of rest-of-world firms. In some cases,

8. For a given market, say *H*, there are three types of firms active; *H*-based firms, *P*-based firms and *R*-based firms. Normalizing marginal production cost to zero (with linear demand the intercept, call this a , and the marginal cost, call this c , always enter together as $a - c$ in the first order conditions, and by choice of units we can normalize $a - c$ to unity). The first order conditions are: $p_H = q_{HH}$ for *H*-based firms, $p_H = \tau + q_{PH}$ for *P*-based firms and $p_H = \tau^* + q_{RH}$ for *R*-based firms. With n_i ($i = H, P, R$) firms in each nation, the sum of all the first order conditions is $(\sum n_i)p_H = n_H q_{HH} + n_P(\tau + q_{PH}) + n_R(\tau^* + q_{RH})$. Using the definition $Q_H = n_H q_{HH} + n_P q_{PH} + n_R q_{RH}$ and the demand function $p_H = 1 - Q_H$, the sum of first order conditions becomes $p_H = 1 + n_P\tau + n_R\tau^*$, so $p_H = 1/(1 + \sum(n_i) + (n_P\tau + n_R\tau^*)/(1 + \sum n_i))$, which presents that two terms discussed in the text.

9. Using the first-order conditions $p_H = \tau + q_{PH}$ for *P*-based firms and $p_H = \tau^* + q_{RH}$ for *R*-based firms, we have $n_P q_{PH} - n_R q_{RH} = n_P(p_H - \tau) - n_R(p_H - \tau^*)$. Rearranging this and employing the convention that $n_P = n$ and $n_R = n^*$ yields the expression in the text.

I allow the number of firms to vary with TBTs. The equilibrium expressions for n and n^* are messy, but it is easy to show that the equilibrium “ n ” falls as the fixed cost F rises, and it rises as the R -based firms’ fixed cost F^* rises.¹⁰ Likewise, the equilibrium n^* falls as F^* rises or F falls.

TBT Liberalization

TBT liberalization can take the form of lower fixed costs or lower marginal costs of selling to a particular market, or both. Each of these may be “open” or “exclusionary.” The trade impact of these various forms differs radically, as we shall see.

OPEN VERSUS EXCLUSIONARY MUTUAL RECOGNITION: LIBERALIZATION OF FIXED-COST TBTs

Consider first the liberalization of fixed-cost TBTs; for simplicity’s sake, we neutralize variable-cost TBT discrimination by assuming $\tau = \tau^*$. Initially suppose that the same fixed-cost TBT applies on an most favored nation (MFN) basis, so R -based firms, H -based firms, and P -based firms have to pay a total of $2F$ to sell in both H and P markets. The liberalization considered is meant to resemble one aspect of the EU members’ mutual recognition of one another’s norms and testing. After the liberalization, a product that complies with either home’s or partner’s norms can be sold freely in both markets. That is, H -based firms and P -based firms have to pay only a total of F to access both the H and P markets.

This mutual-recognition privilege may or may not extend to R -based firms. On one hand, mutual recognition can be “open”: that is, R -based firms can also sell to both H and P markets after certifying their product in either. In this case, the fixed-cost liberalization benefits all firms equally; after liberalization, the total fixed cost of selling to the three markets is reduced from $3F$ to $2F$. This raises profits and attracts new entrants in all nations. Given symmetry, n and n^* rise equally so the trade bias remains at zero ($\tau = \tau^*$ and $n = n^*$). In short: open, fixed-cost TBT liberalization is not discriminatory—even when it is regional.

On the other hand, mutual recognition can be “exclusionary” in the sense that it applies only to products made in H or in P . In practice this exclusion is enforced by rules of origin. For example, the EU-Swiss Bilateral Accords

10. The simulations and full solution of the model can be found in the MAPLE worksheet “brook.mws” available from the author upon request, and on <http://heiwww.unige.ch/~baldwin/papers.htm#policy> (posted September 27, 2000).

encompass TBT liberalization, but only Swiss-made goods circulate freely in the EU market after having been certified in Switzerland. In our model this means that H and P firms pay only F to access the combined H - P market, but R -based firms must continue to pay $2F$. This results in improved profitability for H and P firms, which will lead to a rise in n . There is also a drop in n^* as the new H -based and P -based firms crowd out R -based firms. This creates a positive trade bias as can be seen by inspection of (1) combined with the facts that $\tau = \tau^*$ and $n > n^*$.

In short, regional liberalization of fixed-cost TBTs is not discriminatory when it is "open," but it is discriminatory when combined with rules of origin.

TBT LIBERALIZATION THAT FAVORS REST-OF-WORLD FIRMS

Open, fixed-cost TBT liberalization can actually favor rest-of-world firms. Owing to fixed market-entry costs, not all firms will sell to all markets. Rather, firms will sell to markets where their cost advantage makes sinking F worthwhile. For example, an East Asian manufacturer of electronic components might not find it worthwhile to export to Europe if each European nation had its own product norm (each involving a compliance cost) but might find Europe very interesting with an EU-wide norm. In the context of our model, suppose that home and partner are geographically close, and this gives H - and P -based firms a distance-related marginal cost advantage (compared with R -based firms) in the H and P markets. If this advantage is large enough, R -based firms may choose not to sell in either the home or the partner markets, since the operating profit they would earn on such sales would not cover the per market fixed cost F . An open, fixed-cost liberalization, which lowered the fixed cost from F in each market to F for both the H and P markets could induce new R -based firms to start selling in the H and P markets. In terms of the trade bias, we see that a rise in n^* (number of R -based firms selling in the H and P markets) would *reduce* the bias.

To make the point more formally, we start with the MFN situation where each firm must incur a fixed cost F to sell in each of the three markets. To simplify, suppose that TBT-related marginal costs are zero ($\tau = \tau^* = 0$), but H and P firms have a natural advantage since R -firms face a trade cost of T when selling to the H or P markets, but H - and P -based firms face zero trade costs when selling into each others' markets. From the first-order conditions, a typical R -based firm's sale to the H -markets equals $p_H - T$, where p_H is the equilibrium H -market price, while the sales of a typical P -based firm in H ,

namely, p_H , will be higher than that of an R -based firm. Noting that with linear-demand operating profit equal to the volume of sales is squared, we see that R -based firms may not find it profitable to sell to either the H or the P market when T is sufficiently large. Specifically, we can have a situation where $(p_H - T)^2 < F$, so R -based firms sell to neither the H nor the P markets, but $(p_H)^2 > F$, so H -based firms and P -based firms will sell to both markets. Now, consider the impact of an open, fixed-cost TBT equalization between the H and P nations. Postliberalization, R -based firms will sell to both H and P markets as long as the sum of operating profit earned in the H and P markets exceeds F . With symmetry, $2(p_H - T)^2 > F$ is the condition, where p_H is the postliberalization price. The impact of this on the trade bias is straightforward. The liberalization has no impact on P -based firm sales to home (since the liberalization only affected F and all P -based firms were already selling to home), but it induces a whole new set of R -based firms to export to home. The trade bias, which was positive before the liberalization, now falls.

LIBERALIZATION OF VARIABLE-COST TBTs

Regional TBT liberalization can easily affect the variable cost of complying with product and process norms. For some products, such harmonization may create a preference for EU products. The EU could, for example, adopt a common norm that is systematically more costly for non-EU firms to comply with, owing to scale economies or specific technological advantages in the EU. This sort of case may arise when, for example, EU firms sell the majority of their output in the EU (and so design their products and factories with the EU norm in mind). If scale economies are important, the per unit cost of meeting the EU norm may be lower for EU firms than for non-EU firms for whom the EU is a minor market. Alternatively, adoption of a common norm and testing procedure might result in scale economies that would lower compliance costs for all firms.

In the formal analysis, the first type of harmonization—call it prejudiced harmonization—shows up as a change from the initial situation of $\tau = \tau^*$ to a situation where τ^* exceeds τ . This sort of regional liberalization has the usual “supply switching” effect of inducing H and P consumers to switch away from R -made products and toward H -made and P -made goods. In particular, taking $n = n^*$, for simplicity, the trade bias—which reduces to $n(\tau^* - \tau)$ in this case—is positive. In the second type of harmonization—call it neutral harmonization— $\tau = \tau^*$ both before and after liberalization, but the level of costs falls. Plainly, this will have no effect on the trade bias.

TRADE-REDUCING REGIONAL TBT LIBERALIZATION

TBT liberalization may affect trade bias by altering firms' ability to price discriminate internationally, that is, by switching the nature of competition from segmented markets to integrated markets. As the literature on trade policy and imperfect competition has made clear, the impact of protection can be radically different with and without international price discrimination.¹¹ Only one of such implications is exposed here; see Richard Baldwin and Anthony Venables for more on the economics of preferential liberalization.¹²

Markets are segmented when firms can assume that their customers will not resell across markets. Markets are integrated when firms treat the two markets as one. As it turns out, even when the two markets are symmetric, that is, equilibrium prices are identical, market segmentation matters. In particular, the volume of trade is higher under market segmentation due to "reciprocal dumping" trade. The relevant link with TBTs is that product regulations may help firms to segment markets. Consequently, the imposition or liberalization of TBTs may have important effects that are not captured by standard non-tariff-barriers (NTB) analysis.

To make the point as cleanly as possible, consider two identical nations, each with a single firm. The firms produce identical output—a consumer good—at identical costs; trade in the good is subject to some natural transport costs. Initially, the two nations impose a safety regulation of a very special type. For safety's sake, the good and its instructions must be sealed in tamper-resistant packaging. The instructions must be written in the language of the country, and only the language of the country (to avoid confusing consumers). Presume that instructions would be included in any case and translation costs are minimal, so the regulation has a negligible impact on marginal and fixed costs.

Using the analogy of tariff analysis, this regulation would seem to have no trade effects. This is incorrect. The regulation prevents resale by consumers or middlemen and thus allows each firm to treat the two markets as segmented. When the two markets are segmented and yet there are some natural trade costs, the two firms engage in reciprocal-dumping trade à la Brander and Krugman.¹³ In particular, firms charge a lower producer price for their exports than they do for their local sales. If the regulation is changed to require, for example, instructions to be printed in both languages, the markets become integrated

11. Markusen and Venables (1988, pp. 299–316).

12. Baldwin and Venables (1995).

13. Brander and Krugman (1983, pp. 313–21).

in the sense that resale across markets is possible. Of course, such arbitrage goes on until producer prices are equalized.

Interestingly, this market integration has a dramatic and counter-intuitive trade effect. All trade halts since each firm supplies only its local market. The reason is that due to arbitrage, firms treat a sale in either market as if it were a sale in the local market and in this case, there is no return to incurring the trade costs of selling abroad. Nevertheless, prices fall since the potential competition due to arbitrage is a more powerful source of competition than are actual imports without arbitrage possibilities.

Empirical Evidence

The economics profession does not yet have direct empirical measurements of the trade-inhibiting effects of TBTs in general. There is hope that this lacuna will soon be filled since there is a World Bank project on this topic under way. At this point, indirect evidence is all that can be marshaled.

SAPIR'S EVIDENCE

André Sapir aims to gauge the impact of EU integration on nonmember nations since 1960. To this end, he estimates year-by-year gravity equations for the 1960–92 period on aggregate, bilateral trade flows among a set of Western European nations.¹⁴ The key interest lies in the sign and size of the dummies he introduces for all the European preferential trade arrangements (PTA). Interpreting the dummy coefficients, however, requires a bit of care. Sapir does not include a dummy for trade flows among the original six members of the EU; this level of integration is taken as the standard against which all other PTAs are judged. Thus the signs of the included PTA dummies tell us whether the particular bilateral trade flow is higher or lower than it would have been if the two nations had joined the EU in 1958. Standard controlling variables, such as gross domestic product (GDP) of sending and receiving nation, distance, and common language, are included.

It is important to note that all tariffs and quotas on intra-EU trade and all industrial-goods tariffs on intra-European Free Trade Association (EFTA) trade had been eliminated by 1968. The signing in 1973 of the EU-EFTA free trade agreements removed all tariffs on industrial trade between EFTA and EU nations (industrial goods account for the vast majority of EU-EFTA trade). As a result, all of Western Europe was part of an industrial duty-free zone by

14. Sapir (1997).

Figure 2. Bilateral Market Access Measures 1960–92^a

Source: Point estimates are provided by André Sapir based on his 1997 study, and plotted by the author with the nonpreferential dummy coefficient to EC-EFTA trade before the 1973 EC-EFTA free trade agreements.

a. Zero indicates access at intra-EC level.

1973. The importance of this fact should be clear. Almost all of the Western European integration since 1973 has involved the removal of frictional trade barriers, with TBT liberalization being an important component of this, especially the Single Market Programme (initiated in 1987). It is also important to note that the EFTA nations did not participate in the Single Market integration until the European Economic Area agreement entered into force on January 1, 1994.

It would be interesting to directly measure the impact that this frictional barrier liberalization had on intra-EU trade, but Sapir's results do not permit this. We can, however, garner some evidence on the trade volume impact of the liberalization by looking at changes in the coefficient on the EFTA-EFTA and EC-EFTA dummies.

The annual point estimates are plotted in figure 2. According to the estimates, up to 1975 EFTA-EFTA trade volumes were higher than the EU-EU flows, controlling for the usual factors. This somewhat unexpected result (the received wisdom is that the EU membership provides the tightest integration in Europe) may be because of Sapir's omission of an adjacency variable.¹⁵ In

15. Most EFTA-EFTA trade is among adjacent nations, namely, among Nordic nations or among Alpine nations.

any case, the point estimates on the EFTA-EFTA dummies are never significant (at the 95 percent confidence level) when they are positive (not shown in the figure). The EFTA-EFTA dummy becomes solidly negative in the early to mid-1980s but become statistically significantly less than zero only in 1989.

The rapid decline in the EFTA-EFTA coefficient, together with the fact that EFTA was not pursuing any significant intra-EFTA integration initiative, suggests that EU-EU trade was being promoted by the Single Market's removal of frictional barriers. (Recall that the dummies indicate market access relative to the market access available on trade among the original six EU members).

A second piece of evidence comes from the evolution of the coefficients on the EC-EFTA dummy. The jump up in market access due to the 1973 free trade agreements (FTAs) is clear in the point estimates. Somewhat less evident is the gradual decline of point estimates after the mid-1980s. The modest change in the point estimates, however, hides the fact that point estimates become significantly less than zero in 1985 and remain significant right up to the end of the period (not shown in the figure).

HEAD AND MAYER

Keith Head and Thierry Mayer find more conflicting evidence using industry-level data and the more sophisticated gravity model approach inspired by Shang-Jin Wei. Head and Mayer use fairly disaggregated industry-level data (three-digit NACE) to estimate the so-called border effects, that is, the effect that an international border has on purchasing patterns. In particular, the authors set out to answer three questions.¹⁶ How big were border effects in Europe before the nontariff liberalization embodied in the Single European Act? How closely were the industry-by-industry border effects associated with indirect measures of the severity of trade barriers? Has the change in border effects been associated with the removal of trade barriers under the Single European Act?

In addressing the first question, they pool the ninety-eight industries in their sample over the 1984–86 period to find a large border effect. Depending upon the exact specification, they find that EU nations buy between thirteen and twenty times more from local producers than from producers based in other EU nations.¹⁷ This base-line regression provides no direct evidence on the cause of this border effect, but two facts are suggestive. First note that there were no tariffs or quotas on intra-EU trade during this period, so nontariff barriers

16. Head and Mayer (1999); Wei (1996).

17. Head and Mayer (1999, pp. 14, 17).

are a likely culprit. This suspicion is reinforced by the fact that the regression results also show EU membership stimulate trade by something like 50 percent. The point is that the only nonmember nations in their sample—Spain and Portugal—have enjoyed duty-free industrial trade with the EU since the 1970s, yet they did not participate in the EU's factor-market and nontariff barrier liberalization. Consequently, one possibility is that the impact of EU membership reflects the trade-inhibiting effects of the EU's preferential liberalization of nontariff barrier, and the border effect reflects the impact of the remaining nontariff barriers.

The authors, however, fail to find any correlation between industry-specific border effects and two measures of intra-EU NTBs. The first measure is based on a 1980s survey of EU firms, the second on an educated guess by Pierre Buiges.¹⁸ This presents a puzzle. Industry-specific border effects are uncorrelated with proxies for trade barriers, yet EU membership has an important impact on trade flows. This suggests one of three interpretations. Deep EU integration does matter, but the trade barrier proxies are faulty; deep EU integration does matter, but it is due to something other than TBTs and similar to nontariff barriers; or nontariff barriers do not matter, and the Spanish and Portuguese trade flows are unusually low for some reason that is unrelated to trade barriers. Unfortunately, the authors' results do not allow us to distinguish among these.

Results pertaining to the third Head-Mayer question are also interesting. Year-by-year regressions using their pooled data show a marked decline in the border effect, suggesting that policy changes or transport cost reductions have been important. However, the decline seems to be much sharper before the Single European Act came into force. Again, the interpretation of this finding is ambiguous. Either the Single European Act was ineffective at liberalizing regulatory protection, or it was effective at removing the barriers, but the barriers had little impact on trade.

MOENIUS

One of the most direct attempts to measure the trade impact of TBTs is Johannes Moenius.¹⁹ The paper focuses on the trade impact of standards (voluntary norms) rather than on TBTs more generally due to data limitations. In particular, the author has constructed a unique data set on industry-specific standards that includes information on whether a specific standard is country

18. Buiges and others (1990).

19. Moenius (1999).

specific or common to the specific bilateral trade relationship. The latter aspect is of the greatest interest. The point is that standards shared bilaterally may preferentially lower marginal or fixed costs of market and thus may have a trade-distorting effect. As argued earlier, however, the expected sign of the distortion is not clear.

Moenius's data set is an enormous panel covering 471 industries in twelve West European nations from 1980 to 1995. He finds that a shared standard has a large trade-promoting effect among the nations sharing the standard. For instance, in his central regression, which controls for a wide range of other factors, he finds that a 1 percent increase in the number of bilaterally shared standards results in a one-third percent increase in bilateral trade volume. This is perhaps the only clear empirical result in the literature on the discriminatory impact of preferential TBT liberalization. The sharing of a common norm promotes bilateral trade, so—by the usual logic of relative prices—we can conclude that a shared norm inhibits trade with nations that do not share the standard.

The impact of country-specific standards is even more intriguing. Moenius finds that country-specific standards in importing countries promote trade in manufacturing sectors but hinder trade in nonmanufacturing sectors such as agriculture. Since the current comparative advantage of many developing nations lies in nonmanufacturing sectors, this result suggests that TBTs may create a bias against developing nations. Testing this hypothesis directly, by including developing nation data, would be an important contribution to the literature.

Finally, it is worth citing some important but highly indirect evidence. Governments and firms engaged in international trade act as if TBTs have important trade-inhibiting effects. They also act in a way that suggests that they believe that preferential TBT liberalization has an important discriminatory trade effect. As the discussion of TBT liberalization below makes clear, the TBT liberalization in the EU's Single European Act induced non-EU governments to negotiate trade arrangements—notably EU membership, the European Economic Area agreement, and the EU-Swiss Bilateral Accords—that redressed the discrimination thus arising. Moreover, the rapid spread of 'mutual recognition agreements' between the EU and its major trading partners (the United States, Canada, Australia, and so on) shows that firms and governments take the trade-inhibiting impact of TBTs seriously enough to invest time and energy in lowering them.

Given this admittedly scant empirical evidence that TBTs are important, we turn next to the real-world TBT liberalization schemes that have been pur-

sued in the past. The lessons from historical attempts are crucial to predicting the path of future TBT liberalization.

Liberalization Experiences

TBTs inhibit trade by raising costs faced by foreign firms more than those faced by domestic firms. Liberalization requires a lowering of the gap, and there are two main dimensions to this, content-of-norms and conformity assessment. Liberalization of the first involves making product norms more cosmopolitan and thus narrowing the cost advantage of domestic firms. Liberalization of the second involves lowering the excess costs that foreign firms face in demonstrating compliance of their goods to accepted norms.

There are two ways forward along both dimensions, harmonization (that is, convergence to a single norm or conformity assessment procedure) and mutual recognition (that is, acceptance of foreign norms and conformity procedures). Harmonization can be accomplished through negotiation, that is, by narrowing the differences among various nations' norms, or through the hegemonic route, that is, other nations adopt the norms of a hegemon.²⁰

We turn first to the European experience for one simple reason. The introduction argued that the growing prominence of TBTs on the world trade agenda is largely because of the near-total victory over the "easy" barriers, tariffs, and quotas in OECD nations. Intra-European trade reached this stage more than three decades ago. Subsequent liberalization interest has focused on behind-the-border measures, with TBTs being one of the chief attention-getters. More generally, since trade integration among European nations is two or three decades ahead of WTO integration, Europe's experience with thorny issues—such as labor standards and trade, trade and competition policy, trade among rich and poor nations, dispute settlement, and so on—provides a natural departure point for the study of most "new" trade issues.

EU Initiatives

The EU recognized TBTs as a barrier to the Common Market in 1957 with Article 100 of the EEC Treaty, also known as the Treaty of Rome (see box 1 for details). This requires approximation (Euro-speak for harmonization) of national regulations for the proper "functioning of the common market." As

20. Liberalization additionally involves surveillance, enforcement, adjudication, and the introduction of new standards.

Box 1: Legal Basis of EU TBT Liberalization

The general legal basis for TBTs liberalization, Article 100 of the Treaty of Rome, is too general to challenge specific barriers. The EU Court refers to Article 30 (similar to the U.S. Constitution's commerce clause) that states "quantitative restrictions on imports and *all measures having equivalent effect* shall, without prejudice to the following provisions, be prohibited between the Member States (emphasis added)." As a result of directives (especially that of December 22, 1969) and case law (especially the 1974 *Dassonville* and 1979 *Cassis de Dijon* cases), "all measures" is interpreted very broadly and, in particular, meant to include all manner of TBTs. This box and box 2, drawn mainly from Alan Sykes, present some details on these cases and directives.¹

In 1969 the commission stated that product regulations could have "equivalent effect" to quantitative restrictions and were thus subject to Article 30 restraint. Regulations that were applicable only to imports ("distinctly applicable measures" in Euro-jargon) were automatically subject to Article 30's forbiddance. Regulations applicable to domestic and imported goods ("indistinctly applicable measures" in Euro-jargon) should be prohibited under Article 30 when "the restrictive effects on the free movement of goods are *out of proportion* to their purpose" or "the same objective can be attained by other means which are *less of a hindrance to trade*" (emphasis added). This established the "proportionality" or "least-restrictive means" principle that was adopted in the WTO and subsequent TBT liberalization schemes throughout the world, according to David Vogel.²

1. Sykes (1995; 1999).

2. Vogel (1997, p. 2).

in the WTO-GATT system, Europe's first liberalization efforts focused on the "easy" barriers, tariffs, and quotas. With these eliminated by 1968, liberalization attention turned to TBTs.²¹

21. The year 1968 also saw the eradication of tariffs on intra-EFTA industrial trade by the Stockholm Convention. The eradication of tariffs on EU-EFTA industrial trade began with the 1973 EU-EFTA free trade agreements.

THE OLD APPROACH, 1969–84

The EU systematically took up the removal of technical barriers in 1969 with its General Program, which launched what came to be called the “old” approach to TBT liberalization. The old approach was, in essence, based on the idea that the EU would become as a unified economic area, functioning much like a single national economy. Specifically, the General Program was composed of four Council resolutions and a framework decision was adopted on May 28, 1969. The resolutions concerned a detailed timetable for a large number of directives on industrial products, the same for foodstuffs, expression of the council’s intention to institute mutual recognition of conformity assessments, and a procedure for adapting directives to technological advances. The framework decision prescribed a standstill of member state measures concerning products covered by the General Program, and a requirement that member states inform the Commission of new provisions for products not covered; this also was largely ignored.²²

In short, the old approach dealt with the content-of-standards issue through negotiated harmonization. It strove for the adoption of a single standard laid out in detailed technical regulations for single products or groups of products implemented by unanimously agreed-on “directives” of the European Council (the EU’s main decisionmaking body).²³ Once adopted, such directives supplant national laws, regulations, and standards. The conformity-assessment issue was tackled in a more decentralized fashion. For products on which directives were adopted, EU members recognized conformance assessments performed by designated bodies in any EU nation. To prevent new TBTs, the so-called framework decision provided for standstill and notification rules on new national standards and regulations.

EVALUATION OF THE OLD APPROACH

“This approach to technical harmonization failed completely,” according to Giandomenico Majone, although it deserves credit as the world’s first serious attempt to tackle TBTs.²⁴ The detailed timetable was roundly ignored, and harmonization of standards and regulations proceeded much more slowly than the development of new national TBTs. For example, 10 years were required to adopt a directive on gas containers made of unalloyed steel, and the average delay for the fifteen directives adopted en masse in 1984 was 9.5 years.

22. See Lauwaars (1988, p. 152) for details.

23. An exception, which was a precursor to the new approach, was the “low-voltage” directive of 1973; see Lauwaars (1988, p. 156) for details.

24. Majone (1994).

Furthermore, rules on “standstill” and notification were ignored since the council qualified these rules as a “gentleman’s agreement.” In practice, member states had full discretion to adopt new national regulations—as long as they did not cross EU case law. The Commission received an average of only eleven notifications annually between 1975 and 1982 while thousands of new regulations sprang up in member states.²⁵ The manifest failure of the old approach is confirmed by many such as Michael Emerson (the chief Commission economist on the Cecchini Report) who states that little progress was made since the exhaustively detailed directives were “difficult to agree and quick to become obsolete.”²⁶

THE NEW APPROACH, 1985–PRESENT

The EU’s “new approach,” formally launched in January 1985, is something of a misnomer since it evolved over the 1960s and 1970s.²⁷ In particular, decisions of the European Commission and the EU Court that are described in box 1 and box 2 introduced the main elements of the approach by the end of the 1970s. The genius of the new approach is to distinguish sharply between the goals (“essential safety requirements” in Euro-ese) and means (“harmonized standards”) of product and process regulation. Two elements must be distinguished, “mutual recognition” and “technical harmonization.”

For the vast majority of European products, TBTs are eliminated by the principle of “mutual recognition” of testing and content-of-norms. EU case law and interpretations by the European Commission (see box 1) create the presumption that the standards and regulations of all member states are merely different *means* of implementing equivalent regulatory *goals*. Thus, products made or sold in one member state have “Single-Market access.” That is, they can be sold freely and without further testing in all member states (and in Norway, Iceland, and Liechtenstein since the 1994 EEA agreement). Nonetheless, member states are free to set standards and regulations on their territory, but any resulting barriers to trade are allowed only if they can be justified as being the least-trade-restrictive means of achieving a legitimate purpose (for exam-

25. See Pelkmans (1990, p. 109); Majone (1994, p. 166).

26. Emerson and others (1988, p. 21).

27. Commission communication of January 31, 1985, to the Council, “Technical Harmonization and Standardisation, a New Approach.” Elements of this emerged earlier in 1973 with the Council’s favorable experience in framing the low-voltage directive, in 1974 with the *Dassonville* case, and in 1979 with the *Cassis de Dijon* case. Other elements emerged later, for example, the “global” approach to conformity assessment in 1989. For a succinct summary, see www.NewApproach.org. [October 2000].

Box 2. The *Dassonville* and *Cassis de Dijon* Cases

In the 1974 *Procureur du Roi v. Dassonville* decision, the EU Court (whose authority supersedes all member state courts on Common Market issues) broadened further the scope for Article 30 prohibitions. It opined that “all trading rules enacted by Member States which are capable of hindering, directly or indirectly, actually or potentially, intra-Community trade are to be considered as measures having an equivalent effect to quantitative restrictions,” and are, therefore, to be prohibited. According to this ruling, virtually any regulation or standard that might hinder or substantially raise the cost of imports seemed to be prohibited. Of course, this decision did not automatically remove all TBTs. Each of the thousands of barriers would have to be challenged in court.

In its 1979 *Cassis de Dijon* case, the EU Court explicitly allowed for some trade-inhibiting national regulations and standards. However, it set the permissibility test much higher for “import-only” rules than for rules that applied national treatment to imports. For the former, member states had to justify the provisions based on Article 36 exemptions (for example, measures justified on grounds of public morality, public policy or public security; the protection of human, animal, or plant health; protection of national treasures). The court, however, has narrowed interpretation of these exemptions to the point at which only rules necessary to protect the health of people, animals, or plants could plausibly be used to justify TBTs.¹ For universally applied provisions, the ruling expanded the range of permissible, trade-inhibiting barriers. The main test for such measures was whether they were necessary to satisfy “mandatory” requirements, such as safeguarding the effectiveness of fis-

ple, health, safety, consumer protection, environmental protection). The EU Court has taken a very narrow view of allowable justifications.²⁸ Of course, implicit is the mutual recognition of conformity assessments performed by any body sanctioned by a member of the EEA.

For products where regulation-linked trade restrictions are justifiable, the EU has turned to technical harmonization. It is here that the new approach is truly new. With the new approach, the goals are completely harmonized through

28. See Sykes (1995) for legal analysis.

cal supervision, protection of public health, and defense of the consumer. The *Cassis de Dijon* case, however, is an example of where the EU Court rejected the member state's assertion that the measure was necessary, thus serving notice that the court would scrutinize all such justifications in a very critical light.

The particular measure under fire was a German import prohibition on certain low-alcohol spirits. When challenged, the German government argued that the prohibition was necessary to protect public health (since weak spirits more easily promote alcohol tolerance) and to protect consumers (since consumers might buy weak spirits, thinking they were strong). The court ruled that the measure was not necessary since widespread availability of low-alcohol drinks in Germany made the prohibition ineffective in furthering public health (the court thus dodged the issue of whether the German claim was disingenuous). It also found that putting the alcohol content on the label was sufficient to protect consumers, so the import ban was not "necessary."

The upshot of these rulings (and a subsequent Commission directive interpreting the *Cassis de Dijon* case) was to make mutual recognition of other member states' standards, regulations, and conformity assessments the standard operating procedure. Any deviation requires clear and compelling justification and must pass the test of being the least-trade-restrictive means of accomplishing a "mandatory" requirement. In short, the presumption in the EU is now that any product that is lawfully made or sold in any member state can be sold in any other member state. Since 1994 the presumption also extends to Norway, Iceland, and Liechtenstein under the European Economic Area agreement.

1. Sykes (1995, p. 98).

Council directives that supplant national law. Detailed technical specifications and standards that show how to comply with these requirements are left to private European standard-setting bodies, such as the Comité Européen de Normalisation (CEN) and Comité Européen de Normalisation Electrotechnique (CENELEC).²⁹ For example, the Lifts Directive (95/16/EC), which is

29. These harmonized standards are prepared in accordance with the "General Guidelines" agreed between the Commission and the mandate issued by the Commission after consultation with the member states.

only fifteen pages long (not counting the annex), lays out essential health and safety requirements relating to the design and construction of lifts and safety components. Paragraph 1.2 in annex 1 states, "The car must be designed and constructed to offer the space and strength corresponding to the maximum number of persons and the rated load of the lift set by the installer." The Council leaves the listing of technical specifications that would fulfil this goal to CEN.

The effectiveness and political acceptability of this TBT liberalization is bolstered by two principles. First, the essential safety requirements must be transcribed into member states' laws. Second, while the resulting harmonized standards must also be transposed at the national level—and all conflicting national standards must be withdrawn—the standards are voluntary. More specifically, goods made in accordance with harmonized standards are presumed to conform to the essential requirements and are thus free to circulate in the EEA. However, a firm may choose to deviate from these, say because of an innovation. In this case, Single Market access can be obtained by presentation of a certificate of conformity with essential requirements issued by a designated body.³⁰

For products subject to technical harmonization (rather than mutual recognition), the conformity-assessment aspect of TBT liberalization is addressed by the 1989 "global approach."³¹ Four stages (design, production, marketing, and sales-service) are distinguished, and at each stage conformity may be assessed by one of three bodies: the manufacturer, the local member state's regulatory authority, or a designated third-party certification body.³² Depending on the precise product in question, approval from the various standards bodies must be obtained at various stages. Products for which this procedure is clear and for which a harmonizing "essential requirements" directive exists can earn the CE mark; this mark ensures free access to all EEA markets.

The entire process of content-of-standards technical harmonization was expedited by the 1986 Single European Act (that is, the 1992 program) which replaced unanimity with qualified majority voting in the European Council for all internal market decisions, including TBT issues. Majority voting also now applies to CEN and CENELEC decisions on the adoption of standards.

The new approach also made substantial progress on the prevention of new TBTs with the 1983 Mutual Information Directive. Member states must notify

30. Pelkmans (1990, p. 105).

31. "A Global Approach to Certificate and Testing," European Commission, July 24, 1989.

32. Pelkmans (1990, p. 107).

the Commission of new regulations. Either the Commission or other member states can object to the regulation and request that it be modified to reduce its trade-distorting effects. In either case, adoption of the new regulation must be delayed and may be prevented altogether, if the Council adopts a harmonization directive in the meantime. Additionally, national standard-setting organizations are required to notify the Commission and certain European standards bodies of proposed standards and regulations before their adoption. A standing committee can determine whether such standards would substantially interfere with trade and can then refer the matter to a European standards organization or require the national agency to collaborate with interested member states. When the matter is referred to a European standards body, member states cannot enact their own standard until a European standard is set, or a one-year period elapses. Some exceptions, concerning urgent health and safety considerations, are permitted. While this directive is not radically different from the gentleman's agreement in the old approach, the Commission actively pursues cases of noncompliance as an infringement of European Community law (a Council directive has the force of a national law in all member states and is enforceable through the EU Court). This notification, comment, and objection procedure is credited with reducing the emergence of new TBTs in Europe.

Given the sparse empirical evidence available, it is too early to convincingly evaluate the new approach. In terms of output, however, it has been a clear success. In 1975 there were 20 harmonized standards in the EU; in 1999 there were nearly 5,500.³³

It is important to note that Europe's success with managed mutual recognition is not a very good indicator of the route's success in the wider world, as box 3 argues.

THE REACTION OF EUROPEAN "OUTSIDERS": EEA AND SWITZERLAND

TBT liberalization in the EU had discriminatory effects on the West European nations that were not EU members. In the late 1980s, EFTA firms and governments had decided that they had to react. Several considered applying for EU membership (Austria actually did), while others considered bilateral negotiations. Jacques Delors forced the decision in January 1989 by proposing the European Economic Area agreement.³⁴ The agreement is very complex

33. Moenius (1999, p. 1).

34. The idea was first suggested at a meeting of EFTA and EU ministers in Luxembourg in 1984. This produced the Luxembourg Declaration. EEA talks began informally in 1989, continuing more formally in 1990 and 1991. It was signed May 2, 1992, in Oporto, together with an agreement establishing the EFTA Court of Justice and the EFTA Surveillance Authority.

Box 3. Why the EU's "New Approach" Was Adopted So Quickly

The EU's new approach is stunning in at least two ways. First, it was adopted with lightening speed by Euro-integration standards. The path-breaking White Paper appeared in mid-1985, and by mid-1987 the treaty implementing it and much more (the Single European Act) had been ratified by twelve member-state parliaments. Second, it has led to considerable liberalization. Since most policy—especially policy that is so detailed as to be almost politically invisible to the public—is endogenous to political economy forces, the explanation lies in the way that the new approach changed the array of political economy forces. When it comes to EU firms' acceptance of it, there are three points to make.

First, the new approach did not initiate the process of breaking the protectionist dam of TBTs in Europe. The EU Court put the first large hole in the dam with its *Dassonville* and *Cassis de Dijon* findings—a hole that was large enough to eventually provoke the collapse of TBTs as protectionist devices. Here is the argument. The Court's view that most TBTs were unjustifiable (see box 2) meant that most TBTs could be challenged and probably overturned in Court. Of course, the Court could not feasibly eliminate each TBT one-by-one—Germany's standards organization DIN has 22,000 standards on its book—and exceptions based on health concerns could survive a challenge.¹ But the TBTs that create the most rents for domestic firms are also the ones most likely to be challenged since their elimination would greatly benefit foreign firms. In essence, the Court capped the maximum rents obtainable from TBTs, thus draining the incentive to lobby for regula-

and required the creation of extensive institutions, but for our purposes it can be thought of as bringing the members of EFTA into the new approach (see box 4).

While the effort to counter discrimination is easy to understand, the outcome is not. Two aspects of the EEA are truly extraordinary. First, the EEA is unbalanced in terms of the rights and obligations of EFTA nations when it comes to future EU legislation. In essence, it forces the EFTA nations to accept future council directives (the *acquis communautaire*) concerning the Single

tory protection. One can wonder how the Court got so far out in front of EU politicians, but having destroyed the noncooperative status quo, EU industry had little to gain from opposing the further liberalization.

Second, by shifting the focus of harmonization from technical standards to essential requirements, much of the inevitable political friction that arises from competition among firms' competitive advantages (for example, proprietary technologies) was shifted from the Council to the European standard-setting bodies.

Third, since the resulting Euro-standards are voluntary, an escape valve exists. The adoption of a particular standard is, therefore, much less likely to result in massive gains or losses owing to differences in proprietary technologies. This delimitation of potential gains and losses naturally reduces conflict and promotes agreement.

EU governments accepted the new approach for a different reason. Mutual recognition driven by the Court would have fostered regulatory competition, maybe even a race to the bottom. The rapid embrace of the "new approach" by EU national governments was a means of regaining control over the regulation-liberalization process.

In short, the details of the EU new, managed mutual recognition system are worth studying, but it would be fallacious to assert that such a system would be as politically acceptable as it was in the EU after *Cassis de Dijon*. In the world at large, national firms still have much to gain by inducing their national regulators to adopt protective standards and regulations.

1. Stephenson (1997, p. 59); Sykes (1995, p. 39).

Market, without formal participation in the formation of these new laws.³⁵ Second, the EU insisted on a good deal of supranationality among EFTA nations to simplify the task of keeping the Single Market homogeneous. EFTA nations have resisted such supranational authority since the end of World War II, so it is astounding that they said they would accept it. As it turns out, virtually none of the EFTA governments was willing to live with the EEA as it

35. EFTA nations do participate in Euro-standards bodies, such as CEN and CENELEC.

Box 4. The EEA Institutions

In extending Single Market access to non-EU nations, the EU felt that ongoing and effective surveillance and enforcement were essential (as they are within the EU). Moreover, the EEA must be continually modified to incorporate new EU laws concerning the Single Market. Accordingly, the agreement establishes a legal and political system.

The Legal System. The legal system has two pillars. The EU Commission and EU Court police EU nations; EFTA nations are policed by the EFTA Surveillance Authority (ESA) and the EFTA Court. The two legal orders are separate formally but are intended to create a common European legal system in practice. The ESA deals only with matters in EFTA nations. Its main tasks are to ensure EFTA governments fulfill their agreement obligations, to enforce EEA competition rules (that is, antitrust and state aid), to make sure public procurement rules are respected; and to cooperate, exchange information, and consult with the EU Commission on general surveillance policy questions and on individual cases. The ESA has wide investigative powers and can impose fines when competition rules are infringed. It can act on its own initiative. EEA governments, firms, and individuals can also lodge complaints. The ESA decisions are by majority voting and can be appealed to the EFTA Court.

The EFTA Court, composed of judges appointed by EFTA govern-

was negotiated. By the end of negotiations, all but Iceland and Liechtenstein (populations 300,000 and 30,000 respectively) had put in EU membership applications, so for most EFTA nations the EEA was to be merely a transitional arrangement. Swiss voters rejected the EEA in December 1992, effectively freezing their EU application. Norwegian voters rejected EU membership but implicitly accepted the EEA. The EEA thus consists of the EU 15 on the one hand, and Norway, Iceland, and Liechtenstein on the other.

In 1997 Switzerland initialed a bilateral accord with the EU after six years of on-and-off talks; this should enter into force in 2001. This bilateral deal essentially extends EEA rights and obligations to Switzerland.

As far as the liberalization of TBTs is concerned, the lessons from this episode are twofold. First it is not easy to deeply liberalize TBTs among

ments, takes decisions by majority rule. Its main competencies are to decide on infringement actions raised by the ESA against an EFTA state, to decide on appeals of ESA decisions, to give advice on interpretations of EEA rules, and to settle disputes among EFTA states about EEA rules and decisions of the ESA. The EU Court decides cases involving both EFTA and EU parties.

The Political System. The agreement set up the EEA Joint Committee and EEA Council; their decisions require unanimity, with EFTA nations speaking with one voice. The EEA Council, consisting of members of the EU Commission and one member of each participating EFTA nation, provides high-level political guidance and impetus for implementing the EEA. A second body, the EEA Joint Committee, is charged with the effective implementation and operation of the EEA. It is responsible for amending the agreement to permit simultaneous application of new EU legislation to all EEA trade. Its members consist of representatives of all the contracting parties, and it meets at least once a month. If the EEA Joint Committee decides not to amend the EEA agreement in accordance with new EU legislation, the affected part of the EEA agreement will be “suspended.” Thus, although the EFTA nations do have to approve each new EU measure, they never have the choice between the status quo and accepting the new law. The choice is between accepting the new law and having the whole relevant part of the EEA agreement suspended.

nations—even among rich industrialized nations that share similar views on the subject of regulation (for example, protection of human, animal, and plant life). Moreover, when a new nation gains access to an existing arrangement, the likely result is a lopsided arrangement in which the newcomer is forced to accept an immutable status quo. Second, deep TBT liberalization requires institutions that permit surveillance, enforcement, and adjudication.

TBT Liberalization in the GATT-WTO

Compared to the EU’s active and ongoing efforts to reduce TBTs and avoid new ones, TBT liberalization in the WTO is quite passive, aimed primarily at avoiding the most obvious protectionist misuse of standards and regulations.

Box 5: TBT Disciplines in the GATT-WTO

This box, which is based on work by Alan Sykes and Sherry Stephenson, summarizes the main GATT-WTO TBT disciplines.¹

1947 GATT. The original GATT contains little explicit discipline on TBTs. The national treatment principle (Article 3) requires technical regulations to be applied equally to domestic and imported products (once they are inside the border), with Article 1 ensuring equal treatment of goods from all GATT members. Also a standard that applies only to imports is implicitly considered a quantitative restriction and thus forbidden under Article 11. Various exceptions apply, the most important of which are contained in Article 20. This permits import restrictions necessary to protect human, animal, or plant health and measures necessary to prevent deceptive practices. Since most technical standards and regulations are designed with this list in mind, Article 20 nullifies most of the Article 11 discipline on TBTs. Article 20's preamble, however, does introduce an important precept, what Sykes calls the "sham" principle. That is, Article 20 exceptions should not be disguised restrictions on international trade. The sham principle has apparently never been used to challenge a TBT.

1979 Tokyo Standards Code. The outcome of TBT work in the Tokyo Round, the so-called Standards Code, extended GATT 1947 disciplines on regulations to standards and conformity assessment procedures, but the Code only bound the Code signers (OECD nations plus a few developing countries). Importantly, it introduced into the GATT some principles that had worked well in Europe. It explicitly incorporated the EU's least-restrictive-means principle. It fleshed this out with a series of obligations, for example, to use performance requirements in lieu of design requirements and to use international standards except when they are "inappropriate." Justifications for exceptions, however, include basically all the reasons for having norms in the first place, so little discipline is implied. More important, the Code reinforced the sham principle with what might be called the "shame" principle, that is, the obligation to explain deviations from international standards upon request. The hope

was, presumably, that this might shame nations into avoiding flagrant protectionism. For example, when Europeans asked for justification of Japan's unusual standards for alpine skis, the Japanese had to claim that Japanese snow was different. After attracting a good deal of ridicule, this justification was dropped, and the international standard was adopted. The Code also introduced what might be called the "transparency" principle aimed at reducing the negative trade impact of TBTs. This imposed on signatories an advance notice-and-comment period for rules that might have big trade effects, the requirement that new norms be published promptly, and a requirement that an information clearinghouse for standards-related queries be maintained. The Code established some dispute resolution procedures, but these shared all the shortcomings of the pre-Uruguay Round process. Finally, the Code includes some special and differential language, including encouragement to provide assistance to developing nations on standards issues.

Uruguay Round TBT Agreement. The TBT agreement deepened the *substance* of GATT-WTO disciplines only modestly. The big change was in the extent of their application. The agreement applied the five main GATT TBT principles (national treatment, MFN, sham, least-restrictive-means, and transparency) to all members and to process standards and all manner of conformity assessment procedures. One substantive innovation was the Code of Good Practice that encouraged subnational and nongovernmental standard organizations to adopt the main GATT TBT principles. Perhaps the most important progress was the improvement of the dispute resolution procedure.² Disputes panels, however, can by no stretch of the imagination be considered an efficient means of eliminating TBTs. Disciplines on food standards (which tend to be very public and emotive) were split off into the Sanitary and Phyto-Sanitary (SPS) agreement, which is in some sense weaker than those applied to industrial goods. However, the SPS agreement did require norms to be based on "sufficient scientific evidence."

1. Stephenson (1997); Sykes (1995, 1999).
2. See Wilson (2000) for analysis of the cases.

These disciplines, which have evolved over the decades—see box 5 for details—are contained mainly in the so-called TBT agreement that was part of the Uruguay Round. These apply to standards and regulations governing both products and production processes. There are five main disciplines, most favored nation for import restrictions, national treatment once the good has entered, the sham principle, the least-restrictive-means principle, and the transparency principle. MFN and national treatment require no comment. The sham principle states that standards and regulation should not be “a disguised restriction” on international trade. The least-restrictive-means principle states that regulations should accomplish their regulatory goal by means that are the least restrictive to trade. As part of this, there is a general preference for performance standards as opposed to standards based on product characteristics. There is also a “requirement” to use international standards, but this is largely nullified since the requirement does not apply when international standards would be an “ineffective or inappropriate” means of fulfilling legitimate regulatory objectives. The transparency principle takes several forms. There is an obligation on signatories to go through a notice-and-comment period when introducing new measures that may affect trade. Signatories should also maintain an information clearinghouse for standards-related inquiries.

Additionally, there are a number of hortatory elements such as the one urging signatories to give “positive consideration” to unilaterally recognizing foreign standards and regulations.

It is difficult to judge the liberalizing impact of the TBT agreement, but few would claim that it has had a major impact. For one, compliance with the TBT agreement has been quite spotty, outside of OECD nations.³⁶ TBTs have, however, been the subject of many disputes. Of the forty-eight requests for consultation made to the WTO’s Dispute Settlement Body during the first two years of its existence, eleven concerned standards or invoked the TBT agreement.³⁷ As of December 1999, the count had risen to twenty-five.³⁸ Another measure of the TBT agreement’s success, or lack of it, is the fact that much of the energy and momentum in TBT liberalization has developed outside the WTO framework, in regional arrangements (EU, the North American Free Trade Agreement [NAFTA], Asia Pacific Economic Co-operation [APEC]), the U.S.-EU Mutual Recognition Agreement [MRA], and so on) and on a sec-

36. Stephenson (1997, p. 42).

37. Stephenson (1997, p. 17).

38. Wilson (2000, pp. 16–17).

toral basis. According to John Wilson, there is “little evidence to indicate that the WTO Committee on Technical Barrier to Trade has influenced the debate.”³⁹

The ISO

There are three main international standard-setting organizations, the International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC), and the International Telecommunications Union (ITU). The ISO and IEC are private, nongovernmental agencies in which each member country designates its own representative. In the most important of the three, the ISO, most members are the national standards bodies from member countries, and these may be private or public bodies. Development of standards is a lengthy process involving voluntary participation and a consensus decisionmaking rule.⁴⁰ Member nations are not obliged to transpose the adopted standards. Moreover, compliance to an ISO standard does not bring with it automatic market access.

According to Sherry Stephenson, European members have dominated the international standardization process.⁴¹ For example, European members hold two-thirds of the ISO secretariats (roughly equivalent to a chair). The United States, by contrast, participates in almost all of the ISO's work, but it held only 13 percent of the secretariats. Stephenson claims that the predominance of European members in this process derives from the fact that there are eighteen European countries with long-established and sophisticated national standards bodies well acquainted with international standardization.⁴² Most of these coordinate their actions under the aegis of the EU.

While the ISO and brethren organizations have an important role to play in TBT liberalization, their actions are essentially limited to areas where sector-by-sector negotiations can lead to Pareto improvements. In concrete terms, the ISO has produced about 10,000 standards in its fifty-year history. While this is a large number, it is small compared to the 100,000 or so standards that exist in the United States and EU today.⁴³

39. Wilson (2000, p. 20).

40. Stephenson (1997).

41. Stephenson (1997).

42. Stephenson (1997, p. 51).

43. Stephenson (1997, p. 47).

The EU-U.S. Mutual Recognition Agreement

In June 1997, the EU and the United States signed a Mutual Recognition Agreement (MRA) that deals with the trade-inhibiting aspects of conformity assessment. The MRA commits each party to recognize the results of product testing or certifications of both governments in the six specified sectors. This should liberalize trade in these sectors by reducing the cost of duplicative testing, inspection, and certification. The covered sectors are telecommunications equipment, electromagnetic compatibility, electrical safety, recreational craft, pharmaceutical good manufacturing practice, and medical devices.

Importantly, the agreement does not mutually recognize standards and regulations. Article 4 of the MRA states: "This Agreement shall not be construed to entail mutual acceptance of standards or technical regulations." It merely permits some EU standards to be assessed by U.S.-based laboratories and some U.S. standards to be assessed by EU-based laboratories. EU and U.S. industries, nevertheless, viewed this as an important step to reducing trade barriers. Indeed, the initiative came mainly for industry-to-industry talks in the TransAtlantic Business Dialogue.

A number of other MRAs have also been signed. One of the first outside Europe is the Joint Accreditation System—Australia and New Zealand (JAS-ANZ). This is an open system that promotes mutual recognition of testing in its member nations and beyond. As part of its mandate, JAS-ANZ facilitated the negotiation of an MRA with the EU.

Future Liberalization

Having argued that TBTs are important and having examined the main liberalization efforts, the next step is to argue that TBT liberalization will continue, and that it will almost surely proceed along the lines of mutual recognition agreements among rich nations augmented by some unilateral harmonization by poor nations to the standards of rich nations.

The argument requires a bit of background. First, it is necessary to clarify how TBTs are different from old-fashioned trade barriers like tariffs and quotas. Second, a political economy framework is needed to help us understand historical liberalization efforts and to predict the path of future TBT liberalization.

Obscurity, not Sovereignty

It is often asserted that liberalization of behind-the-border measures—product norms being a prime example—intrinsically engages issues of sovereignty that did not arise in tariff-cutting talks.⁴⁴ This is misleading.

Tariffs, like many TBTs, are adopted in pursuit of governance goals—for example, income distribution—that the community of nations views as legitimate. However, through GATT-WTO, the same community rejects tariffs (or more specifically the raising of bound rates) as a legitimate means of attaining such goals, the simple reason being that tariffs are not the least-restrictive means of fulfilling the goals. Developed nations can achieve the same goal with income transfers, active labor market policies, and the like.⁴⁵ The point is that tariffs are not prohibited because nations rejected income distribution as a legitimate policy goal. Tariffs are prohibited because equivalent but less-trade-restrictive measures clearly exist.

This brings us to the key distinction between tariffs and TBTs as far as liberalization efforts are concerned. TBTs are harder to liberalize because it is radically more difficult to objectively determine whether less-trade-restrictive measures could accomplish the same legitimate governance goals.

In short, the difference between regulatory protection and tariffs boils down to issues of obscurity, not sovereignty. This simple but important point has significant ramifications for the nature of future liberalization.

NEGOTIATED HARMONIZATION DOES NOT WORK

TBT liberalization can proceed in two ways, mutual recognition or harmonization, with harmonization coming in two basic “flavors,” negotiated harmonization and hegemonic harmonization. I argue that negotiated harmonization does not work.

Begin with the historical evidence. The EU in the 1970s was a near-ideal setting for such an approach. EU members had a “constitutional” obligation to approximate product norms, made regular side payments by way of the EU budget, had a supranational judicial system for dispute settlement, and had similar income levels and regulatory goals. Even in this near-ideal setting, nego-

44. See Vogel (1997); Bagwell and Staiger (1998); Brittan (1998).

45. Counterexamples strengthen the point. For developing nations that do not have sophisticated systems for gathering and distributing tax revenue, tariffs are more likely to be tolerated. Moreover, GATT allows import prohibitions when these are the only practical means of pursuing a legitimate goal, such as reducing the consumption of illegal drugs.

tiated harmonization by unanimity proved unworkable in all but a handful of cases. This suggests that the prospect of negotiated harmonization in the wider world is nil for most products.

More can be learned by studying *why* the EU failed at harmonization in the 1970s. As a matter of fact, the “failure” took the form of interminable delays (in one famous example, it took eleven years to set norms for mineral water).⁴⁶ Why the delay? International negotiations must strive for a balance of commercial gains since each government must align a political consensus behind the final liberalization package. Moreover, when it comes to product norms, all governments must be convinced that the synchronized norm meets their governance goals. Obscurity renders both tasks enormously difficult. It is difficult and time consuming to determine the commercial impact of each proposed norm. Further complexity is added by the need to determine whether each proposed norm permits an appropriate level of regulatory protection in each nation. Given that a typical international negotiation involves many proposals, and many modifications of each of these, leads one to the conclusion that obscurity can quickly render such negotiations impractical. In fact, obscurity-induced delays are important enough to make the negotiated harmonization approach a nonstarter.

MUTUAL RECOGNITION

This leaves hegemonic harmonization and mutual recognition as the only routes forward, and, in fact, both routes are currently being pursued. Hegemonic harmonization is the default option for many small nations that are heavily dependent on a large trading partner such as the EU. The Europe Economic Area agreement and the EU-Swiss Bilateral Accords, for instance, commit nations to the EU’s standards and regulations *en masse* and without substantial modification.

Mutual recognition, or more precisely mutual recognition teamed with some “new approach” harmonization in sensitive areas, is the standard procedure inside the EU. It is also the liberalization route adopted in the bilateral trans-Atlantic trade talks, APEC, and other regional arrangements.⁴⁷ Interestingly, the most important MRA pursued to date—the U.S.-EU MRA—is limited to mutual recognition of conformity assessments, not of norms themselves.

46. Stephenson (1997, p. 59 n. 31).

47. See Stephenson (1997); Wilson (2000); and OECD (1998) for details.

Political Economy of TBT Liberalization

Good governance demands product regulation, so the existence of standards and regulations is no mystery. But why do these norms inhibit trade?

Obviously, protection does not result from random acts of nature, and trade liberalization is not the outcome of heroic deeds by high-minded civil servants and political leaders. Protection is endogenous. In a price-like manner, proposed protection “clears” the political market by equalizing the demand and supply of protection.⁴⁸ Regulatory protection, like most protection, arises from Mancur Olsen’s asymmetry. Asymmetric organization and information costs means that industries organize more effectively than consumers. Norm-setting agencies are thus “captured” by domestic firms in the regulated industry. The obscurity factor greatly enhances the ease of capture since most industrial standards and regulations are way off the radar screens of voters and politicians. Obscurity also shapes the mode of capture. In many nations and industries, domestic firms are the *de facto* authors of their own norms. This is easy to understand.

When regulating a technical field, take elevators for example, obscurity abounds. The government, which probably does not employ many full-time experts on elevator manufacturing, asks the opinions of domestic elevator-producing firms. With an eye to their foreign competitors, these firms quite naturally push for norms and conformity practices that raise the production cost of imported goods beyond that of locally produced goods. For the domestic firms this is a straightforward cost-benefit exercise. Domestic firms incur the costs of influencing the norm-setting process when these norms create sufficient rents. This is not to call the domestic industry greedy philistines. Most firms are convinced of the superiority of their own products. Crafting standards to reflect characteristics available only in local products may strike the firms as a way of promoting the public interest. Given the obscurity factor, it is difficult, maybe even impossible, to separate the protectionist and public interest content of a particular norm. A good example is the European paper industry (see box 6).

Taking it as a given that the level of protection is set in a political market, trade liberalization poses a puzzle. Why should a nation find it politically optimal to remove barriers that it previously found politically optimal to impose? This is especially puzzling since the revision-of-optimality has occurred on a

48. Mancur Olsen is the Freud of this literature. See Hillman (1989) for the basic logic and Dixit, Grossman, and Helpman (1997) for recent refinements.

Box 6: The Protectionist and Public-Interest Content of Product Norms

Sweden and Finland produce paper mainly from new trees while French and German producers use lots of recycled paper and rags. In the early 1990s, the EU was considering a regulation that would require paper boxes sold in the EU to have a certain fraction of recycled paper in them. This sounds like a “public interest” sort of regulation, but it also would have had the effect of eliminating the resource-based advantage of Swedish and Finnish firms, much to the joy of the French and German firms. As it turns out, it is not clear which production method is more environmentally friendly. Recycling paper requires energy and lots of chemicals that may be released into the environment, while growing more trees in the uninhabited north is, well, green. This counter-argument, however, was not pushed by French and German paper producers. Finland and Sweden joined the EU, so the regulation was not adopted, but this example illustrates the subtle mixing of public interest and protectionism that the obscurity of technical standards permits. It also illustrates how regional norm setting can subtly create barriers for outside nations.

very regular basis over fifty years, and the revisions coincide with multilateral trade negotiations.

THE JUGGERNAUT MODEL OF RECIPROCAL TRADE LIBERALIZATION

Elsewhere, I have proposed a puzzle solution that focuses on exporters as the key antiprotection force and import competitors as the key pro-protection force.⁴⁹ Announcement of a reciprocal trade talk—where better foreign market access is bought with domestic liberalization—starts the juggernaut rolling by multiplying the ranks of pro-trade forces. Exporters, in search of foreign market access, cast off their normal indifference to domestic protection and don the cloak of antiprotectionists. The same goes on in other nations, so the political market for protection clears at a lower level, implying some liberalization in all participating nations. With the phasing in of the liberalization, export interests get stronger as they expand output and employment. Import

49. Baldwin (1994, chap. 3).

competitors get weaker as they scale back or shut down. A few years down the road, another round is launched, and the juggernaut rolls on. Barriers are initially lower, but antitrade forces are weaker and pro-trade forces stronger than they were at the conclusion of the last round, so barriers again come down. The endpoint of this process is zero tariffs in the markets of nations engaged in periodic reciprocal trade talks. Tariffs remain high in countries where exporters get better market access “for free” (for example, developing nations owing to MFN and special and differential treatment) and in markets left off the bargaining table (for example, food and clothes).

APPLICATION TO TBT LIBERALIZATION

Consider next the application of this model to TBT liberalization. In the political economy approach, changing the level of regulatory protection requires a change in the forces that determined the political equilibrium. In particular, liberalization has to offer something to domestic firms that they find more attractive than the status quo. A tried-and-true method is to engage nations in an exchange-of-market-access negotiation. The political economy reasoning, however, differs somewhat from the model explained above.

Most of the TBT liberalization seen so far has occurred among nations and within industries where the exporting and import-competing firms are one and the same—that is to say, in trading relationships dominated by intraindustry trade. We must therefore modify the juggernaut model to allow a different set of political actors. When it comes to TBT liberalization, the key distinction will be between large efficient firms and smaller less efficient firms. Two-way regulatory protection results in fragmented markets where firms are dominant in their home market while being marginal players in other markets. This market fragmentation reduces competition, raises profit margins, and thus keeps too many firms in business and keeps prices too high. Tearing down these barriers defragments the markets, producing a pro-competitive effect that puts pressure on profits, especially those of the inefficient (and therefore small) firms. The end result is an industrial restructuring that involves weaker firms merging, exiting, or getting bought up. In the end, a more efficient industrial structure emerges with fewer, bigger, more efficient firms competing more effectively with one another.

The key result is that two-way liberalization of TBTs systematically favors large firms' profits. Intuitively, big firms gain from the liberalization and from the exit of the small firms. Given this, the juggernaut logic applies directly with large firms in the role of the main pro-liberalizers and small firms in the

role of the main anti-liberalizers. Of course, a negotiating framework based on reciprocity is again of the essence. Large and small firms would be united in their opposition to unilateral liberalization.

With all this on the table, it is a simple matter to predict that large multinational firms will continue to press for two-way liberalization of TBTs, and this liberalization is most likely to take the form of preferential arrangements among rich nations.

A Two-Tier World Trade System?

Most liberalization of regulatory protection in the past has been bi- or plurilateral and based on the MRA approach. Future liberalization is likely to continue being so for reasons just discussed. Yet the MRA approach requires a high level of trust in a nation's governance capacity. Since few developing nations are able to generate such trust, the ongoing liberalization process will almost surely exclude them. A two-tier system of market access may thus emerge, with developing countries occupying the second tier. Note that this proposition is not entirely based on abstract reasoning. The EU's Single Market program liberalized TBTs on a preferential basis, which implied that non-EU Western European nations had second-class access to EU markets. Outsiders, such as the EFTA nations, had to scramble to redress the situation by joining the EU or the EEA.

A couple of features make this two-tier market access more pernicious, "escalation" and the "magnification effect." The magnification effect of globalization emphasizes the tendency for a general lowering of natural and manmade barriers to trade to make the remaining barriers and discrimination more important, not less important.

"Escalation" concerns the link between product sophistication and the cost of TBTs. Product regulation applies to all goods ranging from apples to jet engines. Generally speaking, however, these norms become more restrictive, complex, and costly as one moves up the product-sophistication scale. What this means is that preferential TBT liberalization has an "escalating" effect on the level of discrimination facing third nations. The analogy with tariff escalation should be clear. Even now, OECD nations tend to have higher tariffs on industrial goods than on raw materials apart from food. In the 1970s, when OECD tariffs were more important, this pattern of protection had the unin-

tentional effect of distorting developing nations' post-tariff comparative advantages away from industry.

What is wrong with a two-tier system?

—It is undisciplined. The WTO's TBT agreement contains no explicit strictures on the form of MRAs or on their discriminatory effects on third nations.

—It violates the nondiscriminatory and multilateral spirit of the WTO, and this, in turn, tends to undermine the rule-based world trade system.⁵⁰ For both bilateral MRAs and hegemonic harmonization, the basic principle is "might makes right."

—It harms the competitiveness of firms located in excluded nations—a group that is likely to be dominated by developing nations.

For instance, bilateral foreign direct investment flows clearly show that the EU's Single Market program led to investment diversion and trade diversion.⁵¹ By the same logic, the EU-U.S. MRAs may well divert investment and trade from nations such as Mexico. At the moment, MRAs outside of Europe concern only testing and so have a limited impact on competitiveness. If the MRA process gets extended to norms as well as testing, the actual content of standards will be affected. Public choice reasoning would indicate that such an outcome is likely to lead to product norms that disfavor goods made in excluded nations. A good European example of this, described in box 6, involved an attempt by French and German paper firms to impose a standard that would negate the resource-based comparative advantage of Swedish and Finnish firms (by requiring that cardboard boxes contain a high fraction of recycled paper and rags as opposed to new wood). One could similarly imagine the United States and the EU agreeing to a standard that would offset the comparative advantage of developing country manufacturers.

Some Proposals

Professors are generally better at identifying and framing policy problems than they are at coming up with workable solutions. Yet even admitting this absolute disadvantage, there do seem to be a couple of basic proposals that would redress some of the problems.

50. Note that the TBT agreement actually encourages MRAs, so the current course of liberalization is by no means GATT illegal.

51. Baldwin, Forslid, and Haaland (1996, pp. 635–59); Sapir (1997).

OPEN LIBERALIZATION OR ARTICLE 24 DISCIPLINES

TBT liberalization can have radically different results when it is “open” and when it is “exclusionary” (see above for the arguments). When it is open—as is the case in the EU’s Single Market—the TBT liberalization may actually improve the market access of third nations.⁵² For example, a Turkish-made skateboard can, in principle, be sold in all fifteen EU markets after having been certified in any one. To illustrate the importance of open liberalization, consider what the impact would be if EU’s mutual recognition principle were limited to EU-made goods. Recalling that EU nations are allowed to have different standards, third-nation discrimination in this counterfactual world could be enormous. EU-made goods would have to comply with one norm, while third-country goods would have to comply with fifteen different norms.

Generally, exclusion in TBT liberalization is enforced through rules of origin. This then suggests the first proposal. Regional TBT liberalization initiatives, including MRAs, should not in principle include rules of origin. If they do, they are likely to be discriminatory, and thus they should be subject to disciplines like those that fall under GATT Article 24. The point is simple. Rules of origin in a free trade agreement are essential to prevent tariff evasion. However, rules of origin make no sense in an MRA. A good, regardless of where it was made, either meets the requisite norms, or it does not. Country of origin should not be an issue. Given this, rules of origin in a TBT liberalization arrangement create unnecessary discrimination. GATT allows for such deviations from the MFN principle, but all such deviations are subject to disciplines designed to ensure that the primary intent of the preferential liberalization is liberalization rather than preference.

I would propose that these disciplines include something like the “substantially all trade” dictate in Article 24. This would clearly be difficult since all existing MRAs are limited to a relatively narrow range of industrial goods. Recall that the substantially-all-trade rule was adopted to reduce the likelihood that the *main* motive behind a free trade agreement was to discriminate against third parties. A similar discipline would be welcome for MRAs. For example, one might imagine that the EU and Japan could craft an MRA on the norms and testing of semiconductors that would substantially raise the costs faced by U.S. chip makers in the EU and Japanese markets. The regulatory protection thus provided might be very appealing to the body politic of both the EU and Japan. Of course, the United States is big enough to counter

52. The *Cassis de Dijon* mutual recognition principle applies to any good that is made or marketed in an EU nation.

such moves. But what would happen if the United States and the EU signed an MRA deal in grapes that had the effect of reducing the competitiveness of Chilean grapes? Surely, this is exactly the sort of thing the WTO was set up to discipline.

Additionally, something akin to the test on a custom union's common external tariff should be applied to MRAs, although obscurity of TBTs would make this difficult to apply. The point is that the signatories of an MRA should be forced to examine the impact of their preferential liberalization on third nations. There should be an obligation to pay compensation to third parties if the MRA results in worsened market access conditions. The details of such a stricture would require a great deal of elaboration, but the "injury test" in antidumping and countervailing duty cases might provide an example of how one might proceed.

It is worth noting that the issue of rules of origin in MRAs could become important. Reportedly, the EU asked for rules of origin during the negotiation of the EU-U.S. MRA but were rebuffed by the United States.⁵³ The stance of the United States, however, was based on the impracticality of ascertaining "the" country of origin for sophisticated industrial goods (nowadays, things are made nowhere in particular). The impact of such rules on third nations was not, apparently, an issue for either the EU or the United States.

GSP-LIKE TREATMENT

A second proposal concerns policies that could actively seek to offset any anti-developing-nation bias that arises from regional TBT liberalization. The WTO TBT agreement already contains hortatory statements about providing technical assistance to developing nations. The WTO, or some other organization such as the World Bank or the UN Conference on Trade and Development, should more explicitly promote the TBT equivalent of the Generalized System of Preferences (GSP). For instance, industrial nations might directly or indirectly subsidize conformance assessment procedures for products made in developing nations. Right now, the WTO's TBT agreement prevents members from charging foreign firms certification fees that are too high. To offset the cascading effects of discriminatory TBT liberalization, the WTO might encourage a subsidization of fees charged to firms based in developing nations.

53. Wilson (2000, p. 39).

Conclusions

This paper covered the economics of TBTs, evidence on their importance, and the various initiatives made to liberalize them. It was found that most liberalization of regulatory protection in the past has been discriminatory and based on the MRA approach; future liberalization is likely to continue to do so. The MRA approach requires a level of trust in a nation's governance capacity that few developing nations are likely to be able to provide. Consequently, a two-tier system of market access is likely to emerge, with developing countries occupying the second tier.

I have pointed out that the discriminatory liberalization of regulatory protection, unlike preferential tariff cutting, is largely undisciplined despite violating the WTO's MFN spirit; this lack of discipline may undermine the rules-based system as TBT liberalization becomes increasingly important. More directly, MRAs—especially when they employ rules of origin to exclude third nations from the liberalization—can harm the competitiveness of firms located in excluded nations.

I also propose that the WTO be modified to discipline regional TBT liberalization. Specifically, bilateral and plurilateral TBT liberalization schemes should not include rules of origin. Rules of origin exclude third nations from the liberalization without serving a legitimate purpose (either a product meets the norms or it does not). If nations do choose to include rules of origin, then the liberalization schemes should be presumed to be discriminatory and should thus be subject to Article 24-like disciplines. Finally, some sort of GSP-like policy to offset the impact on developing nations should also be considered.

Comments and Discussion

John McLaren: This is a fine and provocative survey of issues surrounding international governance in product standards, perhaps the one area in international economics in which an actual need for more theory exists because the nature of the tradeoffs required is not widely understood. This paper does say a lot about what we currently know and what we still need to learn, finishing with some punchy and sound policy conclusions.

Several analytical points are made in the paper that I think deserve much more attention from trade economists. One example is the distinction between standards themselves and conformity assessment. Much of the trouble in standard setting in practice comes not from the standards but from the enforcement procedures. To the extent that economists think about these questions, they usually cling to the habit of simply assuming costless enforcement and leaving it at that.

Another is a focus on regionalism in standard setting and the differences between open and preferential standards liberalization. As is argued persuasively in the paper, preferential liberalization is not simply an interesting variation on the theme to be explored later once the simpler case of nondiscriminatory liberalization is understood (not a topic to be left to the later chapters of the textbook, in effect); rather, in the real world of trade policy, regionalism in standard setting is the essence of the problem. The most aggressive liberalizations have all been part of regional trade agreements, which may have large implications for excluded countries, particularly in the third world.

I would argue, however, that a possible limitation of the chapter is that it stays firmly within the “raising-rivals’-costs” paradigm of the problem of standard-setting. According to this paradigm, a motive for international gov-

ernance arises because a government may have an incentive to set a standard that raises the costs of foreign producers by more than it raises the costs of its domestic producers, thus boosting the profits of domestic producers at the expense of foreign producers and domestic consumers. Thus, under this interpretation, a powerful reason exists to presume that standard setting without some form of international discipline will produce excessively stringent standards in the case of “vertical” standards (such as the stringency of emissions limits for automobiles) or an excessively narrow standard tailored to local producers in the case of “horizontal” standards (such as language requirements for packaging).

However, other motivations for international discipline in standards also prevail, and the clean presumption that emerges from raising-rivals’-costs reasoning does not survive in the settings in which those other motivations are important. As in the more traditional forms of trade barriers, terms-of-trade motives can also easily come into play in standard setting and provide a powerful argument for international rules. This situation is explored in great depth by Kyle Bagwell and Robert Staiger.¹ The point is, even in the hypothetical case of a government wanting to maximize the welfare of its citizens without showing favoritism to any one group, and even if the world economy is characterized by perfect competition throughout, a government will typically have an incentive to choose domestic product standards that are inefficient from a world standpoint. The reason is that aside from affecting domestic pollution or consumer safety, or offering other nonpecuniary benefit, any change in domestic standards will typically affect equilibrium world prices and hence the country’s terms of trade. This result means that standards indirectly lead to an international transfer, in addition to their direct domestic effects, and will thus be set in an inefficient way unless coordination across governments takes place.

Thus the raising-rivals’-costs motive must be added to the terms-of-trade motive for international rules. This is important for two reasons. First, focusing exclusively on the raising-rivals’-costs paradigm seems likely to overstate the potential benefit of national treatment rules. Often a simple national treatment rule would clearly improve matters by removing the instruments available to the government to raise rivals’ costs. Without a national treatment rule, a government could simply impose regulations on foreign producers that do not apply to domestic ones, and the anticompetitive goal would then be achieved by fiat. With national treatment, one must develop rules that are the same for

1. Bagwell and Staiger (1999).

all producers but more costly for foreigners; this can of course often be done, as illustrated by the Swedish headlight wipers and many other cases, but it is surely more costly to achieve a given level of protection in this way than without the constraint. Thus, national treatment is unambiguously helpful in the raising-rivals'-costs paradigm and at times may eliminate the problem altogether.

However, it never will eliminate the problem in the terms-of-trade paradigm. A related point is that if the raising-rivals'-costs paradigm was the only one in hand, if a country imposed a standard on a good that it did not produce, there would be no grounds to question its motives, and a rule giving *carte blanche* to such countries would be efficient. This is not true in the terms-of-trade paradigm.

To see why both of these ideas fail in the presence of a terms-of-trade motive, consider an example of a country called "Home" that imports good *X* but does not produce it.² If the government imposes a strict standard on the good as a requirement for its domestic sale, that will impose higher costs on the producers who sell to the Home market. Suppose that the cost of compliance is the same for any firm and raises the marginal cost of production by a fixed amount. If Home is a significant portion of the total market for good *X*, this will result in a rise in the price to Home consumers but also a reduction in the price to consumers in other countries, as Home's imports fall, and some producers who used to export to Home now switch to other markets. The marginal producer must be indifferent between the Home market and alternative markets, so the drop in price to non-Home markets implies a loss to *X* producers. Thus, the rest of the world (which is a net exporter of *X*) suffers a terms-of-trade loss as a result of the standard. Home, of course, does not take that into account in setting its standard and therefore sets it too stringently. Another way of thinking about it is that the cost of the standard from the point of view of the Home government is simply the rise in the price that Home consumers must pay, but provided the Home demand curve is not perfectly inelastic, that increase in price will be less than the increase in marginal costs. Hence, the cost of the standard to the Home government is less than the true social cost and so it will choose an excessively strict standard. (This might be a good way to think about the V-chip, which is to a large degree a standard imposed on foreign producers of televisions for the benefit of U.S. consumers.)

2. The following discussion benefits from conversations with Giovanni Maggi, although I am solely responsible for any deficiencies.

In this simple example, national treatment does not even enter the picture, since Home has no domestic producers. The point is that any change in the domestic rules for conducting business will shift the world equilibrium, affecting the terms of trade and imposing a pecuniary externality on other countries. This is the logic explored for labor standards and for product standards in Bagwell and Staiger.³

The choice of paradigms matters also because in the terms-of-trade paradigm the desired direction of change is not always toward looser restrictions. Consider good *X* discussed above. Instead of a constant compliance cost, suppose that the adjustment required to meet the stricter standard is an easier matter for the more efficient, technologically advanced producers than for the less efficient ones. To make the argument most sharply, suppose that Home's demand curve for good *X* is perfectly inelastic, and that the new standard is costly to comply with only for the 1 percent least efficient producers who were producing initially. A negligible extra cost is added for all other firms. Then the standard will essentially shift up the last 1 percent of the supply curve right before the equilibrium point, raising the price by exactly the increase in cost for the marginal firm. This increase in price will be paid by every consumer and received by every producer and will be the cost of the standard from the point of view of the home government; but since 99 percent of producers do not incur an increased cost, the increase in price is in this case far *greater* than the true social cost of the standard. In this case, the home government will choose a standard that is too weak, again because of terms-of-trade effects. The same reasoning will apply (generally in less dramatic fashion) to any other case in which there is heterogeneity in compliance costs.

Thus an ambiguity exists in the desirable direction of change. This is true even before one considers the third main motivation for international coordination on standards, namely, cross-border externalities. One of the most important agreements ever made on product standards was the Montreal Protocol on chlorofluocarbons, which was enacted because coordinated international action was needed to save the ozone layer. The presumption there was obviously that noncooperative standard setting was far too lenient.

Baldwin argues that the key difference between TBTs and traditional trade barriers is one of "obscurity," meaning that the technical nature of TBTs, together with the fact that their economic effects tend to be complex and indirect, means that they tend to be set out of the spotlight of ordinary political debate. However, once one leaves the rigid raising-rivals'-costs paradigm, I

3. Bagwell and Staiger (1998 and 1999, respectively).

would suggest that an additional key difference would be the fundamental ambiguity of TBTs: Unlike tariffs, which almost always need to be *lowered* through international agreements, TBTs sometimes need to be tightened and sometimes loosened. Both cases do seem important in practice. The *Cassis de Dijon* example is generally thought of as the paradigm of a standard that was too strict. The Montreal Protocol, however, was based on the worry that noncooperative standards were too loose.⁴ Which paradigm is the most useful will probably vary from case to case.

As a final point, the policy prescriptions in the chapter are a major strength. They are simple and likely to be quite robust. The Article 24-type idea of requiring regional TBT agreements to apply to “substantially all trade” between the partners is possibly more persuasive in this setting than in the tariff setting for which it was initially conceived. The argument that rules of origin should be banned seems extremely persuasive to me. The one prescription that seems slightly less likely to be useful is the idea of finding some discipline on excluded-country effects analogous to the GATT’s restriction on the common external tariffs of customs unions. The reason is the “fundamental ambiguity” discussed above. It is not clear in general whether countries that meet on product standards should be tightening them or loosening them, and that question muddies the waters, while for the customs union rule it was obvious that the desired rule would limit raising the external tariff. However, this reflection is a quibble.

Arvind Panagariya: Richard Baldwin deals with an extremely tough subject that trade economists wish never existed: technical barriers to trade. He begins with the provocative statement that army generals are always preparing to fight the last war they won and that the WTO is in danger of following the same logic by continuing to focus on tariff liberalization. Although this is not the central point of the paper, in defense of the WTO and keeping the interests of developing countries in view, it must be emphasized that the war on tariffs is far from over. Developing countries continue to have high tariffs, and many of them go so far as to employ import licensing. More important, developing countries’ exports remain subject to very high border barriers in developed countries as well as in other developing countries. Textiles and clothing, food processing, leather and fisheries products, which account for the bulk of the

4. In a sense the side agreements of the North American Free Trade Agreement on labor and the environment were similar. Those are agreements pertaining to process standards rather than product standards, but the analysis is parallel.

exports of developing countries, are still highly protected in developed countries. And, of course, border protection on agricultural produce, which on balance also hurts the interests of developing countries, remains as high as ever; the war on that frontier has scarcely begun. For evidence, we need not go far; it can be readily gleaned from Baldwin's table 1 (p. {000}). My first point, therefore, is that a two-tier world trade system already exists, in which the exports of developing countries face much higher border barriers than do those of developed countries. The army generals may have won some major battles on the border, but one big battle still awaits them before we can declare the two-tier tariff system vanquished.

My second point is that readers such as myself will be greatly helped if they are alerted at the outset that in the WTO parlance there are three distinct sets of barriers relating to standards: technical barriers to trade (TBTs) applying mainly to manufactured products and covered by the Uruguay Round agreement on TBTs; sanitary and phytosanitary (SPS) measures relating to food safety and animal and plant health, covered by the Uruguay Round agreement on SPS measures; and regulations relating to services covered by Articles VI and VII of the General Agreement on Trade in Services (GATS). The paper's focus is clearly on TBTs, but mixing in examples of SPS measures (such as those relating to the inspection of apples) leaves the reader wondering whether the term *TBT* is being used to cover SPS measures as well.

My third point is about the analytic result in the paper that preferential removal of TBTs leads to a larger output adjustment when undertaken in the presence of low tariffs. I think this result is highly specific to the model chosen; I can as easily produce the opposite result. Thus, in figure 1, the upper curve shows the supply curve of a product in the presence of a TBT and the lower one in its absence. The horizontal lines show domestic prices with high and low tariffs. The output response to a removal of TBT is Q_3Q_4 at the higher tariff and Q_1Q_2 at the lower tariff. The former is larger than the latter.

Therefore, one must either argue that the highly symmetric model on which the paper relies is especially relevant to the real world or that the result is valid more generally and can be generated from a wider, plausible class of models. Personally, the argument I find more persuasive, which is not made in the paper, is that in a world of highly mobile capital and multinationals with global operations, output responses to small cost differences are likely to be large. But that is likely to be independent of the initial levels of tariffs themselves.

Figure 1. The Effect of TBT Liberalization on Preferential Trading Area Partners

My fourth point relates to the measurement of TBTs from the gravity model. Eric van Wincoop has recently shown that country size, for which John McCallum, John F. Helliwell, and others did not control, goes a long way towards explaining the larger border effect for Canada.⁵ He performs a similar calculation for the United States and finds the border effect to be quite small. In the same vein, the results of the gravity equation are sensitive to whether or not we control for the remoteness variable. We know that, located as they are in the middle of a vast ocean, Australia and New Zealand will rely on each other as trading partners to a far greater extent than, say, adjacent European countries (all things being equal). The remoteness variable is included to control for this difference. Anne Krueger has estimated the gravity equation that controls for remoteness. Contrary to the previous findings of many who did not control for remoteness, she finds that the coefficients of

5. Van Wincoop (2000).

dummy variables representing all trade blocs except the ASEAN Free Trade Area are statistically insignificant.⁶

The point is that the specification error in the gravity model often leads to misleading conclusions. This is especially problematic in measuring TBTs, since we are attributing to TBTs whatever cannot be explained by the included variables. Equally important, even if we accept the results, they relate only to the impact of the barrier on the *quantity* traded. They tell us nothing about the height of the barrier, which is the true measure of the distortion at the margin.

My final point has to do with how we analyze TBTs. The view taken by Baldwin is that they are like tariffs and that mutual recognition and harmonization of standards work like preferential liberalization. Since such recognition and harmonization will happen mainly among developed countries, he concludes that we will end up with a two-tier system. I think the analogy with tariffs and preferential tariff liberalization has serious limitations.

Consider three trading partners: the United States, the European Union, and the rest of the world. Suppose the United States has the highest standards for a product, the European Union the next highest, and the rest of the world the lowest. Mutual recognition of standards between the United States and the European Union will give EU producers an advantage relative to the rest of the world, since they no longer need to incur the cost of meeting the higher U.S. standard. But what about the rest of the world? Suppose that initially, the rest of the world was simply not able to meet the U.S. standard at all but that it could meet the EU standard. Surely, the U.S. market now becomes *more* open to the rest of the world. Mutual recognition works here more like nondiscriminatory liberalization.

Alternatively, suppose the standards were harmonized. In this scenario, it *does* matter whether they are harmonized upward to the U.S. level or downward to EU level. If harmonization is downward, the outcome is once again equivalent to nondiscriminatory liberalization. If harmonization is upward, it disadvantages even the EU producers, working like a barrier erected by the United States. Thus the analogy with preferential liberalization turns out to be false once again.

The analogy of product standards with tariffs is itself problematic. Tariffs are necessarily distortionary from a global standpoint (as well as from the national standpoint if the country is small) in that they drive a wedge between the marginal benefit and marginal cost of the good on which they are imposed. The same is not always true of product standards, however. Many of the stan-

6. Krueger (1999).

dards are imposed to correct distortions that the market generates. Thus many standards work to the collective interest of the society but not to the individual interest of a producer. Furthermore, tariffs apply only to outside suppliers of the product, whereas product standards must be satisfied by domestic suppliers as well. The analogy to tariffs makes sense only in a subset of the cases—those in which product standards serve no social objective and domestic suppliers incur little or no cost in satisfying them.

General Discussion: Isaiah Frank wondered whether the analysis in Richard Baldwin's paper carries over to the broader issues of across-the-board standards. Staci Warden pointed that technical barriers to trade (TBTs) are targeted at individual companies, whereas tariffs apply across the board. Bernard Hoekman distinguished between two aspects of TBTs: conformity assessments (that is, recognition of testing and inspection procedures) and the process of setting standards. Echoing Arvind Panagariya's comments, he pointed out that we should not be too quick to give up on most favored nation treatment. He also suggested that the WTO may have a role to play in encouraging countries to accept certification by internationally recognized firms (such as SGS).

Bert van Barlingen argued that mutual recognition agreements in which the European Union and the United States recognize each other's technical regulations and conformity assessment procedures would be a significant benefit for all third countries that are not directly involved, if developing country products that meet EU or U.S. technical regulations are thereby certified as being in conformity. But this depends on whether there is a legal obligation for the EU and the United States to accept such products. If GATT Article 24 is taken to apply to these arrangements, van Barlingen predicted that developing countries would benefit significantly from mutual recognition agreements between rich countries. Paula Stern seconded this point, pointing to the benefits for smaller firms of removing transaction costs associated with double-testing, demonstrating standards, and so on.

Dani Rodrik elaborated on a generic problem in international economic cooperation, of which the discussion on TBTs seems illustrative. One element of such problems is the presence of cross-border externalities, which in the case of TBTs take the form of terms-of-trade effects or raising rivals' costs. Second, national preferences exhibit heterogeneity: different countries genuinely desire different standards. These two features push in different directions. The cross-border externality pushes toward a desire for harmonization (or at the very least toward coordination); differences in national

preferences push toward diversity. What we are lacking, Rodrik argued, is a theory of an optimal *regulatory* area (using the analogy to the optimum currency areas). One option would be to allow rich countries to choose their standards, and if this excludes the poor, then to ask the rich to compensate the poor. The other is to let the poor countries “purchase” their ability to manufacture to their own standards. The question then becomes, Who has property rights over what and, therefore, who should be compensating whom for what?

In response, Richard Baldwin pointed out that in comparison with other standards TBTs are special in several ways. Services, he noted, would not lead to quite as many problems because emerging economies lack services industries altogether, whereas they do have manufacturing that will be discriminated against under TBTs. He conceded that in principle harmonization among rich countries could benefit the “rest of the world” but cautioned that he bases his evidence on the experience of western developed countries that are not EU members and the issues that these countries have faced as a result of the European Union’s TBT liberalization. It was precisely because of TBT liberalization that many multinationals, Nordic countries, and Alpine countries moved into the European Union. Standardization in Europe, far from benefiting the small firms, has led to merger mania and exit. Baldwin agreed that automatic multilateralization of hub-and-spoke agreements would be a good idea.

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